3001-040518 0001

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CH2MHILL

SM-027/04
April 5, 2004

Ms. Margaret L. Marks, Acting Director
Miamisburg Closure Project
U. S. Department of Energy
500 Capstone Circle
Miamisburg, OH 45342

ATTENTION: Paul Lucas

SUBJECT: Contract No. DE-AC24-03OH20152
BUILDINGS DS and 25, BUILDING DATA PACKAGE, PUBLIC REVIEW DRAFT
Bldg DS GFS/I: Planning Document Complete – Activity ID EBDEE0DSBK
Bldg 25 GFS/I: Planning Document Complete – Activity ID EBDEE0DSAK

REFERENCE: Statement of Work Requirement 055 - Regulator Reports

Dear Ms. Marks:

Frank Schmaltz from your office has approved the following document to be released for public and Core Team review:

- Buildings DS and 25, Building Data Package, Public Review Draft

The review period will be from 5 April 2004 until 5 May 2004, and the site contractor will respond to any comments received and incorporate the responses into the final document. If you or members of your staff have any questions regarding the document, or if additional support is needed, please contact Bob Ransbottom at 865-4220.

Sincerely,

K. L. Kehler
SMPP/TFV Project Manager

KLK/DCK

Enclosures

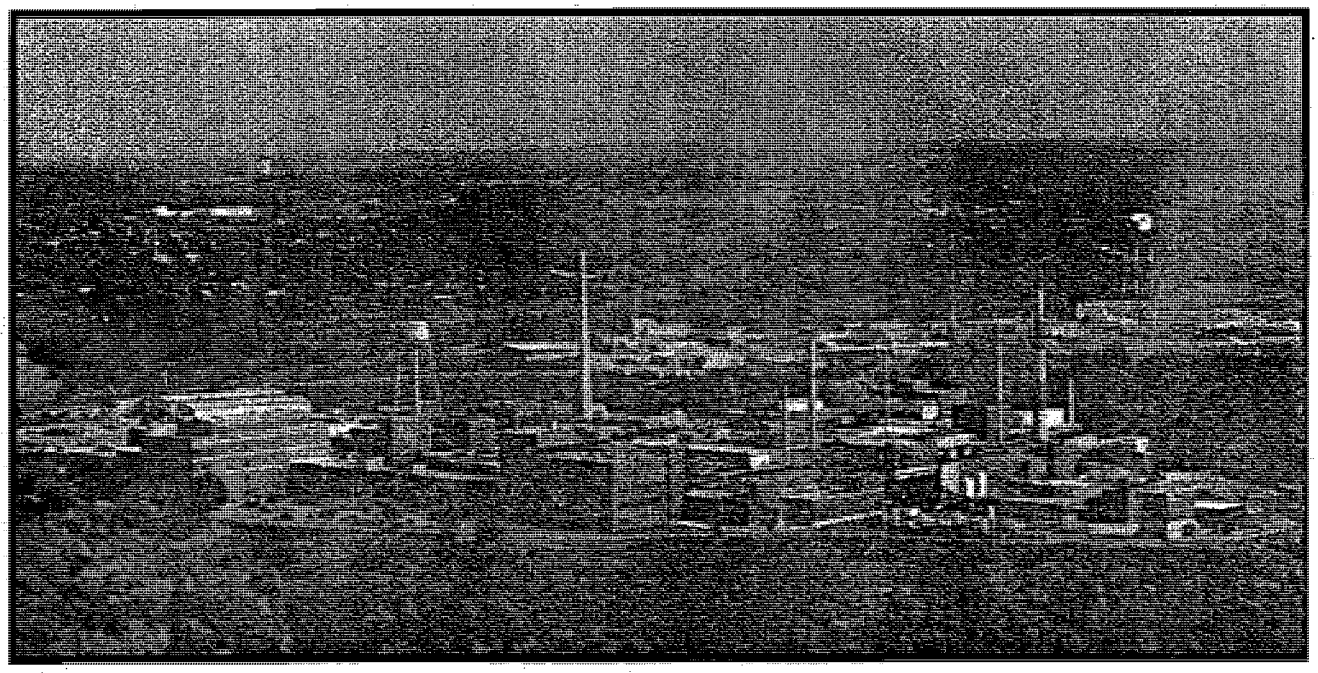
cc: David Seely, USEPA, (1) w/attachments
Brian Nickel, OEPA, (4) w/attachments
Ruth Vandegrift, ODH, (1) w/attachments
Mary Wojciechowski, Tetra Tech, (1) w/attchs
Frank Schmaltz, DOE/MCP, (1) w/attachments
Lisa Rawls, DOE/MCP, w/o attachments
Randy Tormey, DOE/OH, (1) w/attachments
Dann Bird, MMCIC, (3) w/attachments
Jim Bonfiglio, MESH, (1) w/attachments
Public Reading Room, (4) w/attachments
Kurt Kehler, CH2M Hill, (1) w/attachments
CERCLA Records, CH2M Hill, (1) w/attchs
DCC (1) w/attachments
John Fulton, CH2M Hill, w/o attachments
Bob Ransbottom, CH2M Hill, w/o attachments
Dave Rakel, CH2M Hill, w/o attachments

Environmental
Restoration
Program

Miamisburg Closure Project
Building Data Package

Buildings DS and 25
(Demolition)

Public Review Draft
April 2004



MIAMISBURG CLOSURE PROJECT

BUILDING DATA PACKAGE

The following document is available (April 5, 2004) for public information in the CERCLA Public Reading Room, 305 E. Central Ave., Miamisburg, Ohio.

BDP Buildings DS and 25: Component Development and Standards Facility (DS), and Weather/Meteorological Station (25)

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

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BDP Buildings DS and 25

REV	DESCRIPTION	DATE
WORKING DRAFT (to DOE)		**March 2004**
DRAFT (to Core Team)	BDPs for construction demolitions undergo simultaneous review by the Core Team and public.	**N/A**
DRAFT PROPOSED FINAL (incorporates Core Team comments)		**N/A**
PUBLIC REVIEW DRAFT	The public review period is 5 April 2004 through 5 May 2004.	**April 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 DS Building (Component Development and Standards Facility) and Building 25 (Weather/Meteorological Station) and to identify, if possible, any recognized environmental conditions (defined below) that may affect the subject property and buildings.

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

1.2 Scope

This document has been prepared in accordance with the agreements and requirements as specified in the *Work Plan for Environmental Restoration of the DOE Mound Site, The Mound 2000 Approach*. This document is a BDP for DS Building and Building 25 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 1527-97).

The scope of the investigation included DS Building and Building 25, the soil beneath, and a 15-foot wide perimeter border around the buildings. The investigation of DS Building and Building 25 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 DS BUILDING AND BUILDING 25 OVERVIEW

Building 25 is adjacent to and just northeast of DS Building. The two buildings are situated in the north central portion of the site (Figure 1) and have a combined total of 48,240 square feet of floor space.

DS Building

DS Building is a one-story structure constructed of reinforced concrete, concrete block, and structural steel, with a built-up membrane roof and three penthouses. The concrete block exterior walls are covered with a brick veneer. Originally built in 1965, the building has had two major adjoining additions: one on its western end, constructed in 1968; and the other on its eastern end, constructed in 1969. The western addition added 24 rooms, four corridors, and a utility penthouse to the original building. The addition to the eastern end of the building added 9 rooms, two corridors, and included another utility penthouse. Along the south wall of the building are a series of five contiguous test cells (Rooms 221 A through E). The exterior walls of these test cells are aluminum blowout panels. DS Building is constructed on piers that measure six feet in height and are set on the top of the roof of T Building, which is located beneath DS Building. The height of the piers includes the six-inch thickness of the DS Building floor slab. The top of the DS Building floor is six feet above the top of the T Building roof, however the floor in the eastern addition to DS

Building is raised two feet above the underlying concrete slab, which is four feet above the T Building roof. The void space between the top of the T Building roof and the underside of the DS Building slab is filled with compacted granular fill. A sanitary waste line and a high-risk waste line, which are encased in concrete on the top of the T Building roof, extend through this void space from the eastern to the western side of the building along the northern part of DS Building. Since its original construction, a large majority of the rooms in the original building, as well as the two major adjoining additions, have been reconfigured or have been altered by the addition or removal of walls. An access corridor, which was built into the south side of DS Building as an extension to Corridor 3, connects DS Building to COS Building, which was constructed in 1986. DS Building contains 47,810 square-feet of floor space (floor plan provided in Appendix D).

DS Building Solvent Storage Shed

A solvent storage shed, which supported operations in DS Building, is located on the east side (near the southeast corner) of DS Building. Built in the early 1970s (and modified in the 1980s), the 10-foot by 10-foot shed has walls and a roof that are constructed of corrugated metal sheeting. The metal shed is built on a four-inch thick concrete slab. A five-inch high concrete curb adjacent to the interior of the shed walls supports steel floor grating that provides the walking surface in the shed. Originally, solvents were stored in the shed in containers and delivered to the building by laborers. Later, process piping was used to pump solvents to DS Building and transfer waste solvents back to the solvent shed where they were containerized in drums. The shed has been inactive and all solvents have been removed since operations in DS Building ceased.

DS Building Vacuum Pump Shed

An 8-foot by 8-foot storage shed is located on the walkway pad on the north side of DS Building, adjacent to the T Building west tower. The west and north walls of the shed are formed by the walkway retaining wall and are constructed of poured concrete. The east wall is constructed of masonry block. The front wall and roof are constructed of corrugated steel sheeting. The shed housed vacuum pumps and was used for the storage of pumps and oils. Pumps and oils have been removed and the shed is currently empty.

DS Building Equipment Shed

The equipment shed is located on the concrete dock on the west side of DS Building. The 34-foot by 21-foot shed has walls and a roof that are constructed of corrugated metal sheeting. The shed, which was used to store equipment and materials, is currently empty.

Building 25

Built in 1966, Building 25 is a one-story, poured concrete and concrete block, slab-on-grade structure. The roof is a metal deck with an asphaltic built-up membrane. Building 25 contains 430 square-feet of floor space (floor plan provided in Appendix D).

Utilities

DS Building uses central steam for heating and chilled water for cooling. Electric service is 480 volts. The building has potable and service water, a fire sprinkler system, sanitary services, and storm drains.

Building 25 uses a heat pump for heating and cooling. Electric service is 480 volts. There is no water service supplied to the building and the building does not have a fire sprinkler system or sanitary services. The building is equipped with storm (floor) drains; however, the storm drain service line is abandoned.

2.1 Past Uses of Buildings DS and 25

DS Building

DS Building was originally constructed and used as the Component Development and Standards Facility. The building was used as a laboratory for metrology and for the development and production of explosive components and inert components for defense programs. DS building was divided into two main areas of operations – the Inert Area and the High Explosive (HE) Area. Table 1 provides a list of building uses since its 1965 construction. Many rooms in DS Building have been modified over the building's history to support the changing uses.

Table 1: Functions and Processes In DS Building

Period	Function or Process
1960s	shipping and receiving, thermometry, testing, cable layup, inert gassing, standards and calibration lab, X-ray processing, film reading, inert assembly, high explosive (HE) assembly, welding development, non-destructive testing, inspection and disassembly, environmental testing, gaging, encapsulation, transducer fabrication, solvent cleaning, packing and storage, cable surveillance, package repair and inspection
1970s	component development, standards and calibration lab, final inspection, component gaging, component fabrication (inert and HE), special materials handling, component surveillance, explosives component process development, fabrication of detonators, fabrication of transducers for ferroelectric fire sets and assembly of fire sets, non-destructive testing of explosives components, surveillance of detonators and cables, tooling acceptance lab, mechanization of manufacturing processes
1980s	component development, standards and calibration lab, final inspection, component gaging, component fabrication (inert and HE), special materials handling, component surveillance, explosives component process development, fabrication of detonators, fabrication of transducers for ferroelectric fire sets and assembly of fire sets, non-destructive testing of explosives components, mechanization of manufacturing processes, surveillance of detonators and cables, tooling acceptance lab, quality assurance HE, precision inspection, shipping and receiving, thermometry, inert storage, gage surveillance, final inspection, micro systems facility (clean room)

Table 1: Functions and Processes In DS Building

Period	Function or Process
1990s	tape processing, slapper detonator development, process technology development, welding technology, off schedule production, energetic component development, low energy component development, X-ray inspection and film processing, final acceptance, IMPAC, material handling, standards and calibration lab, printed flexible circuit board manufacture, non-destructive testing labs, timer disassembly, detonator and pyrotechnic production, explosives development, energetic materials packaging, explosives shipping and receiving, welding development, physical vapor deposition (clean room), computer tomography, nuclear component gaging, production data control center, safe shut down, receiving inspection, User Center labs, private industry
2000s	respirator training, site training, laundry and clothing distribution, bioassay sample collections and container distribution, safe shut down, private industry

Building 25

Building 25 was constructed and initially used as a low level counting facility. The low level counting facility function is not well defined in historical documentation; however, an interview with a former employee indicated that the building was used for whole body monitoring and for the low-level radiological counting of gasses from HH Building, and that some work with Carbon-14 and Carbon 14 dating took place in the building. The work in the building was very low-level and there was a monitoring system in place to monitor people before they entered the building.

By late 1972, Building 25 was converted to a Meteorological Station. The building housed instrumentation that was used to collect meteorological information. Computers in the building received data from two onsite weather-monitoring towers. These computers were connected to computers at Lawrence Livermore Laboratory; there, the information was used to predict dispersion patterns in the event of any airborne releases. The building also housed telephone switching equipment and office space. The meteorological station function continued into the spring of 2003 when the meteorological tower that was connected to Building 25's computers was knocked down by straight line winds.

2.2 Current Uses of Buildings DS and 25

Buildings DS and 25 are currently inactive and in the process of Safe Shutdown. All required equipment will be removed from the buildings (in accordance with 41 CFR 101-200), and any remaining equipment will be left in place and demolished/disposed of with the buildings.

2.3 Summary of Environmental Concerns and Findings – Buildings DS and 25

Table 2: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Lead-Based Paint	No previous lead surveys or sampling data could be found for Buildings DS and 25. Since the buildings are 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 reportedly used or stored in DS Building. Chemicals were not used or stored in Building 25. There was an X-ray film processing laboratory in DS Building. There is no available record of the exact formula/chemicals used to process the X-ray film. However, Appendix K includes a list of photographic processing solutions and their chemical compositions that were used in the OSE photography laboratory. It is believed that the chemicals used in DS Building could have been similar. Applicable pages from the CY2001 Emergency and Hazardous Chemical Inventory Report (dated March 2002) are also provided.	All chemicals will be removed prior to demolition, and dispositioned by Waste Management.
Ballasts associated with Fluorescent Lamps	Fluorescent lamps were used in the buildings. Ballasts may contain polychlorinated biphenyls (PCBs).	Ballasts that may contain PCBs will be removed prior to demolition, and disposed of by Waste Management.

Table 2: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Air Emissions	Air emissions for operations in DS Building were *de minimis.* Approximately 50 potential air emission sources (fume hoods, ovens, test chambers, furnaces) were documented in DS Building during the late 1980s and early 1990s. None of the sources required an air permit by the Ohio EPA. Fume hoods in DS Building Rooms 207, 218, and 226, may have been exposed to energetic materials so there is the potential that the fume hoods and exhaust ductwork could contain loose energetic materials. There were no processes that create air emissions in Building 25.	All processes have been discontinued. DS Building was cleared of bulk energetic materials and devices. The manufacturing rooms had their visible surfaces cleaned. Exhaust ducts were checked at the intakes and no visible signs of gross explosive contamination was noted. See Energetic Materials in this table. N/A
Asbestos	During February of 2004 a comprehensive walk-through survey of all areas of Buildings DS and 25 were performed in order to identify all asbestos-containing materials (ACMs) prior to demolition of the facilities (Appendix I). Various forms of pipe insulation and several types of miscellaneous materials in DS Building, and a duct canvas vibration joint in Building 25, were identified as asbestos-containing and requiring removal prior to building demolition.	The pipe insulation and miscellaneous materials from DS Building and the duct canvas vibration joint from Building 25 will be removed in accordance with NESHAP requirements prior to commencement of demolition activities, and disposed of per Waste Management direction. The asphalt roofing and floor tiles in both buildings, which are assumed to contain asbestos, along with the asphalt coating on the DS Building penthouse (Room 301P) walls, which contains asbestos, are considered Nonfriable Category I materials. As Nonfirable Category I materials, in accordance with NESHAP, these materials will remain in place during demolition and be disposed of as construction waste. All work will be performed in accordance with current state and federal regulations.

Table 2: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Drainage Sumps	Two condensate drain sumps, which collect condensate from the central steam system, are in DS Building. One sump is located in Room 219, a mechanical equipment room, and the other is located in Room 221E, one of the five HE test cells. There are no sumps in Building 25.	Radiological evaluations of each sump will be performed. Survey results will be documented in the Final Status Report. N/A
Lead	N/A	N/A
Mercury	Barometers, manometers, and switches were used in the building.	Barometers, manometers, and switches that may contain mercury will be removed prior to demolition, and disposed of by Waste Management
Radiological	The Predemolition Survey Plans for DS Building and Building 25 are provided in Appendix G. Radiological surveys are not yet complete.	Survey results will be documented in each building's Final Status Report, which will be reviewed by the Core Team prior to commencement of demolition activities. The reports will be included in the Final BDP.
Septic System	N/A	N/A
Wastewater	Handled by site wastewater facility.	N/A
Stains & Corrosion	N/A	N/A
Storage Tanks	Two aboveground 30-gallon diesel fuel storage tanks are located north of DS Building. One tank (Tank T24) is located at the T Building East Tower and the other tank (Tank T23) is located at the T Building West Tower. An aboveground, approximately 6,000-gallon capacity, argon storage tank (Tank T16), which was located northeast of Building 25, was removed in February 2004. An aboveground nitrogen storage tank is planned to be located in the area where the argon tank (Tank T16) was removed. There are no underground storage tanks within 15-feet of the DS Building or Building 25 perimeters.	The aboveground tanks, which fuel two generators that provide emergency power to T Building, are to remain in place. If the aboveground nitrogen storage tank is erected before the demolition of Building 25 is competed, a barrier will be constructed to protect the storage tank per the Demolition Work Plan. 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

Table 2: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
HVAC	HVAC refrigerant will be drained and disposed of during Safe Shutdown.	No further action required.
Energetic Materials	The exhaust ductwork and structural cracks may contain trace amounts of loose energetic materials. Energetics present in the building may have included PETN, HNAB, TATB, HMX, HNS, CP. (*energetic acronyms defined at end of table)	Issues associated with potential energetic material hazards were mitigated when the building previously went through safe shutdown activities in the late 1990s in preparation for leasing the building for commercial/industrial use. DS Building was cleared of bulk energetic materials and devices. The manufacturing rooms had their visible surfaces cleaned. Exhaust ducts were checked at the intakes and no visible signs of gross explosive contamination was noted. Heavy-duty equipment will be used for demolition and debris handling. No additional precautions are indicated.
	No processes in or functions of Building 25 are associated with energetic materials.	N/A
Soil Contamination	Appendix L contains graphics showing all soil sample locations within 15 feet of the perimeters of Buildings DS and 25, and provides tables for detected compounds (results above laboratory detection limits) and non-detected compounds (results below laboratory detection limits). All results are equal to or below applicable screening levels (Core Team approved or the more stringent of either 10^{-6} Risk-Based Guideline Value [RBGV] plus background or Hazard Index = 1).	Post-demolition soil sampling is not planned for Buildings DS and 25 in association with building demolition. Hot waste lines are located under and around DS Building (see Table 3). Soil sampling will be conducted per the UGL Verification and Sampling Analysis Plan (VSAP) following removal of the hot waste lines.

N/A: Not applicable

*PETN pentaerythritol tetranitrate; HNAB hexanitroazobenzene; TATB triamino-trinitrobenzene;
HMX cyclotetramethylenetetranitramine; HNS hexanitrostibene; CP cobalt pentamine perchlorate;

2.4 Radiological Information for Buildings DS and 25

DS Building

A radiological assessment of DS Building was performed by reviewing its operational history and preliminary radiological survey information. DS Building supported numerous activities associated with high explosive component development and testing and scientific standards laboratories. Table 1 provides a listing of the functions and processes that

operated in DS Building. Characterization survey data indicate that radioactive material was present at various times in numerous areas in DS Building.

There are currently no radiological postings in the facility. Areas and rooms where there is a potential for some residual contamination to be present are designated as impacted. The radiological status of all building surfaces will be determined to facilitate a free release of the structure consistent with project goals and site procedures. The Predemolition Survey Plan for DS Building was prepared commensurate with operational history and in accordance with the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM), and is presented in Appendix G. The survey plan will be implemented and will provide the necessary data to dictate appropriate demolition and disposal. A Final Status Report (FSR) will summarize results from implementation of the survey plan and provide justification for the designated disposal of debris. The FSR will be reviewed by the Core Team prior to proceeding with building demolition, and will be included in the final BDP.

Building 25

A radiological assessment of Building 25 was performed by reviewing its operational history and preliminary radiological survey information. Building 25 was originally built and used as a low level counting facility until 1972. By late 1972 the building was converted to a Meteorological Station. This function continued into the year 2003. In spring of 2003, the metal tower that was connected to Building 25's computer system was knocked down by straight-line winds.

The Predemolition Survey Plan for Building 25 was prepared commensurate with operational history and in accordance with the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM), and is presented in Appendix G. The survey plan will be implemented and will provide the necessary data to dictate appropriate demolition and disposal. A FSR will summarize results from implementation of the survey plan and provide justification for the designated disposal of debris. The FSR will be reviewed by the Core Team prior to proceeding with building demolition, and will be included in the final BDP.

3.0 SITE DESCRIPTION

3.1 Site/Vicinity Location and Characteristics

DS Building and Building 25 are 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 Engineering 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 DS Building and Building 25

Buildings DS and 25 are bordered by the East, West, and Central T Building Towers, an asphalt roadway, R Building, and an asphalt parking lot on the north; a down gradient grass covered hillside and a concrete roadway on the east; the concrete slab from the former Paint Shop on the northeast; COS Building, a down gradient grass-covered hillside on the south; and an asphalt service road, a down gradient grass-covered hillside, and Building 48 on the west. T Building is below grade, beneath DS Building (Figure 3).

3.3 Current and Past Uses of Buildings in Proximity to Buildings DS and 25

Current buildings in proximity (Figure 1) to Buildings DS and 25 include:

- T Building (Technical Building), located beneath DS Building, is a 173,000 square-foot heavily reinforced, underground structure constructed in 1948. The building was used for Polonium-210 purification, bismuth and beryllium extraction, tritium operations, recovery and purification, calorimetry production, heat source calibration, and x-ray and safeguards gamma scanning. T Building is in the process of being decontaminated per a Removal Action in preparation for its transition to MMCIC. There are three towers associated with T building: the East and West Towers are used for ventilation and access to T Building; and the Central Tower is used for ventilation only.

- R Building (Research Building), located northwest of Building DS, is a 55,003 square-foot single-story structure with a penthouse constructed in 1948. The building contained laboratories for radioactive (tritium recovery and plutonium work) and non-radioactive work (research and development, and analytical laboratories). R Building is in the process of being decontaminated in preparation for demolition per a Removal Action.

- COS Building (Central Operational Support), located south of Buildings DS and 25, is a 53,706 square-foot, four-story, steel-framed structure with brick curtain wall.

The building was used for production support for weapons components including explosives laboratories, a standards lab, and a robotics lab. The building has a basement where a clean lab was constructed. The DOE has leased building to the MMCIC, and MMCIC has leased the building to tenants since 1995. The building has been used for the same purpose (office and laboratory space) since its construction. The Core Team binned COS Building No Further Assessment (NFA) in September 2000.

- Building 48 (Process Mechanization Facility), located west of Buildings DS and 25, is a 7,950 square-foot two-story poured concrete and concrete block structure. Constructed in 1970, it was used for the investigation of processes, materials, components, and instrumentation for the in-house production of pyrotechnic devices until 1986. The building was used for the disassembly of explosive components from weapons for visual inspection and physical/chemical analysis. Building 48 is currently undergoing demolition.

Previous buildings in proximity (Figure 1) to Buildings DS and 25 include:

- PS Building (Paint Shop) was a 2,288 square-foot metal building located northeast of Buildings DS and 25. This facility housed a paint shop with an Ohio Environmental Protection Agency (OEPA) permitted paint spray booth. It contained processes conventional to painting such as brush painting and spray painting, storage of supplies (latex and non-latex paints), sanding, priming, and drying. The building also housed a sign fabrication area that made computer-generated signs. The building superstructure was demolished in 2000, leaving the slab and associated foundations for later removal. The slab is currently being used to house portable boiler units that provide steam for the site central steam system.

- E Building (Electronics Laboratory) was a 45,755 square-foot, two-story structure constructed of reinforced concrete block with brick facing located north of DS Building that was used for electronics and instrumentation development, fabrication of timers, detonators, and transducers, analytical services, environmental monitoring, explosives research, explosive analytical and nuclear measurements. The building was constructed in 1948 and was demolished in 2000.

- M Building (Machine Shop) was a 56,000 square-foot, two-story facility of concrete block with brick facing located north of DS Building that served as a machine shop and housed electroplating operations. The building was built in 1948 and was demolished in 1999.

- Building 93 (Office Building) was a 2,936 square-foot, two-story wooden modular structure located east of Buildings DS and 25. It was used as an office facility from its construction in 1984 until it was dismantled and removed from the site in 1996. The concrete foundation piers remain in place, but will be removed as part of the DS Building demolition activities.

- Building 26 (Maintenance Shop) was an 800 square-foot single-story, steel frame, metal building that was used as a welding shop, storage, and office area. The building was constructed in 1965 and dismantled and removed in 1995.

- Building 69 (Office Trailer) was a 1,620 square-foot single-story wood-modular building that was used as an office area. The building was constructed in 1981 and dismantled and removed in 1996.

- Building 70 (Office Trailer) was a 3,366 square-foot single-story wood-modular building that was used as an office area. The building was constructed in 1982 and dismantled and removed in 1996.

These buildings are believed to have had no adverse environmental impact on Buildings DS and 25.

4.0 RECORDS REVIEW

4.1 General/Historical CERCLA Information

In compliance with permit requirements under Resource Conservation and Recovery Act (RCRA), the Clean Water Act (CWA), the Safe Drinking Water Act (SDWA), and the Clean Air Act (CAA), Mound Plant has applied for or has received permits for its surface water discharges, air emissions, and hazardous waste program. The site is currently operating a hazardous waste storage facility under a RCRA Part B permit dated October 18, 1996. The site also maintains a National Pollutant Discharge Elimination System (NPDES) surface water discharge permit with Facility I.D. number OH 0009857. Operations that produce particulate or vaporous emissions are either permitted or registered with RAPCA and the Ohio Environmental Protection Agency (OEPA). The site also submits annual Emergency and Hazardous Chemical Inventory forms to OEPA, pursuant to the Superfund Amendment and Reauthorization Act (SARA), Title III, the Emergency Planning and Community Right-to-Know Act. The March 2002 version of this report indicated that reportable chemicals were stored in DS Building and that no reportable chemicals were stored in Building 25. This report also identifies two above ground diesel fuel storage tanks (Tanks T23 and T24) located north of DS Building and an above ground argon tank northeast of Building 25. The diesel fuel storage tanks are currently in use; however, the argon tank was removed in February 2004 (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, bringing the site total to 440 PRSs. The assignment of a PRS does not necessarily mean that there is a threat to human health or the environment. The tabulation of all PRSs simply provides an explicit means of tracking and evaluating all potential releases onsite, the need for further action, and the identification of the authority responsible for action.

Through the process described above, the specific PRSs in the vicinity of Buildings DS and 25 (Section 4.2.3) are listed in Table 3 along with their binning status. Their locations are shown on Figure 2. Of the 38 PRSs in the vicinity of Buildings DS and 25, 34 are Removal Actions (RAs) and four have 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 Buildings DS and 25 have been identified.

4.2 Specific Record Sources for Buildings DS and 25

4.2.1 Occurrence Reports

A search of the occurrence reporting system revealed 22 reports, all of which were minor and without environmental impact.

DS Building

- *actuation of a safety system (July 1994).* A sprinkler head in the west Penthouse actuated apparently due to extremely hot weather. There was no fire involved. A small amount of water was released and cleaned up (Appendix M);

- *alpha contamination detected on cabinets (October 1999).* One of three cabinets that had been put into the waste roll-off at DS Building was contaminated. The cabinet had been removed from R Building, and was never located in Buildings DS or 25. The contaminated cabinet was disposed of as Low Level Waste (LLW) (Appendix M);

- *discovery of radiological contamination (July 1999).* A contaminated wrench was discovered in a toolbox in DS Building Rooms 134 and 135, and a contaminated stainless steel cylinder was discovered in a cabinet in DS Building Room 123. The wrench and cylinder were disposed of as LLW. The toolbox, cabinet, and all remaining tools were surveyed and released (Appendix M);

- *radiological contamination found in E and DS Buildings (August 1999).* Fixed contamination was found on a dolly in DS Building, Room 204. The dolly was properly identified, controlled, and disposed of as LLW (Appendix M);

- *detection of contamination in respirator washing facility and on respirator (March 2001).* Radiological contamination was found on a respirator in DS Building Room 224 and also inside the wash tank and underside of the lid at the respirator washing facility. The washing facility was posted as a Radiological Controlled Area (RCA) and re-surveyed and the respirator was stored in a posted radioactive materials room in R Building (Appendix M);

- *discovery of legacy contamination is DS Building (November 1996).* Radiologically contaminated items (a storage cabinet, a circuit test board, and a cabinet drawer) were removed from DS Building Rooms 221, 205, and 116, respectively. The rooms were posted as RCAs and the contaminated items were moved to a Radiological Materials Area (Appendix M);

- *ethylene glycol leak – DS Building (December 1996).* Ethylene glycol entered the sanitary sewer system through the floor drains in the DS Building Penthouse from a leak in the building air handler #6 cooling coil. The glycol was contained in the Waste Water Treatment Plant Equalization Basins. The tainted influent was diluted and pumped to a digester in preparation for processing with no known release offsite (Appendix M);

- *alpha contamination discovered in abandoned waste transfer manhole (November 1996).* Radiological contamination was discovered in an abandoned waste transfer line manhole located between DS Building and Building 48. The area where the manhole resides had not previously been posted as a RCA; hence, following the discovery it was posted as a RCA. The radiological contamination was not in DS Building (Appendix M);

- *DS Building evacuation (4) (February and May 1991, August 1992, and June 1995);*

- *energetic materials discovered or stored in a unapproved areas (3) (August 1992, July 1995, and June 1997);*
- *defective service involving Class B equipment (September 1993);*
- *actuation of safety system (December 1993);*
- *performance degradation of Class B safety equipment (April 1994);*
- *high winds cause damage across Mound Plant Site (April 2003);*
- *offsite transportation of unmarked explosives (July 1995);*
- *loss of control of classified material (August 1995);* and
- *discovery of legacy radioactive contamination in M Building (July 1996).*

Building 25

- none.

4.2.2 Spills and Releases

- None

4.2.3 Associated PRS Overview

As a result of the investigations and documentation accomplished to comply with the CERCLA cleanup process via the Federal Facilities Agreement (FFA)/DOE Environmental Restoration (ER) Program, DOE and the site contractor tabulated all the PRSs identified under the various regulatory programs in effect at the site. Of these 440 PRSs, 38 are at or near Buildings DS and 25, as identified in Table 3. The PRS locations are shown on Figure 2, and recommendation sheets are provided in Appendix N.

Table 3 - PRSs in Proximity to Buildings DS and 25

PRS	CERCLA or Bldg. Related	Binning Status	Comments
103	CERCLA	No Further Assessment (NFA)	E Building Soils
105	CERCLA	NFA	E Building Solvent Storage Shed
128	Building	NFA	DS Building Solvent Storage Shed
213	Building	Removal Action (RA)	T Building Solidification Unit
214	Building	RA	T Building Solid Radioactive Waste Compactor
215	Building	RA	Room T-1 Cooling Water Sump (Tank 124)
216	Building	RA	T Building, Corridor 2 Sanitary Wastewater Sump (Tank 125)
217	Building	RA	Room T-11F Sanitary Wastewater Sump (Tank 126)
218	Building	RA	Room T-15 Sanitary Wastewater Sump (Tank 127)
219	Building	RA	T Building, Stair 3 Cooling Water Sump (Tank 128)
220	Building	RA	Room T-78 Steam Condensate Sump (Tank 129)
221	Building	RA	T Building, Corridor 8 Sanitary Wastewater Sump (Tank 130)
222	Building	RA	Room T-78A Sanitary Wastewater Sump (Tank 131)
223	Building	RA	Room T-90 Cooling System Condensate Sump (Tank 132)
224	Building	RA	Room T-99 Sanitary Wastewater Sump (Tank 133)
225	Building	RA	Room T-23 Beta Wastewater Sump (Tank 227)
226	Building	RA	Room T-3 Floor Drain Sump (Tank 228)
227	Building	RA	Room T-40 Alpha Wastewater Sump (Tank 229)

PRS	CERCLA or Bldg. Related	Binning Status	Comments
228	Building	RA	Room T-41 Alpha Wastewater Sump (Tank 230)
229	Building	RA	Room T-50 Alpha Wastewater Sump (Tank 231)
230	Building	RA	Room T-50 Alpha Wastewater Sump (Tank 232)
231	Building	RA	T Building, Corridor 8 Alpha Wastewater Sump (Tank 233)
232	Building	RA	T Building, Corridor 7 Alpha Wastewater Sump (Tank 234)
233	Building	RA	Room T-63 Alpha Wastewater Sump (Tank 235)
243	CERCLA	NFA	VOC Potential Hot Spot Location 1064
339	Building	RA	T-44 Wastewater Sump (Tank 250)
340	Building	RA	T-16b Wastewater Sump (Tank 251)
341	Building	RA	T-90 Condensate Sump (Tank 269)
342	Building	RA	T-1 Hot Side Fire Water Tank (Tank 271)
343	Building	RA	T-20 Fire Water Sump (Tank 272)
344	Building	RA	T-37 Fire Water Sump (Tank 273)
430	CERCLA	RA	Hot Waste Line – Segment 9a
431	CERCLA	RA	Hot Waste Line – Segment 10
432	CERCLA	RA	Hot Waste Line – Segment 11
433	CERCLA	RA	Hot Waste Line – Segment 12
434	CERCLA	RA	Hot Waste Line – Segment 13a
435	CERCLA	RA	Hot Waste Line – Segment 13b
436	CERCLA	RA	Hot Waste Line – Segment 14

Note: PRSs 213 through 233 and 339 through 344 are authorized in the T Building Action Memorandum. PRSs 430 through 436 are authorized in the UGL Action Memorandum.

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 1959 (prior to construction of DS Building), 1965 (following construction of DS Building and prior to construction of Building 25), 1968 (following construction of DS Building western addition and Building 25), 1973 (following construction of DS Building eastern addition), 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, J. L. Boston, 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.

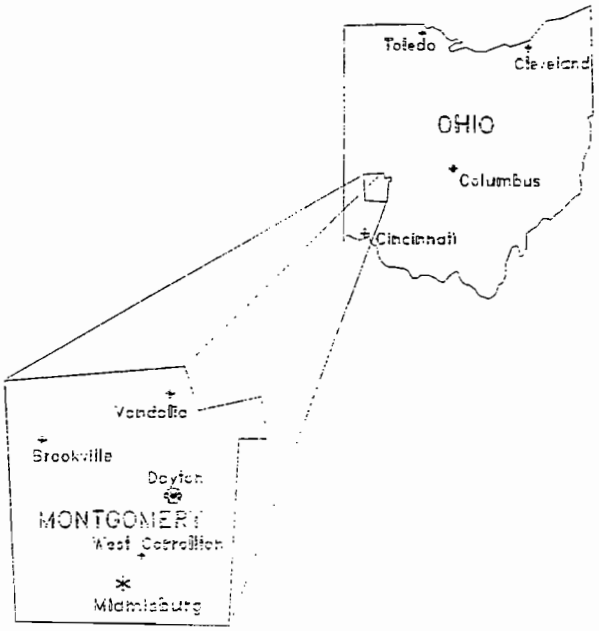
Appendix A

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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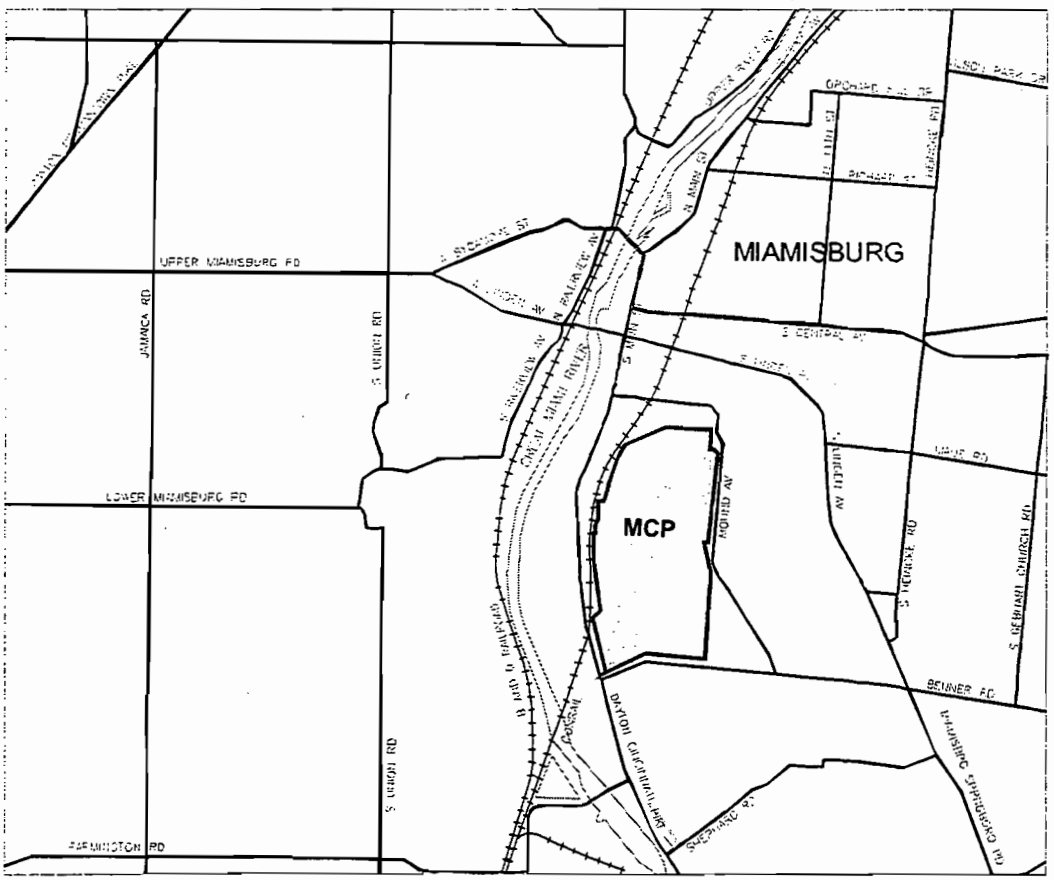
Cleveland
OHIO
Columbus
Cincinnati
Vandalia
Brookville
Dayton
MONTGOMERY
West Carrollton
Miamisburg


MIAMISBURG
MCP
UPPER MIAMISBURG RD
LOWER MIAMISBURG RD
JAMACA RD
S UNION RD
S MAIN
S CENTRAL AV
S GEORGE RD
S GERMAN CHURCH RD
BEUNER RD
FARMINGTON RD
DAYTON CINCINNATI HWY
GREAT MIAMI RIVER

B 1 of 1

Appendix C

Figures

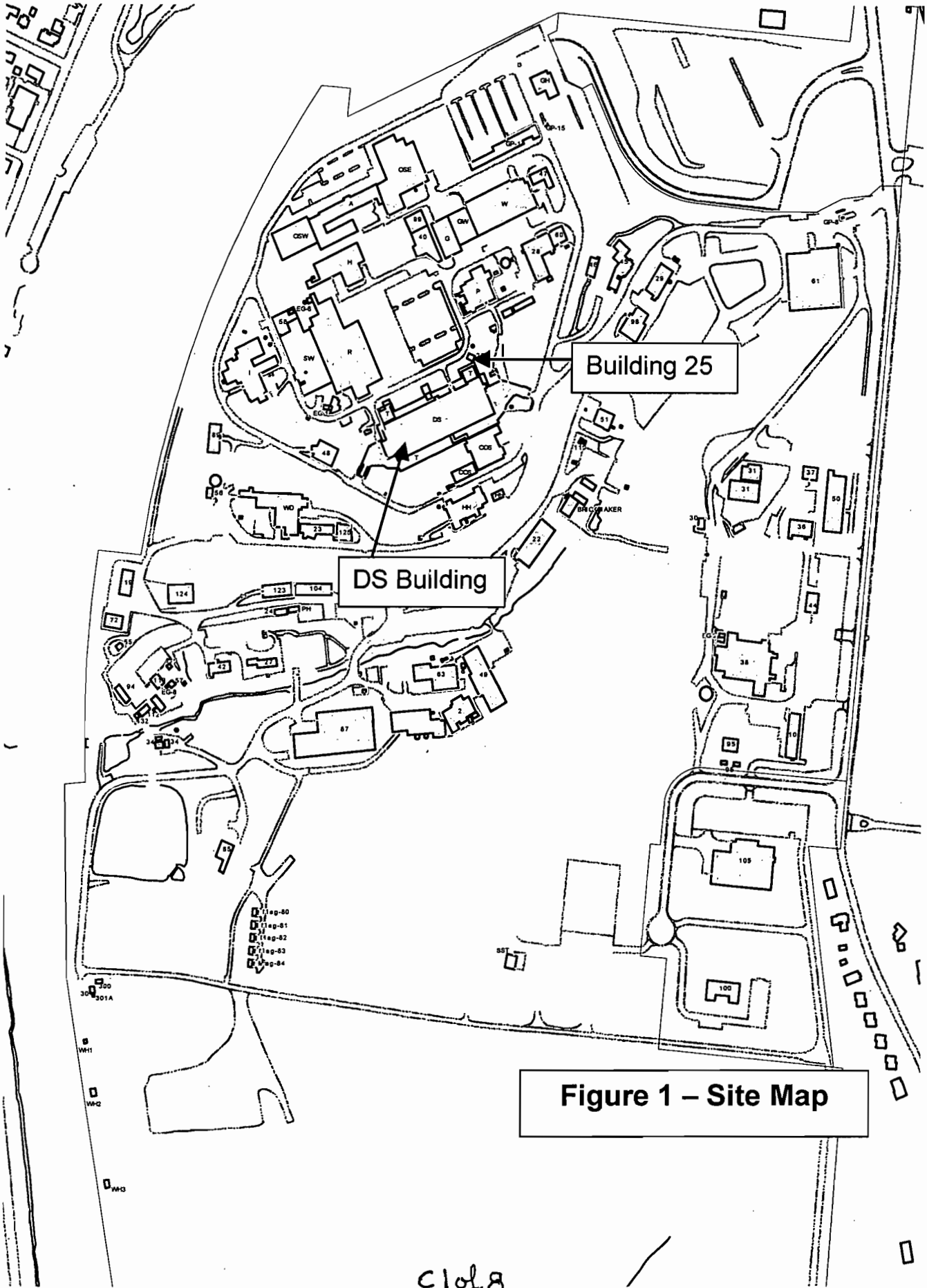
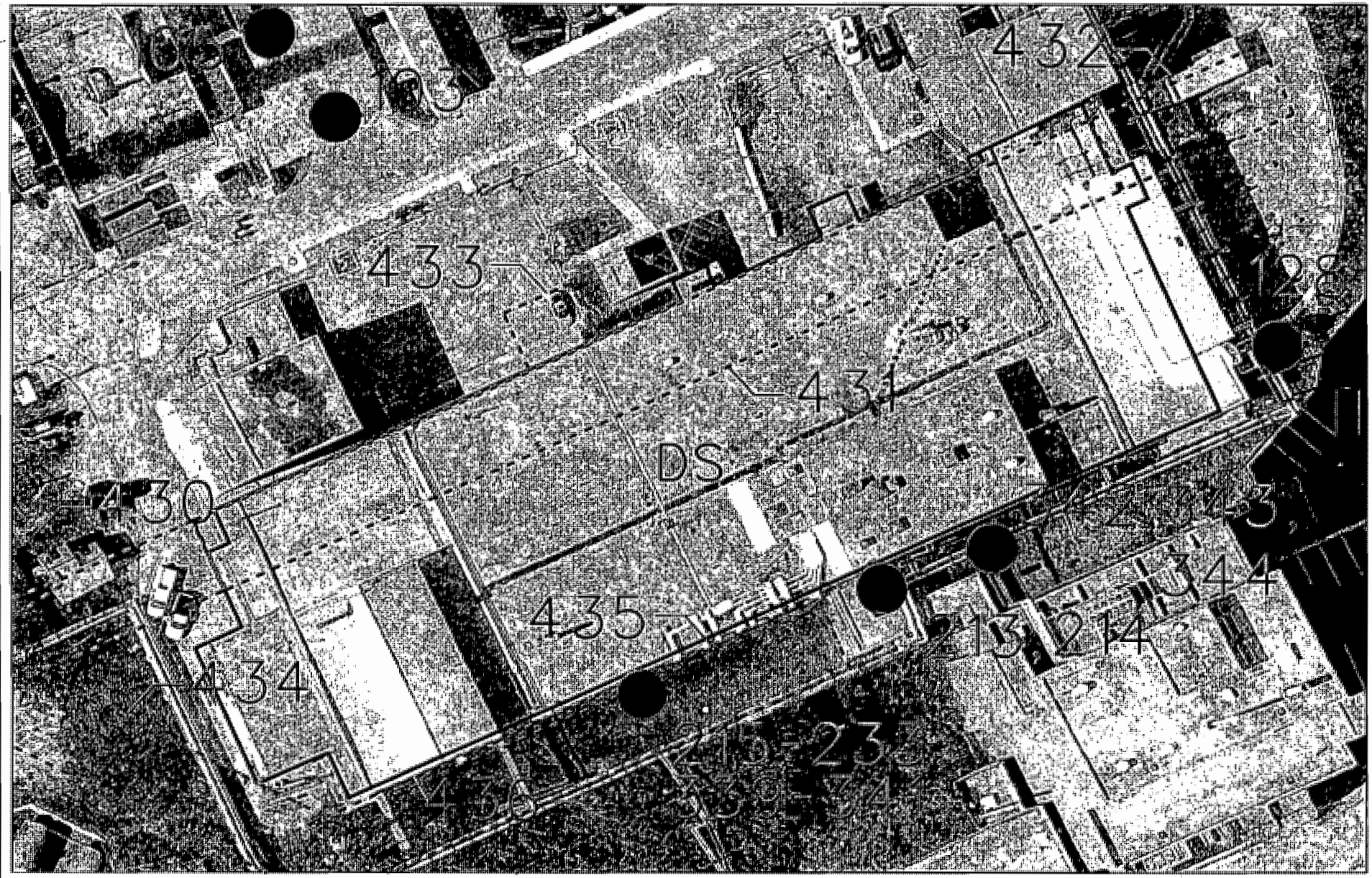


Figure 1 – Site Map



- PRS Point
- PRS Area
- PRS Line

20 10 0 20 40FT
GRAPHIC SCALE

MOUND
Environmental Restoration Geographic Information System

SHEET	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
ISSUE																					
SHEET	1	2	3	4	5	6															
ISSUE																					

PART CLASSIFICATION

DRAWING CLASSIFICATION: UNCLASSIFIED

SIZE | DRAWING NUMBER | JOB NUMBER

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

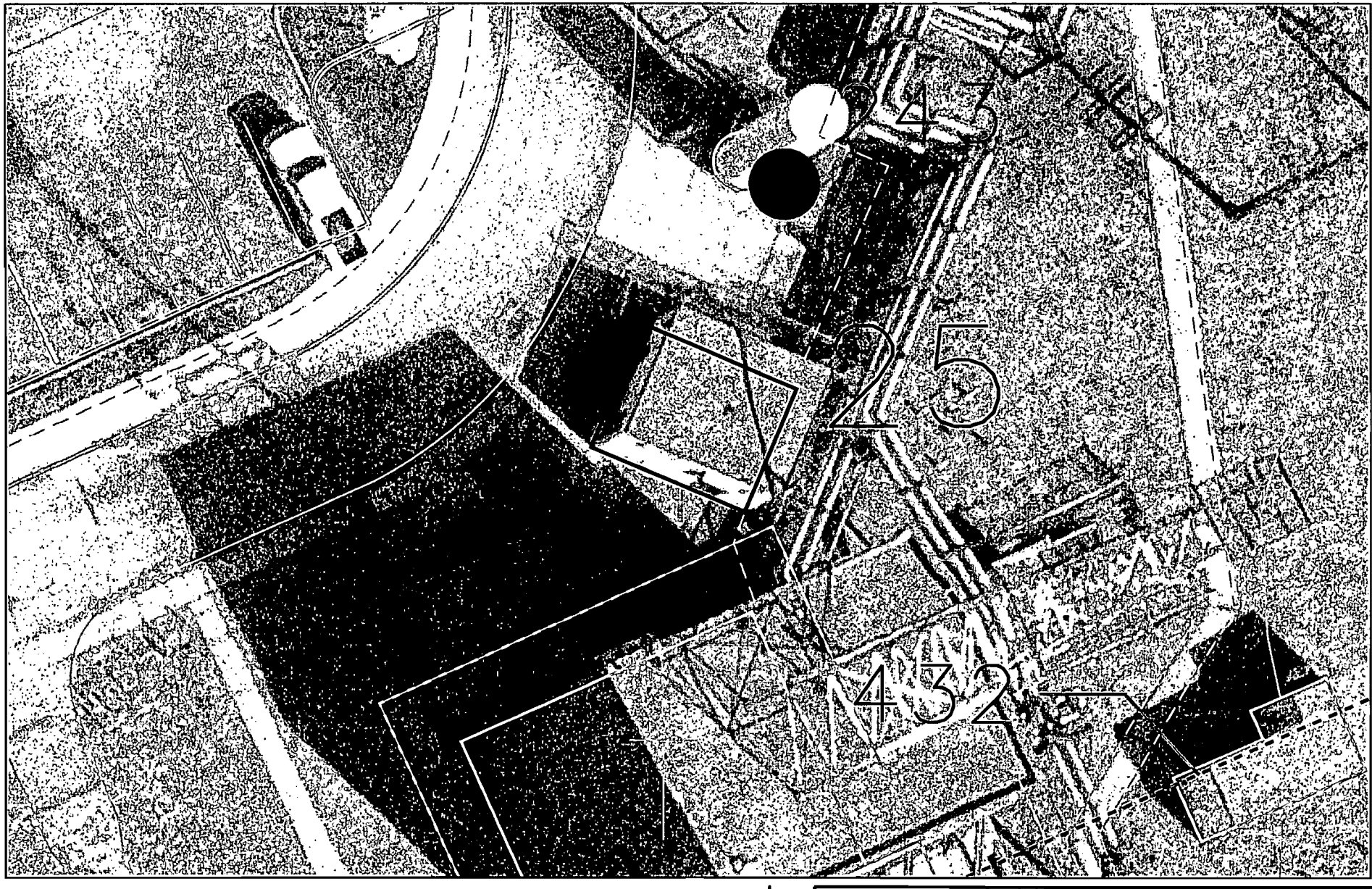
STATUS MD-REL -12/29/03 | ORIGIN MSTATION / J

Figure 2: DS Building and Vicinity

ISS	DATE	REVISION	BY	CHKR	ENG	UPDC	APVD	B
	12/29/03		SSF					

1 2 3 4

C2 of 8



PRS Point
PRS Area
PRS Line

20 10 0 20 40FT
GRAPHIC SCALE

MOUND
Environmental Restoration Geographic Information System

	12/29/03		SSF					
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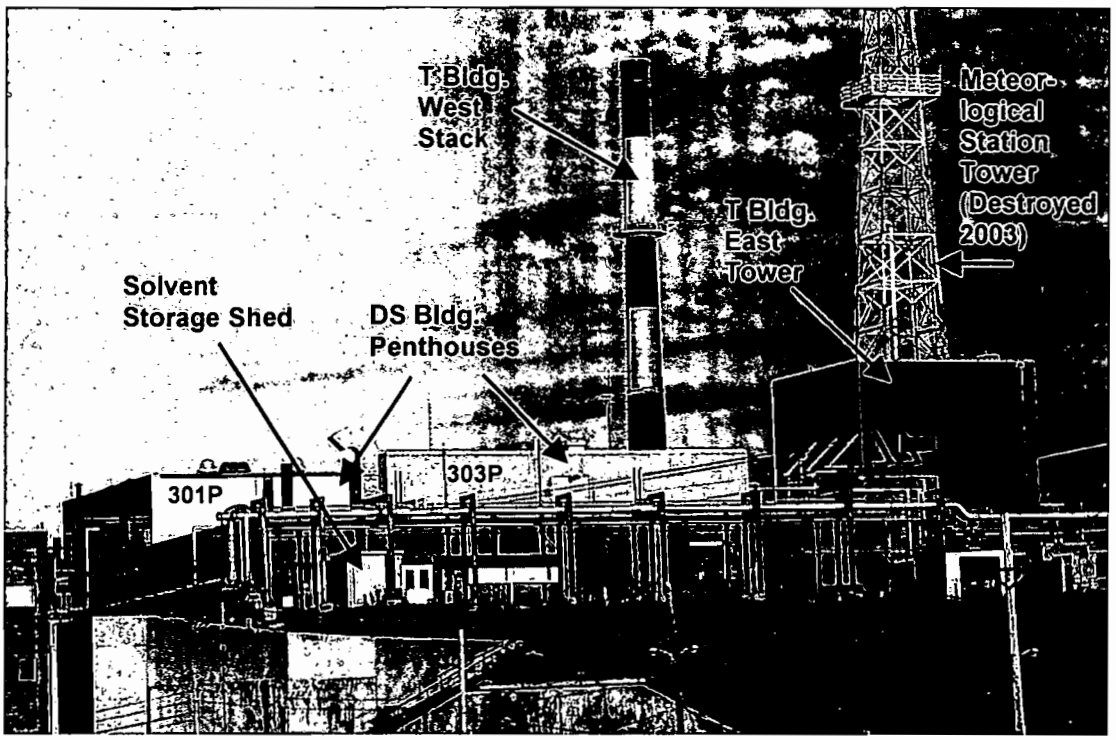
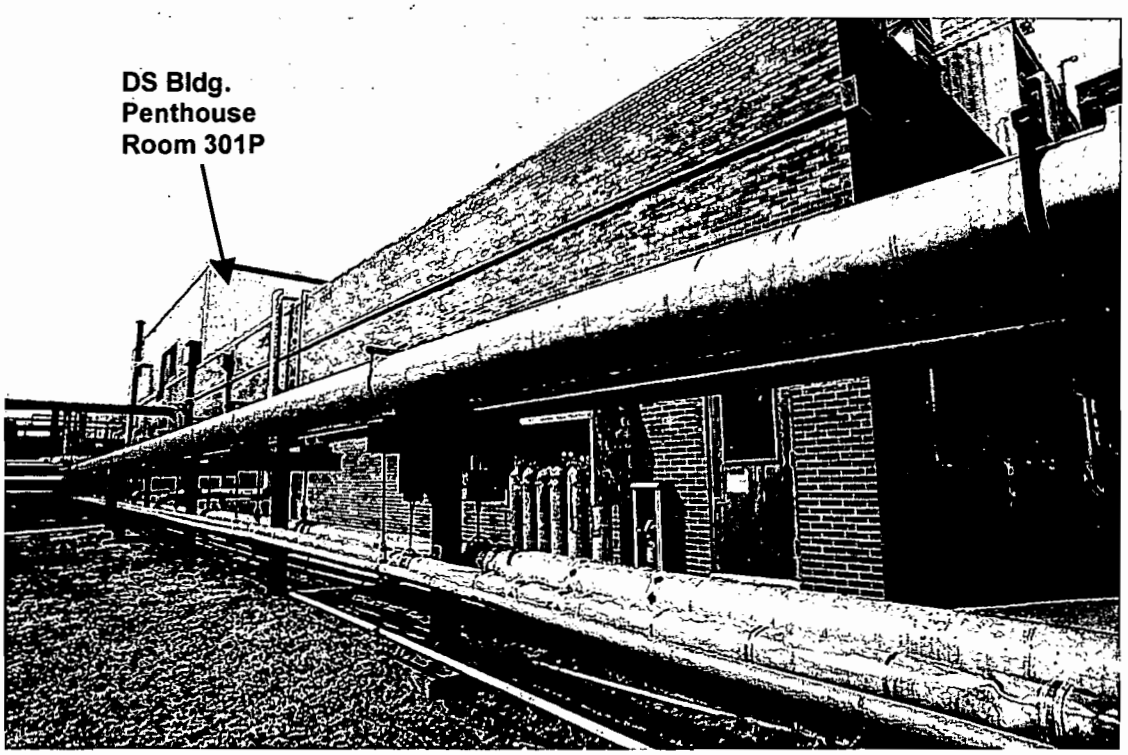
ISSUE
SHEET 1 2 3 4 5 6
ISSUE
PART CLASSIFICATION
DRAWING CLASSIFICATION UNCLASSIFIED
SIZE DRAWING NUMBER JOB NUMBER
DGN TYPE STE FRMS ER-GIS CADD SCALE # SHEET 1 OF 1
STATUS MD-REL-12/29/03 ORIGIN MSTATION / J

Figure 2: Building 25 and Vicinity

C3 of 8

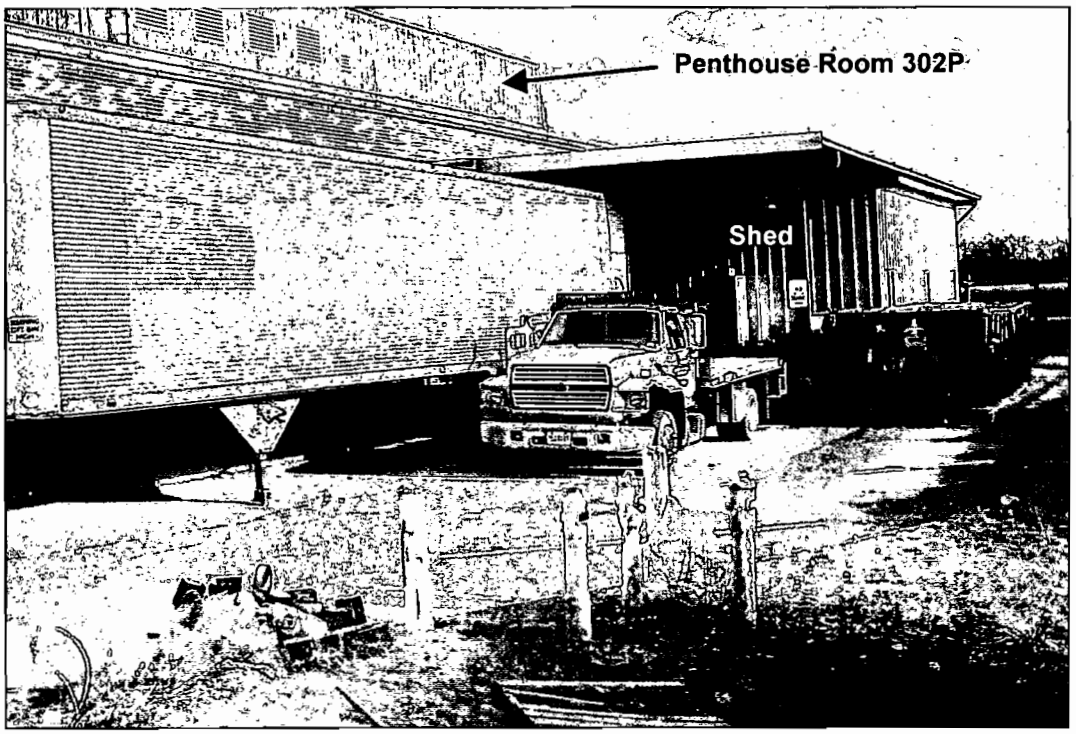


East Face

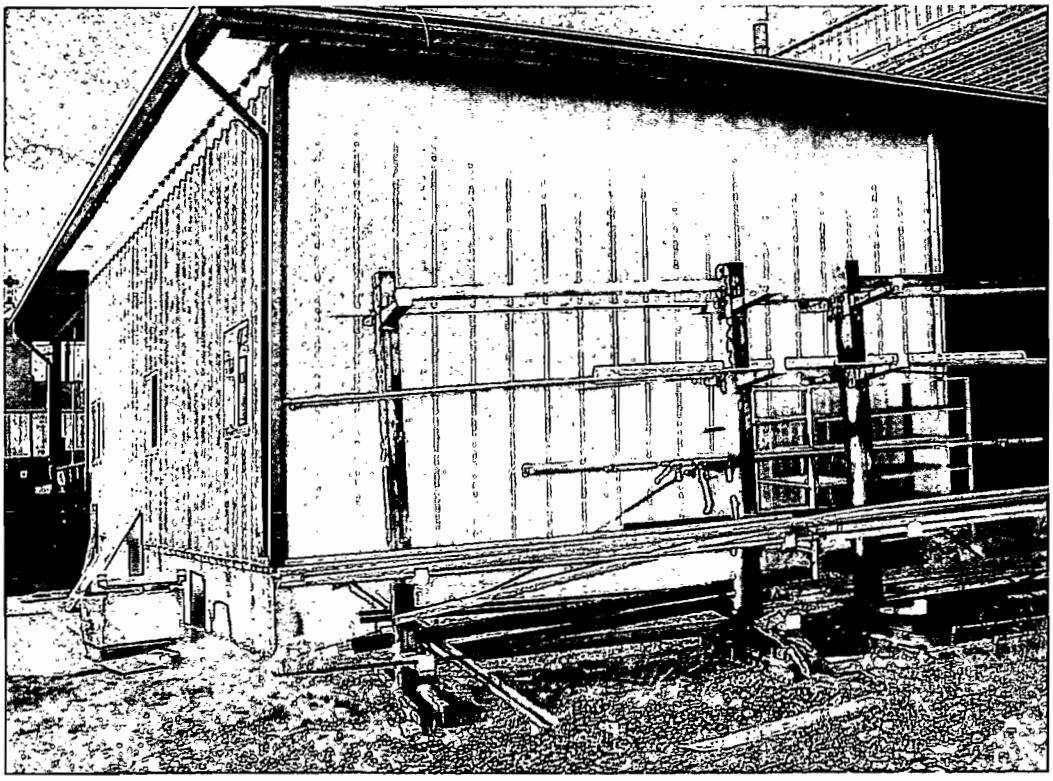


South Face

Figure 3A – DS Building

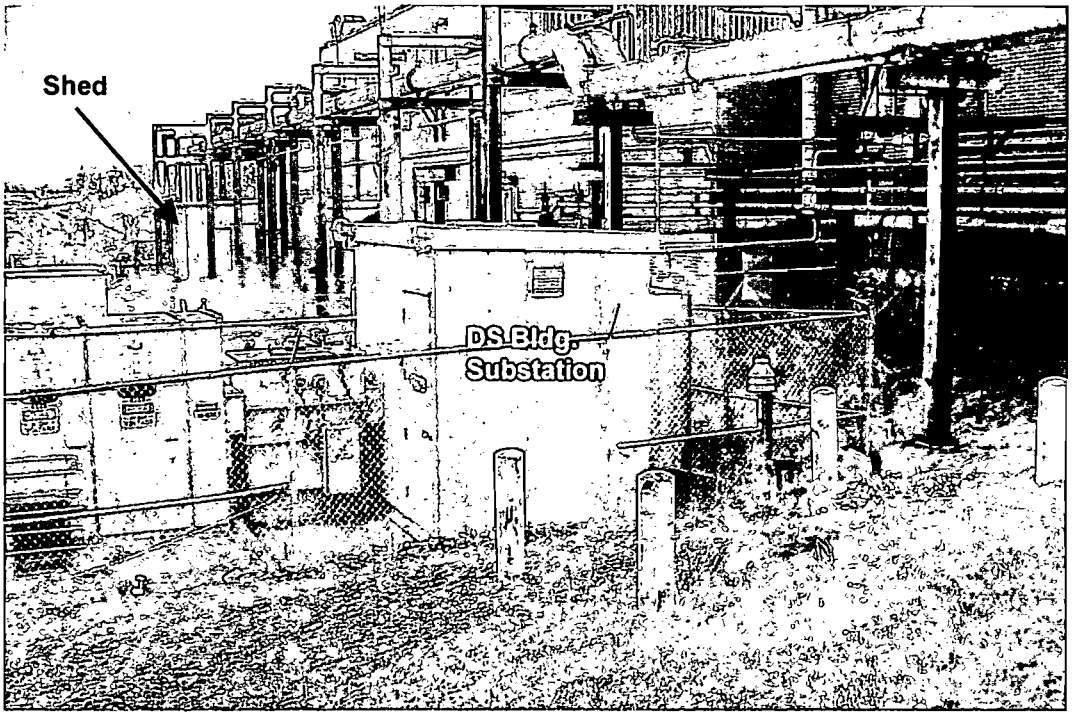


DS Building West Face

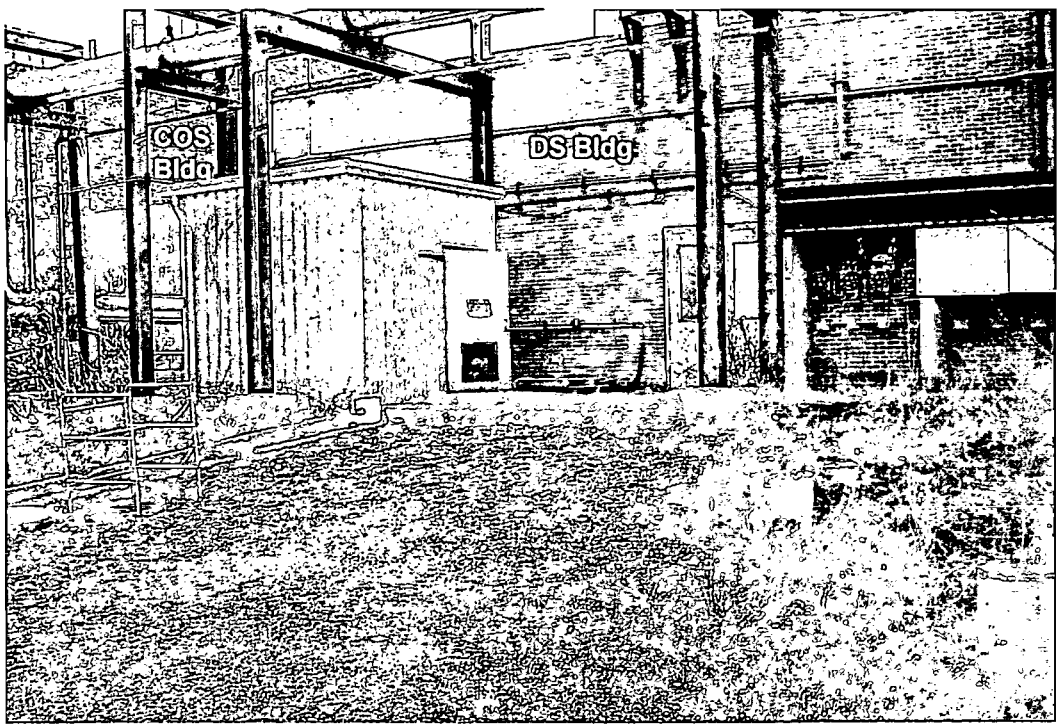


Shed – Southwest Corner

Figure 3B – Equipment Shed at DS Building Dock

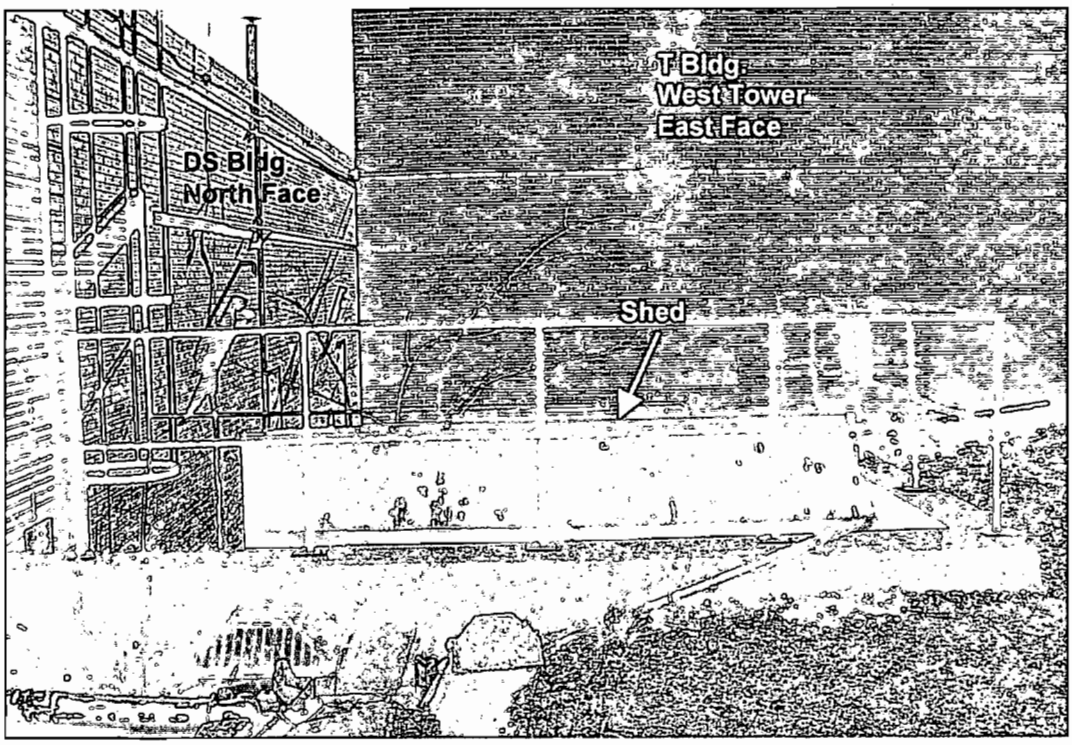


DS Building – East Face

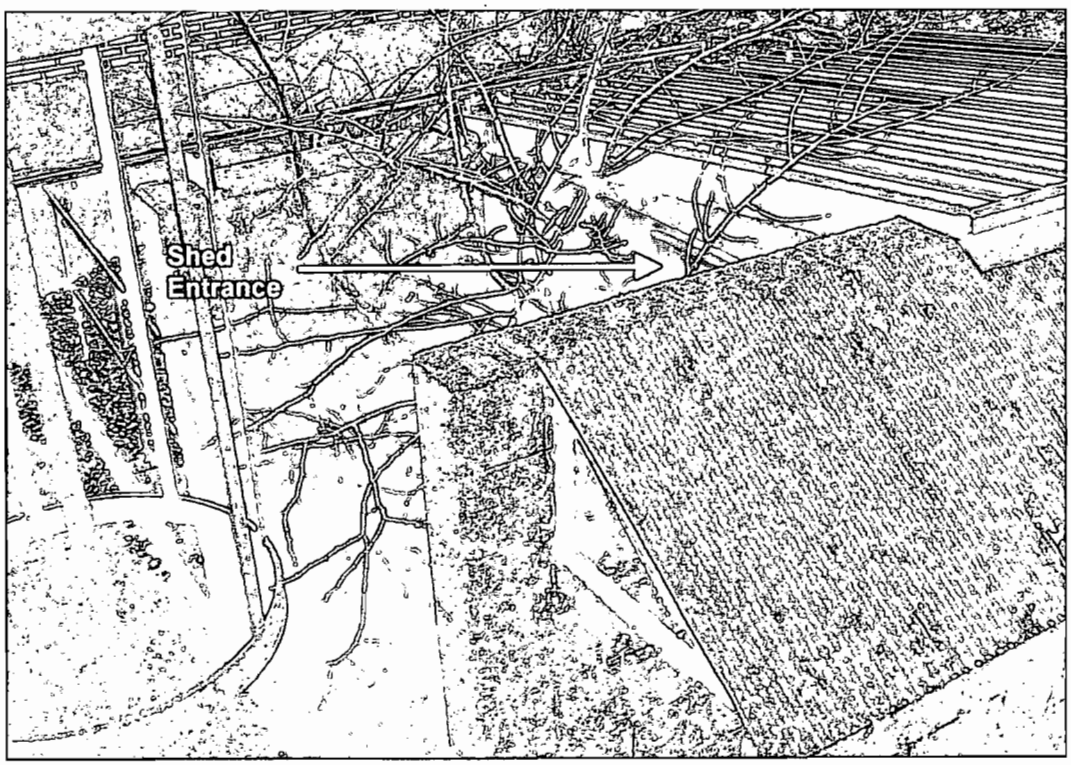


Shed – Northeast Corner

Figure 3C – DS Building Solvent Storage Shed



East View



Southeast View

Figure 3D – DS Building Vacuum Pump Shed

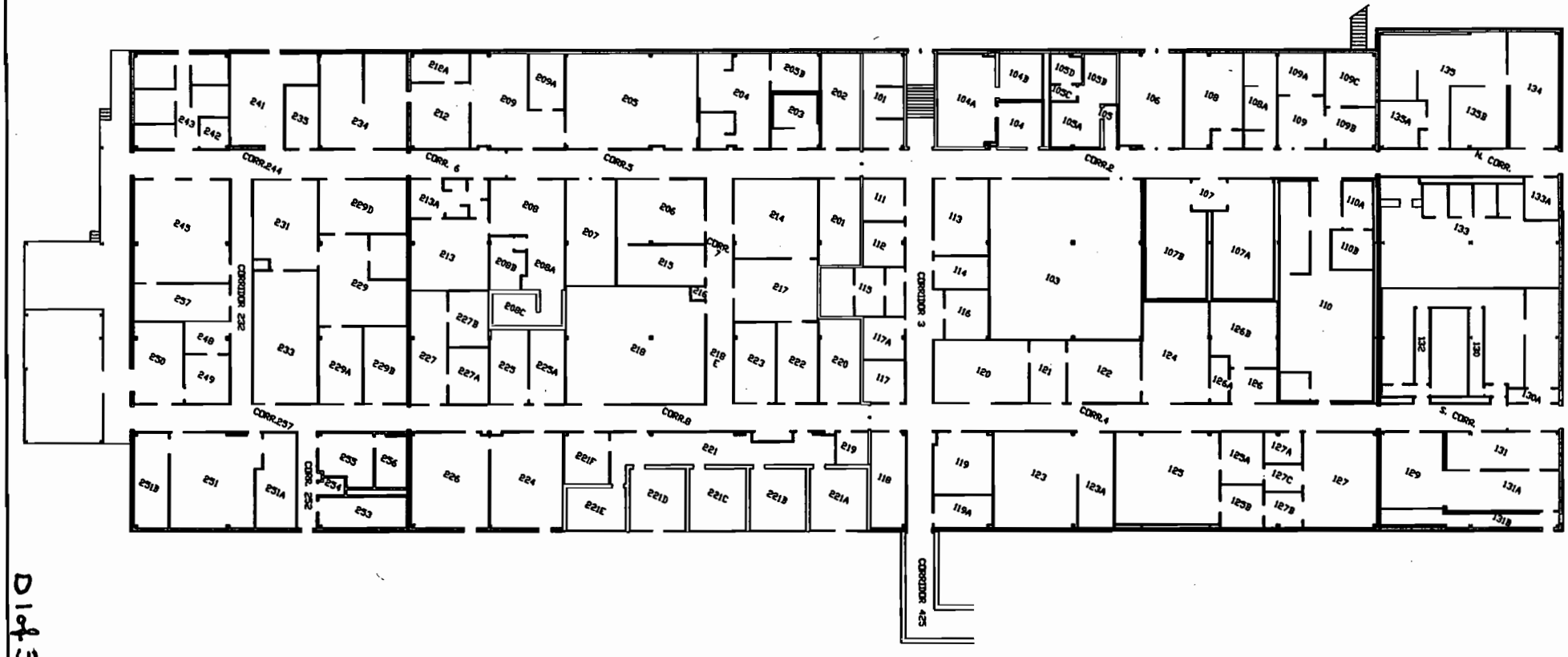
Bldg. 25 - Northeast Face

Figure 3E – Building 25

C8 of 8

Appendix D

Floor Plans



D1of3

ISS	DATE	REVISION	BY	CHKR	ENG	LP&EC	APVD	M

MOUND

Environmental Restoration Geographic Information System

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ISSUE																					
SHEET	1	2	3	4	5	6															
ISSUE	•																				

PART CLASSIFICATION

DRAWING CLASSIFICATION: UNCLASSIFIED

DS Building Floor Plans First Floor

SIZE	DRAWING NUMBER	JOB NUMBER
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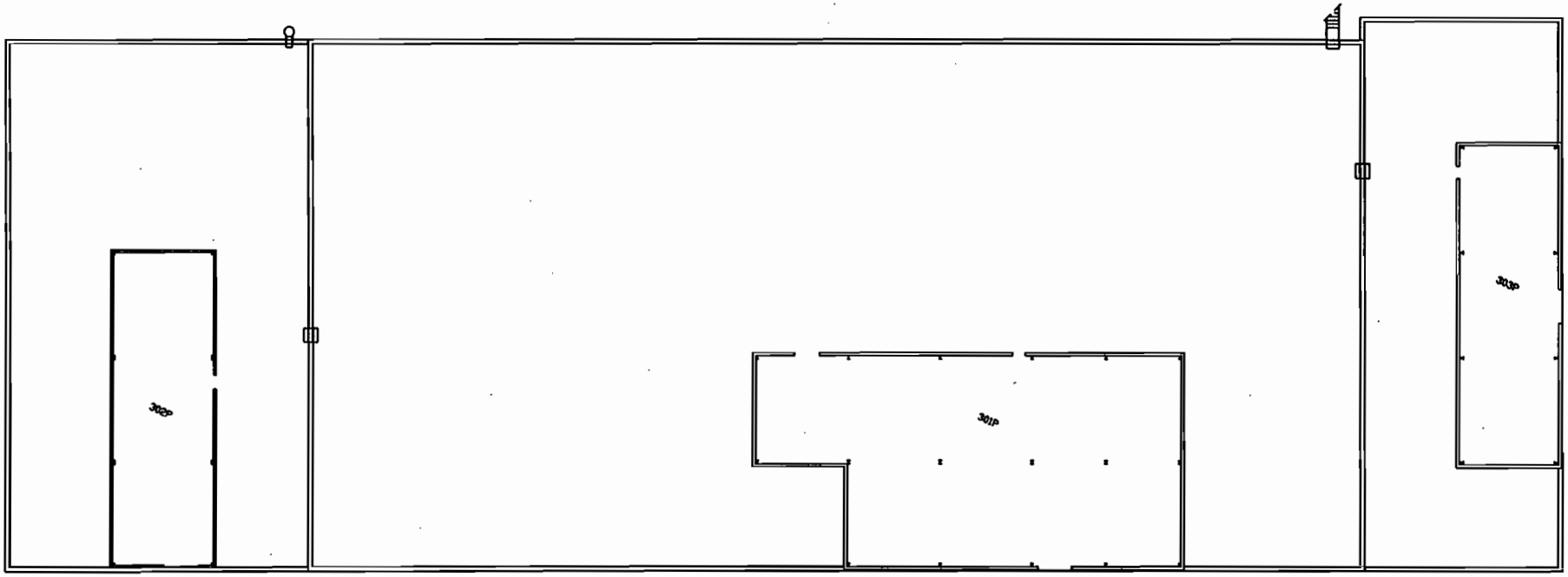
DWG TYPE STE	PRMG ER-GIS	CAGEC	SCALE	SHEET 1 OF
STATUS MD-REL-**/**/**		ORIGIN AUTOCAD		



D2 of 3

MOUND

Environmental Restoration

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ISSUE																					

SHEET	1	2	3	4	5	6
ISSUE	•					

PART CLASSIFICATION

DRAWING CLASSIFICATION: UNCLASSIFIED

DS Building Floor Plans Penthouse

SIZE | DRAWING NUMBER: bDSfp.DWG | JOB NUMBER

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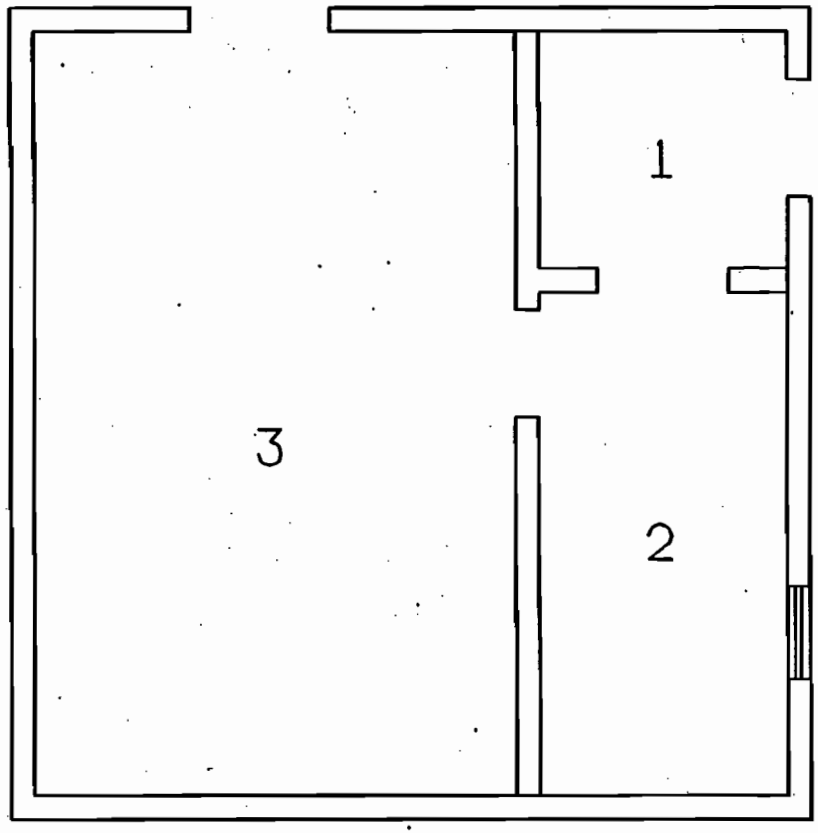

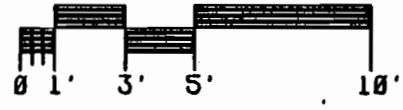

BLDG #25
FIRST FLOOR
BLDG CODE:3025

APPROVALS: SAFETY COMMITTEE REQUIRED: ___NONE ___TRUEDOC ___TCDOC ___CHDOC	DATE:		
TECH. REP.			
GR. MGR.			
TRUEDOC			
TCDOC			
CHDOC			

DESIGN CHD	PROJ MGR
SPONS	CHD SUPV
LP & EC	PCCN REV
CHD MGR	
APVD	DATE

SHEET	1	2	3	4	5	6
ISSUE	0					

FMAT CLASSIFICATION

TITLE (U) TITLE CLASSIFICATION
BLDG #25
FLOOR PLANS

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STATUS: MD-REL-12/12/91		ORIGIN: MD-BR3-V3.0	

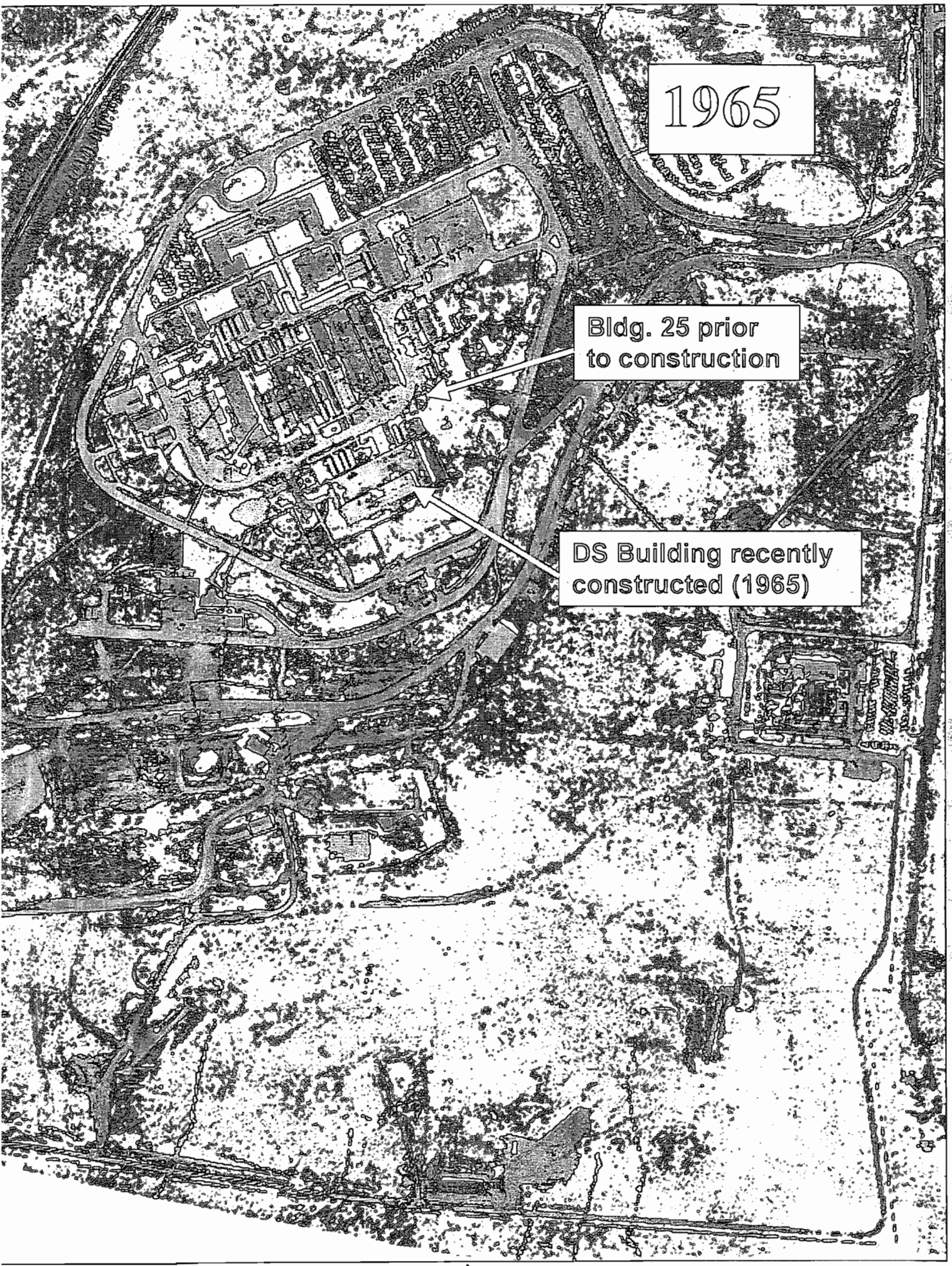
D 3 of 3

9.48-57

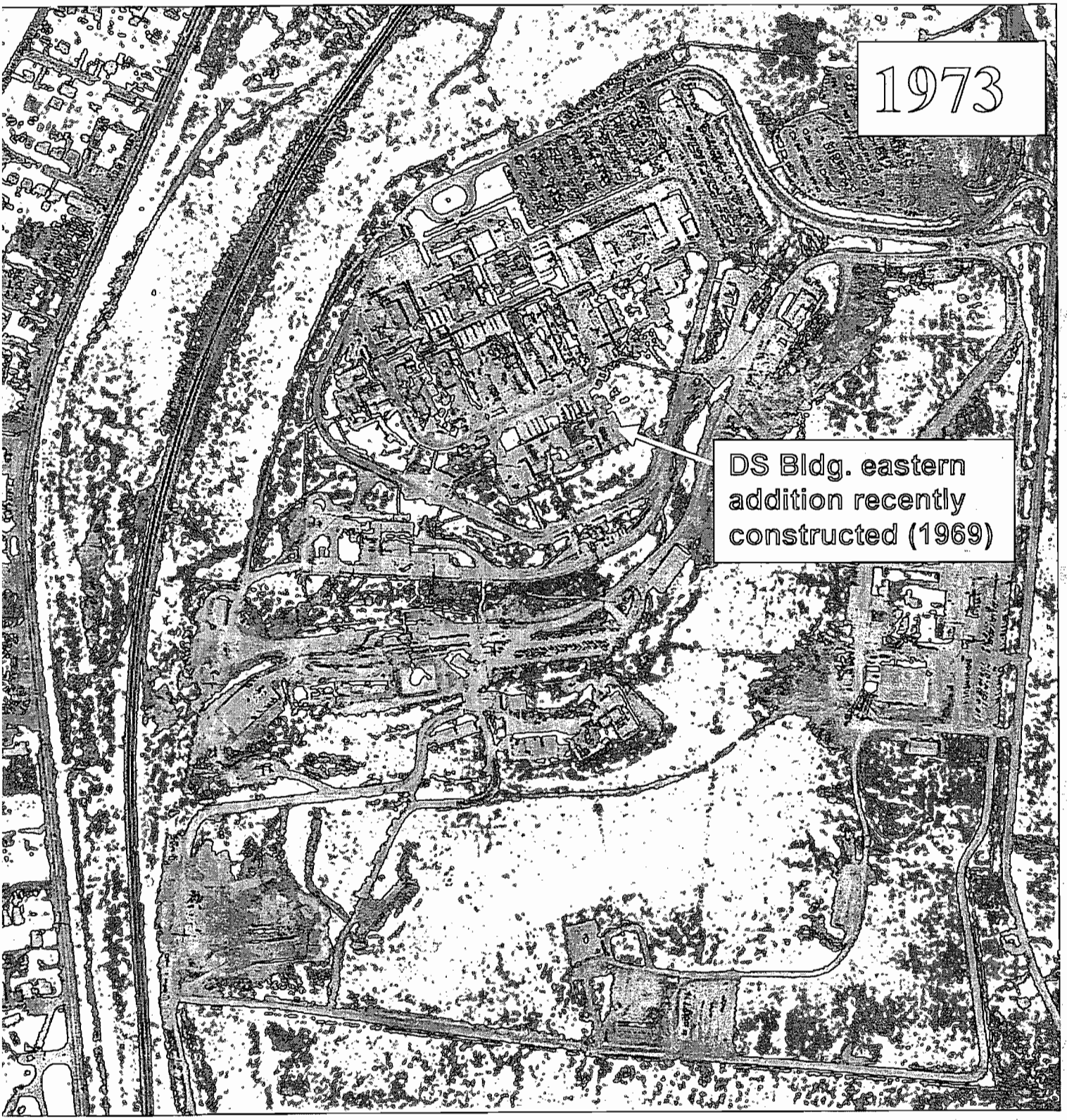
Appendix E

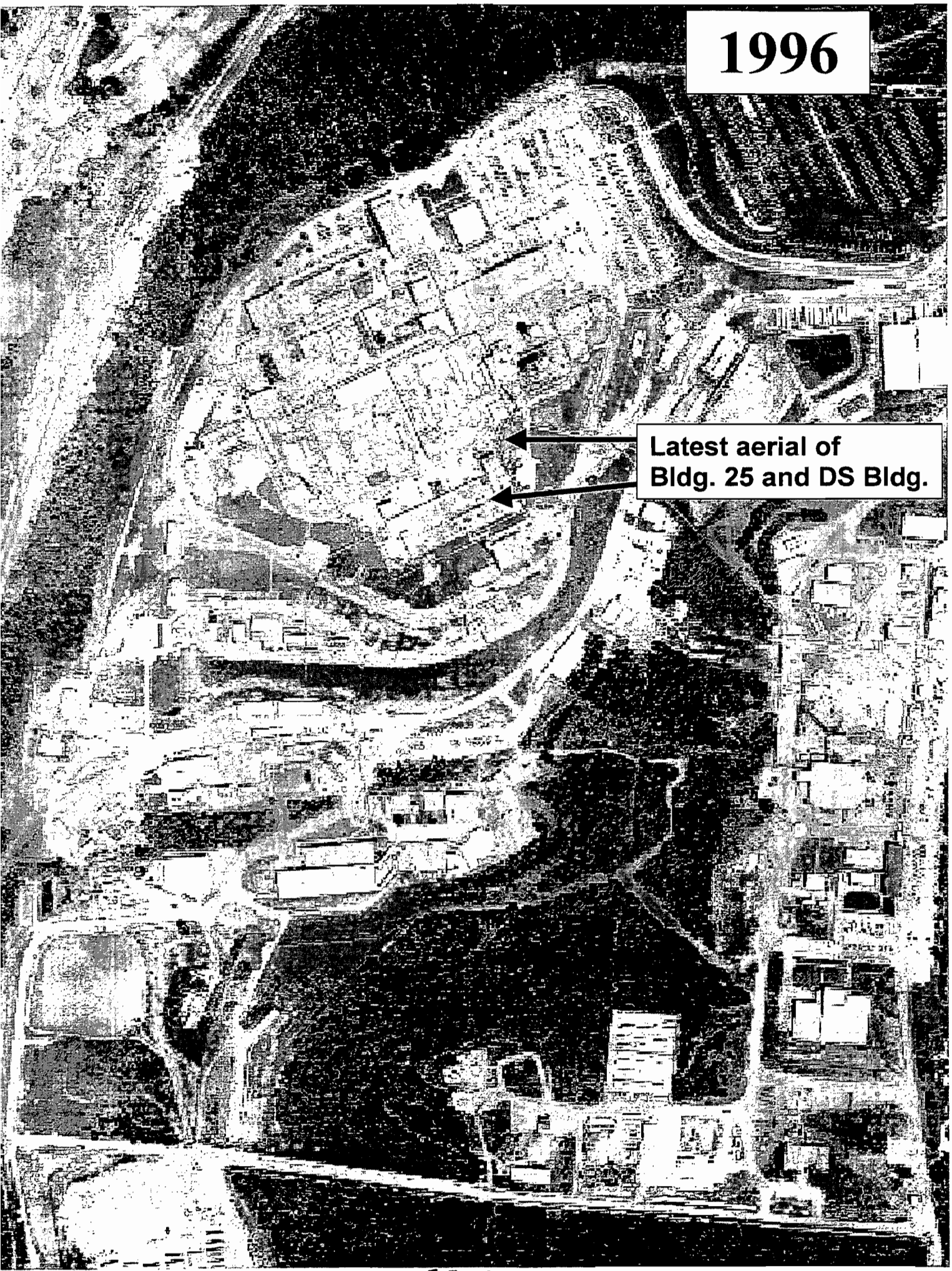
Aerial Photographs

1959
DS Bldg. prior to construction


1965
Bldg. 25 prior to construction
DS Building recently constructed (1965)

1968
Bldg. 25 recently constructed (1966)
DS Bldg. western addition recently constructed (1968)


1973
DS Bldg. eastern addition recently constructed (1969)


1996
Latest aerial of
Bldg. 25 and DS Bldg.

Appendix F

Environmental Appraisal Report of the Mound Plant (excerpt)

	Pages
• DS Building	F1 through F68
• Building 25	F69 through F113

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

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

9.5 BUILDING DS

9.5.1 Scope of Building DS 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 DS on February 19, 1996. The Environmental Appraisal Checklist (EAC) was used to record findings. The EAC is found in Attachment 1 (Section 9.5.6.1). Escorting the appraisers were the building manager and other knowledgeable personnel such as the process owner. Other information was supplied by the building manager and recorded on the Building Manager's Questionnaire (BMQ), included as Attachment 2 (Section 9.5.6.2).

9.5.2 Description of Building DS

Building DS is a one-story, 47,810-square foot structure of reinforced concrete and concrete block with a built-up membrane roof and three penthouses. Heating and air conditiong systems are central steam and chilled water *(Mound Facility Physical Characterization*, 12-1-93). The location of Building DS is shown in Attachment 3 (Section 9.5.6.3).

Building DS was constructed in 1965 (MD-10391, *Asbestos Program Manual*, 9-14-95). The building was used for metrology, explosive production, and development. The building still houses metrology, however the majority of the building is in the process of safe shutdown. Floor plans for the building are included as Attachment 4 (Section 9.5.6.4). Some of the rooms are under the User's Center Agreement. Building DS is not known to be contaminated with any radioactive or energetic materials (*Mound Facility Physical Characterization*, 12-1-93).

9.5.3 Summary of Findings

Building DS houses metrology, receiving inspection, User Center laboratories, private industry, and laboratories in the process of Safe Shutdown. The third floor is a utility penthouse. The metrology area contains processes conventional to metrology: measurement, calibrations and testing for the following five areas: electrical, dimensional, physical, mass, and temperature. The User Center Agreement was not inspected. The building is well-maintained, with several issues of environmental concern identified during the walk-through or during review of reference materials.

9.5.4 Observations

9.5.4.1 Air Emissions

There are 28 sources (the number of sources varied over time) listed on the checklist. Several fumehoods listed in the permit applications are no longer active. Active hoods should be evaluated to determine if they are *de minimis* and then documented as required. Permit applications have been filed with the Regional Air Pollution Control Agency (RAPCA). There is one permit associated with the building. The fumehood that is permitted is currently located in a lab that is under the User Center Agreement. Several applications were returned by RAPCA because emissions were *de minimis*. Associated documentation resides with the EG&G Technology and Monitoring Group. There are no fuel-burning units in the building. There is no evidence of fugitive dust.

Since explosive work had been performed in the building in the past, (See Table 2, Energetic Materials in the BDP) the air system should be evaluated to ensure against the presence of explosive contamination. Oversight responsibility has not been determined for leases issued under the User Center Agreement by the Department of Energy (DOE). Until this determination is made EG&G Mound is not assuming an oversight role for contractors or lessees who operate air emission sources.

9.5.4.2 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 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. D.C. Kramer 3-1-04

9.5.4.2.1 Sanitary Wastewater

The building has sanitary services. According to a diagram of underground utility lines, presented as Attachment 5 (Section 9.5.6.5), the building is serviced by a sanitary line. Confirmation of drainage of sanitary waste into sanitary conveyance lines was not within the scope of this effort, therefore, dye tests or smoke tests were not conducted. This building is partially leased under the User Center Agreement.

Sanitary effluent is conveyed to the onsite tertiary wastewater treatment facility, and subsequently discharged to the Great Miami River. There is no monitoring of building effluent. EG&G MAT

has no oversight role for contractors or lessees who have the ability to discharge to the sanitary and storm systems. Based on operations data, supplied by the process owner, effluent from Building DS does not deviate from that expected by the sanitary treatment plant manager.

9.5.4.2.2 Storm Wastewater

The building is also serviced by storm drains according to Attachment 5 (Section 9.5.6.5). Exterior grates and drains were not tested to confirm that they connect to the storm drainage system. Inspection showed no sign of odors, colored discharges, or scarring which would indicate that any materials other than storm water has entered the storm drainage system.

9.5.4.2.3 Chemicals

Many chemicals are stored and used in the building. A list of chemicals found in Building DS is included in the BMQ which is presented as Attachment 2 (Section 9.5.6.2). The information was gathered as part of the chemical inventory which is conducted annually. The inventory dates to 1994. Confirmation of the 1994 inventory was not attempted as 1995 data were being compiled at the time of the appraisal. It is not known what chemicals are used by lessees or contractors.

Storage, handling, and disposal of chemicals listed in the BMQ were reviewed to assure conformance to regulations related to 40 CFR 122, 40 CFR 261-265,268,265, 40 CFR 268, and 29 CFR 1910. None of the chemicals listed in the BMQ are Clean Water Act (CWA) priority pollutants. Chemical storage and handling procedures are in place for proper disposal of chemicals. There is no evidence that chemicals enter the storm or sanitary drains. There have been no reported spills from Building DS.

9.5.4.3 Potable and Service Water

*WASTE MANAGEMENT DETERMINED THAT BUILDING DEMOLITION DEBRIS CONTAINING DRINKING FOUNTAINS WITH THE POTENTIAL FOR LEAD-SOLDER JOINTS MEET THE WASTE ACCEPTANCE CRITERIA AT STONEY HOLLOW LANDFILL. D.C. Kramer 3-10-04

Potable water is supplied to the building. Backflow prevention devices are installed at all visible points of potential cross-connection. There are two water fountains located in the building. Their location and brand names are in Attachment 1 (Section 9.5.6.1) on the EAC. The fountains which supply drinking water have not been tested for lead.* According to Environmental Protection Agency (EPA) protocol, annual sampling criteria do not require testing of each fountain. There is service water supplied to the building; it is not distributed within the building.

9.5.4.4 Chemical Storage and Hazardous Materials

See Chemicals, Table 2. in the BDP.

Chemicals used in the laboratories and associated processes are stored in Building DS.* There are flammable storage cabinets which meet standard National Fire Protection Agency (NFPA) requirements. Some chemicals in the flammable storage cabinets appear to be unused and/or outdated. Nonflammable chemicals were stored in the cabinets designated for flammable chemicals. Oxygen, acetylene and other compressed gases listed in the BMQ, presented in Attachment 2 (Section 9.5.6.2), are used and properly stored and maintained. Material Safety Data Sheets (MSDS's) are available in the building, and are prominently displayed and readily

accessible to employees. Some MSDS's were not current and MSDS's from different manufacturers other than the manufacturer on the label were in use. Chemicals are stored in the building in accordance with applicable standards.

The building is equipped with appropriate emergency response equipment such as a chemical spill containment kit, eyewash, safety shower, and fire extinguisher. Fire extinguishers are bar-coded. The inspection date database is maintained in the fire station, Building 98. Inspection tags were present and current. There is an Emergency Evacuation Plan, and signs were posted in work areas. There are two aboveground 30gallon diesel fuel storage tanks located north of DS Building - Tank T23 and T24.
D.C. Kreimer 3-1-04
~~There are no aboveground storage tanks in or around the building~~ and no underground storage tanks are associated with this building. There are no sumps,* separators, or catch basins, in or around the building. *See Drainage Sumps, Table 2 in the BD
(VRH) 3/15/04

Pipes were properly marked and signs were posted indicating the presence of asbestos. See Asbestos Table 2 in the BDP.

There are no capacitors or transformers containing polychlorinated biphenyls (PCB's) located in the building (1995 Annual PCB Document Log). See PCBs, Table 2 in the BDP.

9.5.4.5 Solid, Hazardous, and Radioactive Wastes

Solid wastes generated are primarily paper. There is paper, scrap metal, and aluminum can recycling to minimize solid waste. Solid wastes are removed by janitorial personnel to a site collection point, then shipped offsite to a local landfill by a contractor. Aluminum cans, glass and cardboard are removed by janitorial personnel to specific collection points, then sent offsite to be recycled by a contractor. White paper is collected, compacted and sent offsite for recycling by a contractor. Scrap metal is collected at a specific site, then sent offsite to be recycled by a contractor. Lead-acid batteries are recycled by a contractor. These service contracts are maintained by Waste Management. Classified paper is collected and taken to the Montgomery County South Incinerator by Security. There is no evidence that hazardous materials or wastes are mixed with solid waste streams.

Hazardous wastes are generated by metrology and associated procedures (*Characterization of Mound's Hazardous, Radioactive, and Mixed Waste*, 8-16-90). All hazardous wastes generated by the processes are stored in a Satellite Accumulation Area (SAA) located inside the building near to and within eye contact of the work area. The SAA procedures and appearance conform to Resource Conservation and Recovery Act (RCRA) requirements. Wastes are collected and transported by a representative of the EG&G Waste Management Group, and are stored in Building 72 for ultimate disposal. There is no onsite treatment of wastes. All are disposed of under a contract. Waste disposal manifests and Certificates of Disposal are maintained by the EG&G Waste Management Group. They conform to RCRA requirements.

9.5.4.6 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. Some of the processes were no longer active, therefore they were not reviewed for waste minimization or pollution prevention techniques. Programs for waste minimization in place are aluminum can, white paper, and scrap metal recycling.

9.5.5 Findings and Recommendations

Photographs were taken to document the environmental appraisal. They are included as Attachment 6 (Section 9.5.6.6). The environmental appraisal of Building DS 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.

DS-1 Evaluate User Center Agreement to see if chemicals need to be identified for emergency response information. It is not known what chemicals are used by lessees or contractors.

DS-2 Evaluate User Center Agreement to determine if environmental permitting responsibilities are covered. EG&G MAT's oversight responsibility for contractors or lessees who have the ability to emit chemicals to the environment must be legally determined.

DS-3 Evaluate User Center Agreement to determine if environmental permitting responsibilities are covered. This building is partially leased under the User Center Agreement. There is no monitoring of wastewater from these laboratories.

DS-4 Evaluate air sources that are not permitted and document *de minimis* determinations in accordance with OAC 3745-15-05.

DS-5 Notify RAPCA that several hoods identified on the application are no longer active.

DS-6 Review contents in storage cabinets for compatibility requirements.

DS-7 Opportunities for waste reduction in Building DS should be considered. Review work practices.

DS-8 Evaluate the chemical inventory and remove chemicals not in use or outdated as waste in accordance with 40 CFR 261-265, 268.

DS-9 Evaluate the air vent system for explosive contamination.

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ENVIRONMENTAL APPRAISAL CHECKLIST

Building Name DS

Appraisers:

Name _____ Discipline

Name _____ Discipline

Name _____ Discipline

Name _____ Discipline

Building Manager: JEFFREY BOSTON

Process Manager: JEFFREY L. MATTHEWS

EDWARD D. BOGAN

Date: 2/19/96 & 2/20/96

ENVIRONMENTAL APPRAISAL CHECKLIST

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Environmental Appraisal Checklist

Building Name: DS

Appraisers: Terry Glander, John Puckett, Mary-Louis Hoagland, Mary Sizemore

Date: 2/19/96 & 2/20/96

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	If the answer to any of these questions is yes, proceed with the following checklist.
Are there sinks, toilets and floor drains in the building?	(Y) / N	
Are chemicals being used in the building?	(Y) / N	
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	
	Is the building in operation? What are the processes and where do they discharge to?	(Y) / N _____ _____	PARTS OF IT ARE DEDICATED TO SAFE SHUTDOWN, USER CENTERS. SOME OPERATIONS ARE STILL ACTIVE
	Do the floor drains, sinks & toilets appear to be draining properly?	(Y) / N	
OAC 3745-33	Do the floor drains and sinks drain to a sanitary or storm sewer?	Sanitary (Storm)	BOTH
	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)	DS 219 & 117A; STEAM CONDENSATE RETURN
	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	FLOOR DRAINS IN SOME ROOMS SEE PICTURE IT'S POSSIBLE

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9.5-11

Environmental Appraisal Checklist

Building Name: D.S

Appraisers: Terry Glander, John Puckett, Mary-Louis Hoagland, Mary Sizemore

Date: 2-19-96 + 2/20/96

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	SEE PAGE 35
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	N/A
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	NO ACCIDENTAL

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Building Name: DS

Appraisers: SIZE GLANDER, HOAGLAND PUCKETT

Date: 2-19-96 & 2/20/96

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
A	firing chamber	227	22701	Y/N	Y/N					
	drying ovens	233		Y/N	Y/N	NA				
B	cleaning parts	226	226001	Y/N	Y/N	acetone				
C	cleaning	135	1350001	Y/N	Y/N	isopropanol ethanol	½ gal.			
		131		Y/N	Y/N	NA				

Jeff Mather

A - document B - permit application returned as "deminimis;" however, chemical(s) have changed - should document.

Source: _____

C - permit application returned as "de minimis."

Environmental Appraisal Checklist

Building Name: DS

Appraisers: SIZEMORE HOAGLAND GLANDER PUCKETT

Date: 2-19-96 & 2/20/96

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
cleaning	251	2150001	(Y) / N	Y / (N)	NA				
cleaning	251	2510002	(Y) / N	Y / (N)	NA				
shutdown	245	2450001	(Y) / N	Y / (N)	NA				
user centers	122 124 126		(Y) / N	Y / (N)	NA				
Development/ standards	217	2170001	(Y) / N	Y / (N)	NA				

Source: _____

Building Name: DS

Appraisers: SIZL[illegible] HOAGLAND, GLANDER, PUCKETT

Date: 2-19-96 & 2/20/96

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
hood	223	2230001	Y / N	Y / N	NA				
oven	223		Y / N	Y / N	NA				
firing chamber	218	~5' x 4'	Y / N	Y / N	NA				
firing chamber	218	218002 ~3' x 2'	Y / N	Y / N	NA				
oven	225		Y / N	Y / N	NA				

Source: _____

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Environmental Appraisal Checklist

Building Name: DS

Appraisers: SIZEMORE HOAGLAND GLANDER PUCKETT

Date: 2-19-96

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
Develop./ stds	222	2220001 2220002	(Y)/N	Y/(N)	NA				
prime oven sonic cleaner chem. station	132 132 132	110184 110290 110183	(Y)/N	Y/(N)	NA				
chem. station chem. station spin coating	132 132 132	110186 112189 110320	(Y)/N	Y/(N)	NA				
cleaning	109B	109B0001	(Y)/N	(Y)/N	acetone ethanol Drakeol			312	0.02 0.01
Develop./ Stds.	125B	125B0001 2 3 4 5	(Y)/N	Y/(N)	NA				

* Document as "de minimis."

Source: _____

Building Name: DS

Appraisers: GLANDER PUCKETT SIZEMORE HOAGLAND

Date: 2-19-96 & 2/19/

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 lb/yr	Quantity to Waste Management	Hours/Yr. Operation	Air Emissions lb/h
oven	207		(Y)/N	Y/(N)	NA				
hood	207		(Y)/N	Y/(N)	NA				
* grinder	201	2010001	Y/(N)	(Y)/N	metal parts				metal – negligible
* cleaning	215	2150001	Y/(N)	(Y)/N	isopropanol ethanol acetone argon	1.6 1.6 3.3 780 cf	~Ø	~50	0.06 VOC 0.07 acetone ~16 cf/hr
	214	2140001	Y/(N)	Y/(N)					

Source: _____

* document as de minimis

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9.5-18

Environmental [illegible] .isal Checklist

Building Name: DS

Appraisers: PUCKETT SIZEMORE HOAGLAND GLANDER

Date: 2-19-96 & 2/20/96

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
Develop./ Stds.	118	1180001 2	(Y)/N	Y/(N)	NA				
ovens	125	1250001 2 3	Y/(N)	Y/(N)	NA				
	DS 209A	190001	Y/(N)	Y/(N)	N/A				
			Y/N	Y/N					
			Y/N	Y/N					

Source:

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9.5-17

Environmental Appraisal Checklist

Building Name: DS

Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore

Date: 2/19-20/96

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)	MAJORITY OF CONTAINERS IN AREA ARE ID'ED the REMAINDER CAN BE ID'ED WITHIN 72 HRS.
29 CFR 1910.1200(g)	MSDS shall be available to the employees in close proximity to the work area.	Y/(N)	NOT ALL JANITORIAL CLOSETS HAD MSDSs AVAILABLE
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)	W SIDE OF FACILITY IS BEING SHUTDOWN & IS EXTREMELY CLUTTERED
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)	MULTIPLE LABS HAD AN INCOMPATIBILITY PROBLEM THIS WAS REMEDIED IN 72 HRS.
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	N/A

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Environmental Appraisal Checklist

Building Name: DS

Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore

Date: 2/19-20/96

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	N/A
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)	VARIOUS LABS NOT IN COMPLIANCE PROCESS MAR CORRECTING
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)	EMPTY VS FULL CONTAINERS NOT ALWAYS SEGREGATED
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	
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	N/A
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	N/A
29 CFR 1910.104	Bulk oxygen storage shall be permanently placarded "OXYGEN - NO SMOKING - NO OPEN FLAMES".	Y / N	N/A
	Is there a sign posted in each work area regarding emergency egress and emergency response action?	(Y) / N	
	Is there an emergency response plan available?	(Y) / N	

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Environmental Appraisal Checklist

Building Name: DS

Appraisers: Terry Glander, John Puckett, Mary-Louis Hoagland, Mary Sizemore

Date: 2/19-20/96

HM Checklist

Regulatory Guideline	Question	Response	Comments
	Is there a process area?	(Y) / N	
	Does it have proper containment?	(Y) / N	
	Is there a liquid bulk transfer area?	(Y) / N	FERRIC CHLORIDE
	Is there proper containment?	Y / (N)	NO SECONDARY CONTAINMENT
	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
				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: _____

9.5-22

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Environmental Appraisal Checklist

Building Name: DS

Appraisers: Terry Glander, John Puckett, Mary-Louis Hoagland, Mary Sizemore

Date: 2/19-20/96

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	
	Are sources of service water (janitorial and laboratory faucets, or outdoor spigots) posted as non-potable water sources?	(Y / N)	SOME WERE AND SOME WERE NOT; BROUGHT TO ATTENTION OF PROCESS MGR.
	Does the facility contain any water coolers or fountains that are not lead free? Complete Table C.	Y / N	SEE TABLE

TABLE C—Water Fountain Survey

Building	Location	Model #	Comments / Date of Analysis for Lead
DS	NEXT TO ROOM 254	?? C14GB2	WESTINGHOUSE
DS	CORRIDOR 2 AT WOMEN'S ROOM	UNKNOWN	OASIS

Source: _____

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9.5-23

Environmental Appraisal Checklist

Building Name: DS

Appraisers: Terry Glander, John Puckett, Mary-Louis Hoagland, Mary Sizemore

Date: 2/19-20/96

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	BUT NOT ON ALL CONTAINERS SEVERAL CONTAINERS (SMALL WILL NEED CHARACTERIZATION)
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	

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Environmental Appraisal Checklist

Building Name: DS

Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore

Date: 2/19-20/96

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? Is it treated as such?	(Y) / N (Y) / N	DS 258, 243, DS 127A ARE examples.
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	
	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	
	Are containers kept closed and locked except during filling?	(Y) / N	
	Are containers moved within 3 days of being filled?	(Y) / N	

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9.5-25

Environmental Appraisal Checklist

Building Name: DS

Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore

Date: 2/19-20/96

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:		N/A
	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.		

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Environmental Appraisal Checklist

Building Name: DS

Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore

Date: 7/19-20/96

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	N/A
	Does the tank or equipment have secondary containment?	Y / N	
	Does the tank or equipment have leak detection device(s)?	Y / N	N/A
	Has spill control prevention been enacted?	Y / N	N/A
	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	POSSIBLY THIS NEEDS FURTHER INVESTIGATION DUE TO SAFE SHUTDOWN MODE AND USER AGREEME
	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	

Environmental Appraisal Checklist

Building Name: DS

Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore

Date: 2/19-20/96

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	AT offsite permitted facility
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	AT offsite permitted facility
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)	

General Comments:

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Environmental Appraisal Checklist

Building Name: DS

Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore

Date: 2/19-20/96

Asbestos Screening Checklist

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

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?	(Y) / N	INSPECTION AND ANALYSIS
	If no for this building or area note this conclusion in the comment section.		
	Is there any evidence of friable asbestos?	Y / (N)	
	Is the asbestos removal properly managed? (See questions listed below)	Y / N N/A	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: DS. Appraisers: Terry Glander, John Puckett, Mary-Louis Hoagland, Mary Sizemore Date: 2/19-20/96

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	
	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	

Environmental Appraisal Checklist

Building Name: DS

Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore

Date: 2/19-20/96

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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Building Name: DS

Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore

Date: 2/19-20/96

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	
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:

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Environmental Appraisal Checklist

Building Name: DS

Appraisers: Terry Glander, John Puckett, Mary-Louis Hoagland, Mary Sizemore

Date: 2/19-20/96

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	
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	
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	

Environmental Appraisal Checklist

Building Name: DS

Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore

Date: 2/19-20/96

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	
	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	

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Environmental Appraisal Checklist

Building Name: DS

Appraisers: Terry Glander, John Puckett, Mary-Louis Hoagland, Mary Sizemore

Date: 2/19-20/96

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: D'S

Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore

Date: 2/19-20/96

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	

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Environmental Appraisal Checklist

Building Name: DS

Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore

Date: 2/19-20/96

Low-Level Waste and Transuranic Waste Checklist

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: DS

Appraisers: Terry Glander, John Puckett, Mary-Louis Hoagland, Mary Sizemore

Date: 2/19-20/96

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	SAFE SHUTDOWN NEEDS TO EVALUATE WASTE MIN OPPORTUNITIES IN AREAS OF LEAD RECYCLING, BRASS, etc. DUE TO THE USER/AGREEMENTS IT CAN NOT BE FULLY DETERMINED WHAT CHEMICALS ARE PRESENT
	Are there solvent wastes?	(Y) / N	LEFTOVER ACETONE ONLY
	Is vehicle maintenance performed?	Y / N	N/A
	Are oils used ?	(Y) / N	VACUUM PUMPOILS
	Are these corrosive wastes?	(Y) / N	FERRIC CHLORIDE
	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	N/A
	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	

Environmental Appraisal Checklist

Building Name: DS

Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore

Date: 2/19-20/96

Waste Minimization/Pollution Prevention Activities Checklist

Regulatory Guideline	Question	Response	Comments
HALOGENATED ORGANIC (NONSOLVENT) WASTES			
	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			
	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			
	Are acidic or basic cleaning solutions used as treatment for pH adjustment chemicals?	Y / N	(STAR CITY IS USING THE FERRIC CHLORIDE)

Building Name: DS

Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore

Date: 2/19-20/96

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			
	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			
	How are auto parts cleaned?	Y / N	N/A
	Solvent sink?	Y / N	N/A
	Solvent dunk bucket?	Y / N	N/A
	Solvent dip tank?	Y / N	N/A
	Are parts cleaning solvents used for anything else besides cleaning parts?	Y / N	N/A
	Are spills reduced by locating sinks or dunk buckets near auto service bays?	Y / N	N/A

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Environmental Appraisal Checklist

Building Name: DS

Appraisers: Terry Glander, John Puckett, Mary-Louis Hoagland, Mary Sizemore

Date: 2/19-20/96

Waste Minimization/Pollution Prevention Activities Checklist

Regulatory Guideline	Question	Response	Comments
	Are cleaned parts drained on the sink to minimize solvent spills?	Y / N	N/A
	Are drip tanks used to capture losses?	Y / N	N/A
	Is a solvent sink used for mineral solvents rather than a dunk bucket or dip tank?	Y / N	N/A
	Does a waste hauler collect solvent waste for recycling or treatment?	Y / N	N/A
OILS			
	What kind of oils are used?		VACUUM PUMP OIL, WD40
	Hydraulic oil?	Y / N	NEEDS VERIFIED
	Transformer oil?	Y / N	" "
	Metal working fluids?	(Y) / N	VACUUM PUMP OIL, WD40
	Spent lubricating oils?	(Y) / N	VACUUM PUMP OIL.
	Can the process be modified or changed to use water-based fluids?	Y / (N)	SAFE SHUTDOWN
	Are these good housekeeping and operation practices used to minimize oil waste production?		N/A
	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	

Building Name: D.S Appraisers: Terry Glander, Mary-Louis Hoagland, John Puckett, Mary Sizemore Date: 2/19-20/96

Waste Minimization/Pollution Prevention Activities Checklist

Regulatory Guideline	Question	Response	Comments
	Are these treatment techniques used to promote separation of oil/water wastes?		N/A
	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			
	Has there been an attempt to reduce volume or toxicity by:		NEEDS FURTHER EVALUATION * DO TO INFLUX OF CLOSURES. USER AGREEMENT NEEDS RESOLUTION
	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	

* Further evaluation not necessary due to shutdown and building demolition.
D.C. Kramer 3-1-04

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Environmental Appraisal Checklist

Building Name: DS **Appraisers:** Terry Glander, John Puckett, Mary-Louis Hoagland, Mary Sizemore **Date:** 2/19-20/96

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	
	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: DS Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

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

PPE IN VARIOUS LOCATIONS

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

4. Provide a physical description of the building.

Building DS is constructed of reinforced concrete and concrete blocks. The roof is BUM (asphalt). Total area is 47,800 ft^2. HVAC systems are central steam and chilled water. Asbestos has been found in the building. Building is not known to be contaminated with any radioactive ~~or energetic materials~~, although both types have been handled in the building. DS want to be sanitized to 3X level by 9/3

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 for metrology studies ~~and energetic materials production and development~~ and DOE User Center or lease to MMCIC and ~~Stuff~~ SAFE Shutdown Activities

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: DS Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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: Tape processing, slapper detonator development, process technology development, welding technology, off schedule production, energetic component development, low energy component development, x-ray processing, final acceptance, IMPAC, material handling, metrology

How Wastes Are Generated:

Tape Processing: Photoresist is put on a 250-ft roll of copper tape. A mask then covers part of the tape. The tape is exposed to ultraviolet light which hardens the unmasked photoresist. A dilute solution of Na_2CO_3 is used to remove the unhardened photoresist. This solution is flushed down the drain. The tape is passed through a ferric chloride solution to etch it. A dilute solution of KOH is then used to remove the hardened photoresist. The KOH solution is also washed down the drain.

Ferric chloride is handled as follows: A 55-gal drum of fresh solution is brought into the room where the processing machine is used. Seventeen gallons of ferric chloride is pumped into the machine. After 750 ft of tape are processed, the ferric chloride solution is pumped out of the machine and into a waste drum. The 17-gal tank in the machine is then filled with water, and the water is pumped into the waste drum. The tank is filled with water once again, and this water is flushed down the drain.

The tape then moves to the nickel plating room. Tape is put into the plater, which is connected to tanks containing three different materials: nickel sulfamate/water/boric acid solution, water, and sulfuric acid/water solution. First the delivery line is flushed with water, and that water goes down the drain. Sulfuric acid is used to clean the tape and is returned to its container. The delivery line is again flushed with water which goes in the drain. Nickel sulfamate solution is delivered to the tape, and some nickel is plated out. The solution is returned to its container. The line is flushed with water which is collected in a 15-gal waste drum.

Wastes from the plating operation are spent nickel sulfamate solution and water, dirty sulfuric acid (tank of acid is changed two or three times a year, depending on volume of production), and nickel cleanup waste, which includes any papers used to clean up spills.

Next, a bridge is bonded to the tape. HCl and ethyl alcohol are used to clean these two parts. Both cleaning agents are used in small quantities and are flushed down the drain.

Throughout the process, alcohol may be used to wipe the tape, but the alcohol evaporates, and there is no liquid waste to dispose of.

Current plans call for moving the production portion of tape processing to the basement of Building COS. The development portion will remain in DS. After the move is completed, ferric chloride may be

replaced with cupric chloride which can be regenerated with HCl. Cupric chloride can be reused. Some excess cupric chloride will be generated and will need to be disposed of.

Slapper Detonator Development: This work occasionally requires use of the tape processing equipment described above. Additional potentially hazardous materials are 50% HCl solution which is collected in waste cans for Waste Management to pick up; ethyl alcohol which is used for cleaning and, if used in significant quantities, is put in waste cans; nickel sulfamate and gold cyanide solutions which are used for plating nickel and gold on the tape and are collected in waste cans for disposal; acetone which is used in small quantities for cleaning and quickly evaporates; and small quantities of explosives (PETN, HMX, LX-16) whose wastes are put in "Explosive Waste" containers.

Process Technology Development: This group works on film fabrication and surface modification using both physical and chemical means at a variety of temperatures and pressures. They use small amounts of various chemicals. There is no significant waste stream.

Welding Technology: Acetone and 200-proof ethyl alcohol are used for wiping parts clean. The solvents evaporate. There is no hazardous waste stream.

Off Schedule Production: In this operation, orders for small numbers of parts are filled. The wastes include small amounts of explosive wastes which are sent to the burn area on site for destruction, hardened epoxies which go in a trash can, and solvents used for cleaning parts in an ultrasonic bath. The solvents used are Freon TF, tricholorethane, and ethyl alcohol. They are piped into the room, and spent solvents are poured into a sink which drains to a waste drum in the DS solvent shed.

Energetic Component Development: Secondary explosives are used in this work in small quantities. Explosive wastes in the form of paper, cloth, etc., contaminated with traces of explosives are put into lined containers which are emptied when they are about half full or contain about a gram of explosive. Wastes removed from the containers are packaged, labeled, and sent to the on-site burn area for destruction. Pieces of explosive which are to be discarded are packaged, labeled, and stored in a service bunker until they can be taken to the burn area. Solvents used in these labs are generally in squeeze bottles. They evaporate quickly and there is no liquid waste. Solvents include isopropyl alcohol, ethyl alcohol, acetone, toulene, Freon, and trichloroethane. Occasionally, Freon TF is used in a bath for high voltage testing, and ethylene glycol is used to make a black ink required to locate deviations from the desired surface contour for some parts. Wastes from these operations are put in cans for Waste Management to pick up.

Low Energy Component Development: Energetic components are fabricated using pyrotechnics and primary, secondary, and special explosives. Explosive wastes are put in marked containers and eventually sent to be burned on site. Ethanol and acetone are occasionally used for cleaning. The solvent is put on a Kimwipe which is then used to clean

the part. The solvent evaporates and the Kimwipe is put in the trash or explosive waste. No liquid hazardous wastes are generated.

X-Ray Film Processing: The x-ray film development in Building DS is done with a Hope model processor which uses Kodak chemicals (Kodak Industrex Developer and Replenisher, Kodak Industrex Fixer and Replenisher, Kodak Liquid Developer System Cleaner, and Kodak Fixer Wash System Cleaner). These chemicals are collected in a waste can for pickup by Waste Management. In February (1990) a new Fuji processor replaced the Hope model. Different chemicals are to be used, and Waste Management will help plan for waste disposal.

Metrology may generate 1 gal of solvent waste, primarily acetone, each year.

Final Acceptance, IMPAC, and Material Handling generate no hazardous wastes.

Contact: DON HOMAN
Phone #: 3116

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

Building Manager's Questionnaire

Building Name: DS Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

SAFE SHUTDOWN ACTIVITIES

10. Does the building have air emission sources? Yes

Process Source	Room Number	Hood Number	Active	Chemicals Used	Quantity Used	Quantity to Waste Management	Lbs./Yr. Operation	Air Emissions
USU Center	122	DS-122	Y / N					
USU Center	124	DS-124	Y / N					
Develop. Stds	125	125001	Y	Acetone ethanol alumina	.005 .002 .001		1.04 .416 .208	
Develop. Stds	125	1250002	Y	Isopropanol lead tin	.003 .001 0		6.24 .208 0	
Develop. Stds	125B	125B 0004	Y	Freon TF Ethanol Isopropanol Trichloroethane	.35 .0068 .051 .018		728 14.144 106.08 37.44	
Develop. Stds	125B	125B00005	Y	Freon TF Ethanol Trichloxoethane	.009 .002 .0048		1.404 .312 .7488	
Develop. Stds	127	1270001	Y	Ethanol	.248		6.448	
Develop. Stds	118		Y	Epichloranydrin	.088		.352	
Develop. Stds	207	2070001	Y	Epichlorohydrin Acetone Isopropanol Diethanolamine	.0012 .016 .0756 .0012		.0624 .832 3.9312 .0624	
Develop. Stds	207	Oven	Y	Epichlorohydrin diethanolamine	.0023 .0003		3.68 .48	
Develop. Stds	226	22260001	Y	Epichlorohydrin	.0035		.014	
Develop. Stds	226	226002	Y	Epichlorohydrin misc HAP	.0012 .0066		.0624 .3432	
Develop. Stds	133	1330001	Y	Ethanol Freon Stoddard Solvent	.04 .1 .01		8.32 20.8 2.08	
Develop. Stds	135	1350001	Y	Isopropanol	.786		1.572	
Safe Shutdown	131		N					
Develop. Stds	251	DS2510001	Y	Isopropanol	.003		1.872	
Develop. Stds	251	DS2510002	Y	Isopropanol desolve It	.141 .0013		29.328 .2704	
Develop. Stds	245	DS2450001	Y	Acetone Isopropanol Ethanol medhanol Bioact EC-7	.08 .08 .08 .08 .01		3.84 3.84 3.84 3.84 .48	
User Center	124							
User Center	126A							
User Center	122/6							

Building Manager's Questionnaire

Building Name: DS Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

Process Source	Room Number	Hood Number	Active	Chemicals Used	Quantity Used	Quantity to Waste Management	Lbs./Yr. Operation	Air Emiss
Develop. Stds	217	DS217 0001	Y	Epichlorohydrine petrol distillates Ethyl Orthosilicate	.0091 .0003 .0001		.2366 .0078 .0026	
Develop. Stds	222	DS222 0001	Y	Epichloronydrin	.0001		.0208	
evelop. Stds	222	DS222 0002	Y	Epichlorohydrin	.0001		.0208	
Process Development	110	110183	Y	Ethanol Ammonium hydoxide dydrogen peroxide Acetone Freon 22	.005 .004 .0015 .0002 .0001		11.52 9.216 3.456 .4608 .2304	
Process Development	110	110184	Y	hexamethyl disilizane	.0001		.0032	
Process Development	110	110186	Y	Ethanol Ammonium Hydroxide Hydrogen Peroxide Acetone Freon 22	.005 .004 .0015 .0002 .0001		11.52 9.216 3.456 .4608 .2304	
Process Development	110	110290	Y	Ammonium hydroxide hydrogen peroxide	.0001 .0001		.8736 .8736	
Process Development	110	110320	Y	photoresist photoresist thinner photoresist developer acetonexoluene/ PMPS xylene/PMPS	.0008 .0009 .001 .0008 .001 .001		.32 .36 .4 .32 .4 .4	
Process Development	112	112189	Y	Ethanol Ammonium hydroxide hydrogen peroxide acetone Freon 22	.005 .004 .0015 .0002 .0001		11.52 9.216 3.456 .4608 .2304	
Process Development	109B	DS109B 0001	Y	Acetone Ethanol	.02 .012		6.24 3.744	
Develop. Stds	125B	125B 0001	Y	Epichloronydrin	.012		.624	

Source: Mound Air Emissions Database 11/30/95

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Building Manager's Questionnaire

Building Name: DS Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

11. Describe air pollution control equipment used to reduce emissions for each source.

Process Source	Emissions	Control Equipment	Functioning
Fumehood Room 122		demister and rough filter	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?

Process Source	Permit	Log	Permit Conditions & Frequency of Monitoring
Fumehood Room 122		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
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? Yes

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

Building Manager's Questionnaire

Building Name: DS Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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. SEE ATTACHED LIST

Chemical Name	State	Amount (MAX)

Source: Chemical Inventory 1994

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BABY PO R DISINEFECTANT	VALLEY JANITOR SUPPLY		OZ	14	OZ	0	OZ	DS	101	L	F	1	4	BORNEMANN
CRT CLEANING FL	INMAC			8	OZ	1	OZ	DS	101	L	N	1	4	BORNEMANN
DUST MOP TREATMENT	STANDARD SANITATION SYSTEMS	17	OZ	18	OZ	1	OZ	DS	101	L	F	1	4	BORNEMANN
INK #620 BLACK	AERO BRANDS	7	OZ	8	OZ	1	OZ	DS	101	L	N	1	4	BORNEMANN
LIQUID PAPER	GILLETTE	3.6	OZ	3.6	OZ	1	OZ	DS	101	L	N	1	4	BORNEMANN
MARKER BOARD CLEANER	WEBER COSTELLO	32	OZ	32	OZ	8	OZ	DS	101	L	N	1	4	BORNEMANN
POLISH LEMON FURNITURE	VALLEY JANITOR SUPPLY	34	OZ	5	OZ	17	OZ	DS	101	L	F	1	4	BORNEMANN
2-TON EPOXY	DEVCON CORP	28	G	28	G	4	G	DS	103	L	N	1	4	BORNEMANN
3 IN 1 OIL	BOYLE MEDWAY INC	48	OZ	48	OZ	9	OZ	DS	103	L	F	1	4	BORNEMANN
3-36 MULTI SPRAY	CRC CHEMICALS	16	OZ	16	OZ	0	OZ	DS	103	L	F	1	4	BORNEMANN
ACETONE	FISHER	10	ML	300	ML	290	ML	DS	103	L	M	1	4	BORNEMANN
ANTI-STATIC SOLUTION	DEVCON	1	GA	1	GA	0.25	GA	DS	103	L	N	1	4	BORNEMANN
BENZOLTRIAZOLE	FISHER	8	OZ	8	OZ	1	OZ	DS	103	L	N	1	4	BORNEMANN
CASTING POWDER	FACSIMILE	2	LB	3	LB	1	LB	DS	103	S	N	1	4	BORNEMANN
CASTONE	RANSOM & RANDOLPH CO	1.5	LB	2	LB	0.5	LB	DS	103	S	F	1	4	BORNEMANN
CURING LIQUID	FACSIMILE	3	PT	3	PT	0.5	PT	DS	103	L	F	1	4	BORNEMANN
DISINFECTANT/DEODORANT	BETCO CORP	14	OZ	14	OZ	1	OZ	DS	103	L	F	1	4	BORNEMANN
DUSTIN SHINE	MISCO INTERNATIONAL CHEMICALS INC	19	OZ	19	OZ	2	OZ	DS	103	L	F	1	4	BORNEMANN
EEL SKID	WILSON INSTRUMENTS	1.5	PT	1.5	PT	0.25	PT	DS	103	L	F	1	4	BORNEMANN
ETHYL ALCOHOL	FISHER	2	GA	2	GA	1	GA	DS	103	L	F	1	4	BORNEMANN
FORMULA 101	CROWN	12	QT	12	QT	2	QT	DS	103	L	F	1	4	BORNEMANN
GAGE BLOCK CLEANER	DO ALL	6	OZ	12	OZ	6	OZ	DS	103	L	F	1	4	BORNEMANN
GAGE BLOCK PRESERVATIVE	DO ALL	102	OZ	132	OZ	30	OZ	DS	103	L	F	1	4	BORNEMANN
HEAD CLEANER	HEWLETT PACKARD	6	OZ	8	OZ	2	OZ	DS	103	L	M	1	4	BORNEMANN
HEADSTART CLEANER	BUTCHER POLISH CO	8	OZ	8	OZ	2	OZ	DS	103	L	N	1	4	BORNEMANN
HOUSEHOLD OIL	GULF OIL CORP	4	OZ	4	OZ	2	OZ	DS	103	L	F	1	4	BORNEMANN
INTENSIVE CARE LOTION	CHEESEBROUGH PONDS	10	OZ	10	OZ	5	OZ	DS	103	L	N	1	4	BORNEMANN
KLEEN-SURF	DO ALL	45	OZ	45	OZ	10	OZ	DS	103	L	F	1	4	BORNEMANN
LENS CLEANER	FOGPRUF	8	OZ	8	OZ	3	OZ	DS	103	L	N	1	4	BORNEMANN
LIQUID PAPER	GILLETTE	7.2	OZ	7.2	OZ	1.2	OZ	DS	103	L	N	1	4	BORNEMANN
LIQUID WRENCH	RADIATOR SPECIALTY CO	4	OZ	4	OZ	2	OZ	DS	103	L	F	1	4	BORNEMANN
LUBRIPLATE	FISKE BROTHERS REF.	14	OZ	14	OZ	2	OZ	DS	103	L	F	1	4	BORNEMANN
M-1 RUST PREVENTATIVE	STARRETT	3	GA	3	GA	0	GA	DS	103	L	F	1	4	BORNEMANN
METAL LUSTER	HOLCOMB	384	OZ	384	OZ	32	OZ	DS	103	L	N	1	4	BORNEMANN
METAL MARKER	NISSEN	6	OZ	6	OZ	0	OZ	DS	103	L	R	1	4	BORNEMANN
MICRO CLEANER	INTERNATIONAL PRODUCTS INC	8	OZ	8	OZ	1	OZ	DS	103	L	N	1	4	BORNEMANN
MOBIL OIL	MOBIL (MOORE)	1	GA	1	GA	0.5	GA	DS	103	L	F	1	4	BORNEMANN
MULTI-PURPOSE GREASE	FISKE BROTHERS REFINING	29	OZ	29	OZ	2	OZ	DS	103	L	F	1	4	BORNEMANN
PAINT THINNER	ALLPRO CORP	1	GA	1	GA	0.5	GA	DS	103	L	N	1	4	BORNEMANN
PARTING AGENT	IMS COMPANY	12	OZ	12	OZ	0	OZ	DS	103	L	F	1	4	BORNEMANN
SEPARATOR	FLEXBAR MACHINE CORP	5	OZ	5	OZ	0.5	OZ	DS	103	L	M	1	4	BORNEMANN
SHINE-UP	JOHNSON WAX	15	OZ	15	OZ	8	OZ	DS	103	L	F	1	4	BORNEMANN
SOLDER, RESIN CORE	J.W. HARRIS CO	1	LB	1	LB	0	LB	DS	103	S	R	1	4	BORNEMANN
SPRA-LUBE SILICONE	GC ELECTRONICS	5	OZ	8	OZ	3	OZ	DS	103	L	F	1	4	BORNEMANN
STAINLESS STEEL CLEANER/POLISH	3M	250	OZ	279	OZ	20	OZ	DS	103	L	F	1	4	BORNEMANN

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CHEMICAL	MANUFACT	USE	Unit	MAX	Unit	AVG	Unit	BD	RM	STATE	STOR	PRES	TMP	SUPER
STARRETT PLATE CLEANER	SURRY CHEMICALS	5	GA	5	GA	1	GA	DS	103	L	N	1	4	BORNEMANN
STARRETT TOOL & INSTRUMENT OIL	WILLIAM F. NYE, INC	9	OZ	9	OZ	1	OZ	DS	103	L	F	1	4	BORNEMANN
STATIC NULL	GC ELECTRONICS	8	OZ	14	OZ	6	OZ	DS	103	L	F	1	4	BORNEMANN
STODDARD SOLVENT	SOHIO	2	GA	2	GA	1	GA	DS	103	L	F	1	4	BORNEMANN
SUPER-COTE	J&L METROLOGY	60	OZ	60	OZ	4	OZ	DS	103	L	N	1	4	BORNEMANN
VELOCITE #6	MOBIL (mOORE)	5	QT	5	QT	0	QT	DS	103	L	F	1	4	BORNEMANN
VINYL COATING	CROWN	104	OZ	120	OZ	15	OZ	DS	103	L	F	1	4	BORNEMANN
WAYLUBE 80	COLT LTD. ELOX DIV.	1	QT	1	QT	0.25	QT	DS	103	L	F	1	4	BORNEMANN
WD-40	WD-40 CO	2.5	QT	2.5	QT	0.5	QT	DS	103	L	F	1	4	BORNEMANN
INK STAMP PAD	SANFORD	2	OZ	2	OZ	1	OZ	DS	108A	L	M	1	4	BORNEMANN
3 IN 1 OIL	BOYLE MEDWAY	3	OZ	3	OZ	2	OZ	DS	109	L	F	1	4	BORNEMANN
ACETONE	FISHER	2	PT	2	PT	4	PT	DS	109	L	F	1	4	BORNEMANN
ALCOHOL	MIDWEST GRAIN	4	PT	4	PT	4	PT	DS	109	L	F	1	4	BORNEMANN
GLASS CLEANER	CARROL	1	GA	1	GA	0.75	GA	DS	109	L	N	1	4	BORNEMANN
JEWELERS ROUGE	DIVINE BROTHERS CO	3.75	OZ	4	OZ	0.25	OZ	DS	109	S	R	1	4	BORNEMANN
KRYLON MATTE	BORDEN	3	OZ	3	OZ	2	OZ	DS	109	L	F	1	4	BORNEMANN
RUBBER CEMENT	DENNISON MANUFACTURING CO	4	OZ	8	OZ	4	OZ	DS	109	L	N	1	4	BORNEMANN
WD-40	WD-40 CO	24	OZ	24	OZ	6	OZ	DS	109	L	F	1	4	BORNEMANN
3 IN 1 OIL	BOYLE MEDWAY	3	OZ	3	OZ	2	OZ	DS	110	L	F	1	4	BORNEMANN
CIRCUIT COOLER	SPC TECHNOLOGY	96	OZ	96	OZ	10	OZ	DS	110	L	F	1	4	BORNEMANN
CRT CLEANING SOLUTION	INMAC	4	OZ	4	OZ	2	OZ	DS	110	L	N	1	4	BORNEMANN
DARKEOL RQ	PENRECO	30	GA	30	GA	1	GA	DS	110	L	C	1	4	BORNEMANN
DRY LUBRICANT	MILLER STEPHENSON	16	OZ	16	OZ	0	OZ	DS	110	L	F	1	4	BORNEMANN
ETHYL ALCOHOL	MIDWEST GRAIN	8	OZ	8	OZ	4	OZ	DS	110	L	N	1	4	BORNEMANN
FREON TF	CHEMTRONICS INC	64	OZ	64	OZ	8	OZ	DS	110	L	F	1	4	BORNEMANN
RTV 102 SILICONE	GENERAL ELECTRIC	47	OZ	47	OZ	3	OZ	DS	110	L	R	1	4	BORNEMANN
SOLDER, MULTI-CORE SN60	MULTICORE SOLDERS LTD	2	LB	2	LB	0.5	LB	DS	110	S	R	1	4	BORNEMANN
WD-40	WD-40 CO	12	OZ	12	OZ	2	OZ	DS	110	L	F	1	4	BORNEMANN
LIQUID PAPER	GILLETTE	2.4	OZ	2.4	OZ	1	OZ	DS	112	L	N	1	4	BORNEMANN
FOGPRUF	MINE SAFETY APPLIANCES CO.	2	OZ	4	OZ	1	OZ	DS	115	L	N	1	4	BORNEMANN
LIQUID PAPER	GILLETTE	4.8	OZ	4.8	OZ	2	OZ	DS	115	L	N	1	4	BORNEMANN
ALCOHOL	MIDWEST GRAIN	8	OZ	8	OZ	2	OZ	DS	119	L	N	1	4	BORNEMANN
INTENSIVE CARE	PONDS	10	OZ	10	OZ	1	OZ	DS	119	L	N	1	4	BORNEMANN
MOBILE DTE	MOBIL	10	GA	10	GA	0	GA	DS	120	L	N	1	4	HARDEN
BONDER, SUPER LOCTITE 416	LOCTITE CORP.	1	OZ	1	OZ	0	OZ	DS	121	L	N	1	4	HARDEN
CLEANER,MARKER BOARD	WEBER COSTELO	16	OZ	16	OZ	0	OZ	DS	121	L	N	1	4	HARDEN
CORRECTION FLUID,LIQUID PAPER		0.6	OZ	0.6	OZ	0	OZ	DS	121	L	N	1	4	HARDEN
DUSTER	SPI SUPPLIES	280	OZ	280	OZ	0	OZ	DS	121	G	L	2	4	HARDEN
EPOXY,EXTRA FAST SETTING	COLE PARMER	3.5	OZ	3.5	OZ	0	OZ	DS	121	L	R	1	4	HARDEN
INK, QUICK DRY STAMP PAD,RED	SANFORD	5	OZ	5	OZ	0	OZ	DS	121	L	F	1	4	HARDEN
INK,INDIA,LATEX BASE DWG INK FOR	KOH-I-NOOR	5.25	OZ	5.25	OZ	0	OZ	DS	121	L	M	1	4	HARDEN
INK,STAMP PAD	SANFORD	4	OZ	4	OZ	0	OZ	DS	121	L	F	1	4	HARDEN
LOCTITE	LOCTITE CORP.	14.4	OZ	14.5	OZ	0	OZ	DS	121	L	N	1	4	HARDEN
	FISHER SCIENTIFIC	4	L	4	L	0	L	DS	122	L	M	1	4	HARDEN

CHEMICAL	MANUFACT		USE	Unit	MAX	Unit	AVG	Unit	BD	RM	STATE	STOR	PRES	TMP	SUPER
ALCOHOL,DEHYDRATED	MIDWEST GRAIN CO.	A	3	GA	3	GA	0	GA	DS	122	L	N	1	4	HARDEN
ALCOHOL,DEHYDRATED	MIDWEST GRAIN CO.		1	GA	1	GA	0	GA	DS	122	L	N	1	4	HARDEN
ALCOHOL,ETHYL			1	L	1	L	0	L	DS	122	L	N	1	4	HARDEN
ALCOHOL,ETHYL	WHEATON		1	L	1	L	0	L	DS	122	L	M	1	4	HARDEN
CEMENT,MULTI PURPOSE,CLEAR	HWI		8	OZ	8	OZ	0	OZ	DS	122	L	R	1	4	HARDEN
CEMENT,PVC,CLEAR	ACE HARDWARE		4	OZ	4	OZ	0	OZ	DS	122	L	R	1	4	HARDEN
CLEANER	MILLER STEPHENS		15	OZ	15	OZ	0	OZ	DS	122	L	Y	2	4	HARDEN
CLEANSER, AJAX	AJAX		14	OZ	14	OZ	0	OZ	DS	122	S	F	1	4	HARDEN
COPPER BRITE			16	QT	16	QT	0	QT	DS	122	L	N	1	4	HARDEN
DESICCANT,PROTEK-SORB ACTIVATED	DAVISON CHEMICAL		940	GM	940	CM	0	CM	DS	122	S	J	1	4	HARDEN
DESICCANT,SUPER PROTEK-SORB SILICA	DAVISON CHEMICAL		658	GM	658	GM	0	GM	DS	122	S	J	1	4	HARDEN
FERRIC CHLORIDE			1	OZ	1	OZ	0	OZ	DS	122	L	N	1	4	HARDEN
FLOURINERT			1.5	OZ	1.5	OZ	0	OZ	DS	122	L	J	1	4	HARDEN
FLUID,VACUUM PUMP DIRECT DRIVE			1	L	1	L	0	L	DS	122	L	N	1	4	HARDEN
FLUORINERT	3M		45	LB	45	LB	0	LB	DS	122	L	F	1	4	HARDEN
FLUX,ROSIN	UNICAL CHEMICAL		1	QT	1	QT	0	QT	DS	122	L	M	1	4	HARDEN
GEL,DUPRO QUICK SUPER GLUE	LOCTITE CORP.		0.6	OZ	0.6	OZ	0	OZ	DS	122	L	R	1	4	HARDEN
MICROCLEAN	COLE PARMER		4	OZ	4	OZ	0	OZ	DS	122	L	N	1	4	HARDEN
OIL,PUMP	ALCATEL		1	L	1	L	0	L	DS	122	L	F	1	4	HARDEN
POLISH,ALUMINUM	BUEHLER		6	OZ	6	OZ	0	OZ	DS	122	L	N	1	4	HARDEN
POWDER,SCOURING GLASS CLEANER			14	OZ	14	OZ	0	OZ	DS	122	S	F	1	4	HARDEN
PREPS,ALCOHOL,2PLY-MEDIUM	KENDAL WEBCOL		1200	BX	1200	BX	0	BX	DS	122	L	K	1	4	HARDEN
RE-NU,CONTACT	MILLER STEPHENS		16	OZ	16	OZ	0	OZ	DS	122	L	Y	2	4	HARDEN
SEALANT,GENERAL PURPOSE	DOW CORNING		3	OZ	3	OZ	0	OZ	DS	122	L	R	1	4	HARDEN
WASHING LIQUID,JOY LEMON FRESH	CONCORD		32	OZ	32	OZ	0	OZ	DS	122	L	N	1	4	HARDEN
WD-40	WD-40 CO.		9	OZ	9	OZ	0	OZ	DS	122	L	Y	2	4	HARDEN
WIPES,STATICIDE	ACACL INDUSTRIES		6	BX	6	BX	0	BX	DS	122	L	K	1	4	HARDEN
ARGON UPH	MATHESON		70	CF	70	CF	70	CF	DS	123	G	L	1	4	BORNEMANN
CARBON MONOXIDE IN AIR	MATHESON		54	CF	54	CF	54	CF	DS	123	G	L	1	4	BORNEMANN
NITROGEN UPH	MATHESON		64	CF	64	CF	64	CF	DS	123	G	L	1	4	BORNEMANN
OXYGEN IN ARGON	MATHESON		108	CF	108	CF	108	CF	DS	123	G	L	1	4	BORNEMANN
OXYGEN IN NITROGEN	MATHESON		108	CF	135	CF	135	CF	DS	123	G	L	1	4	BORNEMANN
CLEANER,COPPER	LONDON CHEMICAL		5	GA	5	GA	0	GA	DS	124	L	N	1	4	HARDEN
ELECTRO BRITE			5	GA	5	GA	0	GA	DS	124	L	N	1	4	HARDEN
LUBRICANT,FILM	IRACLE POWDER PRODUCT		6	OZ	6	OZ	0	OZ	DS	124	S	Y	2	4	HARDEN
PAINT	KRYLON		13	OZ	13	OZ	0	OZ	DS	124	L	Y	2	4	HARDEN
PAINT	CUSTOM TECH		6	OZ	6	OZ	0	OZ	DS	124	L	Y	2	4	HARDEN
PAINT	KRYLON		12	OZ	12	OZ	0	OZ	DS	124	L	Y	2	4	HARDEN
PRIME,COAT 1204	DOW CORNING		13.5	OZ	13.5	OZ	0	OZ	DS	124	L	F	1	4	HARDEN
PRIMER,SILICONE	GE		1	PT	1	PT	0	PT	DS	124	L	M	1	4	HARDEN
PUR-A-GOLD,POTASS.GOLD CYANIDE	SEL-REX		75	OZ	75	OZ	0	OZ	DS	124	S	N	1	4	HARDEN
STATIC FREE,C400	CHEMTRONICS		4	OZ	4	OZ	0	OZ	DS	124	L	Y	2	4	HARDEN
STIK FREE	BARD LAB		6	OZ	6	OZ	0	OZ	DS	124	L	Y	2	4	HARDEN
TRICHLOROETHYLENE	MILLER STEPHENS		16	OZ	16	OZ	0	OZ	DS	124	L	Y	2	4	HARDEN
[illegible]	LOCKTITE		7	OZ	0.7	OZ	0	OZ	DS	126	L	N	1	4	HARDEN

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CHEMICAL	MANUFACT	USE	Unit	MAX	Unit	AVG	Unit	BD	RM	STATE	STOR	PRES	TMP	SUPER
FREON	MILLER STEPHENSON	64	Z	63		0	OZ	DS	126	L	Y	2	4	HARDEN
GREASE,VACUUM	DOW-CORNING	2	OZ	2	OZ	0	OZ	DS	126	S	F	1	4	HARDEN
SEALING COMPOUND	KILLARD	64	OZ	64	OZ	0	OZ	DS	126	S	F	1	4	HARDEN
ACETONE	FISHER	500	ML	500	ML	100	ML	DS	131	L	N	1	4	HARDEN
EC7	BIOACT	500	ML	500	ML	0	ML	DS	131	L	M	1	4	HARDEN
ETHLENE GLYCOL		2	GA	2	GA	0	GA	DS	131	L	N	1	4	HARDEN
ETHYL ALCOHOL	MIDWEST GRAIN	3	GA	2	GA	1	GA	DS	131	L	N	1	4	HARDEN
HYDRAULIC OIL		500	ML	500	ML	0	ML	DS	131	L	N	1	4	HARDEN
HYDROLUBES		1	GA	1	GA	0	GA	DS	131	L	N	1	4	HARDEN
MET-L-X		3	LB	3	LB	0	LB	DS	131	S	F	1	4	HARDEN
MOLYBDENUM DISULFIDE	SIGMA ALDRICH CORP.	20	G	20	G	0	G	DS	131	S	M	1	4	HARDEN
OIL	TEXACO	1	QT	1	QT	0	QT	DS	131	L	F	1	4	HARDEN
PENETRATING OIL	BLUE RIBBON	4	OZ	4	OZ	0	OZ	DS	131	L	F	1	4	HARDEN
RUST REMOVER	CLING-SURFACE	1	PT	1	PT	0	PT	DS	131	L	N	1	4	HARDEN
SPAN 80	ICI AMERICAS IND	1	PT	1	PT	0	PT	DS	131	L	M	1	4	HARDEN
TRITON 101	ROHM & HAAS	500	ML	500	ML	0	ML	DS	131	L	M	1	4	HARDEN
VINYLTRICHLOROSILANE	FLUKA	500	ML	500	ML	0	ML	DS	131	L	F	1	4	HARDEN
DIFFUSION PUMP OIL	FIL-TECH	1	L	1	L	0	L	DS	131B	L	N	1	4	HARDEN
DUO SEAL PUMP	DUO SEAL	1	GA	1	GA	0	GA	DS	131B	L	N	1	4	HARDEN
PERFLUORO POLYETHER	MONTEFLUOS	3	GA	3	GA	0	GA	DS	131B	L	N	1	4	HARDEN
PUMP OIL	CVC	3	L	3	L	0	L	DS	131B	L	N	1	4	HARDEN
PUMP OIL,ALCATEL 100	ALEATEL	3	L	3	L	0	L	DS	131B	L	N	1	4	HADEN
TYRENO-12	FIL-TECH	2	L	2	L	0	L	DS	131B	L	N	1	4	HARDEN
ACETIC ACID	MALLINCKRODT	500	ML	500	ML	0	ML	DS	132	L	M	1	4	HARDEN
ACETONE	FISHER	8	L	8	L	2	L	DS	132	L	M	1		HARDEN
AMMONIUM HYDROXIDE	FISHER	2.5	L	2.5	L	0	L	DS	132	L	M	1	4	HARDEN
ETHYL ALCOHOL	AAPERM & McCORMICK	1	GA	1	GA	0	GA	DS	132	L	N	1	4	HARDEN
FERRIC CHLORIDE		1	L	1	L	0	L	DS	132	L	N	1	4	HARDEN
HYDROCHLORIC ACID	MALLINKRODT	14	LB	14	LB	0	LB	DS	132	L	M	1	4	HARDEN
HYDROGEN ELECTROLYTE	SENSIDYNE	200	ML	200	ML	0	ML	DS	132	L	N	1	4	HARDEN
HYDROGEN PEROXIDE	FISHER	1	L	1	L	0	L	DS	132	L	N	1	4	HARDEN
NITRIC ACID	MALLINKRODT	7	LB	7	LB	0	LB	DS	132	L	M	1	4	HARDEN
PHOSPHORIC ACID	MALLINCKRODT	500	ML	500	ML	0	ML	DS	132	L	M	1	4	HARDEN
PROPANOL	FISHER	1	GA	1	GA	0	GA	DS	132	L	M	1	4	HARDEN
SCOTCHWELD		0.5	PT	0.5	PT	0	PT	DS	132	S	M	1	4	HARDEN
SODIUM HYDROXIDE	MALLINKRODT	1	KG	1	KG	0	KG	DS	132	S	N	1	4	HARDEN
SODIUM SULFITE	FISHER	200	G	200	G	0	G	DS	132	L	M	1	4	HARDEN
STRIPPER (CHROME ETCHANT)	MICROPAC	1	L	1	L	0	L	DS	132	L	N	1	4	HARDEN
SULFURIC ACID	MALLINKRODT	7	LB	7	LB	0	LB	DS	132	L	M	1	4	HARDEN
TOULENE	MCB	2.5	L	2.5	L	0	L	DS	132	L	M	1	4	HARDEN
TRICHLOROETHANE	FISHER	4	L	4	L	0	L	DS	132	L	M	1	4	HARDEN
TRIMETHOXYSILYMETHACRYLATE	FLUKA	500	ML	500	ML	0	ML	DS	132	L	M	1	4	HARDEN
[illegible]	BOYLE MEDWAY	6	OZ	6	OZ	2	OZ	DS	135	L	F	1	4	[illegible]

:HE .L	MANUFACT	E	MAX	Unit	AVG	Unit	BD	RM	STATE	STOR	PI	TMP	SUPER
\QUEOUS ELEC...OLYTIC CONDUCTIVITY	NIST	1200	1300	ML	100	ML	DS	135	L	M	1	4	BORNEMANN
\RGON IN 5% O2	MATHESON	200	CF	200	CF	100	CF	DS	135	G	L	1	4	BORNEMANN
3IG BATH	GC ELECTRONICS	9	LB	9	LB	4	LB	DS	135	L	F	1	4	BORNEMANN
3ORAX	NIST	2	OZ	16	OZ	2	OZ	DS	135	S	M	1	4	BORNEMANN
:EMENT RUBBER TO METAL	GC ELECTRONICS	2	OZ	2	OZ	0	OZ	DS	135	L	M	1	4	BORNEMANN
)IOCTYL SEBACATE	J.P. HALL CO	38	LB	40	LB	2	LB	DS	135	L	N	1	4	BORNEMANN
)ISINFECTANT DEODORANT	STANDARD SANITATION SYSTEMS, INC	16	OZ	16	OZ	2	OZ	DS	135	L	F	1	4	BORNEMANN
)ISODIUM HYDRO PHOSPHATE	NIST	4	OZ	16	OZ	0	OZ	DS	135	S	M	1	4	BORNEMANN
DUO SEAL PUMP OIL	SARGENT-WELCH SCIENTIFIC	42	OZ	52	OZ	10	OZ	DS	135	L	N	1	4	BORNEMANN
ETHYL ALCOHOL (190)	BAKER	1	GA	1	GA	0.5	GA	DS	135	L	F	1	4	BORNEMANN
FLUX SOLDERING	HARRIS CORP	10	OZ	12	OZ	2	OZ	DS	135	L	N	1	4	BORNEMANN
FURNITURE POLISH	RITE-OFF	14	OZ	14	OZ	2	OZ	DS	135	L	F	1	4	BORNEMANN
GLYCERINE	AVL CORP	1	GA	1	GA	0	GA	DS	135	L	N	1	4	BORNEMANN
GRAFO-404 LUBOIL	GRAFO COLLOIDS CORP	1	OZ	4	OZ	3	OZ	DS	135	L	F	1	4	BORNEMANN
HAND LOTION	PONDS	10	OZ	10	OZ	8	OZ	DS	135	L	N	1	4	BORNEMANN
HE 175 PUMP OIL	LEYBOLD HERAEUS CO	4	LB	5	LB	1	LB	DS	135	L	N	1	4	BORNEMANN
HE 200 PUMP OIL	LEYBOLD HERAEUS CO	0 5	GA	1	GA	0.5	GA	DS	135	L	N	1	4	BORNEMANN
INLAND-19 PUMP FLUID	INLAND VACUUM IND. INC.	2	GA	2	GA	0.5	GA	DS	135	L	N	1	4	BORNEMANN
KINDEST CARE SKIN CLEANER	MERCK	1	GA	1	GA	1	GA	DS	135	L	M	1	4	BORNEMANN
KRYLON SPRAY COATING	BORDEN	12	OZ	13	OZ	1	OZ	DS	135	L	F	1	4	BORNEMANN
LEAK-TEC	AMERICAN GAS AND CHEMICAL	1.5	OZ	4	OZ	2.5	OZ	DS	135	L	F	1	4	BORNEMANN
LIFT AWAY	RESEARCH PRODUCTS	2	QT	3	QT	1	QT	DS	135	L	N	1	4	BORNEMANN
LIFT-AWAY	RESEARCH PRODUCTS	4	QT	4	QT	1	QT	DS	135	L	N	1	4	BORNEMANN
LIQUID NITROGEN	AIR PRODUCTS	194	CF	194	CF	1000	CF	DS	135	L	L	1	4	BORNEMANN
LIQUID NITROGEN	AIR PRODUCTS	200	CF	200	CF	200	CF	DS	135	L	L	4	4	BORNEMANN
LIQUID PAPER	GILLETTE CO	0.6	OZ	0.6	OZ	0	OZ	DS	135	L	N	1	4	BORNEMANN
MERCURY	BETHLEHEM	52	LB	52	LB	1	LB	DS	135	L	N	1	4	BORNEMANN
MERCURY	BETHLEHEM	6	OZ	8	OZ	2	OZ	DS	135	L	N	1	4	BORNEMANN
METAL LUSTER CLEANER	HOLCOMB	1	LB	1	LB	0	LB	DS	135	L	N	1	4	BORNEMANN
METHANE	MATHESON	27	CF	27	CF	108	CF	DS	135	G	L	1	4	BORNEMANN
MICRO GLASS LAB CLEANER	INTERNATIONAL PRODUCTS CORP	2.5	LB	2.5	LB	0	LB	DS	135	L	N	1	4	BORNEMANN
MICRODUSTER	TEXWIPE	8	LB	8	LB	1	LB	DS	135	L	F	1	4	BORNEMANN
NITROGEN	AIR PRODUCTS	2200	CF	2200	CF	500	CF	DS	135	G	L	1	4	BORNEMANN
NITROGEN UPH	MATHESON	27	CF	27	CF	135	CF	DS	135	G	L	1	4	BORNEMANN
OCTOIL SILICONE OIL	DOW CORNING	4	OZ	5	OZ	1	OZ	DS	135	L	N	1	4	BORNEMANN
OXYGEN	MATHESON	28	CF	28	CF	25	CF	DS	135	G	L	1	4	BORNEMANN
OXYGEN IN NITROGEN	MATHESON	54	CF	27	CF	108	CF	DS	135	G	L	1	4	BORNEMANN
PHOTO MOUNT SPRAY ADHESIVE	3M	10	OZ	10	OZ	0	OZ	DS	135	L	F	1	4	BORNEMANN
POTASSIUM DIHYDRIDE PHOSPHATE	NIST	2	OZ	16	OZ	2	OZ	DS	135	S	M	1	4	BORNEMANN
POTASSIUM HYD. PHTHALATE	NIST	3	OZ	16	OZ	1	OZ	DS	135	S	M	1	4	BORNEMANN
PRISM ADHESIVE CEMENT	LOCTITE	2	OZ	3	OZ	1	OZ	DS	135	L	N	1	4	BORNEMANN
PROPANE	AIRCO	25	LB	25	LB	25	LB	DS	135	G	L	1	4	BORNEMANN
RUBBER CEMENT	AMERICAN WRITING INK	3	OZ	4	OZ	1	OZ	DS	135	L	M	1	4	BORNEMANN
SCOURING POWDER NSN7930-DD-9X5-6902	FITZPATRICK BROTHERS INC.	2	OZ	14	OZ	12	OZ	DS	135	S	F	1	4	BORNEMANN
SEALANT	DOW CORNING	6	OZ	6	OZ	0	OZ	DS	135	L	R	1	4	BORNEMANN
SODIUM BICARBONATE	NIST	4	OZ	16	OZ	0	OZ	DS	135	S	M	1	4	BORNEMANN
SODIUM CARBONATE	NIST	4	OZ	16	OZ	0	OZ	DS	135	S	M	1	4	BORNEMANN

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CHEMICAL	MANUFACT	USE	[illegible]	MAX	Unit	AVG	Unit	BD	RM	STATE	STOR	PRES	TMP	SUPER
SOLDER FLUX S[illegible]R	W. HARRIS.CO	1	[illegible]	1	LB	1	LB	DS	135	S	F	1	4	B[illegible]NEMAN
SOLDER, ALPHA	ALPHA METALS	2	LB	5	LB	1	LB	DS	135	S	R	1	4	BORNEMAN
SOLDER, DIVCO	LEAD CO	8	OZ	16	OZ	4	OZ	DS	135	S	R	1	4	BORNEMAN
SOLDER, ERSIN MULTICORE	MULTICORE SOLDERS LTD	4.5	LB	5	LB	0.5	LB	DS	135	S	R	1	4	BORNEMAN
SOLDER, RESIN CORE	KESTER	4	OZ	16	OZ	4	OZ	DS	135	S	R	1	4	BORNEMAN
SPINNECTIC OIL (RUSKA)	EXXON	3	GA	4	GA	1	GA	DS	135	L	F	1	4	BORNEMAN
STAINLESS STEEL CLEANER/POLISH	3M	2.5	LB	2.5	LB	0.5	LB	DS	135	L	F	1	4	BORNEMAN
SULFER	MALLINCKRODT CHEMICAL WORKS	1	LB	1	LB	0	LB	DS	135	S	F	1	4	BORNEMAN
VACSORB MOLECULAR SIEVE	UOP	11	LB	12	LB	1	LB	DS	135	S	F	1	4	BORNEMAN
WD-40	WD-40 CO	18	OZ	18	OZ	6	OZ	DS	135	L	F	1	4	BORNEMAN
ETHYL ALCOHOL	MIDWEST GRAIN PRODUCTS	0.5	GA	1	GA	0.5	GA	DS	151	L	N	1	4	LOWREY
ALCOHOL	MIDWEST GRAIN	2	GA	2	GA	0	GA	DS	201	L	N	1	4	EGLESTON
ASILAMINE		500	ML	500	ML	0	ML	DS	201	L	N	1	4	EGLESTON
DUSTER	SIPI	14	OZ	14	OZ	2	OZ	DS	201	G	Y	2	4	EGLESTON
EPOXY	COLE PARMER	35	OZ	35	OZ	6	OZ	DS	201	L	J	1	4	EGLESTON
LOCKTITE	LOCKTITE	8	OZ	8	OZ	1	OZ	DS	201	L	N	1	4	EGLESTON
MOLD RELEASE	MILLER STEPHENSON	16	OZ	16	OZ	0	OZ	DS	201	L	Y	2	4	EGLESTON
MOLD RELEASE	AXEL	1	GA	1	GA	0	GA	DS	201	L	F	1	4	EGLESTON
OIL	LIQUID WRENCH	4	OZ	4	OZ	0	OZ	DS	201	L	F	1	4	EGLESTON
RTV SILICON	GE	10.3	OZ	10.3	OZ	0	OZ	DS	201	S	N	1	4	EGLESTON
SOLDER FLUX	UNK	4	OZ	4	OZ	0	OZ	DS	201	S	N	1	4	EGLESTON
SOLDER PASTE	RUBY CHEMNICAL							DS	201	S	F	1	4	F[illegible]
ULTRASONIC CLEANER	BRANSONIC	1	QT	1	QT	0	QT	DS	201	L	N	1	4	[illegible]TON
ULTRASONIC CLEANER	BRANSONIC	1	QT	1	QT	0	QT	DS	201	L	N	1	4	EGLESTOI
WD-40	WD-40 CO.	9	OZ	9	OZ	0	OZ	DS	201	L	Y	2	4	EGLESTOI
ARGON	AIR PRODUCTS	1500	CF	1500	CF	4500	CF	DS	206	G	L	2	4	MILLER
BUTANE	AIR PRODUCTS	8	OZ	8	OZ	1	OZ	DS	206	G	L	2	4	MILLER
3140 RTV COATING	DOW	16	OZ	16	OZ	0	OZ	DS	207	L	F	1	4	HARDEN
3141 RTV COATING	DOW	16	OZ	16	OZ	0	OZ	DS	207	L	F	1	4	HARDEN
ATC-3 ACCELERATOR	W.H.BRADY CO.	1	L	1	L	0	L	DS	207	L	N	1	4	HARDEN
ATC-3 ACCELERATOR	MILLER-STEPHENSON	6	GA	6	GA	0	GA	DS	207	L	F	1	4	HARDEN
EPON RESIN 828	MILLER-STEPHENSON	32	OZ	32	OZ	0	OZ	DS	207	L	N	1	4	HARDEN
EPON RESIN 828	MILLER-STEPHENSON	32	OZ	32	OZ	0	OZ	DS	207	L	N	1	4	HARDEN
EPOXY KIT	COLE PARMER	1	OZ	2	OZ	1	OZ	DS	207	P	K	1	4	HARDEN
EPOXYLITE HARDNER	EPOXYLITE CORP.	0.5	LB	0.5	LB	0.1	LB	DS	207	L	F	1	4	HARDEN
EPOXYLITE RESIN	EPOXYLITE CORP.	1.48	LB	1.48	LB	0.1	LB	DS	207	L	F	1	4	HARDEN
NADIC METHYL ANHYDRIDE	SPECTRUM CHEMICAL	2.5	KG	2.5	KG	0	KG	DS	207	L	M	1	4	HARDEN
NIAX 1025 POLYOL	UNION CARBIDE	5	GA	5	GA	0	GA	DS	207	L	F	1	4	HARDEN
NIAX POLYOL PPG-1025	W.H.BRADY	1	L	1	L	0	L	DS	207	L	N	1	4	HARDEN
PERMABOND 910	PERMABAOND INTL.	1	OZ	1	OZ	0.1	OZ	DS	207	L	N	1	4	HARDEN
PHFFT PRECISION DUSTER	FISHER	18	OZ	18	OZ	4	OZ	DS	207	G	Y	2	4	HARDEN
PLETHANOLAMINE	FISHER	500	ML	500	ML	0	ML	DS	207	L	M	1	4	HARDEN
SILICON RUBBER COMPOUND RTV 630A	GE	0.91	LB	1	LB	0.1	LB	DS	207	L	F	1	4	HARDEN
SILICONE PRIMER BLUE	GWE	1	PT	1	PT	0	PT	DS	207	L	M	1	4	HARDEN
SILICONE RUBBER CURING AGENT RTV630B	GE	0.09	LB	0.1	LB	0.01	LB	DS	207	L	N	1	4	HARDEN
THREAD LOCKER 222	LOCTITE	1.69	OZ	1.69	OZ	0.5	OZ	DS	207	L	N	1	4	HARDEN

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HEMICAL	MANUFACT	USE	Unit	MAX	Unit	AVG	Unit	BD	RM	STATE	STOR	PRES		SUPER
RGON	AIR PRODUCTS	600	CF	600	CF	600	CF	DS	215	G	L	2	4	MILLER
THYL ALCOHOL	FISHER	1	PT	1	PT	5	PT	DS	215	L	N	1	4	MILLER
LUX, RESIN 197	KESTOR SOLDER	1	QT	1	QT	0.1	PT	DS	215	L	N	1	4	MILLER
OPROPYL ALCOHOL	MALLINCKRODT	250	ML	250	ML	100	ML	DS	215	L	N	1	4	MILLER
XALIC ACID	MALLINCKRODT	500	G	500	G	50	G	DS	215	S	M	1	4	MILLER
LCONOX	CURTIS MATHESON	0.75	QT	2	QT	0.5	QT	DS	251	S	N	1	4	LOWREY
ESOLV-IT	ORANGE-SOL	8.5	GA	9	GA	0.5	GA	DS	251	L	K	1	4	LOWREY
ABELING ADHESIVE	3M	6	OZ	8	OZ	8	OZ	DS	251	L	F	1	4	LOWREY
EUTRA STAT	SIMCO	11	QT	11	QT	7	QT	DS	251	L	F	1	4	LOWREY
USTOLEUM	RUSTOLEUM	24	OZ	32	OZ	16	OZ	DS	251	L	N	1	4	LOWREY
PRAY PAINT	KRYLON	18	OZ	24	OZ	6	OZ	DS	251	L	F	1	4	LOWREY
VD-40	WD-40 CO.	22	OZ	27	OZ	4	OZ	DS	251	L	F	1	4	LOWREY

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Building Manager's Questionnaire

Building Name: DS Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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?

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

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: _____

Building Manager's Questionnaire

Building Name: DS Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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
68476-34-6	DIESEL FUEL	30 GAL		Y/N	
7697-37-2	NITRIC ACID	01 C		Y/N	
7440-37-1	ARGON	01 C		Y/N	215
7440-37-1	ARGON	02 C		Y/N	206
7440-37-1	ARGON	01 C			135
7440-37-1	ARGON	01 C			123
7664-93-9	SULFURIC ACID	01 C			132
7782--37-9	NITROGEN	03 C			135
7782-37-9	NITROGEN	04 C			135
7782-37-9	NITROGEN	02 C			135
7782-37-9	NITROGEN	01 C			123
7782-37-9	NITROGEN	01 C			135
7782-37-9	NITROGEN	04 C		Y/N	Outside

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

26. Is there 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?

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

Source: _____

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

Materials	Amount
ATTACHED	

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

DS BLDG	CYANO PHENOL	D002	0.4
DS BLDG	DEVELOPER CD-30	D002	0.8
DS BLDG	DIETHYLENE GLYCOL MONOBUTYL ETHER ACETATE	D001	36.2
DS BLDG	DIHYDROXY DIPHENYL SILANE	NONE	0.2
DS BLDG	DRAIN CLEANER	D002	5.7
DS BLDG	DRY ACID SALT WASTE	NONE	264.0
DS BLDG	DYKEM DX-296	D001	1.3
DS BLDG	ELECTRO BRITE	D002	1.4
DS BLDG	EPOXYLITE 8822 PART A	NONE	1.0
DS BLDG	EPOXYLITE 8822 PART B	NONE	0.5
DS BLDG	ETHYL ALCOHOL, WATER WASTE	D001	116.3
DS BLDG	ETHYLENE GLYCOL, WATER	NONE	480.0
DS BLDG	FERRIC CHLORIDE	D002 D006 D007 D008	644.4
DS BLDG	FERRIC CHLORIDE WASTE	D002	487.3
DS BLDG	FERRIC CHLORIDE WASTE	D002	464.2
DS BLDG	FERRIC CHLORIDE WASTE	D002	605.0
DS BLDG	FERRIC CHLORIDE WASTE	D002	313.0
DS BLDG	FREON WASTE	F002	738.5
DS BLDG	FREON WASTE	F002	737.0
DS BLDG	HAFNIUM HYDRIDE, ACETONE (FORMERLY LP91-1249)	D001 D003 F003	0.5
DS BLDG	HALTHANE 73-18 CURING AGENT	NONE	1.0
DS BLDG	HETRON 197	D001	89.6
DS BLDG	HYDROCHLORIC ACID	D002	7.1
DS BLDG	HYDROCHLORIC ACID	D002	2.0
DS BLDG	IODINE	NONE	2.0
DS BLDG	ISOPAR H	D001	36.8
DS BLDG	KEPRO 1G	D001	7.6
DS BLDG	KESTER FLUX	D001	2.0
DS BLDG	KONICA PCC-A	NONE	4.0
DS BLDG	LEAD FILTERS	D008	3.0
DS BLDG	LOCTITE 416	D001	1.1
DS BLDG	LUPERSOL DDM-9	D001	8.0
DS BLDG	MARKEM 7132 IVORY INK	NONE	0.1
DS BLDG	MARKEM 8829 BLACK INK	NONE	0.3
DS BLDG	MARKEM 8829 IVORY INK	NONE	0.1
DS BLDG	MERCURY WASTE	D009 U151	0.4
DS BLDG	METHYL ISOBUTYL KETONE	D001 F003	3.7
DS BLDG	MOLD RELEASE 225	D001	2.1
DS BLDG	NABC CLEANER	NONE	2.0
DS BLDG	NICKEL SULFATE	NONE	269.0
DS BLDG	NICKEL SULFATE CLEANUP MATERIAL	NONE	52.9
DS BLDG	PCB OIL BOTTLES	PCB2	25.0
DS BLDG	PHENANTHROLINE	NONE	0.1
DS BLDG	PHOTO RESIST	D002	1.8
DS BLDG	PHOTO RESIST	D002	1.7
DS BLDG	POLYAMIDE RESIN	D001	2.0
DS BLDG	PURPLE INK	D001	0.8
DS BLDG	RUSTICIDE	D002	1.0
DS BLDG	SILICA GEL	NONE	156.5
DS BLDG	SILICA GEL	NONE	126.5
DS BLDG	SILICA GEL WASTE	NONE	154.9
DS BLDG	SILICA GEL WASTE	NONE	257.5
DS BLDG	SILICON POWDER	NONE	0.1

DS-125	ANTI STATIC SOLUTION	NONE	0.3
DS-125	ARSENOUS ACID	D002 D004	0.3
125	BARIUM CHLORIDE	D005	0.9
25	BARIUM CHLORIDE	D005	2.2
S-125	BIOACT WASTE	D001 D040 F001 F003	106.8
DS-125	BLUE PAST 2301	NONE	51.9
DS-125	BLUE PASTE	NONE	0.9
DS-125	BROMINE	D002 D003	1.7
DS-125	COPPER METAL ACCELERATOR	NONE	8.7
DS-125	COPPER OXIDE	NONE	0.6
DS-125	COPPER STRIP ACCELERATOR	NONE	1.0
DS-125	DEXTROSE	NONE	12.9
DS-125	DIOCTYL PHTHALATE	NONE	4.6
DS-125	DIPHENYL METHANE 4,4 DIISOCYANATE	D001 D003	1.0
DS-125	EPON RESIN 828	NONE	5.5
DS-125	EPON RESIN 828	NONE	3.7
DS-125	EPON RESIN 828	NONE	0.6
DS-125	EPOXY RESIN	D001	1.8
DS-125	EPOXYLITE 8822 PART A	NONE	1.3
DS-125	EPOXYLITE 8822 PART A	NONE	1.3
DS-125	EPOXYLITE 8822 PART B	D002	0.5
DS-125	EPOXYLITE 8822 PART B	D002	0.5
DS-125	ETHANOL WASTE	D001	40.5
DS-125	ETHANOL WASTE	D001	41.1
DS-125	ETHANOL WASTE	D001	24.5
DS-125	ETHYL ALCOHOL	D001	8.2
DS-125	ETHYL ALCOHOL	D001	3.9
-125	FREON	F002	7.9
125	FREON TF	F002	40.0
125	FREON WASTE	F002	7.5
DS-125	FREON WASTE	F002	27.2
DS-125	GE 630 PART A	NONE	1.9
DS-125	GE 630 PART B	NONE	0.2
DS-125	GE SILICON PRIMER SS4155	D001	1.4
DS-125	GREEN DYE	NONE	3.2
DS-125	GREEN GLUE	NONE	2.9
DS-125	IODINE	NONE	1.3
DS-125	IRON POWDER ACCELERATOR	D003	1.8
DS-125	KESTER SOLDERING FLUX 197	D001	1.0
DS-125	MAGNESIUM OXIDE	NONE	2.3
DS-125	MANGANESE DIOXIDE	D001	0.3
DS-125	METHANOL WASTE	D001 F003	4.0
DS-125	PATCHING COMPOUND	F003 F005	1.9
DS-125	PDI BLUE 2301	NONE	18.1
DS-125	PDI YELLOW 2248	NONE	19.3
DS-125	PERMABOND 910	NONE	0.1
DS-125	POTASSIUM BIIODATE	D001	0.9
DS-125	POTASSIUM BROMATE	D001	0.8
DS-125	POTASSIUM BROMIDE	NONE	1.2
DS-125	POTASSIUM DICHROMATE	D001 D007	0.4
DS-125	POTASSIUM FERROCYANIDE	D003	0.7
S-125	POTASSIUM IODATE	D001	0.6
S-125	PRINTED CIRCUIT BOARDS	D008	5.7
DS-125	RTV-630 PART B	F005	0.1
25	SILCON DIOXIDE	NONE	64.0

DS-125	SILICA GEL	NONE	4.6
DS-125	SILICA GEL	NONE	16.5
DS-125	SILICA GEL PACKETS	NONE	18.4
DS-125	TIN METAL ACCELERATOR	NONE	0.4
DS-125	TRICHLORO ETHYLENE	D040 F001	2.2
DS-125	TRICHLOROETHYLENE WASTE	D040 F001	279.0
DS-125	TRIPHENYL PHOSPHITE	NONE	2.8
DS-125	TRIPHENYL PHOSPHITE	NONE	1.4
DS-125	VACUUM PUMP FLUID	NONE	3.8
DS-125	VERSAMID 140	NONE	3.1
DS-125	VERSAMID 140	NONE	3.4
DS-125	WELDWOOD CONTACT CEMENT	D001 F002 F005	1.5
DS-125	YELLOW PASTE	NONE	0.8
DS-125	YELLOW PASTE 2248	NONE	109.6
DS-126	AMMONIA THALOCYANINE	D002 D003	3.0
DS-126	AMMONIUM HYDROXIDE	D002	1.9
DS-126	AMMONIUM SULFATE	NONE	0.1
DS-126	BORON STANDARD SOLUTION	NONE	8.2
DS-126	BROMO CRESOL PURPLE	D001	0.2
DS-126	CHROMIC PERCHLORATE	D001 D007	0.1
DS-126	COPPER CLEANER WITH FERRIC CHLORIDE	D002	2.3
DS-126	EMRALON 320	D001	3.0
DS-126	FERRIC CHLORIDE SOLIDS	NONE	14.0
DS-126	MARKEM 207 CLEANER	F002	6.6
DS-126	METHYL ORANGE SOLUTION	NONE	3.4
DS-126	NICKEL STANDARD SOLUTION IN NITRIC	NONE	1.9
DS-126	NICKEL SULFATE	NONE	0.1
DS-126	ORION IONALYZER	NONE	0.1
DS-126	ORION IONALYZER	NONE	0.1
DS-126	SODIUM HYDROXIDE SOLUTION	D002	1.8
DS-126	SULFURIC ACID	D002	0.3
DS-126	TINNING SOLUTION	D002	2.2
DS-126	TOLUENE	D001 F005	0.3
DS-131	ACETIC ACID	D001 D002	3.8
DS-131	ACETIC ACID	D001 D002	2.0
DS-131	ASIMILINE 170	NONE	1.0
DS-131	BIOACT EC7	D001	7.1
DS-131	CABOSIL	NONE	10.0
DS-131	CARBON TETRA CHLORIDE	D019	1.8
DS-131	CYANOCURE	NONE	2.9
DS-131	DOW 705 FLUID	NONE	2.0
DS-131	DYMAN INK	D001	0.3
DS-131	ETHANOL	D001	6.9
DS-131	ETHANOL WASTE	D001	7.4
DS-131	ETHYL ALCOHOL	D001	4.2
DS-131	ETHYL ALCOHOL	D001	0.5
DS-131	EXTERNAL MOLD RELEASE	D001 D035 F002 F003 F005	8.0
DS-131	GE SILICONE SS4179	D001	1.5
DS-131	ISOPROPANOL	D001	8.6
DS-131	METHYL PYRRILODINONE (1-,-2-)	D001	1.3
DS-131	METHYLENE CHLORIDE	F002	9.4
DS-131	MICROPOSIT DEVELOPER CD-30	D002	8.9
DS-131	MICROPOSIT EDGE BEAD REMOVER	D001	33.9
DS-131	MICROPOSIT PHOTO RESIST	D001 F003	2.9
DS-131	MICROPOSIT PHOTO RESIST 51400	D001 F003	9.7

DS-131	MICROPOSIT PRIMER	D001	2.5
DS-131	MICROPOSIT REMOVER	D001	9.0
131	MICROPOSIT THINNER TYPE A	D001 F003	8.6
[illegible]1	MOLYBDENUM DISULFIDE	NONE	0.2
DS-131	PHENYL METHYL POLY SILANE	D001	0.8
DS-131	PHOSPHORIC ACID	D002	2.9
DS-131	PRIME COAT	D001	0.9
DS-131	RECORDER INK	D001	1.8
DS-131	SOLDER FLUX	D001	0.1
DS-131	SPAN 80	NONE	1.7
DS-131	STAY CLEAN	D002	2.0
DS-131	TETRAHYDROFURAN	D001 D003 U213	11.3
DS-131	TOLUENE	D001 F005 U220	8.9
DS-131	TRICHLOROETHANE (1,1,1-)	F002	14.3
DS-131	TRICHLOROETHYLENE	D040 F002	4.8
DS-131	TRITON N101	NONE	0.5
DS-131	ULTRASONIC CLEANER- GENERAL	D002	0.5
DS-131	ULTRASONIC CLEANER- INDUSTRIAL	D002	0.8
DS-131	WHITE GAS	D001	10.0
DS-135	BRAZING FLUX	NONE	1.2
DS-135	DE-OX-ID	D001	0.2
DS-135	DOW 560 FLUID	NONE	2.0
DS-135	DYKEM LAYOUT RED DX-296	D001	0.3
DS-135	FREON	F002	2.1
DS-135	GC RUBBER CEMENT	D001 D035 F005	0.1
DS-135	HEAT SINK COMPOUND	NONE	0.2
[illegible]-135	LITHIUM CHLORIDE SOLID	NONE	0.7
-135	LITHIUM CHLORIDE SOLUTION	NONE	1.5
[illegible]135	LUDOX	D002	47.0
[illegible]35	METHYLENE BUTANE	D001	6.1
DS-135	METHYLENE CHLORIDE	F002	1.1
DS-135	MONOPLEX DOS	NONE	33.0
DS-135	OIL WASTE	NONE	3.6
DS-135	OIL WASTE	NONE	0.6
DS-135	PENTANE	D001	5.7
DS-135	PERMABOND 910	D001	0.1
DS-135	POTASSIUM IODIDE SOLUTION	NONE	1.1
DS-135	PVC SOLVENT CEMENT	D001	0.6
DS-135	RECORDER INK	D001	1.2
DS-135	RTV-7 CURING CATALYST	NONE	1.0
DS-135	RTV-7 SILICONE RUBBER	NONE	1.9
DS-135	RUBBER TO METAL CEMENT	D001 D035 F005	1.4
DS-135	SOLDERING PASTE	NONE	0.5
DS-135	VALVE LUBRICANT	NONE	8.6
DS-207	AEROJET ACCELERATOR ATC-3	D007	57.4
DS-207	DIETHANOL AMINE	NONE	2.0
DS-207	DOW 3140 RTV	NONE	2.6
DS-207	EPON 828	NONE	2.5
DS-207	EPOXYLITE 8822 PART A	NONE	1.3
DS-207	EPOXYLITE 8822 PART B	D002	0.5
DS-207	ETHYL ALCOHOL	NONE	9.9
[illegible]S-207	GE SILICONE SS4155	D001	1.4
[illegible]S-207	GLASS BUBBLES	NONE	21.6
DS-207	LOCTITE 222	D001	0.2
[illegible]07	MOLECULAR SEIVES	NONE	1.0

DS-207	MOLECULAR SEIVES	NONE	2.0
DS-207	MOLECULAR SEIVES	NONE	1.0
DS-207	MOLECULAR SEIVES	NONE	2.0
[illegible]07	MOLECULAR SEIVES	NONE	3.3
DS-207	NADIC METHYL ANHYDRIDE	D002	8.3
DS-207	NIAX POLYOL PPG-1025	NONE	42.4
DS-207	RTV 630 PART A	NONE	0.6
DS-214	ACETIC ACID SPILL CLEANUP	NONE	142.1
DS-214	ACETIC ACID SPILL CLEANUP	NONE	224.5
DS-215	EPOXY RESIN	D001	1.3
DS-215	EPOXY RESIN WITH POLYAMINE	D001	1.2
DS-216	SCOTCH WELD	D001	0.3
DS-217	COPPER BRITE	NONE	31.0
DS-217	PHOSPHORIC ACID	D002	1.0
DS-218	3M ELECTRICAL RESIN A	D001	0.5
DS-218	3M ELECTRICAL RESIN B	D001	0.5
DS-218	BELZONA E METAL BASE	NONE	2.8
DS-218	BELZONA META SOLIDIFIER	NONE	0.9
DS-218	CONAP CONATHANE EN7-B	NONE	0.5
DS-218	ELASTOMER CONDITIONER	NONE	0.5
DS-218	ENERGINE CLEANING FLUID	D001	0.5
DS-218	EPOXY CTBN	NONE	3.1
DS-218	EPOXYLITE 8822 PART A	NONE	1.5
DS-218	EPOXYLITE 8822 PART B	NONE	0.5
DS-218	MP FLUID ELASTOMER BASE	NONE	3.9
DS-218	MP FLUID ELASTOMER SOLIDIFER	NONE	1.9
DS-218	SILICONE	D001	2.0
DS-218	SILICONE	D001	6.0
[illegible]218	SILICONE CURING AGENT	D001	0.1
[illegible]18	TOLUENE DIISOCYANATE	D001	1.0
DS-225	ARMSTRONG ADEHSIVE	D001	15.8
DS-225	CARBON DISULFIDE	D001 F005	3.0
DS-225	CEMENT SOLVENT	D001	1.4
DS-225	CONATHANE EN7 PART B	NONE	0.5
DS-225	DE-OX-ID	D001	0.5
DS-225	EPON 828	NONE	4.5
DS-225	EPOXY RESIN	D001	1.0
DS-225	EPOXYLITE 8822 PART A	NONE	2.5
DS-225	EPOXYLITE 8822 PART B	D002	1.0
DS-225	FLUX 30	D002	0.4
DS-225	FLUX 30	D002	0.4
DS-225	HALTHANE CURING AGENT 73-18	NONE	0.1
DS-225	HALTHANE RESIN 73-18	NONE	0.2
DS-225	LEAD OCTOATE WITH SYRINGES	D008	5.0
DS-225	MARKEM BLACK INK	NONE	0.3
DS-225	NICKEL ACETATE	NONE	106.0
DS-225	NICKEL CHLORIDE	NONE	8.9
DS-225	RESIN WASTE	NONE	70.3
DS-225	RESIN WASTE	NONE	85.8
DS-225	RESIN WASTE	NONE	176.0
DS-225	SPRAY CLEAN	D001 D022	10.6
DS-225	SS 4155	D001	1.0
DS-225	TRIPHENYL PHOSPHATE	NONE	1.4
DS-225	TRIPHENYL PHOSPHITE	D001	1.4
[illegible]25	TRIPHENYL PHOSPHITE	NONE	6.2

DS-225	VERSIMID 125	NONE	1.0
DS-225	VERSIMID 140	NONE	1.0
226	3M SCOTCHLITE	NONE	2.9
26	CALCIUM SULFATE	NONE	4.1
DS-226	DIETHANOLAMINE	NONE	12.4
DS-226	DIPSODAL	NONE	1.2
DS-226	DUPONT 1202 THINNER	D001	7.2
DS-226	EPON RESIN 828	NONE	14.7
DS-226	ISOPROPANOL	D001	9.0
DS-226	KESTER FLUX 197	D001	4.8
DS-226	LACQUER THINNER	D001	6.9
DS-226	MARKEM 207 CLEANER	F002	15.1
DS-226	METHYLENE CHLORIDE	U080 F002	23.0
DS-226	NITRIC ACID	D002	7.0
DS-226	PDI BLUE 38010	NONE	9.1
DS-226	PDI BLUE PASTE	NONE	0.4
DS-226	PDI BLUE PASTE 22-38010	NONE	7.6
DS-226	PDI YELLOW 20480	NONE	7.8
DS-226	PDI YELLOW PASTE	NONE	0.5
DS-226	PDI YELLOW PASTE 22-20481	NONE	8.7
DS-226	SODIUM CHLORATE (.1%), WATER	D001	3.9
DS-226	VERSAMID 140	NONE	0.4
DS-227	CHROMIUM POWDER	D007	4.4
DS-227	GADOLINIUM METAL	NONE	0.4
DS-227	HASTELLOY	D006 D007	0.1
DS-227	MOLYBDENUM POWDER	D003	6.0
DS-227	NARLINER	D001 F005	5.8
-227	POTASSIUM BICARBONATE	NONE	2.0
227	SUBMICRON MOLYBDENUM	D003	1.0
227	TANTALUM POWDER	D003	3.6
DS-227	TITANIUM BORIDE	NONE	0.1
DS-227	TUNGSTEN POWDER	D003	2.2
DS-229	HALTHANE 7318 A	D003	0.2
DS-229	HALTHANE 7318 B	NONE	0.2
DS-229	KESTER 197 THINNER	D001	4.0
DS-229	SULFUR	NONE	2.0
DS-231	B4 HARDENER	D002	0.2
DS-231	DER 331	NONE	2.2
DS-231	OAKITE 33	D002	46.9
DS-231	VERSIMID 140	NONE	2.0
DS-246	ACETIC ACID	D001 D002	2.1
DS-246	ACETIC ACID, GLACIAL	D002	1.0
DS-246	ALUMINUM IODIDE	D003	0.2
DS-246	ALUMINUM POWDER	D003	0.1
DS-246	AMMONIUM ACETATE	NONE	1.1
DS-246	BARIUM GRANULES	D005	0.1
DS-246	BISMUTH LEAD	D008	0.2
DS-246	CALCIUM SHOT	D003	0.1
DS-246	CALCIUM SHOT	D003	0.1
DS-246	CHROMIUM IODIDE	D007	0.1
DS-246	CHROMIUM OXIDE	D007	0.1
S-246	CHROMIUM SHOT	D007	0.1
S-246	COBALTIC IODIDE	NONE	0.1
DS-246	CONDUCTIVE RED ENAMEL SOLVENT COATING	D001	1.1

DS-246	COPPER IODIDE	NONE	1.1
DS-246	COPPER OXIDE	NONE	0.1
DS-246	ETHANOL, ISOPROPANOL, ACETONE WASTE	D001	6.2
E[illegible]6	FLUORAD FC430	NONE	0.3
DS-246	GLYCEROL	NONE	2.4
DS-246	HYDROCHLORIC ACID	D002	6.5
DS-246	HYDROFLUORIC ACID	D002 U134	0.3
DS-246	INDIUM POWDER	NONE	0.1
DS-246	KODAK PMT ACTIVATOR	NONE	10.2
DS-246	LEAD AND COPPER	D008	1.0
DS-246	MERCURY	D009	0.1
DS-246	MERCURY CONTAMINATED GLASSWARE	D009	6.2
DS-246	MERCURY, METALLIC	D009 U151	5.3
DS-246	MOCK EXPLOSIVE PINK POWDER	NONE	1.2
DS-246	MOLECULAR SEIVE	NONE	1.1
DS-246	MOLYBDENUM PENTACHLORIDE	NONE	0.1
DS-246	MOLYBDENUM TETRAOXIDE	NONE	0.2
DS-246	MOLYBDENUM TETRASULFIDE	D003	0.6
DS-246	MOLYBDENUM, MANGANESE POWDER	NONE	0.4
DS-246	MOLYDAG 210	NONE	0.1
DS-246	NICKEL FLAKE	D003	1.0
DS-246	NICKELOUS OXIDE	NONE	0.5
DS-246	NITRIC ACID	D002	5.7
DS-246	PHENYL SULFONE	NONE	0.1
DS-246	PHOSPHORIC ACID	D002	4.9
DS-246	PHOSPHORUS POWDER	D003	0.1
DS-246	POTASSIUM CARBONATE	NONE	1.7
DS-246	RTV 630 PART A	NONE	1.0
[illegible]246	RTV 630 PART B	NONE	0.1
[illegible]46	RUBBER CEMENT	D001	0.1
DS-246	SILICON DIOXIDE	NONE	0.5
DS-246	STRONTIUM GRANULES	D003	0.1
DS-246	TANTALUM BROMIDE	D003	0.1
DS-246	TEMPERATURE INDICATING FLUID	F002	2.0
DS-246	TIN FLUORIDE	NONE	0.1
DS-246	TITANIUM FOIL	D003	0.2
DS-246	TUNGSTEN CHLORIDE	NONE	0.1
DS-246	UROCHEM BLUE SOLVENT COATING	D001	1.0
DS-246	YTTRIUM CHLORIDE	NONE	0.1
DS-246	YTTRIUM FOIL	D003	0.2
DS BLDG	ACETIC ACID	D002	3.0
DS BLDG	AKROCHEM PETROREZ 801	NONE	1.0
DS BLDG	ALGINIC ACID	NONE	4.0
DS BLDG	ALUMINUM OXIDE	NONE	0.5
DS BLDG	ALUMINUM OXIDE	NONE	20.0
DS BLDG	AMSCO SOLVENT	D002	4.0
DS BLDG	CHEM MIX	D001	1.0
DS BLDG	CHESTERTRON BELT FLO	D001	4.8
DS BLDG	CHLOROFORM	D022	11.3
DS BLDG	CITRIC ACID SOLUTION	NONE	3.0
DS BLDG	CONATHANE EN-7 PART A	NONE	2.0
[illegible]LDG	CPVC SOLVENT CEMENT	D001	0.7

Building Manager's Questionnaire

Building Name: DS Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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: DS Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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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Building Manager's Questionnaire

Building Name: DS Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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.

Building Manager's Questionnaire

Building Name: DS Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

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

9.48 BUILDING 25

9.48.1 Scope of Building 25 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 25 on January 22, 1996. The EAC (Attachment 1—Section 9.48.6.1) was used to record findings. The process owner escorted the appraisers. Other information was supplied by the building manager and recorded on the BMQ, included as Attachment 2 (Section 9.48.6.2).

9.48.2 Description of Building 25

Building 25 is a one-story, 430-square-foot poured concrete and concrete block, slab-on-grade structure. ~~with brick facing.~~ D.C. Kramer 3-1-04 Location is shown in Attachment 3 (Section 9.48.6.3). Adjacent buildings are Building M to the north, Building 93 to the south, Building PS to the east, and Building 69 to the west. The roof is asphalt and metal built-up membrane. Floor plans are presented as Attachment 4 (Section 9.48.6.4). The building is serviced by central steam for heat and chilled water, and electrical service of 240V (Mound Facility Physical Characterization, 12-1-93).

Building 25 was constructed in 1966. The building has been used for two purposes* ~~the same purpose~~ since construction. The building is not known to be contaminated with radiological or energetic material (Mound Facility Physical Characterization, 12-1-93). D.C. Kramer 3-1-04

* Low Level Counting Facility (1966-1972)
Meteorological Station (1972-2003)

9.48.3 Summary of Findings

Building 25 houses instrumentation that is used to collect meteorological information. Computers in the building receive data from two onsite weather-monitoring towers. These computers are connected to computers at Lawrence Livermore Laboratory; there the information is used to predict dispersion patterns in the event of any airborne releases. The building also houses telephone switching equipment and office space. The meteorological station contains processes conventional to weather data collection. The building is well-maintained, with no issues of environmental concern identified during the walk-through or during review of reference materials.

9.48.4 Observations

9.48.4.1 Air Emissions

There are no processes that create air emissions. There are no fuel-burning units in the building. There is no evidence of fugitive dust. No air emission permit applications have been submitted to Ohio EPA for activities in the building.

9.48.4.2 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 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. D.C. Kramer 3-1-04

* Subsequently, MCP effluent was re-routed around the canal via a covered pipe to the Mound Overflow Creek. D.C. Kramer 3-1-04

9.48.4.2.1 Sanitary Wastewater

The building does not have sanitary services. According to a diagram of underground lines, presented as Attachment 5 (Section 9.48.6.5), the building is not serviced by a sanitary line.

9.48.4.2.2 Storm Wastewater

D.C. Kramer 3-4-04

The building is serviced by a storm drain, as shown in Attachment 5 (Section 9.48.6.5), however, the storm drain service line was subsequently abandoned. There are no exterior grates. Exterior drains were not tested to confirm that they connect to the storm drainage system. Inspection of the surrounding area showed no sign of odors, colored discharges, or scarring which would indicate that any materials other than storm water has entered the storm drainage system.

9.48.4.2.3 Chemicals

No chemicals are stored or used in the meteorological station, according to data provided in the BMQ. The information was gathered as part of the chemical inventory which is conducted annually. The inventory information dates to 1994, as 1995 data was not yet available when the appraisal was conducted. Conformation of the 1994 inventory by the appraisal team was not yet attempted, as; that was in progress. There is no evidence that chemicals enter the storm or sanitary drains. ~~There are no floor drains in the building.*~~ There is no evidence that chemicals which spill could enter the storm drains. There have been no reported spills from Building 25.

* MRC Dwg. 4-5472 Rev. D (11-30-78) shows 2 floor drains in Bldg. 25. Visual inspection on 3-3-04 indicates the drain in Rm 1 is partially covered by a bookcase and the drain in Room 3 is completely covered by wall-to-wall carpet; however the drain grate can be 'felt' underneath the carpet. The storm drain service line was abandoned. D.C. Kramer 3-4-04

9.48.4.3 Potable and Service Water

There is no water service supplied to the building.

9.48.4.4 Chemical Storage and Hazardous Materials

There are no chemicals or hazardous materials used or stored in Building 25.

The building is equipped with appropriate emergency response equipment, fire extinguisher. The building has an emergency evacuation plan, and signs were posted in work areas.

There is an aboveground argon storage tank* of approximately 6,000-gallon capacity located north of the building, midway between Building 25 and Building PS. There are no sumps, separators, or catch basins, in or around the building. There are no underground storage tanks associated with this building. * STORAGE TANK REMOVED 2/2004. D.C. Kramer 3-1-04

The building has been tested and does contain asbestos-containing building material (MD-10391, *Asbestos Program Manual*, 9-14-95). There is no evidence of friable asbestos.

There are no capacitors or transformers containing PCBs located in the building. There is no record of past presence (1995 PCB Annual Document Log).

9.48.4.5 Solid, Hazardous, and Radioactive Waste

Solid wastes generated are primarily paper. There is paper and aluminum can recycling to minimize solid waste. Solid wastes are removed by janitorial personnel to a site collection point, then shipped offsite to a local landfill by a contractor. The service contract is maintained by Waste Management. There is no evidence that hazardous materials or wastes are mixed with solid waste streams.

There are no hazardous wastes generated in the meteorological data collection process. (Characterization of Mound's Hazardous, Radioactive, and Mixed Waste, 8-16-90).

9.48.4.6 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. Programs for waste minimization are in place including white paper and aluminum can recycling.

9.48.5 Findings and Recommendations

The environmental appraisal of Building 25 indicates that there are no action items required. Photographs were taken to document the environmental appraisal. They are included as Attachment 6 (Section 9.48.6.6).

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ENVIRONMENTAL APPRAISAL CHECKLIST

Building Name 25

Appraisers: JOHN PUCKETT — AIR ENGINEER
Name — Discipline

Name — Discipline

Name — Discipline

Name — Discipline

Building Manager: JEFF BOSTON — 2/22/96

Process Manager: LARRY ROUSH

Date: 1-22-96

ENVIRONMENTAL APPRAISAL CHECKLIST

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Environmental Appraisal Checklist

Building Name: 75 Appraisers: J. Puckett Date: 1-22-96

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	If the answer to any of these questions is yes, proceed with the following checklist.
Are there sinks, toilets and floor drains in the building?	Y / (N)	
Are chemicals being used in the building?	Y / (N)	
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	NA
	Is the building in operation? What are the processes and where do they discharge to?	(Y)/ N _____ _____	office; collection of meteorological info from 2 weather towers onsite; telephone switching equipment - Rm. 2.
	Do the floor drains, sinks & toilets appear to be draining properly?	Y / N	NA
OAC 3745-33	Do the floor drains and sinks drain to a sanitary or storm sewer?	Sanitary Storm	NA
	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	
	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	roof drain - to ground

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Environmental Appraisal Checklist

Building Name: 25 Appraisers: J. Puckett Date: 1-22-96

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	NA
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	

Environmental Appraisal Checklist

Building Name: 25 Appraisers: J. Puckett Date: 1-22-96

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
NA			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: 25 Appraisers: J. Puckett Date: 1-22-96

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	NA
29 CFR 1910.1200(g)	MSDS shall be available to the employees in close proximity to the work area.	Y / N	
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	

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E[illegible]ental Appraisal Checklist

Building Name: 25 Appraisers: J. Puckett Date: 1-22-96

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	NA
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	
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	
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	
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	
29 CFR 1910.104	Bulk oxygen storage shall be permanently placarded "OXYGEN - NO SMOKING - NO OPEN FLAMES".	Y / N	
	Is there a sign posted in each work area regarding emergency egress and emergency response action?	Y / N	
	Is there an emergency response plan available?	Y / N	

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Environmental Appraisal Checklist

Building Name: 25 Appraisers: J. Puckett Date: 1-22-96

HM Checklist

Regulatory Guideline	Question	Response	Comments
	Is there a process area?	Y / (N)	
	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
outside -		~~Helium~~ Argon	NK	(Y) / N	Y / N	Y / (N)	~~Y / N~~
Ltwn. 25	6, PS	D.C. Kramer 3-2-04		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

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Source: _____

Building Name: 25 Appraisers: J. Puckett Date: 1-22 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	NA
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	
	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	

TABLE C—Water Fountain Survey

Building	Location	Model #	Comments / Date of Analysis for Lead
NA			

Source: _____

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Environmental Appraisal Checklist

Building Name: 25 Appraisers: J Puckett Date: 1-22-96

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	NA
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	

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Environmental Appraisal Checklist

Building Name: 25 Appraisers: J Puckett Date: 1-22-96

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? Is it treated as such?	Y / N Y / N	NA
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	
	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	
	Are containers kept closed and locked except during filling?	Y / N	
	Are containers moved within 3 days of being filled?	Y / N	

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Environmental Appraisal Checklist

Building Name: 25 Appraisers: J Puckett Date: 1-22-96

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.		

Building Name: 25 Appraisers: J. Puckett Date: 1-22-96

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	NA
	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: 25 Appraisers: J. Puckett Date: 1-22-96

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	NA
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	

General Comments:

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Building Name: 25 Appraisers: J. Puckett Date: 1-22-96

Asbestos Screening Checklist

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

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?	(Y) / N	
	If no for this building or area note this conclusion in the comment section.		
	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. NA
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	NA
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: 25 Appraisers: J Pulliett Date: 1-22 96

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	NA
	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	
	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	

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Environmental Appraisal Checklist

Building Name: 75 Appraisers: J. Puckett Date: 1-22-96

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	NA
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: 25 Appraisers: J. Puckett Date: 1-22-96

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	NA
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:

Environmental Appraisal Checklist

Building Name: 25 Appraisers: J Ruckett Date: 1-22-96

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	NA
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	
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	

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Environmental Appraisal Checklist

Building Name: 25 Appraisers: J. Luckett Date: 1-22-96

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	NA
	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	
	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: 25 Appraisers: J. Luckett Date: 1-22-96

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	NA
	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: 25 Appraisers: J. Puckett Date: 1-22-96

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	NA
	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	

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Environmental Appraisal Checklist

Building Name: 25 Appraisers: J. Puckett Date: 1-22-96

Low-Level Waste and Transuranic Waste Checklist

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	NA
	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: 25 Appraisers: J. Puckett Date: 1-22-96

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	paper
	Are there solvent wastes?	Y / (N)	
	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	NA
	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	

Environmental Appraisal Checklist

Building Name: 25 Appraisers: J. Puckett Date: 1-22-96

Waste Minimization/Pollution Prevention Activities Checklist

Regulatory Guideline	Question	Response	Comments
HALOGENATED ORGANIC (NONSOLVENT) WASTES			
	Are halogenated organic wastes used as fuel in cement kilns?	Y / N	NA
	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			
	Are any technologies for the recovering of metals from waste rinsewater used?	Y / N	NA
	Evaporation of waste rinsewater?	Y / N	
	Reverse osmosis?	Y / N	
	Ion exchange?	Y / N	
	Electrolysis?	Y / N	
	Agglomeration?	Y / N	
CORROSIVE WASTES			
	Are acidic or basic cleaning solutions used as treatment for pH adjustment chemicals?	Y / N	NA

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Environmental Appraisal Checklist

Building Name: 25 Appraisers: J. Puckett Date: 1-22-96

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	NA
	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			
	Has non-cyanide or low concentration of cyanide process replaced zinc cyanide bath ?	Y / N	NA
	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			
	How are auto parts cleaned?	Y / N	NA
	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	

Environmental Appraisal Checklist

Building Name: 25 Appraisers: J. Puckett Date: 1-22-96

Waste Minimization/Pollution Prevention Activities Checklist

Regulatory Guideline	Question	Response	Comments
	Are cleaned parts drained on the sink to minimize solvent spills?	Y / N	NA
	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?		NA
	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: 75 Appraisers: J. Puckett Date: 1-22-96

Waste Minimization/Pollution Prevention Activities Checklist

Regulatory Guideline	Question	Response	Comments
	Are these treatment techniques used to promote separation of oil/water wastes?		NA
	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			
	Has there been an attempt to reduce volume or toxicity by:		NA
	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	

Environmental Appraisal Checklist

Building Name: 75 Appraisers: J. Puckett Date: 1-22-96

Waste Minimization/Pollution Prevention Activities Checklist

Regulatory Guideline	Question	Response	Comments
	If there is a recycling program, what technique is used?	Y / N	NA
	Distillation?	Y / N	
	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: 25 Building Manager: J.L. Boston Phone: 3262 Date: 12-07-95
Alternate: [illegible] Phone: 3524

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

SUP DATA

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

N A

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

4. Provide a physical description of the building.

This reinforced concrete building contains 430 ft^2. It has a BUM roof (asphalt), ~~central steam heating and window air conditioning.~~* The building contains asbestos but there is not contamination from radioactive or energetic materials.

* a heat pump for heating and cooling

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 collect information on local weather conditions. Computers in the building receive data from two weather-monitoring towers onsite. This information is forwarded to Lawrence Livermore National Laboratory for prediction of dispersion patterns in the event of any airborne releases. Some telephone switching equipment is also present.

Source: Mound Buildings, 5-9-95

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

UNKNOWN

Source: Mound Buildings, 5-9-95

Building Manager's Questionnaire

Building Name: 25 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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: Meteorological station

How Wastes Are Generated:

No wastes generated.

Contact:
Phone #:

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

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Building Manager's Questionnaire

Building Name: 25 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

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: 25 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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
Is there bottled water? 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? Yes

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

Building Manager's Questionnaire

Building Name: 25 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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)
NONE		

Source: Chemical Inventory 1994

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Building Manager's Questionnaire

Building Name: 25 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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? N A

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

N A

23. Where do excess janitorial supplies go? N/A

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: 25 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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.

NONE

26. Is there 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?

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

Source: _____

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

Materials	Amount

Source: _____

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Building Manager's Questionnaire

Building Name: 25 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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: 25 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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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Building Manager's Questionnaire

Building Name: 25 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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.

None

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Building Manager's Questionnaire

Building Name: 25 Building Manager: J.L. Boston Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

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

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

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Appendix G

Radiological Information

DS Building Predemolition Survey Plan – G1 through G64
Building 25 Predemolition Survey Plan – G65 through G78

Pre-demolition Survey Plan

For

Building DS

Prepared By:	Roderick C. Case /	**Date:**	2/13/04
Reviewed By:	Chris Miles /	**Date:**	2/23/04
Approved By:	A. Stephen Collas /	**Date:**	2/24/04

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1.0 Historical Overview

DS Building was constructed in 1964 as the Component Development and Standards building. The floor space of DS Building as noted in contemporary documents is 47,810-ft^2. Based upon a comparison of construction era drawings to the current floor plans for DS Building, this building has had two major adjoining additions, one on its eastern end and the other on its western end. Many of the interior walls have been reconfigured from the original plan.

Building DS is a one-story structure of reinforced concrete and concrete block with a built-up membrane roof and three penthouses. The exterior of the first floor is brick covered. The second story penthouses are noted as being metal sided. A variety of construction materials were used for the walls of the interior and exterior of the building, with the wall-type being a function of the area's usage. Portions of high explosives (HE) areas generally are concrete or masonry, while other areas were plaster on steel stud, gypsum wallboard on steel stud, or "special" prefabricated partitions. The southern elevation shows the use of "aluminum weak-by-design panels" in the areas corresponding to the locations of "cells" associated with the HE processing.

DS Building occupies a unique position, in that it is constructed above, or on the roof of T Building. The DS Building slab is constructed on six-foot piers that are set on the top of the roof of T Building. The void is filled with granular fill and includes a sanitary line, and a "high-risk" waste line that extends from the western side of the building, to the eastern side of the building along the front (northern) part of DS Building. These lines were encased in concrete prior to the construction of DS Building and it's additions.

DS Building supported numerous activities associated with HE component development and testing and scientific standards laboratories. Other activities included tape processing, slapper detonator development, process technology development, welding technology, off schedule production, energetic component development, low energy component development, x-ray processing, final acceptance, IMPAC, material handling, metrology. Characterization survey data reported in MD-22153, *Mound Site Radionuclides by Location indicate* that radioactive material was present at various times in numerous areas in DS Building. A complete history of Building DS can be found in Reference 1.

1.1 Current Status

Building DS is scheduled for demolition in accordance with the Miamisburg Closure Project goals. The building is in the process of being vacated and Safe Shutdown. There are currently no radiological postings in the facility. Areas and rooms where there is a potential for some residual contamination to be present are designated as impacted. The radiological status of all building surfaces must be determined to facilitate a free release of the structure in accordance with site procedures. A characterization study of the radiological condition of this building will direct the appropriate decisions of its final status.

2.0 Data Quality Objectives

The Data Quality Objectives (DQO) process is a series of planning steps that have been defined by the EPA (USEPA, 1994) to ensure that the type, quantity, and quality of survey data used in decision making are appropriate for the intended application. The DQO's for this survey plan are derived from Mound procedures and consistent with the Mound 2000 Approach for building disposition (Reference 2).

2.1 Problem Statement

Determine whether or not the residual radioactivity of the surfaces of building materials associated with Building DS satisfies the release criteria specified in DOE Order 5400.5.

2.2 Decision Statement

The radiological impact of site operations on structural surfaces will be determined by hypothesis testing the survey data in accordance with Reference 5. The null hypothesis is stated as:

H_0 = The average concentration of residual radioactivity in the survey unit is greater than the release criteria.

The alternate hypothesis is:

H_a = The average concentration of residual radioactivity in the survey unit is less than the release criteria.

If all the measurements are below the $DCGL_w$, the release criteria will be met and the survey unit passes. Any measurement from the survey unit will be considered elevated if it exceeds the $DCGL_w$. However, the elevated measurement alone does not indicate that the survey unit fails to meet the release criterion, only that further investigation will be necessary to determine the extent and concentration of the elevated area.
This survey plan will provide the necessary data to make this decision.

2.3 Inputs to the Decision

The Historical Site Assessment and current scoping survey data are initial inputs to determine area classifications. Gross surface activity measurements for alpha and beta activity will be performed. Removable alpha, beta, and tritium activity will be counted. Sediments will be analyzed for radioisotopes and compared to site screening values.

The instrumentation selected for this survey plan will be appropriate for the radionuclides typical for the Mound site.

Surface scanning will be performed to locate anomalies that might indicate elevated areas of residual activity and that require further investigation or remedial action. A floor scan for alpha contamination will be performed using a Ludlum 2350/43-37 Floor Probe at a scan speed of 1 inch per second, with the probe located within 1/4 inch to the surface being scanned. The minimum detectable activity (MDA) is 85dpm/100 cm^2 with 95% detection probability, at a background level equal to or less than 10 cpm. A 30 second integrated count will be performed at locations where elevated measurements are observed. The MDA in the integrated mode is 49dpm/100 cm^2 or 286 dpm/probe.

Direct measurements of building surfaces will be made at fixed locations using a Ludlum 2350/43-68 gas flow proportional probe (or equivalent) for alpha and beta contamination. The integrated count time is two minutes. The alpha MDA is 50 dpm/100cm^2 at a background of less than 3 cpm. The beta MDA is 375 dpm/100cm^2 at a background of less than 400 cpm.

The presence of loose surface activity, including H^3 will be determined using coin smears. An area of 100cm^2 will be smeared at each data point. Smears will be counted in an alpha/beta counter. A liquid scintillation counter (LSC) will measure removable tritium.

Smear samples with gross activity above the $DCGL_w$ and sediment samples will be analyzed by alpha and/or gamma spectroscopy.

Sampling of building materials will include removable loose surface contamination (smears) and sediment sampling of floor drains, sumps, and ventilation units. Smears ($100cm^2$) will be collected at all survey data point locations. Any areas of elevated activity above the $DCGL_w$ will be evaluated for isotopic content by intrusive sampling or insitu analysis.

All field and laboratory instrumentation will be specified on the Survey Plan Form (SPF) and shall be operated in accordance with the appropriate Mound procedures.

All surveys and samples collected for this survey plan will be performed in accordance with the Quality Control requirements of Reference 3. Replicate surveys, sample recounts, instrument performance checks, chain of custody for samples, control of field survey data and databases, and QC investigations provide the highest level of confidence in the data collected to support the survey outcome. The SPF will specify the QC requirements for this survey.

2.4 Study Boundaries

Defining the study boundaries helps ensure the data taken during the final status survey are representative of the survey unit. The area under consideration is the physical surfaces inside and outside of the Building DS structure. Subsurface material (under-slab, 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.

Each survey unit is classified in accordance with Reference 5 based on historical data and current scoping surveys. Class 1 areas are those areas where contamination was found above the $DCGL_w$ prior to remediation and have the greatest potential for residual contamination. Class 1 areas receive the highest degree of survey effort (100% surface scan). Class 2 areas are areas where radioactive material may have been present, but are not expected to exceed the $DCGL_w$. Class 2 areas receive a moderate degree of survey effort (50% surface scan). Class 3 areas are areas that are impacted by building operations, but are not expected to have any residual radioactivity. Class 3 areas may also be buffer areas to Class 1 or 2 areas and receive a smaller degree of survey effort (up to 25% surface scan). Non-impacted areas have no reasonable potential for residual contamination and are judgmentally (bias) surveyed to confirm this designation.

Building DS is designated as impacted since there is a potential for residual radioactive material to be present. Survey Unit classification was based on historic radiological data. Room and areas that were posted as Contamination Areas (CA) or Radiological Material Areas (RMA) are given a Class 2 designation. Rooms that had been posted as Radiological Material Management Areas (RMMA) and areas adjacent to Class 2 survey units are given a Class 3 designation. The remainder of the building was divided into judgmental survey units. A listing of survey units is shown in Attachment 2.

In Class 2 survey units, the starting point is randomly selected and data points are located within the survey unit using the triangular grid method. The spacing of data points is determined by:

$$L = \sqrt{\frac{A}{0.866n}}$$

Where: A = Survey unit area
n = # of data points
L = Distance between data points in feet

In Class 3 areas, the location of each data point is determined by multiplying the east-west (Y) and the north-south (X) dimensions of each survey unit by a randomly generated number for each dimension. A calculator, computer, or tables may be used to determine random numbers. If additional surveys are required due to area reclassification or remediation, the survey design parameters will be specified as necessary in accordance with Reference 5 and incorporated into the Final Status Report.

The data points are then located on a scaled drawing and transferred to the survey unit. Professional judgment (biased) surveys will be performed to supplement the random survey data, but will not be combined with the statistical data. Judgmental survey data will be compared directly to the release criteria.

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 of the contaminant in the survey unit (Δ/σ = DCGL-LBGR/σ). The standard deviation is estimated to be 20dpm/100cm^2 based on characterization and scoping surveys. The LBGR is set at one-half the release limit. The relative shift is calculated as 2.50. For survey planning, the number of data points (n = 15) in the survey unit was obtained from Table 5.5, Reference 5.

2.5 The Decision Rule

A decision rule relates the concentration of residual radioactivity in the survey unit to the release criterion so that decisions can be made based on the results of the final status survey. Reference 6, DOE Order 5400.5, Radiation Protection of the Public and the Environment, offers generic release criteria for building surfaces. Table 1 lists these permissible surface contamination guidelines which were adapted from NRC Regulatory Guide 1.86. Tritium at the Mound facility is an exception. For tritium, 10,000 dpm/100cm^2 was selected based on technical information presented in Reference 4.

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 are designated $DCGL_w$ in this plan. Biased measurements will be taken in non-impacted areas and compared directly to the release criteria to supplement the statistical data. The maximum activity shown in Table 1 represents the $DCGL_{EMC}$. Since Pu-238 is the major contaminant of concern, Group 1 limits are appropriate for alpha measurements. Group 4 limits are used for beta/gamma measurements.

If the average of the measurements is above the $DCGL_w$, the survey unit will not meet the release criterion. If the average surface activity within each survey unit is below the $DCGL_w$ and the maximum activity is less than the $DCGL_w$, then it will be accepted as the Final Status Survey and no further survey action is required.

If the average of the residual activity in the survey unit is less than the $DCGL_w$, but some areas are greater than the $DCGL_w$, the Sign test will be used to determine if the release criteria have been met. Each measured value, when subtracted from the DCGL, will yield a positive or negative number. If the sum of the positive signs (S+) is greater than the Critical Value (Table I.3, Reference 5), then the null hypothesis is rejected and survey unit passes. The power of the Sign test is given in Reference 5, I.9.1. A prospective power curve constructed using MARSSIM Power 2000 software demonstrates sufficient power exists at the LBGR to detect residual contamination (Attachment 1). A retrospective power curve will be used to test the assumptions made in this survey plan.

The decision rule for the elevated measurement comparison will be a two-stage process. In the first stage, areas will be flagged as potentially elevated if the direct measurement or scanning measurement indicates concentrations above the $DCGL_w$. If the elevated activity can not be attributed to naturally occurring radioisotopes, the area will be remediated, and resurveyed in accordance with Reference 5.

2.6 The Limits on Decision Errors

A Type I error is made when the null hypotheses, H_0, is rejected when it is true. A Type II error is made when the null hypotheses is not rejected when it is false. The error rates are expressed as the probability that a survey unit passes when it should fail (α) or fails when it should pass (β). Because the measurement variability is expected to be small at the DCGL, the $\alpha = 0.05$ and $\beta = 0.05$ for this survey.

The concentration range between the Lower Bound of the Gray Region (LBGR) and the DCGL defines the gray region of residual radioactivity concentration in which the consequences of Type II decision errors are relatively minor. The statistical test uses the LBGR to define the level that, above which, false positive rates greater than that specified by the limits on decision errors are accepted. The LBGR is limited by the variability exhibited by the measurements and the decision errors chosen. Because the detection limits expected by the direct field measurements are low relative to the $DCGL_w$, it is estimated that an LBGR equal to one-half of the $DCGL_w$ can be achieved.

2.7 Optimizing the Design

The DQO process is neither static nor sequential. As new information is gathered it will be incorporated into the planning process. In order to facilitate this process, a Survey Plan Form (SPF) is developed for field use to direct the specific details required by the overall survey plan. The SPF will specify the types of samples to be collected and the locations and analysis to be performed. It will define the specific instruments to be used for the survey and the location and type of surveys required. The SPF will specify the

Quality Control (QC) requirements of the survey as required by Reference 3. Additional information and comments can be added to clarify or enhance the survey/sample process. The SPF is reviewed and approved prior to beginning the survey and is subsequently reviewed and approved after all data is collected to ensure completeness and accuracy. Data from initial survey efforts may result in altering area classifications. Additional SPF's may be required to complete the final status survey process for a survey unit.

It is critical to the DQO process that the survey units are isolated from the potential for recontamination or disturbances that could lead to invalidating the survey results. Access shall be restricted to all areas where surveys have been completed until such time as the survey unit is released.

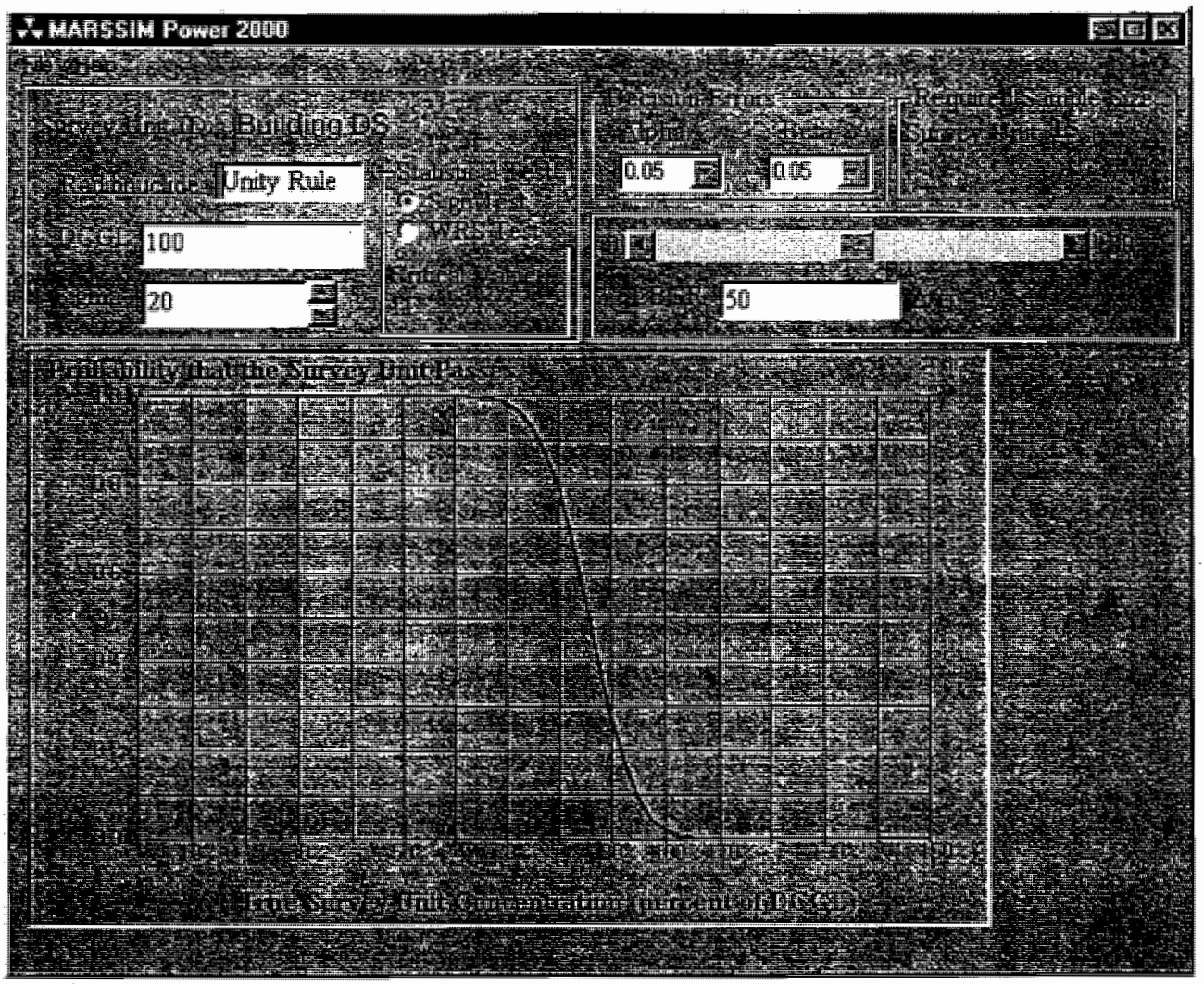
2.8 Final Status Survey Report

When all of the DQO's are satisfied, a report of the final status of the building is prepared and submitted for review. This report called a Final Status Survey (FSS) will summarize and document the MARSSIM survey and the final status of the building. The FSS report will be transmitted to the Mound 2000 Core Team for review and approval prior to proceeding with building demolition.

3.0 References

1. CH2MHill, EC&AS Department, White Paper: *Building DS Structural History and Process History Summary Background Document*, November 2003
2. Work Plan, *Mound 2000 Approach*, DOE/MEMP, 1995
3. MARSSIM Implementing Procedures, *Field Quality Control for Building Contamination Surveys*, MD-80046, Op 402
4. DOE, 1991, *Recommended Tritium Surface Contamination Release Guides,* DOE, EH, 0201T, March, 1991; Mound Tritium Committee, Appendix A, Health-Based Risk Assessment for Unconditional Release of Items Contaminated with Tritium
5. NUREG 1575, Rev 1, Aug 2000, *Multi-Agency Radiation Survey and Site Investigation Manual*, (MARSSIM)
6. DOE Order 5400.5, *Radiation Protection of the Public and the Environment*

Sign Test Prospective Power Curve



MARSSIM Power 2000 software developed by Dr. Carl Gogolak, DOE/EML is provided on the Health Physics Society Decommissioning website (http://www.serversolutions.com/decomm_sec/index.htm) and endorsed by the Oak Ridge Institute for Science and Education (ORISE).

Building DS Survey Units
Attachment 2

SU#	Room/Area	Area (ft^2)	Class
1	106	414.8	2
2	107A	538.6	2
3	109/ABC	851.6	2
4	110	1375.9	2
5	117/A	247.5	2
6	118	215.6	2
7	119A	378.5	2
8	125	680.5	2
9	202	261.5	2
10	214	459.7	2
11	215	244.8	2
12	217	348.1	2
13	220	247.5	2
14	221A	225.0	2
15	221F	148.5	2
16	222	233.8	2
17	223	233.8	2
18	Corridor 5/6	936.0	2
19	251,A/B	1050.0	2
20	251,A,B Walls	1404	3
21	103	1705.4	3
22	116	153.3	3
23	123/A	859.1	3
24	127,A,B,C	722.1	3
25	127Walls	143.2	3
26	132	596.1	3
27	219/221	450.5	3
27	221B,C,D,E	885.2	3
Upper Walls and Ceilings			
28	106,107A, 109/ABC	1804.0	3
29	110,117/A,118	1839.0	3
30	119A,125,202	476.0	3
31	214,215,217	1052.0	3
32	220,221A,221F	621.0	3
33	222,223,251/A,B	1518.0	3
34	Corridor 5/6	936.0	3

Building DS Survey Units
Attachment 2

SU#	Room/Area	Area (ft^2)	Class
Judgmental Areas			
35	234, 235, 241, 242, 243, 244	2304.0	3
36	229, 229A-D, 231, 233	2400.0	3
37	232, 245, 257, 248, 249, 250	1800.0	3
38	252, 253, 254, 255, 256, 257	750.0	3
39	208,208ABC, 213/A, 227/A/B, 225/A	2400.0	3
40	203/B, 204, 205	1700.0	3
41	101, 104/A/B, 105/A-D	1650.0	3
42	201, 111, 112, 113, 114, 115, 119, 120, 121, C3, C4	3900.0	3
43	108, 108A, C2, 107, 107B, 122, 124, 126/A/B, 125A/B, C4	4200.0	3
44	134, 135/A/B, NC, 133/A	3128.0	3
45	130, 130A, SC, 129, 131/A/B	3128.0	3
46	206, C7, 216, 218, C8	2520.0	3
47	209, 209A, 212, 212A	1000.0	3
48	224, 226, C8	1280.0	3
49	Solvent Shed	100.0	3
50	Penthouse1,2,3	6621.0	3
51	Ext. Walls	17272.0	3
52	Roof	40734.0	3

SURVEY PLAN FORM

SPF NUMBER	DS-02	DATE OF REQUEST	February 16, 2004
TYPE OF SP	☐ FSS ☒ CHARACTERIZATION ☐ REFERENCE ☐ OTHER:		
AREA/LOCATION	Building DS		
PURPOSE	The purpose of this SPF is to characterize Building DS 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 Page 3.

☐ **Rubbelized Material:**

☐ **OTHER:**

SURVEY TYPE

SURFACE SCAN	☐ BETA ☐ GAMMA ☒ ALPHA	INST. TYPE PROBE TYPE	L-2350 43-37 Floor Probe or 43-68 Hand Probe	SCAN RATE & DETECTOR DISTANCE FROM SURFACE	Scan surface at a rate of 1" per second at distance of not more than ¼" from surface
STATIC MEASURE-MENT	☒ BETA ☐ GAMMA ☒ ALPHA	INST. TYPE PROBE TYPE	L-2350 43-68 Hand Probe	SCAN RATE & DETECTOR DISTANCE FROM SURFACE	Perform 2 minute counts at specified locations n more than ¼" from surface
STATIC MEASURE-MENT	☐ BETA ☐ GAMMA ☐ ALPHA	INST. TYPE PROBE TYPE		COUNT TIME & DETECTOR DISTANCE FROM SURFACE	
DOSE RATE MEASURE-MENT	☐ BETA ☐ GAMMA ☐ ALPHA	INST. TYPE PROBE TYPE		DETECTOR DISTANCE FROM SURFACE	

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.

SPI NUMBER	DS-02	DATE OF REQUEST	February 16, 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.

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

1. Set the Ludlum 2350-1 datalogger to alarm at 75dpm/100cm^2 in the ratemeter mode.
2. Scan at least 50% of the surface in Class 2 Survey Units using a serpentine method with rows spaced one probe width apart.
3. Scan at approximately 10% of the surface in Class 3 Survey Units using the professional judgment of the surveyor. This should include hallways and major walkways in these units.
4. Perform a 30 second integrated count at every location where an alarm is obtained. In addition, obtain a 30 second integrated count at any point where an audible or visual indication of elevated activity is observed at twice the background rate.
5. Record the location of the area scanned on the RSDS map and document the results of any integrated counts.

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

1. Scan at approximately 10% of the surface of non-floor Class 3 Survey Units using the professional judgment of the surveyor.
2. 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.
3. 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.

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 15 integrated alpha and beta measurements in 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.

Continued Next Page

Specific Survey and Sampling Instructions (continued)

Sediment Sample

1. Collect approximately 250ml of debris/water from each accessible ventilation unit opening, floor drain, sump n sampled IAW DS-01.
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 2.
4. Label sample container with sample number, date and time of collection, and location in accordance with Moun 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 isotopic analysis. Submit smears for gross alpha and beta analysis.

Quality Control

1. QC measurements will be performed by re-surveying 16 data points from the data set. Data points selected fc 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			
MARISSM Engineer	Roderick C. Case	DATE	February 16, 2004
Technical Reviewer	Chris Miles	DATE	2/23/04
Rad Con Manager	Steve Collins	DATE	2/24/04
SP CLOSE-OUT SIGNATURES			
MARISSM Engineer		DATE	
Technical Reviewer		DATE	
Rad Con Manager		DATE	

COMMENTS

SU#	Room/Area	Area (ft²)	Class
1	106	414.8	2
2	107A	538.6	2
3	109/ABC	851.6	2
4	110	1375.9	2
5	117/A	247.5	2
6	118	215.6	2
7	119A	378.5	2
8	125	680.5	2
9	202	261.5	2
10	214	459.7	2
11	215	244.8	2
12	217	348.1	2
13	220	247.5	2
14	221A	225.0	2
15	221F	148.5	2
16	222	233.8	2
17	223	233.8	2
18	Corridor 5/6	936.0	2
19	251,A/B	1050.0	2
20	251,A,B Walls	1404	3
21	103	1705.4	3
22	116	153.3	3
23	123/A	859.1	3
24	127,A,B,C	722.1	3
25	127Walls	143.2	3
26	132	596.1	3
27	219/221	450.5	3
27	221B,C,D,E	885.2	3
Upper Walls and Ceilings			
28	106,107A, 109/ABC	1804.0	3
29	110,117/A,118	1839.0	3
30	119A,125,202	476.0	3
31	214,215,217	1052.0	3
32	220,221A,221F	621.0	3
33	222,223,251/A,B	1518.0	3
34	Corridor 5/6	936.0	3

SU#	Room/Area	Area (ft²)	Class
Judgmental Areas			
35	234, 235, 241, 242, 243, 244	2304.0	3
36	229, 229A-D, 231, 233	2400.0	3
37	C232, 245, 247, 248, 249, 250	1800.0	3
38	C252, 253, 254, 255, 256, C257	750.0	3
39	208,208ABC, 213/A, 227/A/B, 225/A	2400.0	3
40	203/B, 204, 205	1700.0	3
41	101, 104/A/B, 105/A-D	1650.0	3
42	201, 111, 112, 113, 114, 115, 119, 120, 121, C3, C4	3900.0	3
43	108, 108A, C2, 107, 107B, 122, 124, 126/A/B, 125A/B, C4	4200.0	3
44	134, 135/A/B, NC, 133/A	3128.0	3
45	130, 130A, SC, 129, 131/A/B	3128.0	3
46	206, C7, 216, 218, C8	2520.0	3
47	209, 209A, 212, 212A	1000.0	3
48	224, 226, C8	1280.0	3
49	Solvent Shed	100.0	3
50	Penthouse 1,2,3	6621.0	3
51	Ext. Walls	17272.0	3
52	Roof	40734.0	3

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
DS-02-									
DS-02-									
DS-02-									
DS-02-									
DS-02-									
DS-02-									
DS-02-									
DS-02-									
DS-02-									
DS-02-									
DS-02-									
DS-02-									
DS-02-									
DS-02-									

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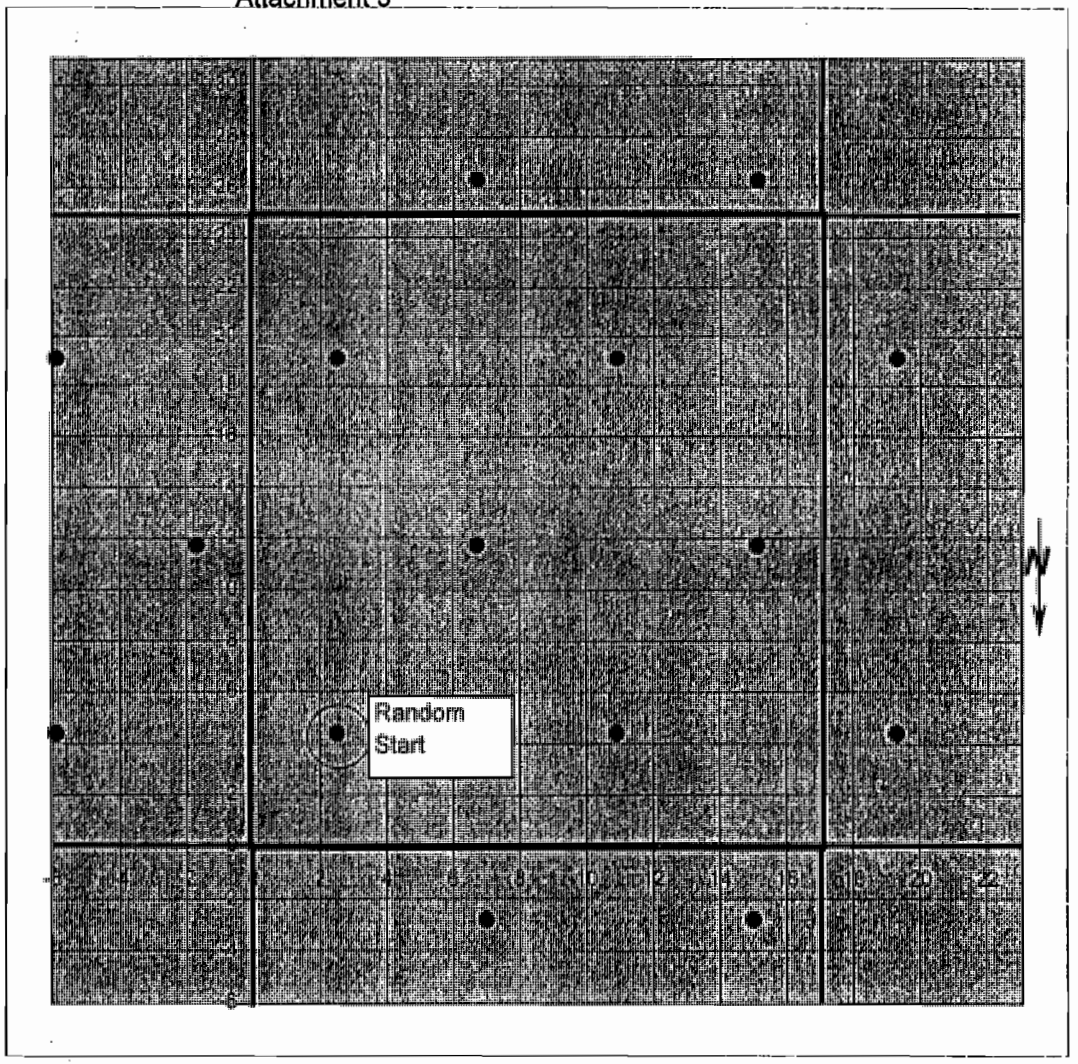
SPF DS-02
Attachment 3

Survey Unit 1
Room 106 Floor & Walls to 6'

	X	Y
	17	25
1	7	-3
2	15	-3
3	-6	4
4	3	4
5	11	4
6	19	4
7	-2	12
8	7	12
9	15	12
10	-6	19
11	3	19
12	11	19
13	19	19
14	7	26
15	15	26

Area	929 sqft
L =	8 ft
L_R =	7 ft
Start X/Y	3,4
Scan	50%



Coordinates calculated by VSP, 2.0 copyright BMI, 2002

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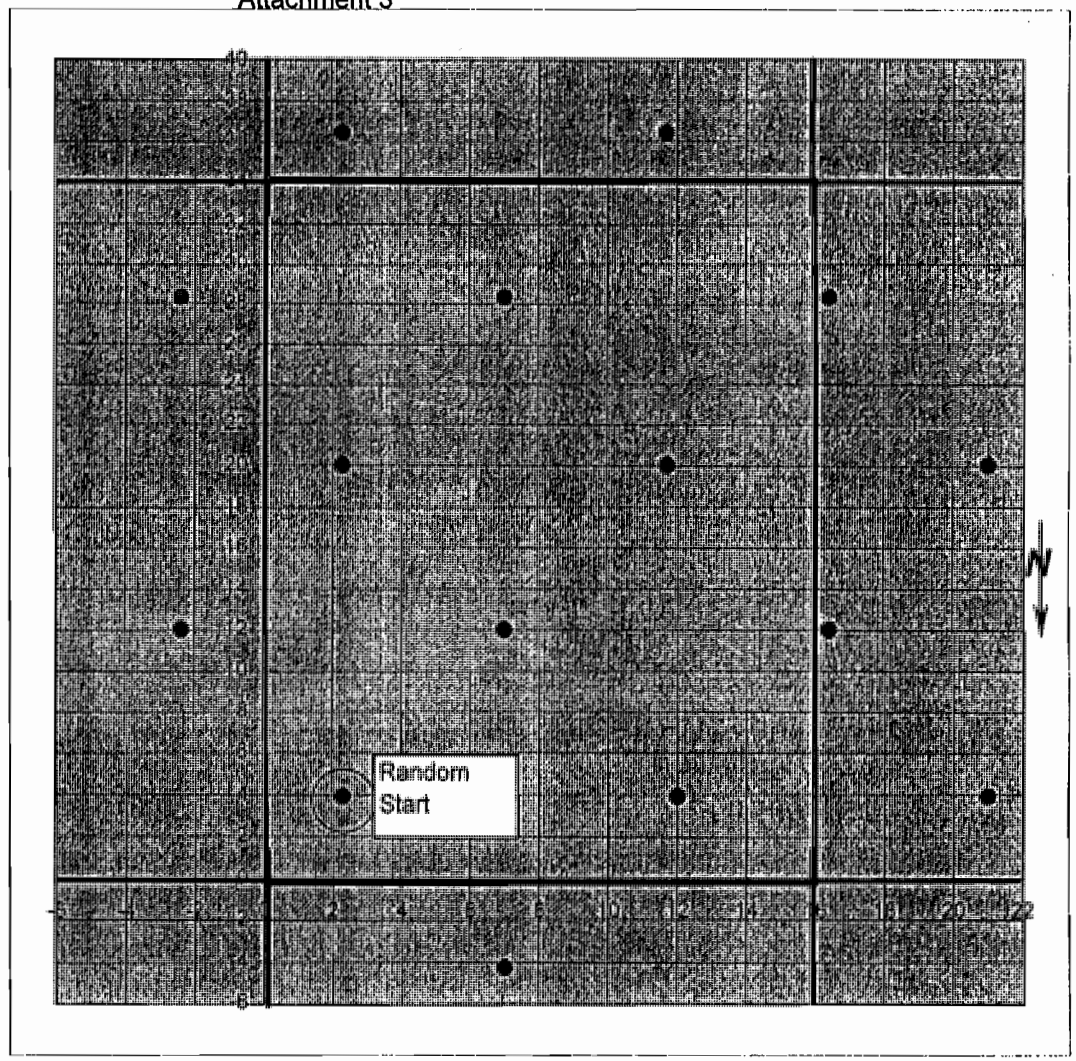
Survey Unit 2
Room 107A Floor & Walls to 6'

	X	Y
	16	34
1	2	36
2	12	36
3	-2	28
4	7	28
5	16	28
6	2	20
7	12	20
8	21	20
9	-2	12
10	7	12
11	16	12
12	2	4
13	12	4
14	21	4
15	7	-4

Area	1144 sqft
L =	9 ft
L_R =	8 ft
Start X/Y	2,4
Scan	50%



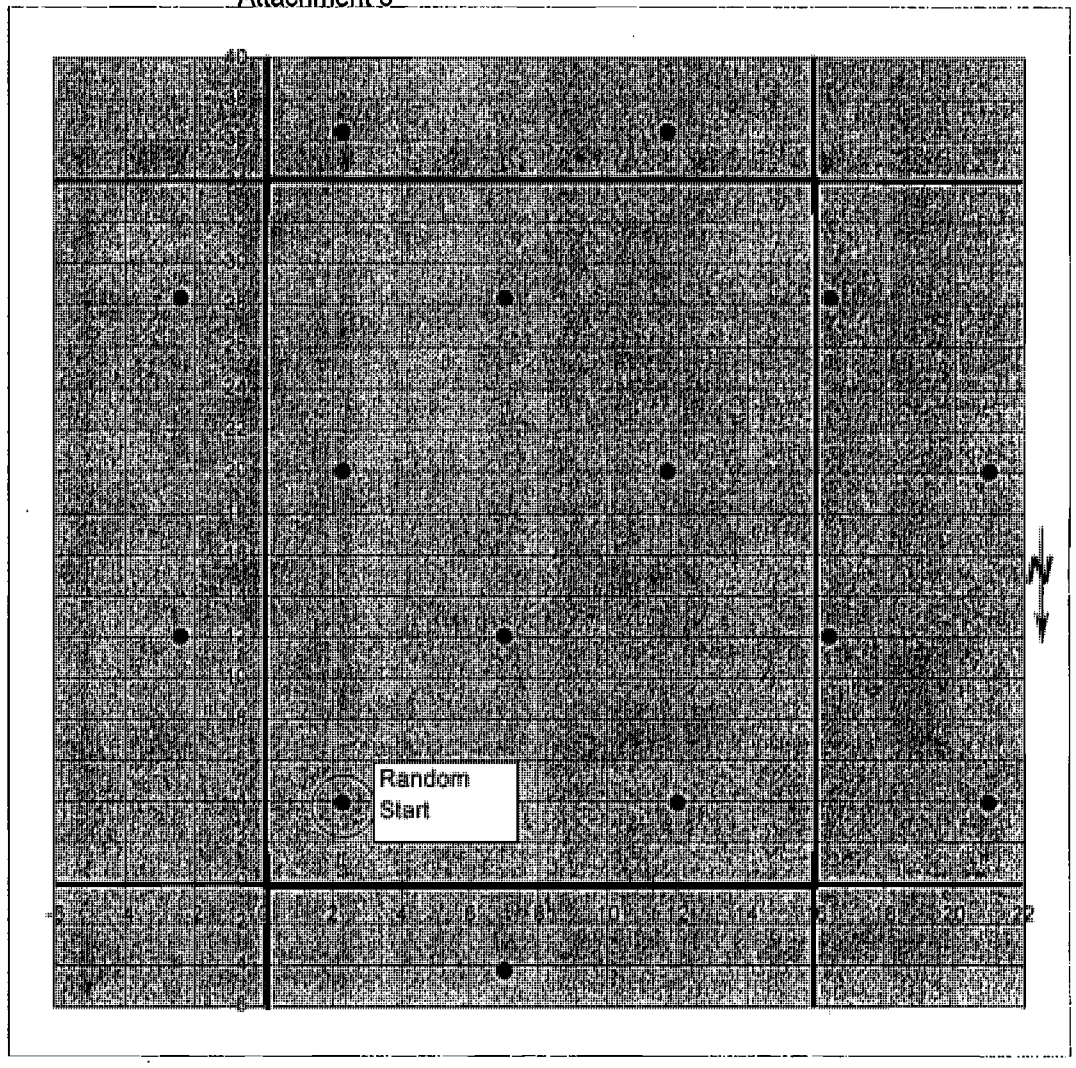
Coordinates calculated by VSP, 2.0 copyright BMI, 2002

SPF DS-02
Attachment 3

Survey Unit 2
Room 107A Floor & Walls to 6'

	X	Y
	16	34
1	2	36
2	12	36
3	-2	28
4	7	28
5	16	28
6	2	20
7	12	20
8	21	20
9	-2	12
10	7	12
11	16	12
12	2	4
13	12	4
14	21	4
15	7	-4

Area	1144 sqft
L =	9 ft
L_R =	8 ft
Start X/Y	2,4
Scan	50%

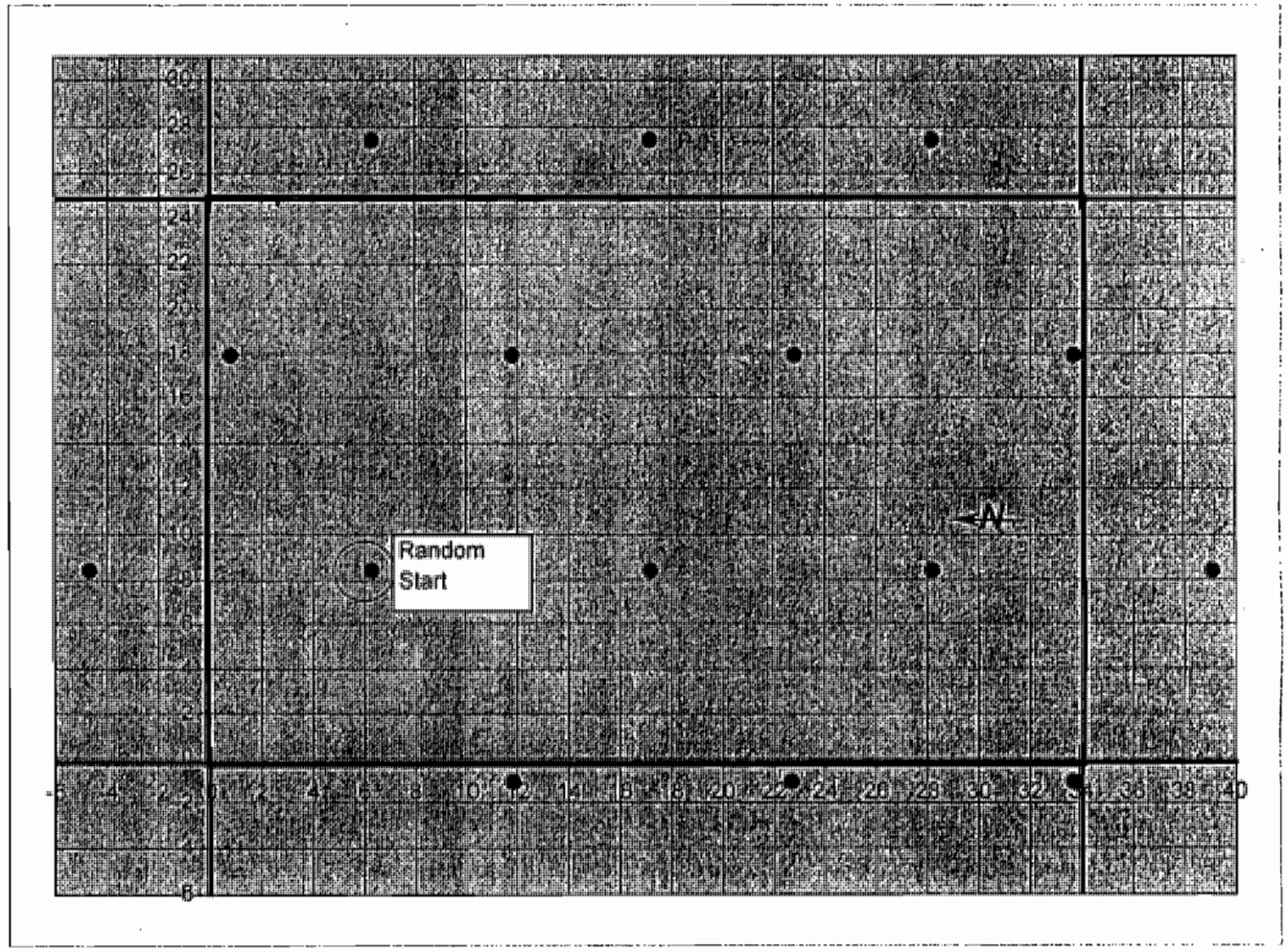


Coordinates calculated by VSP, 2.0 copyright BMI, 2002

Survey Unit 3
Room 107A Floor & Walls to 6'

	X	Y
	34	25
1	6	27
2	17	27
3	28	27
4	1	18
5	12	18
6	23	18
7	34	18
8	-5	8
9	6	8
10	17	8
11	28	8
12	39	8
13	12	-1
14	23	-1
15	34	-1

Area	1558 sqft
L =	11 ft
L_R =	9 ft
Start X/Y	6,8
Scan	50%



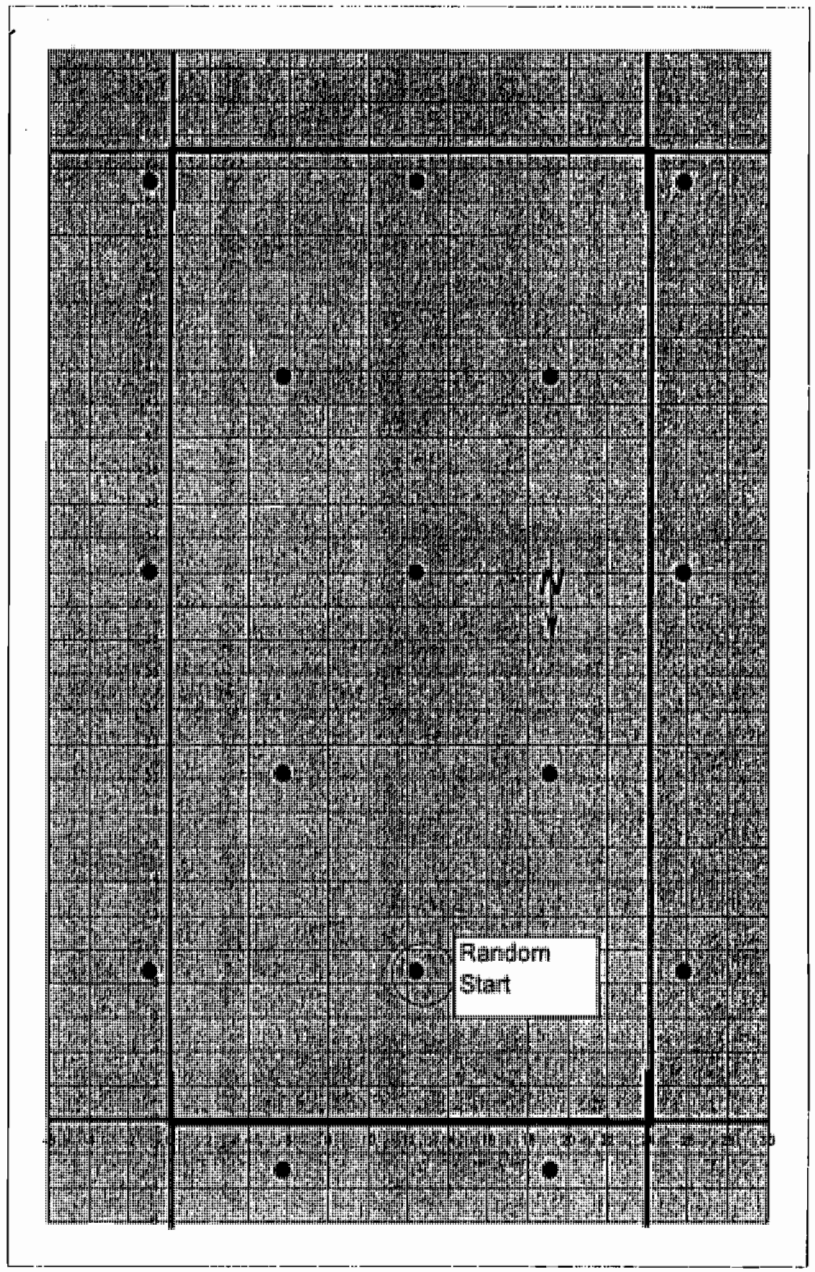
Coordinates calculated by VSP, 2.0 copyright BMI, 2002

SPF DS-02
Attachment 3

Survey Unit 4
Room 110 Floor & Walls to 6'

	X	Y
	24	57
1	-1	55
2	12	55
3	26	55
4	6	44
5	19	44
6	-1	32
7	12	32
8	26	32
9	6	20
10	19	20
11	-1	9
12	12	9
13	26	9
14	6	-3
15	19	-3

Area	2340 sqft
L =	13 ft
L_R =	12 ft
Start X/Y	12,9
Scan	50%



Coordinates calculated by VSP, 2.0 copyright BMI, 2002

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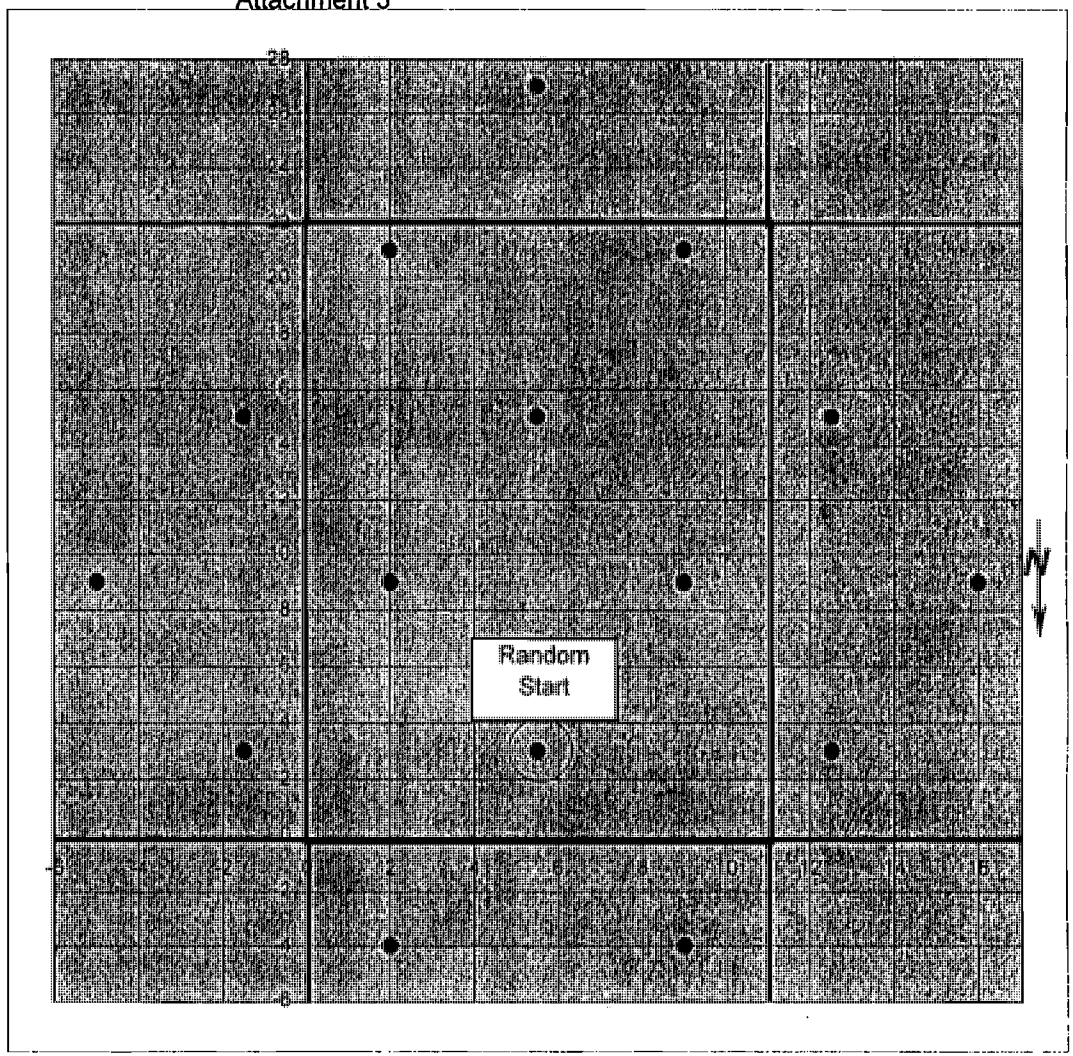
Survey Unit 5
Room 117/A Floor & Walls to 6'

	X	Y
	11	22
1	6	27
2	2	-4
3	2	21
4	9	21
5	9	-4
6	-2	15
7	6	15
8	13	15
9	-5	9
10	2	9
11	9	9
12	16	9
13	-2	3
14	6	3
15	13	3

Area	638 sqft
L =	7 ft
L_R =	6 ft
Start X/Y	6,3
Scan	50%



Coordinates calculated by VSP, 2.0 copyright BMI, 2002

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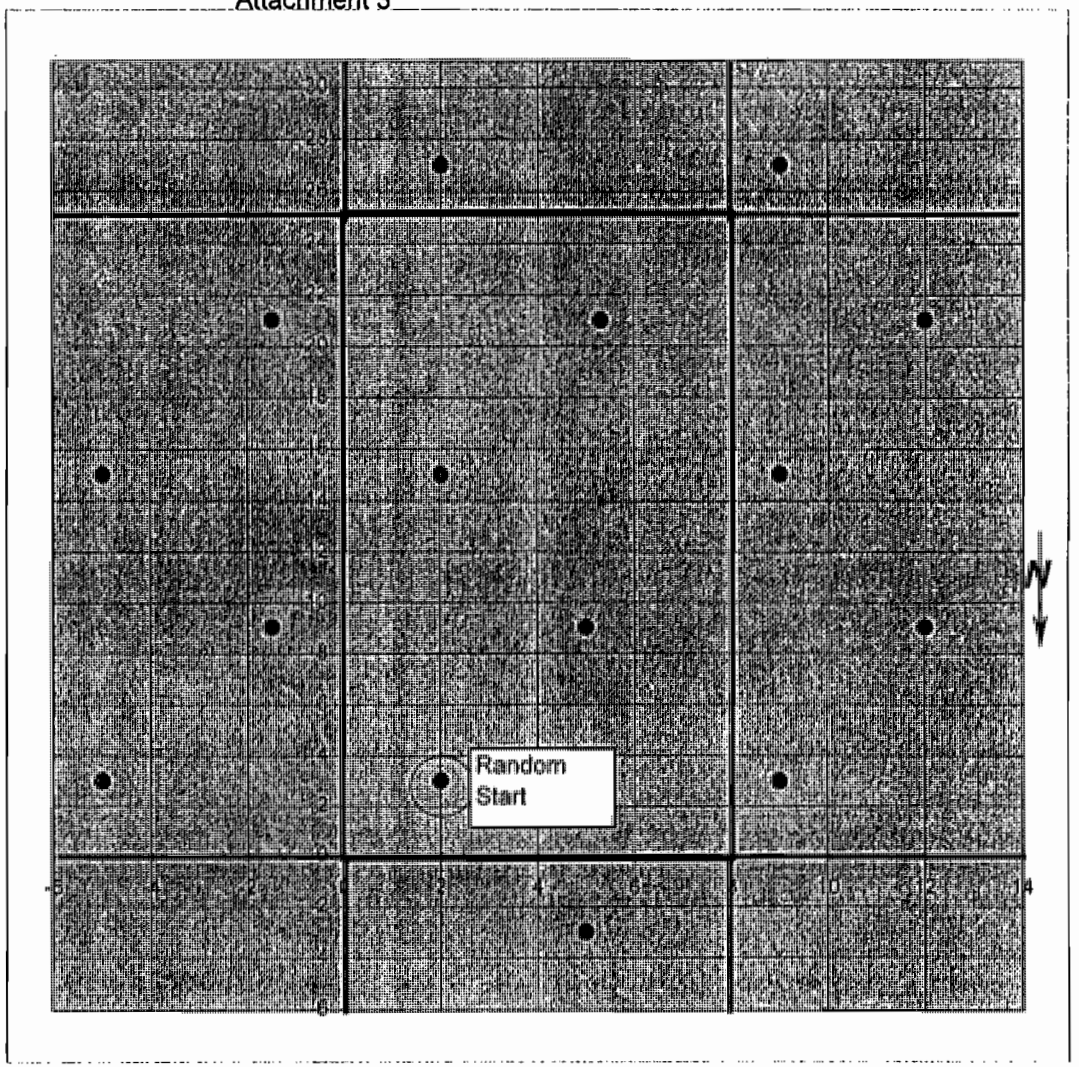
SPF DS-02
Attachment 3

Survey Unit 6
Room 118 Floor & Walls to 6'

	X	Y
	8	25
1	2	27
2	9	27
3	-2	21
4	5	21
5	12	21
6	-5	15
7	2	15
8	9	15
9	-2	9
10	5	9
11	12	9
12	-5	3
13	2	3
14	9	3
15	5	-3

Area	596 sqft
L =	7 ft
L_R =	6 ft
Start X/Y	2,3
Scan	50%



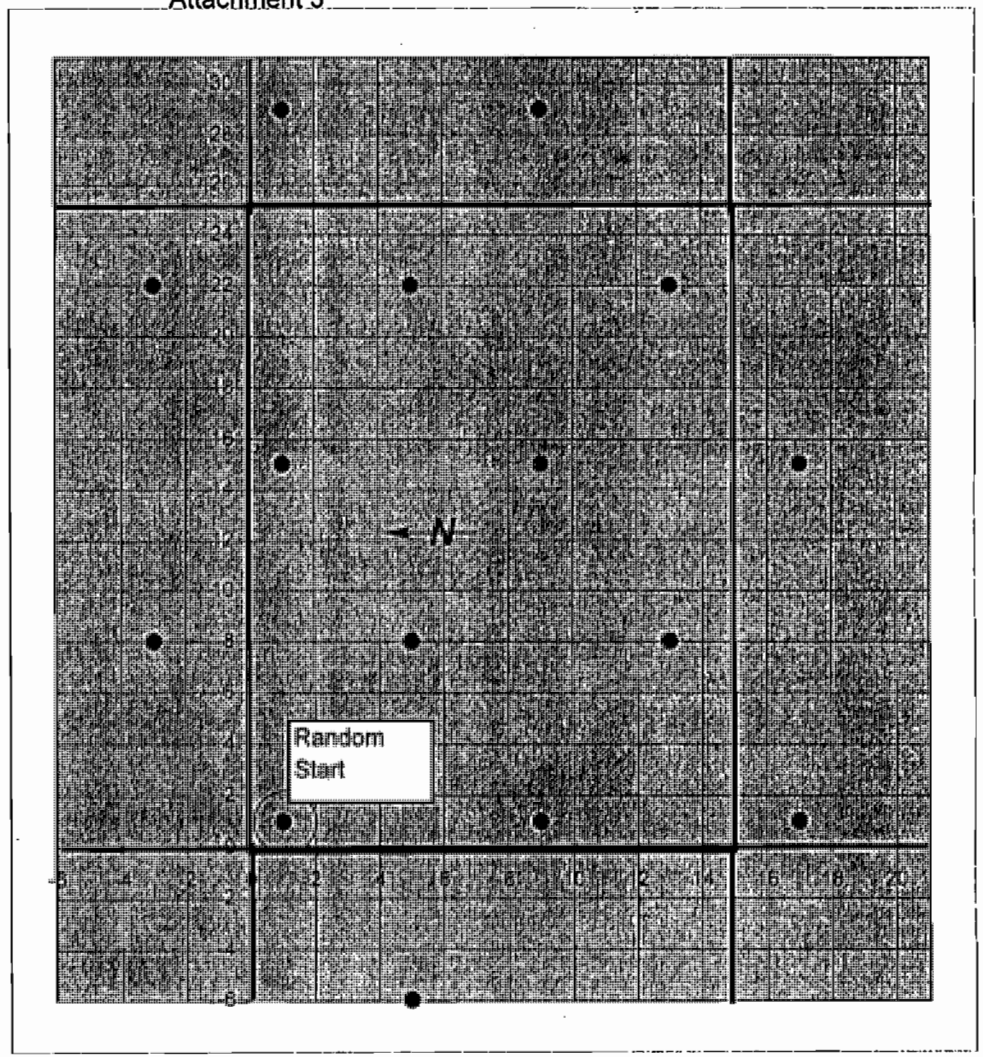
Coordinates calculated by VSP, 2.0 copyright BMI, 2002

G3H04 78

Survey Unit 7
Room 119A Floor & Walls to 6'

	X	Y
	15	25
1	1	29
2	9	29
3	-3	22
4	5	22
5	13	22
6	1	15
7	9	15
8	17	15
9	-3	8
10	5	8
11	13	8
12	1	1
13	9	1
14	17	1
15	5	-6

Area	855 sqft
L =	8 ft
L_R =	7 ft
Start X/Y	1,1
Scan	50%



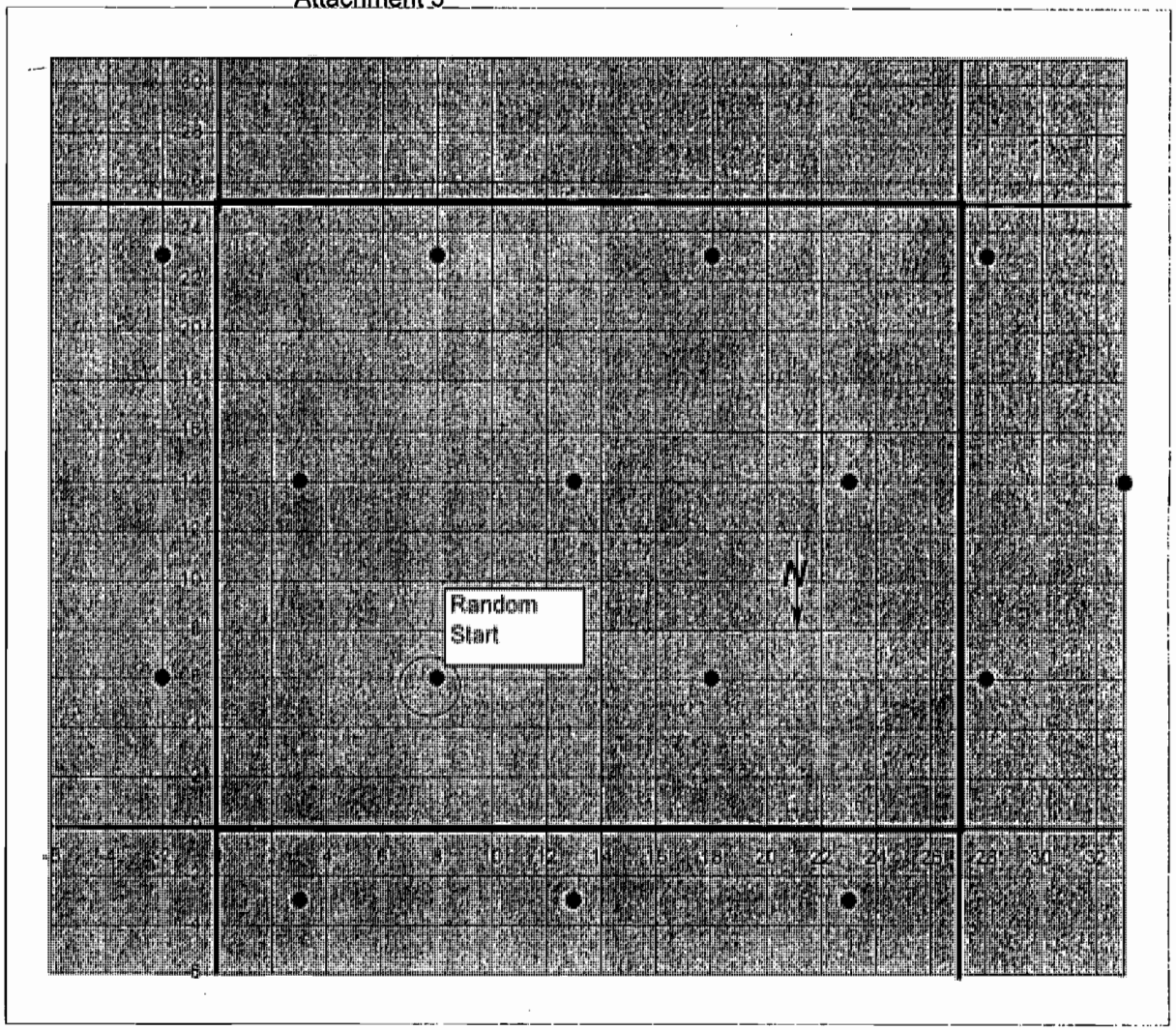
Coordinates calculated by VSP, 2.0 copyright BMI, 2002

SPF DS-02
Attachment 3

Survey Unit 8
Room 125 Floor & Walls to 6'

	X	Y
	27	25
1	-2	23
2	8	23
3	18	23
4	28	23
5	3	14
6	13	14
7	23	14
8	33	14
9	-2	6
10	8	6
11	18	6
12	28	6
13	3	-3
14	13	-3
15	23	-3

Area	855 sqft
L =	8 ft
L_R =	7 ft
Start X/Y	8,6
Scan	50%



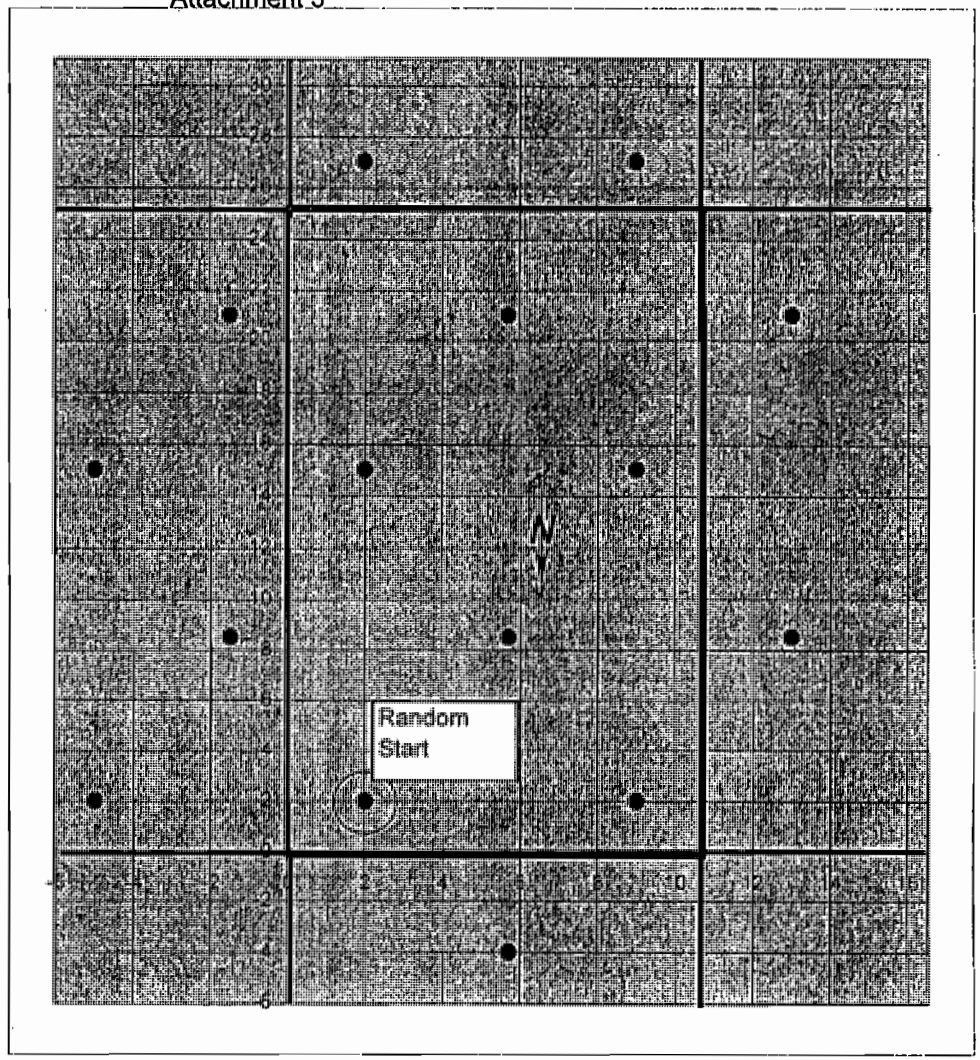
G26of78

Coordinates calculated by VSP, 2.0 copyright BMI, 2002

Survey Unit 9
Room 202 Floor & Walls to 6'

	X	Y
	10.5	25
1	2	27
2	9	27
3	-2	21
4	6	21
5	13	21
6	-5	15
7	2	15
8	9	15
9	-2	9
10	6	9
11	13	9
12	-5	2
13	2	2
14	9	2
15	6	-4

Area	688 sqft
L =	7 ft
L_R =	6 ft
Start X/Y	2,2
Scan	50%

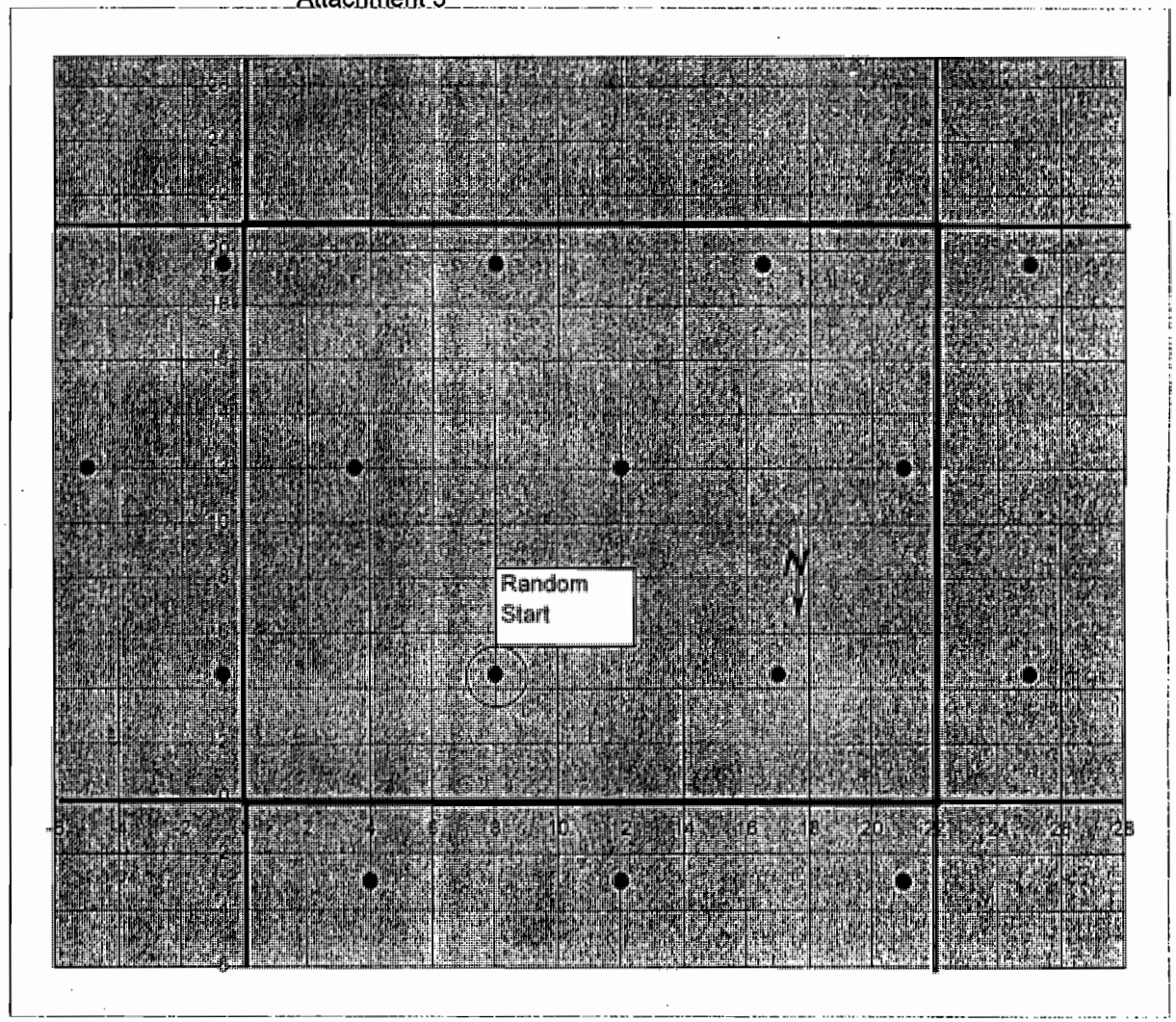


Coordinates calculated by VSP, 2.0 copyright BMI, 2002

Survey Unit 10
Room 214 Floor & Walls to 6'

	X	Y
	22	21
1	-1	20
2	8	20
3	17	20
4	25	20
5	-5	12
6	4	12
7	12	12
8	21	12
9	-1	5
10	8	5
11	17	5
12	25	5
13	4	-3
14	12	-3
15	21	-3

Area	978 sqft
L =	9 ft
L_R =	8 ft
Start X/Y	8,5
Scan	50%



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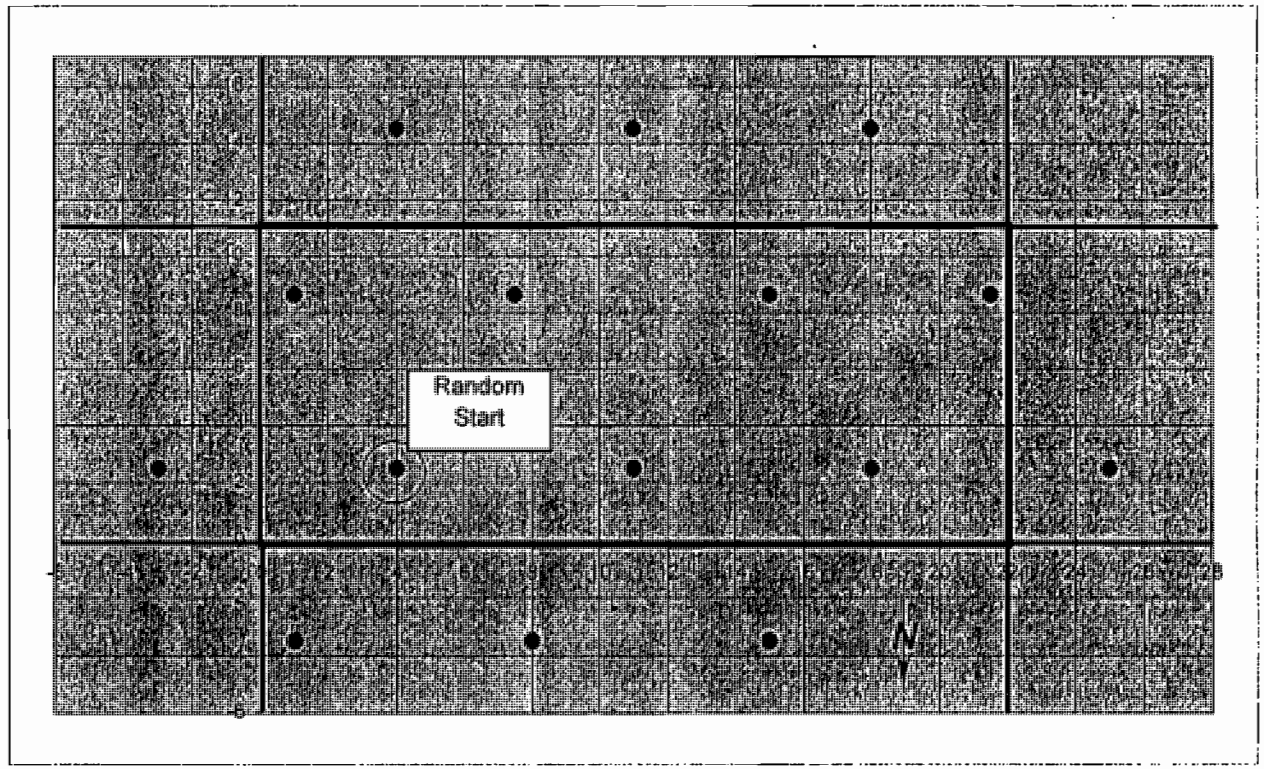
Coordinates calculated by VSP, 2.0 copyright BMI, 2002

Survey Unit 11
Room 215 Floor & Walls to 6'

	X	Y
	22	11
1	4	15
2	11	15
3	18	15
4	1	9
5	8	9
6	15	9
7	22	9
8	-3	3
9	4	3
10	11	3
11	18	3
12	25	3
13	1	-4
14	8	-4
15	15	-4

Area	638 sqft
L =	7 ft
L_R =	6 ft
Start X/Y	4,3
Scan	50%



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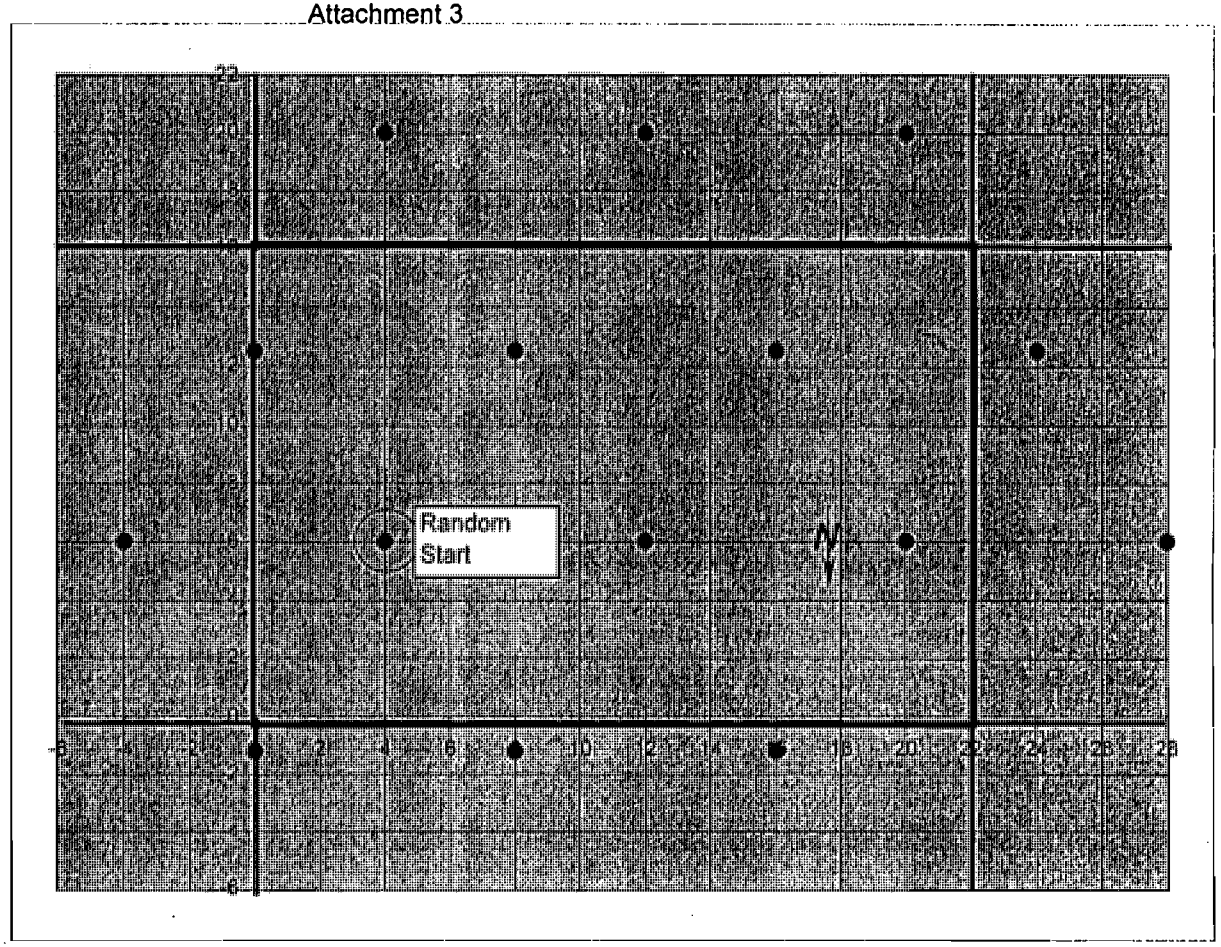
Coordinates calculated by VSP, 2.0 copyright BMI, 2002

SPF DS-02
Attachment 3

Survey Unit 12
Room 217 Floor & Walls to 6'

	X	Y
	22	16
1	4	20
2	12	20
3	20	20
4	0	13
5	8	13
6	16	13
7	24	13
8	-4	6
9	4	6
10	12	6
11	20	6
12	28	6
13	0	-1
14	8	-1
15	16	-1

Area	808 sqft
L =	8 ft
L_R =	7 ft
Start X/Y	4,6
Scan	50%



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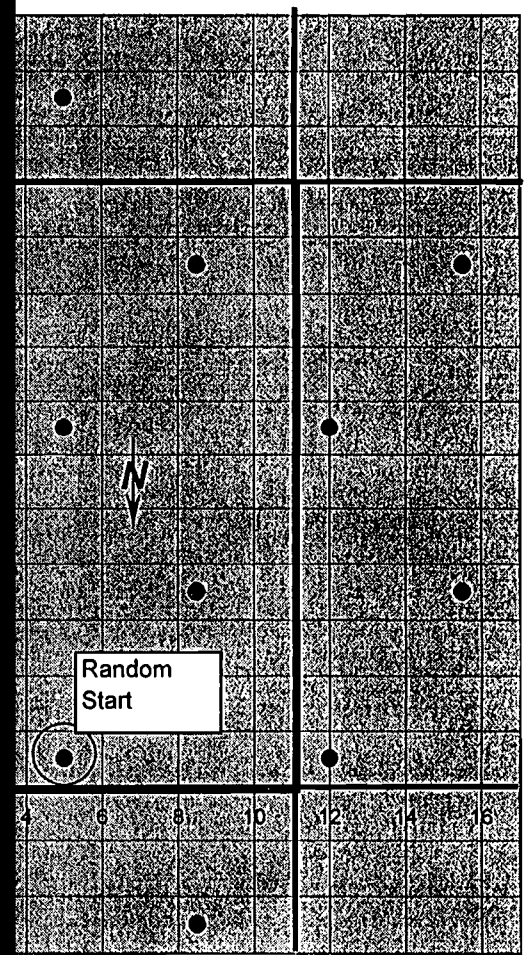
Coordinates calculated by VSP, 2.0 copyright BMI, 2002

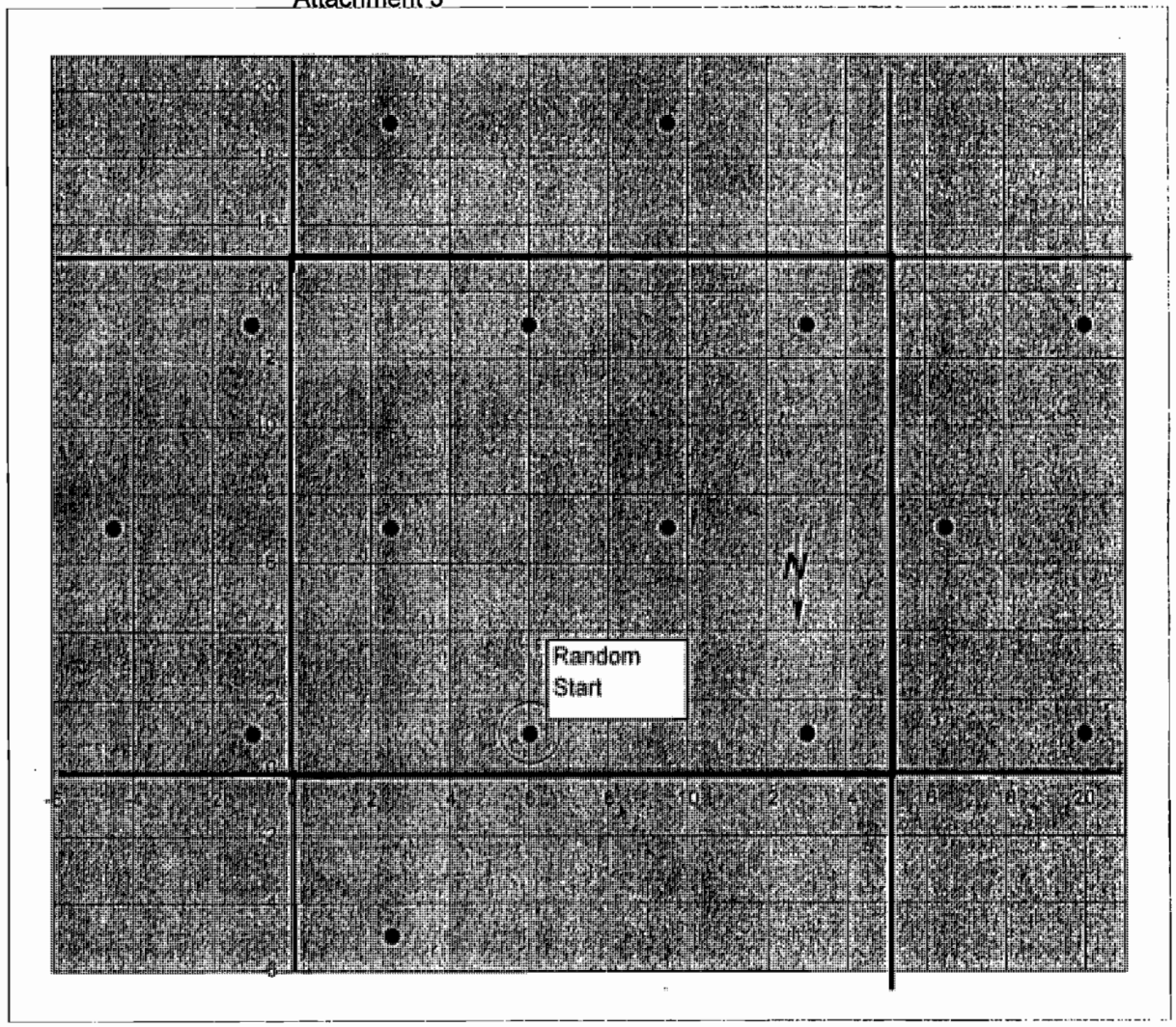

N
Random
Start
4
6
8
10
12
14
16

SPF DS-02
Attachment 3

Survey Unit 14
Room 221A Floor & Walls to 6'

	X	Y
	15	15
1	2.5	19.0
2	9.5	19.0
3	-1.0	13.0
4	6.0	13.0
5	13.0	13.0
6	20.0	13.0
7	-4.5	7.0
8	2.5	7.0
9	9.5	7.0
10	16.5	7.0
11	-1.0	1.0
12	6.0	1.0
13	13.0	1.0
14	20.0	1.0
15	2.5	-5.0

Area	585 sqft
L =	7 ft
L_R =	6 ft
Start X/Y	6,1
Scan	50%



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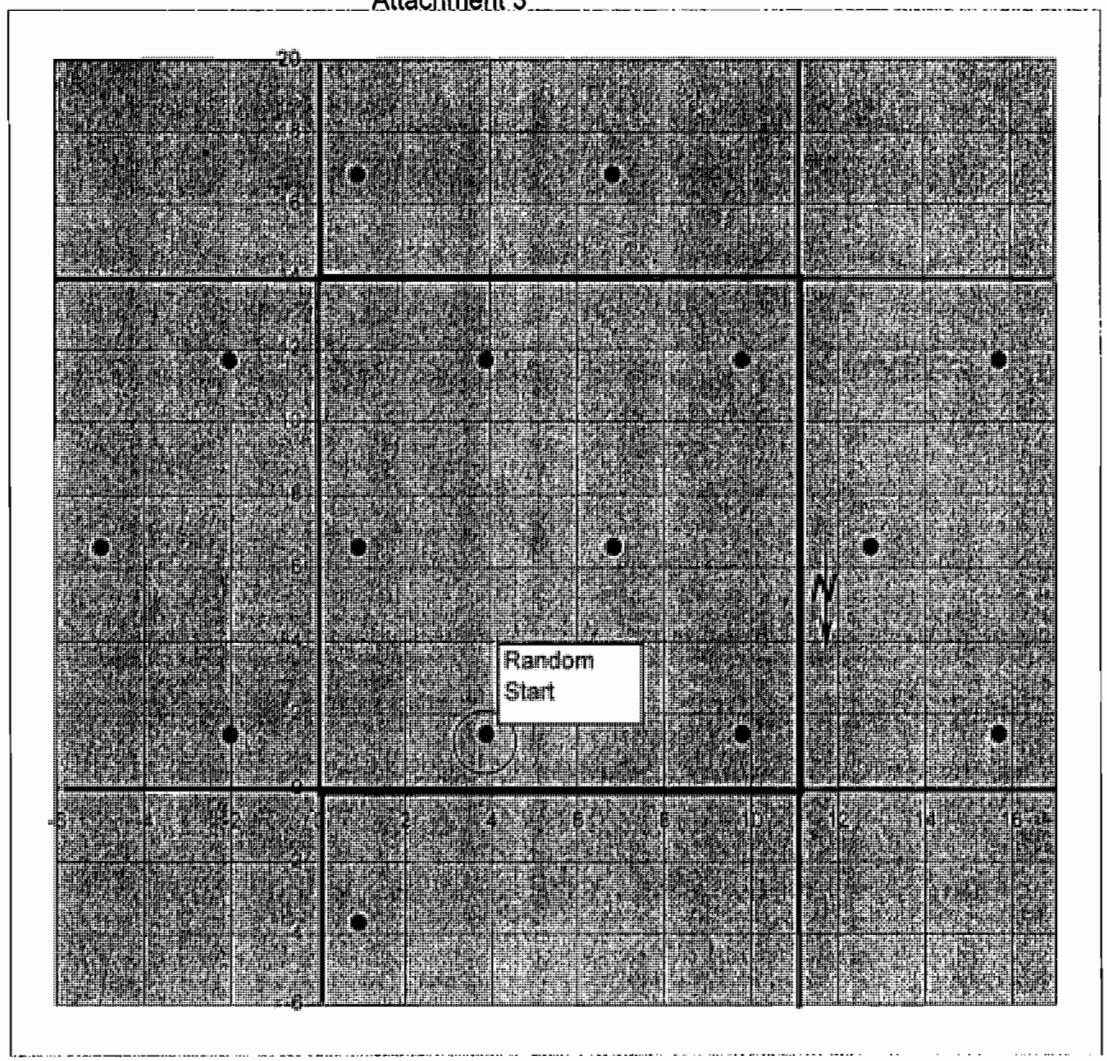
Coordinates calculated by VSP, 2.0 copyright BMI, 2002

Survey Unit 15
Room 221F Floor & Walls to 6'

	X	Y
	11	14
1	0.9	16.8
2	6.8	16.8
3	-2.0	11.7
4	3.9	11.7
5	9.8	11.7
6	15.7	11.7
7	-5.0	6.6
8	0.9	6.6
9	6.8	6.6
10	12.8	6.6
11	-2.0	1.4
12	3.9	1.4
13	9.8	1.4
14	15.7	1.4
15	0.9	-3.7
	6.8391	-3.6847

Area	454 sqft
L =	6 ft
L_R =	5 ft
Start X/Y	3.9,1.4
Scan	50%



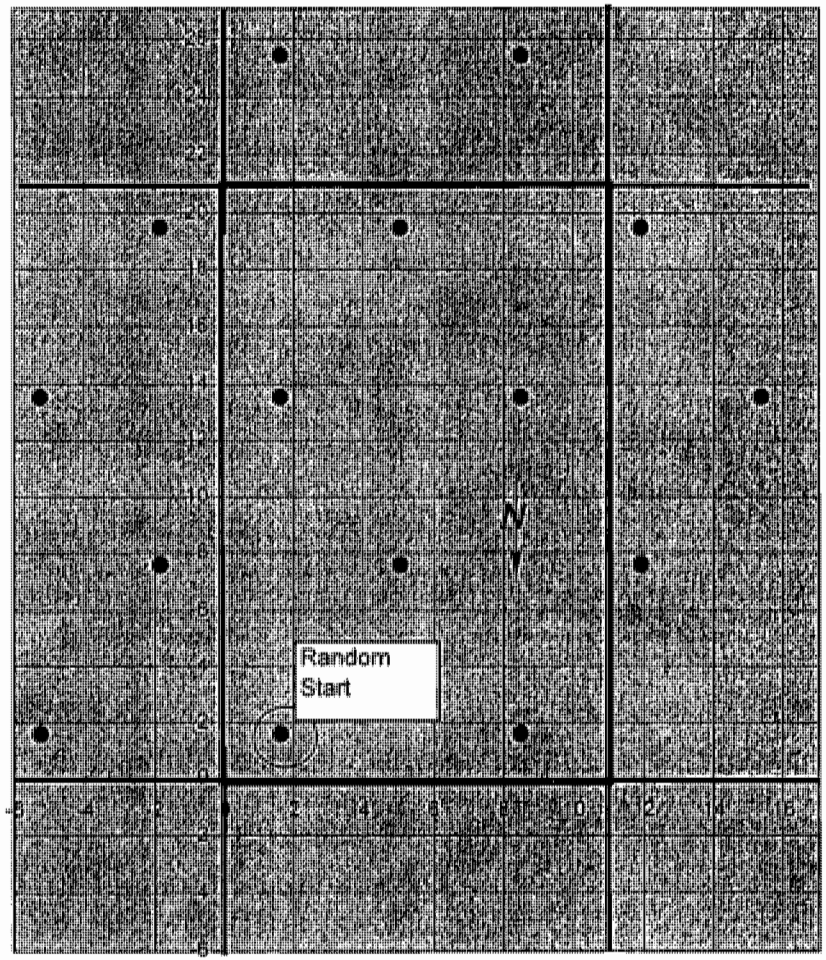
Coordinates calculated by VSP, 2.0 copyright BMI, 2002

SPF DS-02
Attachment 3

Survey Unit 16
Room 222 Floor & Walls to 6'

	X	Y
	11	21
1	1.6	25.4
2	8.5	25.4
3	-1.8	19.5
4	5.0	19.5
5	11.9	19.5
6	-5.3	13.5
7	1.6	13.5
8	8.5	13.5
9	15.4	13.5
10	-1.8	7.6
11	5.0	7.6
12	11.9	7.6
13	-5.3	1.6
14	1.6	1.6
15	8.5	1.6

Area	615 sqft
L =	7 ft
L_R =	6 ft
Start X/Y	1.6,1.6
Scan	50%



Coordinates calculated by VSP, 2.0 copyright BMI, 2002

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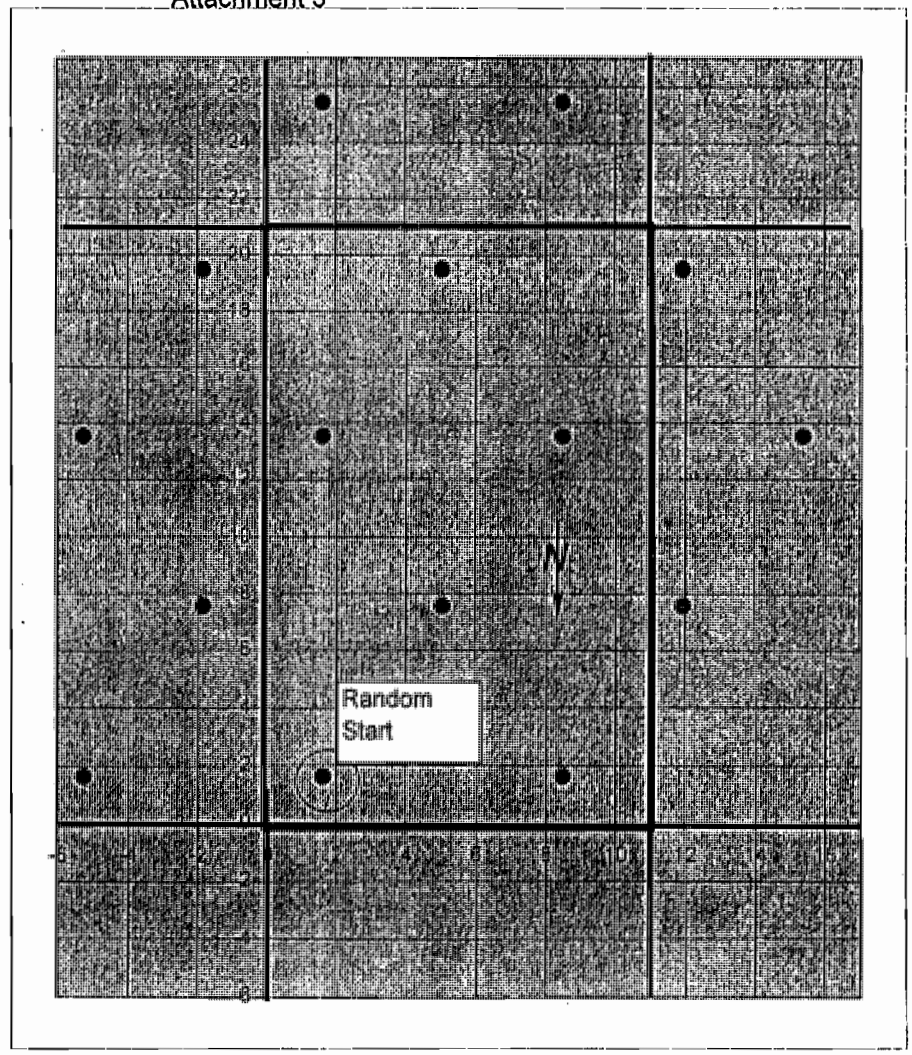
Survey Unit 17
Room 223 Floor & Walls to 6'

	X	Y
	11	21
1	1.6	25.4
2	8.5	25.4
3	-1.8	19.5
4	5.0	19.5
5	11.9	19.5
6	-5.3	13.5
7	1.6	13.5
8	8.5	13.5
9	15.4	13.5
10	-1.8	7.6
11	5.0	7.6
12	11.9	7.6
13	-5.3	1.6
14	1.6	1.6
15	8.5	1.6

Area	615 sqft
L =	7 ft
L_R =	6 ft
Start X/Y	1.6,1.6
Scan	50%



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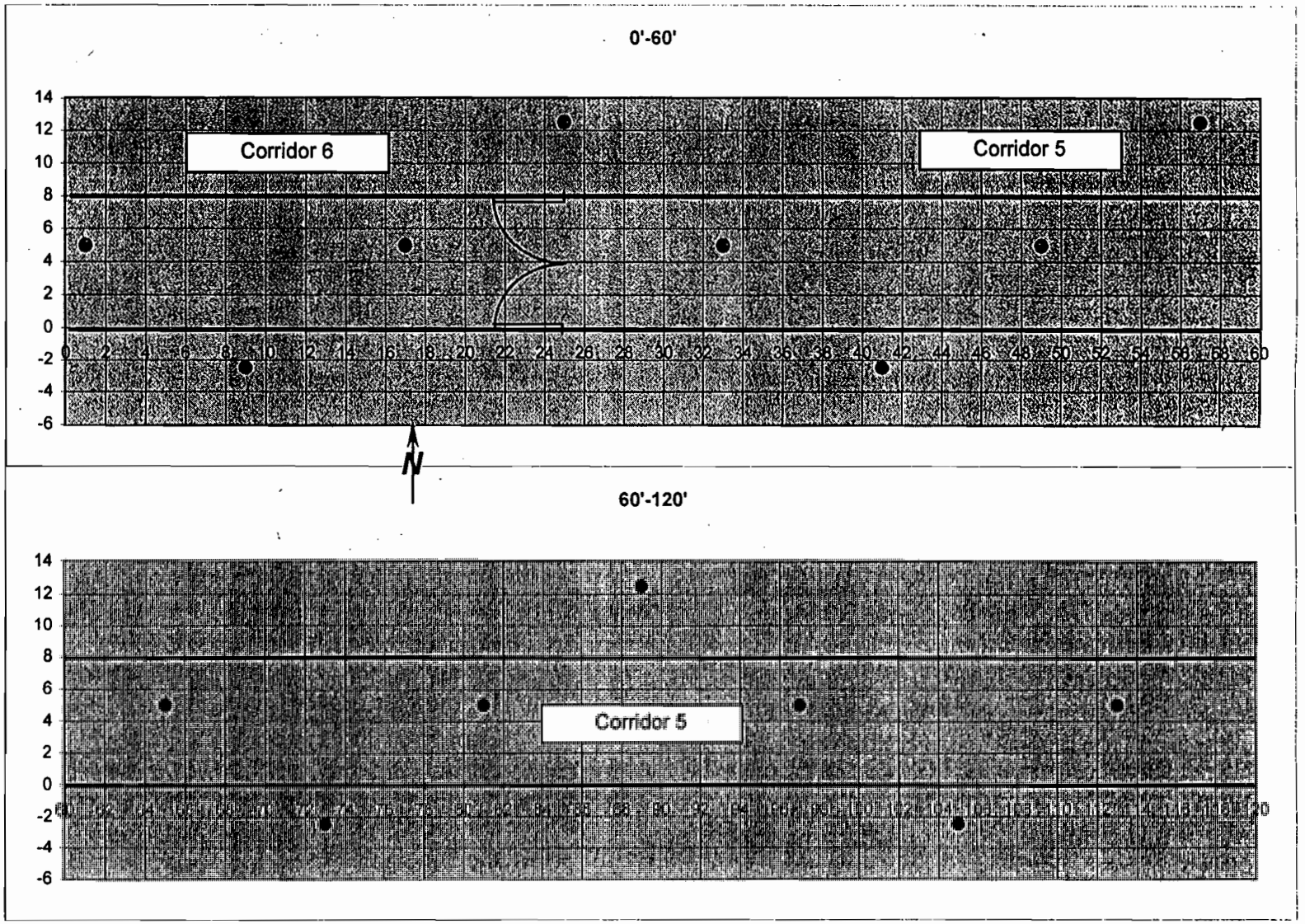
Coordinates calculated by VSP, 2.0 copyright BMI, 2002

SPF DS-02
Attachment 3

Survey Unit 18
Corridor 5/6 Floor and Walls to 6'

	X	Y
	120	7.8
1	1.0	5.0
2	9.0	-2.5
3	17.0	5.0
4	25.0	12.5
5	33.0	5.0
6	41.0	-2.5
7	49.0	5.0
8	57.0	12.5
9	65.0	5.0
10	73.0	-2.5
11	81.0	5.0
12	89.0	12.5
13	97.0	5.0
14	105.0	-2.5
15	113.0	5.0

Area	4053 sqft
L =	18 ft
L_R =	15 ft
Start X/Y	17,5
Scan	50%



Coordinates calculated by VSP, 2.0 copyright BMI, 2002

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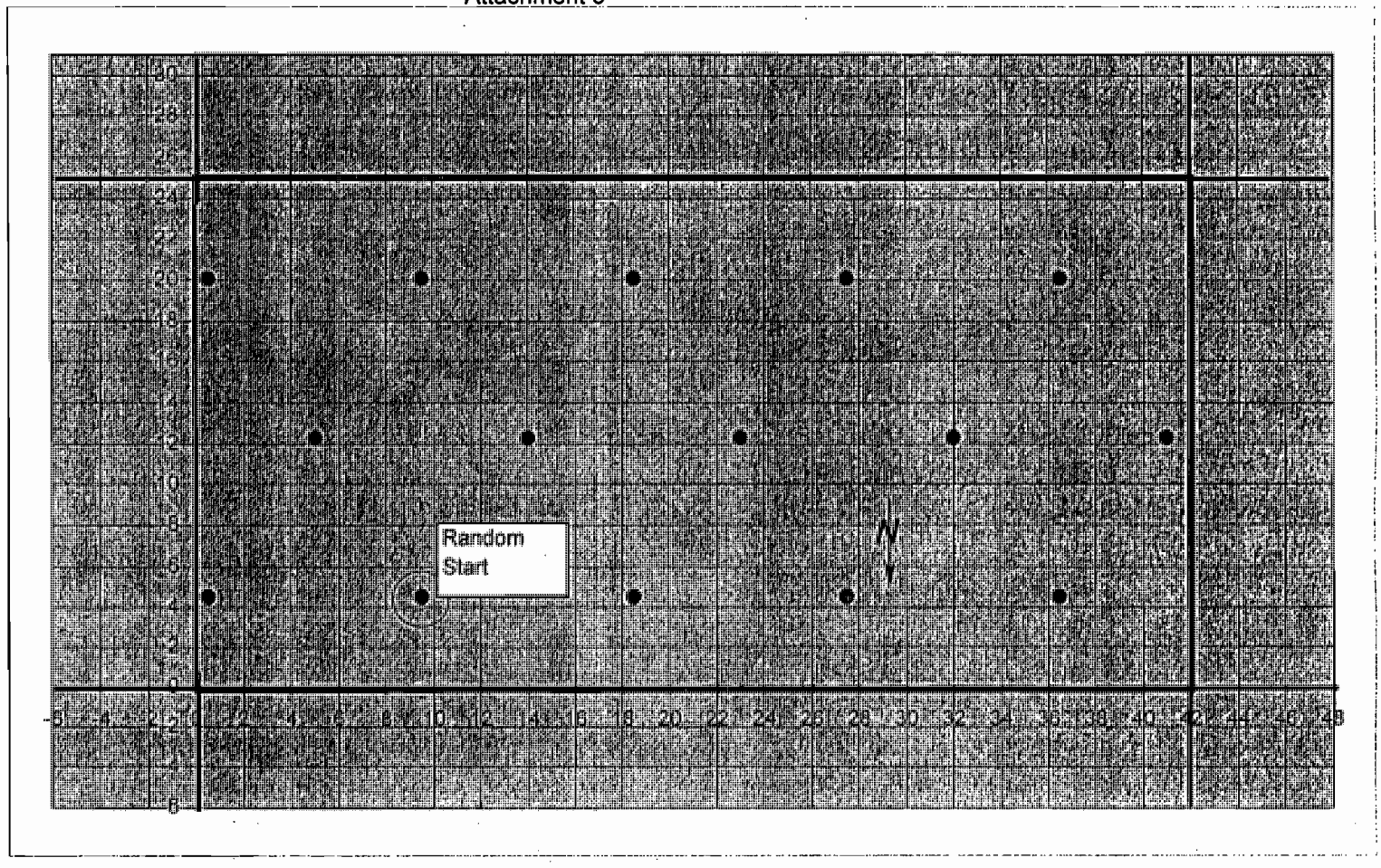
Survey Unit 19
Room 251,A/B Floor

	X	Y
	42	25
1	1	20
2	9	20
3	18	20
4	27	20
5	36	20
6	5	12
7	14	12
8	23	12
9	32	12
10	41	12
11	1	5
12	9	5
13	18	5
14	27	5
15	36	5
	31.534	-5.1862

Area	1050 sqft
L =	9 ft
L_R =	8 ft
Start X/Y	9,5
Scan	50%



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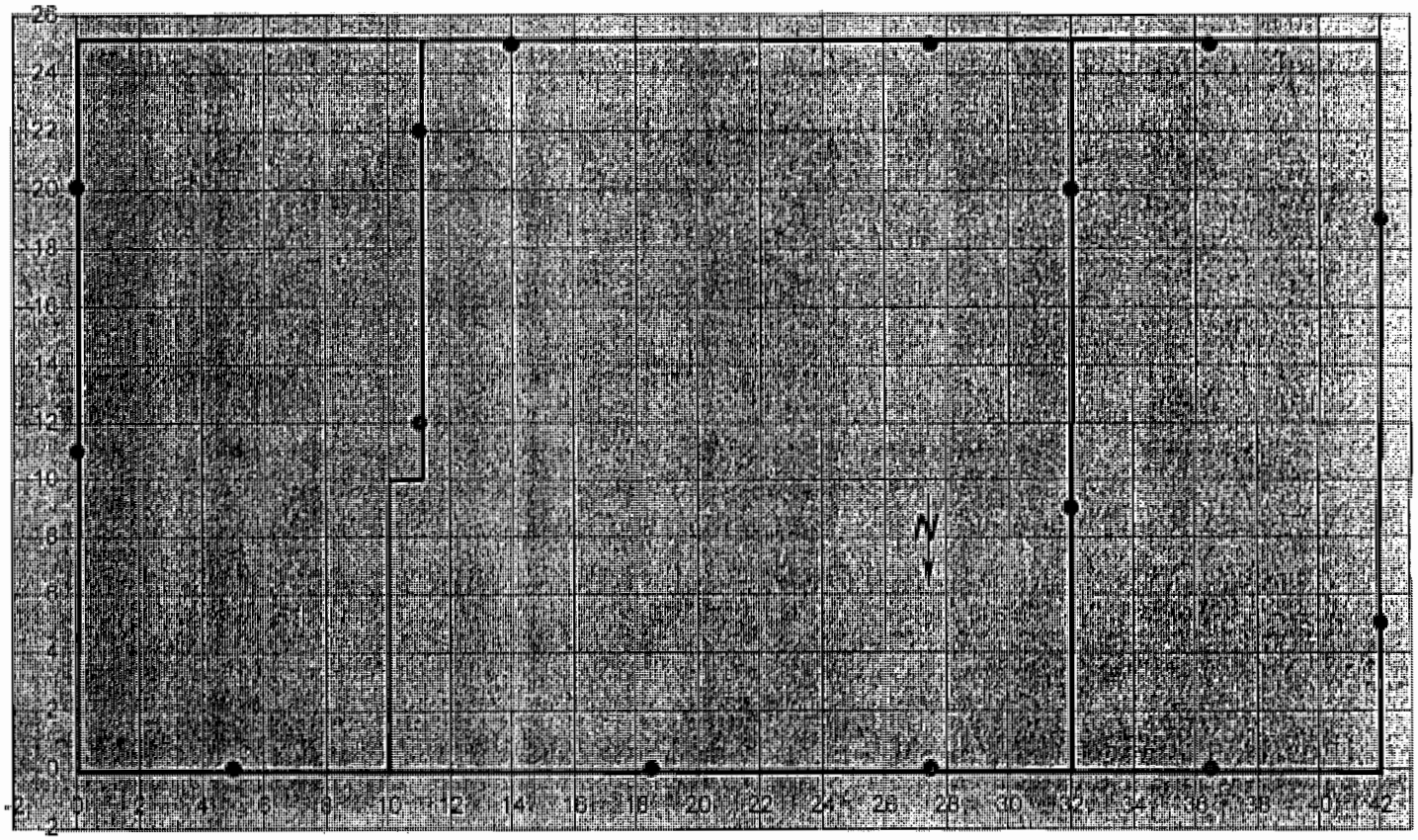
Coordinates calculated by VSP, 2.0 copyright BMI, 2002

SPF DS-02
Attachment 3

Survey Unit 20
Room 251,A/B Walls

	X	Y	Z
	42	25	6
1	0	20	3
2	0	11	2
3	18	0	1
4	27	0	3
5	36	0	3
6	5	0	2
7	14	25	1
8	11	12	1
9	11	22	2
10	32	20	2
11	32	9	1
12	42	5	5
13	42	19	2
14	27	25	2
15	36	25	5

Scan 10%

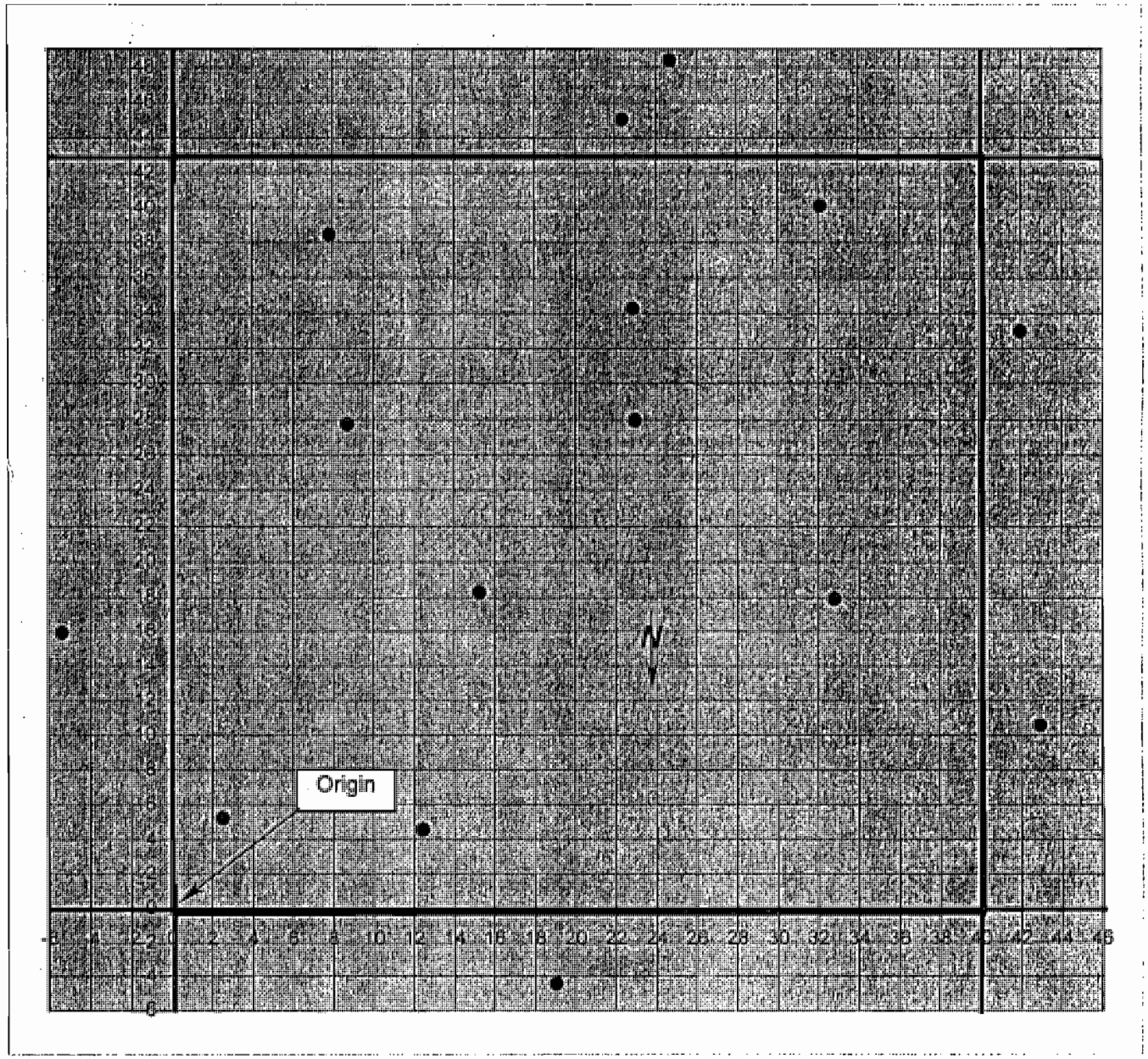


Coordinates calculated by VSP, 2.0 copyright BMI, 2002

Survey Unit 21
Room103 Floor & Walls to 6'

	X	Y
	40	43
1	3	5
2	-5	16
3	42	33
4	22	45
5	23	28
6	19	-4
7	15	18
8	43	11
9	25	48
10	9	28
11	33	18
12	23	34
13	32	40
14	12	5
15	8	38

Area	2716 sqft
Scan	10%



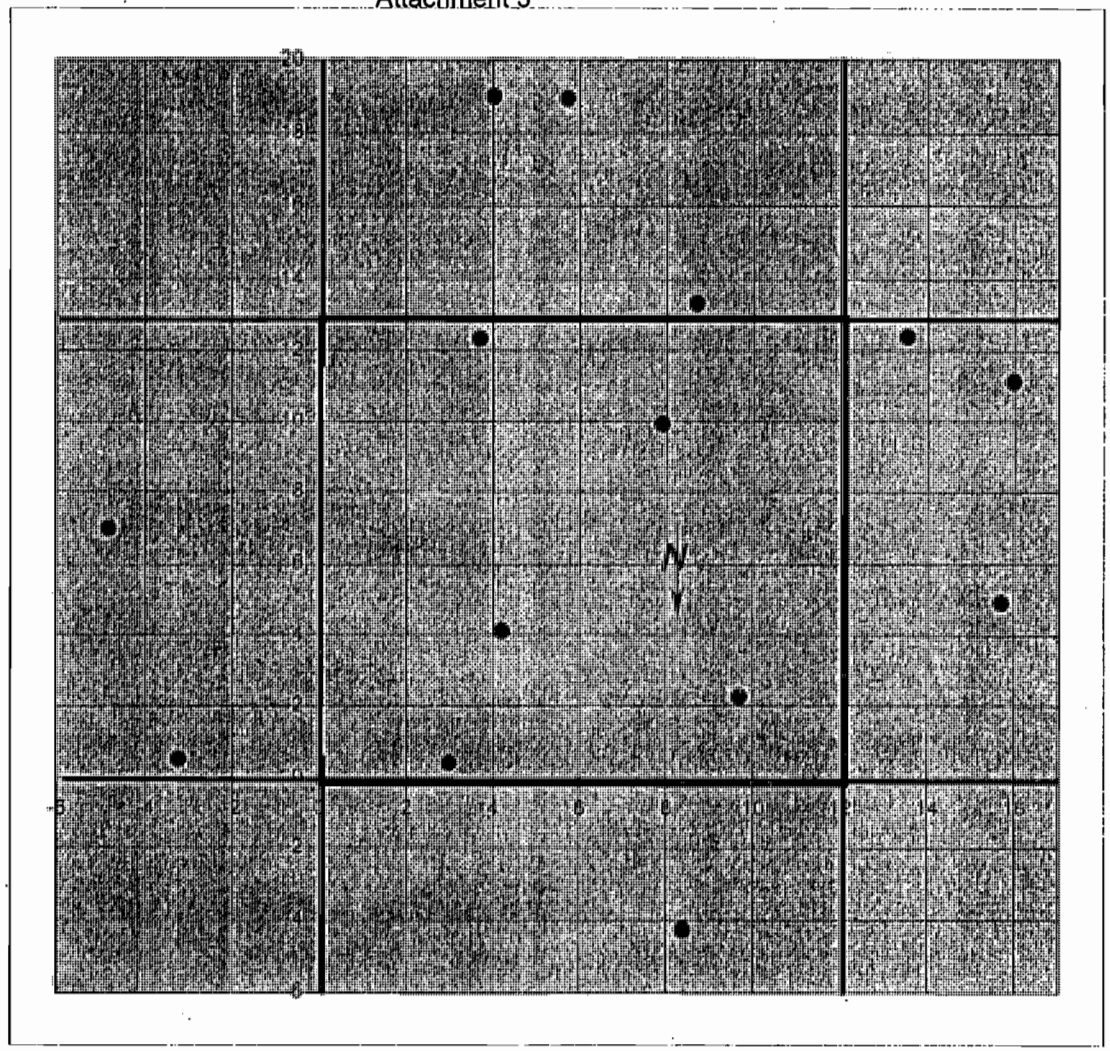
Coordinates calculated by VSP, 2.0 copyright BMI, 2002

SPF DS-02
Attachment 3

Survey Unit 22
Room 116 Floor & Walls to 6'

	X	Y
	12	13
1	3.0	0.4
2	9.7	2.2
3	-3.2	0.5
4	8.4	-4.3
5	7.9	9.9
6	13.5	12.4
7	15.7	4.9
8	-4.8	7.0
9	17.8	1.5
10	5.7	18.9
11	4.0	19.0
12	4.2	4.1
13	16.0	11.1
14	8.7	13.3
15	3.7	12.3

Area	456 sqft
Scan	10%



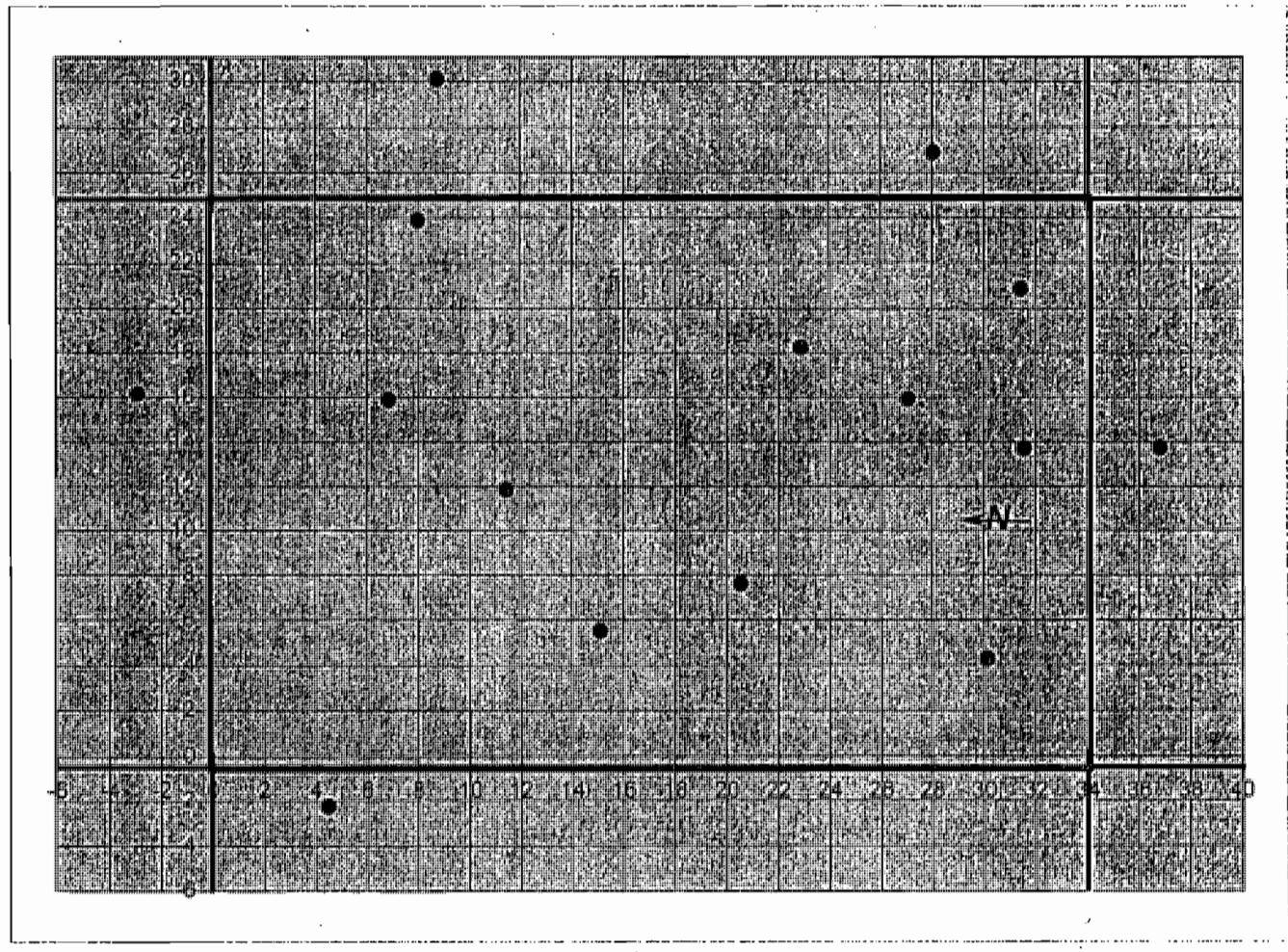
Coordinates calculated by VSP, 2.0 copyright BMI, 2002

SPF DS-02
Attachment 3

Survey Unit23
Room 123/A Floor & Walls to 6'

	X	Y
	34	25
1	32	14
2	-3	16
3	37	14
4	11	12
5	4	-2
6	15	6
7	7	16
8	28	27
9	8	24
10	31	21
11	27	16
12	30	4
13	21	8
14	9	30
15	23	18

Area	1558 sqft
Scan	10%



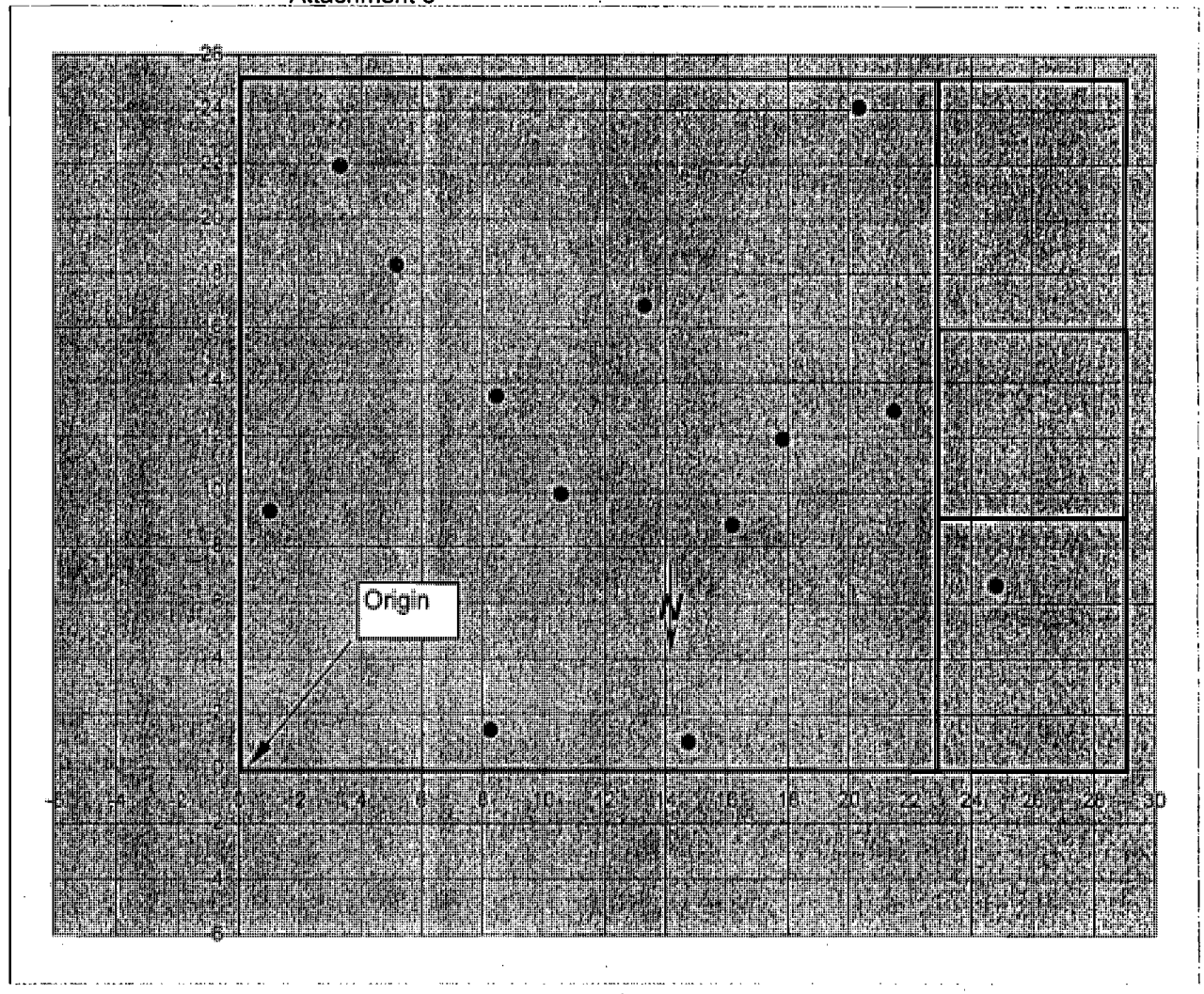
Coordinates calculated by VSP, 2.0 copyright BMI, 2002

SPF DS-02
Attachment 3

Survey Unit 24
Room 127,127A,B,C Floor

	X	Y
	29	25
1	11	10
2	20	24
3	2	27
4	16	9
5	11	27
6	5	18
7	21	13
8	8	13
9	3	22
10	8	1
11	1	9
12	15	1
13	18	12
14	25	7
15	13	17

Area	725 sqft
Scan	10%

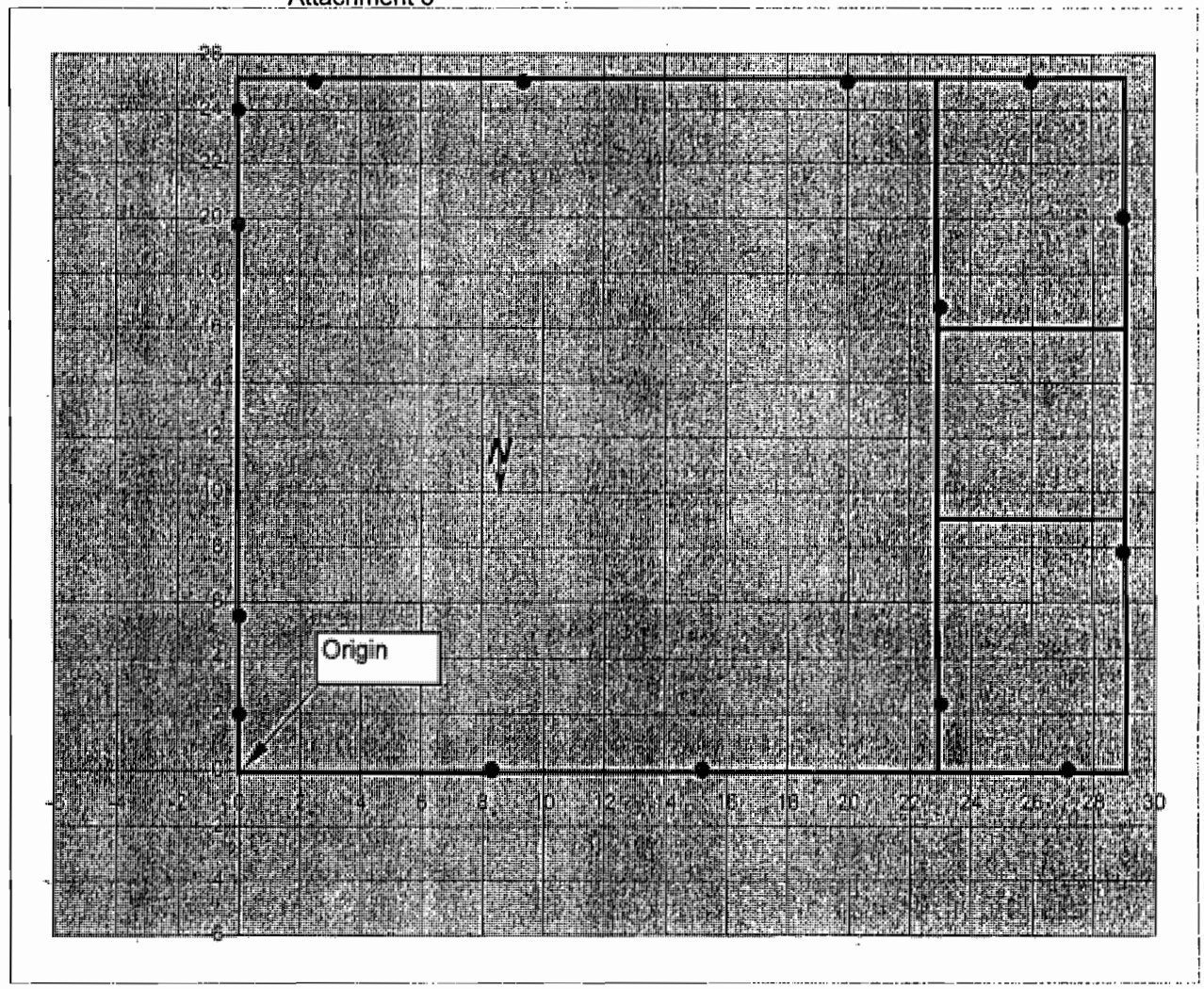


Coordinates calculated by VSP, 2.0 copyright BMI, 2002

Survey Unit 25
Room 127,127A,B,C Walls

	X	Y	Z
	29	25	6
1	0	5	4
2	0	2	4
3	0	24	1
4	0	20	5
5	26	25	5
6	20	25	5
7	3	25	3
8	9	25	1
9	27	0	5
10	15	0	1
11	8	0	5
12	29	20	3
13	23	17	2
14	23	2	4
15	29	8	6

Area 725 sqft
Scan 10%



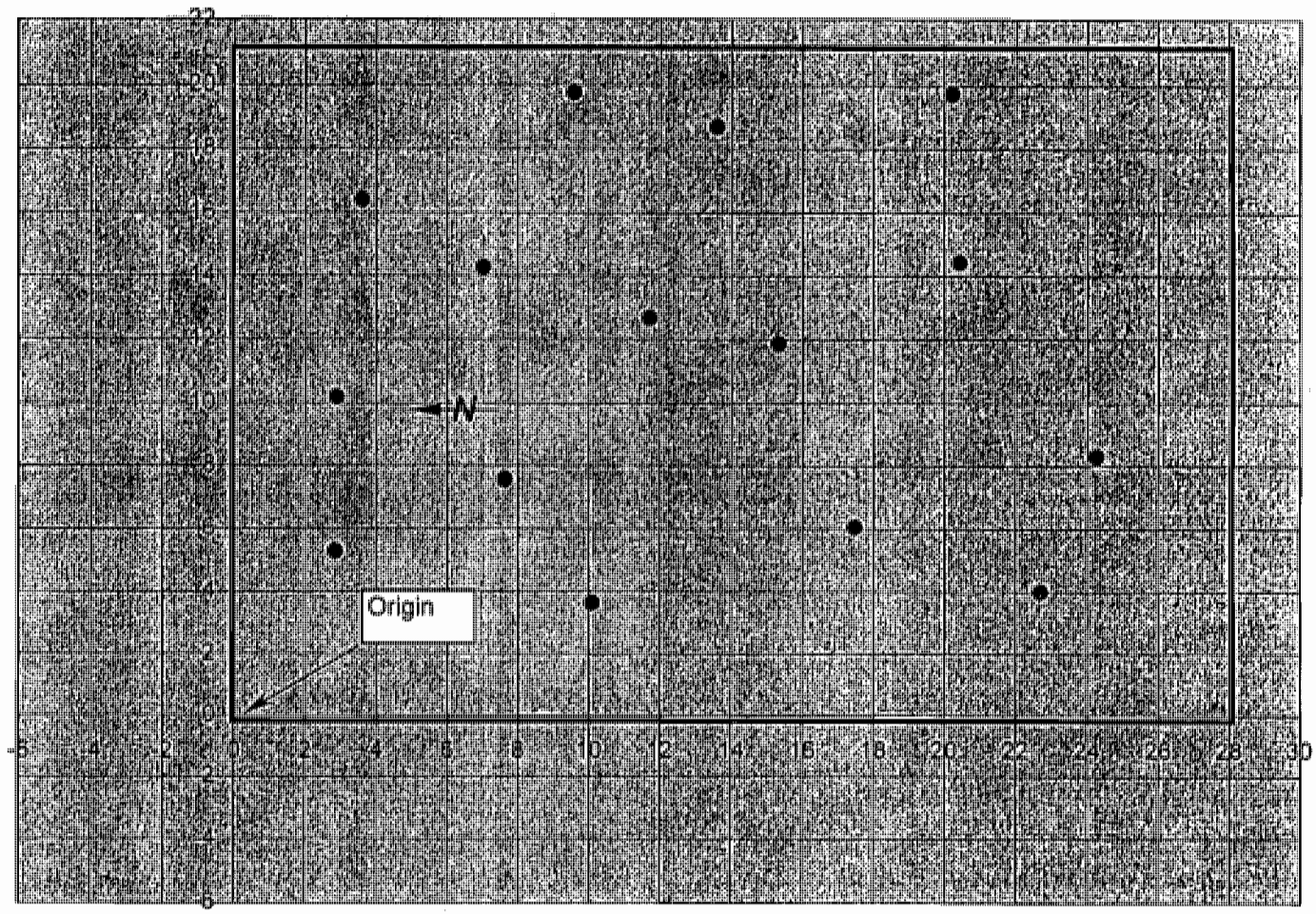
Coordinates calculated by VSP, 2.0 copyright BMI, 2002

SPF DS-02
Attachment 3

Survey Unit 26
Room 132 Floor

	X	Y
	21	28
1	20	20
2	15	12
3	10	20
4	4	16
5	12	13
6	7	14
7	10	4
8	20	14
9	17	6
10	3	10
11	23	4
12	8	8
13	14	19
14	24	8
15	3	5

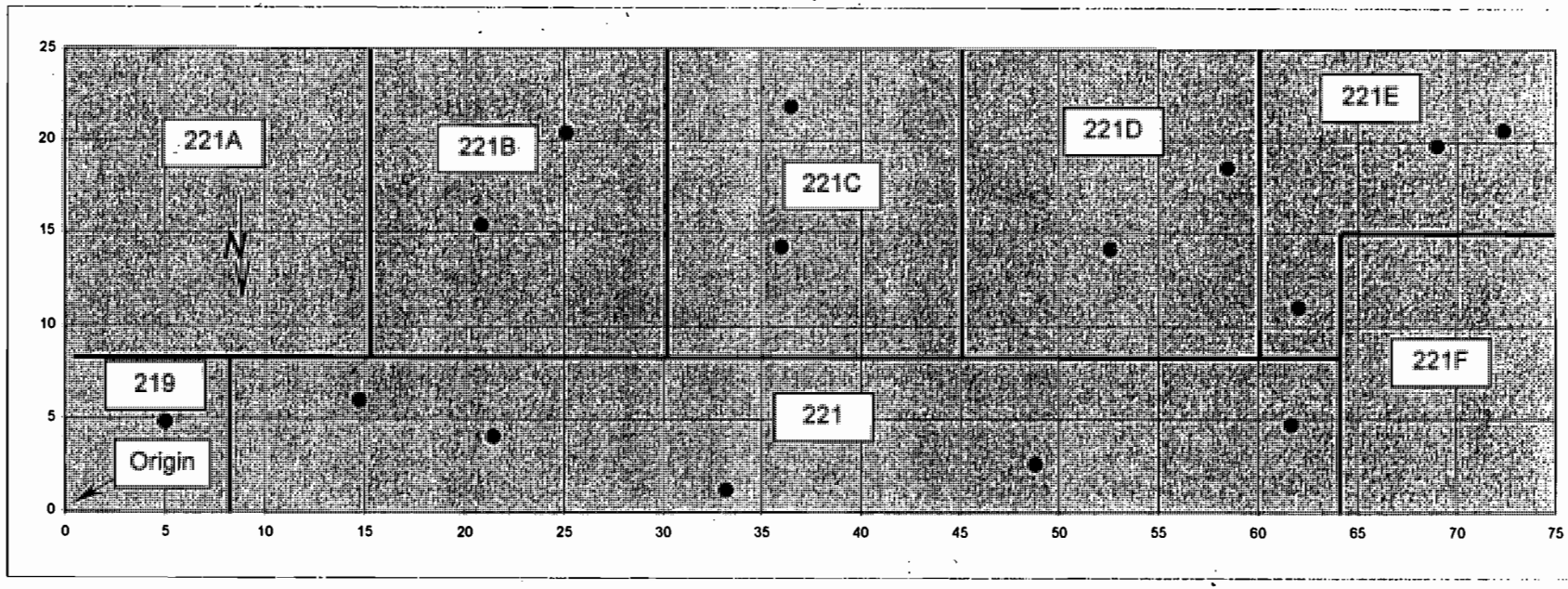
Area 588 sqft
Scan 10%



Coordinates calculated by VSP, 2.0 copyright BMI, 2002

Survey Unit 27
Room 219, 221,B,C,D,E,F Floor

	X	Y
	75	25
1	36	22
2	33	1
3	21	4
4	58	19
5	25	20
6	49	3
7	15	6
8	62	5
9	21	15
10	69	20
11	62	11
12	72	21
13	36	14
14	5	5
15	53	14

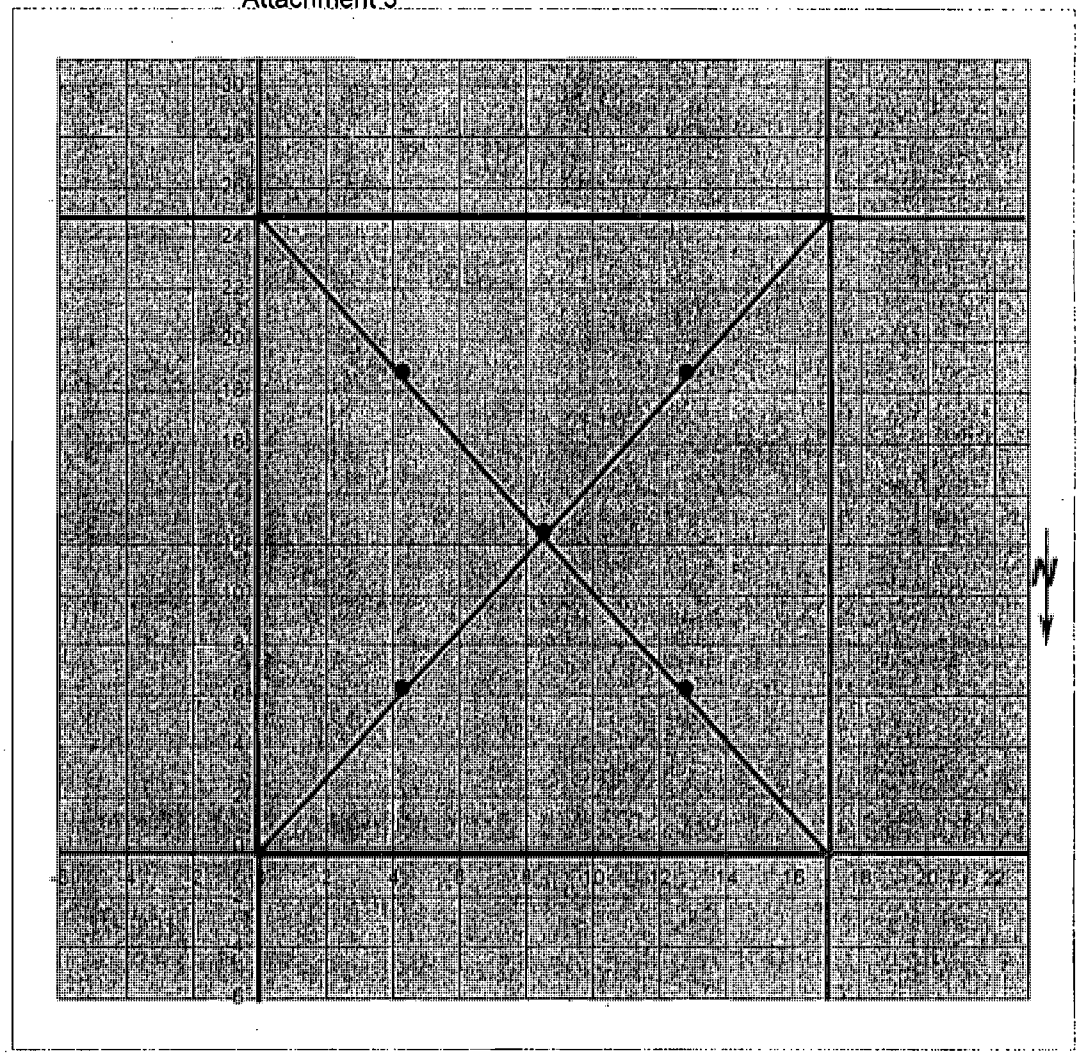


Area 1875 sqft
Scan 10%

Coordinates calculated by VSP, 2.0 copyright BMI, 2002

Survey Unit 28-1
Room 106 Ceiling

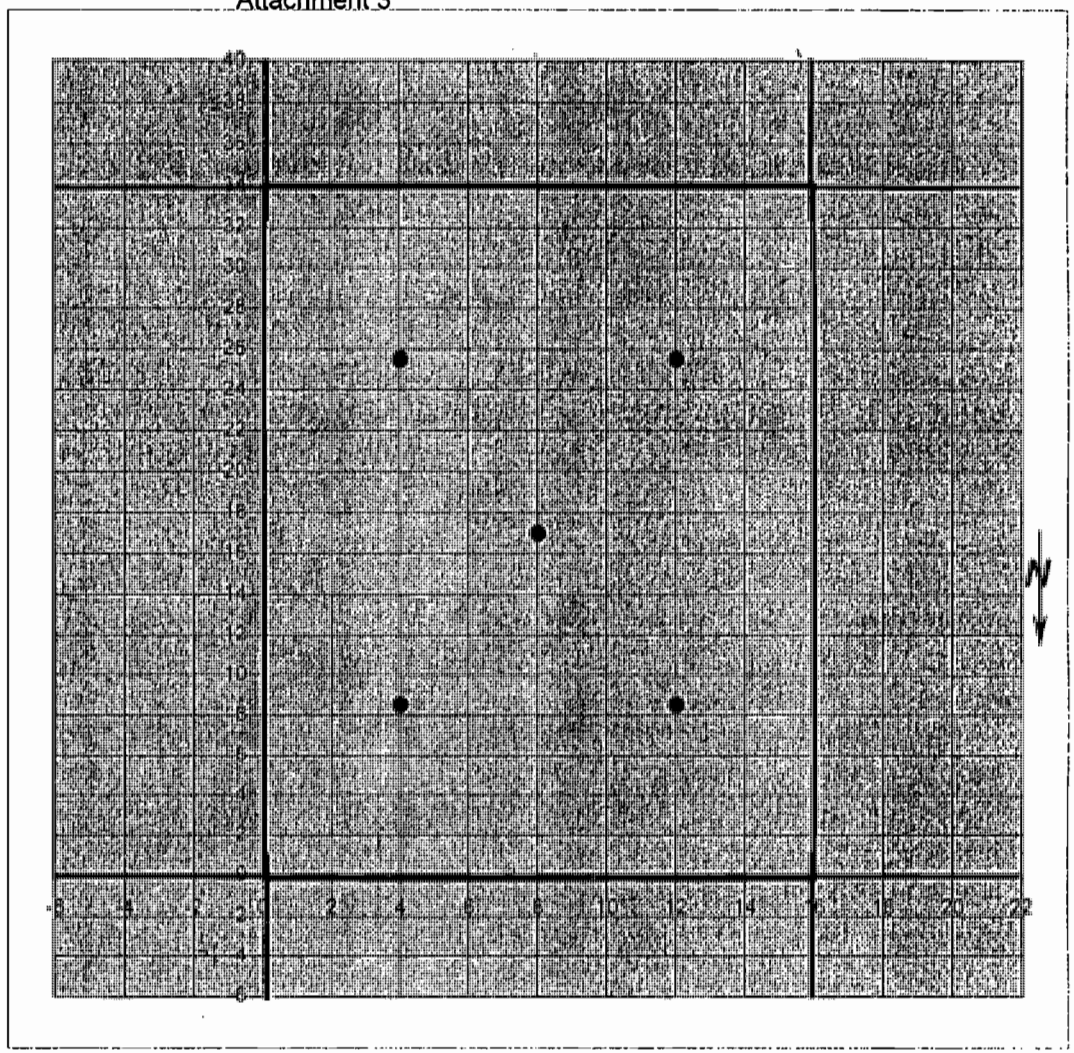
	X	Y
	17	25
1	8.5	12.5
2	4.3	6.3
3	12.8	18.8
4	4.3	18.8
5	12.8	6.3



Area	929 sqft
Scan	10%

Survey Unit 28-2
Room 107A Ceiling

	X	Y
	16	34
1	8	17
2	4	9
3	12	26
4	4	26
5	12	9



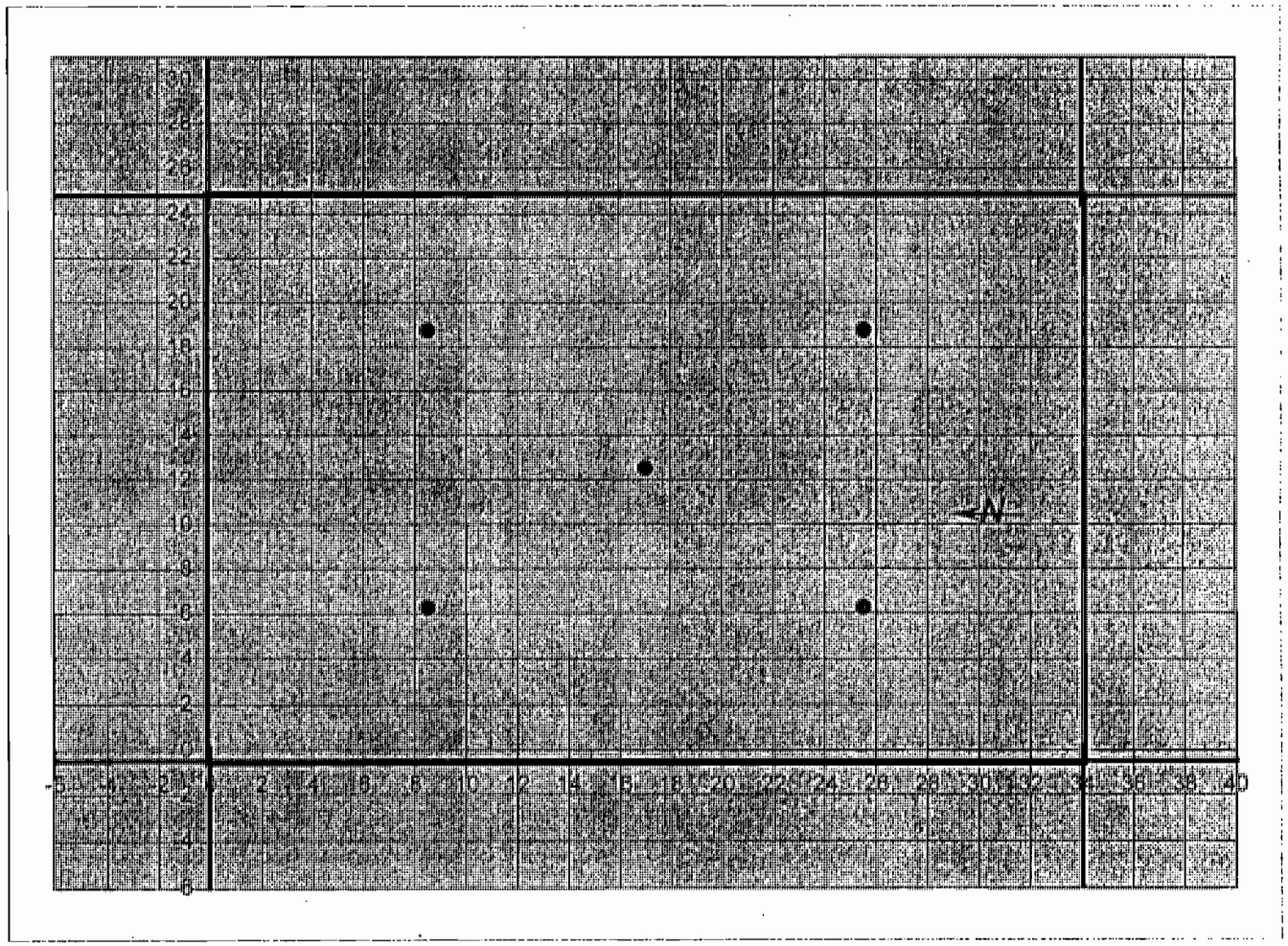
Area 1144 sqft
Scan 10%

Coordinates calculated by VSP, 2.0 copyright BMI, 2002

SPF DS-02
Attachment 3

Survey Unit 28-3
Room 107A Ceiling

	X	Y
	34	25
1	17	13
2	9	6
3	26	19
4	9	19
5	26	6

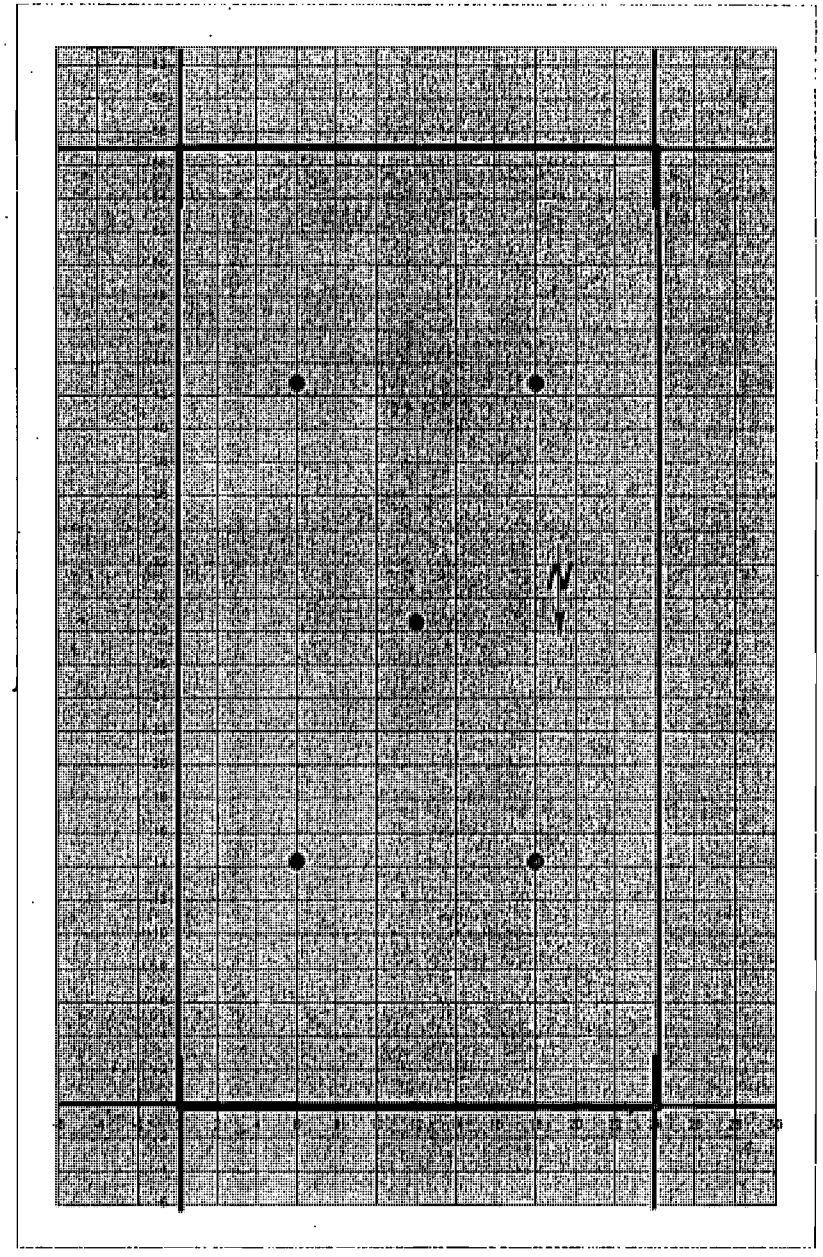


Area 1558 sqft
Scan 10%

Coordinates calculated by VSP, 2.0 copyright BMI, 2002

Survey Unit 29-1
Room 110 Ceiling

	X	Y
	24	57
1	12	29
2	6	14
3	18	43
4	6	43
5	18	14



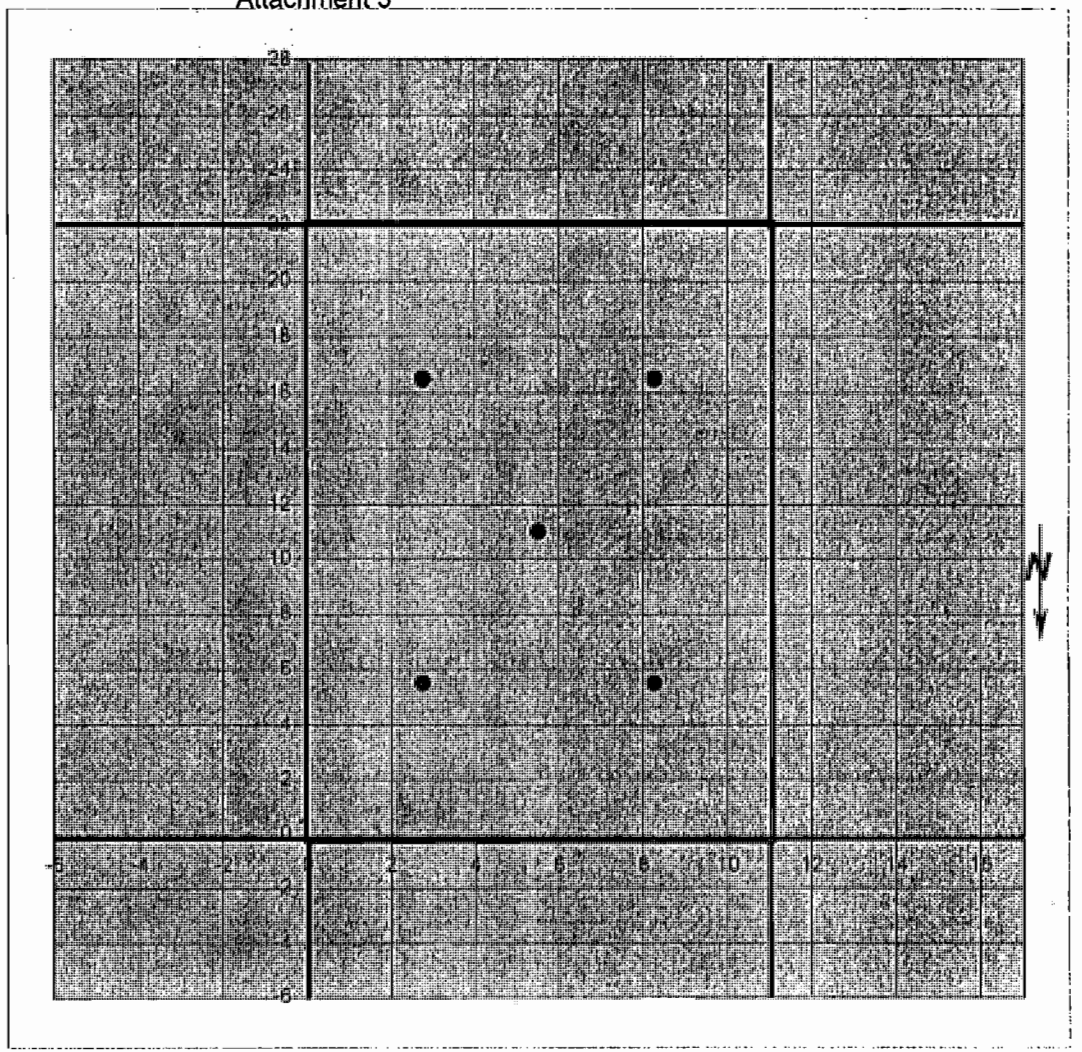
Area 2340 sqft
Scan 10%

Coordinates calculated by VSP, 2.0 copyright BMI, 2002

SPF DS-02
Attachment 3

Survey Unit 29-2
Room 117/A Ceiling

	X	Y
	11	22
1	6	11
2	3	6
3	8	17
4	3	17
5	8	6



Area 638 sqft
Scan 10%

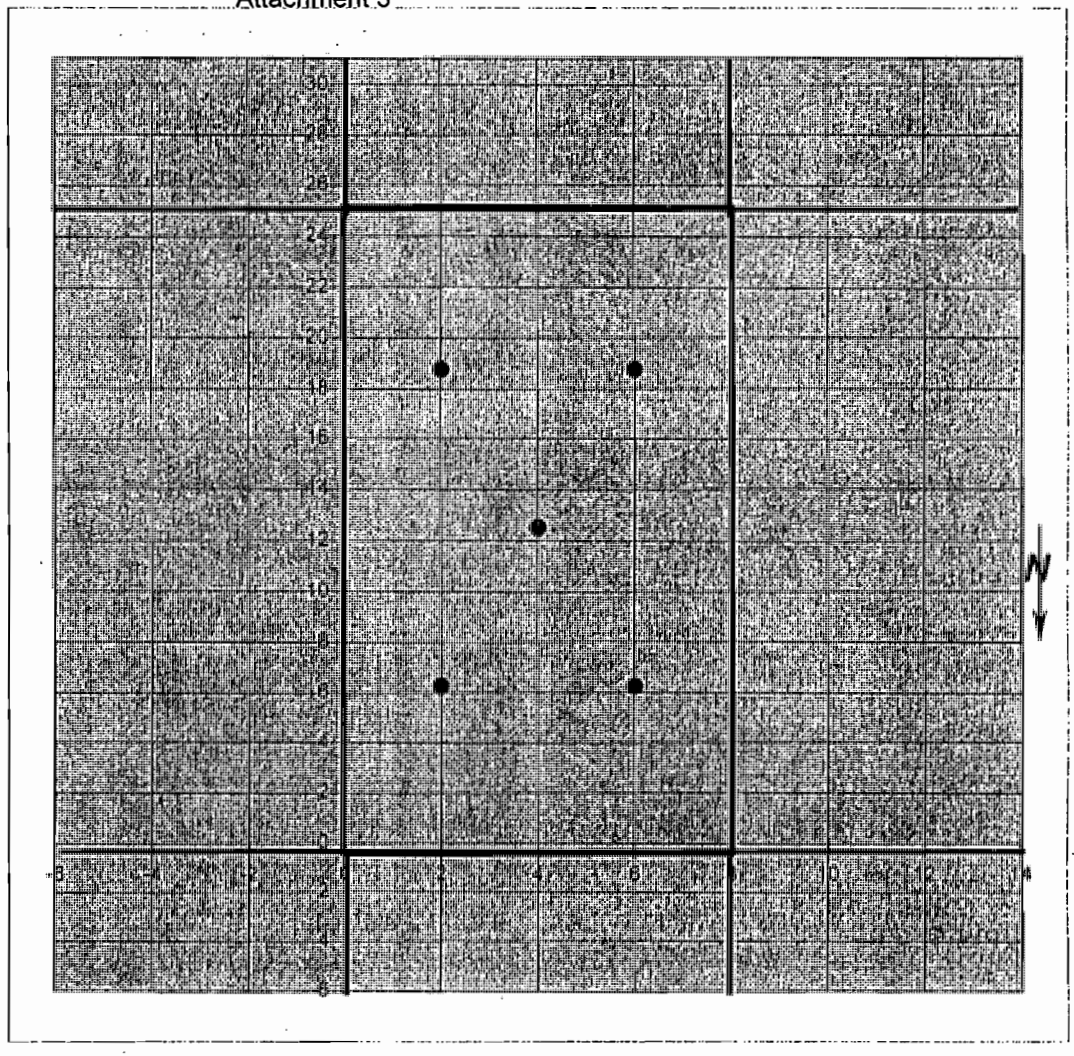
650 of 78

Coordinates calculated by VSP, 2.0 copyright BMI, 2002

SPF DS-02
Attachment 3

Survey Unit 29-3
Room 118 Ceiling

	X	Y
	8	25
1	4	13
2	2	6
3	6	19
4	2	19
5	6	6



Area 596 sqft
Scan 10%

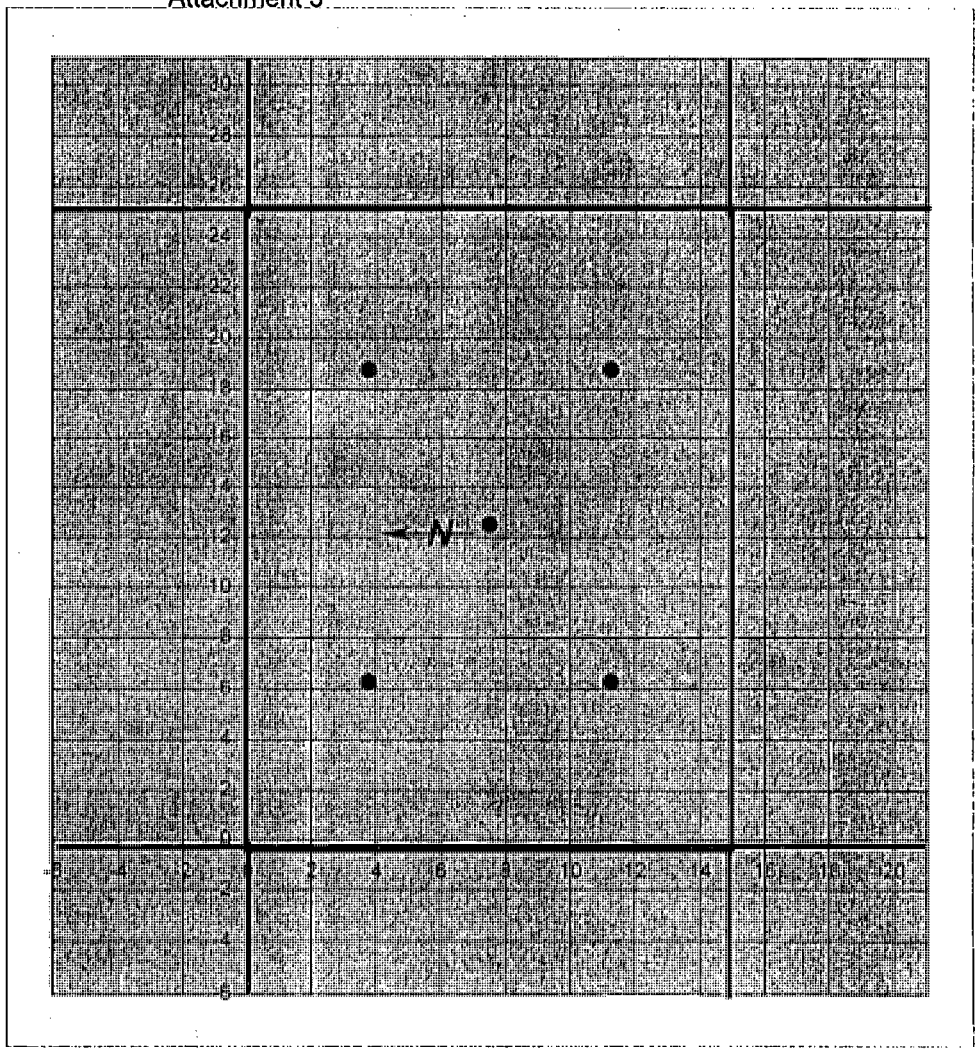
Coordinates calculated by VSP, 2.0 copyright BMI, 2002

G 51 of 78

SPF DS-02
Attachment 3

Survey Unit 30-1
Room 119A Ceiling

	X	Y
	15	25
1	8	13
2	4	6
3	11	19
4	4	19
5	11	6



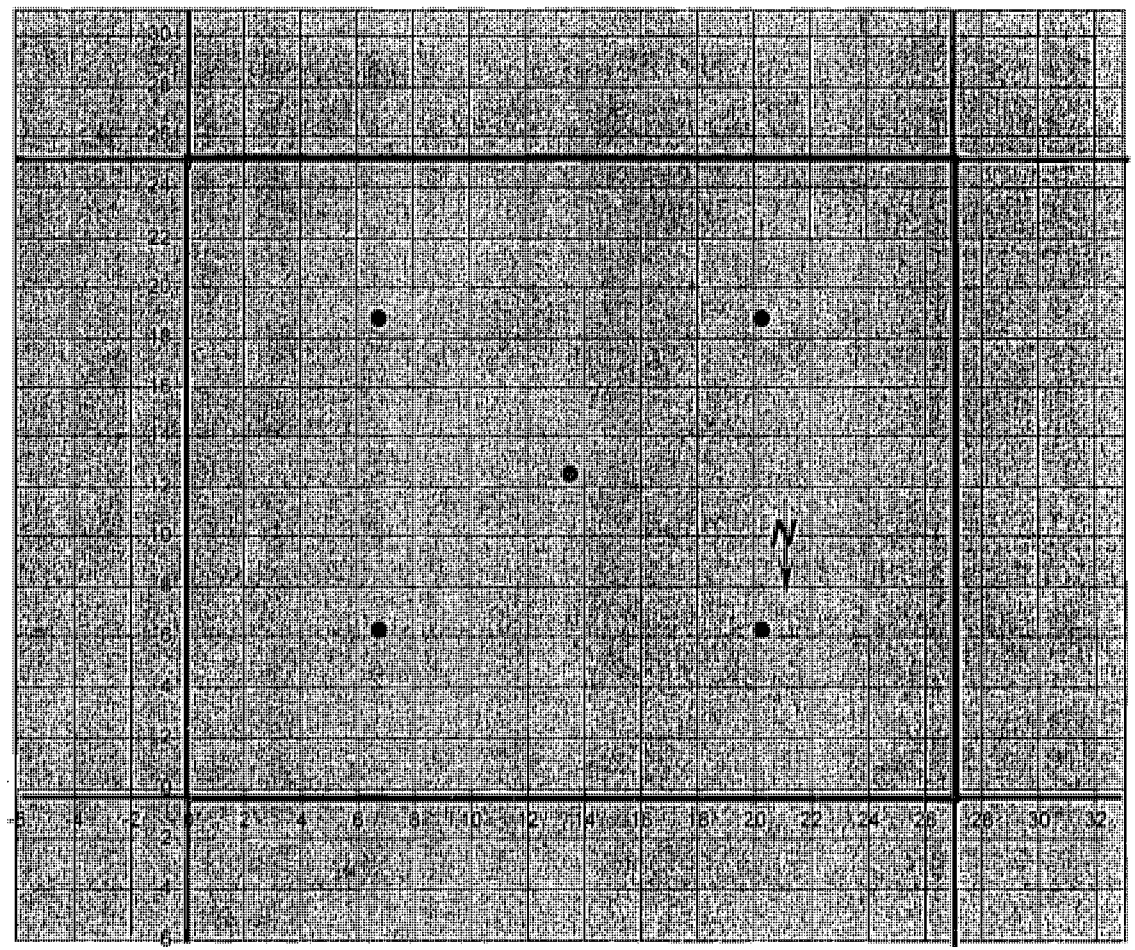
Area 855 sqft
Scan 10%

G 52 of 78

Coordinates calculated by VSP, 2.0 copyright BMI, 2002

Survey Unit 30-2
Room 125 Ceiling

	X	Y
	27	25
1	14	13
2	7	6
3	20	19
4	7	19
5	20	6



Area 855 sqft
Scan 10%

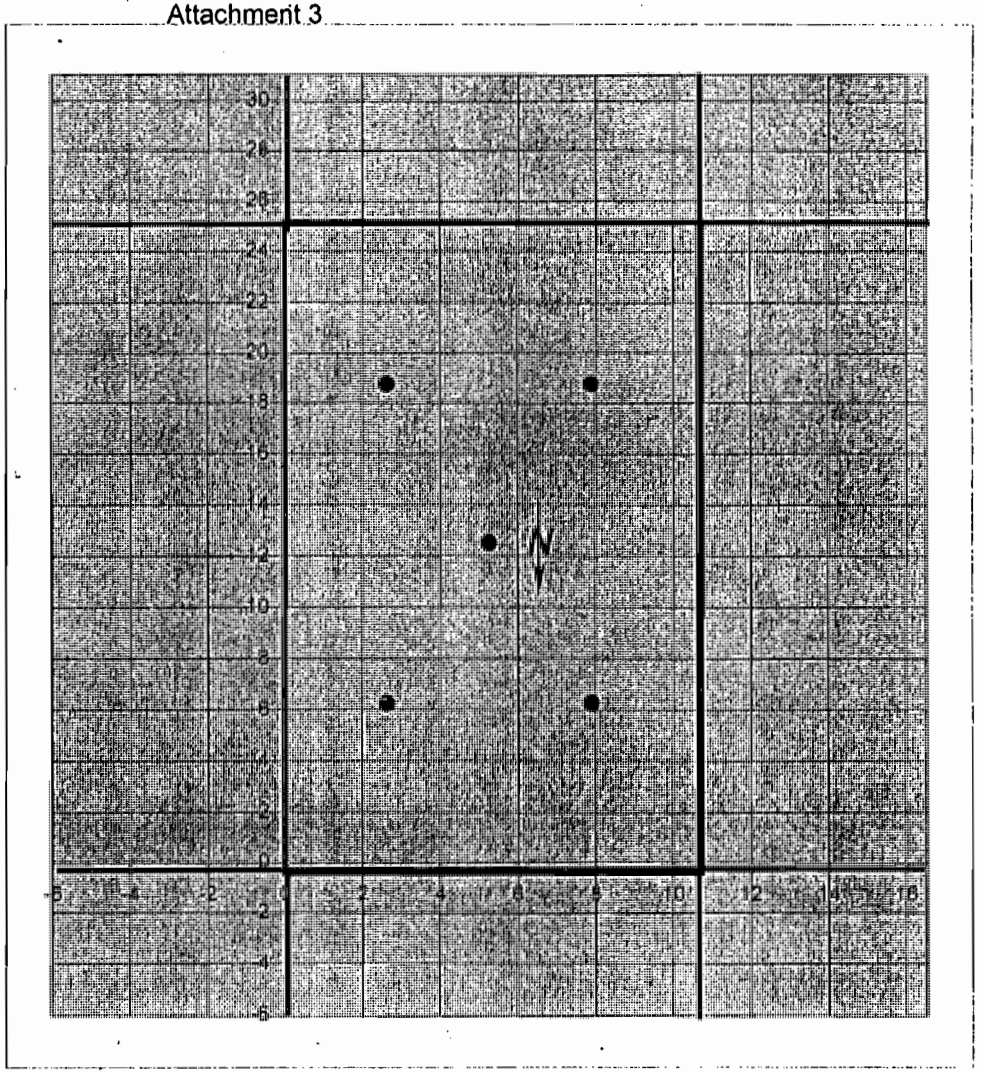
G53 of 78

Coordinates calculated by VSP, 2.0 copyright BMI, 2002

SPF DS-02
Attachment 3

Survey Unit 30-3
Room 202 Ceiling

	X	Y
	10.5	25
1	5	13
2	3	6
3	8	19
4	3	19
5	8	6



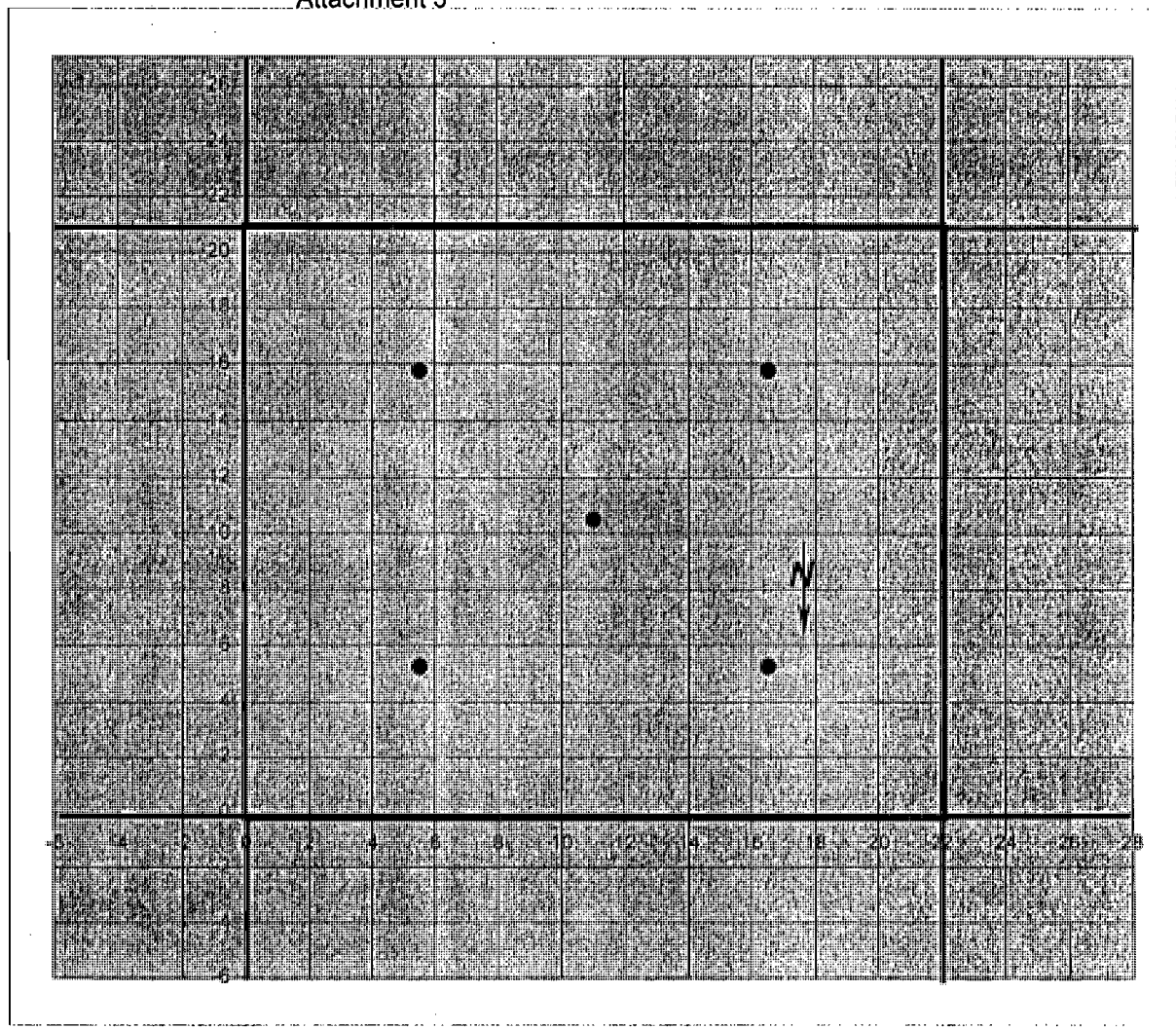
Area	688 sqft
Scan	10%

G 54 of 78

Coordinates calculated by VSP, 2.0 copyright BMI, 2002

Survey Unit 31-1
Room 214 Ceiling

	X	Y
	22	21
1	11	11
2	6	5
3	17	16
4	6	16
5	17	5



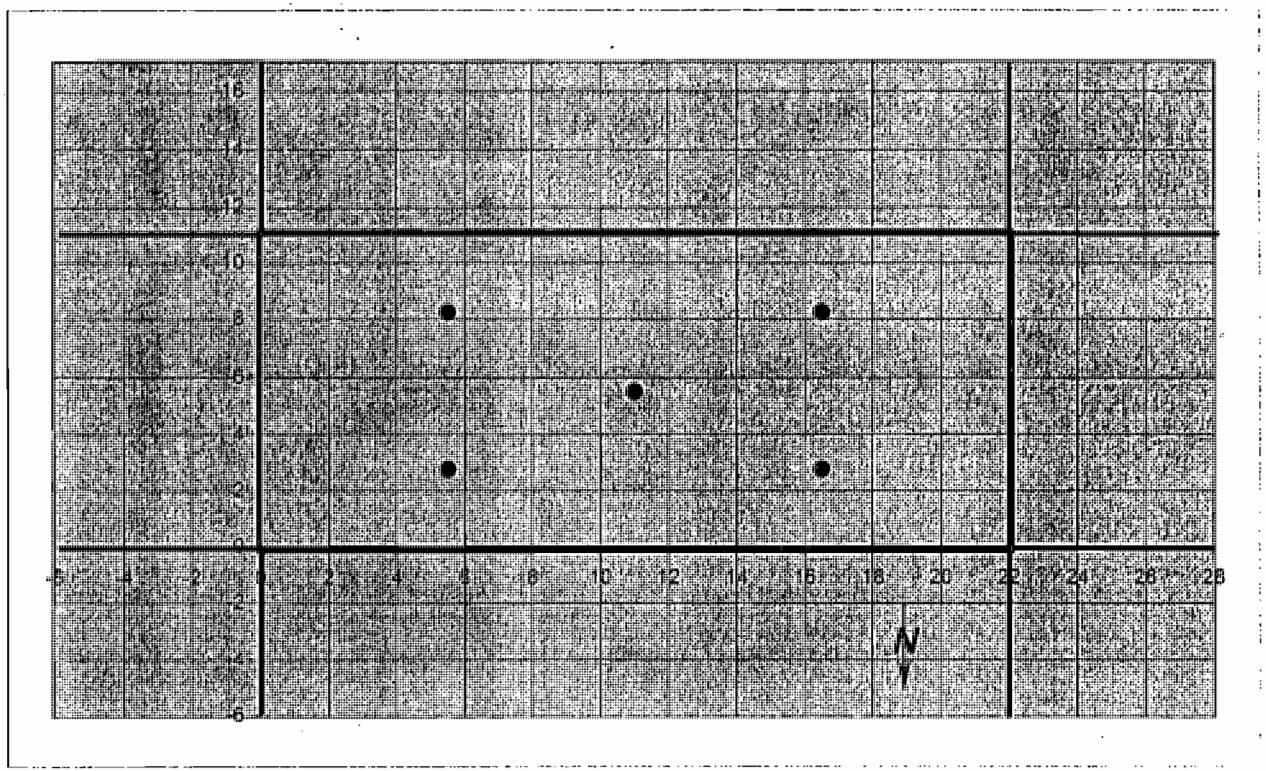
Area	978 sqft
Scan	10%
L_R =	ft
Start X/Y	8,5

Coordinates calculated by VSP, 2.0 copyright BMI, 2002

SPF DS-02
Attachment 3

Survey Unit 31-2
Room 215 Ceiling

	X	Y
	22	11
1	11	6
2	6	3
3	17	8
4	6	8
5	17	3



Area 638 sqft
Scan 10%

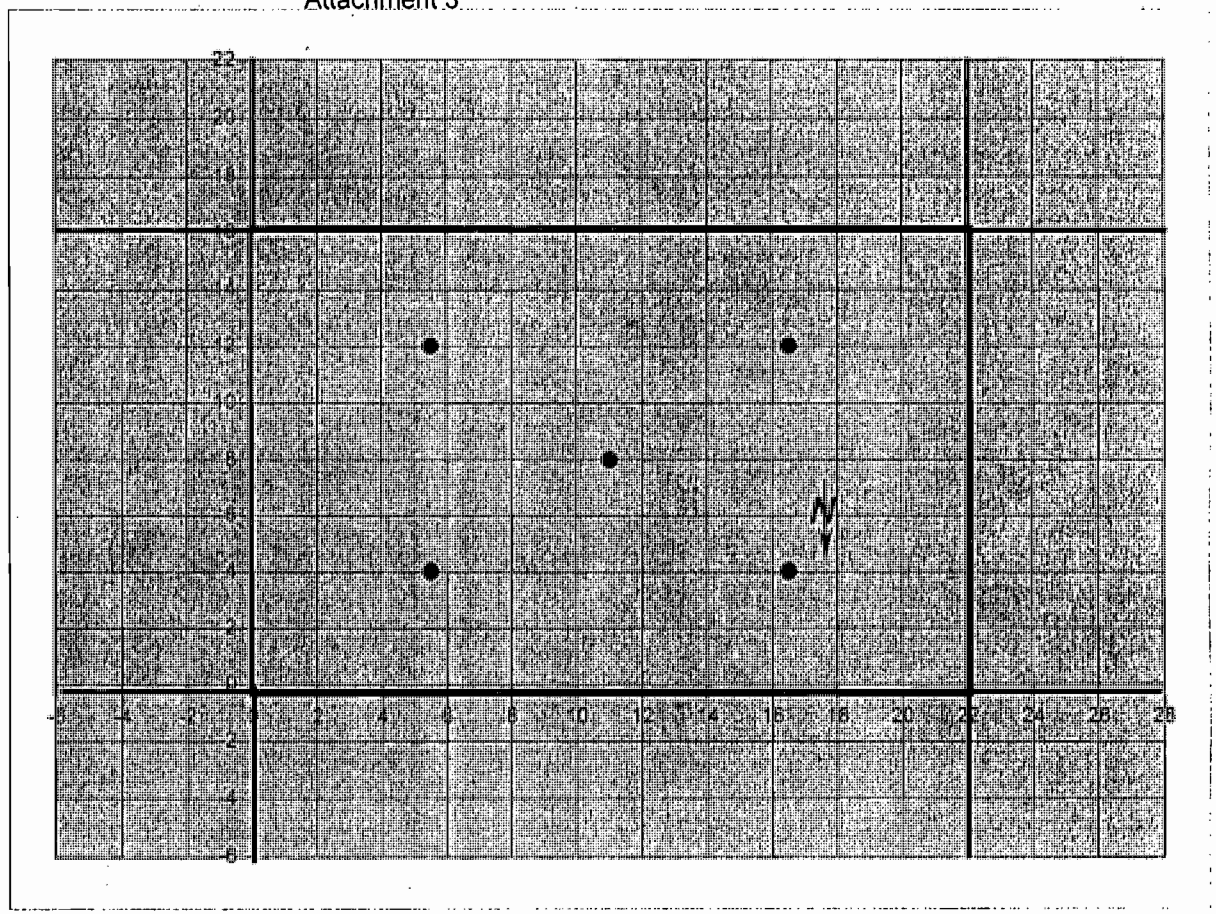
G56of78

Coordinates calculated by VSP, 2.0 copyright BMI, 2002

SPF DS-02
Attachment 3

Survey Unit 31-3
Room 217 Ceiling

	X	Y
	22	16
1	11	8
2	6	4
3	17	12
4	6	12
5	17	4



G 57 of 78

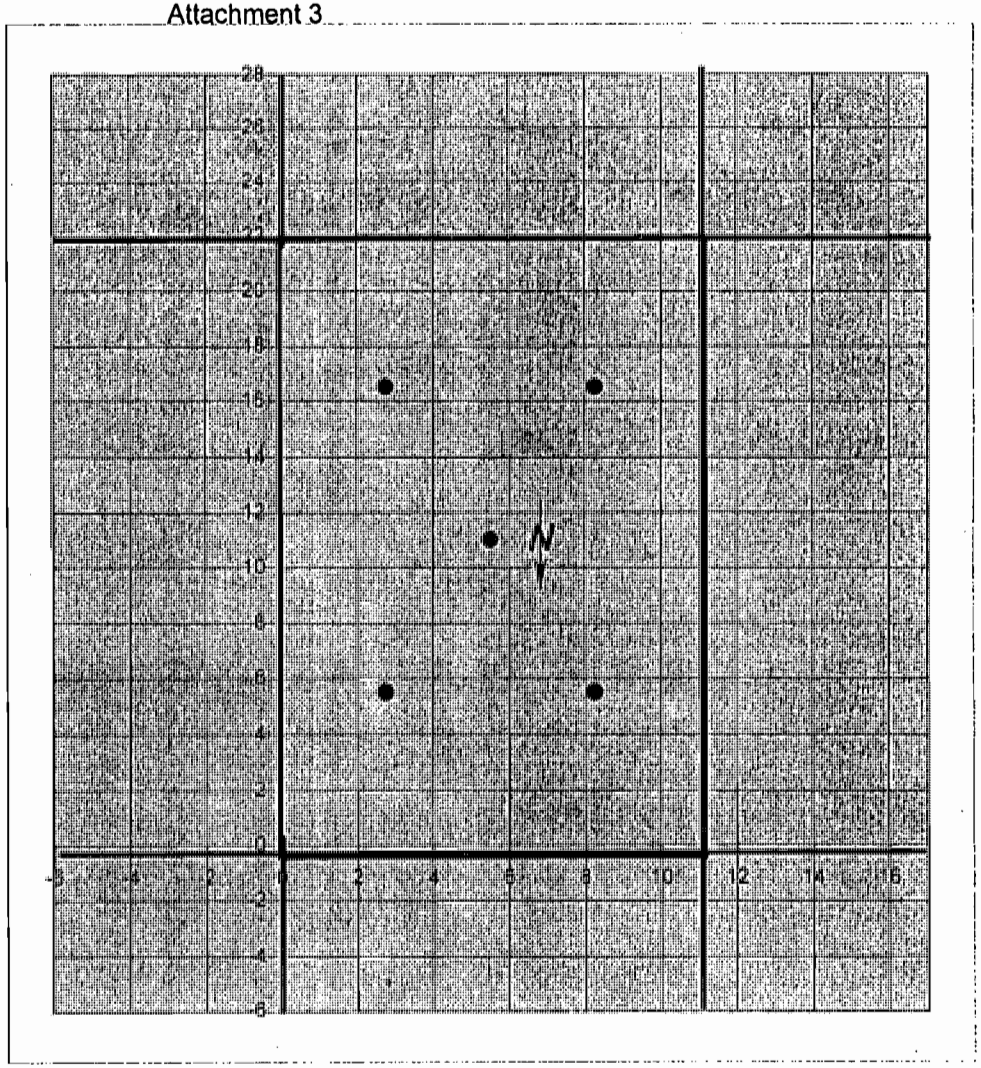
Area	808 sqft
Scan	10%

Coordinates calculated by VSP, 2.0 copyright BMI, 2002

SPF DS-02
Attachment 3

Survey Unit 32-1
Room 220 Ceiling

	X	Y
	11	22
1	6	11
2	3	6
3	8	17
4	3	17
5	8	6



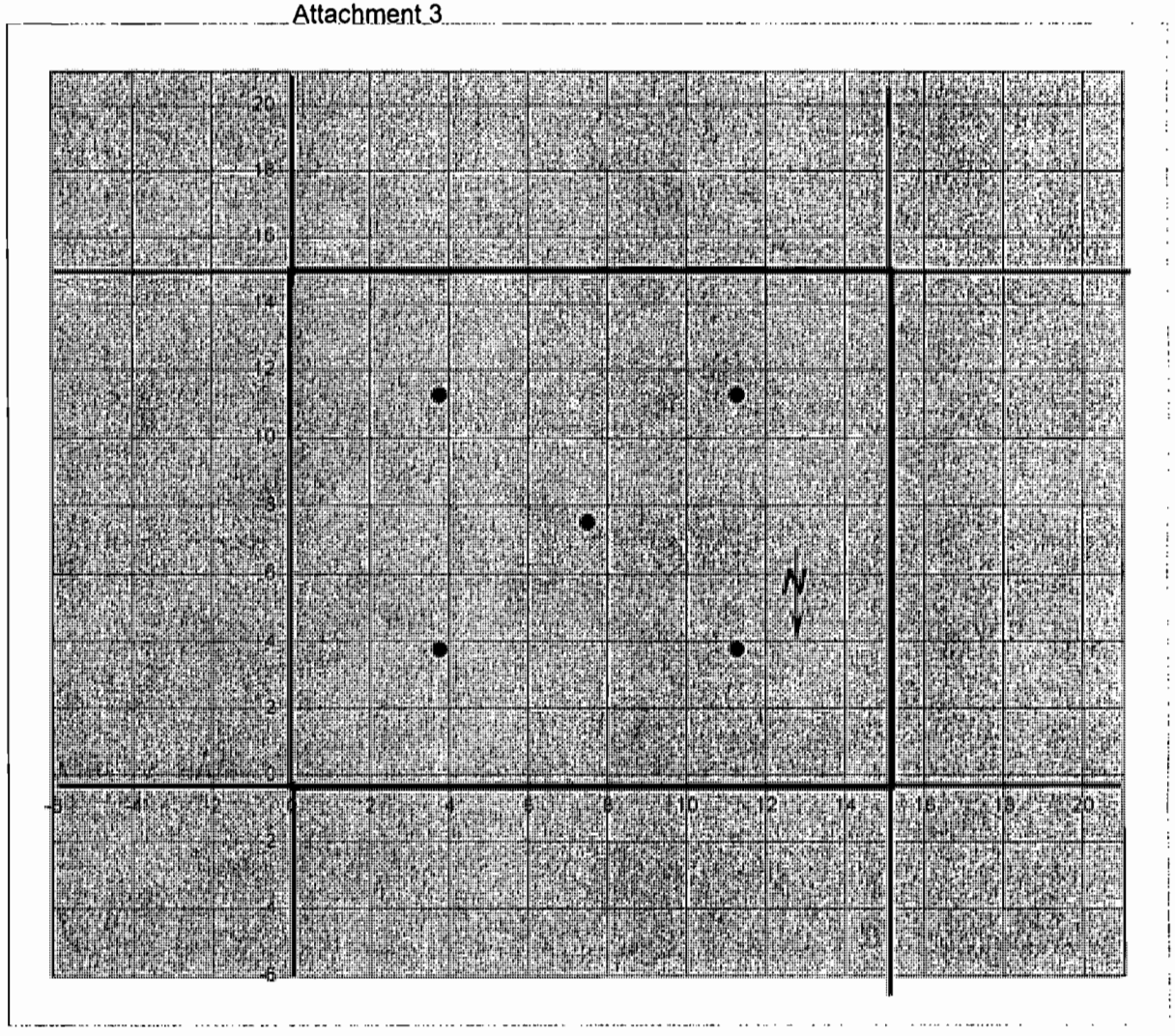
Area 638 sqft
Scan 10%

G 58 of 28

Coordinates calculated by VSP, 2.0 copyright BMI, 2002

Survey Unit 32-2
Room 221A Ceiling

	X	Y
	15	15
1	7.5	7.5
2	3.8	3.8
3	11.3	11.3
4	3.8	11.3
5	11.3	3.8



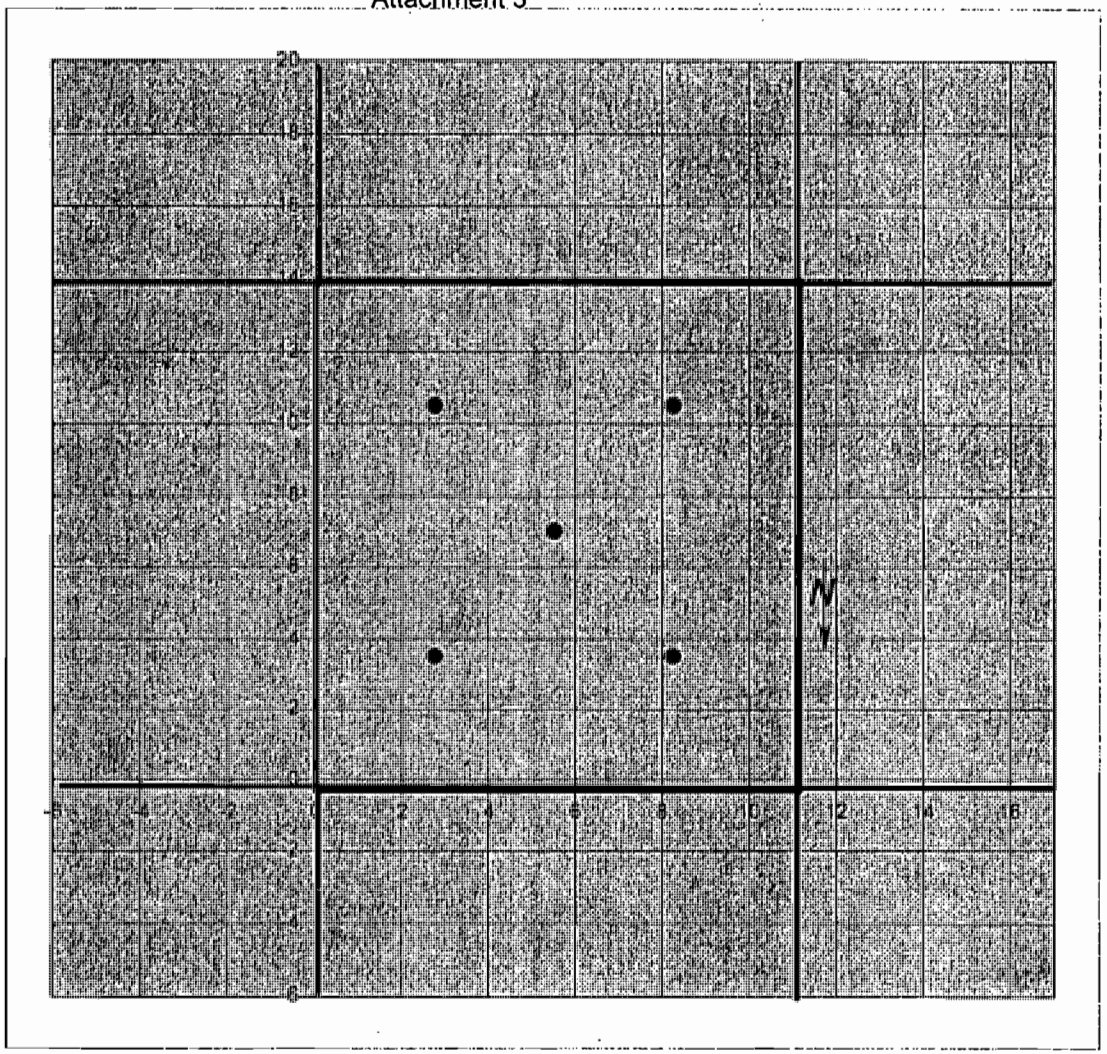
Area 585 sqft
Scan 10%

Coordinates calculated by VSP, 2.0 copyright BMI, 2002

SPF DS-02
Attachment 3

Survey Unit 32-3
Room 221F Ceiling

	X	Y
	11	14
1	5.5	7.0
2	2.8	3.5
3	8.3	10.5
4	2.8	10.5
5	8.3	3.5



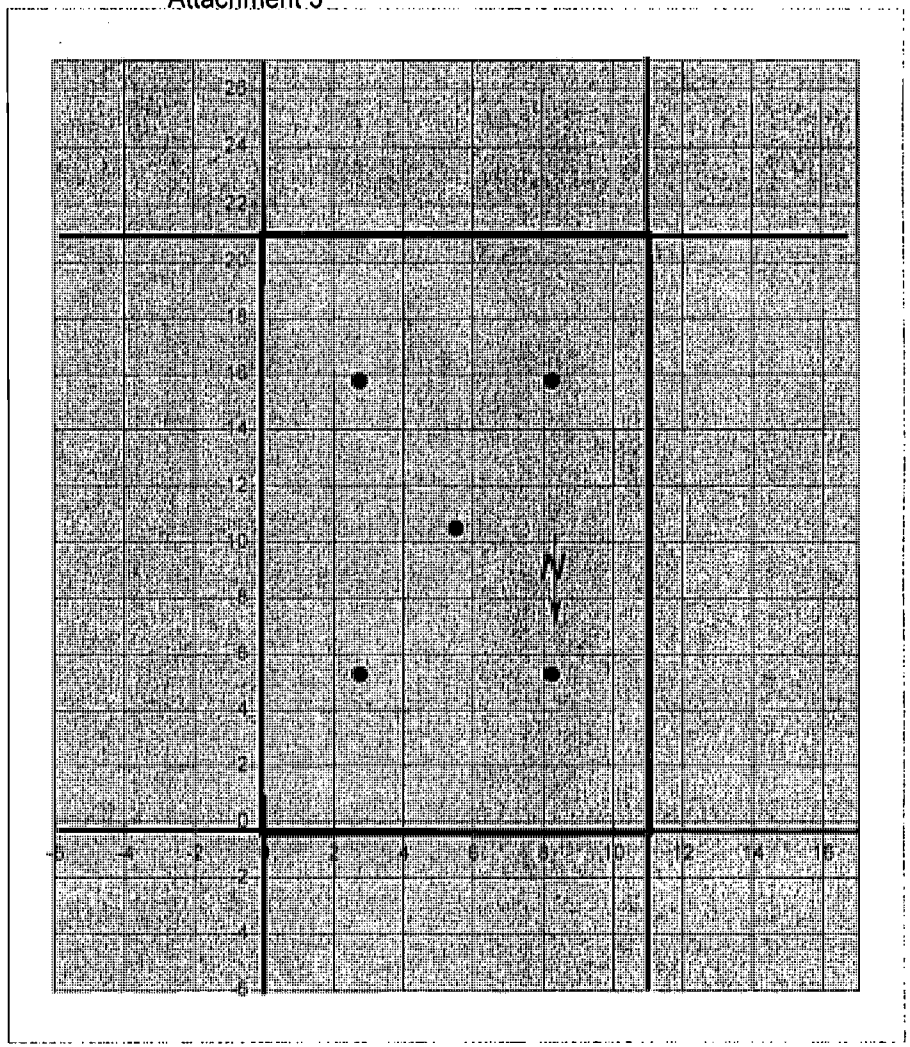
Area 454 sqft
Scan 10%

Coordinates calculated by VSP, 2.0 copyright BMI, 2002

SPF DS-02
Attachment 3

Survey Unit 33-1
Room 222 Ceiling

	X	Y
	11	21
1	5.5	10.5
2	2.8	5.3
3	8.3	15.8
4	2.8	15.8
5	8.3	5.3



Area 615 sqft
Scan 10%

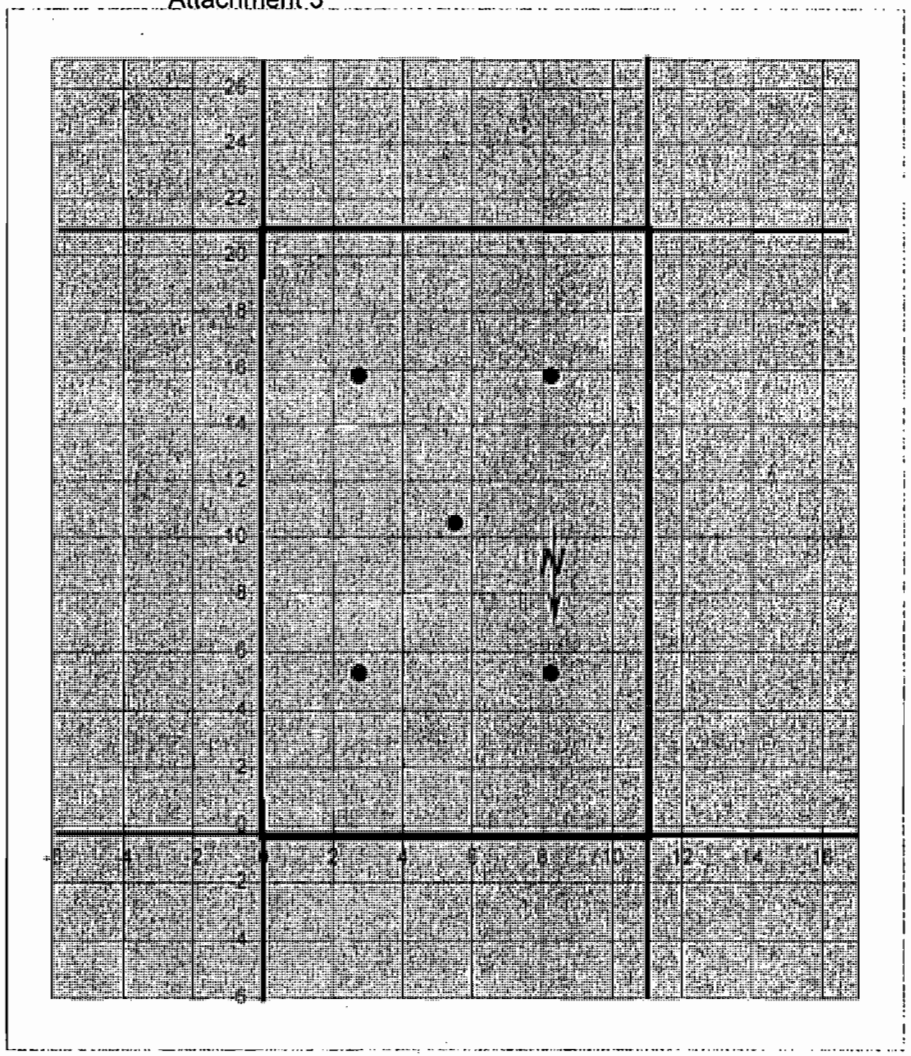
G61 of 78

Coordinates calculated by VSP, 2.0 copyright BMI, 2002

SPF DS-02
Attachment 3

Survey Unit 33-2
Room 223 Ceiling

	X	Y
	11	21
1	5.5	10.5
2	2.8	5.3
3	8.3	15.8
4	2.8	15.8
5	8.3	5.3

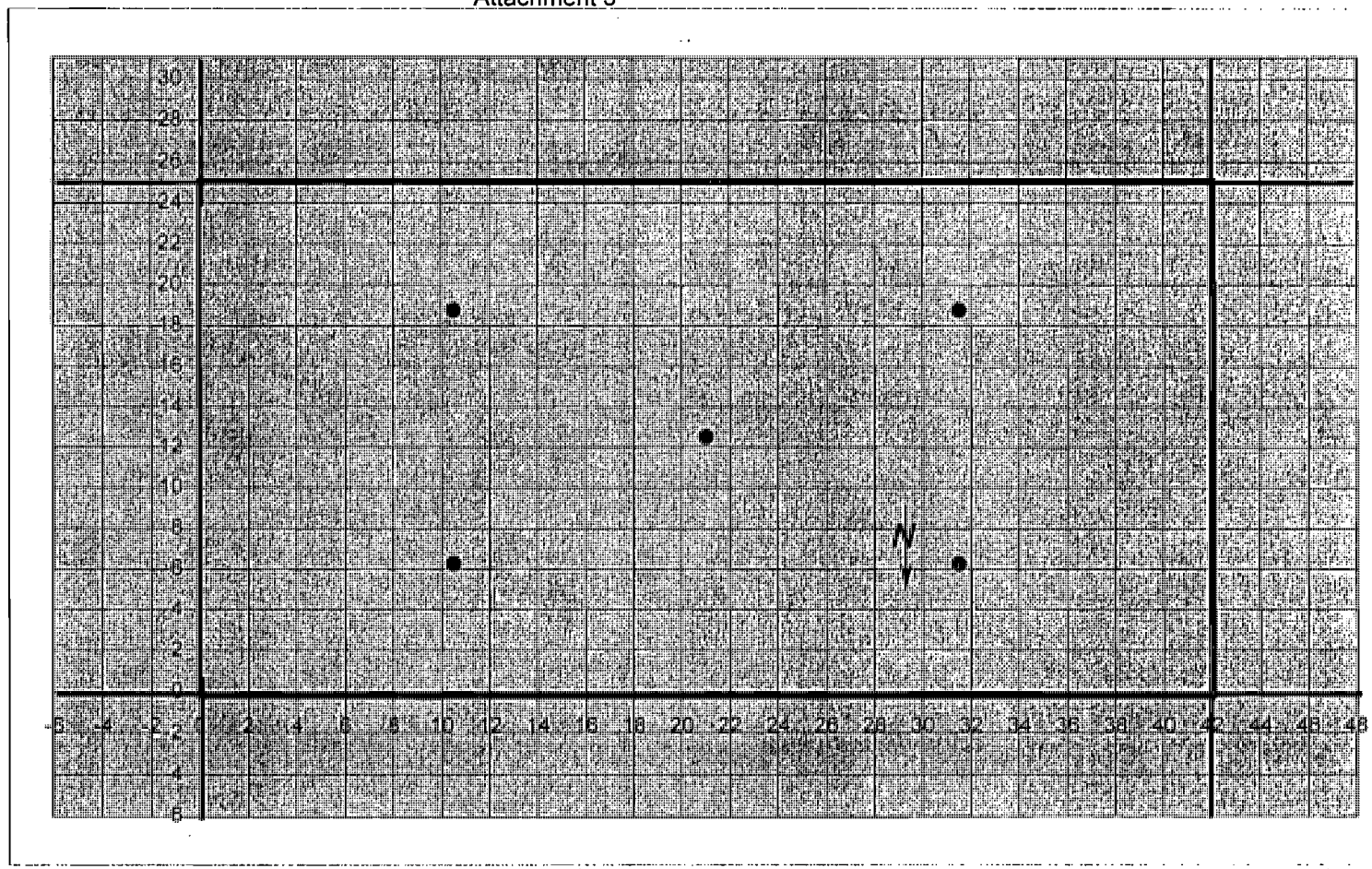


Area 615 sqft
Scan 10%

Coordinates calculated by VSP, 2.0 copyright BMI, 2002

Survey Unit 33-3
Room 251,A/B Ceiling

	X	Y
	42	25
1	21	13
2	11	6
3	32	19
4	11	19
5	32	6



Area 1050 sqft
Scan 10%

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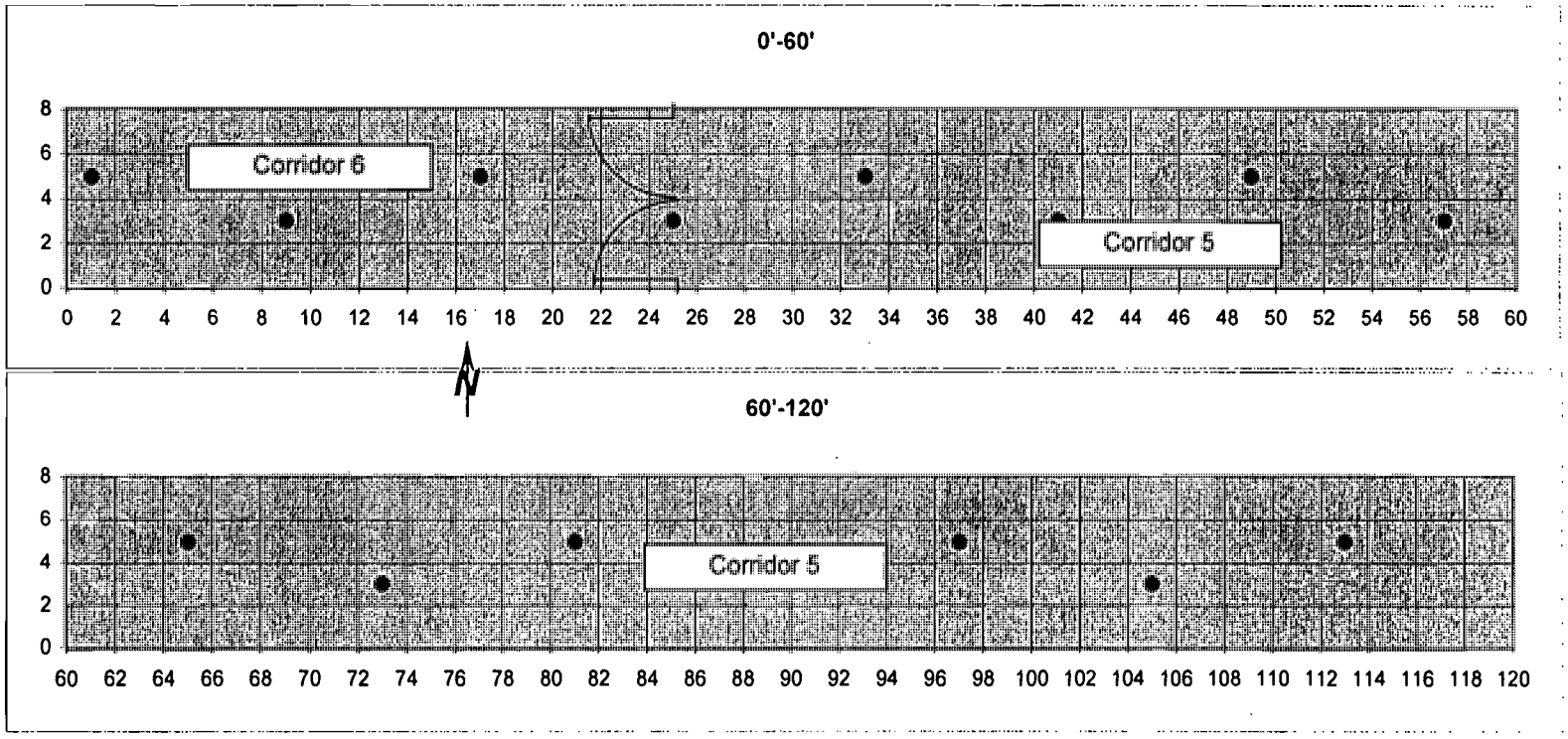
Coordinates calculated by VSP, 2.0 copyright BMI, 2002

SPF DS-02
Attachment 3

Survey Unit 34
Corridor 5/6 Ceiling

	X	Y
	120	7.8
1	1.0	5.0
2	9.0	3.0
3	17.0	5.0
4	25.0	3.0
5	33.0	5.0
6	41.0	3.0
7	49.0	5.0
8	57.0	3.0
9	65.0	5.0
10	73.0	3.0
11	81.0	5.0
12	89.0	3.0
13	97.0	5.0
14	105.0	3.0
15	113.0	5.0

Area	936 sqft
Scan	10%



Coordinates calculated by VSP, 2.0 copyright BMI, 2002

Pre-demolition Survey Plan

For

Building 25

Prepared By:	**Roderick C. Case** /	**Date:**	**2/16/04**
Reviewed By:	**Chris Miles** /	**Date:**	2/23/04
Approved By:	**A. Stephen Collas** /	**Date:**	2/24/04

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1.0 Historical Overview

Building 25 was constructed in 1966 as a one-story, 430-square-foot concrete block, slab-on-grade structure with brick facing.

Building 25 has been used for two programs. The first, from the time the building was constructed, until mid- to late 1972, was as a low level counting facility. The low level counting facility function is not well defined in the literature; however, recollections of past workers include a statement that the building was used for whole body monitoring. These recollections include construction of features inside the building using pre-World War II steel. Pre World War II steel is sought out for applications where radionuclide content is a potential issue. Post World War II steel has a higher radionuclide content due to atmospheric testing of nuclear devices. As recalled by a former employee, low-level counting of gases from HH took place in Building 25 (i.e., Kr-85). As described, the counting work was "very low-level, and that there was also a monitoring system in place to monitor people before they entered the building. This individual also notes that some work with Carbon-14 (C-14) and C-14 dating work took place in Building 25.

By late 1972, Building 25 was converted to a Meteorological Station. This function, or variations of this same function continued into the year 2003. Building 25 housed instrumentation that was used to collect meteorological information. Computers in the building received data from two onsite weather-monitoring towers. These computers are connected to computers at Lawrence Livermore Laboratory; where the information was used to predict dispersion patterns in the event of any airborne releases. The building also housed telephone switching equipment and office space. The meteorological station contained processes conventional to weather data collection. In 2003, the metal tower that was connected to Building 25's computer system fell victim to "straight line winds" associated with a spring storm.

Additional historical information on Building 25 can be found in Reference 1.

1.1 Current Status

Building 25 is scheduled for demolition in accordance with the Miamisburg Closure Project goals. The radiological status of building surfaces must be determined to facilitate a free release of the structure in accordance with site procedures. A characterization study of the radiological condition of this building will direct the appropriate decisions of its final status.

2.0 Data Quality Objectives

The Data Quality Objectives (DQO) process is a series of planning steps that have been defined by the EPA (USEPA, 1994) to ensure that the type, quantity, and quality of survey data used in decision making are appropriate for the intended application. The DQO's for this survey plan are derived from Mound procedures and consistent with the Mound 2000 Approach for building disposition (Reference 2).

2.1 Problem Statement

Determine whether or not the residual radioactivity of the surfaces of building materials associated with Building 25 satisfies the release criteria specified in DOE Order 5400.5.

2.2 Decision Statement

The radiological impact of site operations on structural surfaces will be determined by hypothesis testing the survey data in accordance with Reference 5. The null hypothesis is stated as:

H_0 = The average concentration of residual radioactivity in the survey unit is greater than the release criteria.

The alternate hypothesis is:

H_a = The average concentration of residual radioactivity in the survey unit is less than the release criteria.

If all the measurements are below the $DCGL_w$, the release criteria will be met and the survey unit passes. Any measurement from the survey unit will be considered elevated if it exceeds the $DCGL_w$. However, the elevated measurement alone does not indicate that the survey unit fails to meet the release criterion, only that further investigation will be necessary to determine the extent and concentration of the elevated area.
This survey plan will provide the necessary data to make this decision.

2.3 Inputs to the Decision

The Historical Site Assessment and current survey data are initial inputs to determine area classifications. Gross surface activity measurements for alpha and beta activity will be performed. Removable alpha, beta, and tritium activity will be counted. Sediments will be analyzed for radioisotopes and compared to site screening values.

The instrumentation selected for this survey plan will be appropriate for the radionuclides typical for the Mound site.

Surface scanning will be performed to locate anomalies that might indicate elevated areas of residual activity and that require further investigation or remedial action. A floor scan for alpha contamination will be performed using a Ludlum 2350/43-37 Floor Probe at a scan speed of 1 inch per second, with the probe located within 1/4 inch to the surface being scanned. The minimum detectable activity (MDA) is 85dpm/100 cm^2 with 95% detection probability, at a background level equal to or less than 10 cpm. A 30 second integrated count will be performed at locations where elevated measurements are observed. The MDA in the integrated mode is 49dpm/100 cm^2 or 286 dpm/probe.

Direct measurements of building surfaces will be made at fixed locations using a Ludlum 2350/43-68 gas flow proportional probe (or equivalent) for alpha and beta contamination. The integrated count time is two minutes. The alpha MDA is 50 dpm/100cm^2 at a background of less than 3 cpm. The beta MDA is 375 dpm/100cm^2 at a background of less than 400 cpm and a count time of one minute.

The presence of loose surface activity, including H^3 will be determined using coin smears. An area of 100cm^2 will be smeared at each data point. Smears will be counted in an alpha/beta counter. A liquid scintillation counter (LSC) will measure removable tritium. Smear samples with gross activity above the $DCGL_w$ and sediment samples will be analyzed by alpha and/or gamma spectroscopy.

All field and laboratory instrumentation will be specified on the Survey Plan Form (SPF) and shall be operated in accordance with the appropriate Mound procedures.

All surveys and samples collected for this survey plan will be performed in accordance with the Quality Control requirements of Reference 3. Replicate surveys, sample recounts, instrument performance checks, chain of custody for samples, control of field

survey data and databases, and QC investigations provide the highest level of confidence in the data collected to support the survey outcome. The SPF will specify the QC requirements for this survey.

2.4 Study Boundaries

Defining the study boundaries helps ensure the data taken during the final status survey are representative of the survey unit. The area under consideration is the physical surfaces inside and outside of the Building 25 structure. Subsurface material (under-slab, 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.

Each survey unit is classified in accordance with Reference 5 based on historical data and current characterization surveys. Class 1 areas are those areas where contamination was found above the $DCGL_w$ prior to remediation and have the greatest potential for residual contamination. Class 1 areas receive the highest degree of survey effort (100% surface scan). Class 2 areas are areas where radioactive material may have been present, but are not expected to exceed the $DCGL_w$. Class 2 areas receive a moderate degree of survey effort (50% surface scan). Class 3 areas are areas that are impacted by building operations, but are not expected to have any residual radioactivity. Class 3 areas may also be buffer areas to Class 1 or 2 areas and receive a smaller degree of survey effort (up to 25% surface scan). Non-impacted areas have no reasonable potential for residual contamination and are judgmentally (bias) surveyed to confirm this designation. Building 25 is impacted since the historical references indicate that radioactive material had been present in the facility.

The following table shows the classification of survey units:

Building 25 Survey Units

Survey Unit	Description	Class	Area (ft^2)	Scan %
SU 1	Floors	2	600	50
SU 2	Interior Walls	3	996	25
SU 3	External Surfaces	3	1332	10
SU 4	Ceilings	Judgmental	600	Judgmental

Sampling of building materials will include removable loose surface contamination (smears) and sediment sampling of floor drains, sumps, and ventilation units. Smears (100cm2) will be collected at survey data point locations. Any areas of elevated activity above the $DCGL_w$ will be evaluated for isotopic content by intrusive sampling or insitu analysis.

In Class 2 survey units, the starting point is randomly selected and data points are located within the survey unit using the square grid method. The spacing of data points is determined by:

$$L = \sqrt{\frac{A}{0.866n}}$$

Where: A = Survey unit area
n = # of data points
L = Distance between data points in feet

In Class 3 areas, the location of each data point is determined by multiplying the east-west (Y) and the north-south (X) dimensions of each survey unit by a randomly generated number for each dimension. A calculator, computer, or tables may be used to determine random numbers. If additional surveys are required due to area reclassification or remediation, the survey design parameters will be specified as necessary in accordance with Reference 5 and incorporated into the Final Status Report.

The data points are then located on a scaled drawing and transferred to the survey unit. Professional judgment (biased) surveys will be performed to supplement the random survey data, but will not be combined with the statistical data. Judgmental survey data will be compared directly to the release criteria.

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 of the contaminant in the survey unit (Δ/σ = DCGL-LBGR/σ). The standard deviation is estimated to be 17dpm/100cm^2 based on characterization surveys of similar building surfaces. The LBGR is set at one-half the release limit. The relative shift is calculated as 2.95. For survey planning, the number of data points (n = 20) in the survey unit was obtained from Table 5.5, Reference 5.

2.5 The Decision Rule

A decision rule relates the concentration of residual radioactivity in the survey unit to the release criterion so that decisions can be made based on the results of the final status survey. Reference 6, DOE Order 5400.5, Radiation Protection of the Public and the Environment, offers generic release criteria for building surfaces. Table 1 lists these permissible surface contamination guidelines which were adapted from NRC Regulatory Guide 1.86. Tritium at the Mound facility is an exception. For tritium, 10,000 dpm/100cm^2 was selected based on technical information presented in Reference 4.

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 are designated $DCGL_w$ in this plan.

Biased measurements will be taken in non-impacted areas and compared directly to the release criteria to supplement the statistical data. The maximum activity shown in Table 1 represents the $DCGL_{EMC}$. Since Pu-238 is the major contaminant of concern, Group 1 limits are appropriate for alpha measurements. Group 4 limits are used for beta/gamma measurements.

If the average of the measurements is above the $DCGL_w$, the survey unit will not meet the release criterion. If the average surface activity within each survey unit is below the $DCGL_w$ and the maximum activity is less than the $DCGL_w$, then it will be accepted as the Final Status Survey and no further survey action is required.

If the average of the residual activity in the survey unit is less than the $DCGL_w$, but some areas are greater than the $DCGL_w$, the Sign test will be used to determine if the release criteria have been met. Each measured value, when subtracted from the DCGL, will yield a positive or negative number. If the sum of the positive signs (S+) is greater than the Critical Value (Table I.3, Reference 5), then the null hypothesis is rejected and survey unit passes. The power of the Sign test is given in Reference 5, I.9.1. A prospective power curve constructed using MARSSIM Power 2000 software demonstrates sufficient power exists at the LBGR to detect residual contamination (Attachment 1). A retrospective power curve will be used to test the assumptions made in this survey plan.

The decision rule for the elevated measurement comparison will be a two-stage process. In the first stage, areas will be flagged as potentially elevated if the direct measurement or scanning measurement indicates concentrations above the $DCGL_w$. If any measurements are found to be above the $DCGL_w$, and the elevated activity can not be attributed to naturally occurring radioisotopes, the area will be considered impacted and reclassified, remediated, and resurveyed in accordance with Reference 5.

2.6 The Limits on Decision Errors

A Type I error is made when the null hypotheses, H_0, is rejected when it is true. A Type II error is made when the null hypotheses is not rejected when it is false. The error rates are expressed as the probability that a survey unit passes when it should fail (α) or fails when it should pass (β). Because the measurement variability is expected to be small at the DCGL, the $\alpha = 0.05$ and $\beta = 0.01$ for this survey.

The concentration range between the Lower Bound of the Gray Region (LBGR) and the DCGL defines the gray region of residual radioactivity concentration in which the consequences of Type II decision errors are relatively minor. The statistical test uses the LBGR to define the level that, above which, false positive rates greater than that specified by the limits on decision errors are acceptable. The LBGR is limited by the variability exhibited by the measurements and the decision errors chosen. Because the detection limits expected by the direct field measurements are low relative to the $DCGL_w$, it is estimated that an LBGR equal to one-half of the $DCGL_w$ can be achieved.

2.7 Optimizing the Design

The DQO process is neither static nor sequential. As new information is gathered it will be incorporated into the planning process. In order to facilitate this process, a Survey Plan Form (SPF) is developed for field use to direct the specific details required by the overall survey plan. The SPF will specify the types of samples to be collected and the locations and analysis to be performed. It will define the specific instruments to be used for the survey and the location and type of surveys required. The SPF will specify the Quality Control (QC) requirements of the survey as required by Reference 3. Additional

information and comments can be added to clarify or enhance the survey/sample process. The SPF is reviewed and approved prior to beginning the survey and is subsequently reviewed and approved after all data is collected to ensure completeness and accuracy. Data from initial survey efforts may result in altering area classifications. Additional SPF's may be required to complete the final status survey process for a survey unit.

It is critical to the DQO process that the survey units are isolated from the potential for recontamination or disturbances that could lead to invalidating the survey results. Access shall be restricted to all areas where surveys have been completed until such time as the survey unit is released.

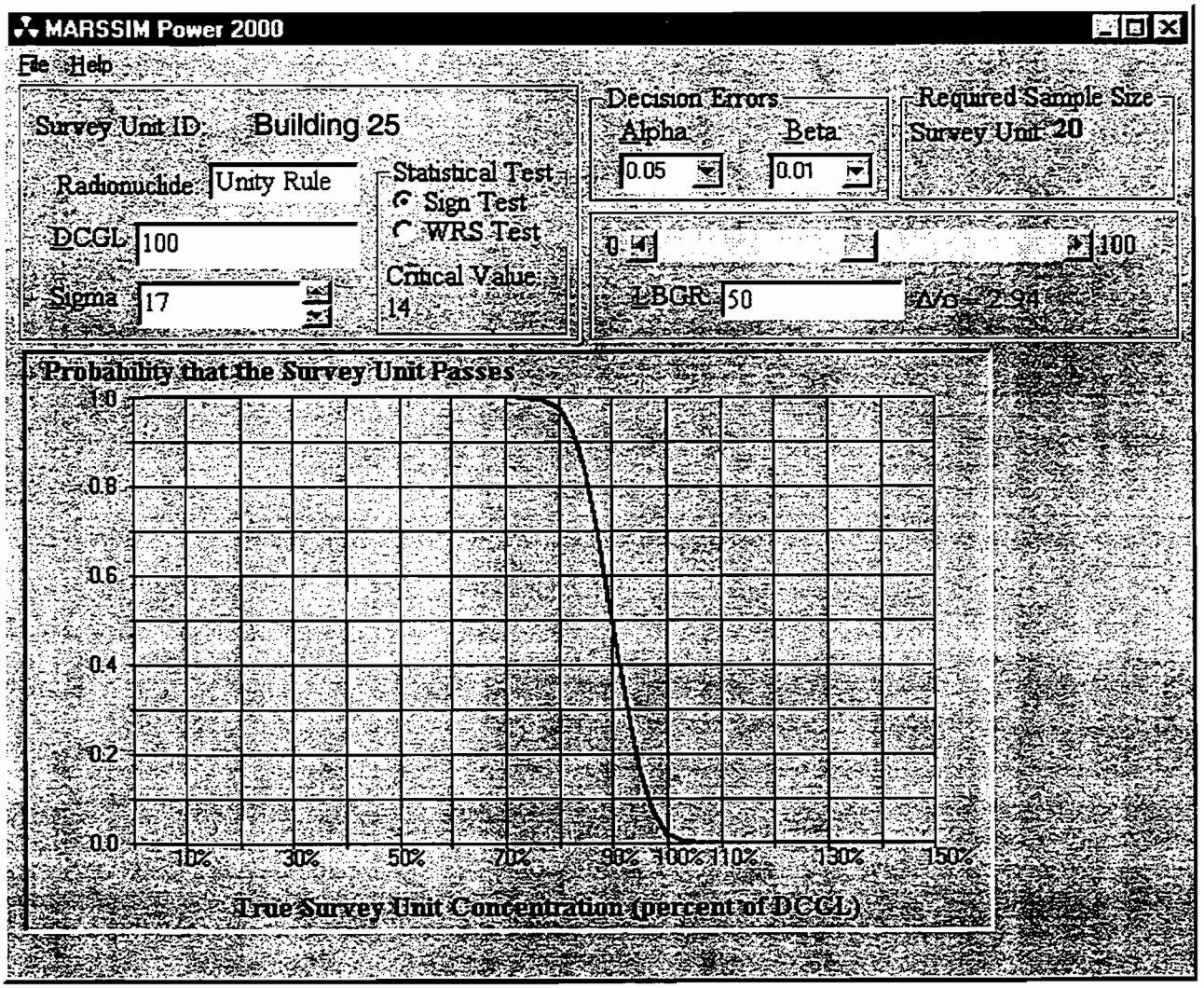
2.8 Final Status Survey Report

When all of the DQO's are satisfied, a report of the final status of the building is prepared and submitted for review. This report called a Final Status Survey (FSS) will summarize and document the MARSSIM survey and the final status of the building. The FSS report will be transmitted to the Mound 2000 Core Team for review and approval prior to proceeding with building demolition.

3.0 References

1. CH2MHill Mound, Inc., EC&L Department, *Building 25; Summary Notes on Its Process History*, October 2003
2. Work Plan, *Mound 2000 Approach*, DOE/MEMP, 1995
3. MARSSIM Implementing Procedures, *Field Quality Control for Building Contamination Surveys*, MD-80046, Op 402
4. DOE, 1991, *Recommended Tritium Surface Contamination Release Guides,* DOE, EH, 0201T, March, 1991; Mound Tritium Committee, Appendix A, Health-Based Risk Assessment for Unconditional Release of Items Contaminated with Tritium
5. NUREG 1575, Rev 1, Aug 2000, *Multi-Agency Radiation Survey and Site Investigation Manual*, (MARSSIM)
6. DOE Order 5400.5, *Radiation Protection of the Public and the Environment*

Sign Test Prospective Power Curve



MARSSIM Power 2000 software developed by Dr. Carl Gogolak, DOE/EML is provided on the Health Physics Society Decommissioning website (http://www.serversolutions.com/decomm_sec/index.htm) and endorsed by the Oak Ridge Institute for Science and Education (ORISE).

SURVEY PLAN FORM

SPF NUMBER	25-01	DATE OF REQUEST	February 16, 2004
TYPE OF SP	☐ FSS ☒ CHARACTERIZATION ☐ REFERENCE ☐ OTHER:		
AREA/LOCATION	Building 25		
PURPOSE	The purpose of this SPF is to characterize Building 25 to support decisions on final disposition.		
SURVEY UNIT 1	Floor	SURVEY UNIT	N/A
SURVEY UNIT 2	Interior Walls	SURVEY UNIT	N/A
SURVEY UNIT 3	Exterior Surfaces	SURVEY UNIT	N/A
SURVEY UNIT 4	Ceiling		

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 PROBE TYPE	L-2350 43-37 Floor Probe or 43-68 Hand Probe	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
STATIC MEASUREMENT	☒ BETA ☐ GAMMA ☒ ALPHA	INST. TYPE PROBE TYPE	L-2350 43-68 Hand Probe	COUNT TIME & DETECTOR DISTANCE FROM SURFACE	Perform 2-minute alpha counts at specified locations not more than ¼" from surface. Perform 1-minute beta counts at the same location.
STATIC MEASUREMENT	☒ BETA ☐ GAMMA ☒ ALPHA	INST. TYPE PROBE TYPE	L-2360 43-93	COUNT TIME & DETECTOR DISTANCE FROM SURFACE	May be used for judgmental surveys in accordance with MD-80036, Issue 29, Op. No. 30031, *Operation of the Ludlum 2360 Scaler/Ratemeter with Ludlum 43-93 Alpha/Beta Scintillator*, Section 6.3
DOSE RATE MEASUREMENT	☐ BETA ☐ GAMMA ☐ ALPHA	INST. TYPE PROBE TYPE		DETECTOR DISTANCE FROM SURFACE	

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	25-01	DATE OF REQUEST	February 16, 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 from each accessible ventilation unit opening, floor drain, 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 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. Set the Ludlum 2350-1 datalogger to alarm at 75dpm/100cm^2 in the ratemeter mode.
2. Scan 50% of the floor surface in each room in Survey Unit 1using a serpentine pattern.
3. Perform a 30 second integrated count at every location where an alarm is obtained. In addition, obtain a 30 second integrated count at any point where an audible or visual indication of elevated activity is observed at twice the background rate.
4. Record the location of the area scanned on the RSDS map and document the results of any integrated counts.

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

1. Scan at least 25% of the walls in Survey Unit 2.
2. 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.
3. 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 2.
2. Mark each data point with tape or other non-permanent marking.
3. Document locations on the appropriate RSDS Map.

Continued Next Page

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 20 integrated alpha and beta measurements on ceilings and any other surface 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.

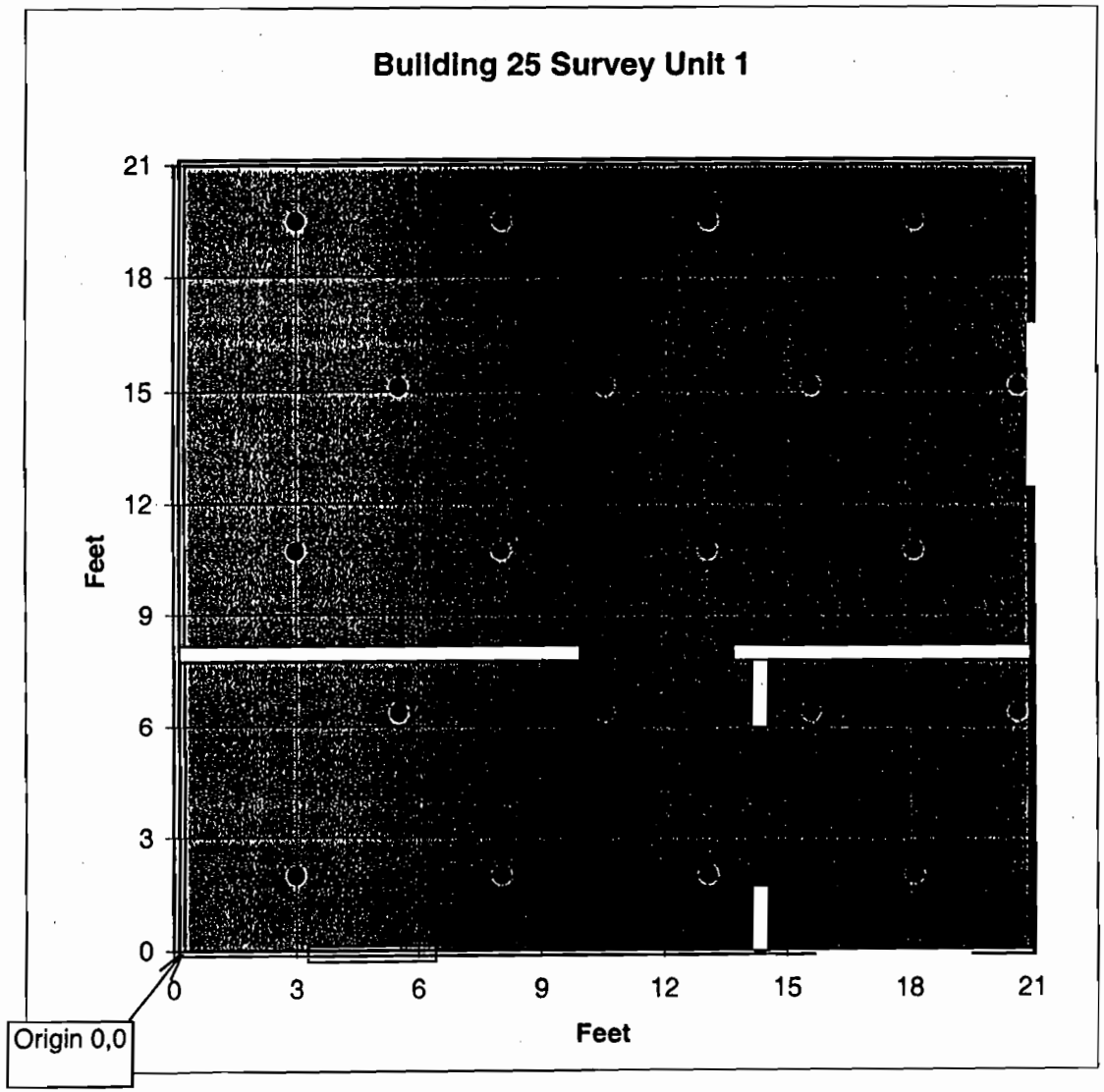
APPROVAL SIGNATURES			
MARSSM Engineer	Roderick C. Case	DATE	February 16, 2004
Technical Reviewer	Chris Miles	DATE	2/23/04
Rad Con Manager		DATE	
SP CLOSE-OUT SIGNATURES			
MARSSM Engineer		DATE	
Technical Reviewer		DATE	
Rad Con Manager		DATE	
COMMENTS			

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
25-01-									
25-01-									
25-01-									
25-01-									
25-01-									
25-01-									
25-01-									
25-01-									
25-01-									
25-01-									
25-01-									
25-01-									
25-01-									

Building 25 Grid Points
Survey Unit 1

	X'	Y'
	21	21
1	3	2
2	8	2
3	13	2
4	18	2
5	6	6
6	11	6
7	16	6
8	21	6
9	3	11
10	8	11
11	13	11
12	18	11
13	6	15
14	11	15
15	16	15
16	21	15
17	3	19
18	8	19
19	13	19
20	18	19

A =	441
L =	5
L' =	4
Start X =	3
Start Y =	2



Appendix H

Radon Information

Radon level is not applicable for open air demolitions.

Appendix I

Asbestos Information

From: Christopher Ahlquist
To: Kramer, Donald
Date: 3/3/04 9:41AM
Subject: DS Bldg

Don -

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

Asbestos

During February of 2004, Pinnacle Environmental Consultants, Inc., under contract to CH2M Hill Mound, Inc., performed a comprehensive walk-through survey of all areas of DS Building in order to identify all asbestos-containing materials prior to demolition of the facility. During their survey Pinnacle utilized Ohio Department of Health Certified Asbestos Hazard Evaluation Specialists as required by State regulations for individuals assessing asbestos-containing materials. Various forms of pipe insulation and several types of miscellaneous materials were identified as asbestos-containing and requiring removal. These materials will be removed and packaged by an Ohio Department of Health Licensed Asbestos Abatement Contractor, in March/April of 2004. The asbestos materials will be removed in accordance with NESHAP requirements and placed into approved waste containers for disposal by the Mound Waste Management Group.

The asphalt roofing and floor tiles are assumed to contain asbestos, and the asphalt coating on the original penthouse walls contains asbestos; however, as Nonfriable Category I materials in accordance with NESHAP these materials will remain in place during demolition and be disposed of as construction waste.

Lead

No previous lead surveys or sampling data were found for the DS Building structure. 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.

In accordance with guidance from Mound Waste Management, paint coatings should not result in a hazardous waste issue during the course of normal demolition by heavy-duty means.

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

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From: Christopher Ahlquist
To: Kramer, Donald
Date: 3/8/04 10:01AM
Subject: Bldg 25

Don -

For Building 25 asbestos and lead paint concerns, the following is provided for your use:

Asbestos

During February of 2004 Chris Ahlquist, an Industrial Hygienist with CH2M Hill Mound, reviewed previous asbestos survey data and performed a comprehensive walk-through survey of all areas of Building 25 in order to identify all asbestos-containing materials prior to demolition of the facility. Mr. Ahlquist is an Ohio Department of Health Certified Asbestos Hazard Evaluation Specialist as required by State regulations for individuals assessing asbestos-containing materials. A duct canvas vibration joint was identified as asbestos-containing and requiring removal. This material will be removed and packaged by an Ohio Department of Health Licensed Asbestos Abatement Contractor, in March/April 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.

The asphalt roofing and floor tiles are assumed to contain asbestos. However, as Nonfriable Category I materials in accordance with NESHAP these materials will remain in place during demolition and be disposed of as construction waste.

Lead

No previous lead surveys or sampling data were found for the Building 25 structure. 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.

In accordance with guidance from Mound Waste Management, paint coatings should not result in a hazardous waste issue during the course of normal demolition by heavy-duty means.

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: Hanson, W. Doug; Hose, Russell

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U. S. DEPARTMENT OF ENERGY
BUILDING DS
1 MOUND ROAD
MIAMISBURG, OHIO 45343-3030

ASBESTOS INSPECTION REPORT

PN: 04-0009

Prepared by:

Pinnacle Environmental Consultants, Inc.
2088 Ross Avenue
Cincinnati, Ohio 45212

(513) 533-1823

Prepared for:

CH2M HILL MOUND, INC.
C/O U. S. DEPARTMENT OF ENERGY
1 MOUND ROAD
MIAMISBURG, OHIO 45343-3030

February 2004

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SECTION 1

EXECUTIVE SUMMARY

A total of ninety-three bulk samples were collected from the Building DS and specified exterior areas, eighty-three of which were analyzed for asbestos fiber content by Polarized Light Microscopy. Of the samples analyzed, sixteen were found to contain greater than one percent (>1%) asbestos.

The eighty-three bulk samples were collected from a total of fifty different homogeneous areas (a Homogeneous Area is defined as "an area of surfacing material, thermal system insulation, or miscellaneous material that is uniform in color and texture"). There were sixteen different homogeneous areas in the Building DS that were sampled and determined to be asbestos-containing building materials (ACBM). These materials include:

- **Adhesive material on exterior wall panels (Original building)**
- **Silver Fire Blanket (Original building)**
- **Coating on corrugated steel (Original building)**
- ~~**Boiler aircell insulation (1955 building) - 200 square feet**~~
- **Mastic for 1'x1' glue-on ceiling tiles with large fissures (Original building)**
- **Mastic for 1'x1' glue-on ceiling tiles with round holes (Original building)**
- **Firestop (Original building)**
- **Pipe Wrap Tape (Original building)**
- **Preformed-Block Pipe Insulation (Original building)**
- **Brown ceiling tile mastic(Original building)**
- **Black laboratory countertop (Addition #1)**
- **Cementitious wall panels (Addition #2)**
- **Preformed-Block Pipe Insulation (Exterior)**
- **Black Tar Paper (Exterior)**
- **Black Tar (Exterior)**
- **Cementitious fitting insulation between sections of fiberglass pipe insulation (Exterior)**

In addition, there were six other homogeneous areas that were assumed to be ACBM for the reasons presented below:

- **Cementitious fitting insulation between sections of fiberglass pipe insulation**
- **Preformed-Block Pipe Insulation**
- **9" Floor tile and associated mastic**
- **Cementitious panels inside of laboratory hoods**
- **12" Floor tile and associated mastic**
- **Gaskets inside of explosion-proof lights**

Asbestos was assumed to be contained in floor tile and associated mastics located in the areas inspected due to analytical limitations. Asbestos fibers within floor tile are well bound in an asphalt or vinyl matrix which masks the identification of fibers resulting in a high percentage of false negative analyses. If the absence of asbestos in these tiles must be verified, they should be analyzed as follows:

- If the analysis by polarized light microscopy (PLM) indicates the presence of asbestos fibers, the tile should be treated as an asbestos-containing material.

- If the analysis indicates that the tile is a non-asbestos containing material, the sample should be analyzed by an alternate method. The method of preference would be transmission electron microscopy (TEM).

The other materials were assumed to contain based on previous sampling results which were provided to Pinnacle Environmental by CH2M Hill Mound, Incorporated. Specifically, Pinnacle was provided reports conducted by PEI Associates (1989) and by Barge Waggoneer, Sumner and Canon (May 1993).

Firedoors, gaskets, electrical wire sheathing, firebrick, boiler muds, etc., which were not sampled, should be assumed to contain asbestos. All activities involving these materials should be in strict accordance to requirements stipulated by the Environmental Protection Agency (EPA) and the Occupational Safety and Health Administration (OSHA), unless further testing proves these materials to be asbestos free. Efforts were made to quantify asbestos-containing materials which may be located behind walls, above hard plaster ceilings, etc., however, the building remainded active during this inspection process and destructive inspection activities were not approved by CH2M Hill Mound, Incorporated. All areas located above the building's suspended plaster ceiling system were thoroughly inspected and most pipe chases were accessible by way of access panels or could be seen from above.

SECTION 2

INTRODUCTION

In January 2004, CH2M Hill Mound, Inc contracted with Pinnacle Environmental Consultants, Inc. (Pinnacle) to conduct a comprehensive building inspection program for asbestos-containing building materials (ACBM) at Building DS and specified exterior areas on the U. S. Department of Energy complex located at 1 Mound Road in Miamisburg, Ohio.

The purpose of the inspection program was 1) to identify those accessible building materials that may contain asbestos, 2) to collect and analyze bulk samples in accordance with EPA-recommended guidelines, and 3) to report the types, locations, and quantities of asbestos-containing materials present in the building in preparation for it's pending demoltion.

Mr. Michael Strine and Mr. Clark Combs, Environmental Technicians (Ohio Department of Health Certified Asbestos Hazard Evaluation Specialist #3036 and #33158, respectively) with Pinnacle, conducted a detailed walk-through inspection of the Building DS and specified exterior areas between January 21, 2004 and February 5, 2004. They also collected representative bulk samples of suspect materials, documented locations of, and quantified the materials in question.

Section 1 of this report is the Executive Summary that briefly discusses the ACBM that was identified from the laboratory analysis of suspect materials and the materials that were assumed to be ACBM.

Sections 3 through 6 consist of the Building Inspection Report which describes the building inspection procedures, bulk sample collection and analytical techniques, and the material evaluation and physical assessment methods used. They also explains how estimates were made of the quantities of areas treated or covered with ACBM, as well as a listing of types of material tested, their location, and their asbestos content.

In order to obtain specific knowledge of the ACBM in the building, utilization of Tables 3-1 and 6-1 is essential. Table 3-1 lists all of the materials which were sampled, sample locations, sample numbers (field assigned and laboratory assigned), asbestos content, and homogeneous area numbers. A description of all homogeneous area numbers can be found at the end of Table 3-1. Table 6-1 lists all of the areas in the building where ACBM was identified. By using Table 6-1 and the homogeneous area numbers found at the end of it, one can determine how much of each variety of ACBM exists in a particular area. Type ACBM, condition, and potential for disturbance are also summarized on this Table.

Appendix A includes floor plans of the Building DS which were used as a reference for room and locations names throughout this report. Proof of the Pinnacle inspector's training and Ohio Department of Health Certification are presented in Appendix B. Appendix C is a Glossary of terms that are commonly used throughout the Inspection Report and the asbestos industry in general.

BUILDING INSPECTION REPORT

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SECTION 3

INSPECTION PROCEDURES

The inspection of the Building DS was scheduled through Chris Ahlquist, Project representative for CH2M Hill Mound, Incorporated. The building inspection was conducted between January 21, 2004 and February 5, 2004 by Mr. Michael Strine and Mr. Clark Combs, Environmental Technicians (Ohio Department of Health Certified Asbestos Hazard Evaluation Specialists #3036 and #33158, respectively) with Pinnacle Environmental Consultants, Inc. (Pinnacle).

Upon arrival at the building the inspectors conducted a cursory review of available floor plans to identify those building components that could potentially contain asbestos. In addition, the inspectors reviewed the results of the asbestos inspections previously conducted in this building. This information helped to familiarize them with the building itself and with the locations of suspect building components, as well as, previously identified asbestos-containing materials. Regardless of the information gathered before the inspection, the building was given a thorough inspection. This inspection included a room-by-room walk-through investigation of Building DS, during which the accessible areas were visually checked for the suspected presence of any asbestos-containing building materials (ACBM).

During the building inspection, the inspector looked for suspect materials on building components such as pipes, tanks, walls, ceilings, etc. that could contain asbestos. Suspect materials were touched to determine their degree of friability, and sampling areas containing homogeneous materials were identified.

3.1 METHOD OF SAMPLING AND ANALYSIS

3.1.1 Bulk Sample Collection Method

During the building inspection, the asbestos evaluation specialists looked for suspect materials on building components such as pipes, tanks, wall, ceilings, etc. that could contain asbestos and pose potential exposure hazards. Samples of suspect materials were collected in accordance with protocol outlined in the Asbestos Hazard Emergency Response Act (AHERA - Section 763.86). Although the AHERA regulation currently applies only to schools, it is considered state of the art in terms of protocol for conducting building inspections for ACBM and is specified for compliance with OSHA asbestos regulations.

For friable Surfacing Materials, three (3) bulk samples were collected for each homogeneous area less than or equal to 1,000 square feet. If the homogeneous area was greater than 1,000 square feet but less than 5,000 square feet, five (5) bulk samples were collected. For homogeneous areas that were greater than 5,000 square feet, seven (7) bulk samples were collected. Random sample locations in each homogeneous area of suspect surfacing materials were determined by the inspector during the initial inspection.

Three (3) samples were randomly collected from homogeneous areas of Thermal System Insulation such as piping. Miscellaneous Material and non-friable suspected ACBM were typically sampled "in a manner sufficient to determine" whether the material in question contained asbestos. In some cases, non-friable materials such as floor tile were assumed to contain asbestos. This was due primarily to the analytical limitations of identifying asbestos fibers that were well bound in an asphalt or vinyl matrix, which masks the identification of fibers. These materials should be analyzed to determine the presence of asbestos fibers (preferably by transmission electron microscopy - TEM) if any abatement action is required or necessary.

To avoid disturbing the material more than necessary and potentially cause the release of asbestos fibers, the inspector performed bulk sampling of suspect materials in accordance with generally accepted procedures outlined in the current EPA Guidance Document and in accordance with AHERA (Section 763.86) protocol. Each sample was collected and placed in a clean, sealable vial and labeled with a unique sample identification number. This sample number was recorded on a Bulk Sample Log Sheet, the sample vial, and at the sample location to permit easy identification of the sampled materials in the future. Supplemental information was also recorded on the Bulk Sample Log Sheet, including date of inspection, name of the inspector, the building name (or number), a brief

description and location of the sample, and type of material sampled (e.g. thermal insulation, fireproofing, acoustical plaster). Bulk samples were submitted to the Environmental Hazards Services, Inc. and the Pinnacle Environmental analytical laboratories upon completion of the inspection.

3.1.2 Analysis of Bulk Samples

Bulk samples were analyzed for asbestos content by polarized-light microscopy (PLM) and dispersion staining (Method Reference: EPA-600/R-93/116). This analytical method, which the EPA currently recommends for the determination of asbestos in bulk samples of friable insulation 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 percent) within the range of 0 to 100. Minute quantities of asbestos in bulk samples may be reported as "trace" or less than 1 percent (<1%). The analytical method determined the "area percent" asbestos or the percentage of the area of a microscopic field of view that is occupied by asbestos fibers.

The results of all bulk sample analyses are reported in a standard written laboratory report. This written report includes the client name, the laboratory identification numbers assigned to each bulk sample upon receipt by the laboratory sample custodian, and the field number assigned to each bulk sample during the building inspection. The composition of the bulk sample is reported in percentages of asbestos (i.e., chrysotile, amosite, crocidolite, or other) and non-asbestos (i.e., cellulose, fiberglass, synthetic, or other) components. The original laboratory reports are presented in Figure 3-1 in Section 3.2.

The Environmental Hazards Services, Inc. and the Pinnacle Environmental analytical laboratories are fully accredited by the National Voluntary Laboratory Accreditation Program (NVLAP #101882-0 and #200614-0, respectively). NVLAP is the agency sponsored by the National Institute of Standards and Technology providing EPA accreditation of laboratories analyzing bulk samples for asbestos content by PLM under AHERA.

There is another factor that relates to sample analysis. Assume that seven bulk samples were taken from a large homogeneous area. If the first sample analyzed by the laboratory is positive for asbestos fibers, there is no need to analyze the other six samples; per AHERA protocol, one positive sample is enough to determine that the entire area contains ACBM. If the first sample is negative, then further analysis is required until either a positive sample is found or until all seven samples are tested as negative.

3.2 RESULTS OF BULK SAMPLE ANALYSES

The results of the analyses of all samples that were suspected to contain asbestos are summarized in Table 3-1. This table lists:

- The location from where the sample was collected.
- A description of the material sampled.
- The identification number assigned to the sample by the evaluation specialist in the field.
- The identification number assigned to the sample by the analytical laboratory.
- If asbestos was found in the sample, the percentage of asbestos present and the type of asbestos.
- The homogeneous area from which the sample was collected.
- Indication as to whether or not the sample was friable at the time of collection (as required by the EPA's National Emission Standard for Hazardous Air Pollutants).

The actual laboratory reports are presented in Figure 3-1. These reports also list the nature of the non-asbestos material that was identified in each sample.

TABLE 3-1

BULK SAMPLE DATA SUMMARY

TABLE 3-1
PLM BULK SAMPLE DATA SUMMARY
THE MOUND - BUILDING DS

Sample Location	Sample Description	Sample ID No.	Lab ID No.	Asbestos Content	Homo-geneous Area #	Friable/ Nonfriable
The following samples were collected from the original building						
West end of PH 301 on end of fiberglass pipe insulation	Mastic/sealant	04CC-034	01	None detected	1	Nonfriable
Inside of fresh air intake AC-6 around intake duct	Caulk	04CC-035	02	None detected	2	Nonfriable
On south wall PH 301 on metal wall panel joint	Adhesive-like material	04CC-036	03	5% Chrysotile	3	Nonfriable
Near north dock PH 301 on supply fitting	Tape wrap	04CC-037	04	None detected	4	Nonfriable
In cabinet south of north door	Silver blanket	04CC-038	05	55% Chrysotile	5	Nonfriable
Exterior north wall PH 301	Coating on corrugated steel	04CC-039	06	45% Chrysotile	6	Nonfriable
Chase between 104 and 105 over fiberglass on pipe fitting	Cloth wrap	04CC-051	07	None detected	7	Nofriable
Room 111	2'x2' Ceiling tile with large and small holes	04CC-052	08	None detected	8	Friable
Room 115	2'x2' Ceiling tile with fissures and pin holes	04CC-053	09	None detected	9	Friable
Room 110A	2'x4' Ceiling tile with pin holes and fissures	04CC-061	10	None detected	10	Friable
Room 110A	Drywall partition with wood grain covering	04CC-062	11	None detected	11	Nonfriable
Room 116	1'x1' Glue-on ceiling tile with large fissures	04CC-063	12A	None detected	12	Friable
Room 116	Mastic for 1'x1' glue-on ceiling tile with large fissures	04CC-063	12B	2% Chrysotile	13	Nonfriable
Room 113	1'x1' Glue-on ceiling tile with round holes	04CC-064	13A	None detected	14	Friable
Room 113	Mastic for 1'x1' glue-on ceiling tile with round holes	04CC-064	13B	3% Chrysotile	15	Nonfriable
Room 127A	Drywall	04CC-065	14	None detected	16	Nonfriable
Room 221B on north wall	Firestop	04CC-066	15	25% Chrysotile	17	Nonfriable
Room 227B	Pipe wrap tape	04CC-067	16	8% Chrysotile	18	Friable
Room 217 added wall dividing room	Drywall	04CC-080	17	None detected	16	Nonfriable
Room 109A north wall	Plaster	04CC-081	18	None detected	19	Nonfriable
Room 106 west wall	Plaster	04CC-082	19	None detected	19	Nonfriable
Corridor 2 wall adjacent to door 103	Plaster	04CC-083	20	None detected	19	Nonfriable

TABLE 3-1
PLM BULK SAMPLE DATA SUMMARY
THE MOUND - BUILDING DS

Sample Location	Sample Description	Sample ID No.	Lab ID No.	Asbestos Content	Homo-geneous Area #	Friable/ Nonfriable
Original Building, continued						
Stairwell wall of main door north side of building	Plaster	04CC-084	21	None detected	19	Nonfriable
Wall directly to right of room 114 door	Plaster	04CC-085	22	None detected	19	Nonfriable
Corridor wall directly across from door 119	Plaster	04CC-086	23	None detected	19	Nonfriable
Corridor wall directly to left of door 127	Plaster	04CC-087	24	None detected	19	Nonfriable
Room 118 east wall	Drywall	04CC-088	25	None detected	16	Nonfriable
Room 118 southwest corner above fume hood	Pipe wrap insulation	04CC-089	26	None detected	18	Friable
Room 118 southwest corner above fume hood around flec conduit	Brown fire pack putty	04CC-090	27	None detected	19	Nonfriable
Above south corridor 2 east of access hatch on joints/ seams of small round ducts	Tape material	04CC-092	04B-983	None detected	20	Friable
Above room 105A on top of ceiling	Preformed-block pipe insulation debris	04CC-093	04B-984	25-35% Amosite 5-10% Chrysotile	21	Friable
North side of south corridor at duct penetration through ceiling	Trowled material	04CC-094	04B-985	None detected	22	Nonfriable
South side of south corridor zoft east of hatch	Paper debris	04CC-095	04B-986	50-75% Chrysotile	23	Friable
Room 206 above drop ceiling	Brown ceiling tile mastic	04CC-096	04B-987	1-5% Chrysotile	24	Nonfriable
Room 206	2'x4' White perforrated ceiling tile	04CC-097	04B-988	None detected	25	Friable
The following samples were collected from addition #1						
Coil #3 at north end of PH 301 on air handler unit	Gasket	04CC-040	01	None detected	26	Nonfriable
Coil #3 at north end of PH 301	Cloth duct connector	04CC-041	02	None detected	27	Nonfriable
Room 245 north wall	Plaster	04CC-100	03	None detected	28	Nonfriable
Room 247 lab counter top	Black lab counter top	04CC-101	04	25% Chrysotile	29	Nonfriable
Room 243 west wall	Plaster	04CC-102	05	None detected	28	Nonfriable
Room 250 north wall	Drywall	04CC-103	06	None detected	30	Nonfriable
Room 233 oven	White woven gasket	04CC-104	07	None detected	31	Nonfriable
Room 229B south wall	Plaster	04CC-105	08	None detected	28	Nonfriable

TABLE 3-1
PLM BULK SAMPLE DATA SUMMARY
THE MOUND - BUILDING DS

Sample Location	Sample Description	Sample ID No.	Lab ID No.	Asbestos Content	* Homo-geneous Area #	Friable/ Nonfriable
Addition #1, continued						
Room 229B south wall mounted to top four feet of wall	2'x4' Ceiling tile	04CC-106	09	None detected	29	Friable
Room 229B north wall	Drywall	04CC-107	10	None detected	30	Nonfriable
Room 251A west wall	Drywall	04CC-108	11	None detected	30	Nonfriable
Room 251 west wall	Drywall	04CC-109	12	None detected	30	Nonfriable
Corridor 244 wall to right of room 231 door	Plaster	04CC-110	13	None detected	28	Nonfriable
Corridor 232 northwest end wall	Plaster	04CC-111	14	None detected	28	Nonfriable
End of corridor 252 ceiling	Plaster	04CC-112	15	None detected	28	Nonfriable
Women's restroom wall room 255 to left of door	Plaster	04CC-113	16	None detected	28	Nonfriable
Corridor 257 south wall	Plaster	04CC-114	17	None detected	28	Nonfriable
The following samples were collected from addition #2						
South end of PH 303 on EF-7	Brown duct mastic	04CC-030	01	None detected	32	Nonfriable
North end of large air handler	Jacket over fiberglass pipe insulation	04CC-031	02	None detected	33	Nonfriable
Pipe on east side of large air handler on end of fiberglass pipe insulation	White mastic	04CC-032	03	None detected	34	Nonfriable
Mud around dumpler controls on north end of air handler	Cementtious material	04CC-033	04	None detected	35	Nonfriable
Exterior west wall on corrugated steel panel	Coating	04CC-042	05	None detected	36	Nonfriable
Room 133A	2'x2' Ceiling tile with pin holes and fissures	04CC-043	06	None detected	37	Friable
Corridor between 133 and 134 unedr floor system supports	Black mastic	04CC-044	07	None detected	38	Nonfriable
East clean room service corridor on blue duct	Mastic	04CC-045	08	None detected	39	Nonfriable
Room 130 under floor system supports	Brown mastic	04CC-046	09	None detected	40	Nonfriable
Room 129	2'x4' Drywall ceiling tile	04CC-047	10	None detected	41	Friable
Room 129	Black counter top	04CC-048	11	None detected	29	Nonfriable
North hall wall	Plaster	04CC-049	12	None detected	42	Nonfriable
North hall wall	Plaster	04CC-050	13	None detected	42	Nonfriable
Room 134 west wall	Plaster	04CC-054	14	None detected	42	Nonfriable

TABLE 3-1
PLM BULK SAMPLE DATA SUMMARY
THE MOUND - BUILDING DS

Sample Location	Sample Description	Sample ID No.	Lab ID No.	Asbestos Content	* Homo-geneous Area #	Friable/ Nonfriable
Addition #2, continued						
Room 135 north wall	Plaster	04CC-055	15	None detected	42	Nonfriable
Room 131 south wall	Plaster	04CC-056	16	None detected	42	Nonfriable
Room 131B north wall	Plaster	04CC-057	17	None detected	42	Nonfriable
South corridor south wall	Plaster	04CC-058	18	None detected	42	Nonfriable
Room 135A	Cementitious wall panel	04CC-059	19	20% Chrysotile	43	Nonfriable
Room 135B	Black counter top	04CC-060	20	None detected	29	Nonfriable
The following sample was collected from the connector						
Corridor 425	2'x4' Ceilig tile with divots	04CC-066	01	None detected	44	Friable
The following samples were collected from the exteroir pipe racks						
Lower steam line forward 125 PSI under black felt	Preformed-block pipe insulation	04CC-0200	04B-989	25-35% Amosite 25-35% Chrysotile	45	Friable
Middle level east brine line	Black tar paper	04CC-0201	04B-990	35-50% Chrysotile	46	Nonfriable
Middle level east brine line return under exterior black tar paper	Brown fibrous insulation	04CC-0202	04B-991	None detected	47	Friable
Near northeast corner of DS over fiberglass on steam return	Black tar paper	04CC-0203	04B-992	Stopped analysis	46	Nonfriable
Near northeast corner of DS on steam condensate line under metal	Preformed-block pipe insulation	04CC-0204	04B-993	Stopped analysis	45	Friable
Near northeast corner of DS over end of abandoned pipe	Black tar	04CC-0205	04B-994	10-15% Chrysotile	48	Nonfriable
Near southeast corner of building DS on 125 PSI steam line	Preformed-block pipe insulation	04CC-0206	04B-995	Stopped analysis	45	Friable
Near northeast corner of building DS on 125 PSI steam line	Preformed-block pipe insulation	04CC-0207	04B-996	Stopped analysis	45	Friable
Near northeast corner of building over fibrous insulation on brine	Black tar paper	04CC-0208	04B-997	Stopped anlaysis	46	Nonfriable
Near northeast corner of building on brine	Fibrous insulation	04CC-0210	04B-998	None detected	47	Friable
Near northeast corner of building in brine	Fibrous insulation	04CC-0211	04B-999	None detected	47	Friable
Northeast corner of DS on roof under metal jacket over fiberglass on brine return line	Tar	04CC-0214	04B-1000	Stopped analysis	48	Nonfriable

TABLE 3-1
PLM BULK SAMPLE DATA SUMMARY
THE MOUND - BUILDING DS

Sample Location	Sample Description	Sample ID No.	Lab ID No.	Asbestos Content	* Homo-geneous Area #	Friable/ Nonfriable
Exterior Pipe Racks, continued						
Roof of DS east of center PH over fiberglass pipe insulation	Tar paper	04CC-0215	04B-1001	Stopped analysis	46	Nonfriable
Roof of DS east of center PH on fitting of sample 04CC-215	Tar paper and mud insulation	04CC-0216	04B-1002	10-15% Chrysotile	46 & 49	Friable
Near southeast corner of building DS on brine return	Foam insulation	04CC-0217	04B-1003	None detected	50	Friable
West end of building DS on brine return	Foam insulation	04CC-0218	04B-1004	None detected	50	Friable
South of building DS on brine	Foam insulation	04CC-0219	04B-1005	None detected	50	Friable
Run off to building DS on south side of DS over fiberglass pipe insulation on steam supply	Tar paper	04CC-0220	04B-1006	Stopped analysis	46	Nonfriable
Run off to building DS on south side of DS over fitting of sample 04CC-0220	Tar and mud insulation	04CC-0221	04B-1007	Stopped analysis	46 & 49	Friable
At south run off from steam supply on fitting	Tar and mud insulation	04CC-0222	04B-1008	Stopped analysis	46 & 49	Friable

TABLE 3-1
PLM BULK SAMPLE DATA SUMMARY
THE MOUND - BUILDING DS

** Homogeneous area number descriptions - Original Buiding (bold type indicates asbestos-containing material)*

1 - mastic/sealant on ends of fiberglass pipe insulation
2 - caulk around intake duct
3 - adhesive material on exterior wall panel
4 - tape wrap on pipe
5 - silver blanket
6 - coating on corrugated steel
7 - cloth wrap over fiberglass pipe insulation
8 - 2' x 2' ceiling tile with large and small holes
9 - 2' x 2' ceiling tile with fissures and pinholes
10 - 2' x 4' ceiling tile with pinholes and fissures
11 - Drywall with woodgrain covering
12 - 1' x 1' glue-on ceiling tile with large fissures
13 - mastic for HA #12
14 - 1' x 1' glue-on ceiling tile with round holes
15 - mastic for HA #14
16 - Drywall
17 - Firestop
18 - pipe wrap tape
19 - plaster
20 - tape on exhaust duct seams
21 - Preformed-block pipe insulation debris
22 - trowled-on material
23 - paper debris
24 - brown ceiling tile mastic
25 - 2' x 4' white perforated ceiling tile

** Homogeneous area number descriptions - Addition #1 (bold type indicates asbestos-containing material)*

26 - Gasket
27 - cloth duct connector
28 - Plaster
29 - Black lab countertop
30 - Drywall
31 - white woven gasket

** Homogeneous area number descriptions - Addition #2 (bold type indicates asbestos-containing material)*

32 - brown duct mastic
33 - jacket over fiberglass pipe insulation
34 - white mastic on fiberglass pipe insulation
35 - cementitious material on air handler
36 - coating on corruated steel panel
37 - 2' x 2' ceiling tile with pinholes and fissures
38 - black mastic
39 - mastic on duct
40 - brown mastic
41 - 2' x 4' drywall ceiling tile
42 - Plaster
43 - cementitious wall panel

** Homogeneous area number descriptions - Connector (bold type indicates asbestos-containing material)*

44 - 2' x 4' ceiling tile with divots

** Homogeneous area number descriptions - Exterior pipe racks (bold type indicates asbestos-containing material)*

45 - preformed block pipe insulation under black felt paper
46 - black tar paper
47 - Brown fibrous pipe insulation
48 - Black tar
49 - Cementitous fitting insulation between sections of fiberglass pipe insulation
50 - foam pipe insulation

FIGURE 3-1

BULK SAMPLE LABORATORY REPORT

ENVIRONMENTAL HAZARDS SERVICES, L.L.C.

7469 WHITE PINE ROAD - RICHMOND, VA 23237
804-275-4788 FAX 804-275-4907

BULK ASBESTOS SAMPLE ANALYSIS SUMMARY

CLIENT: Pinnacle Environmental Consultants, Inc.
2088 Ross Ave.
Cincinnati, OH 45212

DATE OF RECEIPT: 29 JAN 2004
DATE OF ANALYSIS: 29 JAN 2004
DATE OF REPORT: 30 JAN 2004

CLIENT NUMBER: 36-2747 S
EHS PROJECT #: 01-04-3261
PROJECT: 04-0009

EHS SAMPLE #	CLIENT SAMPLE #/ LABORATORY GROSS DESCRIPTION	% ASBESTOS	OTHER MATERIALS
01	04CC034/ White/Dk. Rust Brown Pliable	NAD	35% Cellulose 65% Non-Fibrous
02	04CC035/ Lt. Gray Pliable	NAD	4% Cellulose 96% Non-Fibrous
03	04CC036/ Gray Pliable; Pale Beige/Pale Green Brittle	5% Chrysotile ★ 5% Total Asbestos ★Present in the gray pliable (main) layer.	2% Cellulose 93% Non-Fibrous
04	04CC037/ Off-White Pliable	NAD	35% Cellulose 65% Non-Fibrous
05	04CC038/ Pale Gray/Yellow Fib.	55% Chrysotile 55% Total Asbestos	10% Cellulose 20% Fibrous Glass 10% Synthetic 5% Non-Fibrous
06	04CC039/ Dk. Brown Fib.; Off-White/Green Brittle	45% Chrysotile 45% Total Asbestos	7% Cellulose 48% Non-Fibrous
07	04CC051/ White Fib.; Beige Brittle	NAD	25% Fibrous Glass 75% Non-Fibrous
08	04CC052/ Pink Fib.; Off-White Brittle	NAD	35% Cellulose 45% Fibrous Glass 20% Non-Fibrous
09	04CC053/ Pale Tan Fib.; Off-White Brittle	NAD	40% Cellulose 40% Fibrous Glass 20% Non-Fibrous
10	04CC061/ Pale Gray Fib.; Off-White Brittle	NAD	40% Cellulose 40% Fibrous Glass 20% Non-Fibrous
11	04CC062/ Off-White Brittle; Tan Fib.; Brown Vinyl-Like	NAD	20% Cellulose 80% Non-Fibrous

ENVIRONMENTAL HAZARDS SERVICES, L.L.C.

CLIENT NUMBER: 36-2747 S
EHS PROJECT #: 01-04-3261
PROJECT: 04-0009

EHS SAMPLE #	CLIENT SAMPLE #/ LABORATORY GROSS DESCRIPTION	% ASBESTOS	OTHER MATERIALS
12A	04CC063(a)-Ceiling Tile/ Pale Gray Fib.; Off-White Brittle	NAD	35% Cellulose 45% Fibrous Glass 20% Non-Fibrous
12B	04CC063(b)-Mastic/ Brown Adhes.	2% Chrysotile 2% Total Asbestos	2% Cellulose 2% Fibrous Glass 94% Non-Fibrous
13A	04CC064(a)-Ceiling Tile/ Pale Gray Fib.; Off-White Brittle	NAD	35% Cellulose 45% Fibrous Glass 20% Non-Fibrous
13B	04CC064(b)-Mastic/ Brown Adhes.	3% Chrysotile 3% Total Asbestos	1% Cellulose 4% Fibrous Glass 92% Non-Fibrous
14	04CC065/ Off-White Brittle	NAD	8% Cellulose 10% Fibrous Glass 82% Non-Fibrous
15	04CC070/ Dk. Brown/Gray Pliable; Off-White Brittle	25% Chrysotile ★ 25% Total Asbestos ★Present in the dark brown to gray pliable (main) layer.	75% Non-Fibrous
16	04CC071/ Pale Beige Pliable	8% Chrysotile 8% Total Asbestos	7% Cellulose 85% Non-Fibrous
17	04CC080/ Off-White/Pale Blue Brittle; Tan Fib.	NAD	20% Cellulose 80% Non-Fibrous
18	04CC081/ Gray Cementitious; White/Beige Brittle	NAD	1% Cellulose 1% Hair 98% Non-Fibrous
19	04CC082/ Gray Cementitious; White/Beige Brittle	NAD	1% Cellulose 1% Hair 98% Non-Fibrous
20	04CC083/ Gray Cementitious; White/Off-White Brittle	NAD	1% Cellulose 1% Hair 98% Non-Fibrous
21	04CC084/ Gray Cementitious; White/Pale Blue/ Beige Brittle	NAD	2% Cellulose 1% Hair 97% Non-Fibrous

ENVIRONMENTAL HAZARDS SERVICES, L.L.C.

CLIENT NUMBER: 36-2747 S
EHS PROJECT #: 01-04-3261
PROJECT: 04-0009

EHS SAMPLE #	CLIENT SAMPLE #/ LABORATORY GROSS DESCRIPTION	% ASBESTOS	OTHER MATERIALS
22	04CC085/ Gray Cementitious; White/Pale Green Brittle	NAD	1% Cellulose 1% Hair 98% Non-Fibrous
23	04CC086/ Gray Cementitious; White/Pale Green/ Pale Beige Brittle	NAD	1% Cellulose 1% Hair 98% Non-Fibrous
24	04CC087/ White/Pale Green/Off-White Brittle; Gray Cementitious	NAD	1% Cellulose 99% Non-Fibrous
25	04CC088/ Off-White/Tan Brittle; Tan Fib.	NAD	12% Cellulose 10% Fibrous Glass 78% Non-Fibrous
26	04CC089/ Off-White Pliable	NAD	20% Cellulose 10% Fibrous Glass 70% Non-Fibrous
27	04CC090/ Brown Pliable; Off-White/White Brittle	NAD	3% Cellulose 97% Non-Fibrous
28	04CC091/ Pale Brown Fib.	NAD	35% Cellulose 65% Non-Fibrous

QC SAMPLE: M2-1998-2

QC BLANK: SRM 1866 Fiberglass

REPORTING LIMIT: 1% Asbestos

METHOD: Polarized Light Microscopy, EPA Method 600/R-93/116 *

ANALYST: Mark Case

Reviewed By Authorized Signatory:

Howard Varner, Laboratory Director
Irma Faszewski, Quality Assurance Coordinator
David Xu, MS, Senior Chemist
Feng Jiang, MS, Senior Geologist
Michael A. Mueller, Quality Assurance Manager

ENVIRONMENTAL HAZARDS SERVICES, L.L.C.

CLIENT NUMBER: 36-2747 S
EHS PROJECT #: 01-04-3261
PROJECT: 04-0009

Results represent the analysis of samples submitted by the client. Sample location, description, area, volume, etc., was provided b the client. This report cannot be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Governmen This report shall not be reproduced except in full, without the written consent of Environmental Hazards Services, L.L.C. Californi Certification #2319 NY ELAP #11714. All information concerning sampling location, date, and time can be found on Chain-o Custody. Environmental Hazards Services, L.L.C. does not perform any sample collection.

Environmental Hazards Services, L.L.C. recommends reanalysis by point count (for more accurate quantification) or Transmissio Electron Microscopy (TEM), for enhanced detection capabilities) for materials regulated by the EPA NESHAP (National Emissio Standards for Hazardous Air Pollutants) and found to contain less than ten percent (<10%) asbestos by polarized light microscop (PLM). Both services are available for an additional fee.

* All California samples analyzed by Polarized Light Microscopy, EPA Method 600/M4-82-020, Dec. 1982.

LEGEND	NAD = no asbestos detected
	SCF = suspected ceramic fibers

plm1.dot/07JAN2002/ MR

28 PLM

ENVIRONMENTAL HAZARDS SERVICES, L.L.C.

chmond, Virginia 23237 Phone (804) 275-4788 Fax (804) 275-4907

EHS 01-04-3261

HAIN OF CUSTODY FORM

Company Name: Pinnacle Environmental Consultants, Inc.

Date: 1/27/04

Address: 2088 Ross Ave.

Contact Name: Mike Strimp

City, State, Zip: Cincinnati, OH 45212

Sampler Name: Mike Strimp

EHS Client Account #: 36-2747 S

Project #: 04-0009

Phone # : (513) 533-1823

Fax #: (513) 533-1859

P.O. #: OH04-033

I27473

EHS #	Sample Number	Sample Date & Time	Asbestos: Bulk ID by PLM	Asbestos: (PCM) Fiber Count	Asbestos: PLM Point Count	Asbestos: PLM Gravimetric	Asbestos: TEM AHERA (Air)	Asbestos: TEM Chatfield (Bulk)	Lead: Air	Lead: Paint (%)	Lead: Paint (PPM)	Lead: Paint (mg/cm²)	Lead: Soil	Lead: Wipe * (See Note)	Lead: TCLP (Pb)	Lead: Waste Water	Other Metals (Specify metals below): TCLP RCRA 8	Other Metals: Welding Fume	Other Metals: Toxic Metal Profile	Other Metals:	Other Metals:	Indoor Air Quality: Biocassette	Indoor Air Quality: Slide	Indoor Air Quality: Surface Swab	Indoor Air Quality: Surface Tape	Indoor Air Quality: Bulk	Particulate: Total Nuisance (NIOSH 0500) ☐ Respirable (NIOSH 0600) ☐ Air Volume (L) OR Wipe Area (ft²) OR Scrape Area(cm²)	Comments
1	04CC034	1/27/04	↓																									
2	04CC035	8																										
3	04CC036																											
4	04CC037																											
5	04CC038																											
6	04CC039																											
7	04CC051																											
8	04CC052																											
9	04CC053																											
10	04CC061																											

* Do wipe samples submitted meet ASTM E1792 requirements? Yes ☐ No ☐

Released by:	Signature:	Date/Time:
Received by:	Signature:	Date/Time:
Released by:	Signature:	Date/Time:
Received by:	Signature:	Date/Time: 1/29/04 9:40am

ENVIRONMENTAL HAZARDS SERVICES, L.L.C.

7469 Whitepine Road Richmond, Virginia 23237 Phone (804) 275-4788 Fax (804) 275-4907

CHAIN OF CUSTODY FORM

Company Name: Pinnacle Environmental Consultants, Inc. *Date:*

Address: 2088 Ross Ave. *Contact Name:*

City, State, Zip: Cincinnati, OH 45212 *Sampler Name:*

EHS Client Account #: 36-2747 S *Project #:*

Phone # : (513) 533-1823 *Fax #:* (513) 533-1859

P.O. #: OH04-033

I28 of 73

EHS #	Sample Number	Sample Date & Time	Asbestos: Bulk ID by PLM	Asbestos: (PCM) Fiber Count	Asbestos: PLM Point Count	Asbestos: PLM Gravimetric	Asbestos: TEM AHERA (Air)	Asbestos: TEM Chatfield (Bulk)	Lead: Air	Lead: Paint (%)	Lead: Paint (PPM)	Lead: Paint (mg/cm²)	Lead: Soil	Lead: Wipe * (See Note)	Lead: TCLP (Pb)	Lead: Waste Water	Other Metals (Specify metals below): TCLP RCRA 8	Other Metals: Welding Fume	Other Metals: Toxic Metal Profile	Other Metals:	Other Metals:	Indoor Air Quality: Biocassette	Indoor Air Quality: Slide	Indoor Air Quality: Surface Swab	Indoor Air Quality: Surface Tape	Indoor Air Quality: Bulk	Air Volume (L) OR Wipe Area (ft²) OR Scrape Area(cm²)	Comments
11	04CC062																											
12	04CC063																											
13	04CC064																											
14	04CC065																											
15	04CC070																											
16	04CC071																											

Particulate: Total Nuisance (NIOSH 0500) ☐ Respirable (NIOSH 0600) ☐

* Do wipe samples submitted meet ASTM E1792 requirements? Yes ☐ No ☐

Released by: Michael Steine	Signature: [signature]	Date/Time: 1/27/04 5P
Received by:	Signature:	Date/Time:
Released by:	Signature: [signature]	Date/Time:
Received by:	Signature: [signature]	Date/Time: 1/29/04 9:00 am

ENVIRONMENTAL HAZARDS SERVICES, L.L.C.

7469 Whitepine Road Richmond, Virginia 23237 Phone (804) 275-4788 Fax (804) 275-4907

CHAIN OF CUSTODY FORM

Company Name: Pinnacle Environmental Consultants, Inc. Date: 1/27/04

Address: 2088 Ross Ave. Contact Name: Mike Strine

City, State, Zip: Cincinnati, OH 45212 Sampler Name: Mike Strine

EHS Client Account #: 36-2747 S Project #: 04-0009

Phone #: (513) 533-1823 Fax #: (513) 533-1859

P.O. #: OH04-033

I 24 of 73

EHS#	Sample Number	Sample Date & Time	Asbestos: Bulk ID by PLM	Asbestos: (PCM) Fiber Count	Asbestos: PLM Point Count	Asbestos: PLM Gravimetric	Asbestos: TEM AHERA (Air)	Asbestos: TEM Chatfield (Bulk)	Lead: Air	Lead: Paint (%)	Lead: Paint (PPM)	Lead: Paint (mg/cm²)	Lead: Soil	Lead: Wipe * (See Note)	Lead: TCLP (Pb)	Lead: Waste Water	Other Metals (Specify metals below): TCLP RCRA 8	Other Metals: Welding Fume	Other Metals: Toxic Metal Profile	Other Metals:	Other Metals:	Indoor Air Quality: Biocassette	Indoor Air Quality: Slide	Indoor Air Quality: Surface Swab	Indoor Air Quality: Surface Tape	Indoor Air Quality: Bulk	Particulate: Total Nuisance (NIOSH 0500) ☐ Respirable (NIOSH 0600) ☐ Air Volume (L) OR Wipe Area (ft²) OR Scrape Area(cm²)	Comments
17	04CC080	1/22/04	X																									
18	04CC081																											
19	04CC082																											
20	04CC083																											Stop @ 1st 71%
21	04CC084																											
22	04CC085																											
23	04CC086																											
24	04CC087																											
25	04CC088																											
26	04CC089																											

* Do wipe samples submitted meet ASTM E1792 requirements? Yes ☐ No ☐

Released by: Michael Strine	Signature: [signature]	Date/Time: 1/27/04 5P
Received by:	Signature:	Date/Time:
Released by:	Signature: [signature]	Date/Time:
Received by:	Signature: [signature]	Date/Time: 1/29/04 9:40am

ENVIRONMENTAL HAZARDS SERVICES, L.L.C.

7469 Whitepine Road Richmond, Virginia 23237 Phone (804) 275-4788 Fax (804) 275-4907

CHAIN OF CUSTODY FORM

Company Name: Pinnacle Environmental Consultants, Inc. *Date:* 1/27/04

Address: 2088 Ross Ave. *Contact Name:* Mike Strine

City, State, Zip: Cincinnati, OH 45212 *Sampler Name:*

EHS Client Account #: 36-2747 S *Project #:* 04-0009

Phone # : (513) 533-1823 *Fax #:* (513) 533-1859

P.O. #: OH04-033

I 30 of 73

Sample Number	Sample Date & Time	Asbestos: Bulk ID by PLM	Asbestos: (PCM) Fiber Count	Asbestos: PLM Point Count	Asbestos: PLM Gravimetric	Asbestos: TEM AHERA (Air)	Asbestos: TEM Chatfield (Bulk)	Lead: Air	Lead: Paint (%)	Lead: Paint (PPM)	Lead: Paint (mg/cm²)	Lead: Soil	Lead: Wipe * (See Note)	Lead: TCLP (Pb)	Lead: Waste Water	Other Metals (Specify metals below): TCLP RCRA 8	Other Metals: Welding Fume	Other Metals: Toxic Metal Profile	Other Metals:	Other Metals:	Indoor Air Quality: Biocassette	Indoor Air Quality: Slide	Indoor Air Quality: Surface Swab	Indoor Air Quality: Surface Tape	Indoor Air Quality: Bulk	Air Volume (L) OR Wipe Area (ft²) OR Scrape Area(cm²)	Comments
27 04CC090	1/24/03																										
28 04CC091	↓																										

Particulate: Total Nuisance (NIOSH 0500) ☐ Respirable (NIOSH 0600) ☐

* Do wipe samples submitted meet ASTM E1792 requirements? Yes ☐ No ☐

Released by: Michael Strine	Signature: [signature]	Date/Time: 1/27/04
Received by:	Signature:	Date/Time:
Released by:	Signature: [signature]	Date/Time:
Received by:	Signature: [signature]	Date/Time: [illegible]

ENVIRONMENTAL HAZARDS SERVICES, L.L.C.

7469 WHITE PINE ROAD - RICHMOND, VA 23237
804-275-4788 FAX 804-275-4907

BULK ASBESTOS SAMPLE ANALYSIS SUMMARY

CLIENT: Pinnacle Environmental Consultants, Inc.
2088 Ross Ave.
Cincinnati, OH 45212

DATE OF RECEIPT: 29 JAN 2004
DATE OF ANALYSIS: 29 JAN 2004
DATE OF REPORT: 30 JAN 2004

CLIENT NUMBER: 36-2747 S
EHS PROJECT #: 01-04-3262
PROJECT: 04-0009

EHS SAMPLE #	CLIENT SAMPLE #/ LABORATORY GROSS DESCRIPTION	% ASBESTOS	OTHER MATERIALS
01	04CC040/ Black Tar-Like	NAD	3% Cellulose 5% Fibrous Glass 92% Non-Fibrous
02	04CC041/ Black Fib.	NAD	91% Cellulose 9% Non-Fibrous
03	04CC100/ White/Gray Cementitious	NAD	100% Non-Fibrous
04	04CC101/ Black Brittle; Fib.	25% Chrysotile 25% Total Asbestos	75% Non-Fibrous
05	04CC102/ White Gran.	NAD	100% Non-Fibrous
06	04CC103/ White Powder; White Gran.; Brown Fib.	NAD	15% Cellulose 85% Non-Fibrous
07	04CC104/ White Fib.	NAD	1% Cellulose 95% Fibrous Glass 4% Non-Fibrous
08	04CC105/ White Gran.	NAD	100% Non-Fibrous
09	04CC106/ Gray Fib.	NAD	50% Cellulose 20% Fibrous Glass 30% Non-Fibrous
10	04CC107/ White Powder; Brown Fib.	NAD	20% Cellulose 80% Non-Fibrous
11	04CC108/ White Powder; White Gran.; Brown Fib.	NAD	12% Cellulose 88% Non-Fibrous
12	04CC109/ White Powder; Brown Fib.	NAD	20% Cellulose 80% Non-Fibrous

ENVIRONMENTAL HAZARDS SERVICES, L.L.C.

CLIENT NUMBER: 36-2747 S
EHS PROJECT #: 01-04-3262
PROJECT: 04-0009

EHS SAMPLE #	CLIENT SAMPLE #/ LABORATORY GROSS DESCRIPTION	% ASBESTOS	OTHER MATERIALS
13	04CC110/ White/Gray Gran.	NAD	100% Non-Fibrous
14	04CC111/ White/Gray Gran.	NAD	100% Non-Fibrous
15	04CC112/ White/Gray Gran.	NAD	100% Non-Fibrous
16	04CC113/ White Gran.	NAD	100% Non-Fibrous
17	04CC114/ White/Gray Gran.	NAD	100% Non-Fibrous

QC SAMPLE: M2-1998-1

QC BLANK: SRM 1866 Fiberglass

REPORTING LIMIT: 1% Asbestos

METHOD: Polarized Light Microscopy, EPA Method 600/R-93/116 *

ANALYST: Christian H. Schaible

Reviewed By Authorized Signatory:

Howard Varner, Laboratory Director
Irma Faszewski, Quality Assurance Coordinator
David Xu, MS, Senior Chemist
Feng Jiang, MS, Senior Geologist
Michael A. Mueller, Quality Assurance Manager

Results represent the analysis of samples submitted by the client. Sample location, description, area, volume, etc., was provided by the client. This report cannot be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without the written consent of Environmental Hazards Services, L.L.C. California Certification #2319 NY ELAP #11714. All information concerning sampling location, date, and time can be found on Chain-of-Custody. Environmental Hazards Services, L.L.C. does not perform any sample collection.

Environmental Hazards Services, L.L.C. recommends reanalysis by point count (for more accurate quantification) or Transmission Electron Microscopy (TEM), for enhanced detection capabilities) for materials regulated by the EPA NESHAP (National Emission Standards for Hazardous Air Pollutants) and found to contain less than ten percent (<10%) asbestos by polarized light microscopy (PLM). Both services are available for an additional fee.

* All California samples analyzed by Polarized Light Microscopy, EPA Method 600/M4-82-020, Dec. 1982.

LEGEND NAD = no asbestos detected
SCF = suspected ceramic fibers

plm1.dot/07JAN2002/ MR

10 PLM

ENVIRONMENTAL HAZARDS SERVICES, L.L.C.
ad Richmond, Virginia 23237 Phone (804) 275-4788 Fax (804) 275-4907

Acceptable ✓
Unacceptable

EHS 01-04-3262

CHAIN OF CUSTODY FORM

Company Name: Pinnacle Environmental Consultants, Inc. Date: 1/27/04
Address: 2088 Ross Ave. Contact Name: Mike Strine
City, State, Zip: Cincinnati, OH 45212 Sampler Name: Mike Strine
EHS Client Account #: 36-2747 S Project #: 04-0009
Phone # : (513) 533-1823 Fax #: (513) 533-1859
P.O. #: 01-04-031

Sample Number	Sample Date & Time	Asbestos: Bulk ID by PLM	Asbestos: (PCM) Fiber Count	Asbestos: PLM Point Count	Asbestos: PLM Gravimetric	Asbestos: TEM AHERA (Air)	Asbestos: TEM Chatfield (Bulk)	Lead: Air	Lead: Paint (%)	Lead: Paint (PPM)	Lead: Paint (mg/cm²)	Lead: Soil	Lead: Wipe * (See Note)	Lead: TCLP (Pb)	Lead: Waste Water	Other Metals (Specify metals below): TCLP RCRA 8	Other Metals: Welding Fume	Other Metals: Toxic Metal Profile	Other Metals:	Other Metals:	Indoor Air Quality: Biocassette	Indoor Air Quality: Slide	Indoor Air Quality: Surface Swab	Indoor Air Quality: Surface Tape	Indoor Air Quality: Bulk	Air Volume (L) OR Wipe Area (ft²) OR Scrape Area(cm²)	Comments
04CC040	1/27/04	X																									
04CC041	↓	↓																									See Back
04CC100																											
04CC101																											
04CC102																											
04CC103																											
04CC104																											
04CC105																											
04CC106																											
04CC107	↓	↓																									

Particulate: Total Nuisance (NIOSH 0500) ☐
Respirable (NIOSH 0600) ☐

* Do wipe samples submitted meet ASTM E1792 requirements? Yes ☐ No ☐

Released by: Michael D Strine	Signature: MDS	Date/Time: 1/27/04 5P
Received by:	Signature:	Date/Time:
Released by:	Signature:	Date/Time:
Received by:	Signature: [illegible]	Date/Time: 1/29/04 940am

I 33 4 73

Received extra samples that labeled 04CC108 to 04CC114 [illegible]

ENVIRONMENTAL HAZARDS SERVICES, L.L.C.

7469 WHITE PINE ROAD - RICHMOND, VA 23237
804-275-4788 FAX 804-275-4907

BULK ASBESTOS SAMPLE ANALYSIS SUMMARY

CLIENT: Pinnacle Environmental Consultants, Inc.
2088 Ross Ave.
Cincinnati, OH 45212

DATE OF RECEIPT: 29 JAN 2004
DATE OF ANALYSIS: 30 JAN 2004
DATE OF REPORT: 30 JAN 2004

CLIENT NUMBER: 36-2747 S
EHS PROJECT #: 01-04-3264
PROJECT: 04-0009

EHS SAMPLE #	CLIENT SAMPLE #/ LABORATORY GROSS DESCRIPTION	% ASBESTOS	OTHER MATERIALS
01	04CC030/ Brown Adhes.	NAD	100% Non-Fibrous
02	04CC031/ White Fib.	NAD	95% Cellulose 5% Non-Fibrous
03	04CC032/ White Adhes.; Yellow Fib.	NAD	10% Fibrous Glass 90% Non-Fibrous
04	04CC033/ White Adhes.; Yellow Fib.	NAD	10% Cellulose 20% Fibrous Glass 70% Non-Fibrous
05	04CC042/ Black Tar-Like	NAD	100% Non-Fibrous
06	04CC043/ Gray Fib.	NAD	40% Cellulose 40% Fibrous Glass 20% Non-Fibrous
07	04CC044/ Black Tar-Like	NAD	100% Non-Fibrous
08	04CC045/ Brown Adhes.	NAD	100% Non-Fibrous
09	04CC046/ Brown Adhes.	NAD	100% Non-Fibrous
10	04CC047/ Gray Fib.	NAD	40% Cellulose 40% Fibrous Glass 20% Non-Fibrous
11	04CC048/ Black Slate	NAD	100% Non-Fibrous
12	04CC049/ White Powder	NAD	100% Non-Fibrous

ENVIRONMENTAL HAZARDS SERVICES, L.L.C.

CLIENT NUMBER: 36-2747 S
EHS PROJECT #: 01-04-3264
PROJECT: 04-0009

EHS SAMPLE #	CLIENT SAMPLE #/ LABORATORY GROSS DESCRIPTION	% ASBESTOS	OTHER MATERIALS
13	04CC050/ White Powder	NAD	100% Non-Fibrous
14	04CC054/ White Powder	NAD	100% Non-Fibrous
15	04CC055/ White Powder	NAD	100% Non-Fibrous
16	04CC056/ White Powder	NAD	100% Non-Fibrous
17	04CC057/ White Powder	NAD	100% Non-Fibrous
18	04CC058/ White Powder	NAD	100% Non-Fibrous
19	04CC059/ Gray Cementitious	20% Chrysotile 20% Total Asbestos	80% Non-Fibrous
20	04CC060/ Gray Slate	NAD	100% Non-Fibrous

QC SAMPLE: M2-1999-2

QC BLANK: SRM 1866 Fiberglass

REPORTING LIMIT: 1% Asbestos

METHOD: Polarized Light Microscopy, EPA Method 600/R-93/116 *

ANALYST: Feng Jiang, M.S.

Reviewed By Authorized Signatory: Michael A. Mueller

Howard Varner, Laboratory Director
Irma Faszewski, Quality Assurance Coordinator
David Xu, MS, Senior Chemist
Feng Jiang, MS, Senior Geologist
Michael A. Mueller, Quality Assurance Manager

ENVIRONMENTAL HAZARDS SERVICES, L.L.C.

CLIENT NUMBER: 36-2747 S
EHS PROJECT #: 01-04-3264
PROJECT: 04-0009

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Environmental Hazards Services, L.L.C. recommends reanalysis by point count (for more accurate quantification) or Transmission Electron Microscopy (TEM), for enhanced detection capabilities) for materials regulated by the EPA NESHAP (National Emission Standards for Hazardous Air Pollutants) and found to contain less than ten percent (<10%) asbestos by polarized light microscopy (PLM). Both services are available for an additional fee.

* All California samples analyzed by Polarized Light Microscopy, EPA Method 600/M4-82-020, Dec. 1982.

LEGEND	NAD = no asbestos detected
	SCF = suspected ceramic fibers

plm1.dot/07JAN2002/ MR

20 PLM

ENVIRONMENTAL HAZARDS SERVICES, L.L.C.

oad Richmond, Virginia 23237 Phone (804) 275-4788 Fax (804) 275-4907

SAMPLE CONDITION
Acceptable ✓
Unacceptable

EHS 01-04-3264

CHAIN OF CUSTODY FORM

Company Name: Pi...ade Environmental Consultants, Inc.
Date: 1/27/04
Address: 2088 Ross Ave.
Contact Name: Mike Strine
City, State, Zip: Cincinnati, OH 45212
Sampler Name: Mike Strine
EHS Client Account #: 36-2747 S
Project #: 04-0009
Phone # : (513) 533-1823
Fax #: (513) 533-1859
P.O. #: OH04-030

Sample Number	Sample Date & Time	Asbestos: Bulk ID by PLM	Asbestos: (PCM) Fiber Count	Asbestos: PLM Point Count	Asbestos: PLM Gravimetric	Asbestos: TEM AHERA (Air)	Asbestos: TEM Chatfield (Bulk)	Lead: Air	Lead: Paint (%)	Lead: Paint (PPM)	Lead: Paint (mg/cm²)	Lead: Soil	Lead: Wipe * (See Note)	Lead: TCLP (Pb)	Lead: Waste Water	Other Metals (Specify metals below): TCLP RCRA 8	Other Metals: Welding Fume	Other Metals: Toxic Metal Profile	Other Metals:	Other Metals:	Indoor Air Quality: Biocassette	Indoor Air Quality: Slide	Indoor Air Quality: Surface Swab	Indoor Air Quality: Surface Tape	Indoor Air Quality: Bulk	Particulate: Total Nuisance (NIOSH 0500) ☐ Respirable (NIOSH 0600) ☐ Air Volume (L) OR Wipe Area (ft²) OR Scrape Area(cm²)	Comments
04CC030	1/27/04	X																									
04CC031																											
04CC032																											
04CC033																											
04CC042																											
04CC043																											
04CC044																											
04CC045																											
04CC046																											
04CC047																											

* Do wipe samples submitted meet ASTM E1792 requirements? Yes ☐ No ☐

Released by: Michael D Strine	Signature: MDStrine	Date/Time: 1/27/04 5P
Received by:	Signature:	Date/Time:
Released by:	Signature:	Date/Time:
Received by:	Signature:	Date/Time: 1/29/04 9:40am

137473

ENVIRONMENTAL HAZARDS SERVICES, L.L.C.

7469 Whitepine Road Richmond, Virginia 23237 Phone (804) 275-4788 Fax (804) 275-4907

CHAIN OF CUSTODY FORM

Company Name: Pinnacle Environmental Consultants, Inc. Date: 1/27/04

Address: 2088 Ross Ave. Contact Name: Mike Strine

City, State, Zip: Cincinnati, OH 45212 Sampler Name: Mike Strine

EHS Client Account #: 36-2747 S Project #: 04-0009

Phone #: (513) 533-1823 Fax #: (513) 533-1859

P.O. #: 0H04-030

Sample Number	Sample Date & Time	Asbestos: Bulk ID by PLM	Asbestos: (PCM) Fiber Count	Asbestos: PLM Point Count	Asbestos: PLM Gravimetric	Asbestos: TEM AHERA (Air)	Asbestos: TEM Chatfield (Bulk)	Lead: Air	Lead: Paint (%)	Lead: Paint (PPM)	Lead: Paint (mg/cm²)	Lead: Soil	Lead: Wipe * (See Note)	Lead: TCLP (Pb)	Lead: Waste Water	Other Metals (Specify metals below): TCLP RCRA 8	Other Metals: Welding Fume	Other Metals: Toxic Metal Profile	Other Metals:	Other Metals:	Indoor Air Quality: Biocassette	Indoor Air Quality: Slide	Indoor Air Quality: Surface Swab	Indoor Air Quality: Surface Tape	Indoor Air Quality: Bulk	Air Volume (L) OR Wipe Area (ft²) OR Scrape Area(cm²)	Comments
04CC048	1/21/04	X																									
04CC049																											
04CC050																											Stop analysis @ 1st sample greater than 1%
04CC054																											
04CC055																											
04CC056																											
04CC057																											
04CC058																											
04CC059																											
04CC060																											

Particulate: Total Nuisance (NIOSH 0500) ☐ Respirable (NIOSH 0600) ☐

* Do wipe samples submitted meet ASTM E1792 requirements? Yes ☐ No ☐

Released by: Michael D Strine	Signature: MDS	Date/Time: 1/27/04 5PM
Received by:	Signature:	Date/Time:
Released by:	Signature:	Date/Time:
Received by:	Signature:	Date/Time: 1/29/04 9AM

I38of73

ENVIRONMENTAL HAZARDS SERVICES, L.L.C.

7469 WHITE PINE ROAD - RICHMOND, VA 23237
804-275-4788 FAX 804-275-4907

BULK ASBESTOS SAMPLE ANALYSIS SUMMARY

CLIENT: Pinnacle Environmental Consultants, Inc.
2088 Ross Ave.
Cincinnati, OH 45212

DATE OF RECEIPT: 29 JAN 2004
DATE OF ANALYSIS: 29 JAN 2004
DATE OF REPORT: 30 JAN 2004

CLIENT NUMBER: 36-2747 S
EHS PROJECT #: 01-04-3263
PROJECT: 04-0009

EHS SAMPLE #	CLIENT SAMPLE #/ LABORATORY GROSS DESCRIPTION	% ASBESTOS	OTHER MATERIALS
01	04CC-066/ Pale Tan Fib.; Off-White Brittle	NAD	45% Cellulose 35% Fibrous Glass 20% Non-Fibrous

QC SAMPLE: M2-1998-2

QC BLANK: SRM 1866 Fiberglass

REPORTING LIMIT: 1% Asbestos

METHOD: Polarized Light Microscopy, EPA Method 600/R-93/116 *

ANALYST: Mark Case

Reviewed By Authorized Signatory: Michael A. Mueller

Howard Varner, Laboratory Director
Irma Faszewski, Quality Assurance Coordinator
David Xu, MS, Senior Chemist
Feng Jiang, MS, Senior Geologist
Michael A. Mueller, Quality Assurance Manager

Results represent the analysis of samples submitted by the client. Sample location, description, area, volume, etc., was provided by the client. This report cannot be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without the written consent of Environmental Hazards Services, L.L.C. California Certification #2319 NY ELAP #11714. All information concerning sampling location, date, and time can be found on Chain-of-Custody. Environmental Hazards Services, L.L.C. does not perform any sample collection.

Environmental Hazards Services, L.L.C. recommends reanalysis by point count (for more accurate quantification) or Transmission Electron Microscopy (TEM), for enhanced detection capabilities) for materials regulated by the EPA NESHAP (National Emission Standards for Hazardous Air Pollutants) and found to contain less than ten percent (<10%) asbestos by polarized light microscopy (PLM). Both services are available for an additional fee.

* All California samples analyzed by Polarized Light Microscopy, EPA Method 600/M4-82-020, Dec. 1982.

LEGEND NAD = no asbestos detected
SCF = suspected ceramic fibers

plm1.dot/07JAN2002/ MR

1 PLM

EHS 01-04-3263

IVIRONMENTAL HAZARDS SERVICES, L.L.C.
ad Richmond, Virginia 23237 Phone (804) 275-4788 Fax (804) 275-4907

CHAIN OF CUSTODY FORM

SAMPLE CONDITION
Acceptable ✓
Unacceptable

Company Name: Pinnacle Environmental Consultants, Inc.
Date: 1/27/04
Address: 2088 Ross Ave.
Contact Name: Mike Strine
City, State, Zip: Cincinnati, OH 45212
Sampler Name: Mike Strine
EHS Client Account #: 36-2747 S
Project #: 04-0009
Phone # : (513) 533-1823
Fax #: (513) 533-1859
P.O. #: OH04-032

Sample Number	Sample Date & Time	Asbestos: Bulk ID by PLM	Asbestos: (PCM) Fiber Count	Asbestos: PLM Point Count	Asbestos: PLM Gravimetric	Asbestos: TEM AHERA (Air)	Asbestos: TEM Chatfield (Bulk)	Lead: Air	Lead: Paint (%)	Lead: Paint (PPM)	Lead: Paint (mg/cm²)	Lead: Soil	Lead: Wipe * (See Note)	Lead: TCLP (Pb)	Lead: Waste Water	Other Metals (Specify metals below): TCLP RCRA 8	Other Metals: Welding Fume	Other Metals: Toxic Metal Profile	Other Metals:	Other Metals:	Indoor Air Quality: Biocassette	Indoor Air Quality: Slide	Indoor Air Quality: Surface Swab	Indoor Air Quality: Surface Tape	Indoor Air Quality: Bulk	Air Volume (L) OR Wipe Area (ft²) OR Scrape Area(cm²)	Comments
~~04CC066~~																											
04CC066	1/22/04	X																									

Particulate: Total Nuisance (NIOSH 0500) ☐
Respirable (NIOSH 0600) ☐

* Do wipe samples submitted meet ASTM E1792 requirements? Yes ☐ No ☐

Released by: Michael D. Strine	Signature: [signature]	Date/Time: 1/27/04 - 5PM
Received by:	Signature:	Date/Time:
Released by:	Signature: [signature]	Date/Time:
Received by:	Signature: [signature]	Date/Time: 1/27/04 [illegible]

1 of 73

Pinnacle Env. Consultants, Inc.

2088 Ross Avenue
Cincinnati, Ohio 45212
(513) 533-1823

Client: Pinnacle Env. Consultants, Inc.
Client Address: 2088 Ross Ave., Cinti. OH
Job Name: The Mound - Bldg. DS
Job Number: 04-0009
Date Analyzed: 2/6/2004
Page: 2 of 2

PLM Test Report

Analytical method: Polarized ligh t microscopy using dispersion staining (EPA/600/R-93/116)

Sample I.D. Number	Laboratory I.D. Number	Sample Color	Type of Asbestos	Percentage of Asbestos	Other Fibers	Percentage of Other Fibers	Matrix
04CC-208	04B-997	--	--	STOPPED ANALYSIS	--	--	--
04CC-210	04B-998	BLACK	ND	--	FBGL/CELL	>75/1-5	BINDER
04CC-211	04B-999	BLACK	ND	--	FBGL/CELL	>75<1	BINDER
04CC-214	04B-1000	--	--	STOPPED ANALYSIS	--	--	--
04CC-215	04B-1001	--	--	STOPPED ANALYSIS	--	--	--
04CC-216	04B-1002	WHITE/BLACK	CHRY*	10-15	CELL/FBGL	1-5/15-25	BINDER
(Note* Chrysotile detected in the white fluffy material and the black tar-like material)							
04CC-217	04B-1003	LT. BROWN	ND	--	ND	--	BINDER
04CC-218	04B-1004	WHT/LT. BRN	ND	--	CELL/FBGL	1-5/1-5	BINDER
04CC-219	04B-1005	LT. BROWN	ND	--	ND	--	BINDER
04CC-220	04B-1006	--	--	STOPPED ANALYSIS	--	--	--
04CC-221	04B-1007	--	--	STOPPED ANALYSIS	--	--	--
04CC-222	04B-1008	--	--	STOPPED ANALYSIS	--	--	--

Abbreviations: ND-None Detected, SA-Stopped Analysis, NR- Not Received. Asbestos Type:ACTN-Actinolite, AMOS-Amosite, ANTH-Anthophyllite, CHRY-Chrysotile, CROC- Crocidolite, TREM-Tremolite. Other Fibers: CELL-Cellulose, FBGL-Fiberglass/Mineral wool, OTHR-Other. Matrix: BIND-Binder (unidentified non-fibrous).

NOTE: PLM should not be used to demonstrate the absence of asbestos in floor tiles.

All samples will be held for sixty (60) days then disposed ofunless otherwise requested.

** Denotes that the asbestos content was verified with point counting (EPA/600/R-93/116).

This report relates only to items tested and makes no statement as to the location the samples were collected from, or the contents of surrounding materials.

Multi-layered material which have distinct and separable layers shall be reported separately.

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Turnaround Time: Rush

NVLAP LAB CODE: 200614-0

Revised 10/21/02

Analyst Signature: James R. Jones, Microscopist

141 of 73

(2)

Stop @ 1st positive (>1%) for each of the following sets:

(1) 04CC200, 04CC206, 04CC207, 04CC204

(2) 04CC201, 04CC215, 04CC214, 04CC220, ~~04CC203~~ 04CC203, 04CC208

(3) 04CC202, 04CC210, 04CC211

(4) 04CC216, 04CC221, 04CC222

(5) 04CC217, 04CC218, 04CC219

Pinnacle Environmental Consultants, Inc.

Analysis Request Form

Submission Date: 2/6/04 Time: 7:20 AM

Submitted By: Mike Strine

Analysis Requested:

a) Air – PCM b) Bulk – PLM c) Other:

Turnaround Time:

Normal (2-4 days) Rush (24 hours) Emergency Rush (1/2 hour per sample)

Analyzed 2-6-04 JCF

Total Number of Samples: ~~26~~ 16

Condition of Samples Upon Receipt: (Good) (Poor) – (Accept) (Reject)

Project Name/No.: The Mano- Bldg DS / 04-0009

Sample I.D.: 04CC092 - 04CC097, 04CC200 - 208, 04CC210, 04CC211, 04CC214 - 04CC222 See attached list for stop at 1st 1%

Bill To: Pinnacle PN

Report To: Phone: Fax:

Chain of Custody

Relinquished By:	Date/Time:	Received By:	Date/Time:
[illegible]	2/6/04 - 7:20AM	[illegible]	2-6-04 / 7:20A
[illegible]	2-6-04 / 11:40AM	[illegible]	

Lab Number: 04B 983 - 1008

143 of 73

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

ISO/IEC 17025:1999
ISO 9002:1994

Certificate of Accreditation

DEPARTMENT OF COMMERCE ★ UNITED STATES OF AMERICA ★

ENVIRONMENTAL HAZARDS SERVICES, L.L.C.
RICHMOND, VA

is recognized by the National Voluntary Laboratory Accreditation Program for satisfactory compliance with criteria set forth in NIST Handbook 150:2001, all requirements of ISO/IEC 17025:1999, and relevant requirements of ISO 9002:1994. Accreditation is awarded for specific services, listed on the Scope of Accreditation, for:

BULK ASBESTOS FIBER ANALYSIS

December 31, 2004

Effective through

For the National Institute of Standards and Technology

NVLAP Lab Code: 101882-0

NVLAP-01C (06-01)

1 of 1 13

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

ISO/IEC 17025:1999
ISO 9002:1994

Certificate of Accreditation

DEPARTMENT OF COMMERCE ★ UNITED STATES OF AMERICA ★

PINNACLE ENVIRONMENTAL CONSULTANTS INC.

CINCINNATI, OH

is recognized by the National Voluntary Laboratory Accreditation Program for satisfactory compliance with criteria set forth in NIST Handbook 150:2001, all requirements of ISO/IEC 17025:1999, and relevant requirements of ISO 9002:1994. Accreditation is awarded for specific services, listed on the Scope of Accreditation, for:

BULK ASBESTOS FIBER ANALYSIS

December 31, 2004

Effective through

For the National Institute of Standards and Technology

NVLAP Lab Code: 200614-0

NVLAP-01C (06-01)

National Institute of Standards and Technology

NVLAP®

National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999
ISO 9002:1994

Scope of Accreditation

BULK ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 200614-0

PINNACLE ENVIRONMENTAL CONSULTANTS INC.
2088 Ross Avenue
Cincinnati, OH 45212-2039
Mr. James R. Jones
Phone: 513-533-1823 Fax: 513-533-1859
E-Mail: jjones@pinnacleinc.biz

NVLAP Code	*Designation*
18/A01	EPA-600/M4-82-020: Interim Method for the Determination of Asbestos in Bulk Insulation Samples

December 31, 2004

Effective through

For the National Institute of Standards and Technology

SECTION 4

NOT USED

SECTION 5

MATERIAL QUANTITIES OF ACBM

Per protocol outlined in the Asbestos Hazard Emergency Response Act, the inspector states how the quantities of asbestos-containing building materials (ACBM) were determined. For Building DS these quantities were estimated by using the physical dimensions that were determined from drawings supplied by CH2M Hill Mound, Inc., and then by verifying these dimensions with actual measurements in the building itself.

The quantities of ACBM for each Homogeneous Area can be found in Table 6-1.

SECTION 6

CONCLUSIONS AND RECOMMENDATIONS

Table 6-1 provides an inventory of asbestos-containing building materials (ACBM) identified at the facility and includes ACBM location, material description, homogeneous area number, type of ACM, estimated quantity of material, and assigned EPA material category.

Category I Nonfriable asbestos-containing materials, such as resilient flooring materials, roofing materials, mastics, etc. may typically remain in a building during demolition activities. Due to the potential for concrete grinding or utilizing the concrete for on-site fill, these materials have been included in the attached inventory. If the decision is made to grind concrete or use concrete as fill, the existing asbestos-containing floor tile and/or mastics must first be removed.

Please note that the EPA guidance document, "Demolition Practices Under the Asbestos NESHAP", indicates that waste reduction activities where Category I Nonfriable asbestos-containing materials are present raises a concern related to the handling and disposal of these materials.

According to the EPA guidance document, repeatedly running over waste with tracked vehicles to consolidate the waste is considered grinding, therefore, causing Category I Nonfriable asbestos-containing materials to become friable. If this condition exists, the waste must be kept wet at all times following demolition and during handling and loading for transport disposed of at a site or facility that operates in accordance with NESHAP 61.154 or 61.155. Leak-tight containers or wrapping of waste is not required. This information should be communicated to all demolition contractors being considered for the demolition of these buildings. If waste consolidation is intended, Category I Nonfriable materials must be removed prior to demolition.

Current asbestos laws and regulations require removal of asbestos-containing materials (ACM) prior to initiation of demolition activities. As removal of ACM is necessary, an Ohio Department of Health licensed asbestos abatement contractor must be contracted to perform the removal work and submit necessary regulatory notifications. It is also recommended that a professional third party environmental consultant provide post abatement visual inspections to confirm completion of abatement activities prior to proceeding with demolition.

TABLE 6-1

INSPECTION AND ASSESSMENT SUMMARY

TABLE 6-1
INVENTORY OF ASBESTOS-CONTAINING MATERIAL TABLE
MOUND - BLDG. DS

Material Location	Material Description	* Homo-geneous Area #	Type ACM	Estimated Quantity	Category-Friable/ Nonfriable
The following homogeneous areas are located in Penthouse 301P, Original Bldg.					
Beside, behind, and below return fan -3 (RF-3)	Cementitious fitting insulation between sections of fiberglass pipe insulation	51¥	TSI	55 ftgs	RACM-Friable
South of Air Handler for Zones 3 - 10	Cementitious fitting insulation between sections of fiberglass pipe insulation	51¥	TSI	15 ftgs	RACM-Friable
Near door on North s ide of Penthouse	Cementitious fitting insulation between sections of fiberglass pipe insulation	51¥	TSI	20 ftgs	RACM-Friable
In cabinet south of North door	Silver blanket	5	Misc	1 blanket	RACM-Friable
East area of Penthouse	Cementitious fitting insulation between sections of fiberglass pipe insulation	51¥	TSI	15 ftgs	RACM-Friable
East area of Penthouse (on large pipes)	Cementitious fitting insulation between sections of fiberglass pipe insulation	51¥	TSI	5 ftgs	RACM-Friable
Exterior of Penthouse 301P	Coating/adhesive on corrugated metal panels	6, 3	Misc	5,120 sf	II-Nonfriable
The following homogeneous areas are located in Penthouse 302P, Addtion #1					
North area of Penthouse	Preformed-Block Pipe Insulation on Steam and Condensate lines	52¥	TSI	230 lf	RACM-Friable
South area of Penthouse	Preformed-Block Pipe Insulation on Steam and Condensate lines	52¥	TSI	210 lf	RACM-Friable
South area of Penthouse	Cementitious fitting insulation between sections of fiberglass pipe insulation	51¥	TSI	20 ftgs	RACM-Friable
Inside of Air Handling Units	Preformed-Block Pipe Insulation on Steam and Condensate lines	52¥	TSI	20 linear feet per unit Δ	RACM-Friable
The following homogeneous areas are located in Penthouse 303P, Addtion #2					
North area of Penthouse	Preformed-Block Pipe Insulation on Steam and Condensate lines	52¥	TSI	80 linear feet	RACM-Friable
North area of Penthouse	Cementitious fitting insulation between sections of fiberglass pipe insulation	51¥	TSI	10 ftgs	RACM-Friable
The following homogeneous areas are located on the first floor of the Original Building					
Rooms 109, 109A, 109B, 109C	9" Floor tile and associated mastic	53¥	Misc	900 sf	I-Nonfriable
Room 109B	Cementitious panels inside lab hood	54¥	Misc	60 sf	II-Nonfriable
Room 108	9" Floor tile and associated mastic	53¥	Misc	225 sf	I-Nonfriable
Room 108A	9" Floor tile and associated mastic	53¥	Misc	325 sf	I-Nonfriable
Room 106	9" Floor tile and associated mastic	53¥	Misc	990 sf	I-Nonfriable
Room 106 (near ceiling)	Cementitious fitting insulation between sections of fiberglass pipe insulation	51¥	TSI	7 ftgs	RACM-Friable
Pipe chase between 105 & 105A	Preformed-Block Pipe Insulation debris	52¥	TSI	20 sf	RACM-Friable
Pipe chase between Rooms 105A/C/D & 104/104B	Cementitious fitting insulation between sections of fiberglass pipe insulation	51¥	TSI	2 ftgs	RACM-Friable
Pipe chase between Rooms 105A/C/D & 104/104B	Preformed-Block Pipe Insulation debris	52¥	TSI	60 sf	RACM-Friable
Room 104A	9" Floor tile and associated mastic	53¥	Misc	145 sf	I-Nonfriable

TABLE 6-1
INVENTORY OF ASBESTOS-CONTAINING MATERIAL TABLE
MOUND - BLDG. DS

Material Location	Material Description	*Homo-geneous Area #	Type ACM	Estimated Quantity	Category-Friable/ Nonfriable
First Floor, Original Building, con't.					
Corridor 2	9" Floor tile and associated mastic	53¥	Misc	1,100 sf	I-Nonfriable
Room 101	12" Floor tile and associated mastic	55¥	Misc	300 sf	I-Nonfriable
Stairwell/Entry on North side of bldg. (on two landings)	9" Floor tile and associated mastic	53¥	Misc	130 sf	I-Nonfriable
Room 111 - under carpet	9"/12" Floor tile and associated mastic	53¥/55¥	Misc	110 sf	I-Nonfriable
Room 112 - under carpet	9"/12" Floor tile and associated mastic	53¥/55¥	Misc	145 sf	I-Nonfriable
Room 115 - under carpet	9"/12" Floor tile and associated mastic	53¥/55¥	Misc	310 sf	I-Nonfriable
Rooms 110/110A/110B	9" Floor tile and associated mastic	53¥	Misc	1,440 sf	I-Nonfriable
Rooms 107/107A/107B	9" Floor tile and associated mastic	53¥	Misc	1,200 sf	I-Nonfriable
Room 103	12" Floor tile and associated mastic	55¥	Misc	2,200 sf	I-Nonfriable
Room 113 - under carpet	9"/12" Floor tile and associated mastic	53¥/55¥	Misc	400 sf	I-Nonfriable
Room 113	9"/12" Floor tile and associated mastic	53¥/55¥	Misc	200 sf	I-Nonfriable
Room 116 - under carpet	9"/12" Floor tile and associated mastic	53¥/55¥	Misc	160 sf	I-Nonfriable
Room 116	Mastic associated with glue-on ceiling tile	12	Misc	160 sf	II-Nonfriable
Room 118	9" Floor tile and associated mastic	53¥	Misc	260 sf	I-Nonfriable
Room 118	Cementitious panels inside lab hood	54¥	Misc	120 sf	II-Nonfriable
Room 118	Black lab table top	29	Misc	200 sf	II-Nonfriable
Room 118	Pipe Wrap Tape	18	TSI	6 lf	II-Nonfriable
Room 119	12" Floor tile and associated mastic	55¥	Misc	255 sf	I-Nonfriable
Room 119A	12" Floor tile and associated mastic	55¥	Misc	195 sf	I-Nonfriable
Room 120	12" Floor tile and associated mastic	55¥	Misc	500 sf	I-Nonfriable
Room 120	Black lab table top	29	Misc	30 sf	II-Nonfriable
Room 122	12" Floor tile and associated mastic	55¥	Misc	160 sf	I-Nonfriable
Room 122	Black lab table top	29	Misc	15 sf	II-Nonfriable
Room 122	12" Floor tile and associated mastic	55¥	Misc	485 sf	I-Nonfriable
Room 121	Black lab table tops	29	Misc	55 sf	II-Nonfriable
Room 121	Cementitious panels inside lab hood	54¥	Misc	60 sf	II-Nonfriable
Room 121	Cementitious panel inside cabinet	54¥	Misc	3 sf	II-Nonfriable
Room 124	Black lab table tops	29	Misc	35 sf	II-Nonfriable
Room 124	Cementitious panels inside lab hood	54¥	Misc	60 sf	II-Nonfriable
Rooms 126/126A/126B	12" Floor tile and associated mastic	55¥	Misc	490 sf	I-Nonfriable
Rooms 126/126A/126B	Black lab table top	29	Misc	20 sf	II-Nonfriable
Rooms 125/125A/125B	12" Floor tile and associated mastic	55¥	Misc	1,250 sf	I-Nonfriable
Room 125B	Cementitious panels inside lab hood	54¥	Misc	60 sf	II-Nonfriable

TABLE 6-1
INVENTORY OF ASBESTOS-CONTAINING MATERIAL TABLE
MOUND - BLDG. DS

Material Location	Material Description	* Homo-geneous Area #	Type ACM	Estimated Quantity	Category-Friable/ Nonfriable
First Floor, Original Building, con't.					
Room 125B (along South wall)	Cementitious panel on front of table	54¥	Misc	1 sf	II-Nonfriable
Room 125B	Gaskets in explosion-proof lights (four lights)	56¥	Misc	40 lf	RACM-Friable
Rooms 127/127B/127C	12" Floor tile and associated mastic	55¥	Misc	645 sf	I-Nonfriable
Room 127	Black lab table tops	29	Misc	120 sf	II-Nonfriable
Room 127A	9" Floor tile and associated mastic	53¥	Misc	80 sf	I-Nonfriable
Rooms 123/12A	12" Floor tile and associated mastic	55¥	Misc	1,050 sf	I-Nonfriable
Corridor 4	9" Floor tile and associated mastic	53¥	Misc	840 sf	I-Nonfriable
Corridor between Corridor 4 and the Connector	12" Floor tile and associated mastic	55¥	Misc	165 sf	I-Nonfriable
Corridor 3	9" Floor tile and associated mastic	53¥	Misc	445 sf	I-Nonfriable
Room 202	12" Floor tile and associated mastic	55¥	Misc	275 sf	I-Nonfriable
Room 202	Gaskets in explosion-proof lights (ten lights)	56¥	Misc	100 lf	RACM-Friable
Room 203	12" Floor tile and associated mastic	55¥	Misc	265 sf	I-Nonfriable
Room 203	Gaskets in explosion-proof lights (ten lights)	56¥	Misc	100 lf	RACM-Friable
Room 203 - under carpet	9"/12" Floor tile and associated mastic	55¥	Misc	500 sf	I-Nonfriable
Room 203	Gaskets in explosion-proof lights (thirteen lights)	56¥	Misc	130 lf	RACM-Friable
Room 205B - under carpet	9"/12" Floor tile and associated mastic	55¥	Misc	180 sf	I-Nonfriable
Room 203	Gaskets in explosion-proof lights (six lights)	56¥	Misc	60 lf	RACM-Friable
Room 205	12" Floor tile and associated mastic	55¥	Misc	900 sf	I-Nonfriable
Room 205	Gaskets in explosion-proof lights (twenty-five lights)	56¥	Misc	250 lf	RACM-Friable
Room 209/209A	12" Floor tile and associated mastic	55¥	Misc	900 sf	I-Nonfriable
Room 209/209A	Gaskets in explosion-proof lights (nineteen lights)	56¥	Misc	190 lf	RACM-Friable
Room 212/212A	12" Floor tile and associated mastic	55¥	Misc	375 sf	I-Nonfriable
Room 212/212A	Gaskets in explosion-proof lights (twelve lights)	56¥	Misc	120 lf	RACM-Friable
Room 213/213A (approx. 50% under carpet)	12" Floor tile and associated mastic	55¥	Misc	600 sf	I-Nonfriable
Room 208/208A/208B/208C	12" Floor tile and associated mastic	55¥	Misc	940 sf	I-Nonfriable
Room 207	12" Floor tile and associated mastic	55¥	Misc	395 sf	I-Nonfriable
Room 207	Gaskets in explosion-proof lights (six lights)	56¥	Misc	60 lf	RACM-Friable

TABLE 6-1
INVENTORY OF ASBESTOS-CONTAINING MATERIAL TABLE
MOUND - BLDG. DS

Material Location	Material Description	* Homo-geneous Area #	Type ACM	Estimated Quantity	Category-Friable/ Nonfriable
First Floor, Original Building, con't.					
Room 207	Cementitious panels inside lab hood	54¥	Misc	120 sf	II-Nonfriable
Room 206	12" Floor tile and associated mastic	55¥	Misc	355 sf	I-Nonfriable
Room 206	Pipe Wrap Tape	18	TSI	6 lf	II-Nonfriable
Room 201- under carpet	9"/12" Floor tile and associated mastic	55¥	Misc	200 sf	I-Nonfriable
Room 201	Gaskets in explosion-proof lights (nine lights)	56¥	Misc	90 lf	RACM-Friable
Corridors 5/6	12" Floor tile and associated mastic	55¥	Misc	910 sf	I-Nonfriable
Room 214	12" Floor tile and associated mastic	55¥	Misc	485 sf	I-Nonfriable
Room 214	Gaskets in explosion-proof lights (fifteen lights)	56¥	Misc	150 lf	RACM-Friable
Room 214	Cementitious panels inside lab hood	54¥	Misc	60 sf	II-Nonfriable
Room 217	12" Floor tile and associated mastic	55¥	Misc	410 sf	I-Nonfriable
Room 217	Gaskets in explosion-proof lights (eight lights)	56¥	Misc	80 lf	RACM-Friable
Room 217	Cementitious panels inside lab hood	54¥	Misc	60 sf	II-Nonfriable
Room 215	12" Floor tile and associated mastic	55¥	Misc	225 sf	I-Nonfriable
Room 216	12" Floor tile and associated mastic	55¥	Misc	10 sf	I-Nonfriable
Room 216	Cementitious fitting insulation between sections of fiberglass pipe insulation	51¥	TSI	2 ftgs	RACM-Friable
Corridor 7	12" Floor tile and associated mastic	55¥	Misc	500 sf	I-Nonfriable
Room 219	12" Floor tile and associated mastic	55¥	Misc	85 sf	I-Nonfriable
Room 219	Cementitious fitting insulation between sections of fiberglass pipe insulation	51¥	TSI	10 ftgs	RACM-Friable
Room 221	12" Floor tile and associated mastic	55¥	Misc	325 sf	I-Nonfriable
Room 221	Gaskets in explosion-proof lights (twelve lights)	56¥	Misc	120 lf	RACM-Friable
Room 221A	12" Floor tile and associated mastic	55¥	Misc	275 sf	I-Nonfriable
Room 221A	Gaskets in explosion-proof lights (fourteen lights)	56¥	Misc	140 lf	RACM-Friable
Room 221B	12" Floor tile and associated mastic	55¥	Misc	260 sf	I-Nonfriable
Room 221B	Gaskets in explosion-proof lights (six lights)	56¥	Misc	60 lf	RACM-Friable
Room 221C	12" Floor tile and associated mastic	55¥	Misc	260 sf	I-Nonfriable
Room 221C	Gaskets in explosion-proof lights (six lights)	56¥	Misc	60 lf	RACM-Friable
Room 221D	12" Floor tile and associated mastic	55¥	Misc	260 sf	I-Nonfriable
Room 221D	Gaskets in explosion-proof lights (six lights)	56¥	Misc	60 lf	RACM-Friable

TABLE 6-1
INVENTORY OF ASBESTOS-CONTAINING MATERIAL TABLE
MOUND - BLDG. DS

Material Location	Material Description	* Homo-geneous Area #	Type ACM	Estimated Quantity	Category-Friable/ Nonfriable
First Floor, Original Building, con't.					
Room 221D	Preformed-Block Pipe Insulation	52¥	TSI	40 lf	RACM-Friable
Room 221D	Pipe Wrap Tape	18	TSI	6 lf	II-Nonfriable
Room 221E	12" Floor tile and associated mastic	55¥	Misc	180 sf	I-Nonfriable
Room 221E	Gaskets in explosion-proof lights (two lights)	56¥	Misc	20 lf	RACM-Friable
Room 221F	12" Floor tile and associated mastic	55¥	Misc	145 sf	I-Nonfriable
Room 221F	Gaskets in explosion-proof lights (three lights)	56¥	Misc	30 lf	RACM-Friable
Room 224	12" Floor tile and associated mastic	55¥	Misc	475 sf	I-Nonfriable
Room 224	Gaskets in explosion-proof lights (seventeen lights)	56¥	Misc	170 lf	RACM-Friable
Room 226	12" Floor tile and associated mastic	55¥	Misc	525 sf	I-Nonfriable
Room 226	Gaskets in explosion-proof lights (twenty lights)	56¥	Misc	200 lf	RACM-Friable
Room 227/227A/227B	12" Floor tile and associated mastic	55¥	Misc	630 sf	I-Nonfriable
Room 227/227A/227B	Gaskets in explosion-proof lights (twenty lights)	56¥	Misc	200 lf	RACM-Friable
Room 227B	Pipe Wrap Tape	18	TSI	20 lf	II-Nonfriable
Room 225/225A	12" Floor tile and associated mastic	55¥	Misc	380 sf	I-Nonfriable
Room 225/225A	Gaskets in explosion-proof lights (sixteen lights)	56¥	Misc	160 lf	RACM-Friable
Room 218	12" Floor tile and associated mastic	55¥	Misc	1,150 sf	I-Nonfriable
Room 218	Gaskets in explosion-proof lights (eighteen lights)	56¥	Misc	180 lf	RACM-Friable
Room 223	12" Floor tile and associated mastic	55¥	Misc	255 sf	I-Nonfriable
Room 223	Gaskets in explosion-proof lights (six lights)	56¥	Misc	60 lf	RACM-Friable
Room 223	Cementitious panels inside lab hood	54¥	Misc	60 sf	II-Nonfriable
Room 222	12" Floor tile and associated mastic	55¥	Misc	255 sf	I-Nonfriable
Room 222	Gaskets in explosion-proof lights (six lights)	56¥	Misc	60 lf	RACM-Friable
Room 222	Cementitious panels inside lab hood	54¥	Misc	60 sf	II-Nonfriable
Room 220	12" Floor tile and associated mastic	55¥	Misc	255 sf	I-Nonfriable
Room 220	Gaskets in explosion-proof lights (three lights)	56¥	Misc	30 lf	RACM-Friable
Corridor 8	12" Floor tile and associated mastic	55¥	Misc	910 sf	I-Nonfriable

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TABLE 6-1
INVENTORY OF ASBESTOS-CONTAINING MATERIAL TABLE
MOUND - BLDG. DS

Material Location	Material Description	* Homo-geneous Area #	Type ACM	Estimated Quantity	Category-Friable/ Nonfriable
The following homogeneous areas are located on the first floor of Addition #1, West end of Original Building					
Room 234	9" Floor tile and associated mastic	53¥	Misc	600 sf	I-Nonfriable
Rooms 234	Gaskets in explosion-proof lights (six lights)	56¥	Misc	60 lf	RACM-Friable
Rooms 241/235	12" Floor tile and associated mastic	55¥	Misc	575 sf	I-Nonfriable
Rooms 241/235	Gaskets in explosion-proof lights (four lights)	56¥	Misc	30 lf	RACM-Friable
Rooms 242/243	9" Floor tile and associated mastic	53¥	Misc	580 sf	I-Nonfriable
Room 245	12" Floor tile and associated mastic	55¥	Misc	675 sf	I-Nonfriable
Room 245	Cementitious panels inside lab hood	54¥	Misc	60 sf	II-Nonfriable
Room 245	Black lab table tops	29	Misc	60 sf	II-Nonfriable
Room 257	12" Floor tile and associated mastic	55¥	Misc	375 sf	I-Nonfriable
Room 257	Black lab table tops	29	Misc	35 sf	II-Nonfriable
Rooms 248/249/250 (partially under carpet)	9" Floor tile and associated mastic	53¥	Misc	650 sf	I-Nonfriable
Room 251B	9" Floor tile and associated mastic	53¥	Misc	300 sf	I-Nonfriable
Room 251	9" Floor tile and associated mastic	53¥	Misc	625 sf	I-Nonfriable
Room 251A	9" Floor tile and associated mastic	53¥	Misc	300 sf	I-Nonfriable
Corridor 252	9" Floor tile and associated mastic	53¥	Misc	125 sf	I-Nonfriable
Corridor 257	9" Floor tile and associated mastic	53¥	Misc	600 sf	I-Nonfriable
Pipe Chase between Rooms 253 and 255/256	Cementitious fitting insulation between sections of fiberglass pipe insulation	51¥	TSI	10 ftgs	RACM-Friable
Room 254	Cementitious fitting insulation between sections of fiberglass pipe insulation	51¥	TSI	5 ftgs	RACM-Friable
Room 229B	9" Floor tile and associated mastic	53¥	Misc	220 sf	I-Nonfriable
Room 229A	9" Floor tile and associated mastic	53¥	Misc	240 sf	I-Nonfriable
Rooms 229/229D	9" Floor tile and associated mastic	53¥	Misc	1,200 sf	I-Nonfriable
Rooms 229/229D	Gaskets in explosion-proof lights (twenty-two lights)	56¥	Misc	220 lf	RACM-Friable
Room 233	9" Floor tile and associated mastic	53¥	Misc	580 sf	I-Nonfriable
Room 231	9" Floor tile and associated mastic	53¥	Misc	375 sf	I-Nonfriable
Room 231 (near center of West wall)	Pipe Wrap Tape	18	TSI	6 lf	II-Nonfriable
Corridor 244	9" Floor tile and associated mastic	53¥	Misc	600 sf	I-Nonfriable
Corridor 232	9" Floor tile and associated mastic	53¥	Misc	385 sf	I-Nonfriable

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TABLE 6-1
INVENTORY OF ASBESTOS-CONTAINING MATERIAL TABLE
MOUND - BLDG. DS

Material Location	Material Description	* Homo-geneous Area #	Type ACM	Estimated Quantity	Category-Friable/ Nonfriable
The following homogeneous areas are located on the first floor of Addition #2, East end of Original Building					
Room 134	12" Floor tile and associated mastic on raised flooring system	55¥	Misc	420 sf	I-Nonfriable
Rooms 135/135A/135B	12" Floor tile and associated mastic on raised flooring system	55¥	Misc	1,020 sf	I-Nonfriable
Rooms 135/135A/135B (below raised flooring system)	Cementitious fitting insulation between sections of fiberglass pipe insulation	51¥	TSI	25 ftgs	RACM-Friable
Rooms 135/135A/135B (below raised flooring system)	Preformed-Block Pipe Insulation	52¥	TSI	5 lf	RACM-Friable
Room 135A ((north and east walls)	Cementitious wall panels	19	Misc	400 sf	II-Nonfriable
Room 135B	Cementitious panels inside lab hood	54¥	Misc	75 sf	II-Nonfriable
Room 135B	Black lab table top	29	Misc	25 sf	II-Nonfriable
North Corridor (above suspended ceiling system)	Cementitious fitting insulation between sections of fiberglass pipe insulation	51¥	TSI	5 ftgs	RACM-Friable
Rooms 133/133A-under carpet	12" Floor tile and associated mastic on raised flooring system	55¥	Misc	1,300 sf	I-Nonfriable
Rooms 133/133A (below raised flooring system)	Cementitious fitting insulation between sections of fiberglass pipe insulation	51¥	TSI	25 ftgsΔ	RACM-Friable
Rooms 133/133A (below raised flooring system)	Preformed-Block Pipe Insulation	52¥	TSI	20 lfΔ	RACM-Friable
South Corridor (above suspended ceiling system)	Cementitious fitting insulation between sections of fiberglass pipe insulation	51¥	TSI	10 ftgs	RACM-Friable
South Corridor	Black lab table top	29	Misc	15 sf	II-Nonfriable
Room 131	Black lab table top	29	Misc	30 sf	II-Nonfriable
Room129 (below raised flooring system)	Cementitious fitting insulation between sections of fiberglass pipe insulation	51¥	TSI	15 ftgs	RACM-Friable
The following homogeneous areas are located in the connector on the South side of Original Building					
Corridor 425	12" Floor tile and associated mastic	55¥	Misc	720 sf	I-Nonfriable
The following homogeneous areas are located above the ceiling system of the Original Building					
Above Room 105A	Preformed-Block Pipe Insulation debris	52¥	TSI	200 sf	RACM-Friable
North of Corridor 2, East of Room 105	Cementitious fitting insulation between sections of fiberglass pipe insulation	51¥	TSI	50 ftgs	RACM-Friable
North of Corridor 2, East of Room 105	Pipe Wrap Tape	18	TSI	100 lf	II-Nonfriable
North of Corridor 2, West of Room 105	Cementitious fitting insulation between sections of fiberglass pipe insulation	51¥	TSI	50 ftgs	RACM-Friable
North of Corridor 2, West of Room 105	Pipe Wrap Tape	18	TSI	50 lf	II-Nonfriable
Corridor 2, near Room 105	Preformed-Block Pipe Insulation debris	52¥	TSI	20 sf	RACM-Friable

TABLE 6-1
INVENTORY OF ASBESTOS-CONTAINING MATERIAL TABLE
MOUND - BLDG. DS

Material Location	Material Description	*Homo-geneous Area #	Type ACM	Estimated Quantity	Category-Friable/ Nonfriable
Above Original Building ceilings, con't.					
Corridor 2, East of stairwell	Preformed-Block Pipe Insulation debris	52¥	TSI	100 sf	RACM-Friable
North of West end of Corridor 4	Cementitious fitting insulation between sections of fiberglass pipe insulation	51¥	TSI	25 ftgs	RACM-Friable
South of Corridor 4	Cementitious fitting insulation between sections of fiberglass pipe insulation	51¥	TSI	60 ftgs	RACM-Friable
South of Corridor 4	Pipe Wrap Tape	18	TSI	250 lf	II-Nonfriable
South of Corridor 4	Paper Debris	23	TSI	200 sf	RACM-Friable
South of Corridor 8	Cementitious fitting insulation between sections of fiberglass pipe insulation	51¥	TSI	60Δ ftgs	RACM-Friable
South of Corridor 8	Pipe Wrap Tape	18	TSI	40 lf	II-Nonfriable
Corridor 7	Cementitious fitting insulation between sections of fiberglass pipe insulation	51¥	TSI	10 ftgs	RACM-Friable
Corridor 7	Pipe Wrap Tape	18	TSI	40 lf	II-Nonfriable
North of Corridor 8 and West of Corridor 7	Cementitious fitting insulation between sections of fiberglass pipe insulation	51¥	TSI	10 ftgs	RACM-Friable
North of Corridor 8 and West of Corridor 7	Pipe Wrap Tape	18	TSI	250 lf	II-Nonfriable
Corridor 5	Pipe Wrap Tape	18	TSI	5 lf	II-Nonfriable
The following homogeneous areas are located above the ceiling system of Addition #1, West end of Original Building					
South of Corridor 257	Cementitious fitting insulation between sections of fiberglass pipe insulation	51¥	TSI	65 ftgs	RACM-Friable
Between Corridors 257 and 244	Cementitious fitting insulation between sections of fiberglass pipe insulation	51¥	TSI	5 ftgs	RACM-Friable
Between Corridors 257 and 244	Pipe Wrap Tape	18	TSI	15 lf	II-Nonfriable
Between Corridors 257 and 244 (near West wall)	Preformed-Block Pipe Insulation debris	52¥	TSI	150 sf	RACM-Friable
Between Corridors 257 and 244	Preformed-Block Pipe Insulation	52¥	TSI	100 lf	RACM-Friable
Corridor 244 and North of 244	Cementitious fitting insulation between sections of fiberglass pipe insulation	51¥	TSI	15 ftgs	RACM-Friable
Corridor 244 and North of 244	Pipe Wrap Tape	18	TSI	20 lf	II-Nonfriable
The following homogeneous areas are located on the exterior of Building DS					
Between specified pipe rack support and NE corner of Bldg DS	Preformed-Block Pipe Insulation on Steam supply	45	TSI	75 lf	RACM-Friable
Between specified pipe rack support and NE corner of Bldg DS	Black tar paper over fibrous pipe insulation on Lower Brine Supply and Return	46	TSI	150 lf	II-Nonfriable
Near NE corner of Bldg DS	Black tar paper over fiberglass pipe insulation on Steam condensate	46	TSI	25 lf	II-Nonfriable
NE corner of Bldg DS (Horizontal Lines)	Preformed-Block Pipe Insulation on Steam supply and condensate (under metal jacket)	45	TSI	60 lf	RACM-Friable

TABLE 6-1
INVENTORY OF ASBESTOS-CONTAINING MATERIAL TABLE
MOUND - BLDG. DS

Material Location	Material Description	* Homo-geneous Area #	Type ACM	Estimated Quantity	Category-Friable/ Nonfriable
Exterior of Building DS, con't.					
Abandoned pipe East of NE corner of Bldg DS	Black Tar	48	TSI	1 lf	II-Nonfriable
NE corner of Bldg DS (Vertical Lines)	Preformed-Block Pipe Insulation on Steam supply and condensate	45	TSI	40 lf	RACM-Friable
NE corner of Bldg DS (Vertical Lines)	Black tar paper over fibrous pipe insulation on Brine Supply and Return (under metal jacket)	46	TSI	60 lf	II-Nonfriable
On Northeast corner of roof	Preformed-Block Pipe Insulation on Steam supply and condensate	45	TSI	150 lf	RACM-Friable
On roof, East of Center Pentouse	Black tar paper over fiberglass pipe insulation on Steam supply (under metal jacket)	46	TSI	65 lf	II-Nonfriable
On roof, East of Center Pentouse	Black tar paper over Cementitious fitting insulation between sections of fiberglass pipe insulation	46/49	TSI	2 ftgs	RACM-Friable
On roof, East of West Penthouse (SE corner of East Penthouse)	Preformed-Block Pipe Insulation on Steam supply and condensate (under metal jacket)	45	TSI	20 lf	RACM-Friable
Pipe Rack on South side of Bldg DS (from SE corner to 35' West)	Preformed-Block Pipe Insulation on Steam supply (under metal jacket)	45	TSI	35 lf	RACM-Friable
Pipe Rack on South side of Bldg DS	Black tar paper over fiberglass pipe insulation on Steam and condensate (under metal jacket)	46	TSI	250 lf	II-Nonfriable
Runoffs to Bldg DS approx 50' West of SE corner	Black tar paper over fiberglass pipe insulation on Steam and condensate (horizontal under metal jacket)	46	TSI	25 lf	II-Nonfriable
Runoffs to Bldg DS approx 50' West of SE corner	Black tar paper over Cementitious fitting insulation between sections of fiberglass pipe insulation	46/49	TSI	3 ftgs	RACM-Friable
Pipe Rack on South side of Bldg DS (near and over connector)	Black tar paper over fiberglass pipe insulation on Steam and condensate (under metal jacket)	46	TSI	150 lf	II-Nonfriable
West of Connector to Southwest corner of Bldg DS	Black tar paper over fiberglass pipe insulation on Steam and condensate (under metal jacket)	46	TSI	200 lf	II-Nonfriable
West of Connector to Southwest corner of Bldg DS	Black tar paper over Cementitious fitting insulation between sections of fiberglass pipe insulation	46/49	TSI	3 ftgs	RACM-Friable
West of Connector approx 90' West of Connector	Preformed-Block Pipe Insulation (under metal jacket)	45	TSI	60 lf	RACM-Friable
Throughout Building	Firestop around pipe penetrations	17	Misc	Undetermined	I-Nonfriable

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TABLE 6-1
INVENTORY OF ASBESTOS-CONTAINING MATERIAL TABLE
MOUND - BLDG. DS

NOTES:

Δ = Quantity estimated due to access limitations
¥ - Material identified as asbestos-containing during previous inspections
lf = linear feet
Misc = Miscellaneous
sf = square feet
surf = surfacing
TSI = Thermal System Insulation

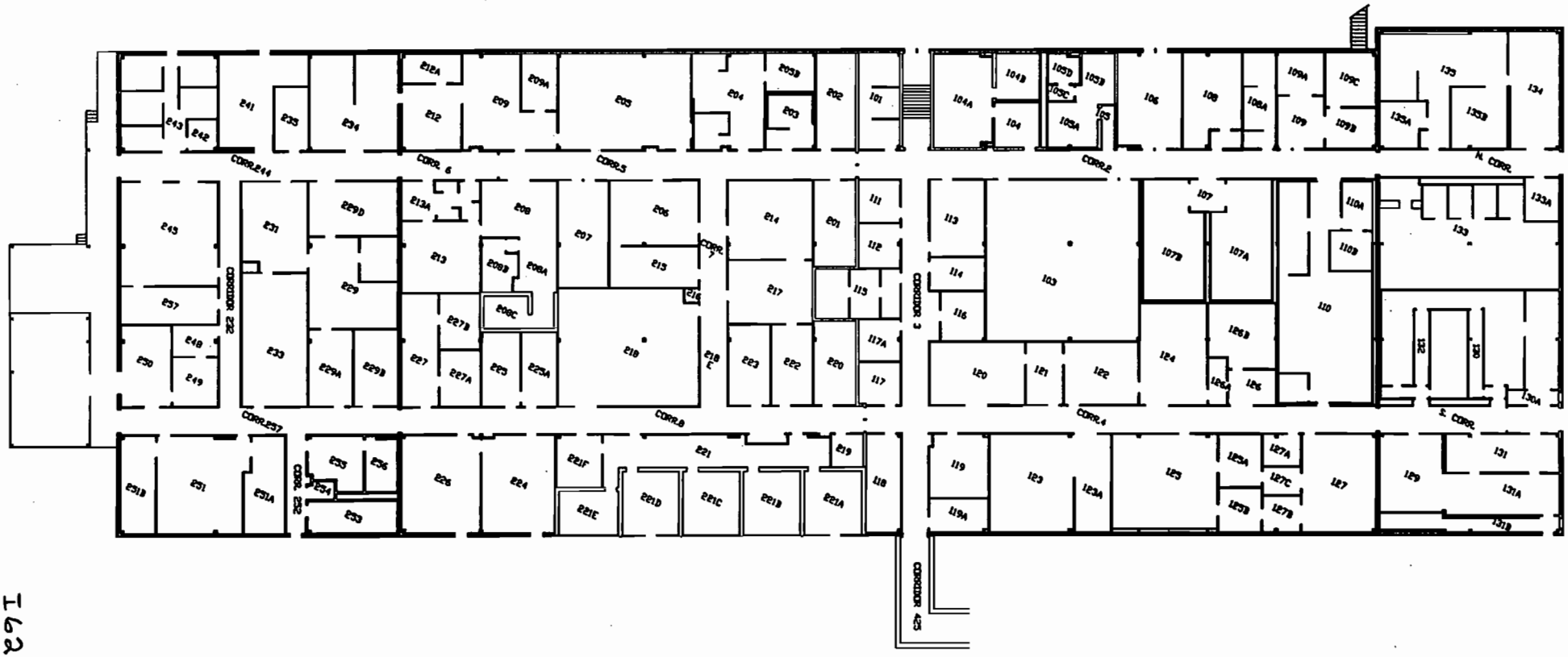
EPA Categories

RACM - Regulated Asbestos-Containing Materials (Friable)
Category I Nonfriable - resilient flooring, roofing products, gaskets, packings
Category II Nonfriable - All other non-friable asbestos-containing materials

160 of 73

APPENDIX A

FLOOR PLANS



MOUND

Environmental

SHEET	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
ISSUE																					

SHEET	1	2	3	4	5	6
ISSUE	•					

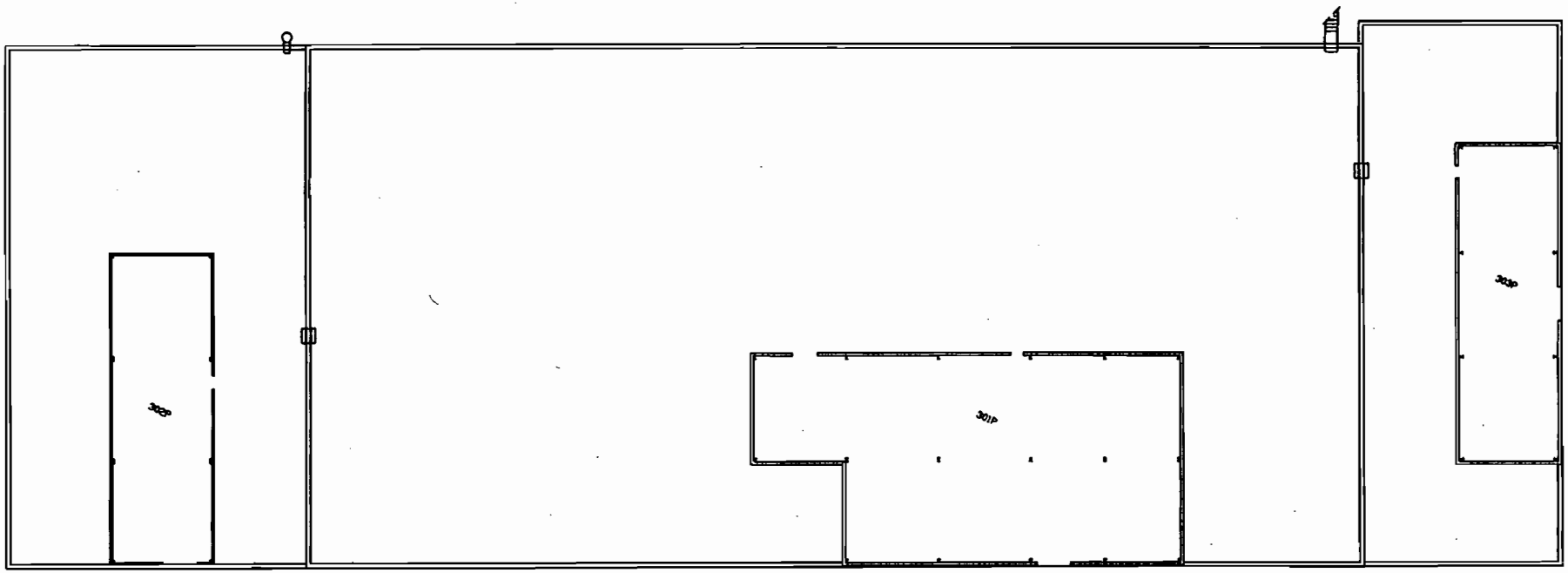
PART CLASSIFICATION

DRAWING CLASSIFICATION
UNCLASSIFIED

DS Building
Floor Plans
First Floor

SIZE | DRAWING NUMBER | JOB NUMBER

162 of 73



163473

ISS	DATE	REVISION	BY	CHKR	ENG	LP&EC	APVD	M

MOUND

Environmental Restoration Geographic Information System

SHEET	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
ISSUE																					

SHEET	1	2	3	4	5	6
ISSUE	•					

PART CLASSIFICATION

DS Building
Floor Plans
Penthouse

DRAWING CLASSIFICATION: UNCLASSIFIED

SIZE | DRAWING NUMBER: bDSfp.DWG | JOB NUMBER

DWG TYPE STE | PRMG ER-GIS | CAGEC | SCALE | SHEET 1 OF

STATUS MD-REL-**/**/** | ORIGIN AUTOCAD

APPENDIX B

INSPECTOR'S CERTIFICATES AND ACCREDITATIONS

OHIO DEPARTMENT OF HEALTH

246 North High Street
Post Office Box 118
Columbus, Ohio 43216-0118

Telephone: (614) 466-3543
www.odh.state.oh.us

BOB TAFT
Governor

J. NICK BAIRD, M.D.
Director of Health

June 06, 2003

Pinnacle Environmental Consultants, Inc.
2088 Ross Avenue
Cincinnati, OH 45212

ATTN: Michael Strine

RE: Evaluation Specialist Certification # 3036

Dear Michael Strine:

This letter is to inform you that you have been certified by this department as an Asbestos Hazard Evaluation Specialist.

Included with this letter is your identification card. Proof of certification must be available for review at any relevant project.

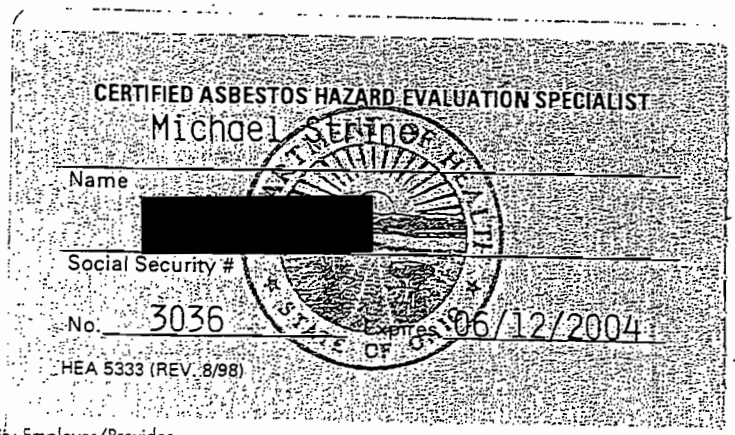
This certification may be revoked by the Director of Health for violation of any of the requirements of 3701-34 of the Ohio Administrative Code.

This certification will expire on JUN-12-2004.

If you have any questions regarding your identification card please call and speak with the asbestos licensing staff at (614)644-0226.

Sincerely,

Bridgette C. Smith
Licensure Administrator
Asbestos Program
Division of Quality Assurance



I 65 of 73

An Equal Opportunity Employer/Provider

The InService Training Network

Asbestos Building Inspector
Refresher Course

Mike Strine

[redacted]

has successfully completed the Asbestos Building Inspector Refresher Course and passed by at least 70% the course examination for accreditation under Section 206 of the Toxic Substance Control Act, Title II, and Indiana 32 IAC 18-2 provided by: The InService Training Network, 6813 Flags Center Dr., Columbus, OH 43229 (614) 895-9323

Course Date: May 17, 2003

Examination Date: May 17, 2003

Course Director: K V
Kurt Varga

Expiration: May 17, 2004

Certificate Number: ITN-IR-2229

The InService Training Network

Asbestos Management Planner
Refresher Course

Mike Strine

[redacted]

has successfully completed the Asbestos Management Planner Refresher Course and passed by at least 70% the course examination for accreditation under Section 206 of the Toxic Substance Control Act, Title II, and Indiana 32 IAC 18-2 provided by: The InService Training Network, 6813 Flags Center Dr., Columbus, OH 43229 (614) 895-9323

Course Date: May 17, 2003

Examination Date: May 17, 2003

Course Director: K V
Kurt Varga

Expiration: May 17, 2004

Certificate Number: ITN-MR-2229

I66of7

OHIO DEPARTMENT OF HEALTH

246 North High Street
Post Office Box 118
Columbus, Ohio 43216-0118

Telephone: (614) 466-3543
www.odh.state.oh.us

BOB TAFT
Governor

J. NICK BAIRD, M.D.
Director of Health

November 06, 2003

Pinnacle Environmental Consultanst, Inc.
2088 Ross Avenue
Cincinnati, OH 45212

ATTN: Clark Combs

RE: Evaluation Specialist Certification # 33158

Dear Clark Combs:

This letter is to inform you that you have been certified by this department as an Asbestos Hazard Evaluation Specialist.

Included with this letter is your identification card. Proof of certification must be available for review at any relevant project.

This certification may be revoked by the Director of Health for violation of any of the requirements of 3701-34 of the Ohio Administrative Code.

This certification will expire on NOV-06-2004.

If you have any questions regarding your identification card please call and speak with the asbestos licensing staff at (614)644-0226.

Sincerely,

Bridgette C. Smith
Licensure Administrator
Asbestos Program
Division of Quality Assurance

Certified Asbestos Hazard Evaluation Specialist

Name: Clark Combs

Social Security #: [redacted]

No. 33158 Expires 11/06/2004

HEA 5333 (Rev.4/03)

I67of73

An Equal Opportunity

The InService Training Network

Asbestos Building Inspector
Initial Course

Clark W. Combs

[redacted]

has successfully completed the Asbestos Building Inspector Initial Course and passed by at least 70% the course examination for accreditation under Section 206 of the Toxic Substance Control Act, Title II, and Indiana 326 IAC 18-2 provided by: The InService Training Network, 6813 Flags Center Dr., Columbus, OH 43229 (614) 895-9323

Course Dates: October 13-15, 2003

Examination Date: October 15, 2003

Course Director: K Varga
Kurt Varga

Expiration: October 15, 2004

Certificate Number: ITN-II-1225

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All Rights Reserved

LITHO. IN U.S.A.

The InService Training Network

Asbestos Management Planner
Initial Course

Clark W. Combs

[redacted]

has successfully completed the Asbestos Management Planner Initial Course and passed by at least 70% the course examination for accreditation under Section 206 of the Toxic Substance Control Act, Title II, and Indiana 326 IAC 18-2 provided by: The InService Training Network, 6813 Flags Center Dr., Columbus, OH 43229 (614) 895-9323

Course Dates: October 16-17, 2003

Examination Date: October 17, 2003

Course Director: K Va
Kurt Varga

Expiration: October 17, 2004

Certificate Number: ITN-MI-1225

APPENDIX C

GLOSSARY

Accessible - when referring to ACBM means that the material is subject to disturbance by building occupants or custodial or maintenance personnel in the course of their normal activities.

Air Erosion - when referring to ACBM means the passage of air over friable ACBM which may result in the release of asbestos fibers.

Asbestos - the asbestiform varieties of: chrysotile, crocidolite, amosite, anthophyllite, tremolite, and actinolite.

Asbestos-Containing Material (ACM) - any material or product containing more than one (1) percent asbestos.

Asbestos-Containing Building Material (ACBM) - surfacing ACM, thermal system insulation ACM, or miscellaneous ACM that is found in or on interior structural members or other parts of a building.

Asbestos Hazard Abatement Activity - any activity involving the removal, renovation, enclosure, repair, or encapsulation of friable ACM in an amount exceeding established Federal, State, and/or Local limits.

Asbestos Hazard Abatement Contractor - a business or public entity that engages in or intends to engage in asbestos hazard abatement activities under contract. An asbestos hazard abatement contractor does not mean a business entity or the full-time employees of a business entity that otherwise is required to comply with all applicable standards of the USEPA and the USOSHA and which engages in an asbestos hazard abatement activity or activities solely at its own place or places of business nor does it mean work performed by an individual within his own home.

Asbestos Hazard Evaluation Specialist (AHES) - a person responsible for evaluation of the health hazards associated with the presence of friable ACM or for establishing or monitoring procedures in asbestos hazard abatement activities for the purpose of protecting the public health from the hazards associated with exposure to asbestos.

Condition of surfacing and miscellaneous material-

A. Poor Condition (equivalent to "significantly damaged")

Material with one or more of the following characteristics:

1. Surface crumbling or blistering over at least one tenth of the surface if the damage is evenly distributed (one quarter if damage is localized).

2. Large areas of material hanging from the surface, delaminating, or showing adhesive failure.

3. Water stains, gouges, or mars over at least one tenth of the surface if the damage is evenly distributed (one quarter if the damage is localized).

Accumulation of powder, dust, or debris similar in appearance to the suspect material on surfaces beneath the material can be used as confirmatory evidence.

B. **Fair Condition (equivalent to "damaged")**

Material with the following characteristics:

1. The surface crumbling, blistered, water-stained, gouged, marred or otherwise abraded over less than one tenth of the surface if the damage is evenly distributed (one quarter if the damage is localized).

Accumulation of powder, dust, or debris similar in appearance to the suspect material on surfaces beneath the material can be used as confirmatory evidence.

C. **Good Condition**

Material with no visible damage or deterioration, or showing very limited damage or deterioration.

Condition of thermal system insulation-

A. **Poor Condition (equivalent to "significant damage")**

Material with one or more of the following characteristics:

1. Mostly missing jacket

2. Crushed, heavily gouged or punctured insulation on at least one tenth of pipe runs/risers if the damage is evenly distributed (one quarter if the damage is localized).

Accumulation of powder, dust, or debris similar in appearance to the suspect material on surfaces beneath the pipe/boiler/tank/etc. can be used as confirmatory evidence.

B. **Fair Condition (equivalent to "damage")**

Material with one or more of the following characteristics:

1. A few water stains or sections of missing jackets.

2. Crushed insulation or water stains, gouges, punctures, or mars, on up to one tenth of the insulation if the damage is evenly distributed (or up to one quarter if the damage is localized).

C. **Good Condition**

Material with no visible damage or deterioration, or showing only very limited damage or deterioration.

Demolition - the wrecking or taking out of any load-supporting structural member of a facility together with any related handling operations.

Encapsulation - treatment of ACBM with a material that surrounds or embeds asbestos fibers in an adhesive matrix to prevent the release of fibers, as the encapsulant creates a membrane over the surface (bridging encapsulant) or penetrates the material and binds its components together (penetrating encapsulant).

Enclosure - an airtight, impermeable, permanent barrier around ACBM to prevent the release of asbestos fibers into the air.

Fiber Release Episode - any uncontrolled or unintentional disturbance of ACBM resulting in a visible emission.

Friable - material, when dry, may be crumbled, pulverized, or reduced to powder by hand pressure, and includes previously nonfriable material after such previously nonfriable material becomes damaged to the extent that when dry it may be crumbled, pulverized, or reduced to powder by hand pressure.

Functional Space - a room, group of rooms, or homogeneous area (including crawl spaces or the space between a drop ceiling and the floor or roof deck above), such as classroom(s), cafeteria, gymnasium, hallway(s), designated by a person accredited to prepare management plans, design abatement projects, or conduct response actions.

High Efficiency Particulate Air (HEPA) - a filtering system capable of trapping and retaining at least 99.97 percent of all monodispersed particles 0.3 micrometer in diameter or larger.

Homogeneous Area - an area of surfacing material, thermal system insulation, or miscellaneous material that is uniform in color and texture.

Miscellaneous Material - interior building material on structural components, structural members or fixtures, such as floor and ceiling tiles, and does not include surfacing material or thermal system insulation.

Nonfriable - material in a building which when dry may not be crumbled, pulverized, or reduced to powder by hand pressure.

Operations and Maintenance Program - a program of work practices to maintain friable ACM in good condition, ensure clean up of asbestos fibers previously released, and prevent further release by minimizing and controlling friable ACBM disturbance or damage.

Potential for disturbance-

A. Potential for contact with the material

High Service workers work in the vicinity of the material more than once per week, or

The material is in a public area (e.g., hallway, auditorium) and accessible to building occupants.

Moderate Service workers work in the vicinity of the material once per eek to once per month, or

The material is in a room or area and accessible to the occupants.

Low Service workers work in the vicinity of the material less than once per month, or The material is visible but not within reach of building occupants.

B. Influence of vibration

High	Loud motors or engines present (e.g., some fan rooms), or
	Intrusive noises or easily sensed vibrations (e.g., major airports, a major highway).
Moderate	Motors or engines present but not obtrusive (e.g., ducts vibrating but no fan in the area), or
	Occasional loud sounds (e.g., a music room).
Low/None	None of the above.

C. Potential for air erosion

High	High velocity air (e.g., elevator shaft, fan room).
Moderate	Noticeable movement of air (e.g., air shaft, ventilator air steam).
Low/None	None of the above

Removal - the taking out or the stripping of substantially all ACBM from a damaged area, a functional space, or a homogeneous area in a building.

Renovation - the modifying of any existing structure, or portion thereof, where exposure to airborne asbestos may result.

Repair - returning damaged ACBM to an undamaged condition or to an intact state so as to prevent fiber release.

Response Action - a method, including removal, encapsulation, enclosure, repair, operations and maintenance, that protects human health and the environment from friable ACBM.

Routine Maintenance Area - an area, such as a boiler room or mechanical room, that is not normally frequented by students and in which maintenance employees or contract workers regularly conduct maintenance activities.

Surfacing Material - material in a building that is sprayed-on, troweled on, or otherwise applied to surfaces, such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, or other purposes.

Thermal System Insulation - material in a building applied to pipes, fittings, boilers, breaching, tanks, ducts, or other interior structural components to prevent heat loss or gain, or water condensation, or for other purposes.

Vibration - when referring to ACBM means the periodic motion of friable ACBM which may result in the release of asbestos fibers.

Appendix J

Lead Information

From: Christopher Ahlquist
To: Kramer, Donald
Date: 3/3/04 9:41AM
Subject: DS Bldg

Don -

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

Asbestos

During February of 2004, Pinnacle Environmental Consultants, Inc., under contract to CH2M Hill Mound, Inc., performed a comprehensive walk-through survey of all areas of DS Building in order to identify all asbestos-containing materials prior to demolition of the facility. During their survey Pinnacle utilized Ohio Department of Health Certified Asbestos Hazard Evaluation Specialists as required by State regulations for individuals assessing asbestos-containing materials. Various forms of pipe insulation and several types of miscellaneous materials were identified as asbestos-containing and requiring removal. These materials will be removed and packaged by an Ohio Department of Health Licensed Asbestos Abatement Contractor, in March/April of 2004. The asbestos materials will be removed in accordance with NESHAP requirements and placed into approved waste containers for disposal by the Mound Waste Management Group.

The asphalt roofing and floor tiles are assumed to contain asbestos, and the asphalt coating on the original penthouse walls contains asbestos; however, as Nonfriable Category I materials in accordance with NESHAP these materials will remain in place during demolition and be disposed of as construction waste.

Lead

No previous lead surveys or sampling data were found for the DS Building structure. 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.

In accordance with guidance from Mound Waste Management, paint coatings should not result in a hazardous waste issue during the course of normal demolition by heavy-duty means.

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

This page intentionally left blank.

From: Christopher Ahlquist
To: Kramer, Donald
Date: 3/8/04 10:01AM
Subject: Bldg 25

Don -

For Building 25 asbestos and lead paint concerns, the following is provided for your use:

Asbestos

During February of 2004 Chris Ahlquist, an Industrial Hygienist with CH2M Hill Mound, reviewed previous asbestos survey data and performed a comprehensive walk-through survey of all areas of Building 25 in order to identify all asbestos-containing materials prior to demolition of the facility. Mr. Ahlquist is an Ohio Department of Health Certified Asbestos Hazard Evaluation Specialist as required by State regulations for individuals assessing asbestos-containing materials. A duct canvas vibration joint was identified as asbestos-containing and requiring removal. This material will be removed and packaged by an Ohio Department of Health Licensed Asbestos Abatement Contractor, in March/April 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.

The asphalt roofing and floor tiles are assumed to contain asbestos. However, as Nonfriable Category I materials in accordance with NESHAP these materials will remain in place during demolition and be disposed of as construction waste.

Lead

No previous lead surveys or sampling data were found for the Building 25 structure. 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.

In accordance with guidance from Mound Waste Management, paint coatings should not result in a hazardous waste issue during the course of normal demolition by heavy-duty means.

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: Hanson, W. Doug; Hose, Russell

Appendix K

Chemical Information

Applicable pages of *CY2001 Emergency and Hazardous Chemical Inventory Report* (dated March 2002) are provided.

Also provided is a list of chemicals known to have been in DS Building. Chemicals were not used or stored in Building 25.

Ohio State Emergency Response Commission
c/o Ohio EPA, Lazarus Government Center
P. O. Box 1049, 122 South Front St.
Columbus, OH 43216-1049

STAPLE

Emergency and Hazardous Chemical Inventory Form

4.1 Facility Name: U. S. DOE - MOUND PLANT
City: MIAMISBURG
County: MONTGOMERY
Exact Street Location (no Box #'s): 1 MOUND ROAD
Zip Code: 45342

4.2 For Filing Date: 03/01/02
4.3 [ ] Check here if form and FACILITY MAP are Confidential and print "CONFIDENTIAL FORM" here: _____
4.4 [ ] Check if Revision
4.5 [x] I Have Attached a Facility Map

5.0	Chemical Description										Hazard Class					Location of Chemicals						Amount			
	CAS REGISTRY NO.	SPECIFIC CHEMICAL NAME	PURE	MIXTURE	COMPONENTS	EHS CHEMICAL	SOLID	LIQUID	GAS	TRADE SECRET	ACUTE	CHRONIC	FIRE	REACTIVE	RELEASE OF PRESSURE	B, T, OR A BUILDING, TANK OR AREA NO.	DIVISION OR ROOM LETTER	FLOOR	STORAGE TYPE CODE	PRESSURE & TEMPERATURE CONDITIONS	LOCATION-CONFIDENTIAL	MAXIMUM	AVERAGE	UNITS	NO. OF DAYS ON SITE
1	7440-37-1	argon		X					X		X				X	B-DS	115	1	L	2,4		02	01	C	365
2	7440-37-1	argon		X					X		X				X	B-DS	123	1	L	2,4		01	01	C	365
3	7440-37-1	argon		X					X		X				X	B-DS	127	1	L	2,4		01	01	C	365
4	7440-37-1	argon		X					X		X				X	B-DS	243	1	L	2,4		02	01	C	365
5	7440-37-1	argon		X					X		X				X	B-DS	215	1	L	2,4		02	01	C	365

K 1 of 17

CERTIFICATION *(READ AND SIGN AFTER COMPLETING ALL SECTIONS)*

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN PAGES ONE THROUGH 27, AND THAT BASED ON MY INQUIRY OF THOSE RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THAT THE INFORMATION IS TRUE, ACCURATE, AND COMPLETE.

Richard Provencher, Director, USDOE, MEMP
NAME AND OFFICIAL TITLE OF OWNER OR OWNERS AUTHORIZED REPRESENTATIVE

SIGNATURE

2/27/02
DATE SIGNED

Ohio State Emergency Response Commission
c/o Ohio EPA, Lazarus Government Center
P. O. Box 1049, 122 South Front St.
Columbus, OH 43216-1049

STAPLE

Emergency and Hazardous Chemical Inventory Form

4.1 Facility Name: U. S. DOE - MOUND PLANT
City: MIAMISBURG
County: MONTGOMERY
Exact Street Location (no Box #'s): 1 MOUND ROAD
Zip Code: 45342

4.2 For Filing Date: 03/01/02
4.3 [ ] Check here if form and FACILITY MAP are Confidential and print "CONFIDENTIAL FORM" here: _____
4.4 [ ] Check if Revision
4.5 [x] I Have Attached a Facility Map

5.0	Chemical Description										Hazard Class					Location of Chemicals						Amount			
	CAS REGISTRY NO.	SPECIFIC CHEMICAL NAME	PURE	MIXTURE	COMPONENTS	EHS CHEMICAL	SOLID	LIQUID	GAS	TRADE SECRET	ACUTE	CHRONIC	FIRE	REACTIVE	RELEASE OF PRESSURE	B, T, OR A BUILDING, TANK OR AREA NO.	DIVISION OR ROOM LETTER	FLOOR	STORAGE TYPE CODE	PRESSURE & TEMPERATURE CONDITIONS	LOCATION CONFIDENTIAL	MAXIMUM	AVERAGE	UNITS	NO. OF DAYS ON SITE
1	7440-37-1	argon		X					X		X				X	B-DS	DCK	1	L	2,4		02	01	C	365
2	7782-37-9	nitrogen		X					X		X				X	B-DS	123	1	L	2,4		01	01	C	365
3	7782-37-9	nitrogen		X					X		X				X	B-DS	DCK		L	2,4		02	02	C	365
4	7782-37-9	nitrogen		X					X		X				X	B-DS	115		L	2,4		01	01	C	365
5	7782-37-9	nitrogen		X					X		X				X	B-DS	134		L	2,4		01	01	C	365

K 2 of 17

CERTIFICATION *(READ AND SIGN AFTER COMPLETING ALL SECTIONS)*

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN PAGES ONE THROUGH 27, AND THAT BASED ON MY INQUIRY OF THOSE RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THAT THE INFORMATION IS TRUE, ACCURATE, AND COMPLETE.

Richard Provencher, Director, USDOE, MEMP
NAME AND OFFICIAL TITLE OF OWNER OR OWNERS AUTHORIZED REPRESENTATIVE

SIGNATURE

2/27/02
DATE SIGNED

EPA 0317 Revised 5/3/89

Ohio State Emergency Response Commission
c/o Ohio EPA, Lazarus Government Center
P. O. Box 1049, 122 South Front St.
Columbus, OH 43216-1049

STAPLE

Emergency and Hazardous Chemical Inventory Form

4.1 Facility Name: U. S. DOE - MOUND PLANT
City: MIAMISBURG
County: MONTGOMERY
Exact Street Location (no Box #'s): 1 MOUND ROAD
Zip Code: 45342

4.2 For Filing Date: 03/01/02
4.3 [ ] Check here if form and FACILITY MAP are Confidential and print "CONFIDENTIAL FORM" here: _____
4.4 [ ] Check if Revision
4.5 [x] I Have Attached a Facility Map

5.0	Chemical Description										Hazard Class					Location of Chemicals						Amount			
	CAS REGISTRY NO.	SPECIFIC CHEMICAL NAME	PURE	MIXTURE	COMPONENTS	EHS CHEMICAL	SOLID	LIQUID	GAS	TRADE SECRET	ACUTE	CHRONIC	FIRE	REACTIVE	RELEASE OF PRESSURE	B, T, OR A BUILDING, TANK OR AREA NO.	DIVISION OR ROOM LETTER	FLOOR	STORAGE TYPE CODE	PRESSURE & TEMPERATURE CONDITIONS	LOCATION-CONFIDENTIAL	MAXIMUM	AVERAGE	UNITS	NO. OF DAYS ON SITE
1	7782-37-9	nitrogen		X					X		X				X	B-DS	135	1	L	2,4		02	01	C	365
2																									
3																									
4																									
5																									

K3 of 17

CERTIFICATION *(READ AND SIGN AFTER COMPLETING ALL SECTIONS)*

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN PAGES ONE THROUGH 27, AND THAT BASED ON MY INQUIRY OF THOSE RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THAT THE INFORMATION IS TRUE, ACCURATE, AND COMPLETE.

Richard Provencher, Director, USDOE, MEMP
NAME AND OFFICIAL TITLE OF OWNER OR OWNERS AUTHORIZED REPRESENTATIVE

SIGNATURE

2/27/02
DATE SIGNED

EPA 0317 Revised 5/3/89

Ohio State Emergency Response Commission
c/o Ohio EPA, Lazarus Government Center
P. O. Box 1049, 122 South Front St.
Columbus, OH 43216-1049

AMENDED

STAPLE

Emergency and Hazardous Chemical Inventory Form

4.1 Facility Name: U. S. DOE - MOUND PLANT
City: MIAMISBURG
County: MONTGOMERY
Exact Street Location (no Box #'s): 1 MOUND ROAD
Zip Code: 45342

4.2 For Filing Date: 03/01/02
4.3 [ ] Check here if form and FACILITY MAP are Confidential and print "CONFIDENTIAL FORM" here:
4.4 [ ] Check if Revision
4.5 [x] I Have Attached a Facility Map

K4 of 17

5.0	Chemical Description										Hazard Class					Location of Chemicals						Amount			
	CAS REGISTRY NO.	SPECIFIC CHEMICAL NAME	PURE	MIXTURE	COMPONENTS	EHS CHEMICAL	SOLID	LIQUID	GAS	TRADE SECRET	ACUTE	CHRONIC	FIRE	REACTIVE	RELEASE OF PRESSURE	B, T, OR A BUILDING, TANK OR AREA NO.	DIVISION OR ROOM LETTER	FLOOR	STORAGE TYPE CODE	PRESSURE & TEMPERATURE CONDITIONS	LOCATION CONFIDENTIAL	MAXIMUM	AVERAGE	UNITS	NO. OF DAYS ON SITE
~~1~~	~~68476-34-6~~	~~diesel fuel~~	~~X~~					~~X~~			~~X~~	~~X~~	~~X~~			~~T20~~			~~A~~	~~1,4~~		~~500~~	~~400~~	~~G~~	~~365~~
2	68476-34-6	diesel fuel	X					X			X	X	X			T23			A	1,4		30	30	G	365
~~3~~	~~68476-34-6~~	~~diesel fuel~~	~~X~~					~~X~~			~~X~~	~~X~~	~~X~~			~~T22~~			~~A~~	~~1,4~~		~~1500~~	~~1400~~	~~G~~	~~365~~
4																									
5																									

CERTIFICATION *(READ AND SIGN AFTER COMPLETING ALL SECTIONS)*

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN PAGES ONE THROUGH , AND THAT BASED ON MY INQUIRY OF THOSE RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THAT THE INFORMATION IS TRUE, ACCURATE, AND COMPLETE.

Richard Provencher, Director, USDOE, MEMP

NAME AND OFFICIAL TITLE OF OWNER OR OWNERS AUTHORIZED REPRESENTATIVE | SIGNATURE | DATE SIGNED

Ohio State Emergency Response Commission
c/o Ohio EPA, Lazarus Government Center
P. O. Box 1049, 122 South Front St.
Columbus, OH 43216-1049

AMENDED

STAPLE

Emergency and Hazardous Chemical Inventory Form

4.1 Facility Name: U. S. DOE - MOUND PLANT
City: MIAMISBURG
County: MONTGOMERY
Exact Street Location (no Box #'s): 1 MOUND ROAD
Zip Code: 45342

4.2 For Filing Date: 03/01/02
4.3 [ ] Check here if form and FACILITY MAP are Confidential and print "CONFIDENTIAL FORM" here: _____
4.4 [ ] Check if Revision
4.5 [x] I Have Attached a Facility Map

K5 of 17

5.0	Chemical Description										Hazard Class					Location of Chemicals						Amount			
	CAS REGISTRY NO.	SPECIFIC CHEMICAL NAME	PURE	MIXTURE	COMPONENTS	EHS CHEMICAL	SOLID	LIQUID	GAS	TRADE SECRET	ACUTE	CHRONIC	FIRE	REACTIVE	RELEASE OF PRESSURE	B, T, OR A BUILDING, TANK OR AREA NO.	DIVISION OR ROOM LETTER	FLOOR	STORAGE TYPE CODE	PRESSURE & TEMPERATURE CONDITIONS	LOCATION-CONFIDENTIAL	MAXIMUM	AVERAGE	UNITS	NO. OF DAYS ON SITE
1	68476-34-6	diesel fuel	X					X			X	X	X			T24			A	1,4		30	30	G	365
~~2~~	~~68476-34-6~~	~~diesel fuel~~	~~X~~					~~X~~			~~X~~	~~X~~	~~X~~			~~B-F~~		~~1~~	~~O~~	~~1,4~~		~~75~~	~~30~~	~~G~~	~~365~~
~~3~~	~~68476-34-6~~	~~diesel fuel~~	~~X~~					~~X~~			~~X~~	~~X~~	~~X~~			~~B-37~~		~~1~~	~~O~~	~~1,4~~		~~90~~	~~15~~	~~G~~	~~365~~
~~4~~	~~68476-34-6~~	~~diesel fuel~~	~~X~~					~~X~~			~~X~~	~~X~~	~~X~~			~~(See Note 2)~~			~~U~~	~~1,4~~		~~2000~~	~~1000~~	~~G~~	~~365~~
~~5~~	~~68476-34-6~~	~~diesel fuel~~	~~X~~					~~X~~			~~X~~	~~X~~	~~X~~			~~T19~~			~~A~~	~~1,4~~		~~500~~	~~400~~	~~G~~	~~365~~

CERTIFICATION *(READ AND SIGN AFTER COMPLETING ALL SECTIONS)*

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN PAGES ONE THROUGH , AND THAT BASED ON MY INQUIRY OF THOSE RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THAT THE INFORMATION IS TRUE, ACCURATE, AND COMPLETE.

Richard Provencher, Director, USDOE, MEMP

NAME AND OFFICIAL TITLE OF OWNER OR OWNERS AUTHORIZED REPRESENTATIVE | SIGNATURE | DATE SIGNED

Ohio State Emergency Response Commission
c/o Ohio EPA, Lazarus Government Center
P. O. Box 1049, 122 South Front St.
Columbus, OH 43216-1049

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Emergency and Hazardous Chemical Inventory Form

4.1 Facility Name: U. S. DOE - MOUND PLANT
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K6 8217

5.0	Chemical Description										Hazard Class					Location of Chemicals						Amount			
	CAS REGISTRY NO.	SPECIFIC CHEMICAL NAME	PURE	MIXTURE	COMPONENTS	EHS CHEMICAL	SOLID	LIQUID	GAS	TRADE SECRET	ACUTE	CHRONIC	FIRE	REACTIVE	RELEASE OF PRESSURE	B, T, OR A BUILDING, TANK OR AREA NO.	DIVISION OR ROOM LETTER	FLOOR	STORAGE TYPE CODE	PRESSURE & TEMPERATURE CONDITIONS	LOCATION-CONFIDENTIAL	MAXIMUM	AVERAGE	UNITS	NO. OF DAYS ON SITE
1	7440-37-1	argon	X					X	X		X				X	T16			A	2,7		04	04	C	365
~~2~~	~~7440-37-1~~	~~argon~~	~~X~~					~~X~~	~~X~~		~~X~~				~~X~~	~~T17~~			~~A~~	~~2,7~~		~~04~~	~~04~~	~~C~~	~~365~~
~~3~~	~~7440-37-1~~	~~argon~~	~~X~~					~~X~~	~~X~~		~~X~~				~~X~~	~~T18~~			~~A~~	~~2,7~~		~~04~~	~~04~~	~~C~~	~~365~~
4																									
5																									

CERTIFICATION *(READ AND SIGN AFTER COMPLETING ALL SECTIONS)*

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Richard Provencher, Director, USDOE, MEMP
NAME AND OFFICIAL TITLE OF OWNER OR OWNERS AUTHORIZED REPRESENTATIVE

SIGNATURE

2/27/02
DATE SIGNED

EPA 0317 Revised 5/3/89

Chemicals and Products Previously Used or Stored in DS Building

A list of photographic processing solutions and their components is attached.

210H
2-Ton Epoxy
3 In 1 Oil
3140 RTV Coating
3141 RTV Coating
3-36 Multi Spray
3M Electrical Resin A
3M Electrical Resin B
3M Scotchlite
acetic acid
acetic acid spill cleanup
acetic acid, glacial
acetone
acetylene
Acrylic Seal Iron Stone
acrylic spray coating
Adhesive 1 Sealing Comp
adhesive and sealing compound
adhesive Rubatex R-373
adhesive spray PM
adhesive, spray 90
Aerojet Accelerator ATC-3
air jet
Akrochem Petrorez 801
alcohol
Alcohol, Dehydrated,
Alcohol, Ethyl
Alconox
alginic acid
aluminum iodide
aluminum oxide
aluminum powder
ammonia thalocyanine
ammonium acetate
ammonium hydroxide
ammonium sulfate
amsco solvent
anti-static agent
Anti-Static Solution
Aqueous Electrolytic Conductivity
argon
Argon in 5% O2
Argon UHP
Armstrong Adhesive
arsenous acid
Asilamine
asimiline 170
ATC-3 Accelerator
B4 Hardener
Baby Powder Disinfectant
barium chloride
barium granules
battery cleaner
Belzona E Metal Base
Belzona Meta Solidifier
Benzoltriazole
Big Bath
Bioact EC7
Bioact waste
bismuth lead
Blue Paste
Blue Paste 2301
body shampoo Gojo
Bonder, Super Loctite 416
Borax
boron standard solution
brazing flux
Break Free
bromine
Bromo Cresol Purple
Butane
Cabosil
calcium shot
calcium sulfate
carbon dioxide
carbon disulfide
Carbon Monoxide in Air
carbon tetra chloride
carpet clnr Fountainhd
carpet clnr Spinout
carpet spray Headstart
Casting Powder
Castone
Cement Rubber to Metal
cement solvent
Cement, Multi Purpose, Clear
cement, probond
Cement, PVC, Clear
chem mix
Chesterton Belt Flo

chloroform
chromic perchlorate
chromium iodide
chromium oxide
chromium powder
chromium shot
Circuit Cooler
citric acid solution
cleaner
cleaner Conquest
cleaner St Louis Blue
cleaner Varley Quiet please
Cleaner, Copper
Cleaner, Marker Board
cleaning solution, Aqualar
cleaning solution, Micro
cleaning solvent Maxim Bonnet
Cleanser, Ajax
Clover compound
cobaltic iodide
Conap Conathane EN7-B
Conathane EN-7 Part A
Conathane EN7 Part B
conductive red enamel solvent coating
Contact Cleaner
Copper Brite
copper cleaner with ferric chloride
copper iodide
copper metal accellerator
copper oxide
copper strip accelerator
Correction Fluid, Liquid Paper
corrosion suppresant
CP
CPVC Solvent Cement
CRT Cleaning Fluid
CRT Cleaning Solution
Curing Liquid
cutting compound
Cyano Phenol
Cyanocure
Darkeol RQ
deep gloss
Defoamer Spartan
degreaser Orange 88
degreaser, big bath
DE-OX-ID
DER 331
Desiccant, Protek-Sorb Activated
Desiccant, Super Protek-Sorb Silica
Developer CD-30
dextrose
diamond compound
dichlorodifluoromethane
diethanolamine
diethylene glycol monobutyl ether acetate
Diffusion Pump Oil
dihydroxy diphenyl silane
dioctyl phthalate
dioctyl sebacate
diphenyl methane 4,4 diisocyanate
dipsodal
disinfectant cleaner Freshnclean
Disinfectant Deodorant
disinfectant, Glybet
Disodium Hydro Phosphate
DoAll
Dow 3140 RTV
Dow 560 Fluid
Dow 705 Fluid
drain cleaner
dry acid salt waste
Dry Lubricant
Duo Seal Pump Oil
DuPont 1202 Thinner
Dust Mop Treatment
Duster
Dustin Shine
Dykem DX-296
Dykem Layout Red DX-296
Dyman Ink
EC7
EEL Skid
elastomer conditioner
Electro Brite
electrolyte
Emralon 320
Energine Cleaning Fluid
Epon 828
Epon Resin 828
epoxy
Epoxy CTBN
Epoxy Kit
epoxy resin
epoxy resin with polyamine
Epoxy, Extra Fast Setting
Epoxylite 8820 Part B
Epoxylite 8822 Part A

Epoxylite 8822 Part B
Epoxylite Hardener
Epoxylite Resin
ethanol
ethanol waste
ethanol, isopropanol, acetone waste
ethlene glycol
ethyl alcohol
Ethyl Alcohol (190)
ethyl alcohol, water waste
ethylene glycol, water
External Mold Release
facsimile curing liquid
facsimile powder
facsimile separator
ferric chloride
ferric chloride solids
ferric chloride waste
floor sealer Varley
Flourinert
Fluid, Vacuum Pump Direct Drive
Fluorad FC430
Flux 30
Flux, Resin 197
Flux, Rosin
Flux, Soldering
Foam free conc Butcher
FogPruf
Formula 101
Freez-It 2000
Freon
Freon TF
Freon waste
Freon waste
Furniture Polish
gadolinium metal
Gage Block Cleaner
Gage Block Preservative
GC Rubber Cement
GE 630 Part A
GE 630 Part B
GE Silicon Primer SS4155
GE Silicone SS4155
GE Silicone SS4179
Gel, Dupro Quick Super Glue
glass bubbles
glass cleaner
gloss enamel Bruning
glycerine
glycerol
Grafo-404 Luboil
grease, 630-2
grease, Lubriko
grease, rust inhibiting
Grease, Vacuum
grease, white
grease, Zeiss
Green Dye
Green Glue
hafnium hydride, acetone
Halthane 7318 A
Halthane 7318 B
Halthane 73-18 Curing Agent
Halthane Curing Agent 73-18
Halthane Resin 73-18
Hand Lotion
hastelloy
HE 175 Pump Oil
HE 200 Pump Oil
Head Cleaner
Headstart Cleaner
Heat Sink Compound
Hetron 197
Hi spot blue
HMX
HNAB
HNS
Household Oil
Hydraulic Oil
hydrofluoric acid
Hydrogen Electrolyte
Hydrogen Peroxide
Hydrolubes
Indium Powder
Ink #620 Black
ink stamp pad
Ink, India, Latex Base DWG Ink
Ink, Quick Dry Stamp Pad, Red
ink, Roll
ink, stamp
ink, Stanford's
Inland-19 Pump Fluid
Intensive Care
Intensive Care Lotion
iodine
iron powder accellerator
Isopar H
isopropanol

Isoptopyl Alcohol
Jewelers Rouge
John Bowl Cleaner
Kepro 1G
Kester 197 Thinner
Kester Flux
Kester Flux 197
Kester Soldering Flux 197
Kindest Care Skin Cleaner
Kleen-Surf
Kodak PMT Activator
Konica PCC-A
Krylon Matte
Krylon Spray Coating
Labeling Achesive
lacquer thinner
lead and copper
lead filters
Lead Octoate with Syringes
Leak-Tec
Lens Cleaner
Lift Away
Lipersol DDM-9
Liquid Nitrogen
Liquid Paper
Liquid Wrench
Liquid wrench, perchlorethylene
lithium chloride solid
lithium chloride solution
Lithium grease
Locktite
Loctite 222
Loctite 416
lotion soft soap Valley
Lubricant, Film
lubricant, MI
lubricant, release agent dry
Lubriplate
Ludox
M-1 Rust Preventative
Magnaflux skl-sp pntrnt
magnesium oxide
manganese dioxide
Markem 207 Cleaner
Markem 7132 Ivory Ink
Markem 8829 Black Ink
Markem 8829 Ivory Ink
Markem Black Ink
Marker Board Cleaner
mercsorb
mercury
mercury contaminated glassware
mercury indicator
mercury waste
mercury, metallic
metal cement
Metal Luster
Metal Luster Cleaner
Metal Marker
Methane
methanol waste
methy pyrrilodinone (1-,-2-)
methyl isobutyl ketone
methyl orange solution
methylene butane
methylene chloride
Met-L-X
Micro Cleaner
Micro Duster
micro glass cleaner
Micro Glass Lab Cleaner
Microclean
Microposit Developer CD-30
Microposit Edge Bead Remover
Microposit Photo Resist
Microposit Photo Resist 51400
Microposit Primer
Microposit Remover
Microposit Thinner Type A
Mobile DTE
Mobile Oil
mock explosive pink powder
Mold Release
Mold Release 225
molecular seive
molybdenum disulfide
molybdenum pentachloride
molybdenum powder
molybdenum tatraoxide
molybdenum tetrasulfide
molybdenum, manganese powder
Molydag 210
Monoplex Dos
MP Fluid Elastomer Base
MP Fluid Elastomer Solidifier
MR778
Multi-Purpose Grease
NABC Cleaner

NABC Spartan
nadic methyl anhydride
Narliner
Neutra Stat
neutralizer
Niax 1025 Polyol
Niax Polyol PPG-1025
nickel acetate
nickel chloride
nickel flake
nickel plate floor finish
nickel standard solution in nitric acid
nickel sulfate
nickel sulfate cleanup material
nickelous oxide
nitric acid
nitrogen
Nitrogen UHP
Oakite 33
Octoil Silicone Oil
oil
oil Robinair hi vac pump
oil Valvoline
oil waste
oil, 3 in 1
oil, lubricating
oil, mobil
oil, Octoil
Oil, Pump
oil, seal pump
oil, skin lubricating
oil, spinesstic 22 petroleum lubricating
oil, tool and instrument
oil, vacuoline
oil, vacuum pump
oil, way
oil, white mineral
Orion Ionalyzer
Oxalic Acid
oxygen
Oxygen in Argon
Oxygen in Nitrogen
Paint
paint Seymour flrscnt grn
Paint Thinner
paint thinner EZ
Parting Agent
patching compound
PCB oil bottles
PDI Bleu Paste 22-38101
PDI Blue 2301
PDI Blue 38101
PDI Blue Paste
PDI Yellow 20480
PDI Yellow 2248
PDI Yellow Paste
PDI Yellow Paste 22-20481
Penetrating Oil
pentane
Perfluoro Polyether
Permabond 910
permatax
PETN
phenanthroline
phenyl methyl poly silane
phenyl sulfone
PHFFT Precision Duster
phosphoric acid
phosphorus powder
Photo Mount Spray Adhesive
photo resist
Plethanolamine
Polish Lemon Furniture
Polish, Aluminum
polish, met-all
polish, stainless steel
polyamide resin
Polypropylene Glycol
potassium bicarbonate
potassium biiodate
potassium bromate
potassium bromide
potassium carbonate
potassium dichromate
Potassium Dihydride Phosphate
potassium ferrocyanide
Potassium Hyd. Phthalate
potassium iodate
potassium iodide solution
Powder, Scouring Glass Cleaner
power bond 922
Preps, Alcohol, 2Ply Medium
Prime Coat
Prime Coat 1204
primer Bruning
primer Kyanize
Primer, Silicone
printed circuit boards

Prism Adhesive Cement
Propane
Propanol
propylene glycol
Pump Oil
pump oil Hi Vac
Pump Oil, Alcatel 100
Pur-A-Gold, Potass. Gold Cyanide
purple ink
PVC cement Hercules
PVC primer Hercules
PVC solvent cement
Recorder Ink
Re-Nu, Contact
resin waste
Resolv-it
Roof Cement
RTV 102 Silicone
RTV 630 Part A
RTV 630 Part B
RTV Silicon
RTV silicone rubber
RTV-630 Part B
RTV-7 Curing Catalyst
RTV-7 Silicone Rubber
Rubber Cement
Rubber to Metal Cement
Rust Remover
Rusticide
Rustoleum
Scotchweld
Scouring Powder
sealant
Sealant, General Purpose
Sealing Compound
sentry seal
Separator
Shine-Up
silica gel
silica gel packets
silica gel waste
silicon dioxide
silicon powder
Silicon Rubber Compound RTV 630A
silicone
silicone curing agent
silicone GE RTV
silicone oil
Silicone Primer Blue
Silicone Rubber Curing Agent RTV630B
silicone rubber, RTV
silicone spray
silver goop
silver solder, sta-silv
Sodium Bicarbonate
Sodium Carbonate
sodium chlorate (0.I%), water
Sodium Hydroxide
sodium hydroxide solution
Sodium Sulfite
solder flux
Solder Flux Silver
solder flux, stay clean
Solder Paste
Solder, Alpha
Solder, Divco
Solder, Ersin Multicore
Solder, Multi-Core SN60
Solder, Resin Core
soldering paste
Span 80
Spinnectic Oil (Ruska)
Spots off Varley
Spra Lube
Spra-Lube Silicone
Spray Clean
spray paint
SS 4155
Stainless Steel Cleaner/Polish
Starrett Plate Cleaner
Starrett Tool & Instrument Oil
Static Free, C400
Static Null
Stay Clean
Stik free
Stoddard Solvent
Stripper (Chrome Etchant)
strontium granules
submicron molybdenum
sulfur
Sulfuric Acid
Super-Cote
Sure seal Varley
tantalum bromide
tantalum powder
TATB
tatrahydrofuran
temperature indicating fluid

Thread Locker 222
thrichloroethylene
tin fluoride
tin metal accelerator
tinning solution
titanium bromide
titanium foil
TLC stripcoat
toluene
toluene diisocyanate
Trichloroethane
trichloroethane (1,1,1-)
Trichloroethylene
trichloroethylene waste
Trimethoxysilymethacrylate
triphenyl phosphate
triphenyl phosphite
Triton 101
Triton N101
tungsten chloride
tungsten powder
Tyreno-12
ultra sound couplant
Ultrasonic Cleaner
ultrasonic cleaner - general
ultrasonic cleaner - industrial
Urochem Blue Solvent Coating
Vacsorb Molecular Sieve
vacuum fluid Inland 19
vacuum pump fluid
valve lubricant
vapor suppressor
velocite
Velocite #6
Versimid 125
Versimid 140
Vinyl Coating
Vinyltrichlorosilane
Washing Liquid, Joy Lemon Fresh
Waylube 80
WD-40
Weldwood Contact Cement
White Gas
window cleaner
window cleaner Streakless
window shine Varley
Wipes, Staticide
Yellow Paste
Yellow Paste 2248
yttrium chloride
yttrium foil

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Photography Developing Solutions and Components
The following chemical solutions were used for X-ray film processing in DS Building:

- Fuji Audel developer/replenisher
- Fuji Aufix fixer
- Fuji Adclean developer/system cleaner
- Fuji Adclean fixer wash system cleaner.

The following information was obtained from the Material Safety Data Sheets (MSDSs) at the photography laboratory in OSE Building in August 2003. It is believed that the chemicals used in the former DS Building X-ray film processing laboratory were likely similar to those listed below.

Solution	Components
E-6 Developer	Potassium sulfite Potassium carbonate Diethylene glycol Potassium hydroquinone monosulfonate Sodium carbonate
E-6 Reversal bath	Sodium propionate Substituted phosphonate Stannous chloride Propionic acid
E-6 Pre-Bleach	Stabilizing agent (proprietary) Potassium sulfite Ethylenediaminetetraacetic acid Methanol 1-thioglycerol
E-6 Bleach (part A)	Ammonium (ethylenedinitrilotetraaceto) ferrate Ammonium bromide Hydrobromic acid Potassium nitrate
E-6 Bleach (part B)	Dipotassium ethylenediaminetetraacetic acid Tripotassium ethylenediaminetetraacetic acid
E-6 Fixer	Ammonium thiosulfate Ammonium sulfite Sodium metabisulfite Ethylenediaminetetraacetic acid
E-6 Final rinse	Nonionic surfactant Substituted thiazolin-3-one
Dektomatic developer and replenisher (AKA Polymax RT)	Sodium sulfite Potassium carbonate Hydroquinone Potassium hydroxide
Hardening fixer	Ammonium thiosulphate Sodium acetate Aluminum sulfate Sodium bisulfite
P-22 developer (part A)	Potassium sulfite Potassium metaborate Sodium sulfite Ascorbic acid Potassium bromide Boric acid

Solution	Components
P-22 developer (part B)	Ethoxydiglycol Hydroquinone 4-methyl-1-phenyl-3-pyrazolidone Benzotriazole
P-22 bleach (part A)	Sulfuric acid Sodium nitro benzene sulfonate
P-22 bleach (part B)	Acetic acid Potassium iodide Sodium mercapto propane sulfonate Quinoxaline adduct
P-22 Neutral (part A)	Sulfuric acid Nitro benzene sulfonate
P-22 Neutral (part B)	Acetic acid Potassium iodide Butyric acid adduct
P-22 Bleach neutralizer	Sodium carbonate Silicone-glycol polydimethyl siloxanes Silica
P-22 Fixer (part A)	Ammonium thiosulfate Potassium sulfite Potassium bisulfite NA4-EDTA
P-22 Fixer (part B)	N-methyl-pyrrolidone (NMP)
T-Max Developer	Diethanolamine sulfur dioxide Hydroquinone Sodium bisulfite

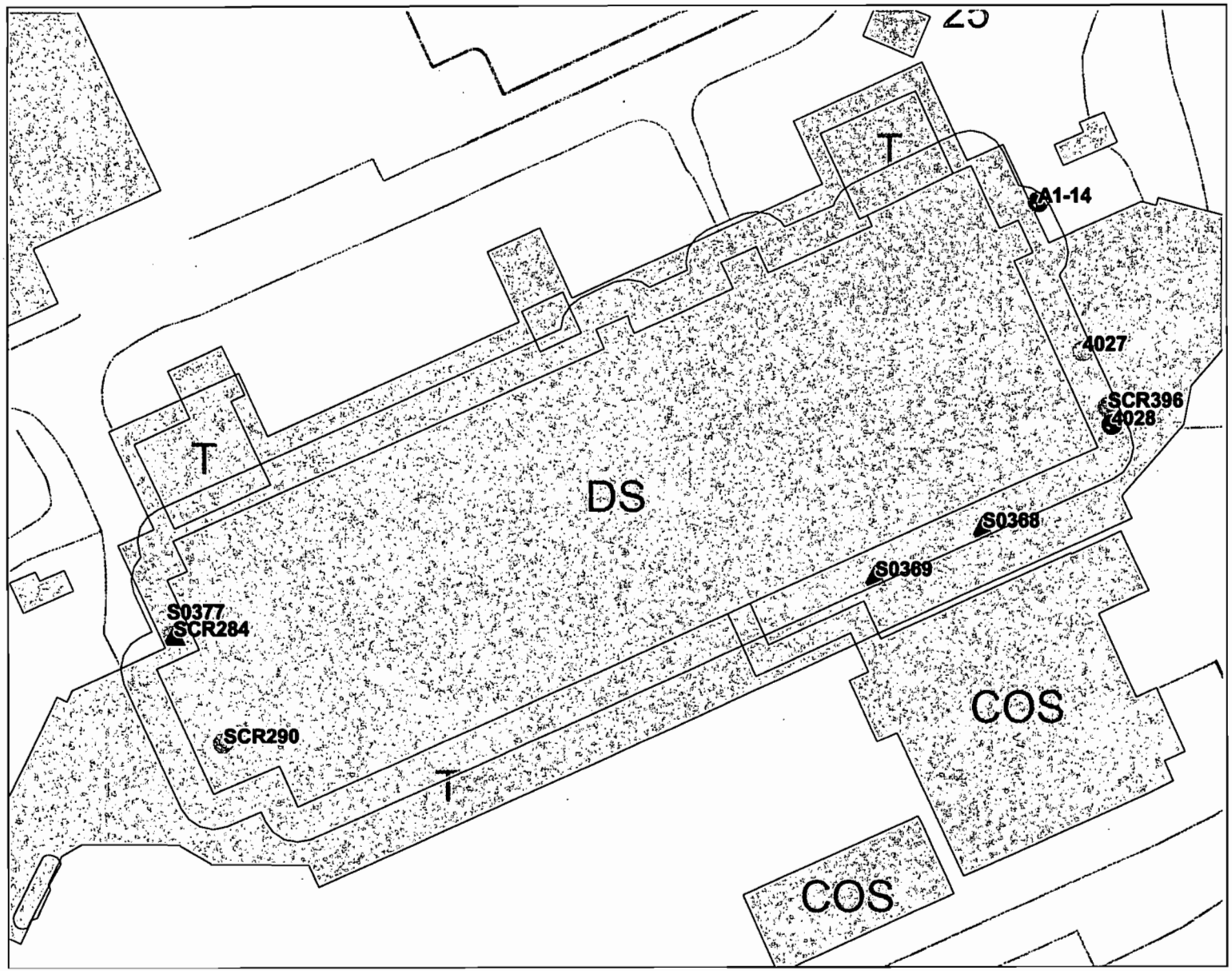
Chemicals in Building 25

A review of the historical documentation for Building 25 indicates that chemicals were not used in the building. Although the building was originally constructed with water and storm drain services, the water service line and the storm drain line were subsequently abandoned. Building 25 currently has no water service, no sanitary service, and storm drains are present but abandoned. The building was not connected to the central steam and chilled water systems because it was heated and cooled with a heat pump. Because of its use, Building 25 did not house processes that required the use of chemicals.

Appendix L

Soil Sampling, Vicinity

Historic Sample Locations within 15 feet of DS Building



Sample Detect
Sample Nondetect

Surface sample
Borehole

25 0 25 50 75 100 Feet

N
W
E
S

MOUND
Environmental Restoration Geographic Information System

12/29/03

L1430

DS Building 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
A1-14	2014-0005	19930831	Aluminum	7820.0000	MG/KG		INORG	4.5	6.5			MND16	Soil	0
A1-14	2014-0005	19930831	Arsenic	6.0000	MG/KG		INORG	4.5	6.5		J	MND16	Soil	1
A1-14	2014-0005	19930831	Barium	56.2000	MG/KG		INORG	4.5	6.5			MND16	Soil	0
A1-14	2014-0005	19930831	Beryllium	0.5000	MG/KG		INORG	4.5	6.5	B		MND16	Soil	0
A1-14	2014-0005	19930831	Calcium	106000.0000	MG/KG		INORG	4.5	6.5			MND16	Soil	0
A1-14	2014-0005	19930831	Chromium	11.8000	MG/KG		INORG	4.5	6.5		J	MND16	Soil	0
A1-14	2014-0005	19930831	Cobalt	7.5000	MG/KG		INORG	4.5	6.5	B		MND16	Soil	0
A1-14	2014-0005	19930831	Copper	13.5000	MG/KG		INORG	4.5	6.5			MND16	Soil	0
A1-14	2014-0005	19930831	Iron	16100.0000	MG/KG		INORG	4.5	6.5			MND16	Soil	0
A1-14	2014-0005	19930831	Lead	9.9000	MG/KG		INORG	4.5	6.5		J	MND16	Soil	0
A1-14	2014-0005	19930831	Magnesium	40500.0000	MG/KG		INORG	4.5	6.5			MND16	Soil	2
A1-14	2014-0005	19930831	Manganese	340.0000	MG/KG		INORG	4.5	6.5		J	MND16	Soil	0
A1-14	2014-0005	19930831	Neptunium-237	-0.1300	PCI/G	0.0010	RAD	4.5	6.5			MND16	Soil	0
S0377	6260	19840801	Plutonium-238	4.0200	PCI/G	0.0100	RAD	0.0	0.0			RSS	Soil	2
S0368	6230	19840801	Plutonium-238	1.2200	PCI/G	0.0100	RAD	0.0	0.0			RSS	Soil	2
S0369	6229	19840801	Plutonium-238	0.1500	PCI/G	0.0100	RAD	0.0	0.0			RSS	Soil	2
A1-14	2014-0005	19930831	Plutonium-238	-0.1400	PCI/G	0.5700	RAD	4.5	6.5			MND16	Soil	0
A1-14	2014-0005	19930831	Plutonium-239/240	0.0680	PCI/G	0.4200	RAD	4.5	6.5			MND16	Soil	0
A1-14	2014-0005	19930831	Plutonium-242	0.1900	PCI/G	0.5500	RAD	4.5	6.5			MND16	Soil	0
A1-14	2014-0005	19930831	Potassium	1650.0000	MG/KG		INORG	4.5	6.5			MND16	Soil	0
A1-14	2014-0005	19930831	Sodium	150.0000	MG/KG		INORG	4.5	6.5	B		MND16	Soil	0
A1-14	2014-0005	19930831	Thorium-228	0.2900	PCI/G	0.1800	RAD	4.5	6.5			MND16	Soil	1, 1
A1-14	2014-0005	19930831	Thorium-230	0.8600	PCI/G	0.2000	RAD	4.5	6.5			MND16	Soil	1
A1-14	2014-0005	19930831	Thorium-232	0.5400	PCI/G	0.1500	RAD	4.5	6.5			MND16	Soil	1
A1-14	2014-0005	19930831	Uranium-234	0.9200	PCI/G	0.2900	RAD	4.5	6.5			MND16	Soil	0
A1-14	2014-0005	19930831	Uranium-235	-0.0090	PCI/G	0.2400	RAD	4.5	6.5			MND16	Soil	0
A1-14	2014-0005	19930831	Uranium-238	0.9500	PCI/G	0.2600	RAD	4.5	6.5			MND16	Soil	1
A1-14	2014-0005	19930831	Vanadium	18.1000	MG/KG		INORG	4.5	6.5			MND16	Soil	0
A1-14	2014-0005	19930831	Zinc	45.5000	MG/KG		INORG	4.5	6.5		J	MND16	Soil	0

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(Blank)	No criteria checked
0	Value is less than criteria checked (Final RBGVs Const Worker-Site Employee_Rev5.xls).
1	Value is greater than 10-6 Risk-Based Guideline Value
2	Value is greater than the OU9 Soil Backgroun Value
3	Value is greater than the Screening Value (10-6 RBGV + background or as agreed)
4	Value is greater than the Cleanup Objective (10-5 RBGV + background or as agreed)
5	Value is greater than the MCL
6	Value is greater than the Guide Value based on the Hazard Index = 1
7	Value is greater than the Hot Spot Criteria (3x10-5 + background or as agreed)

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

Lab and data qualifiers are defined on the pages immediately following the non-detects table in this appendix.
Comparison values for results with comments are provided on the "Comparison for Soil Analytical Results" table at the end of this appendix.

Essential human nutrients (such as calcium, potassium, and sodium) are not considered in site risk assessments and therefore not evaluated herein.

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DS Building Non-Detects

Location _name	Sample_id	Collection _date	Value_name	Measured _value	Value_units	Detection_ limit	Chem_c lass	Start_ depth	End_ depth	Lab	Data	Project_code	Media
A1-14	2014-0005	19930831	1,1,1-Trichloroethane	11.0000	UG/KG		ORVOA	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	1,1,2,2-Tetrachloroethane	11.0000	UG/KG		ORVOA	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	1,1,2-Trichloroethane	11.0000	UG/KG		ORVOA	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	1,1-Dichloroethane	11.0000	UG/KG		ORVOA	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	1,1-Dichloroethene	11.0000	UG/KG		ORVOA	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	1,2,4-Trichlorobenzene	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	1,2-Dichlorobenzene	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	1,2-Dichloroethane	11.0000	UG/KG		ORVOA	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	1,2-Dichloroethene	11.0000	UG/KG		ORVOA	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	1,2-Dichloropropane	11.0000	UG/KG		ORVOA	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	1,3-cis-Dichloropropene	11.0000	UG/KG		ORVOA	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	1,3-Dichlorobenzene	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	1,3-trans-Dichloropropene	11.0000	UG/KG		ORVOA	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	1,4-Dichlorobenzene	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	1-chloro-4-phenoxybenzene	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	2,2'-oxybis(1-chloropropane)	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	2,4,5-Trichlorophenol	3700.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	2,4,6-Trichlorophenol	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	2,4-Dichlorophenol	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	2,4-Dimethylphenol	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	2,4-Dinitrophenol	3700.0000	UG/KG		ORSVO	4.5	6.5	U	UJ	MND16	Soil
A1-14	2014-0005	19930831	2,4-Dinitrotoluene	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	2,6-Dinitrotoluene	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	2-Butanone	11.0000	UG/KG		ORVOA	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	2-Chloronaphthalene	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	2-Chlorophenol	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	2-Hexanone	11.0000	UG/KG		ORVOA	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	2-Methylnaphthalene	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	2-Methylphenol	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	2-Nitroaniline	3700.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	2-Nitrophenol	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil

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Location _name	Sample_id	Collection _date	Value_name	Measured _value	Value_units	Detection_ limit	Chem_c lass	Start_ depth	End_ depth	Lab	Data	Project_code	Media
A1-14	2014-0005	19930831	3,3'-Dichlorobenzidine	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	3-Nitroaniline	3700.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	4,6-Dinitro-o-Cresol	3700.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	4-Bromophenyl-phenyl Ether	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	4-Chloro-3-methylphenol	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	4-Chloroaniline	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	4-Methyl-2-pentanone	11.0000	UG/KG		ORVOA	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	4-Methylphenol	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	4-Nitroaniline	3700.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	4-Nitrophenol	3700.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Acenaphthene	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Acenaphthylene	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Acetone	69.0000	UG/KG		ORVOA	4.5	6.5		UJ	MND16	Soil
A1-14	2014-0005	19930831	Americium-241	0.1100	PCI/G	0.1100	RAD	4.5	6.5	U		MND16	Soil
A1-14	2014-0005	19930831	Anthracene	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Antimony	8.3000	MG/KG		INORG	4.5	6.5	U	UJ	MND16	Soil
A1-14	2014-0005	19930831	Aroclor-1016	36.0000	UG/KG		ORPPB	4.5	6.5	U	UJ	MND16	Soil
A1-14	2014-0005	19930831	Aroclor-1221	72.0000	UG/KG		ORPPB	4.5	6.5	U	UJ	MND16	Soil
A1-14	2014-0005	19930831	Aroclor-1232	36.0000	UG/KG		ORPPB	4.5	6.5	U	UJ	MND16	Soil
A1-14	2014-0005	19930831	Aroclor-1242	36.0000	UG/KG		ORPPB	4.5	6.5	U	UJ	MND16	Soil
A1-14	2014-0005	19930831	Aroclor-1248	36.0000	UG/KG		ORPPB	4.5	6.5	U	UJ	MND16	Soil
A1-14	2014-0005	19930831	Aroclor-1254	36.0000	UG/KG		ORPPB	4.5	6.5	U	UJ	MND16	Soil
A1-14	2014-0005	19930831	Aroclor-1260	36.0000	UG/KG		ORPPB	4.5	6.5	U	UJ	MND16	Soil
A1-14	2014-0005	19930831	Benzene	11.0000	UG/KG		ORVOA	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Benzo(a)anthracene	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Benzo(a)pyrene	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Benzo(b)fluoranthene	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Benzo(g,h,i)perylene	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Benzo(k)fluoranthene	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Bis(2-chloroethoxy)methane	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Bis(2-chloroethyl)ether	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Bis(2-ethylhexyl)phthalate	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Bromodichloromethane	11.0000	UG/KG		ORVOA	4.5	6.5	U	U	MND16	Soil

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Location _name	Sample_id	Collection _date	Value_name	Measured _value	Value_units	Detection_ limit	Chem_c lass	Start_ depth	End_ depth	Lab	Data	Project_code	Media
A1-14	2014-0005	19930831	Bromoform	11.0000	UG/KG		ORVOA	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Bromomethane	11.0000	UG/KG		ORVOA	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Butyl Benzyl Phthalate	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Cadmium	1.1000	MG/KG		INORG	4.5	6.5	U	UJ	MND16	Soil
A1-14	2014-0005	19930831	Carbazole	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Carbon Disulfide	11.0000	UG/KG		ORVOA	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Carbon Tetrachloride	11.0000	UG/KG		ORVOA	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Chlorobenzene	11.0000	UG/KG		ORVOA	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Chloroethane	11.0000	UG/KG		ORVOA	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Chloromethane	11.0000	UG/KG		ORVOA	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Chrysene	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Cyanide	1.1000	MG/KG		INORG	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Dibenz(a,h)anthracene	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Dibenzofuran	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Dibromochloromethane	11.0000	UG/KG		ORVOA	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Dichloromethane (Methylene Chloride)	26.0000	UG/KG		ORVOA	4.5	6.5	B	UJ	MND16	Soil
A1-14	2014-0005	19930831	Diethyl Phthalate	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Dimethyl Phthalate	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Di-n-butyl Phthalate	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Di-n-octyl Phthalate	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Ethylbenzene	11.0000	UG/KG		ORVOA	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Fluoranthene	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Fluorene	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Hexachlorobenzene	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Hexachlorobutadiene	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Hexachlorocyclopentadiene	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Hexachloroethane	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Indeno(1,2,3-cd)pyrene	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Isophorone	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Mercury	0.0100	MG/KG		INORG	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Naphthalene	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Nitrobenzene	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil

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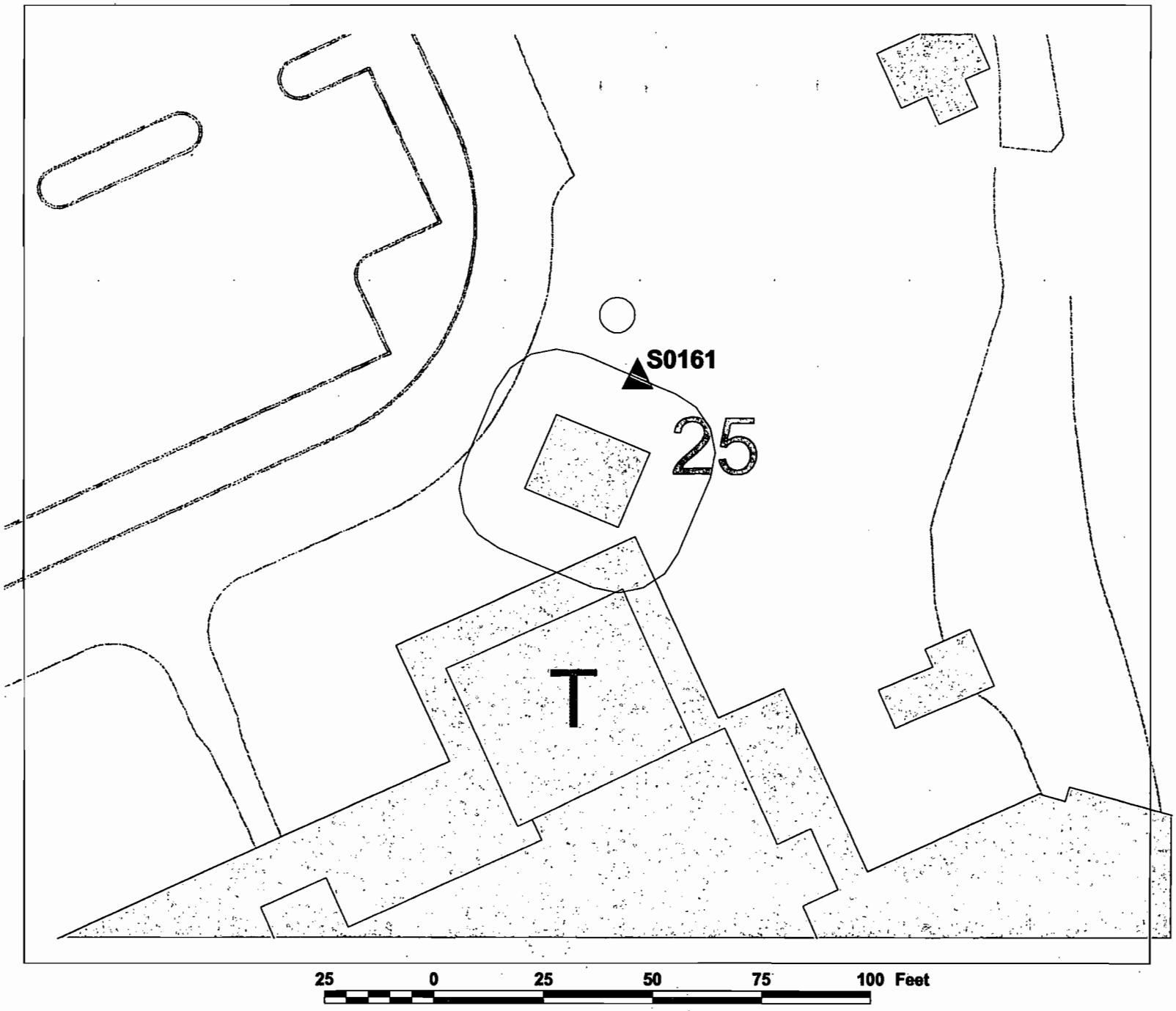
Location _name	Sample_id	Collection _date	Value_name	Measured _value	Value_units	Detection_ limit	Chem_c lass	Start_ depth	End_ depth	Lab	Data	Project_code	Media
A1-14	2014-0005	19930831	N-Nitroso-di-n-propylamine	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	N-Nitrosodiphenylamine	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Pentachlorophenol	3700.0000	UG/KG		ORSVO	4.5	6.5	U	UJ	MND16	Soil
A1-14	2014-0005	19930831	Phenanthrene	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Phenol	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
SCR284	9201069	19920106	Plutonium-238	0.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR284	9201066	19920106	Plutonium-238	0.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR284	9112317	19911231	Plutonium-238	0.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR284	92011312	19920113	Plutonium-238	0.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR284	92011321	19920113	Plutonium-238	0.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR284	9201138	19920113	Plutonium-238	0.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR284	9201139	19920113	Plutonium-238	0.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR290	92012117	19920121	Plutonium-238	0.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR284	9112316	19911231	Plutonium-238	1.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR284	9112318	19911231	Plutonium-238	1.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR284	92010611	19920106	Plutonium-238	1.0000	PCI/G		RAD	4.5	4.5	U		SCRDATA	Soil
SCR284	92022614	19920226	Plutonium-238	1.0000	PCI/G		RAD	0.5	0.5	U		SCRDATA	Soil
SCR284	92011311	19920113	Plutonium-238	3.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR284	9201067	19920106	Plutonium-238	4.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR284	9201065	19920106	Plutonium-238	4.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR284	92022616	19920226	Plutonium-238	5.0000	PCI/G		RAD	0.5	0.5	U		SCRDATA	Soil
SCR396	8802237	19880223	Plutonium-238	5.0000	PCI/G		RAD	1.0	1.0	U		SCRDATA	Soil
SCR284	9112319	19911231	Plutonium-238	6.0000	PCI/G		RAD	5.0	5.0	U		SCRDATA	Soil
SCR284	9201137	19920113	Plutonium-238	6.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR290	92012118	19920121	Plutonium-238	6.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR284	92011310	19920113	Plutonium-238	7.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR284	9201064	19920106	Plutonium-238	8.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR284	91123110	19911231	Plutonium-238	8.0000	PCI/G		RAD	2.0	2.0	U		SCRDATA	Soil
SCR284	9204159	19920415	Plutonium-238	8.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR284	92010610	19920106	Plutonium-238	9.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR284	9204158	19920415	Plutonium-238	9.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR284	92011322	19920113	Plutonium-238	10.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR284	92022615	19920226	Plutonium-238	10.0000	PCI/G		RAD	0.5	0.5	U		SCRDATA	Soil

Location _name	Sample_id	Collection _date	Value_name	Measured _value	Value_units	Detection_ limit	Chem_c lass	Start_ depth	End_ depth	Lab	Data	Project_code	Media
SCR284	92041510	19920415	Plutonium-238	10.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR284	9201068	19920106	Plutonium-238	11.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR290	92012115	19920121	Plutonium-238	12.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR290	92012116	19920121	Plutonium-238	18.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR396	8802238	19880223	Plutonium-238	18.0000	PCI/G		RAD	1.0	1.0	U		SCRDATA	Soil
A1-14	2014-0005	19930831	Pyrene	720.0000	UG/KG		ORSVO	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Selenium	0.2200	MG/KG		INORG	4.5	6.5	U	UJ	MND16	Soil
A1-14	2014-0005	19930831	Silver	1.3000	MG/KG		INORG	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Styrene	11.0000	UG/KG		ORVOA	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Sulfide	10.0000	MG/KG		ANION	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Tetrachloroethene	11.0000	UG/KG		ORVOA	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Thallium	2.2000	MG/KG		INORG	4.5	6.5	U	R	MND16	Soil
SCR284	9204158	19920415	Thorium-232	0.3000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR290	92012117	19920121	Thorium-232	0.4000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR290	92012118	19920121	Thorium-232	0.4000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR284	92011311	19920113	Thorium-232	0.5000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR284	92041510	19920415	Thorium-232	0.5000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR284	9201067	19920106	Thorium-232	0.6000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR284	9201138	19920113	Thorium-232	0.6000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR284	92022614	19920226	Thorium-232	0.6000	PCI/G		RAD	0.5	0.5	U		SCRDATA	Soil
SCR284	9204159	19920415	Thorium-232	0.6000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR284	9201066	19920106	Thorium-232	0.7000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR284	9112316	19911231	Thorium-232	0.7000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR284	9112319	19911231	Thorium-232	0.7000	PCI/G		RAD	5.0	5.0	U		SCRDATA	Soil
SCR284	9201064	19920106	Thorium-232	0.7000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR284	92011310	19920113	Thorium-232	0.7000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR284	92022616	19920226	Thorium-232	0.7000	PCI/G		RAD	0.5	0.5	U		SCRDATA	Soil
SCR290	92012116	19920121	Thorium-232	0.7000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR284	9201069	19920106	Thorium-232	0.8000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR284	92011321	19920113	Thorium-232	0.8000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR284	9201139	19920113	Thorium-232	0.8000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR284	92010610	19920106	Thorium-232	0.9000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR284	9201137	19920113	Thorium-232	0.9000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil

Location _name	Sample_id	Collection _date	Value_name	Measured _value	Value_units	Detection_ limit	Chem_c lass	Start_ depth	End_ depth	Lab	Data	Project_code	Media
SCR284	9201068	19920106	Thorium-232	1.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR284	92011312	19920113	Thorium-232	1.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR284	92011322	19920113	Thorium-232	1.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR290	92012115	19920121	Thorium-232	1.0000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR284	9112318	19911231	Thorium-232	1.1000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR284	92010611	19920106	Thorium-232	1.1000	PCI/G		RAD	4.5	4.5	U		SCRDATA	Soil
SCR284	9112317	19911231	Thorium-232	1.2000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR284	9201065	19920106	Thorium-232	1.2000	PCI/G		RAD	0.0	0.0	U		SCRDATA	Soil
SCR284	92022615	19920226	Thorium-232	1.2000	PCI/G		RAD	0.5	0.5	U		SCRDATA	Soil
SCR396	8802237	19880223	Thorium-232	1.2000	PCI/G		RAD	1.0	1.0	U		SCRDATA	Soil
SCR396	8802238	19880223	Thorium-232	1.5000	PCI/G		RAD	1.0	1.0	U		SCRDATA	Soil
SCR284	91123110	19911231	Thorium-232	1.7000	PCI/G		RAD	2.0	2.0	U		SCRDATA	Soil
S0368	6230	19840801	Thorium-232	2.0000	PCI/G	2.0000	RAD	0.0	0.0	U		RSS	Soil
S0369	6229	19840801	Thorium-232	2.0000	PCI/G	2.0000	RAD	0.0	0.0	U		RSS	Soil
S0377	6260	19840801	Thorium-232	2.0000	PCI/G	2.0000	RAD	0.0	0.0	U		RSS	Soil
A1-14	2014-0005	19930831	Toluene	11.0000	UG/KG		ORVOA	4.5	6.5	U	U	MND16	Soil
4027	4027-0005.0	19940421	Total VOC's	1607.0000	PPB	1607.0000	ORVOA	5.0	5.0		U	SVROU2	Other
A1-14	2014-0005	19930831	Trichloroethylene (TCE)	11.0000	UG/KG		ORVOA	4.5	6.5	U	U	MND16	Soil
4027	4027-0005.0	19940421	Trichlorofluoromethane	1607.0000	PPB	1607.0000	ORVOA	5.0	5.0		U	SVROU2	Other
A1-14	2014-0005	19930831	Trichloromethane	11.0000	UG/KG		ORVOA	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Vinyl Chloride	11.0000	UG/KG		ORVOA	4.5	6.5	U	U	MND16	Soil
A1-14	2014-0005	19930831	Xylenes, Total	11.0000	UG/KG		ORVOA	4.5	6.5	U	U	MND16	Soil

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

Historic Sample Locations within 15 feet of Building 25



Sample Detect

△ surface sample

MOUND

Environmental Restoration Geographic Information System

12/29/03

e:\cad_proj\bldg25\esri\bldg25_15ft_122903.apr

L110f20

Building 25 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
S0161	3093	19831001	Plutonium-238	1.190000	PCI/G	0.010000	RAD	0.0	0.0			RSS	Soil	2

(Blank)	No criteria checked
0	Value is less than criteria checked (Final RBGVs Constr Worker-Site Employee_Rev5.xls).
1	Value is greater than 10-6 Risk-Based Guideline Value
2	Value is greater than the OU9 Soil Backgroun Value
3	Value is greater than the Screening Value (10-6 RBGV + background or as agreed)
4	Value is greater than the Cleanup Objective (10-5 RBGV + background or as agreed)
5	Value is greater than the MCL
6	Value is greater than the Guide Value based on the Hazard Index = 1
7	Value is greater than the Hot Spot Criteria (3x10-5 + background or as agreed)

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

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

L13of20

Building 25 Non-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
S0161	3093	19831001	Thorium-232	2.000000	PCI/G	2.000000	RAD	0.0	0.0	U		RSS	Soil

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

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.

Comparisons for Soil Analytical Results

		Screening Level (RBGV 10-6 + background, or as agreed)	
7440-38-2	Arsenic	1.06E+01	MG/KG
7440-41-7	Beryllium	2.25E+03	MG/KG
7440-43-9	Cadmium	3.00E+03	MG/KG
18540-29-9	Chromium VI	4.50E+02	MG/KG
7440-02-0	Nickel	1.13E+04	MG/KG
55684-94-1	1,2,3,6,7,8-HxCDF	1.99E-04	MG/KG
19408-74-3	1,2,3,7,8,9-HxCDD	4.81E-04	MG/KG
57117-41-6	1,2,3,7,8-PeCDF	3.97E-05	MG/KG
57117-31-4	2,3,4,7,8-PeCDF	3.97E-04	MG/KG
1746-01-6	2,3,7,8-TCDD	1.99E-05	MG/KG
51207-31-9	2,3,7,8-TCDF	1.99E-04	MG/KG
37871-00-4	HpCDD	1.99E-03	MG/KG
38998-75-3	HpCDF	1.99E-03	MG/KG
34465-46-8	HxCDD	1.99E-04	MG/KG
3268-87-9	OCDD	1.99E-02	MG/KG
39001-02-0	OCDF	1.99E-02	MG/KG
36088-22-9	PeCDD	3.97E-05	MG/KG
118-96-7	2,4,6-Trinitrotoluene	9.94E+01	MG/KG
121-82-4	RDX	2.71E+01	MG/KG
72-54-8	4,4'-DDD	1.66E+01	MG/KG
72-55-9	4,4'-DDE	1.31E+01	MG/KG
50-29-3	4,4'-DDT	2.18E+01	MG/KG
309-00-2	Aldrin	1.75E-01	MG/KG
319-84-6	Alpha-BHC	4.73E-01	MG/KG
12674-11-2	Aroclor-1016	1.49E+00	MG/KG
11104-28-2	Aroclor-1221	1.49E+00	MG/KG
11141-16-5	Aroclor-1232	1.49E+00	MG/KG
53469-21-9	Aroclor-1242	1.49E+00	MG/KG
12672-29-6	Aroclor-1248	1.49E+00	MG/KG
11097-69-1	Aroclor-1254	5.95E+01	MG/KG
11096-82-5	Aroclor-1260	1.49E+00	MG/KG
319-85-7	Beta-BHC	1.66E+00	MG/KG
60-57-1	Dieldrin	1.86E-01	MG/KG
58-89-9	Gamma-BHC (Lindane)	2.29E+00	MG/KG
76-44-8	Heptachlor	6.62E-01	MG/KG
1024-57-3	Heptachlor Epoxide	3.28E-01	MG/KG
1336-36-3	Polychlorinated Biphenyls (PCBs)	1.49E+00	MG/KG
8001-35-2	Toxaphene	2.71E+00	MG/KG
122-66-7	1,2-Diphenylhydrazine	3.73E+00	MG/KG
106-46-7	1,4-Dichlorobenzene	1.24E+02	MG/KG
108-60-1	2,2'-oxybis(1-chloropropane)	4.26E+01	MG/KG
88-06-2	2,4,6-Trichlorophenol	2.71E+02	MG/KG
121-14-2	2,4-Dinitrotoluene	4.38E+00	MG/KG
606-20-2	2,6-Dinitrotoluene	4.38E+00	MG/KG
91-94-1	3,3'-Dichlorobenzidine	6.62E+00	MG/KG
99-09-2	3-Nitroaniline	7.84E+01	MG/KG
100-01-6	4-Nitroaniline	7.84E+01	MG/KG
92-87-5	Benzidine	1.30E-02	MG/KG
56-55-3	Benzo(a)anthracene	4.08E+00	MG/KG
50-32-8	Benzo(a)pyrene	4.08E-01	MG/KG
205-99-2	Benzo(b)fluoranthene	4.08E+00	MG/KG

207-08-9	Benzo(k)fluoranthene	4.08E+01	MG/KG
111-44-4	Bis(2-chloroethyl)ether	2.71E+00	MG/KG
117-81-7	Bis(2-ethylhexyl)phthalate	2.13E+02	MG/KG
86-74-8	Carbazole	1.49E+02	MG/KG
218-01-9	Chrysene	4.08E+02	MG/KG
53-70-3	Dibenz(a,h)anthracene	4.08E-01	MG/KG
118-74-1	Hexachlorobenzene	1.86E+00	MG/KG
87-68-3	Hexachlorobutadiene	3.82E+01	MG/KG
67-72-1	Hexachloroethane	2.13E+02	MG/KG
193-39-5	Indeno(1,2,3-cd)pyrene	4.08E+00	MG/KG
78-59-1	Isophorone	3.14E+03	MG/KG
621-64-7	N-Nitroso-di-n-propylamine	4.26E-01	MG/KG
62-75-9	N-Nitrosodimethylamine	5.84E-02	MG/KG
86-30-6	N-Nitrosodiphenylamine	6.08E+02	MG/KG
87-86-5	Pentachlorophenol	2.48E+01	MG/KG
630-20-6	1,1,1,2-Tetrachloroethane	6.95E+00	MG/KG
79-34-5	1,1,2,2-Tetrachloroethane	8.88E-01	MG/KG
79-00-5	1,1,2-Trichloroethane	1.90E+00	MG/KG
75-35-4	1,1-Dichloroethene	1.21E-01	MG/KG
96-18-4	1,2,3-Trichloropropane	4.26E-01	MG/KG
96-12-8	1,2-Dibromo-3-Chloropropane	2.12E+00	MG/KG
107-06-2	1,2-Dichloroethane	7.61E-01	MG/KG
78-87-5	1,2-Dichloropropane	4.38E+01	MG/KG
107-13-1	Acrylonitrile	5.15E-01	MG/KG
71-43-2	Benzene	1.45E+00	MG/KG
100-44-7	Benzyl Chloride	1.75E+01	MG/KG
75-27-4	Bromodichloromethane	4.81E+01	MG/KG
75-25-2	Bromoform	3.77E+02	MG/KG
56-23-5	Carbon Tetrachloride	5.38E-01	MG/KG
67-66-3	Chloroform (Trichloromethane)	5.15E-01	MG/KG
74-87-3	Chloromethane	2.71E+00	MG/KG
124-48-1	Dibromochloromethane	3.55E+01	MG/KG
75-09-2	Dichloromethane (Methylene Chloride)	2.03E+01	MG/KG
106-93-4	Ethylene Dibromide (1,2-Dibromoethane)	3.37E-02	MG/KG
127-18-4	Tetrachloroethene	1.87E+01	MG/KG
79-01-6	Trichloroethene	5.09E+00	MG/KG
75-01-4	Vinyl Chloride	4.14E-01	MG/KG
14952-40-0	Actinium-227	4.48E+00	PCI/G
14952-40-0	Actinium-227+D	5.63E-01	PCI/G
14952-40-0	Actinium-227 long lived decay	5.63E-01	PCI/G
14331-83-0	Actinium-228	1.93E-01	PCI/G
14596-10-2	Americium-241	6.31E+00	PCI/G
14683-10-4	Antimony-124	9.84E-02	PCI/G
14234-35-6	Antimony-125	4.83E-01	PCI/G
14234-35-6	Antimony-125+D	4.83E-01	PCI/G
13981-41-4	Barium-133	6.07E-01	PCI/G
13981-41-4	Barium-133m	4.41E+00	PCI/G
14798-08-4	Barium-140	1.13E+00	PCI/G
13966-02-4	Beryllium-7	4.11E+00	PCI/G
13982-38-2	Bismuth-207	1.75E-01	PCI/G
14331-79-4	Bismuth-210	5.51E+01	PCI/G
14331-79-4	Bismuth-210m	1.00E+00	PCI/G
15229-37-5	Bismuth-211	4.66E+00	PCI/G
14913-49-6	Bismuth-212	9.87E-01	PCI/G
14733-03-0	Bismuth-214	1.17E-01	PCI/G

13967-74-3	Cerium-141	3.80E+00	PCI/G
14762-78-8	Cerium-144	8.87E+00	PCI/G
14762-78-8	Cerium-144+D	3.21E+00	PCI/G
13967-70-9	Cesium-134	1.23E-01	PCI/G
13967-70-9	Cesium-134m	1.74E+01	PCI/G
10045-97-3	Cesium-137	3.81E+01	PCI/G
10045-97-3	Cesium-137 +D	7.62E-01	PCI/G
10045-97-3	Cesium-137 long lived decay	7.62E-01	PCI/G
14392-02-0	Chromium-51	6.89E+00	PCI/G
13981-50-5	Cobalt-57	2.46E+00	PCI/G
13981-38-9	Cobalt-58	1.95E-01	PCI/G
13981-38-9	Cobalt-58m	4.78E+03	PCI/G
10198-40-0	Cobalt-60	7.06E-02	PCI/G
10198-40-0	Cobalt-60m	4.71E+01	PCI/G
13981-15-2	Curium-244	9.20E+00	PCI/G
14683-23-9	Europium-152	1.65E-01	PCI/G
14683-23-9	Europium-152m	6.57E-01	PCI/G
15585-10-1	Europium-154	1.50E-01	PCI/G
14391-16-3	Europium-155	6.98E+00	PCI/G
14596-12-4	Iron-59	1.50E-01	PCI/G
13981-28-7	Lanthanum-140	7.61E-02	PCI/G
14255-04-0	Lead-210	2.10E+00	PCI/G
14255-04-0	Lead-210+D	1.80E+00	PCI/G
14255-04-0	Lead-210 long lived decay	1.82E+00	PCI/G
15092-94-1	Lead-212	1.66E+00	PCI/G
15067-28-4	Lead-214	8.92E-01	PCI/G
13966-31-9	Manganese-54	2.25E-01	PCI/G
13982-78-0	Mercury-203	9.47E-01	PCI/G
13994-20-2	Neptunium-237	7.01E+00	PCI/G
13994-20-2	Neptunium-237+D	1.04E+00	PCI/G
13967-76-5	Niobium-95	2.48E-01	PCI/G
13967-76-5	Niobium-95m	3.73E+00	PCI/G
13981-16-3	Plutonium-238	5.50E+01	PCI/G
PU-238/239	Plutonium-238/239	6.21E+00	PCI/G
15117-48-3	Plutonium-239	6.21E+00	PCI/G
PU-239/240	Plutonium-239/240	6.21E+00	PCI/G
14119-32-5	Plutonium-241	5.06E+02	PCI/G
13982-10-0	Plutonium-242	6.33E+00	PCI/G
13981-52-7	Polonium-210	2.09E+00	PCI/G
13966-00-2	Potassium-40	3.81E+01	PCI/G
14331-85-2	Protactinium-231	2.83E+00	PCI/G
14331-85-2	Protactinium-231+D	4.00E+00	PCI/G
14331-85-2	Protactinium-231 long lived decay	1.28E+00	PCI/G
13981-14-1	Protactinium-233	1.01E-01	PCI/G
15100-28-4	Protactinium-234	1.27E+01	PCI/G
15100-28-4	Protactinium-234m	1.20E+00	PCI/G
15623-45-7	Radium-223	3.24E+00	PCI/G
13233-32-4	Radium-224	5.91E+00	PCI/G
13981-53-8	Radium-225	2.17E+00	PCI/G
13982-63-3	Radium-226	2.10E+00	PCI/G
13982-63-3	Radium-226+D	2.09E+00	PCI/G
13982-63-3	Radium-226 long lived decay	2.73E+00	PCI/G
15262-20-1	Radium-228	1.47E+00	PCI/G
15262-20-1	Radium-228+D	1.47E+00	PCI/G
15262-20-1	Radium-228 long lived decay	1.83E+00	PCI/G

13968-53-1	Ruthenium-103	1.40E+01	PCI/G
13967-48-1	Ruthenium-106	8.77E-01	PCI/G
13967-48-1	Ruthenium-106+D	9.09E-02	PCI/G
13967-63-0	Scandium-46	1.22E-01	PCI/G
14391-65-2	Silver-108m	1.14E+02	PCI/G
14378-38-2	Silver-109m	8.50E-02	PCI/G
13966-32-0	Sodium-22	3.98E-01	PCI/G
13967-73-2	Strontium-85	1.07E+00	PCI/G
13967-73-2	Strontium-85m	3.55E+01	PCI/G
14158-27-1	Strontium-89	1.80E+01	PCI/G
10098-97-2	Strontium-90	1.01E+01	PCI/G
10098-97-2	Strontium-90+D	7.70E-01	PCI/G
14133-76-7	Technetium-99	2.14E+02	PCI/G
14913-50-9	Thallium-208	4.98E-02	PCI/G
15623-47-9	Thorium-227	2.09E+00	PCI/G
14274-82-9	Thorium-228	7.08E+00	PCI/G
14274-82-9	Thorium-228+D	1.61E+00	PCI/G
14274-82-9	Thorium-228 long lived decay	1.61E+00	PCI/G
15594-54-4	Thorium-229	1.89E+00	PCI/G
15594-54-4	Thorium-229+D	5.06E-01	PCI/G
15594-54-4	Thorium-229 long lived decay	5.06E-01	PCI/G
14269-63-7	Thorium-230	1.01E+01	PCI/G
14269-63-7	Thorium-230+D	2.00E+00	PCI/G
14269-63-7	Thorium-230 long lived decay	1.99E+00	PCI/G
7440-29-1	Thorium-232	8.60E+00	PCI/G
7440-29-1	Thorium-232+D	1.47E+00	PCI/G
15065-10-8	Thorium-234	1.76E+01	PCI/G
13966-06-8	Tin-113	3.56E+01	PCI/G
15832-50-5	Tin-126	6.91E+00	PCI/G
10028-17-8	Tritium	7.58E+03	PCI/G
14158-29-3	Uranium-232	2.90E+00	PCI/G
13968-55-3	Uranium-233	1.03E+01	PCI/G
13968-55-3	Uranium-233+D	4.80E-01	PCI/G
13968-55-3	Uranium-233 long lived decay	4.82E-01	PCI/G
U-233/234	Uranium-233/234	4.82E-01	PCI/G
13966-29-5	Uranium-234	1.16E+01	PCI/G
13966-29-5	Uranium-234+D	1.20E+00	PCI/G
15117-96-1	Uranium-235	1.67E+00	PCI/G
15117-96-1	Uranium-235+D	1.60E+00	PCI/G
15117-96-1	Uranium-235 long lived decay	4.20E-01	PCI/G
U-235/236	Uranium-235/236	3.10E-01	PCI/G
7440-61-1	Uranium-238	1.28E+01	PCI/G
7440-61-1	Uranium-238+D	5.31E+00	PCI/G
7440-61-1	Uranium-238 long lived decay	1.29E+00	PCI/G
13982-39-3	Zinc-65	3.11E-01	PCI/G
13967-71-0	Zirconium-95	2.57E-01	PCI/G

Appendix M

Occurrence Reports

Occurrence Reports

A search of the occurrence reporting system revealed 22 reports, all of which were minor and without environmental impact.

DS Building

- *actuation of a safety system (July 1994).* A sprinkler head in the west Penthouse actuated apparently due to extremely hot weather. There was no fire involved. A small amount of water was released and cleaned up (Appendix M);

- *alpha contamination detected on cabinets (October 1999).* One of three cabinets that had been put into the waste roll-off at DS Building was contaminated. The cabinet had been removed from R Building, and was never located in Buildings DS or 25. The contaminated cabinet was disposed of as Low Level Waste (LLW) (Appendix M);

- *discovery of radiological contamination (July 1999).* A contaminated wrench was discovered in a toolbox in DS Building Rooms 134 and 135, and a contaminated stainless steel cylinder was discovered in a cabinet in DS Building Room 123. The wrench and cylinder were disposed of as LLW. The toolbox, cabinet, and all remaining tools were surveyed and released (Appendix M);

- *radiological contamination found in E and DS Buildings (August 1999).* Fixed contamination was found on a dolly in DS Building, Room 204. The dolly was properly identified, controlled, and disposed of as LLW (Appendix M);

- *detection of contamination in respirator washing facility and on respirator (March 2001).* Radiological contamination was found on a respirator in DS Building Room 224 and also inside the wash tank and underside of the lid at the respirator washing facility. The washing facility was posted as a Radiological Controlled Area (RCA) and re-surveyed and the respirator was stored in a posted radioactive materials room in R Building (Appendix M);

- *discovery of legacy contamination is DS Building (November 1996).* Radiologically contaminated items (a storage cabinet, a circuit test board, and a cabinet drawer) were removed from DS Building Rooms 221, 205, and 116, respectively. The rooms were posted as RCAs and the contaminated items were moved to a Radiological Materials Area (Appendix M);

- *ethylene glycol leak – DS Building (December 1996).* Ethylene glycol entered the sanitary sewer system through the floor drains in the DS Building Penthouse from a leak in the building air handler #6 cooling coil. The glycol was contained in the Waste Water Treatment Plant Equalization Basins. The tainted influent was diluted and pumped to a digester in preparation for processing with no known release offsite (Appendix M);

- *alpha contamination discovered in abandoned waste transfer manhole (November 1996).* Radiological contamination was discovered in an abandoned waste transfer line manhole located between DS Building and Building 48. The area where the manhole resides had not previously been posted as a RCA, hence, following the discovery it was posted as a RCA. The radiological contamination was not in DS Building (Appendix M);

- *DS Building evacuation (4) (February and May 1991, August 1992, and June 1995);*
- *energetic materials discovered or stored in a unapproved areas (3) (August 1992, July 1995, and June 1997);*
- *defective service involving Class B equipment (September 1993);*
- *actuation of safety system (December 1993);*
- *performance degradation of Class B safety equipment (April 1994);*
- *high winds cause damage across Mound Plant Site (April 2003);*
- *offsite transportation of unmarked explosives (July 1995);*
- *loss of control of classified material (August 1995);* and
- *discovery of legacy radioactive contamination in M Building (July 1996).*

Building 25
- none.

ALO-DA-EGGM-EGGMAT03-1994-0011 FINAL

Occurrence Report
Before 2003 Redesign

Main Hill Facilities

(Name of Facility)

Explosive

(Facility Function)

Mound Plant EG&G Mound Applied Technologies

(Laboratory, Site, or Organization)

Name: ALLISON, JERRY L
Title: DESTRUCTIVE TESTING MANAGER **Telephone No.:** (513) 865-4533

(Facility Manager/Designee)

Name: Jerry L. Allison
Title: Explosive Facilities Manager **Telephone No.:** (513) 865-4533

(Originator/Transmitter)

Name: D. A. Homan **Date:** 08/08/1994

(Authorized Classifier (AC))

1. Occurrence Report Number: ALO-DA-EGGM-EGGMAT03-1994-0011

Actuation of a Safety System SPRINKLER

2. Report Type and Date: FINAL

	Date	Time
Notification:	07/11/1994	15:38 (MTZ)
Initial Update:	07/19/1994	13:43 (MTZ)
Latest Update:	07/19/1994	13:43 (MTZ)
Final:	08/15/1994	05:14 (MTZ)

3. Occurrence Category: Off-Normal

4. Number of Occurrences: 1 **Original OR:**

5. Division or Project: EG&G Mound Applied Technologies

6. Secretarial Office: DP - Defense Programs

7. System, Bldg., or Equipment: DS Building

8. UCNI?: No

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9. Plant Area: Main Hill

10. Date and Time Discovered: 07/09/1994 19:40 (ETZ)

11. Date and Time Categorized: 07/09/1994 20:20 (ETZ)

12. DOE HQ OC Notification:

Date	Time	Person Notified	Organization
07/11/1994	06:30 (ETZ)	Fred B. Holbrook	DOE/MB

13. Other Notifications:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

14. Subject or Title of Occurrence:

Actuation of a Safety System

---

15. Nature of Occurrence:

01) Facility Condition
H. Operations

---

16. Description of Occurrence:

On July 9, 1994, at approximately 1940 hours (ETZ) a sprinkler head in the Development and Standards (DS) Building west Penthouse actuated. The Mound Fire Department responded to the water flow alarm and did not find a fire or any conditions which might have caused the sprinkler head to actuate. The sprinkler head may have activated due to the last few days of extremely hot weather causing the solder in the head to weaken.

This Occurrence Report was reviewed by an Authorized Derivative Classifier (D. A. Homan, Manager) on 08/08/94 at 1030 hours (ETZ) and contains no Classified or UCNI Information.

---

17. Operating Conditions of Facility at Time of Occurrence:

Normal Off-hours operations existed during occurrence

---

18. Activity Category:

03 - Normal Operations (other than Activities specifically listed in this Category)

---

19. Immediate Actions Taken and Results:

The sprinkler system was shut down and the head replaced. The

M4 of 47

system was returned to service after the replacement of the head. Labor crews cleaned up the water in the penthouse and the rooms below where a small amount of water came through the ceiling.

---

20. Direct Cause:

1) Equipment/Material Problem
A. Defective or Failed Part

21. Contributing Cause(s):

7) External Phenomena
A. Weather or Ambient Condition

22. Root Cause:

1) Equipment/Material Problem
A. Defective or Failed Part

---

23. Description of Cause:

The direct and root cause of the occurrence was the failure of the sprinkler head solder joint which actuated the fire protection system and the water flow alarms. A contributing cause was the high ambient temperatures over the two weeks prior to this occurrence. These unusually high temperatures (upper 90s) could have weakened the solder joint in the sprinkler head.

---

24. Evaluation (by Facility Manager/Designee):

Since the West Penthouse of DS-Building is not air conditioned, the temperatures can reach the low 100s or even higher if the ambient temperatures outside are in the upper 90s. Over an extended period of time (2 weeks) it might be possible to weaken the solder joint in an old sprinkler head (set to actuate at 165 degrees Fahrenheit) sufficiently to allow it to fail when a fire is not present.

If 212 degree Fahrenheit heads were used in areas where high ambient temperatures are possible, instead of the standard 165 degree Fahrenheit sprinkler heads, they would be less likely to actuate after extended periods of high temperatures. The response time in the event of a fire would not be that much slower (a second or two) for the 212 degree Fahrenheit heads according to the Mound Fire Chief.

---

25. Is Further Evaluation Required?: No

---

26. Corrective Actions
(* = Date added/revised since final report was approved.)

1.	Replace Sprinkler Head	
	Target Completion Date: 07/09/1994	**Completion Date:** 07/09/1994
2.		

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Clean up water.	
Target Completion Date: 07/09/1994	**Completion Date:** 07/09/1994

3.

Replace all sprinkler heads in DS Penthouse with 212 degree Fahrenheit heads.	
Target Completion Date: 10/01/1994	**Completion Date:** 10/11/1994

27. Impact on Environment, Safety and Health:

NONE

28. Programmatic Impact:

NONE

29. Impact on Codes and Standards:

NONE

30. Lessons Learned:

When sprinkler heads are repeatedly exposed to ambient temperatures approaching those where the device is designed to actuate, they are subject to failure. In areas where the ambient temperature can reach 120 degrees Fahrenheit. it would be best to use 212 degree Fahrenheit sprinklers versus 165 degree Fahrenheit to avoid weakening the solder during extended periods of high ambient temperatures. The higher degree sprinkler heads add very little to the response time of the sprinkler heads in the event of an actual fire.

31. Similar Occurrence Report Numbers:

NONE

32. User-defined Field #1:

33. User-defined Field #2:

34. HQ Keyword(s):

35. DOE Facility Representative Input:

36. DOE Program Manager Input:

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37. Approvals:

Approved by: ALLISON, JERRY L, Facility Manager/Designee
Date: 08/08/1994
Telephone No.: (513) 865-4533

Approved by: HOLBROOK, FRED B., Facility Representative/Designee
Date: 08/13/1994
Telephone No.:

Approved by: HAGAN, RALPH A., Program Manager/Designee
Date: 08/15/1994
Telephone No.:

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OH-MB-BWO-BWO01-1999-0022 FINAL

Occurrence Report
Before 2003 Redesign

Tritium Facilities

(Name of Facility)

Tritium Activities

(Facility Function)

Mound Plant Babcock and Wilcox of Ohio, Inc.

(Laboratory, Site, or Organization)

Name: ALLISON, JERRY L
Title: TRITIUM FACILITY MANAGER **Telephone No.:** (937) 865-4533

(Facility Manager/Designee)

Name: ALLISON, JERRY L
Title: BUILDING MGR SW/R TRITIUM COMPLEX **Telephone No.:** (513) 865-4533

(Originator/Transmitter)

Name: ALLISON, JERRY L **Date:** 01/06/2000

(Authorized Classifier (AC))

1. Occurrence Report Number: OH-MB-BWO-BWO01-1999-0022

Alpha Contamination Detected on and in Cabinets (Roll-Up)

2. Report Type and Date: FINAL

	Date	Time
Notification:	11/01/1999	06:44 (MTZ)
Initial Update:	11/15/1999	12:25 (MTZ)
Latest Update:	01/06/2000	05:00 (MTZ)
Final:	02/04/2000	12:56 (MTZ)

3. Occurrence Category: Off-Normal

4. Number of Occurrences: 2 **Original OR:**

5. Division or Project: Babcock and Wilcox of Ohio, Inc.

6. Secretarial Office: EM - Environmental Management

7. System, Bldg., or Equipment: DS, R, and HH Buildings

only Location, DS not involved

8. UCNI?: No

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9. Plant Area: Main Hill Area

10. Date and Time Discovered: 10/30/1999 13:00 (ETZ)

11. Date and Time Categorized: 10/30/1999 13:05 (ETZ)

12. DOE HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

13. Other Notifications:

Date	Time	Person Notified	Organization
10/30/1999	13:30 (ETZ)	Madan Dev	DOE/MEMP
11/15/1999	12:30 (ETZ)	Madan Dev	DOE/MEMP

14. Subject or Title of Occurrence:

Alpha Contamination Detected on and in Cabinets (Roll-Up)

---

15. Nature of Occurrence:

01) Facility Condition
D. Loss of Control of Radioactive Material/Spread of Radioactive Contamination

---

16. Description of Occurrence:

Occurrence #1

On Friday, October 29, 1999 at approximately 1130 hours, Tritium Facility Management was informed by Radiological Operations, that one of three cabinets that had been put into the waste roll-off at Development and Surveillance (DS) Building was contaminated. The cabinet had been placed in the roll-off approximately two week prior to October 29th. The storage cabinet had removable alpha contamination of 76 dpm per 100 centimeter squared and direct readings of 8,000 dpm alpha. The survey swipe was sent to Alpha Spec for isotope identfication. On Saturday, October 30, 1999 at approximately 1300 hours, Tritium Facility Management was informed that the radioactive isotopes had been identified an Actinium 227 and Thorium 230.

An investigation by Tritium Facility Management and Radiological Operations revealed that the cabinets were removed from Research (R) Building, Room 194. The cabinets had been removed from the building approximately seven months earlier in March, 1999 and were setting outside R Building. When the cabinets were removed from the buildings they were in an area posted as Radioactive Material Management Areas (RMMAs). However, no radiological survey data could be found on the cabinet to show that it met the radiological release requirements.

Occurrence #2

At approximately 1100 hours (ETZ) on November 15, 1999 Alpha Sectrometry identified that the radioactive isotope for contamination found in a cabinet inside Hydrolysis House (HH) Building, Room 8 was Plutonium 238. The amount of contamination present was 300 dpm per 100 centimeters squared removable and 8000 dpm direct. The cabinet was being surveyed prior to disposal as Low Specific Activity (LSA) Waste.

Prior to commencing work in HH-8 on 11/4/99, the accessible areas of the cabinets and their contents were surveyed using direct readings. The results of those readings were negative. Pre-job meetings were being held everyday for this work at 0700 hours. As the contents of the cabinets were removed they were spot checked using direct readings and then bagged and put into LSA boxes. Metal cabinets that were not contaminated were being put into scrap metal roll-offs.

The contents of the cabinet were removed on 11/8/99. The contents were bagged on 11/11/99 and put into the LSA container. The cabinet was surveyed at approximately 1000 hours on 11/11/99 and alpha contamination was found. The workers who had handled the material from the cabinet were surveyed around 1030 hours and there was less than 500 dpm alpha and less than 5000 dpm beta on their shoes and

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gloves. There was no contamination found on the personnel themselves. The pathway from the laboratory to the LSA waste box was also surveyed, no contamination was found.

This occurrence was categorized on 11/15/1999 at 1105 hours (ETZ); Madan Dev from DOE/MEMP was notified on 11/15/1999 at 1230 hours (ETZ); normal first shift operations were in progress at the time of the occurrence; and the Activity Category was Normal Operations.

---

17. Operating Conditions of Facility at Time of Occurrence:

Not Applicable

---

18. Activity Category:

03 - Normal Operations (other than Activities specifically listed in this Category)

---

19. Immediate Actions Taken and Results:

Occurrence #1

The cabinet was removed from the waste roll-off, placed on the DS Building Dock, and posted as a Contamination Area.

Occurrence #2

The cabinet was posted as a contamination area and work in HH Building Room 8 was put on hold.

---

20. Direct Cause:

8) Radiological/Hazardous Material Problem
A. Legacy Contamination

21. Contributing Cause(s):

3) Personnel Error
B. Procedure Not Used or Used Incorrectly

22. Root Cause:

8) Radiological/Hazardous Material Problem
A. Legacy Contamination

---

23. Description of Cause:

Direct and Root Causes: Legacy Contamination was discovered during the safe shutdown process in areas that had been previously surveyed and re-designated as non-contaminated.

Contributing Cause: Procedure not used or used incorrectly when the areas of R Building and HH building were surveyed to re-designate the areas from being contamination areas many years ago, the surveys performed were not adequate to catch the low levels of contamintion inside the cabinets.

---

24. Evaluation (by Facility Manager/Designee):

As the site exit project continues under safe shutdown and D&D operations small amounts of contamination continue to be discovered.

Years ago when Conatamination Areas of buildings were surveyed for the purpose of down grading to Controlled Areas, the procedure

used to perform surveys to pull back the contamination areas were not adequate to catch the low levels of contamination now being detected in or on a few pieces of equipment and cabinets. The material release and area down grading survey procedures were changed approximately one year ago to correct the problem.

Upon completing the corrective action to survey R Building Room 194 as a result of occurrence #1, it was discovered that the floor where the cabinet had been removed from, was contaminated with very low levels of alpha contamination. The area was posted as a Contamination Area, the contamination subsequently removed, and the area then down posted to a Controlled Area.

The occurrence reported on 12/16/99 was deleted from the report because the isotope was incorrectly identified as Pu-238 when it was actually Uranium 238. Therefore, the amount discovered was not reportable.

25. Is Further Evaluation Required?: No

26. Corrective Actions
(* = Date added/revised since final report was approved.)

1. Size reduce cabinet located on DS Dock and put into LSA waste box.
   - **Target Completion Date:** 11/16/1999 | **Completion Date:** 11/16/1999
2. Perform a radiological survey of R Building Room 194 to determine if any other contamination is present and decontaminate area if required.
   - **Target Completion Date:** 11/11/1999 | **Completion Date:** 11/11/1999
3. Post HH-8 as a Contamination Area prior to any further removal of cabinets.
   - **Target Completion Date:** 11/17/1999 | **Completion Date:** 11/17/1999

27. Impact on Environment, Safety and Health:

None

28. Programmatic Impact:

None

29. Impact on Codes and Standards:

None

30. Lessons Learned:

As Mound cleans out old buildings which once handled radioactive materials, small amounts of contamination will be discovered that was not discovered in the intial surveys when area of these buildings were changed from Contamination Areas to Controlled Areas.

31. Similar Occurrence Report Numbers:

OH-MB-BWO-BWO01-1999-0008
OH-MB-BWO-BWO01-1999-0004
0H-MB-BWO-BWO01-1999-0013
0H-MB-BWO-BWO01-1999-0020

32. User-defined Field #1:

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33. User-defined Field #2:

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34. HQ Keyword(s):

06B--Radiological Issues - Facility/Equipment/Site Contamination

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35. DOE Facility Representative Input:

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36. DOE Program Manager Input:

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37. Approvals:

Approved by: ALLISON, JERRY L, Facility Manager/Designee
Date: 01/06/2000
Telephone No.: (937) 865-4533

Approved by: DEV, MADAN, Facility Representative/Designee
Date: 02/04/2000
Telephone No.: (513) 865-4714

Approved by: Approval delegated to FR, Program Manager/Designee
Date: 02/04/2000
Telephone No.:

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OH-MB-BWO-BWO03-1999-0002 FINAL

Occurrence Report
Before 2003 Redesign

Main Hill Facilities

(Name of Facility)

Balance-of-Plant

(Facility Function)

Mound Plant Babcock and Wilcox of Ohio, Inc.

(Laboratory, Site, or Organization)

Name: WEIDENBACH, GARY L
Title: BUILDING MANAGER **Telephone No.:** (937) 865-3241

(Facility Manager/Designee)

Name: WEIDENBACH, GARY L
Title: BUILDING MANAGER **Telephone No.:** (937) 865-3241

(Originator/Transmitter)

Name: Don Dixon **Date:** 02/16/2000

(Authorized Classifier (AC))

1. Occurrence Report Number: OH-MB-BWO-BWO03-1999-0002

Discovery of Radiological Contamination (ROLL-UP) Tools in DS building

2. Report Type and Date: FINAL

	Date	Time
Notification:	07/06/1999	10:55 (MTZ)
Initial Update:	07/08/1999	07:06 (MTZ)
Latest Update:	02/16/2000	08:01 (MTZ)
Final:	02/17/2000	13:50 (MTZ)

3. Occurrence Category: Off-Normal

4. Number of Occurrences: 2 **Original OR:**

5. Division or Project: Babcock & Wilcox of Ohio

6. Secretarial Office: EM - Environmental Management

7. System, Bldg., or Equipment: DS Building

8. UCNI?: No

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9. Plant Area: Main HIll Project

10. Date and Time Discovered: 07/06/1999 07:30 (ETZ)

11. Date and Time Categorized: 07/06/1999 07:30 (ETZ)

12. DOE HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

13. Other Notifications:

Date	Time	Person Notified	Organization
07/06/1999	09:00 (ETZ)	Chris White	DOE/MEMP

14. Subject or Title of Occurrence:

Discovery of Radiological Contamination (ROLL-UP)

---

15. Nature of Occurrence:

01) Facility Condition
D. Loss of Control of Radioactive Material/Spread of Radioactive Contamination

---

16. Description of Occurrence:

On July 6 and July 7, 1999, Isotopic analysis determined that a wrench discovered 6/28/99 and a stainless steel cylinder discovered 6/25/99 contained radiological contamination of Pu-238. Both items were discovered The wrench was in a toolbox in DS Building rooms 134 & 135 and contained 100 dpm/100 cm2 removeable alpha and 1000 dpm/100 cm2 total alpha contamination and the cylinder was in a cabinet drawer in DS Building room 123 and contained 1200 dpm/100 cm2 alpha with no removeable contamination.

---

17. Operating Conditions of Facility at Time of Occurrence:

Does not apply

---

18. Activity Category:

03 - Normal Operations (other than Activities specifically listed in this Category)

---

19. Immediate Actions Taken and Results:

The wrench and cylinder were sent for isotopic analysis and disposal. The tool box and cabinet were posted as a Radiological Contamination Area until all tools were 100% inspected before release. No other items were found to be contaminated.

---

20. Direct Cause:

6) Management Problem
A. Inadequate Administrative Control

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21. Contributing Cause(s):

22. Root Cause:

6) Management Problem
A. Inadequate Administrative Control

23. Description of Cause:

Reference ORPS report OH-MB-BWO-BWO04-1999-0004

24. Evaluation (by Facility Manager/Designee):

This roll-up report is a continuation of Final Report OH-MB-BWO-BWO04-1999-0004. The corrective actions required a site-wide radiological survey of tools & tool boxes, and these occurrences are a result of that survey.

25. Is Further Evaluation Required?: No

26. Corrective Actions
(* = Date added/revised since final report was approved.)

1.

Properly dispose of the contaminated wrench and stainless steel cylinder.	
Target Completion Date: 08/25/1999	**Completion Date:** 08/25/1999

27. Impact on Environment, Safety and Health:

None

28. Programmatic Impact:

None

29. Impact on Codes and Standards:

None

30. Lessons Learned:

Controls are needed for tools within radiological areas and those tools being removed from those radiological areas.
Keeping tools within these areas and identifying them by color coding is an effective way of control.

31. Similar Occurrence Report Numbers:

OH-MB-BWO-BWO04-1999-0004

32. User-defined Field #1:

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33. User-defined Field #2:

---

34. HQ Keyword(s):

06B--Radiological Issues - Facility/Equipment/Site Contamination

---

35. DOE Facility Representative Input:

---

36. DOE Program Manager Input:

---

37. Approvals:

Approved by: WEIDENBACH, GARY L, Facility Manager/Designee
Date: 02/16/2000
Telephone No.: (937) 865-3241

Approved by: WHITE, CHRISTOPHER A, Facility Representative/Designee
Date: 02/17/2000
Telephone No.: (937) 865-4396

Approved by: Approval delegated to FR, Program Manager/Designee
Date: 02/17/2000
Telephone No.:

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OH-MB-BWO-BWO03-1999-0003 FINAL

Occurrence Report
Before 2003 Redesign

Main Hill Facilities

(Name of Facility)

Balance-of-Plant

(Facility Function)

Mound Plant Babcock and Wilcox of Ohio, Inc.

(Laboratory, Site, or Organization)

Name: WEIDENBACH, GARY L
Title: BUILDING MANAGER **Telephone No.:** (937) 865-3241

(Facility Manager/Designee)

Name: WEIDENBACH, GARY L
Title: BUILDING MANAGER **Telephone No.:** (937) 865-3241

(Originator/Transmitter)

Name: Don Dixon **Date:** 01/24/2000

(Authorized Classifier (AC))

1. Occurrence Report Number: OH-MB-BWO-BWO03-1999-0003

Radiological Contamination Found in E and DS Building (ROLL-UP) dolly in DS

2. Report Type and Date: FINAL

	Date	Time
Notification:	08/19/1999	14:08 (MTZ)
Initial Update:	08/25/1999	08:45 (MTZ)
Latest Update:	01/24/2000	14:48 (MTZ)
Final:	02/04/2000	12:54 (MTZ)

3. Occurrence Category: Off-Normal

4. Number of Occurrences: 9 **Original OR:**

5. Division or Project: Main Hill Project

6. Secretarial Office: EM - Environmental Management

7. System, Bldg., or Equipment: E and DS building areas

8. UCNI?: No

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9. Plant Area: E and DS bldg areas

10. Date and Time Discovered: 08/18/1999 14:00 (ETZ)

11. Date and Time Categorized: 08/19/1999 13:00 (ETZ)

12. DOE HQ OC Notification:

Date	Time	Person Notified	Organization
08/19/1999	11:00 (ETZ)	Maden Dev	DOE-MEMP

13. Other Notifications:

Date	Time	Person Notified	Organization
08/24/1999	15:30 (ETZ)	Maden Dev	DOE-MEMP

14. Subject or Title of Occurrence:

Radiological Contamination Found in E and DS Building (ROLL-UP)

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15. Nature of Occurrence:

01) Facility Condition
D. Loss of Control of Radioactive Material/Spread of Radioactive Contamination

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16. Description of Occurrence:

Occurrence 1

On August 19, 1999, in preparation for the move of the alpha spec unit and associated equipment from E-105 D to T Building, radiological surveys were initiated this afternoon. The area was posted as a Radioactive Material Area. Removable alpha contamination of 5115 dpm/100 cm2 was detected on the floor area on the north side of the room near the base of a cabinet. An individual who had been working in that area today was surveyed and was found not to be contaminated. The area was posted as a Contamination Area/DO NOT ENTER and an isotopic analysis of the wipe was submitted to the lab for alpha spec purposes.

Occurrences 2 - 5

On August 24, 1999 isotopic analysis of samples taken on July 31, 1999, determined the isotope to be Pu-238.

Occurrence #2; this sample was taken from a piece of metal from E Building, room 107 that was found to contain 8000 dpm/100 cm2 fixed contamination.

Occurrence #3; another piece of metal contained 30,000 dpm/100 cm2 fixed alpha contamination.

Occurrence #4; an alpha detector contained 5000 dpm/100 cm2 fixed alpha contamination.

Occurrence #5; a step stool contained 1000 dpm/100 cm2 fixed alpha contamination.

Occurrence 6

On September 24, 1999, at approximately 3:30 p.m, while performing a pre-job survey for asbestos removal in E Building, contamination above MD-10019 Table 2-2 values were detected in Room 174. The levels detected were on the floor, in an area of approximately six 9" x 9" floor tiles, 75 dpm/100 cm2 removable alpha contamination, 600 dpm/100 cm2 direct alpha contamination and 30,000 dpm/100 cm2 direct beta contamination.

Occurrence 7 & 8
(7)

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As a follow up to the contamination detected in E-building room 174 on 9/24/99, a survey was performed in E-room 176, a room near E-room 174. The survey was taken on 9/29/99 and showed approximately 421 dpm/100 cm2 fixed alpha contamination and approximately 53,000 dpm/100 cm2 fixed beta contamination on some piping. This was one of the rooms recently vacated by a tenant of the Miamisburg Mound Coomunity Improvement Corporation (MMCIC). A sample was obtained and isotopic results are pending.
(8)
On 10/1/99, while performing drain surveys throughout the building, 188 dpm/100 cm2 fixed alpha contamination, 186 dpm/100cm2 removable alpha and 63,000 dpm/100 cm2 fixed beta contamination was detected on a drain line in E-room 176, which was associated with the contaminated piping detected in E-room 176 on 9/29/99. E-room 176 was designated as a Contamination Area at the time the contamination was detected in E-room 174 on 9/24/99.

Occurence 9 DS building

On 10/2/99 at approximately 9 a.m., 1100 dpm/100 cm2 of fixed alpha contamination was detected on a dolly in Room 204 of DS Building. The dolly was being surveyed as part of equipment removal in preparation for Mound Occupational Radiological Exposure (MORE) Records relocation. A material transfer and disposal tag attached to the dolly showed that the dolly had been surveyed and released in 1996. The dolly was posted as a Controlled Area/Fixed Contamination Area. Isotopic analysis of the samples taken is underway.

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17. Operating Conditions of Facility at Time of Occurrence:

Normal

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18. Activity Category:

03 - Normal Operations (other than Activities specifically listed in this Category)

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19. Immediate Actions Taken and Results:

Occurence 1; E-building room 105D
1. Isotopic analysis of the wipe was submitted to the lab for alpha spec purposes.
2. The area was posted as a Contamination Area/Do Not Enter

1a. Isotopic analysis determined the contamination to be PU-238, this was completed on 08/19/1999.
2a. The areas were decontaminated on 08/25/1999

Occurrences 2 - 5; E-building room 107
1.The area was posted as a Contamination Area/Do Not Enter.
2. The contaminated items have been bagged and/or disposed of appropriately

Occurrence 6; E-building room 174
Immediate actions taken were to notify management, perform surveys in the hallway to make sure no removable contamination was present there and to post all accessible entrances to the room as Controlled Area, RMMA, Contamination Area/DO NOT ENTER. Plans are to create an RWP to enter the area and obtain a sample to be isotopically analyzed.

Occurrence 7 & 8; E-building room 176

Notification was made to appropriate management personnel. Samples were taken to to be isotopically analyzed.

Occurrence 9; *DS building

The dolly was posted as a Controlled Area/Fixed Contamination Area.
Notification was made to appropriate management personnel. Attempts will be made to obtain a sample for isotopic analysis purposes.

Analysis determined the isotope to be Pu-238. The dolly was placed in an LSA box for proper disposal.

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20. Direct Cause:

8) Radiological/Hazardous Material Problem
A. Legacy Contamination

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21. Contributing Cause(s):

8) Radiological/Hazardous Material Problem
A. Legacy Contamination

22. Root Cause:

8) Radiological/Hazardous Material Problem
A. Legacy Contamination

23. Description of Cause:

The prior work processes within these areas in E-building are determined to be the cause of contaminated equipment and floor surfaces. The contamination found on the dolly after it had been surveyed and released in 1996 may have been missed on the 1996 survey, or the dolly was contaminated sometime between the survey periods.

24. Evaluation (by Facility Manager/Designee):

The discovery of legacy contamination is expected in facilities in the process of safe shutdown and preparation for turnover or demolition.

25. Is Further Evaluation Required?: No

26. Corrective Actions
(* = Date added/revised since final report was approved.)

1.	1. E-105D; Complete the isotopic analysis and perform necessary decontamination processes as necessary.	
	Target Completion Date: 08/30/1999	**Completion Date:** 08/25/1999
2.	Complete the isotopic analysis on the items of E-107 and properly dispose of them if/as necessary.	
	Target Completion Date: 08/25/1999	**Completion Date:** 08/25/1999
3.	Create an Radiation Work Permt (RWP) to obtain a sample to be isotopically analyzed. Then complete the decontamination of E-174 and E-176. Occurrences 6-8	
	Target Completion Date: *03/30/2000	**Completion Date:** 03/24/2000
4.	Decontaminate or dispose of the dolly properly. Occurrence 9, DS building room 204.	
	Target Completion Date: 12/15/1999	**Completion Date:** 12/13/1999

27. Impact on Environment, Safety and Health:

None

28. Programmatic Impact:

None

29. Impact on Codes and Standards:

None

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30. Lessons Learned:

The discovery of legacy contamination is expected in facilities in the process of safe shutdown and preparation for turnover or demolition.

31. Similar Occurrence Report Numbers:

OH-MB-BWO-BWO03-1998-0001
OH-MB-BWO-BWO04-1997-0001
OH-MB-EGGM-EGGMAT03-1997-0005
OH-MB-EGGM-EGGMAT03-1996-0001
OH-MB-EGGM-EGGMAT03-1996-0004
OH-MB-EGGM-EGGMAT03-1996-0005
OH-MB-EGGM-EGGMAT03-1995-0008

32. User-defined Field #1:

33. User-defined Field #2:

34. HQ Keyword(s):

06B--Radiological Issues - Facility/Equipment/Site Contamination

35. DOE Facility Representative Input:

36. DOE Program Manager Input:

37. Approvals:

Approved by: WEIDENBACH, GARY L, Facility Manager/Designee
Date: 01/24/2000
Telephone No.: (937) 865-3241

Approved by: DEV, MADAN, Facility Representative/Designee
Date: 02/04/2000
Telephone No.: (513) 865-4714

Approved by: Approval delegated to FR, Program Manager/Designee
Date: 02/04/2000
Telephone No.:

M23a 47

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OH-MB-BWO-BWO03-2001-0001 FINAL

Occurrence Report
Before 2003 Redesign

Main Hill Facilities

(Name of Facility)

Balance-of-Plant

(Facility Function)

Mound Plant Babcock and Wilcox of Ohio, Inc.

(Laboratory, Site, or Organization)

Name: WEIDENBACH, GARY L
Title: **Telephone No.:** (937) 865-3241

(Facility Manager/Designee)

Name: WEIDENBACH, GARY L
Title: **Telephone No.:** (937) 865-3241

(Originator/Transmitter)

Name: Finley Morris **Date:** 06/20/2001

(Authorized Classifier (AC))

1. Occurrence Report Number: OH-MB-BWO-BWO03-2001-0001

Detection of Contamination in Respirator Washing Facility & on Respirator (ROLL-UP) Items in DS

2. Report Type and Date: FINAL

	Date	Time
Notification:	03/12/2001	18:57 (MTZ)
Initial Update:	03/22/2001	13:32 (MTZ)
Latest Update:	08/21/2001	06:32 (MTZ)
Final:	08/22/2001	12:00 (MTZ)

3. Occurrence Category: Off-Normal

4. Number of Occurrences: 2 **Original OR:**

5. Division or Project: BWXTO

6. Secretarial Office: EM - Environmental Management

7. System, Bldg., or Equipment: DS-Building/Respirator Cleaning Facility

8. UCNI?: No

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9. Plant Area: Main Hill Area

10. Date and Time Discovered: 03/12/2001 11:00 (ETZ)

11. Date and Time Categorized: 03/12/2001 15:00 (ETZ)

12. DOE HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

13. Other Notifications:

Date	Time	Person Notified	Organization
03/12/2001	15:00 (ETZ)	Chris White	DOE-MEMP

14. Subject or Title of Occurrence:

Detection of Contamination in Respirator Washing Facility & on Respirator (ROLL-UP)

---

15. Nature of Occurrence:

01) Facility Condition
D. Loss of Control of Radioactive Material/Spread of Radioactive Contamination

---

16. Description of Occurrence:

Occurrence #1
An informational radiological survey was performed at the respirator facility in DS Building on 03/07/01. Tritium contamination was detected on 2 smears (out of approximately 90 smears) on the inside of wash tank and underside of the lid at levels of 22,341 dpm/100 cm2 and 21,558 dpm/100 cm2.

Occurrence #2
At approximately 14:45 on 03/21/01 while performing corrective action #1 to occurrence #1, a contaminated respirator was discovered in DS-224 by an RCT performing surveys on recalled respirators. Contamination level's of 1,600 dpm/100 cm2 alpha fixed was detected. No removable contamination was detected. No beta-gamma or tritium contamination was detected. The results of the isotopic analysis of the respirator were exclusively Pu-238. The initial NE Electra readings were 1600 dpm/100 cm2 fixed alpha contamination. The respirator is currently in a posted "Radioactive Materials" room in R Building.

---

17. Operating Conditions of Facility at Time of Occurrence:

Normal

---

18. Activity Category:

03 - Normal Operations (other than Activities specifically listed in this Category)

---

19. Immediate Actions Taken and Results:

Occurrence #1
1. Post the area as a Controlled Area/Contamination Area/DO NOT ENTER
2. Initiate a Radiological Work Permit (RWP) in order to perform a re-survey of the newly posted area

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3. Make notifications
4. Write a Radiological Awareness Report (RAR).

Occurrence #2
1. Respirator was held in a posted "Radioactive Materials" room in R Building for isotopic analysis.

20. Direct Cause:

2) Procedure Problem
A. Defective or Inadequate Procedure

21. Contributing Cause(s):

22. Root Cause:

3) Personnel Error
A. Inattention to Detail

23. Description of Cause:

Direct cause: Respirators that had been used in tritium contaminated facilities were sent to the Respirator Maintenance Facility for cleaning.

Since 1995 the Respirator Maintenance Facility has been designated as non-radiological operation and therefore, no longer processed contaminated respirators. However, the site policy continued to require that used respirators be surveyed to identify those that met the free release criteria and in turn could to be sent to the facility for washing and ultimate reuse. Additionally, beginning in the spring of CY 2000, the number of respirators used in tritium areas increased significantly due concerns related to stable tritiated particulates (STPs). This provided a path by which the tritium contamination entered the process.

Root cause: Inattention to Detail, respirators were released to the washer facility with contamination on them not detected by the individual doing the release surveys.

24. Evaluation (by Facility Manager/Designee):

This occurrence had minimal disruption upon the overall plant, effecting work in areas of respirator use for approximately two days.

25. Is Further Evaluation Required?: No

26. Corrective Actions
(* = Date added/revised since final report was approved.)

1.	Respirators recalled for the field and surveyed.	
	Target Completion Date: 03/19/2001	**Completion Date:** 03/15/2001
2.	Check quench curves in all LSC protocols.	
	Target Completion Date: 03/19/2001	**Completion Date:** 03/19/2001
3.	Develop a sampling plan for respirators as they complete the washing process, providing 100% sampling until statistical proof is established providing a 95% comfort level with the washing process. A routine, random sampling plan can then be established.	
	Target Completion Date: 06/15/2001	**Completion Date:** 06/14/2001

27. Impact on Environment, Safety and Health: None

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None

28. Programmatic Impact:

Work in radiation areas was suspended for approximately 2 days in order to recall respirators from the field to be resurveyed.

29. Impact on Codes and Standards:

None

30. Lessons Learned:

Attention to detail, in this case the surveying and release of respirators to the washer facility must be complete and thorough to assure that no contamination enters the washer facility.

31. Similar Occurrence Report Numbers:

OH-MB-BWO-BWO03-1997-0001
OH-MB-BWO-BWO03-1997-0002
OH-MB-BWO-BWO03-1998-0001
OH-MB-BWO-BWO03-1999-0003
OH-MB-BWO-BWO03-1999-0006
OH-MB-BWO-BWO03-2001-0002

32. User-defined Field #1:

33. User-defined Field #2:

34. HQ Keyword(s):

01M--Conduct of Operations - Inadequate Procedure (Start May 96)
06B--Radiological Issues - Facility/Equipment/Site Contamination

35. DOE Facility Representative Input:

36. DOE Program Manager Input:

37. Approvals:

Approved by: WEIDENBACH, GARY L, Facility Manager/Designee
Date: 08/21/2001
Telephone No.: (937) 865-3241

Approved by: WHITE, CHRISTOPHER A, Facility Representative/Designee
Date: 08/22/2001
Telephone No.: (937) 865-4396

Approved by: Approval delegated to FR, Program Manager/Designee

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Date: 08/22/2001
Telephone No.:

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OH-MB-EGGM-EGGMAT03-1996-0005 FINAL

Occurrence Report
Before 2003 Redesign

Main Hill Facilities

(Name of Facility)

Balance-of-Plant

(Facility Function)

Mound Plant EG&G Mound Applied Technologies

(Laboratory, Site, or Organization)

Name: Jeffrey L. Boston
Title: Facilty Manager **Telephone No.:** (937) 865-3262

(Facility Manager/Designee)

Name: BOSTON, JEFFREY L
Title: BLDG MGR EXPLOSIVE FACILITIES **Telephone No.:** (513) 865-3262

(Originator/Transmitter)

Name: D. V. Dixon **Date:** 03/27/1997

(Authorized Classifier (AC))

1. Occurrence Report Number: OH-MB-EGGM-EGGMAT03-1996-0005

Discovery of Legacy Contamination in DS Building (ROLL-UP) Again, Items in DS

2. Report Type and Date: FINAL

	Date	Time
Notification:	11/06/1996	14:01 (MTZ)
Initial Update:	11/07/1996	18:27 (MTZ)
Latest Update:	03/27/1997	07:40 (MTZ)
Final:	07/11/1997	12:00 (MTZ)

3. Occurrence Category: Off-Normal

4. Number of Occurrences: 3 **Original OR:**

5. Division or Project: E G & G Mound Applied Technologies

6. Secretarial Office: EM - Environmental Management

7. System, Bldg., or Equipment: DS - Building

8. UCNI?: No

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9. Plant Area: Main Hill Area

10. Date and Time Discovered: 11/05/1996 15:15 (ETZ)

11. Date and Time Categorized: 11/05/1996 15:20 (ETZ)

12. DOE HQ OC Notification:

Date	Time	Person Notified	Organization
11/05/1996	15:45 (ETZ)	Madan Dev	DOE/MEMP

13. Other Notifications:

Date	Time	Person Notified	Organization
11/05/1996	15:45 (ETZ)	Madan Dev	DOE/MEMP
11/13/1996	09:30 (ETZ)	Fred Holbrook	DOE/MEMP
01/29/1997	10:20 (ETZ)	Fred Holbrook	DOE/MEMP

14. Subject or Title of Occurrence:

Discovery of Legacy Contamination in DS Building (ROLL-UP)

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15. Nature of Occurrence:

01) Facility Condition
D. Loss of Control of Radioactive Material/Spread of Radioactive Contamination

---

16. Description of Occurrence:

Occurrence #1 -
At 0850 hours (ETZ) on November 5, 1996, Radiological Control Technicians performing a Safe Shutdown radiological survey discovered radiological contamination on a storage cabinet located in DS building, room 221. DS building, room 221, had not previously been posted as a control area. Smears were taken from the cabinet for scintillation analysis. At 1515 hours (ETZ), scintillation results indicated a maximum tritium activity of 2,988,210 dpm/100 cm2. The DOE Radiological Control Manual, Table 2-2, specifies that the maximum allowable amount of removable tritium is 10,000 dpm/100cm2. Since the removable tritium value exceeded twice the allowable DOE RADCON Table 2-2 value, this occurrence was determined to be a DOE 232.1 reportable occurrence.

Between October 28, 1996 and November 6, 1996, other radiologically contaminated items have been discovered in seven other rooms in DS building. Investigations of some of the recently discovered items is still in process. Business entities performing non-DOE related work at the site have had access to some of the rooms where contamination was discovered. Once contamination is discovered in a room, the room is immediately posted as a "Controlled Area". All rooms which still contain contamination or contaminated equipment have been posted as a Controlled Area.

Radiological operations personnel do not plan to post the entire building as a Controlled Area because their analysis of

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survey results performed to date do not indicate there is a health risk to employees or the public.

This occurrence report was reviewed by an Authorized Derivative classifier (Donald V. Dixon, Space Manager) on 11/7/96 at 1600 hours (ETZ) and contains no classified or UCNI information.

Occurrence #2 - At 0900 (ETZ) on November 12, 1996 Radiological Survey Analysis determined that samples taken from a circuit test board on November 6, 1996 in DS Building room #205 contained 107,238 dpm/100 cm2 of removable tritium contamination.

Occurrence #3 - At 0935 (ETZ) on January 29, 1997 Radiological Survey Analysis determined that samples taken from a metrology equipment storage cabinet on January 27, 1997 in an Uncontrolled Area of DS Building Room #116 contained 23,870 dpm/100 cm2 of removable Tritium contamination.

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17. Operating Conditions of Facility at Time of Occurrence:

Normal day time operations

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18. Activity Category:

05 - Shutdown

---

19. Immediate Actions Taken and Results:

Occurrence #1 -
DS building, room 221, was posted as a Controlled Area. Other surrounding rooms where the recently discovered contaminated materials and sealed sources reside were also posted as Controlled Areas. A 100% Radiological Survey for DS building is in process.
Occurrence #2 -
DS Building, room #205, was posted as a Radiological Controlled Area. The contaminated Circuit test board was removed and placed in a Radiological Materials Area.
Occurrence #3 -
DS Building, room #116 was posted as a Radiological Controlled Area. The contaminated cabinet drawer was removed and placed in a Radilogical Materials Area.

---

20. Direct Cause:

8) Radiological/Hazardous Material Problem
A. Legacy Contamination

21. Contributing Cause(s):

22. Root Cause:

8) Radiological/Hazardous Material Problem
A. Legacy Contamination

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23. Description of Cause:

The discovery of these "legacy material" contaminations is the result of an intensive free release survey in support of Safe-shutdown. As items are surveyed for release, relatively low level contamination has been found. The actual event that caused these items to become contaminated probably occurred years ago and is being discovered now because of increased monitoring & improved instrumentation sensitivities.

24. Evaluation (by Facility Manager/Designee):

There are presently no known uptakes associated with this occurrence.
No effect on the plant, systems, or the environment is expected. The discovery of legacy contamination is expected during monitoring of Safe Shutdown activities.

25. Is Further Evaluation Required?: No

26. Corrective Actions
(* = Date added/revised since final report was approved.)

1. Radiological Operations will survey active User Centers and all equipment.

Target Completion Date: 12/01/1996	**Completion Date:** 12/01/1996

2. Investigate radiological survey records of Reconfiguration equipment and materials that were transferred to other facilities. If surveys were not conducted, contact the other facilities to notify them of the possibility of contamination of equipment and materials received from DS Building.

Target Completion Date: 03/01/1997	**Completion Date:** 03/20/1997

27. Impact on Environment, Safety and Health:

No impact on the environment or worker/public safety and health as a result of this occurrence is expected.

No contamination of individuals on-site, no potential for further spread of contamination, and the affected areas or equipment have been decontaminated, removed, or posted as contamination areas.

The significance relative to applicable limits is as follows:

Occurrence #1 - 2,988,210 dpm/100 cm2 on a cabinet. The allowable limit (from RadCon Manual Table 2-2) for an Uncontrolled Area on-site is 10,000 dpm/100 cm2 for Tritium.

Occurrence #2 - 107,238 dpm/100 cm2 removable tritium contamination. The allowable limit (from RadCon Manual Table 2-2) for an Uncontrolled Area on-site is 10,000 dpm/100 cm2.

Occurrence #3 - 23,870.4 dpm/100 cm2 on the cabinet drawer. The allowable limit (from RadCon Manual Table 2-2) for an Uncontrolled Area on-site is 10,000 dpm/100 cm2.

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28. Programmatic Impact:

No programmatic impact is expected.

29. Impact on Codes and Standards:

None

30. Lessons Learned:

The potential that legacy contamination is present in multiuse buildings is very high and all equipment or materials that are removed from the buildings should, at the very least, be evaluated for radiological contamination. The is especially important if the equipment or materials is being transfered offsite.
The routine statistical radiological survey of all bui would be beneficial in determining which buildings have the potential for contamination.

31. Similar Occurrence Report Numbers:

OH-MB-EGGM-EGGMATO3-1996-0001
OH-MB-EGGM-EGGMAT03-1996-0004

32. User-defined Field #1:

33. User-defined Field #2:

34. HQ Keyword(s):

06B--Radiological Issues - Facility/Equipment/Site Contamination

35. DOE Facility Representative Input:

36. DOE Program Manager Input:

The following information is provided to support the close out of ORPS Reports concerning legacy radioactive contamination found at Mound:

1. EG&G Mound has completed a "wall to wall" characterization survey of M and DS Buildings.

2. All radioactive contamination identified during these characterization surveys was controlled as it was found.

3. The characterization surveys and release of any site buildings was performed using the following documents:
- DOE-MEMP Radiological Protection Position Determination on

Release of Material dated May 1, 1996 and revised on January

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7,

1997
- MD-80043, Operation 400 - Radioactive Material Transfer and

Unrestricted Release of Property/Waste
- Generic Process for the Disposition of Buildings That Have
Potential
or Actual Radiological Contamination dated January 1997

(Developed by the Cleanup Standards Committee for the Ohio

Federal Facilities Issues and Challenges Forum)

Entered by: TRACY, TERRANCE Date: 07/11/1997

---

37. Approvals:

Approved by: Jeffrey L. Boston, Facility Manager/Designee
Date: 03/27/1997
Telephone No.: (937) 865-3262

Approved by: HOLBROOK, FRED B, Facility Representative/Designee
Date: 03/27/1997
Telephone No.: (513) 865-4677

Approved by: TRACY, TERRANCE, Program Manager/Designee
Date: 07/11/1997
Telephone No.: (301) 903-2173

OH-MB-EGGM-EGGMAT03-1996-0006 FINAL

Occurrence Report
Before 2003 Redesign

Main Hill Facilities

(Name of Facility)

Balance-of-Plant

(Facility Function)

Mound Plant EG&G Mound Applied Technologies

(Laboratory, Site, or Organization)

Name: Jeffrey L. Boston
Title: Facility Manager **Telephone No.:** (937) 865-3262

(Facility Manager/Designee)

Name: BOSTON, JEFFREY L
Title: BLDG MGR EXPLOSIVE FACILITIES **Telephone No.:** (513) 865-3262

(Originator/Transmitter)

Name: D. V. Dixon **Date:** 04/09/1997

(Authorized Classifier (AC))

1. Occurrence Report Number: OH-MB-EGGM-EGGMAT03-1996-0006

Ethylene Glycol Leak - DS Building Contained on site, READ →

2. Report Type and Date: FINAL

	Date	Time
Notification:	12/09/1996	14:30 (MTZ)
Initial Update:	01/23/1997	06:53 (MTZ)
Latest Update:	04/09/1997	12:54 (MTZ)
Final:	06/05/1997	09:26 (MTZ)

3. Occurrence Category: Off-Normal

4. Number of Occurrences: 1 **Original OR:**

5. Division or Project: E G & G Mound Applied Technologies

6. Secretarial Office: EM - Environmental Management

7. System, Bldg., or Equipment: DS Building

8. UCNI?: No

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9. Plant Area: Main Hill Area

10. Date and Time Discovered: 12/08/1996 14:35 (ETZ)

11. Date and Time Categorized: 12/08/1996 15:45 (ETZ)

12. DOE HQ OC Notification:

Date	Time	Person Notified	Organization
12/09/1996	07:40 (ETZ)	Fred Holbrook	DOE/MEMP

13. Other Notifications:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

14. Subject or Title of Occurrence:

Ethylene Glycol Leak - DS Building

---

15. Nature of Occurrence:

02) Environmental
B. Release of Hazardous Substances/Regulated Pollutants/Oil

---

16. Description of Occurrence:

At 1435 ETZ on 12/08/96 on duty Maintenance personnel determined that an ethylene glycol leak had occurred in DS Building Air Handler #6 cooling coil.
The leak comprised a total of 1880 gallons of 30% solution of Ethylene Glycol. This corresponds to 5,245 pounds of Ethylene Glycol. The CERCLA reportable quantity (per 40 CFR 302) for Ethylene Glycol is 5,000 pounds.

Read

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17. Operating Conditions of Facility at Time of Occurrence:

Normal operating conditions

---

18. Activity Category:

03 - Normal Operations (other than Activities specifically listed in this Category)

---

19. Immediate Actions Taken and Results:

Upon discovery of the loss of ethylene glycol pressure, Ethylene Glycol Spill Procedures were initiated. The location of the leak was determined and valved off, and the discharged ethylene glycol contained in the building and the Waste Water Treatment Plant equalization basins with no known release off site.

Read

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The failed fitting was replaced and the system returned to operation.

20. Direct Cause:

1) Equipment/Material Problem
A. Defective or Failed Part

21. Contributing Cause(s):

22. Root Cause:

2) Procedure Problem
A. Defective or Inadequate Procedure

23. Description of Cause:

The Root Cause of the event that permitted the Ethylene Glycol leak to exceed the CERCLA reportable quantity was an inadequate Glycol Spill Procedure. The procedure did not provide the operator with the most logical and explicit instructions that would assist in quickly detecting the location of a Ethylene Glycol leak.

The Direct cause of the Ethylene Glycol leak was determined to be a failed fitting located in the DS Building penthouse attached to Airhandling Unit #6. The fitting appeared to have been subjected to vibration over a long period of time.

24. Evaluation (by Facility Manager/Designee):

No effect on the plant or the system is expected. The spilled Ethylene Glycol entered the sanitary sewer system through the floor drains in DS Building penthouse, thus allowing the glycol to be contained at the Waste Water Treatment Plant Equalization basins. The Ethylene Glycol tainted influent was further diluted and pumped to a 65,000 gallon digester in preparation for processing.

25. Is Further Evaluation Required?: No

26. Corrective Actions
(* = Date added/revised since final report was approved.)

1. Modify the Ethylene Glycol Spill Procedure in order to; 1) change the order of loop isolation sequence, 2) visually verify that isolation valves have actuated , and 3) Operate secondary pumps to stabilize system,.

Target Completion Date: 01/16/1997	**Completion Date:** 01/15/1997

27. Impact on Environment, Safety and Health:

No impact to the onsite/offsite environment, safety, and

Rsd

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health of workers or the public is expected. However, The spilled Ethylene Glycol did enter the sanitary sewer system through the floor drains in DS Building penthouse. The glycol was contained at the Waste Water Treatment Plant Equalization basins and the Ethylene Glycol tainted influent was further diluted and pumped to a 65,000 gallon digester in preparation for processing.

28. Programmatic Impact:

There was no Programmatic Impact.

29. Impact on Codes and Standards:

None

30. Lessons Learned:

None

31. Similar Occurrence Report Numbers:

OH-MB-EGGM-EGGMAT03-1996-0003

32. User-defined Field #1:

33. User-defined Field #2:

34. HQ Keyword(s):

02I--Environmental Issues - Release
05I--Mechanical/Structural Systems - Mechanical Equipment

35. DOE Facility Representative Input:

Agree with root cause determination. Possible contributing cause is equipment reaching end-of-life state.

The development of an accurate, usable spill response procedure - with appropriate operator training - will prevent spills of this magnitude in the future.

Entered by: POWELL, RAYMOND J Date: 04/14/1997

36. DOE Program Manager Input:

37. Approvals:

Approved by: Jeffrey L. Boston, Facility Manager/Designee

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Date: 04/09/1997
Telephone No.: (937) 865-3262

Approved by: POWELL, RAYMOND J, Facility Representative/Designee
Date: 04/14/1997
Telephone No.: (513) 865-3041

Approved by: TRACY, TERRANCE, Program Manager/Designee
Date: 06/05/1997
Telephone No.: (301) 903-2173

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OH-MB-EGGM-EGGMAT05-1996-0001 FINAL

Occurrence Report
Before 2003 Redesign

Utilities Facilities

(Name of Facility)

Environmental Restoration Operations

(Facility Function)

Mound Plant EG&G Mound Applied Technologies

(Laboratory, Site, or Organization)

Name: Jon D. Yonko
Title: Maintenance Manager **Telephone No.:** (513) 865-3151

(Facility Manager/Designee)

Name: KOEHLER, KATHY G
Title: SITE GROUNDS MANAGER **Telephone No.:** (513) 865-4886

(Originator/Transmitter)

Name: Ronald A. Mahan **Date:** 12/18/1996

(Authorized Classifier (AC))

1. Occurrence Report Number: OH-MB-EGGM-EGGMAT05-1996-0001

Alpha Contamination Discovered in Abandoned Waste Transfer Manhole DS & 48 Location of Manhole

2. Report Type and Date: FINAL

	Date	Time
Notification:	11/20/1996	15:19 (MTZ)
Initial Update:	12/19/1996	14:05 (MTZ)
Latest Update:	12/19/1996	14:05 (MTZ)
Final:	02/13/1997	07:00 (MTZ)

3. Occurrence Category: Off-Normal

4. Number of Occurrences: 1 **Original OR:**

5. Division or Project: EG&G Mound Applied Technologies

6. Secretarial Office: EM - Environmental Management

7. System, Bldg., or Equipment: Abandoned Waste Transfer lines between DS & Bldg. 48

8. UCNI?: No

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9. Plant Area: Main Hill

10. Date and Time Discovered: 11/18/1996 13:45 (ETZ)

11. Date and Time Categorized: 11/19/1996 09:00 (ETZ)

12. DOE HQ OC Notification:

Date	Time	Person Notified	Organization
NA	NA	NA	NA

13. Other Notifications:

Date	Time	Person Notified	Organization
11/20/1996	13:00 (ETZ)	Raymond J. Powell	DOE/MEMP

14. Subject or Title of Occurrence:

Alpha Contamination Discovered in Abandoned Waste Transfer Manhole

---

15. Nature of Occurrence:

01) Facility Condition
D. Loss of Control of Radioactive Material/Spread of Radioactive Contamination

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16. Description of Occurrence:

In preparation for the Underground Lines Project (an Environmental Restoration Project), a Radiological Control Technician (RCT) was surveying an abandoned radionuclide waste transfer line manhole located between DS building and building 48. On November 18, 1996, analytical results from wipes taken inside the manhole were available and revealed a maximum count of 102 dpm/100cm2 loose alpha. Radon was not a contributing factor to the alpha levels detected. Gamma spectroscopy results indicated that the transuranic isotope associated with the contamination was Plutonium 238 within an eighty percent confidence level. The area where the manhole resides was not previously posted as a Controlled area and levels detected exceeded twice the DOE Radiological Control Manual values.

Earlier Environmental Restoration reports (generated by Roy F. Weston, Inc.) had shown the underground lines were likely contaminated with radionuclide material. Prior to initiation of the work, a RCT had identified slightly elevated fixed Beta activity on the top of the manhole cover during the pre-work survey. The RCT did not post the area as a result of the discovery because posting of Soil Contamination Areas and Underground Radiological Areas has not been communicated nor implemented.

This occurrence report was reviewed by an Authorized Derivative Classifier (Ronald A. Mahan) on 12/16/96 at 14:00 hour (ETZ) and contains no Classified or UCNI Information.

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17. Operating Conditions of Facility at Time of Occurrence:

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Normal Plant Operations

18. Activity Category:

11 - Facility Decontamination/Decommissioning

19. Immediate Actions Taken and Results:

The Manhole was posted as a Controlled Area.

20. Direct Cause:

8) Radiological/Hazardous Material Problem
A. Legacy Contamination

21. Contributing Cause(s):

3) Personnel Error
A. Inattention to Detail

22. Root Cause:

6) Management Problem
E. Policy Not Adequately Defined, Disseminated, or Enforced

23. Description of Cause:

The direct cause of this occurrence is due legacy radioactive waste in waste transfer lines from historic operations.

The contributing problem associated with this occurrence was due to a personnel error, inattention to detail. When the elevated beta count was detected on the manhole cover, radiological operations personnel could have taken further action to label the manhole cover and surrounding area since the survey was being conducted in preparation of future surveying and analysis work inside the manhole.

The root cause of the occurrence is the failure to mark the manhole as either a Soil Contamination Area or Underground Radiological Materials Area prior to surveying the work area. The procedure for posting SCA's and URMA's has yet to be defined and disseminated. The administrative controls associated with working in SCA's and URMA's also needs to be defined and disseminated. The target completion date for work associated with the posting of exterior areas as either SCA's or URMA's is scheduled for February 1997.

24. Evaluation (by Facility Manager/Designee):

Posting of URMA's and SCA's is normally not done until a complete site characterization has been performed. Since the Environmental Restoration Program has been expedited to complete cleanup in a more timely and more economic manner, complete assessments with Feasibility Studies and Records of decision (ROD's) have been replaced by doing sufficient

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characterization to enable planning of a Removal Action.

To implement DOE guidance without complete site characterization data, SCA's and URMA's will be posted on the basis of available environmental sampling data. Areas of known or suspected radionuclide contamination will be posted as an URMA. The URMA posting will be removed prior to initiation of soil intrusion and posted as a SCA. Areas will not be de-posted until they meet on of the following criteria: 1.) the Environmental Restoration Removal Action cleanup goals have been achieved. 2.) When the Potential Release Site (PRS) is classified as "No Further Assessment"; or 3.) For D&D projects when the cleanup value is achieved.

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25. Is Further Evaluation Required?: No

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26. Corrective Actions
(* = Date added/revised since final report was approved.)

1.	RCT Team Leader to instruct RCT's to be alert for indicators of radioactivity in unexpected areas and the resulting need to ensure proper radiological controls are in place.	
	Target Completion Date: 11/28/1996	**Completion Date:** 11/28/1996
2.	The remaining manholes associated with Environmental Restorations Underground Lines Project will be posted as Controlled Areas.	
	Target Completion Date: 11/27/1996	**Completion Date:** 11/27/1996
3.	Radiological Operations will post soils areas which exceed the posting criteria as either "Soil Contamination Area" or "Underground Radiological Materials Area".	
	Target Completion Date: *04/30/1997	**Completion Date:** 06/26/1997

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27. Impact on Environment, Safety and Health:

The RCT was not exposed to contamination since he did not enter the manhole. An extension rod was used to obtain the wipes inside the manhole.

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28. Programmatic Impact:

None

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29. Impact on Codes and Standards:

None

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30. Lessons Learned:

Post known contamination areas appropriately.

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31. Similar Occurrence Report Numbers:

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OH-MB_EGGM-EGGMAT04-1996-0008
OH-MB-EGGM-EGGMAT04-1996-0011

32. User-defined Field #1:

33. User-defined Field #2:

34. HQ Keyword(s):

06B--Radiological Issues - Facility/Equipment/Site Contamination
06F--Radiological Issues - Radcon Procedures (Start Feb 99)

35. DOE Facility Representative Input:

DOE/MB is tracking the posting of underground/soil contamination areas. All known areas and areas where contamination could reasonably be expected to be present will be appropriately posted by 2/28/97.

Entered by: POWELL, RAYMOND J Date: 01/13/1997

36. DOE Program Manager Input:

37. Approvals:

Approved by: Jon D. Yonko, Facility Manager/Designee
Date: 12/19/1996
Telephone No.: (513) 865-3151

Approved by: POWELL, RAYMOND J, Facility Representative/Designee
Date: 01/13/1997
Telephone No.: (513) 865-3041

Approved by: TRACY, TERRANCE, Program Manager/Designee
Date: 02/13/1997
Telephone No.: (301) 903-2173

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Appendix N

PRS Information

MOUND PLANT
PRS 103
SOIL CONTAMINATION - E BUILDING

RECOMMENDATION:

This soils location was identified as a Potential Release Site (PRS) because of the detection of Volatile Organic Compounds (VOCs) during the Mound Reconnaissance Sampling soil gas survey. The compounds identified were trichloroethane (111-TCA), trichloroethene (TCE), and toluene.

Calculations were performed converting the 10^{-6} Risk Based Guideline Values (given in mg contaminant per kg soil) to corresponding 10^{-6} Risk Based Guideline Values for soil gas concentrations (parts contaminant per parts soil gas). The results of the calculation showed that the 111-TCA detection was approximately 25,000 times less than guideline criteria, TCE approximately 10 times less than guideline criteria and toluene 1,800 times less than guideline criteria. Additionally, Pu-238 and Th-232 were at concentrations below their respective guideline criteria of 25 pCi/g and 5 pCi/g.

Therefore, since the VOC soil gas detections establishing this soils location as a PRS have been shown not to be evidence of contamination above guideline criteria and since there is no additional evidence of contamination, PRS 103 requires NO FURTHER ASSESSMENT.

CONCURRENCE:

DOE/MB: Arthur W. Kleinrath, Remedial Project Manager — 8/20/96 (date)

USEPA: Timothy J. Fischer, Remedial Project Manager — 8/20/96 (date)

OEPA: Brian K. Nickel, Project Manager — 8/24/96 (date)

SUMMARY OF COMMENTS AND RESPONSES:

Comment period from ~~9/15/96~~ 9/16/96 to 10/15/96

☒ No comments were received during the comment period.

☐ Comment responses can be found on page _____ of this package.

MOUND PLANT
PRS 105
FORMER SOLVENT STORAGE SITE
E BUILDING SHED

RECOMMENDATION:

Potential Release Site (PRS) 105 is a remediated soils location that was the former location of the E Building Solvent Storage Shed. This area was identified as a PRS due to the shed's use as a short term storage area for both fresh and spent solvents. The compounds of concern were identified as trichloroethene (TCE), ethanol, and methanol.

In 1988, the shed's structure, concrete floor and underlying soil was removed (soil was excavated to approximately a 4 foot depth). Subsequent verification sampling found no evidence of any organics in the soil in excess of the 10^{-6} Risk Based Guideline Values. A 1994 quantitative soil gas study and a 1984 radiological study, near PRS 105, also found no evidence of contamination in excess of guideline criteria.

Therefore, since the removal verification results found no remaining evidence of contamination from operations at the E Building Storage Shed and since no additional history or lab evidence of contamination exists at this PRS, PRS 105 requires NO FURTHER ASSESSMENT.

CONCURRENCE:

DOE/MB: Arthur W. Kleinrath, Remedial Project Manager 8/20/96 (date)

USEPA: Timothy J. Fischer, Remedial Project Manager 8/20/96 (date)

OEPA: Brian K. Nickel, Project Manager 8/20/96 (date)

SUMMARY OF COMMENTS AND RESPONSES:

Comment period from 9/15/96 9/16/96 to 10/15/96

☒ No comments were received during the comment period.

☐ Comment responses can be found on page _____ of this package.

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REV B

MOUND PLANT RECOMMENDATION

DS BUILDING

Background:

DS Building is a 47,810 square foot single story concrete building with a built up membrane roof and three penthouses. It was constructed in 1965 and served as the Metrology Lab and Explosive Testing Facility. PRS 128, the DS Building Solvent Storage Shed, is also considered as part of this facility.

Recommendation:

After thorough review of the environmental data and the Building Data Package, the Core Team agrees that no environmental concerns are associated with DS Building. Because of the presence of PRS 122 (radioactive waste lines) located underneath DS Building, the Core Team has determined that it is not appropriate to transfer DS Building at this time. After PRS 122 is evaluated as NFA or clean up has been completed, title transfer for DS Building can occur. However, the Core Team feels that DS Building is protective of human health and the environment for the purpose of leasing for commercial/industrial use.

Concurrence:

DOE/MEMP: Sam Cheng, D&D Team Leader — 4/16/98 (date)

USEPA: Timothy J. Fischer, Remediation Project Manager — 4/23/98 (date)

OEPA: Brian K. Nickel, Project Manager — 4/16/98 (date)

4/16/98
4:18 pm

R

9.0 RECOMMENDATION

This decision document represents the selected Removal Action for the decontamination and decommissioning of T Building, developed in accordance with CERCLA as amended by SARA, and not inconsistent with the NCP. This decision is based on the administrative record for the site.

Conditions at the site meet the NCP Section 300.415 (b)(2) criteria for a removal and we recommend initiation of the response action.

Approved:

DOE/MCP: _____ 2/27/03
Robert S. Rothman, Remedial Project Manager Date

USEPA: _____ 2/19/03
Timothy J. Fischer, Remedial Project Manager Date

OEPA: _____ 2/27/03
Brian K. Nickel, Project Manager Date

mcl June 6-16-03 ~~February~~ 2003 ~~Public Review Draft~~ Final mcl 6-16-03

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of americium are associated with the count lab. Certain areas of the building have been and are still used for the storage of Transuranic (TRU) materials. The T Building footprint is 173,000 square feet. Usable floor area, including the tunnel, is 150,000 square feet

As part of the ongoing decontamination and decommissioning (D&D) process at the MCP Site, limited volumes of CERCLA hazardous/mixed waste will be stored in T Building in accordance with ARARs presented in Appendix B. Waste Management will package and ship the CERCLA hazardous/mixed waste from T Building to an appropriate disposal site.

Associated PRSs

Twenty-seven Potential Release Sites (PRSs) are associated with T Building as listed in Table 1 and include a solidification unit, a waste compactor, and twenty-five sumps/tanks. All of these PRSs will be sufficiently decontaminated or removed to a No Further Assessment (NFA) status prior to building transfer.

Table 1 - PRSs Associated with T Building

PRS	Description
213	Solidification unit
214	Solid radioactive waste compactor
215	Cooling water sump (Tank 124) Room T-1
216	Sanitary waste sump (Tank 125) Corridor 2
217	Sanitary waste sump (Tank 126) Corridor 2
218	Sanitary waste sump (Tank 127) Corridor 2
219	Cooling water sump (Tank 128) Stair 3
220	Steam condensate sump (Tank 129) T-78
221	Sanitary waste sump (Tank 130)
222	Sanitary waste sump (Tank 131)
223	Cooling system condensate sump (Tank 132)
224	Sanitary waste sump (Tank 133)
225	Beta waste water sump (Tank 227) T-23
226	Floor drain sump (Tank 228) T-3
227	Alpha waste water sump (Tank 229)
228	Alpha waste water sump (Tank 230)
229	Alpha waste water sump (Tank 231)
230	Alpha waste water sump (Tank 232)

PRS	Description
231	Alpha waste water sump (Tank 233)
232	Alpha waste water sump (Tank 234)
233	Alpha waste water sump (Tank 235)
339	Waste water sump (Tank 250)
340	Waste water sump (Tank 251)
341	Condensate sump (Tank 269) T-90
342	Hot side fire water tank (Tank 271) T-1
343	Fire water sump (Tank 272)
344	Fire water sump (Tank 273)

MOUND PLANT
PRS 243
SOIL CONTAMINATION - PAINT SHOP BUILDING

RECOMMENDATION:

This soils location was identified as a Potential Release Site (PRS) because of the detection of toluene during the Mound Reconnaissance Sampling soil gas survey.

Calculations were performed converting the toluene 10^{-6} Risk Based Guideline Value (given in mg contaminant per kg soil) to a corresponding 10^{-6} Risk Based Guideline Values for soil gas concentrations (parts contaminant per parts soil gas). The results of the calculation showed that the toluene detection was approximately 20,000 times less than the toluene guideline criteria. Additionally, one surface sample taken in the vicinity of PRS 243 showed that plutonium-238 and thorium-232 concentrations were below their respective guideline criteria of 25 pCi/g and 5 pCi/g.

Therefore, since the Volatile Organic Compound (VOC) soil gas detections establishing this soils location as a PRS have been shown not to be evidence of contamination above guideline criteria and since there is no additional lab data or history of evidence of contamination, PRS 243 requires NO FURTHER ASSESSMENT.

CONCURRENCE:

DOE/MB: Arthur W. Kleinrath, Remedial Project Manager — 8/20/96 (date)

USEPA: Timothy J. Fischer, Remedial Project Manager — 8/20/96 (date)

OEPA: Brian K. Nickel, Project Manager — 8/20/96 (date)

SUMMARY OF COMMENTS AND RESPONSES:

Comment period from ~~9/15/96~~ 9/16/96 to 10/15/96

☒ No comments were received during the comment period.

☐ Comment responses can be found on page _____ of this package.

MOUND PLANT
PRS #429, 430, 431, 432, 433

RECOMMENDATION:

PRSs 429, 430, 431, 432, & 433 were identified because the underground line segments carried radioactively contaminated effluent from T Building operations to the Waste Disposal building (WD). Several radionuclides (including Cobalt-60) are present in the waste lines at a greater than 1 in 10,000 (10^{-4}) risk level.

Therefore, a RESPONSE ACTION is recommended for PRSs 429, 430, 431, 432, & 433.

CONCURRENCE:

DOE/MEMP: _____ 9/18/00
Robert S. Rothman, Remedial Project Manager (date)

USEPA: _____ 9/18/00
Timothy J. Fischer, Remedial Project Manager (date)

OEPA: _____ 9/18/00
Brian K. Nickel, Project Manager (date)

SUMMARY OF COMMENTS AND RESPONSES:

Comment period from _____ to _____

☐ No comments were received during the comment period.

☐ Comment responses can be found on page _____ of this package.

R

MOUND PLANT
PRS #434, 435, 436

RECOMMENDATION:

PRSs 434, 435 and 436 were identified because the underground line segments carried radioactively contaminated effluent from T Building operations to the Waste Disposal building (WD). Several radionuclides (including Cobalt-60) are present in the waste lines at a greater than 1 in 10,000 (10^{-4}) risk level.

Therefore, a RESPONSE ACTION is recommended for PRSs 434, 435, & 436.

CONCURRENCE:

DOE/MEMP: _____ 9/18/00
Robert S. Rothman, Remedial Project Manager (date)

USEPA: _____ 9/18/00
Timothy J. Fischer, Remedial Project Manager (date)

OEPA: _____ 9/18/00
Brian K. Nickel, Project Manager (date)

SUMMARY OF COMMENTS AND RESPONSES:

Comment period from _____ to _____

☐ No comments were received during the comment period.

☐ Comment responses can be found on page _____ of this package.

R

Appendix O

Work Plan (Draft)

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 Buildings DS and 25**

2. WORK PACKAGE NUMBER: BOSS-37556-00 | **REQUESTOR: Steve Davis**

3. WORK PACKAGE SCOPE:

The purpose of this effort is to demolish Building DS (including a solvent storage shed on the east side of the building, a storage shed on the north side of the building, and a storage shed, on the dock on the west side of the building) and Building 25. Also, the sections of stanchion/piping that runs on the east, south and west sides of DS Bldg. will be demolished. Heavy equipment will be utilized to demolish the structures (including concrete block structures, slabs, foundations, exterior stairwells, and sidewalks), remove and dispose of the debris, provide site restoration, grading, and erosion mitigation with seeding and mulching. Radiological equipment/sources were stored in both buildings at various times. However, it is believed that no areas within either building were ever contaminated; thus, this is a non-radiological demolition project and no RWP is required. Safe shutdown and utility isolation activities will have already been completed prior to demolition.

4. WORK LOCATION: **Buildings DS and 25, Main Hill Area**

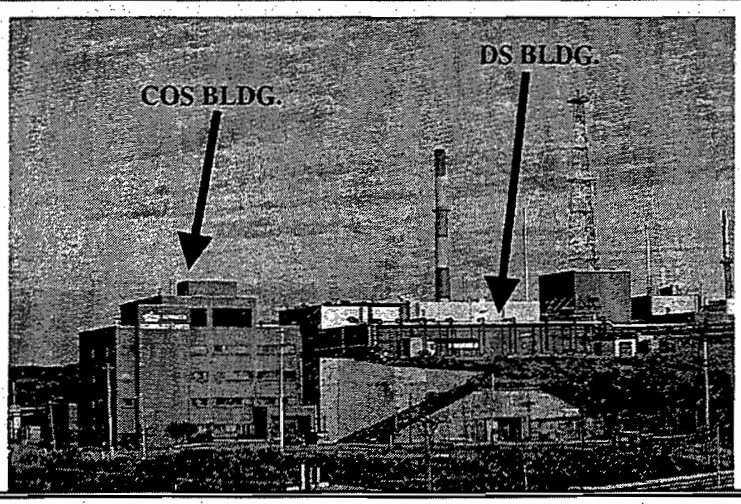
5. WORK PACKAGE PHASES:	**LIST OF APPENDICES:**
1. Site Information	A – PHA/JSHA
2. Site Preparation	B – Pre-job Briefings/Job Status Log
3. Building Demolition Sequence of Work	C – Drawings/Sketches
4. Site Remediation & Demobilization	D – Miscellaneous (RWP, USQ, etc.)
	E – Post-job Conference/Lessons Learned

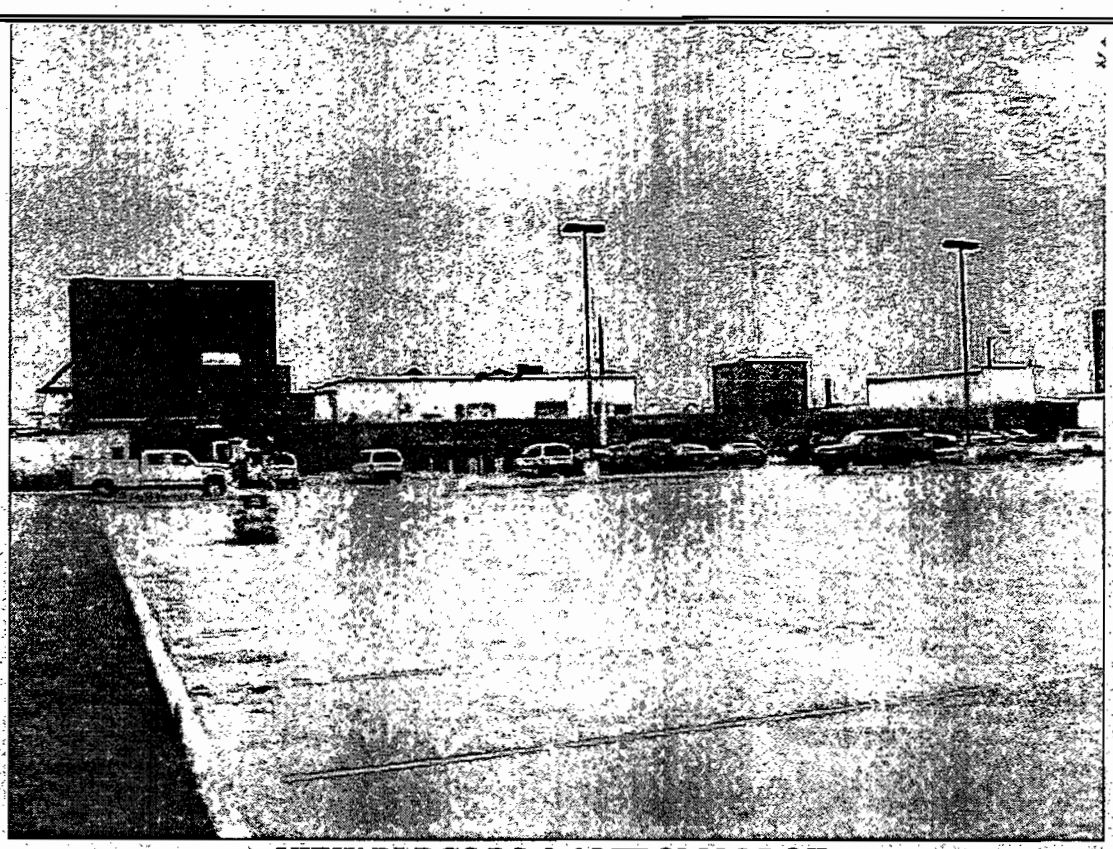
Note: Insert the Work Package phases for the job. A phase is a separately definable portion or evolution of the project.

6. SPECIAL MATERIALS AND EQUIPMENT:

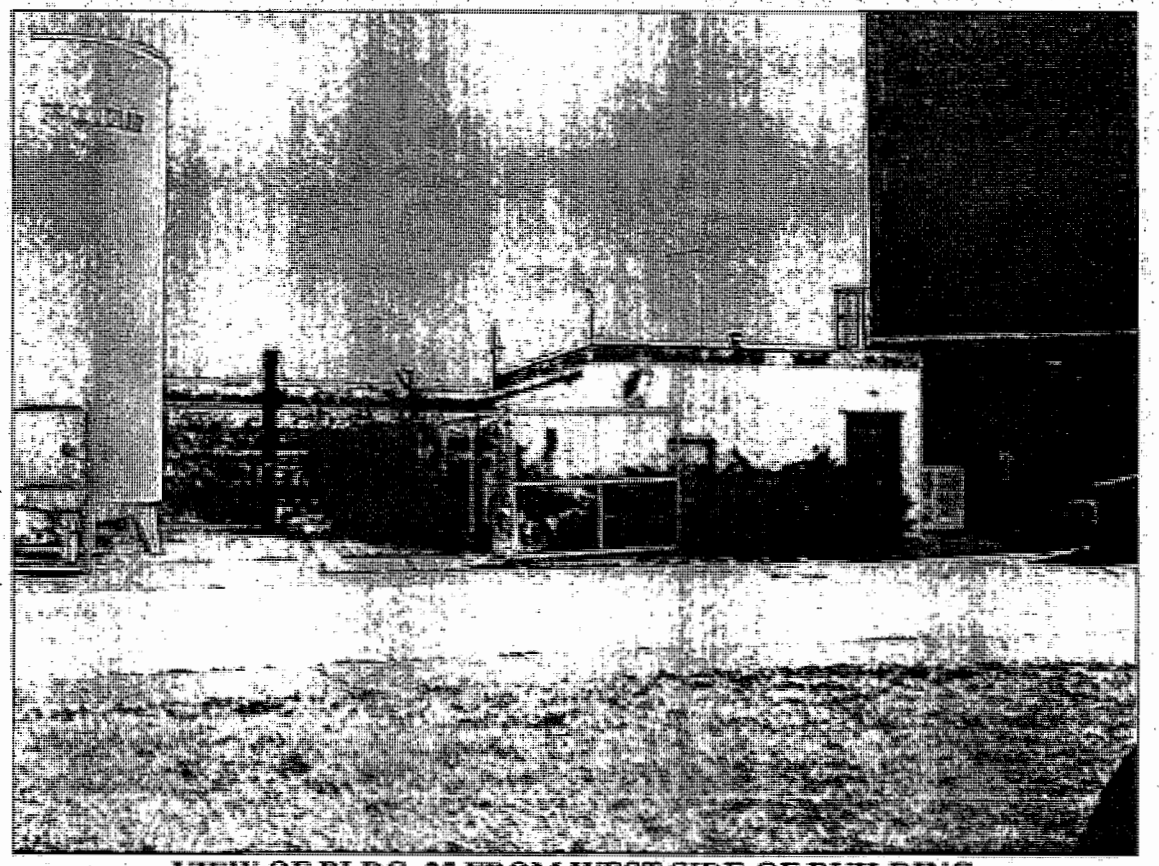
1. Tracked excavator with shear, grapple, hoe ram, concrete cracker/pulverizer, or bucket attachment.
3. Rubber tired and tracked front-end loaders.
4. Transport equipment for debris as required.
5. Fog Cannon
6. Aerial lift/manlift

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





VIEW BLDGS DS & 25 FROM M-LOT



VIEW OF BLDG. 25 FROM WEST SIDE OF BUILDING

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

7. DETAILED WORK STEPS:

7.1 SITE INFORMATION FOR BUILDINGS 25 AND DS

7.1.1 Initial DS Building Construction

DS Building was constructed in 1965, as the "Component Development & Standards Facility" (reference construction drawing AYE352200). The original construction indicates a single-story structure with a second story penthouse. The square footage of the ground floor of the building was approximately 31,815-ft² (252'-10" x 125'-10"). Two adjoining structures (one on its eastern end, and the other on its western end) have been added to DS Building. This increased the square footage to 47,810-ft². Additionally, through the years, the addition or removal of walls has reconfigured a majority of the rooms in the original building and the adjoining additions. The facility originally housed two major operations, Inert work and High Explosives operations.

DS Building exterior walls are supported with continuous 11" reinforced (#4 rebar @12" c/c E. F.) concrete foundation walls bolstered by attached reinforced (4 - #6 vert with #3 @12" c/c ties) concrete piers. These foundation wall concrete piers are located at regular intervals where control joints are located (the pier interval is 22' along the north & south walls and 25' along the east and west walls). Along the north wall, the foundation wall rests on a continuous 3'W X 10"H reinforced concrete footer (reinforcement: #4 @12", 3-#4 cont., plus #4 @12" c/c dowels securing the foundation wall to the footer). In addition the interior of the building (floor/roof) is supported by a grid (~22' X 25'grid over the expanse of the original floor area) of concrete encased I-beam columns (8WF24) supported by concrete piers (2' 6" Dia). The columns are secured to the concrete piers with two 3/4" Dia. "L" anchor bolts.

The exterior walls for most of the building are constructed of 6" masonry block, with the block cavities filled with concrete/grout at control joints. Control joints also have a neoprene expansion gasket. The masonry block exterior walls are covered with a 4" brick veneer. Along the south wall of the building are a series of five contiguous test cells (Rooms 221A-E). The exterior walls of these test cells are aluminum blowout panels. Also, these five contiguous test cells (Rooms 221A-E) and Room 208C have interior 12" walls and ceilings constructed of reinforced concrete (#4 @12", E.W,. E.F.). The walls of these rooms are self-supporting and extend down to the top of T-Bldg. The interior walls are constructed of plaster on steel stud, gypsum wallboard on steel stud, or "special" prefabricated partitions except for a run of wall between the G and H sections (a "area divider wall") which are constructed of mortar filled masonry block..

The majority of the floor slab is 6" reinforced concrete, reinforced with 6 x 6 – 6/6 WWF placed 2" below top of slab or #3 reinforcing bars @ 12" c/c (contractor's option). The floor slab was poured in checkerboard fashion, with maximum area of any section being ~2500 sq. ft. (see sheets 3001, 3002 of AYE352200). Between several floor sections (rooms 103, 107A-C, 108, 109, & 110) are ½" premold or neoprene gaskets. There are also neoprene gaskets separating the floor slab from support columns to allow slabs to be independent of building support columns. The slab thickness for Rooms 107 and 108 is 8" with 2 layers of reinforcing. In addition, there were presses located in the Cells located in Rooms 221A and 221D. At the press locations, the floor thickness was 12", supported by reinforced concrete piers (same reinforcing as other piers). Engineering Drawing 352200, sheet 3002 illustrates the locations of the piers. The distance, from the top of T-Bldg. to the top surface of the floor slab, is 6 feet in height. Beneath the floor slab is 6" of granular fill.

A penthouse (mechanical equipment room) is located on the south-central area of the building roof. The walls of the penthouse are panels of insulated, corrugated steel sheeting (~16 ga.).

The roof support for the building and penthouse is constructed of a grid of I beam sections (~25' x 22' sections). The east-west beams are 12B6.5 (except for the north & south walls, where 12WF27 beams are used); the north-south beams are 16WF36. Open web steel joists (ranging in size from 12J4 to 14J6) run east-west inside the grid sections; with3 rows of continuous steel bridging, top & bottom, running north-south. Addition structural supports are 3"x3"x1/4" Ls (angle steel) running diagonally in the grid sections. The roof is built-up roofing (asphalt) on rigid insulation on 1-1/2" metal decking.

7.1.1.1 1968 DS Building Western Addition

In 1968, a "Developmental and Standards Building Addition", was constructed on the western side of the existing DS Building. This addition would include 24 rooms and four corridors; two of the corridors would be extensions to the east-west corridors included in the original building, as well as a utility penthouse. The new addition increased the square footage of DS Building by 9,060 sq. ft. (125' 10" x 72'). The addition also included an elevated dock with a metal building/shed (construction similar to penthouse construction) on the dock. The dock/shed are located on the west side of the addition.

Construction of the 1968 western addition resembles the construction of the original structure, with a 6" floor slab, set on a grid of piers (~5' tall, spaced on an approximate 24' x 25' grid), with I-beam reinforced columns that extend to the roof.

The support piers are placed on the roof of T Building. The void beneath the slab is filled with granular fill. Exterior wall construction of the building addition is 4" brick veneer over 6' masonry block. The foundation and footer, supporting the exterior wall is similar to the original DS Building construction. The roof is a built-up roof on metal decking, as in the original construction. The penthouse is constructed similar to penthouse on original DS building section, as well, and constructed of insulated, corrugated steel sheeting (~16 ga.). See drawing AYE352201 in Appendix C.

7.1.1.2 1969 DS Building Eastern Addition

Construction of the eastern addition added 9-rooms (including a utility penthouse) and two corridors, to increase the square footage of DS Building by ~6,100 sq. ft. The approximate dimension of the addition is ~47' (south side) x 126'. See drawing AYE353302 in Appendix C.

DS Building's east and south exterior walls and a 6 ½' section of the north wall are supported with continuous 12" reinforced (#4 rebar @12" O.C., E.W., E. F.) concrete foundation walls bolstered by attached reinforced concrete piers. These concrete piers along the foundation wall are located at regular intervals where control joints are located. Including the concrete piers along the foundation walls, the building addition is supported by a grid of reinforced concrete piers (~22'7.5" X 25'grid over the expanse of the floor area; the grid is in 3 rows, with 6 piers per row). The dimensions of the concrete piers and the reinforcing used in the piers vary from location to location; see Sheets 2007 and 2013 of AYE352202 for pier/column details. Secured to the top of the piers are concrete encased I-beam columns (in general, 12WF53 beams in the center row, 8WF35 + 2 welded plates in two outer rows) The columns are secured to the concrete piers with four 5/8" Dia. x 2'6" anchor bolts. The columns extend to the roof and support the floor and roof.

The east and south exterior wall construction generally consists of 4" brick veneer on reinforced concrete block (6"), with a 2" break between the veneer. The concrete block is reinforced with #3 rebar, full height, each side of control joint and at 8' O.C. The block core is fill with grout, full height at reinforcing. The southern exterior wall of the east "T" tower and the east exterior wall of the original DS Bldg. forms the north and west interior walls of this addition, respectively. These walls have the brick surfaces covered with metal lath and plaster.

As illustrated on drawing sheets 2003 and 2006, a 6" reinforced (#4 @ 12" O.C., E.W.) concrete slab sub floor is located approximately 4' above the top of T Building (except in the Rooms 131B and 130A, where the concrete slab floor is 6' above the top of T-Bldg.). There is an elevated floor 2' above the floor slab. The top of the elevated floor is 6' above the top of T Building. The slab sub floor supports the interior room walls. Beneath the slab sub floor is 2' of granular fill.

The roof support for the building addition in the areas surrounding the penthouse is constructed of grid sections of I beam (~22' 7.5" x 25' sections). The east-west beams are 14B17.2 or 14B22 (6' between beam); the north-south beams range in size from 14WF34 to 18WF55(3 rows, one each on east & west ends of bldg. and one down center). In addition 4 rows of 2" x 2" x ¼" steel bridging, equidistantly spaced, run north & south, top & bottom, on the east-west beams. The roof surface in this area is an asphalt built-up roof on 20 ga. corrugated (1 ½") metal decking.
Under the penthouse area, there are east-west beams (21WF55), spaced 6' apart, with north-south beams (30WF108 on the west edge of the penthouse and 27WF94 beams on the east edge of the penthouse). In addition 2 rows of 3.5" x 3.5" x 5/16" steel Z-bridging, equidistantly spaced, run north & south, top & bottom, on the east-west beams. The penthouse floor is 6" reinforced concrete (#5 @ 5", bottom, O.C., E.W.).
In addition, there is additional beam support around floor openings (see sheet 2014).

A penthouse (mechanical equipment room) is located on the east-central area of the building roof. The walls of the penthouse are panels of insulated, corrugated steel sheeting (~16 ga.). The dimensions of the penthouse are ~77 'W x 24 ¾'D x 12'H. The walls and roof of the penthouse are supported by 8WF35 vertical beam (secured to the top of the concrete encased I-beam columns) and 6WF15.5 beams (on structural steel), with 3 ½" x 3 ½" x 5/16" angle steel diagonally between beams. The roof of the penthouse is constructed of east-west running 14B17.2 I-beams spaced 6' 3" apart (end beams are14B22). Two rows of continuous 4" x 4" x 9/16" angle steel run along the bottom flanges of the east-west beams, and is also supported by six sets of diagonally crossing 3 ½" x 3 ½" x 5/16" angle steel. The roof is built-up roofing (asphalt) on rigid insulation on corrugated (1-1/2") metal decking.

The site plan for this addition indicates that a metal building that was located against the eastern wall (near the northeastern corner) of the original DS Building was removed.
A vent pipe was relocated on the eastern side of the northeast corner of the addition, near the sanitary sewer/high-risk hot waste lines. This vent penetrates the DS Building footer, about 1-1/2' above the base of the footer (top of T Building).

7.1.1.3 DS Building Solvent Shed

A solvent shed, to support operations in DS Bldg., constructed ~ 1980, is located at the south-east corner of DS Building. The dimensions of the shed are ~11' x 11' x 10' H. The shed is supported by poured concrete footers and foundation. The 12" W x 8" H footer is reinforce with two horizontal, continuous #5 rebar. The 6" thick poured concrete foundation walls are 2' 10" tall and are reinforced with two #6 horizontal continuous rebar, top & bottom. Protruding from the top of the footer are 3/8" x 6" long vertical anchor bolts, to secure the solvent shed walls to the foundation. The walls and roof of the

solvent shed are corrugated steel sheeting (~16 ga). The shed has 19W4 steel grated flooring in case of solvent spills. There is a 4" thick, poured concrete sub-floor ~8" beneath the steel floor grating. The concrete sub-floor is reinforced with 6" x 6" 6/6-wire mesh. Beneath the sub-floor slab is a vapor barrier and 4" of compacted gravel fill. In the northeast corner of the sub-floor is a solvent spill pit constructed of 18" dia. x 2' tall vitrified clay pipe. The pit pipe is supported by a 2' x 2' x 4" thk concrete pad.
DS Bldg. process piping transferred waste solvents to and from supply drums/storage receptacles located in the shed. This shed is to be demolished with DS Building.

7.1.1.4 DS Building Storage Shed

A storage shed (~8' x 8' x 8'), is located on the walkway pad on the north side of DS Bldg., adjacent to the T-Bldg. west tower. The west and north walls of the shed are formed by the walkway retaining wall, constructed of poured concrete. The east wall is constructed of masonry block. The front wall and roof are constructed of corrugated steel sheeting (~16 ga) The shed was used for storage of hydraulic pumps/oils. This shed is to be demolished with DS Building.

7.1.1.5 DS/COS Corridor

COS Building was constructed in 1986. COS Building connects with DS Building through an access corridor from the south end of DS Building. This access corridor is an extension to DS Building Corridor 3. The access corridor is 9' 10" wide, exterior to exterior (6'6" interior width).
The exterior walls of the DS/COS access corridor are 8" concrete block with a 4" brick facing. The corridor walls are supported by 18" thick, 5' tall, continuous, reinforced (#7 @ 6" V.E.F. & #5 @ 15" H.E.F.) concrete foundation walls. The corridor block walls are secured to the foundation by #6 @ 10" DWL x 3'6" LG, which penetrate into the foundation walls approximately 18". The foundation walls rest on and are secured to the top of T-Bldg. using #7 @18" x 3'6" LG dowels along each face of the foundation walls. The dowels penetrate into the T-Bldg. roof ~21". The floor of the corridor is 6" thick poured reinforced (6 x 6 x w4 x w4 WWF) concrete slab on compacted granular fill. The roof is a built-up asphalt roof system on a concrete roof deck. Where the corridor abuts COS and DS building walls, insulated 4" thick flexible expansion joints are used.

7.1.1.6 DS Building General Information

A high-risk hot waste line and a sanitary sewer line run under the northern side of DS Building. These lines, according to a note on the drawing were encased in concrete under the new eastern building addition. The concrete casing, approximately 3' wide by ~2' thick, is illustrated as being on the top of "T" Building (under DS). A caution on the drawing states "DO NOT BREAK OR PENETRATE EXISTING UNDERGROUND HIGH RISK WASTE LINES."

DS Building has a building grounding wire system comprised of a #1/0 bare copper counterpoise ground conductor around the perimeter of the building, buried at an elevation of 6 inches above the top of T Building. Connections to the buried conductor (using ground wells) from the building grounding system is at maximum 8' intervals.

7.1.2 Building 25 Construction

Building 25 was constructed between 1964 and 1966 (construction drawings are dated 9/64). The approximate dimensions of the building are 19' W x 22' D x 10' H, yielding a square footage of approximately 430 sq. ft. (see drawing Nos. 4-5469 through 4-5472 in Appendix C). The building was initially constructed as a Low Level Counting (Rad) facility; later (~1972), Building 25 was converted to a meteorological station. There are no known Rad contamination concerns in the building.

Building 25 is a one-story, three room, slab-on-grade structure. There are poured reinforced concrete footers and foundation walls under the walls of the large rear room and under the exterior walls of the two front rooms. The 1' 6" W x 1' H footer is reinforce with two horizontal, continuous #4 rebar. The 9" thick poured concrete foundation walls are 2' 6" tall and are reinforced with #3 rebar @12", E.W., E.F. This reinforcing extends down into the footer and up into the room walls (~18"). At the top of the footer are 2 horizontal #5 rebar. The walls of the rear room (Room #3) are 8" pour concrete, reinforced with #3 rebar @12", E.W., E.F. The exterior and interior walls of the two front rooms (Rooms 1 & 2) are constructed of 8" hollow core concrete block.
The floors of the rooms are 4" poured concrete, reinforced with 6" x 6" 6/6-wire mesh (6" thick under interior wall). Beneath the floor slab is a 1" insulation layer on top of gravel fill.
The roof is constructed of 14 side-by-side (~23' long x 6" thick) triple-cored concrete slabs. The concrete roof slabs are grouted together. On top of the roof slabs is 2" insulation covered by asphalt/gravel.

7.1.3 Stanchions in Vicinity of DS Building

Stanchions support above ground utilities that service Buildings DS, HH, T-Bldg., SW/R, and 48. The stanchion line sections run on the east, south, and west sides of DS Bldg. (see Dwg. 352200, Sheets 1003 and 1004, 352202 Sheets 2019, 3004, 3010-12, Dwg. 354400, Sheets 4001 and 4002, Dwg. 352033, Sheets 1034 and 1035, and Dwg 352028, Sht 2004 in

Appendix C). Of the original stanchions erected around DS Bldg., the most commonly used stanchion type (designated as type 'E' or 'F' on Dwg. 352200, Sht 1004) has a single vertical wide flanged beam (6WF25 for stanchions 13' tall or under and 8WF31, over 13' tall above pier) with a 5/8" thk welded base plate. For this type of stanchion on top of T-Bldg., the beam is secured through the welded base plate to the top of T-Bldg. using 4 – 7/8" ∅ cinch anchors, penetrating ~12" into the top of T-Bldg., and have a 2 ½' x 2 ½' x 6' tall concrete pier poured around the base of the beam. The pier is reinforced with #4 @12" E.W.E.F. For stanchions not on top of T-Bldg., the beam is secured, through the welded base plate, to the to the top of a 2 ½' x 2 ½' x 6 ½' tall concrete pier with 4 – 1"∅ x 24" long bolts. Another stanchion design (type 'G' and 'H' on Dwg. 352200, Sht 1004) utilizes two vertical 8WF31 beams with welded base plates. For this type of stanchion on top of T-Bldg., the beams are secured through the welded base plates to the top of T-Bldg. using 4 – 7/8" ∅ cinch anchors, each beam, penetrating ~12" into the top of T-Bldg. Both beams have a 3 ¾' x 2 ½' x 6' tall concrete pier poured around the base of the beams. The pier is reinforced with #4 @12" V and #4 @10" H, typ. E.F. For stanchions not on top of T-Bldg., the two vertical beams are secured, through the welded base plate, to the to the top of a 5 ½' x 2 ½' x 6 ½' tall concrete pier with 4 – 1"∅ x 24" long bolts, each beam. These piers are reinforced with #4 @12" E.W., E.F. Both types of stanchion utilize various configurations of welded steel channel, trusses, angle members, and pipe supports to support utility piping. In later years, the stanchion line on the west side of DS Bldg. was extended northward to R Bldg. The stanchion section northward to R Bldg. utilizes TS - 10" x 10" x .375" or TS – 8" x 8" x .375" square structural tubing, with welded base and stiffening plates, anchored to 2 ¾' x 2 ¾' x 6' tall reinforced (3 - #5 V and #3 H @10" o/c) concrete piers with either 4 – 1"∅ x 29" long bolts or 8 - 4 – 7/8" ∅ x 29" long bolts. Pipe supports are 2 - 10" x 15.3 welded channel, with a 5/8" x 16" welded stiffening plate. Also, on the east and south sides of DS Bldg. new stanchions were added to or replaced existing stanchions and existing were modified to support COS Bldg. utility piping. The new stanchions were two 10W49 beams braced at the top and ~4' from the top with 2 (one each side) – 8 x 11.5 or 12 x 20.7 welded steel channel at both bracing points. The 10W49 beams were each encased by a 30 " x 30" reinforced (8 - #5 Vert, E.S., E.F. and 5 - #4 H, E.S., E.F.) concrete pier. For the stanchion piers on top of T-Bldg., the 8 - #5 vertical rebar penetrated (approximately 12"), and was grouted in place, into the T-Bldg. roof. Stanchion modifications to support the COS utility piping included welding support/stiffening plates to support beams or adding structural channel/angle as bracing between support beams.

7.2 NATIONAL HISTORIC PRESERVATION ACT (NHPA)

Neither Building 25 nor DS Building is listed as a historic structure with the Ohio 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

7.3.1 Site Access Control

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.

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.

Emergency egress for R and T Buildings occupants shall be maintained, if personnel are still occupying/working in R and T Building. COS Bldg. occupants have been notified that egress through DS/COS access corridor no longer exists.

IMPORTANT NOTE: **During demolition activities, when the structures of Buildings 25 and DS are being collapsed, access to R Building, from the south entryway, and either T-Bldg. tower (as conditions warrant) may be restricted.**

7.3.2 Sediment/Storm Water Control

7.3.2.1 Cover field grates with covers/sheeting for silt protection sewer gratings (See maps Appendix C) and install sediment/storm water control silt fences around designated construction area, as needed. Protect Sanitary 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 in area and available and adequate to prevent glycol or any other contaminants from entering storm drains.

7.3.3 Clear Area and Mark/Protect Utility Equipment

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

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

- Domestic water/Fire line PIVs north and west of DS Building.
- Fire hydrants north of DS Building and west of Bldg. 25.
- Security/communications pedestal/junction boxes, north side of DS Building
- Bulk gas tank north side of Building 25
- Steam/glycol/utility stanchions (north-south stanchion line) from Powerhouse/Boilers to T-Bldg. East Tower (runs within ten feet of the east side of Bldg. 25).
- Steam/glycol/utility lines that run along south side of East Tower; over DS Bldg. roof.
- T Building East and West access and Center (vent/HVAC) Towers
- DS and E electrical substations.
- T Building East and West Headhouses.
- COS Building exposed north wall.

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

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 Safe Shutdown Activities Buildings 25 and DS have been completed per workpackage BOSS-37554.

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

7.4.2 Verify all Mechanical and Electrical Utility Isolation Activities for Buildings 25 and DS have been completed per workpackages FTS-37558 and FTS-37557, respectively.

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

7.4.3 Verify the Radiological Final Status Survey Report complete, by contacting Steve Collas @ 4522. Ascertain if any area in Buildings 25 or DS constitutes a Rad Hazard. If any area constitutes a Rad Hazard, coordinate with Rad Controls for RWP/PPE/work controls and determine if separate Rad Demolition Package is required. If there is not any Rad Hazard, continue with this work package.

HOLD POINT: Radiological Final Status Survey Report complete verification:

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., X3241 (608-8207) of demolition schedule, potential traffic pattern delays, and building access/egress coordination.

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

7.4.7 Notify Doug Levan, T-Bldg. Mgr., X3571 (406-1069) of demolition schedule (especially during DS Bldg. slab demolition as this may affect T-Bldg. operations).

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 demolition of Buildings 25 and DS.**

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:_____

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

7.5.1.1 Using heavy equipment, working from the west side of Bldg. 25, demolish the walls and roof of the structure and the fencing on the north and west sides of the building.

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

7.5.1.3 Using heavy equipment as needed, demolish and remove concrete pilings/pylons (left from demolition of Bldg. 93) on the east side of DS Bldg., as needed to access DS Bldg. structures.

7.5.1.4 Use heavy equipment, demolish the solvent shed, located at the south east corner of DS Bldg.

7.5.1.5 Using heavy equipment as needed, demolish and remove the glycol/steam/utility piping from the stanchions along the east and south sides of the DS Bldg. east addition. Demolish stanchions along the DS Bldg. east addition, as necessary, to facilitate demolition of the structure.

NOTE: Exercise caution in demolishing the DS Building East Addition structural members at the juncture of the East Tower. The East Addition of DS Building has a common wall with the T Building East Tower. The East Tower brick veneer, which is to remain in place, is covered with metal lath and plaster. Use both heavy-duty equipment as well as hand labor in order to separate the structures and prevent damage to the remaining East Tower structure. See attached drawings for interface connections of structures.

7.5.1.6 Using heavy equipment, working from the south end of DS Bldg., demolish the brick/block exterior walls and working northward, demolish the east penthouse of the DS Building East Addition structure, leaving debris in-place as fill for the sub-floor area of the East Addition (the DS Bldg. East Addition has a false-floor at normal floor level; the sub-floor is two feet lower than normal floor level). This will facilitate equipment reaching the remaining portion of the structure.

7.5.1.6.1 The East Tower brick veneer, which is to remain in place, is covered with metal lath and plaster. Use both heavy-duty equipment as well as hand labor in order to separate the structures and prevent damage to the remaining East Tower structure. Use hand labor to uncover the two beam columns at the T-Bldg. East Tower wall. Cut notches at the base of the beams. Using cabling or carefully using heavy duty equipment, pull the beam columns over and remove them. See attached drawings for interface connections of structures.

7.5.1.7 Using heavy equipment, working from the east to the west end of the structure, demolish the remainder of the building, DS/COS access corridor, and penthouses, including the DS dock storage shed at the west end of DS Bldg. and the storage shed on the north side of DS. Utilize heavy equipment to extract building mechanical and electrical equipment and/or abandoned process equipment/components for disposal. Use the concrete pulverizer (or like equipment) to demolish the poured concrete test cell structures (Rooms 221A-E and Room 208C, which have interior 12" walls and ceilings constructed of reinforced concrete).

NOTE: Exercise caution in demolishing the DS/COS access corridor structural members at the juncture of the corridor and COS Bldg. Use both heavy-duty equipment as well as hand labor in order to separate the structures and prevent damage to the remaining COS structure. See attached drawings for interface connections of structures.

NOTE: Exercise caution in demolishing the DS Building West Addition structure at the adjacent to the West Tower not to damage the West Tower. The West Addition of DS Building is very close (~four feet) to the T Building East Tower.

7.5.1.8 If the fire doors leading to COS were left in place, in order to provide additional fire protection during demolition, remove these doors and dispose of properly. Verify no asbestos lining prior to disposal. Cover/weather-proof COS access doorway temporary construction (erected during Safe Shutdown activities). Permanent construction at access will be addressed in a separate work package.

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

7.5.1.10 Demolish/remove the utility piping and above ground stanchions sections (east side section from junction of East Tower piping, all of south side section (no services needed for COS Bldg.), and DS Bldg. west side section to R Bldg.; see Dwg. 352200, Sheets 1003 and 1004, 352202 Sheets 2019, 3004, 3010-12, Dwg. 354400, Sheets 4001 and 4002, and Dwg. 352033, Sheets 34 and 35). Excavation permit required. Stanchion and pipes over 14' above the ground should be stabilized using the excavator with the grapple attachment to hold the elevated parts to be demolished steady while the shears cuts the base(s) free. The materials will be sized and placed into appropriate hauling containers or trucks.

Note: The progression of the building demolition and selection/sizing of demolition equipment will ultimately be determined in the field.

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

CAUTION GLYCOL/CONTAMINATE SPILL HAZARD: Be aware of potential for residual glycol in piping to spill during demolition. Ensure spill kit is available to prevent glycol or any other contaminant from entering storm drains.

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

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

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

CAUTION HAZARD: Struck by moving equipment.

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

CAUTION HAZARD: Breaking through into sub-floor area of East Addition of DS Building. There is a two-foot drop from the false floor (normal floor level of DS Building) to the sub-floor. Identify/mark and make work crew aware of hazard areas during walkdown of area with work crew. Use spotter if vision is obstructed.

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

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

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

7.5.2 Slab and Foundation Demolition

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 foundations/slabs of Buildings DS and 25.

- Sanitary System Lines: a line running under DS slab along north side of building, a line along south side of DS foundation, and a line under the DS/COS corridor connector.
- Storm Sewer System lines running along the perimeter of the foundation of DS Building and under the DS/COS corridor connector at north face of COS Building.
- Domestic waterlines along west and north foundation of DS Building.
- Underground steam, condensate, and chilled water lines parallel with DS east side foundation (Bldg. 93 pylon area).
- Fire Protection System lines adjacent to north/west face of Bldg. 25 slab and running parallel along the north side of DS/T Building foundations and into DS near north side main entrance.
- Power Supply lines under Bldg. 25 slab, along the south and east sides of DS Bldg. foundation, and West Tower area

of DS Bldg. foundation.

- Underground gas lines along the east side of DS Bldg. foundation.
- Abandoned helium gas line on the west side of T-Bldg.'s West Tower, into DS Bldg. foundation.
- Underground signal/communication lines under Bldg. 25 slab, along east side of East Tower (to juncture of DS/Tower), and coming into DS foundation near north side main entrance.
- Underground grounding wire system along perimeter of DS Bldg. and under the DS/COS corridor connector at north face of COS Building.
- Fuel oil lines parallel with DS east side foundation (Bldg. 93 pylon area).
- Hot waste system lines under DS slab along north side of building and a line along south side of DS foundation. **DO NOT BREAK OR PENETRATE EXISTING UNDERGROUND HOT WASTE/HIGH RISK HOT WASTE LINES.**

NOTE: The area bordering the west end of DS building is an URMA. Also, areas along the north and south ends of DS Bldg. are PRS area sites. Coordinate demolition activities with Environmental Restoration group (Gene Valette 865-4395 or 608-8239 and/or Monte Williams 865-4543 or 608-8005) and Environmental Compliance (Ron Paulick 865-4080 or 406-9940).

NOTE: During the concrete 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: DS Building column support piers and some utility stanchion support piers are tied into T-Bldg. roof with grouted rebar and are to be left in-place to prevent damage to the T-Bldg. roof.

7.5.2.1 Using heavy equipment, for Buildings DS, 25, the solvent shed, and storage sheds, break apart the concrete slabs, dock pad, sidewalks, retaining walls, and Building 25 foundation walls/footers to 3 feet below grade, torch cut the rebar if required (Hot Work Permit is required) to support demolition and downsizing. DS Building foundation walls may be tied to column support piers. If foundation walls cannot be demolished without disturbing support piers, leave foundation walls; otherwise demolish DS Bldg. foundation walls to 3 feet below grade. Debris will be removed and surveyed/scanned by Rad. Control technicians The materials will be sized and placed into appropriate hauling containers or trucks.

IMPORTANT

DO NOT BREAK OR PENETRATE EXISTING UNDERGROUND HOT WASTE/HIGH RISK HOT WASTE LINES.

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

7.5.2.2 Using heavy equipment, remove and demolish any remaining concrete pylons/pier footings left from the prior demolition of Bldg. 93. Pylons/pier footings will be removed and surveyed/scanned by Rad. Control technicians. The materials will be sized and placed into appropriate hauling containers or trucks.

7.5.2.3 Using heavy equipment, remove and demolish the concrete pier footings for the stanchions not located on top of T-Bldg. (on west side of COS, west of DS Bldg., and east of T-Bldg. East Tower). **Pier footing, from the stanchions on T-Bldg. should be left in-place to prevent damage to T-Bldg. roof.** Removed pier footings will be surveyed/scanned by Rad. Control technicians. The debris will be sized and placed into appropriate hauling containers or trucks.

7.5.2.4 Using heavy equipment, remove and demolish any security/communications pedestals and utility protection posts that will no longer be needed. Post footings will be removed and surveyed/scanned by Rad. Control technicians. The materials will be sized and placed into appropriate hauling containers or trucks.

Note: The progressions of the slab & foundation demolition will ultimately be determined in the field.

CAUTION HAZARD: Strike underground utilities. Obtain Excavation permit and follow its requirements per MD-10286 O5

CAUTION HAZARD: Possible 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 HAZARD: Dust Control – Utilize misting & fogging during demolition & road wetting during waste hauling. The Goal is no visible dust emissions.

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

CAUTION HAZARD: 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.

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

CAUTION HAZARD: Struck by moving equipment.

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

CAUTION HAZARD: Burns/fire. Utilize Burn Permit , fire protection, and wear appropriate PPE

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

7.6 Site Remediation & demobilization

7.6.1 Grading, Seeding, & Mulching

7.6.1.1 Coordinate site remediation and restoration with Environmental Restoration group (Gene Valette 865-4395 or 608-8239 and/or Monte Williams 865-4543 or 608-8005) in order to facilitate removal of the high-risk hot waste lines. Erect any additional erosion control/protection fencing or other materials as needed in compliance with Environmental Compliance group PoC (Ron Paulick, X4080 or pager 406-9940) instructions. For areas not impacted by the removal of the high risk hot waste lines, remove debris/rubble/rock as necessary to provide smooth continuous grade and restore the area by grading and filling with appropriate amount of gravel/soil to grade to drain.

7.6.1.2 Apply appropriate amounts of grass seed and mulch, in graded and soil backfilled areas, to maintain erosion control/protection in accordance with Environmental Compliance PoC instructions.

7.6.1.3 Remove any temporary protection/structures used to protect COS Bldg, utility equipment/stanchions, PIVs, sanitary/storm sewer grates/manholes, and utility access manholes.

7.6.1.4 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.

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

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

CAUTION FALLING HAZARD: Utilize fall protection, barricades, or man-lifts

CAUTION HAZARD: Struck by moving equipment.

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

- Bobcat – 15 feet

7.6.2 Demobilize Construction Equipment

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

CAUTION FALLING HAZARD: Utilize fall protection, barricades, or man-lifts

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 Hygiene : _____ Date: / / Phone: _____

Safety : _____ Date: / / Phone: _____

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

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

Waste Mgmt: _____ Date: / / Phone: _____

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

Classification: _____ Date: / / Phone: _____

Other: _____ Date: / / Phone _____

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

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

Brief Explanation___ This work will have no affect upon 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.
AYC 352200 – (DS Bldg.) Component Development and Standards Facility			
AYC 352201 – (DS Bldg.) Development and Standards Facility (West) Addition			
AYC 352202 – (DS Bldg.) East Addition to the Component Development and Standards Facility			
FSD 19144 – (Bldg. DS) Solvent Shed DS Building			
4-5469, 4-5470, 4-5471, 4-5472 – Low-Level Counting Building			
Dwg. Dwg. 354400, Sheets 4001 and 4002, Dwg. 352033, Sheets 1034 and 1035, and Dwg 352028, Sht 2004 - Misc. Stanchion Drawings			

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	2, 3	[EGRESS] Building R south side access may be restricted during demolition/collapse of building. COS access at south/east roadway exits only.
Blockages/obstructions (Identify)	YES	2, 3, 4	Roadway north of Bldgs DS & 25. & Plant-site access to SW/R Bldg.
Confined space entry **(permit)**	N/A	N/A	[CONFINE]
Emergency alarms or evacuation plans required	YES	2, 3, 4	[EMERG] Plant Radio system will be used to announce any plant emergency over the plant radio channel, cell phones will be used also, no specific added hazards exist in the demolition of this building.
Obstruction of fire protection equipment (pull boxes, hydrants, fire department connections, control panels, fire extinguishers, etc.)	YES	All	Fire utilities available for emergency use.
Traffic control/flagman	YES	3, 4	[TRAFIC] as needed basis, during equipment movement & demolition activities
Flammable/Explosive:			
Burning, welding, hot-work (Fire Watch) **(permit)**	YES	2, 3	[BURN] Use of cutting torch during demolition. Obtain and follow Hot Work Permit. All compressed gas cylinders will be stored, transported and used in accordance with MD-10286, Ops. H-1. 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).
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	YES	2	[FIRE/EFIRE]] FAS & fire protection system isolated during Utilities Isolation activities.
Fire Hazards Analysis/Fire Engineer Approval	YES	2	[FHA/ADJA] FHA walkthrough of facility is accomplished during Utilities Isolation activities
Flammable liquids/gases	YES	2, 3	[FLAM] Use of cutting torch during demolition. Obtain and follow Hot Work Permit. All compressed gas cylinders will be stored, transported and used in accordance with MD-10286 ops. H-1.
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	Use of cutting torch during demolition. Obtain and follow Hot Work Permit. All compressed gas cylinders/bulk gas tanks will be stored, transported and used in accordance with MD-10286, Ops. H-1.
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.
Forklift, aerial lifts or material handling equip	YES	2, 3, 4	
Hoisting and rigging	YES	2, 3, 4	[HOIST] Initiate Hoisting/Rigging permit. Implement applicable sections of M10508
Overhead utilities (Identify)	YES	ALL	[UITL] See Vista Maps in Appendix C

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	Electrical Isolation of facility is accomplished during Utilities Isolation activities. Streetlight circuit to be LOTO as needed.
• Mechanical (steam, hydraulic, pneumatic, gravity)	YES	2	Isolation of facility utilities is accomplished during Utilities Isolation activities. Streetlight circuit to be LOTO as needed.
• 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	N/A	N/A	[OUTAGE]
Building Systems Alarms - Ensure systems are not functional by contacting: Fire Inspection Security Facilities Services.	YES	2	-Fire Alarm Pull Boxes x -Fire Suppression Water Flow Alarms x -Smoke Detector Alarms x -Security Systems x -DDC signals x
Alarm Disable/Disconnect	YES	2	FAS & fire protection system isolated during Utilities Isolation activities.
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	YES	3	[STRUCT] Structure/slab being demolished
Work impacting adjacent normally occupied areas	YES	2, 3, 4	[ADJAC/BMAPP/SIGNS/NOTIF] T-Building alternative access provided.
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 water hook-ups, as needed
Public utilities (Identify)	N/A	N/A	[WATER]
Lighting/illumination/adequacy	N/A	N/A	[MLITE]
Miscellaneous:			
Machine guards	N/A	N/A	
Off-shift work	YES	2,3,4	
Repetitive work	N/A	N/A	[ERGO]
Other (Specify)	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. LOTO overhead & 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 facility utilities is accomplished during Utilities Isolation activities.
Trenching/Shoring (permit)	YES	2,3,4	[DIG] Excavation Permit required
Hazards due to condition of facility or terrain (Identify)	N/A	N/A	
Any soil disturbance	YES	2,3,4	[DIG] Building/stanchion support pier removal

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	YES	3	[ASBEST]. Assumed to be in asphalt roofing. Demolition of roof/floor tile by normal remote (using Heavy Duty) means only. Certified contractor may remove floor tile.
Removal of ceiling tiles*	N/A	N/A	
Insulation/man-made mineral fibers (☐ MSDS available)*	N/A	N/A	
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	3	Roofing material contains tar and asphalt products; to be disposed of as construction debris.
Lead	Yes	3	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). Contact IH & Waste Mgmt for handling & disposal guidance. Lead was used in Room 251B as shielding
Mercury	N/A	N/A	
Polychlorinated biphenyl's (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)

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	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 annual site 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] Hearing protection 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 & monitor work.
Welding, brazing, or thermal cutting operations **(permit)**	YES	3, 4	[BURN] Hot Work Permit required.
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)

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	No unencapsulated Radionuclides in building
	Other (Specify)	N/A	N/A	
Activities:	Digging/Soil Removal (permit)	YES	2, 3, 4	[DIG] Survey 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	Hot work permit required
	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	2, 3, 4	Cover field grates with covers/sheeting. Install sand bags/silt fences, as needed.
	Erosion Control	YES	3, 4	Grading, seeding, & mulching
	NESHAPS Calculation	YES	N/A	Emission Levels determined to be below requirement. No US EPA approval required for this building.
	National Historic Preservation	N/A	N/A	
	• Artifacts found			•
	Safe Drinking Water Act	Yes	2, 3	Ensure backflow prevention for water misting source.
	• Potable water	Yes	2, 3	Ensure backflow prevention for water misting source.
	• Backflow preventers for misting	Yes	2, 3	Ensue backflow prevention for water misting source.
	Emergency Spill Response Materials (Confirm process lines are drained)	Yes	3	Ensure glycol spill kit is available. Isolation of facility utilities is accomplished during Utilities Isolation Workpackage activities.
	Locate Monitoring Wells	No	N/A	Vista Maps show none located in area near bldgs DS & 25
Notifications:	RAPCA Notification for Asbestos	N/A	N/A	Asbestos abatement completed prior to demolition.
	RAPCA Notification for Demolition	Yes	3	Required 10 business before beginning demolition activity
	Emergency Spill Response Notification	Yes	3	Call 911 or 854-4040, have spill kit at job site.
	Other			

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	Total 14000 Cubic Yards	3	No elevated radioactivity levels	30 Cu. Yd. Roll-Off/End Dumps	Offsite disposal via Waste Management Operations/Journey LTD
Hazardous Waste: • RCRA Hazardous Waste • Asbestos • Other					
Mixed Waste	N/A	N/A			
Low Level Radiological Waste: • Building Debris • Below grade	N/A	N/A			
Transuranic (TRU) Waste	N/A	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-22180 Attachment 1 (see Appendix D)					
Material sent to concrete crusher/ Fill out MD-22180 Attachments 1 &2 (see Appendix D)					

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

EMERGENCY PREPAREDNESS

- **Site Notification Procedures**
  Use **8-911** for all emergency services onsite. This is the first response for any emergency, spill, or release. If using a cell phone, dial **AAA911** Any injury, no matter how minor, shall be reported immediately to the Medical Department **(865-3414 or 673-4342 Nextel)** 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 west of Building 25/north of DS Building in the M lot parking lot. 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 T Building, first and second floors. Access is through the east and west T-Bldg. towers. 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) • 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
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	• Minimizing the material drop height during excavation and loading operations • Reducing vehicle speeds (<20 mph) • Covering truck beds when transporting materials • Keeping soil levels in vehicles below the vehicle sides • Wetting roads used for transport • Wet sweeping or otherwise removing soil and mud deposits from paved roadways and parking areas
Storage Piles	• 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

Project/Activity: **Demolition of Buildings DS and 25**

Name: **Stephen Davis, X4436**

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 trauma/motion/vibration work situations or manual lifting involving heavy, large, and/or awkward-to-handle objects (reference MD-10407, *Ergonomics Program.*		X	
13. Unguarded, unmarked close clearance, pinch point, exposed moving machinery parts.	X		
14. Known potential falling object hazards (e.g., employees working above other employees, potential for dropping tools, falling equipment or material) or working in areas with the potential for flying objects (flying chips, sandblasting, etc.), exposure to sharp or protruding objects (e.g., working inside plenums, air mover ducts, etc.).	X		

JOB SAFETY AND HEALTH ANALYSIS FORM

JSHA MASTER DOCUMENT CONTROL NO:
BOSS - - 37556

DATE:	_X_ NEW ___ REV	BUILDING:	JOB:
01/14/04		DS & 25	Demolition of Buildings DS and 25

DEPARTMENT/COMPANY:	SECTION:
BOSS Project/CH2M Hill Mound, Inc.	N/A

OCCUPATIONS: Heavy Duty Operators, Demolition Tech's, Demolition Crafts, & Electricians.
Supported by Project Personnel e.g.. Supervision, Engineering, RAD Control, Ind. Hygiene, and Safety

SIGNATURES

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

REQUIRED PERSONAL PROTECTIVE EQUIPMENT:
Hard Hat, Safety Glasses with side shields, safety shoes, safety vest

MSDS(s)/CHEMICALS ASSOCIATED WITH THE JOB:
None

BASIC JOB STEPS	POTENTIAL ACCIDENT/ILLNESSES OR KNOWN HAZARDS	SAFE JOB PROCEDURES
Break the job down into basic steps that tell what is done first, what is done next, and so on. Record the job steps in their normal order of occurrence. Describe what is done, not the details of how it is done. Usually, three or four words are sufficient to describe each job step. For example, the job of "replacing a light bulb" may break down into basic steps as follows: 1. Bring and set up ladder 2. Ascend ladder 3. Remove light globe & bulb 4. Replace light bulb 5. Replace light globe 6. Descend ladder 7. Remove and store ladder	Ask yourself for each job what accidents/illnesses could occur to the employee doing the job. Record potential accidents/illnesses by combining one of the abbreviations below with the agent of contact. For example, "struck by a crane hook" is recorded "SB-crane hook." Number each potential accident. SB - Struck by CB - Contacted by SA - Struck against CW - Contact with CI - Caught in CO - Caught on IB - Caught between F - Fall SO - Strain-overexertion* E - Exposure (occ. illness) *Show ergonomic stresses as SO (repetitive trauma, single event strain, or awkward position)	For each potential accident/illness, ask yourself exactly what the employee should do or not do to avoid the accident/illness. Describe specific precautions in detail. Give each precaution the same number given in the potential accident (center column) to which it applies. Avoid generalities such as "Be alert," "Be careful," and "Take caution." Use simple do or don't statements; e.g., "Lock out main power switch," "Stand clear of lift before signaling," or "Check wrench grip before exerting full force." If necessary, explain how, as well as what, to do. Amount of detail is a matter of judgment. Describe ergonomic solutions (job redesign, new tools, worker lift assistance, etc.)
General Safety Note	A wide variety of incidents occur on a regular basis that potentially could result in injury or illness	-Be cognizant of your own safe work practices as well as those of your co-workers -Review any related safety procedures of which you are unsure -Utilize STOP WORK Authority as necessary
Pre-job meeting with involved personnel to discuss the work plan and safety requirements. This meeting is conducted daily.	N/A	-This project engages in Enhanced Work Planning (EWP), an ISM process that evaluates and improves the approach by which work is identified, planned, approved, controlled, and executed.
1. Site Preparation & Mobilization	Standard construction hazards.	-Demolition preparation is defined by 29CFR1926.850; workers, unfamiliar with construction standards must notify the project supervision and/or project health and safety personnel.
1a. Site Access Control	Struck by equipment, debris	-Once the work area is defined, only authorized personnel are permitted in the construction perimeter. -Unescorted, non-project and non-emergency personnel must have acceptance of the BOSS Project Manager for entry.
1b. Emergency egress/access	Blocked access	-Emergency access to the work zone will be maintained to the extent possible. T & SW/R Bldg. emergency egress will be maintained for occupants, if still occupied. Egress to/from COS Bldg. will be from 1st floor south & east entrances only.

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JOB SAFETY AND HEALTH ANALYSIS FORM
(CONTINUATION SHEET)

BASIC JOB STEPS	POTENTIAL ACCIDENT/ILLNESSES OR KNOWN HAZARDS	SAFE JOB PROCEDURES
1c. Clear Area and Mark/Protect Utility Equipment	Running into utility equipment, manhole covers, or grates over field drains.	-Mark/protect fire PIVs north of bldg. DS., fire and potable water lines and other utility equipment with wooden boxes, visible stakes, and/or colored flags. -Cover field grates with covers/sheeting for silt protection.
2. Operation of heavy equipment near electric overhead lines	Shock Hazard	-All utilities to the building including electrical have been disconnected prior to demo by project electricians at a point away from the building. -Identify sources outside the building that may require LOTO to prevent incidental contact by Heavy Duty Equipment, such as street lighting circuit.
2a. Demolish building, pipe stanchions, building structure and slab using excavator mounted shear, hoe ram, grapple, loader, and bobcat.	Struck by flying debris Struck by moving equipment Possible asbestos in roofing material and floor tiles. Noise Hazard	-Establish construction boundary. -Wear hard hat, safety glasses, safety shoes, and reflective vest inside construction area. Make eye contact with operator when working around equipment. Use hand signals to communicate intent. -Maintain the following distances from operating equipment: Shear – 75 feet; Hoe Ram – 50 feet Other heavy duty equipment – 30 feet Bobcat – 15 feet -Make sure equipment is in safe working order. Use spotter if vision is obstructed. -Demolish roof & floor tiles by normal remote means only (using Heavy Duty). Floor tiles may be removed by certified contractor. -Wear hearing protection while running heavy duty equipment. Follow the requirements of MD-10286 D9
2b. Torch cut rebar or to weaken structural members	Burns, fire Potential lead paint	-Obtain and follow Hot Work permit per MD-10286 O2. Wear proper PPE, have fire extinguishers in the construction zone. -Test for lead paint; 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).
2c. Working in excessive heat/cold	Heat Stress/Cold Stress	-Follow the requirements of MD-10286 D13/D16 and discuss in daily pre-job briefings.
2d. Building & Slab Demolition	Vehicle Traffic Hazard Operating Heavy Duty equipment on debris slope/ pile/heap	-Control traffic with flagmen as necessary -Exercise caution operating equipment on debris ramp. -Coordinate with Safety & check stability of debris ramp often. -Maintain safe distance from debris ramp edge. -Notify T bldg. mgr of demolition activities; vibration may impact T-Bldg. operations.

JOB SAFETY AND HEALTH ANALYSIS FORM
(CONTINUATION SHEET)

BASIC JOB STEPS	POTENTIAL ACCIDENT/ILLNESSES OR KNOWN HAZARDS	SAFE JOB PROCEDURES
2e.. Slab removal	Strike underground utilities Radiological Contamination	-Obtain Excavation permit and follow its requirements per MD-10286 O5. -Coordinate in-process Rad Surveys with Rad Techs.
3. Site Remediation & Demobilization	**General Safety Note** A wide variety of incidents occur on a regular basis that potentially could result in injury or illness	-Be cognizant of your own safe work practices as well as those of your co-workers. -Review any related safety procedures of which you are unsure. -Utilize STOP WORK Authority as necessary.
3a. Rough grading	Equipment/ personnel mixture.	-Stay clear of operating heavy equipment.
3b. Seeding & Mulching	Slip – Trip – Fall Lifting /twisting strain.	-Uneven walking and/or working surfaces –use extra caution. -Follow accepted practices.
3c Remove Temporary Protection Structures from COS Bldg. area Remove protective barriers from hydrant, potable, and firewater lines penetrations.	Lifting /twisting strain. Cuts and abrasions. Slip trips and falls.	-2 man rule; follow standard practice lifting. -Wear appropriate PPE. -Be cognizant of your own safe work practices as well as those of your co-workers.
3d. Demobilize Construction Equipment Remove dust control water distribution system Remove temporary power Remove fencing	Equipment/ personnel mixture. Cuts and abrasions. Lifting /twisting strains. Radiological contamination of equipment if required by in-process surveys	-Be cognizant of your own safe work practices as well as those of your co-workers. -Review any related safety procedures of which you are unsure. -Utilize STOP WORK Authority as necessary. -Coordinate in-process Rad Surveys with Rad Techs.
4. Work from elevated surfaces (manlift, bucket truck, etc.).	Fall hazard	Wear proper PPE, restraints, harness, and other fall protection, as required per MD10286, Op M8. Use workers, properly trained and instructed in the hazards of working from elevated surfaces.

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WORK PLAN REVISION SHEET

1. WORK PACKAGE TITLE: **Demolition of Buildings DS and 25**
2. WORK PACKAGE NUMBER: BOSS-37556-00

[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 Buildings DS and 25**

2. WORK PACKAGE NUMBER: **BOSS-37556-00**

Revision	Reason	By	Date

Appendix B

PRE-JOB BRIEFING SHEETS
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.

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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 Buildings DS and 25**

2. WORK PACKAGE NUMBER: **BOSS-37556-00**

DATE	TIME	WORK PKG. SECTION	% Complete	BY	STATUS

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Appendix C

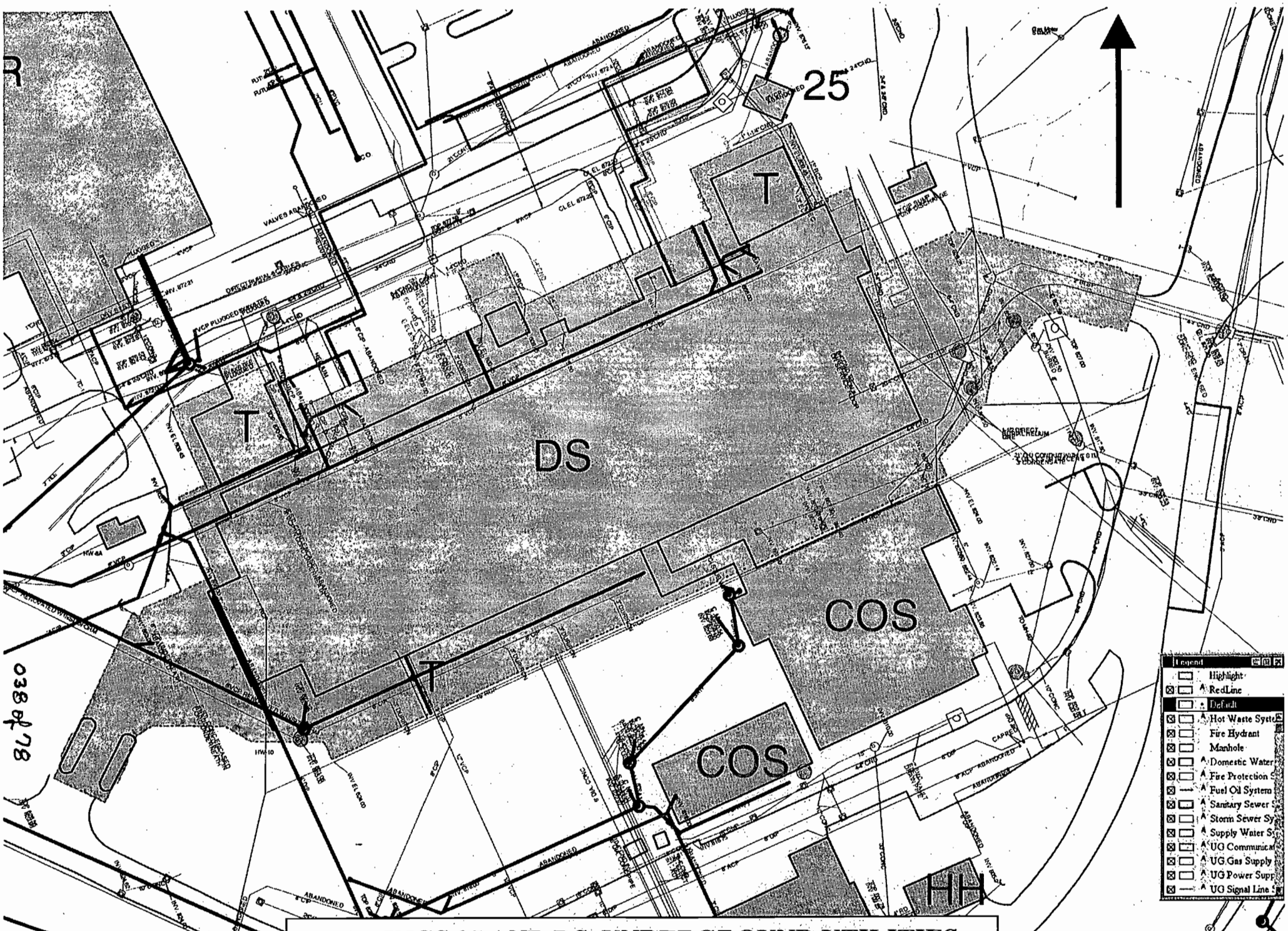
DRAWINGS/SKETCHES

- Structural and Mechanical Drawings -Foundation Plan, Wall Sections, Floor Plans, and Mechanical Details

- AYC 352200 – (DS Bldg.) Component Development and Standards Facility
- AYC 352201 – (DS Bldg.) Development and Standards Facility (West) Addition
- AYC 352202 – (DS Bldg.) East Addition to the Component Development and Standards Facility
- FSD 19144 – (Bldg. DS) Solvent Shed DS Building

- **Vista Maps/Photos:**

- Building DS and 25 Underground Utilities
- Above Ground Utilities & Pipes/Stanchions
- UG Electrical Power Lines
- Storm & Storm Sewer Lines & Manholes
- Storm Sewer Lines
- Sanitary Sewer Lines
- Hot Waste Lines
- UG Communications Lines
- UG Signal Lines
- Domestic Water Lines
- Supply Water Lines
- Fire Protection System Lines & Hydrants
- UG Gas Lines
- Chilled Water Lines
- DS Bldg. 1st Floorplan/Layout
- DS Bldg. Construction Sections
- Bldg. 25 Floorplan/Layout
- Bldgs DS and 25 - 1st Floor Assembly and Take Shelter Areas
- Bldg. DS Penthouse - Assembly and Take Shelter Areas
- URMAs/Monitoring Wells in Area
- PRS Area Sites
- PRS Point Sites
- DS Building Grounding wire System
- DS Bldg. PIVs, Hydrants, & Light Poles
- Aerial Photo



BUILDINGS 25 AND DS, UNDERGROUND UTILITIES

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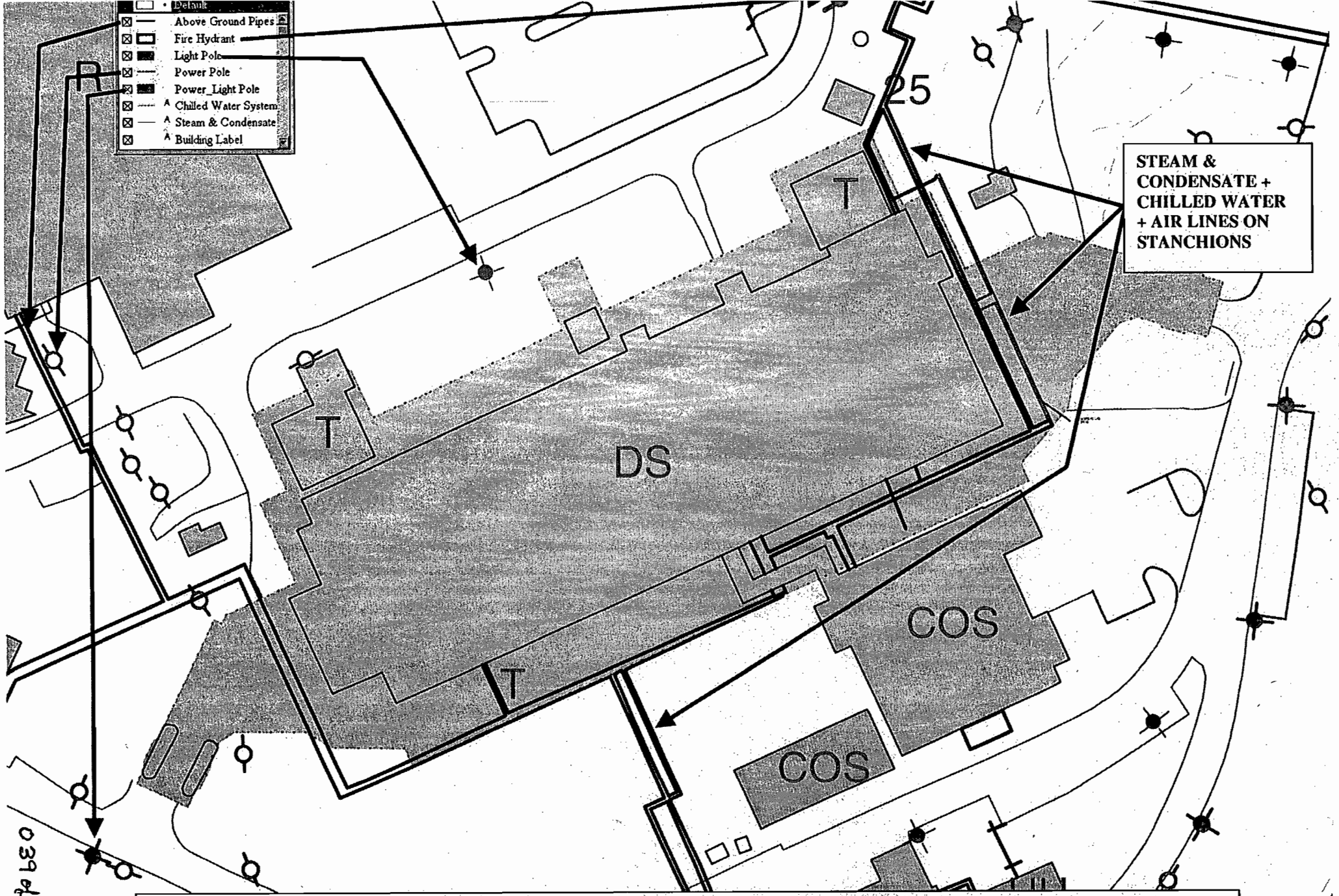
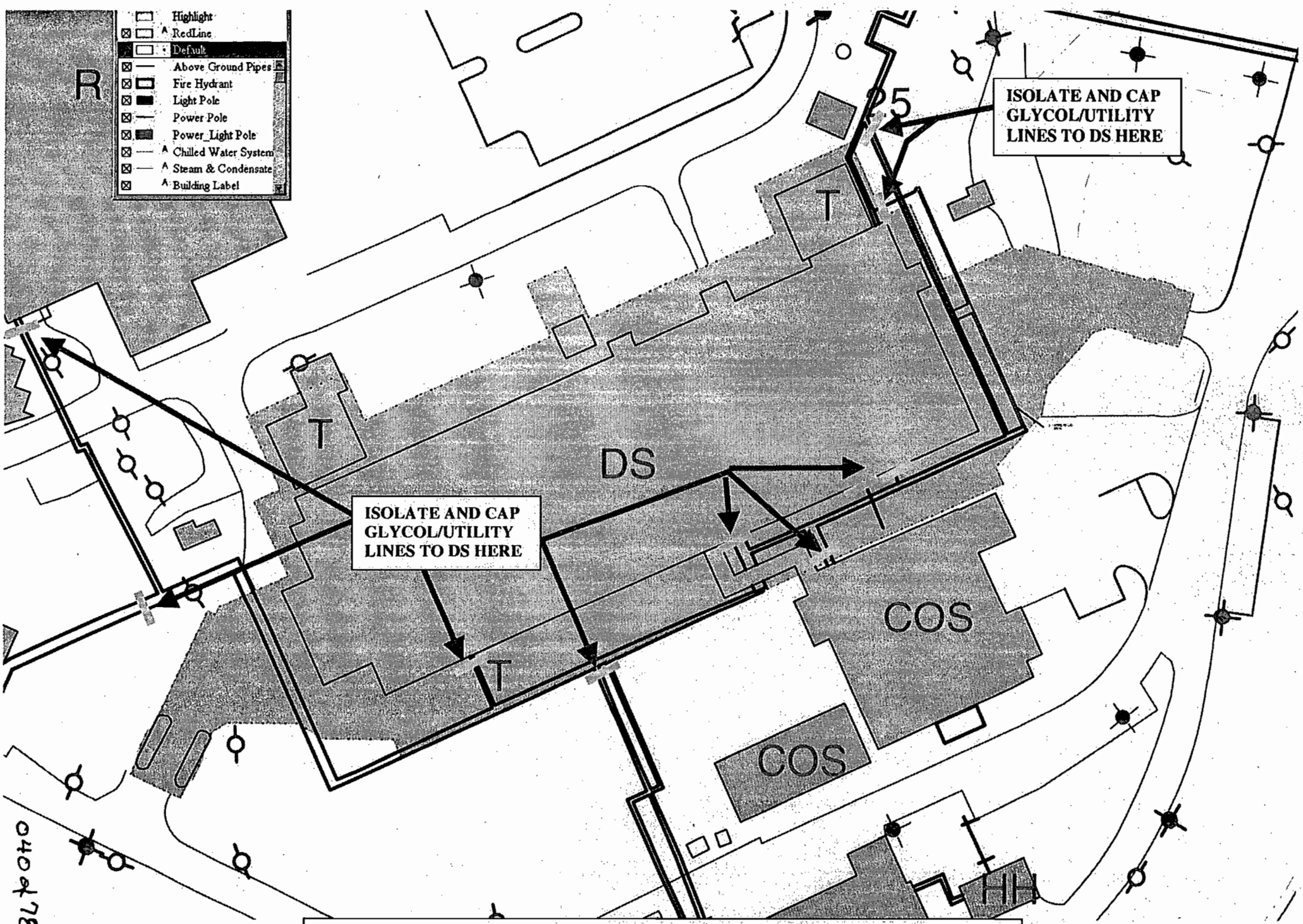


BUILDINGS DS AND 25; ABOVE GROUND UTILITIES AND PIPES/STANCHIONS



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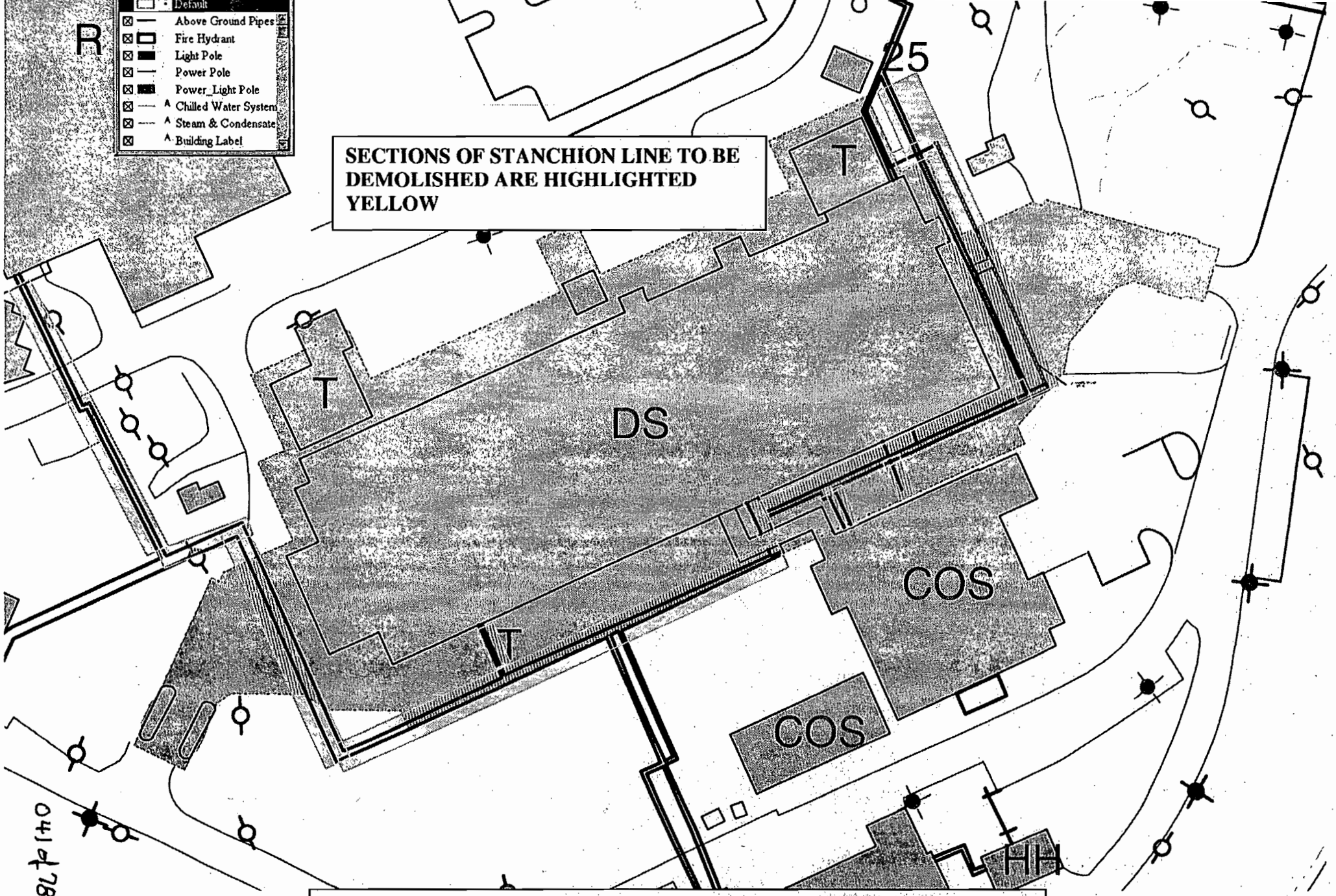
BUILDINGS DS AND 25; ABOVE GROUND UTILITIES



SECTIONS OF STANCHION LINE TO BE DEMOLISHED ARE HIGHLIGHTED YELLOW

BUILDINGS DS AND 25; ABOVE GROUND UTILITIES

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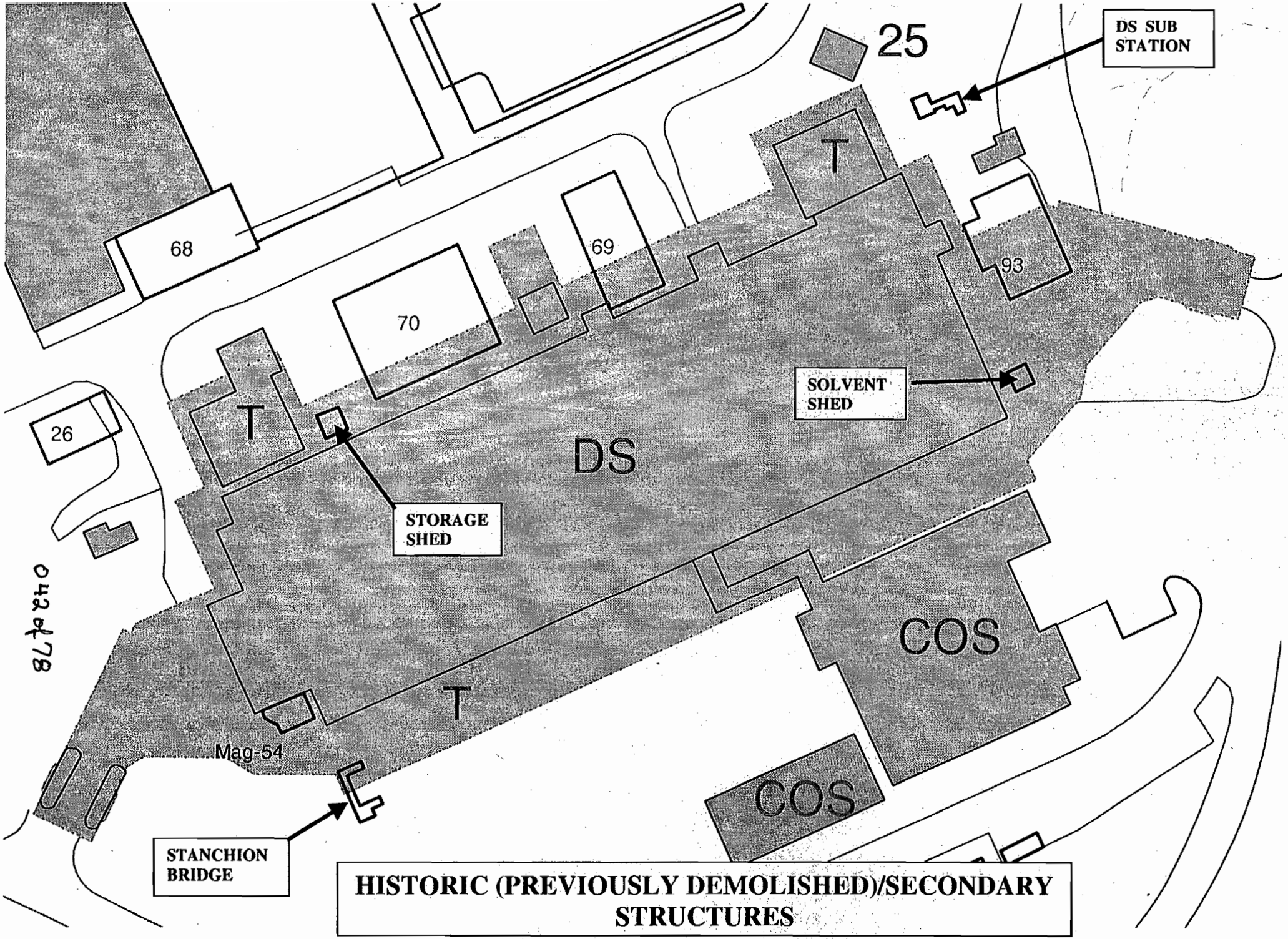
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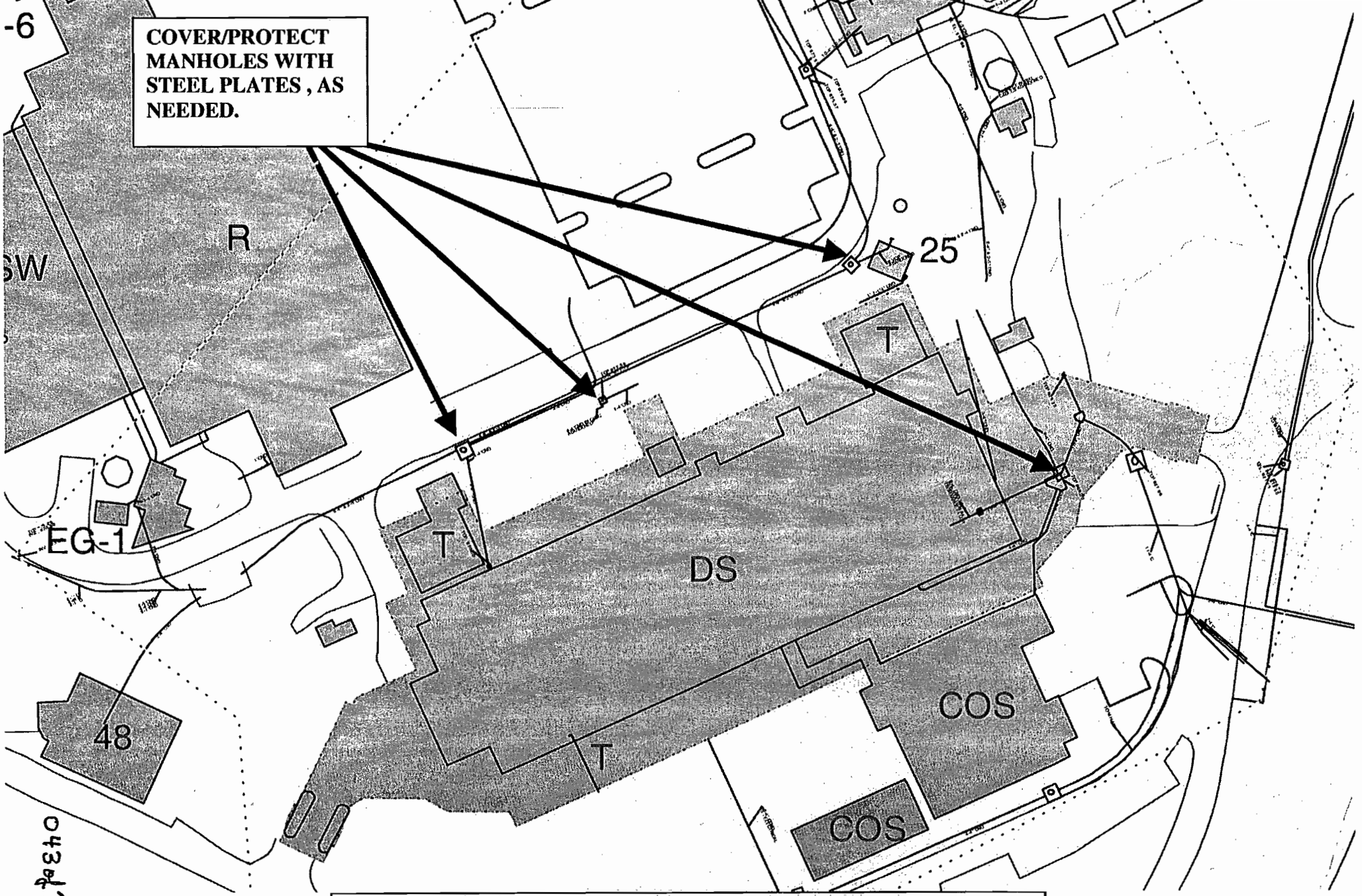
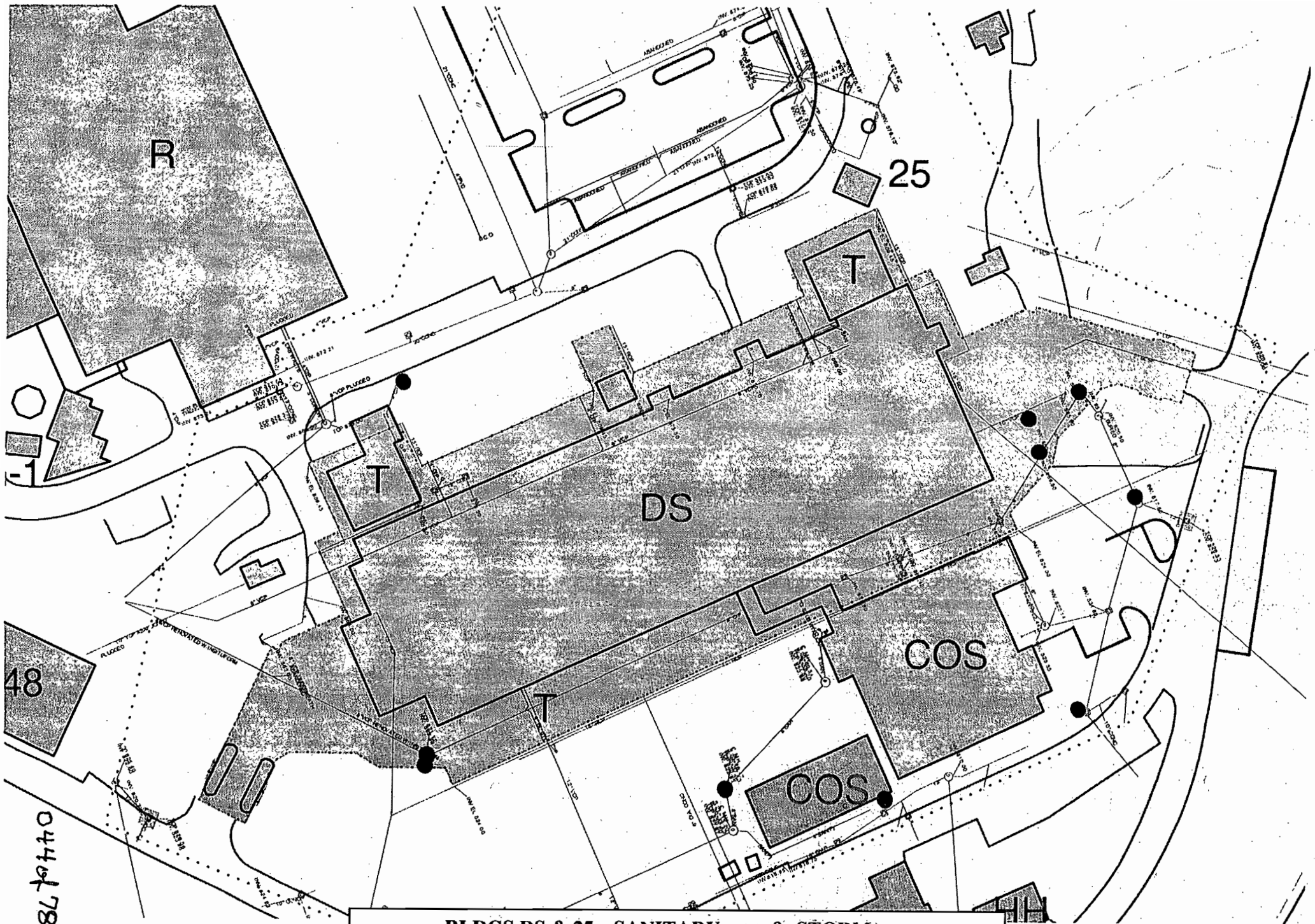
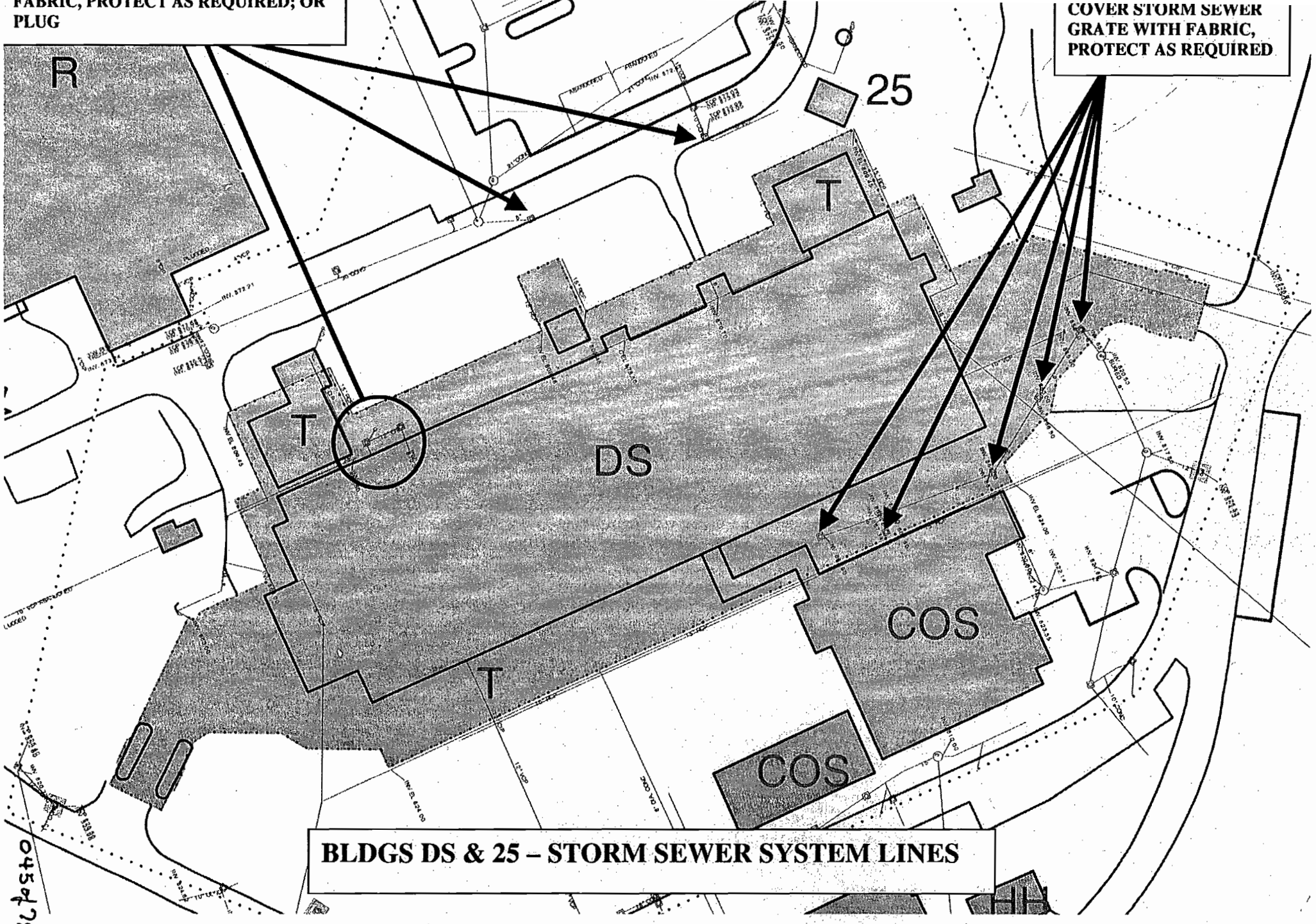
HISTORIC (PREVIOUSLY DEMOLISHED)/SECONDARY STRUCTURES



BLDGS. DS & 25 - UNDERGROUND POWER LINES



BLDGS DS & 25 – SANITARY ----- & STORM -----
WITH MANHOLES


FABRIC, PROTECT AS REQUIRED; OR
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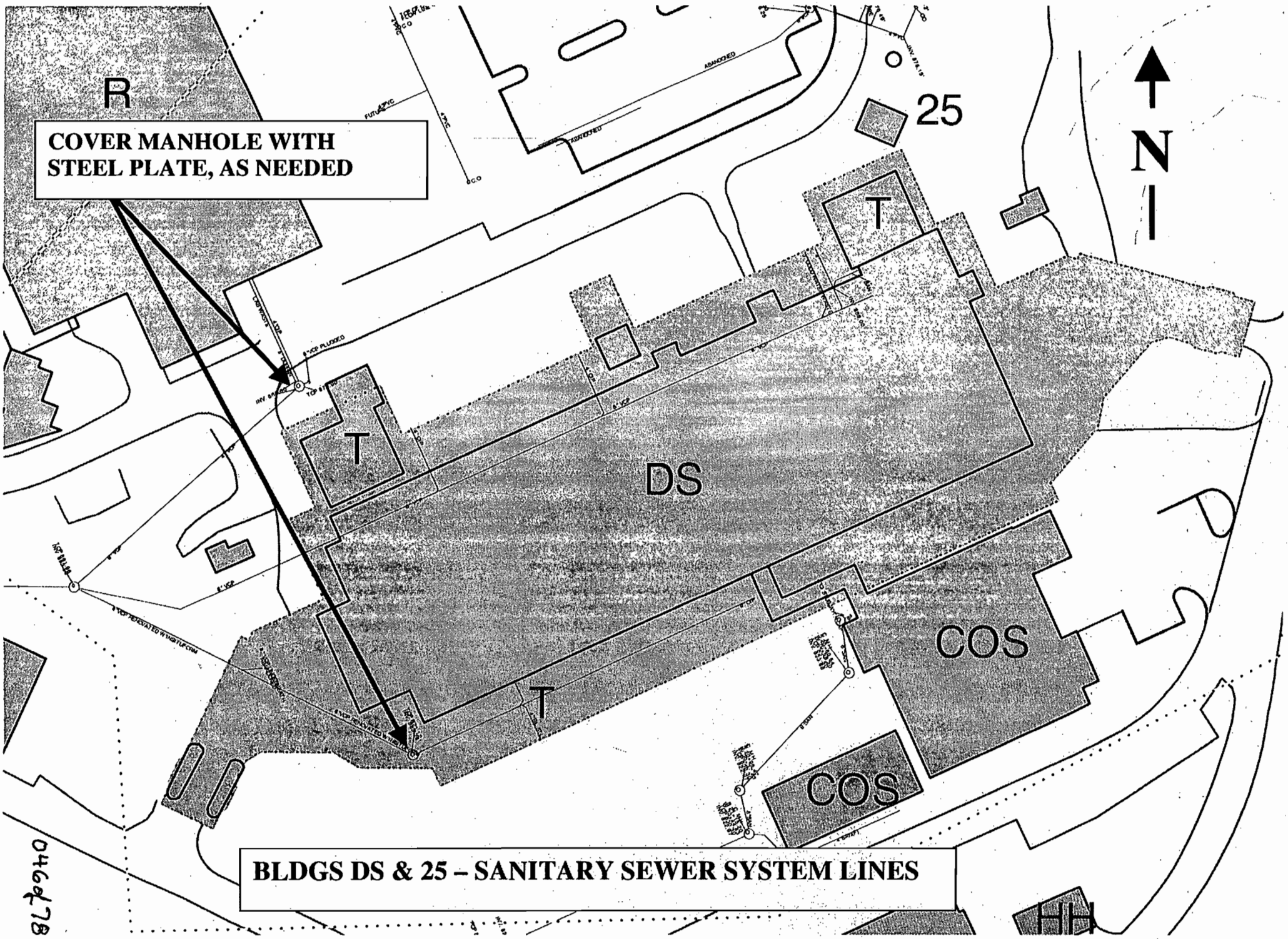
BLDGS DS & 25 – STORM SEWER SYSTEM LINES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BLDGS DS & 25 – SANITARY SEWER SYSTEM LINES

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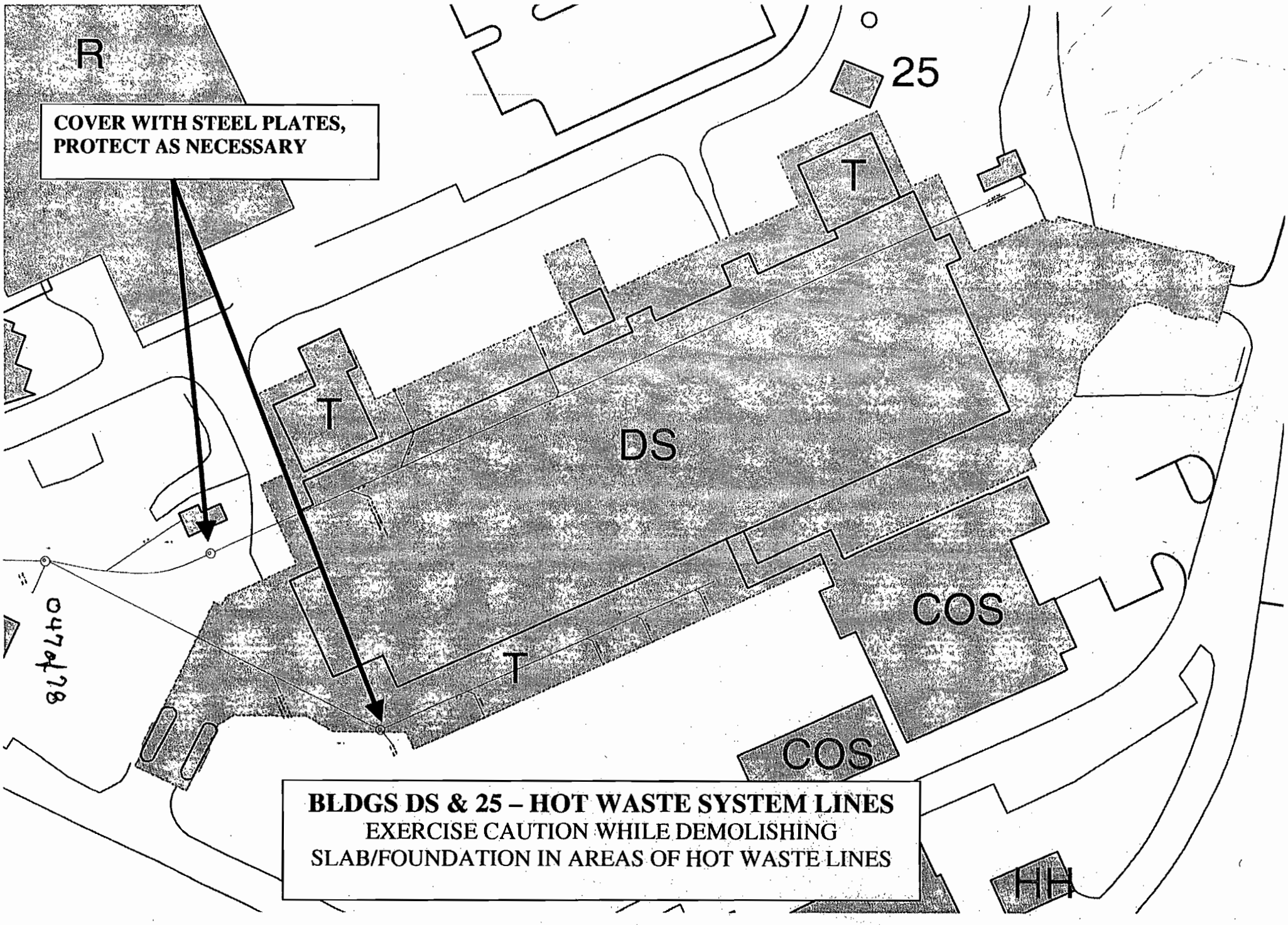
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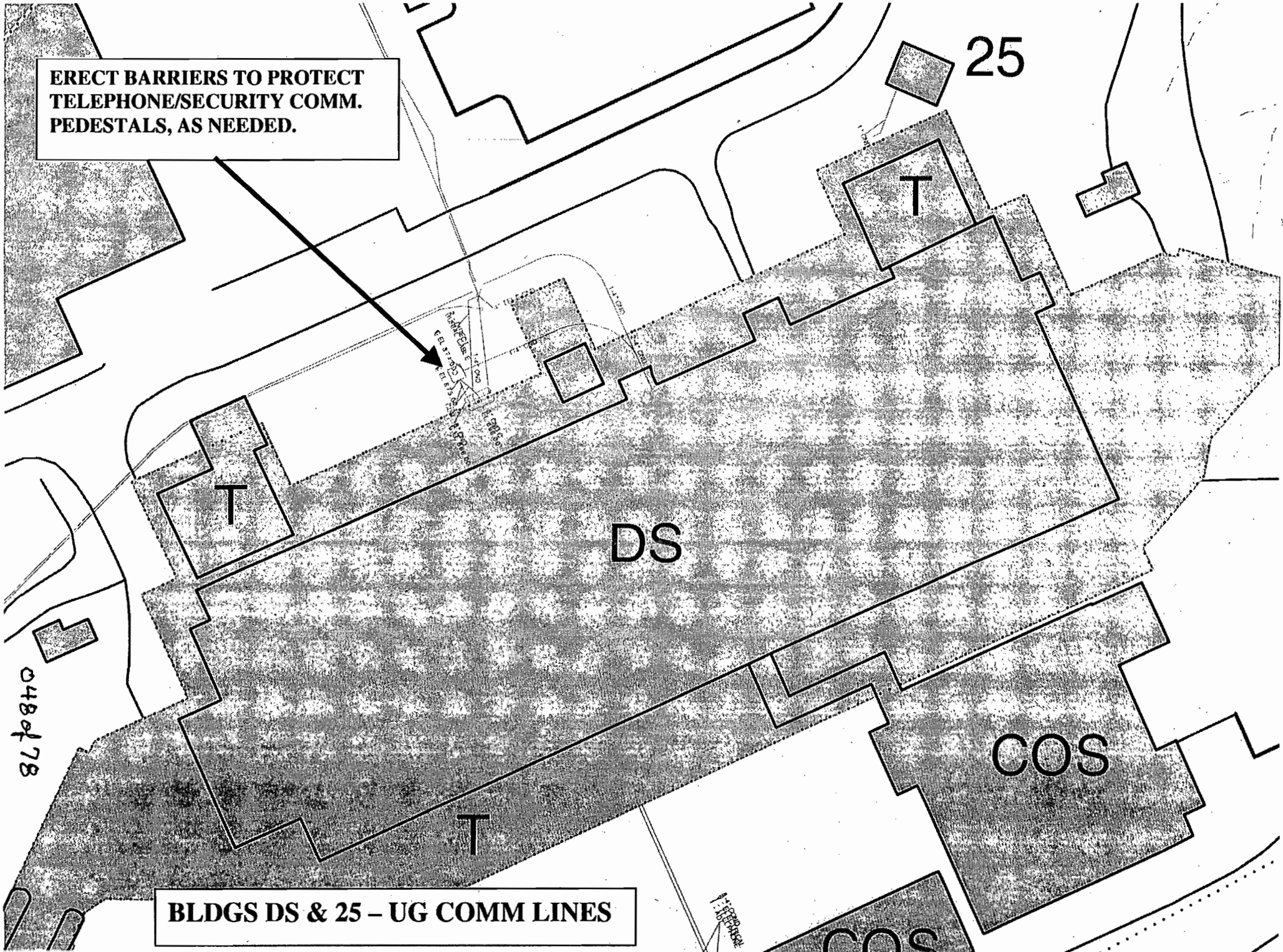
BLDGS DS & 25 – HOT WASTE SYSTEM LINES
EXERCISE CAUTION WHILE DEMOLISHING
SLAB/FOUNDATION IN AREAS OF HOT WASTE LINES


ERECT BARRIERS TO PROTECT TELEPHONE/SECURITY COMM. PEDESTALS, AS NEEDED.
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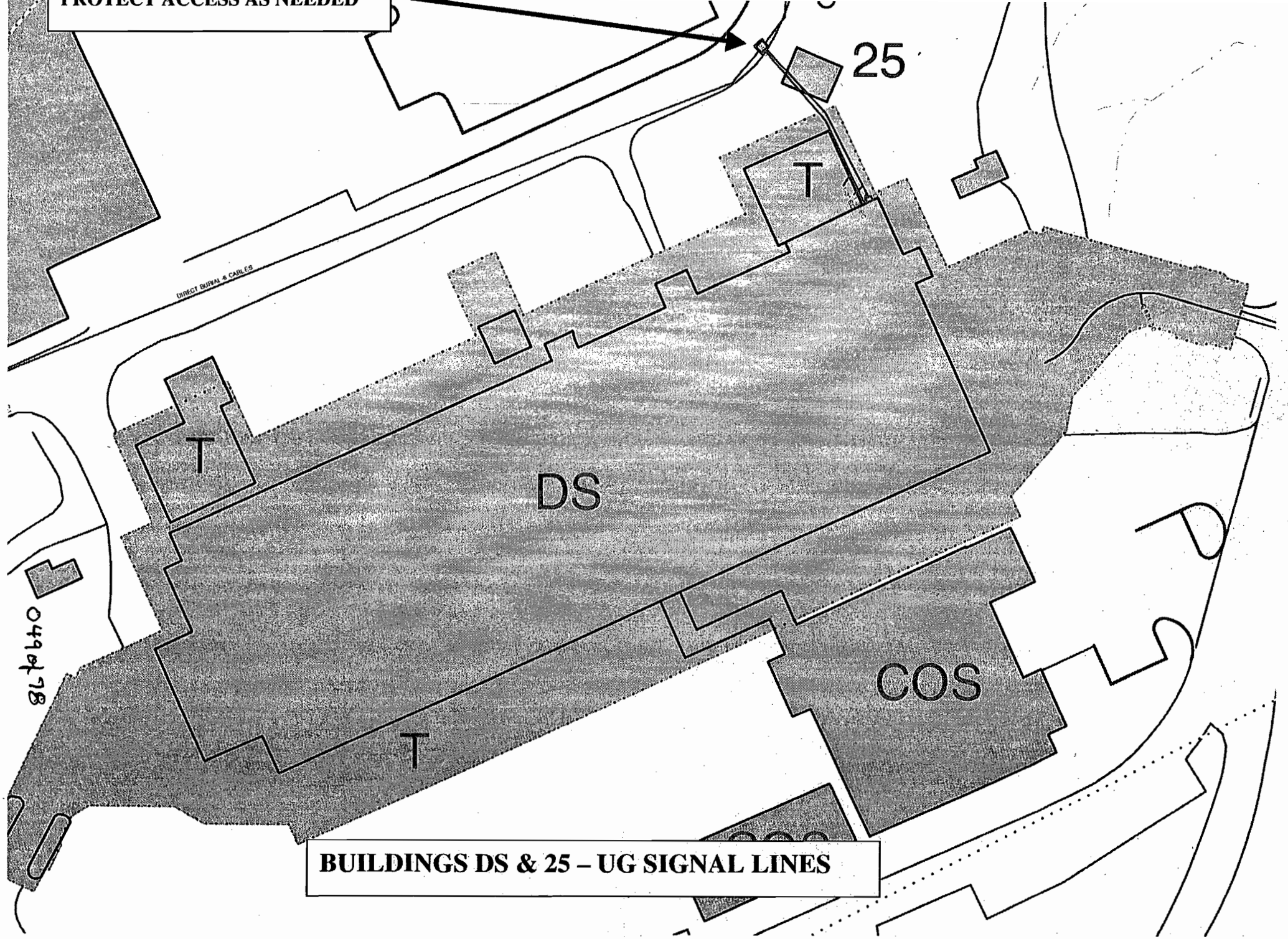
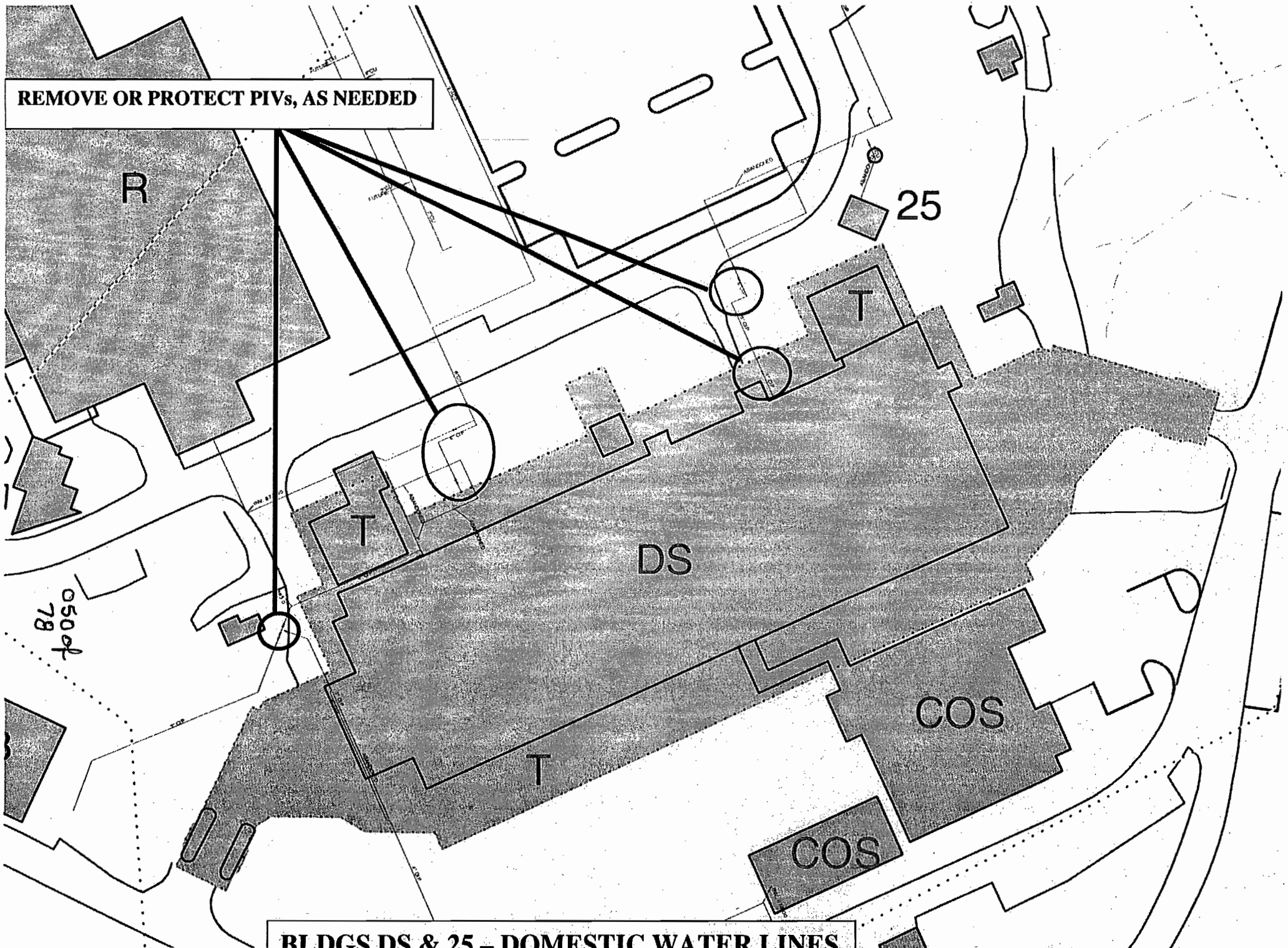
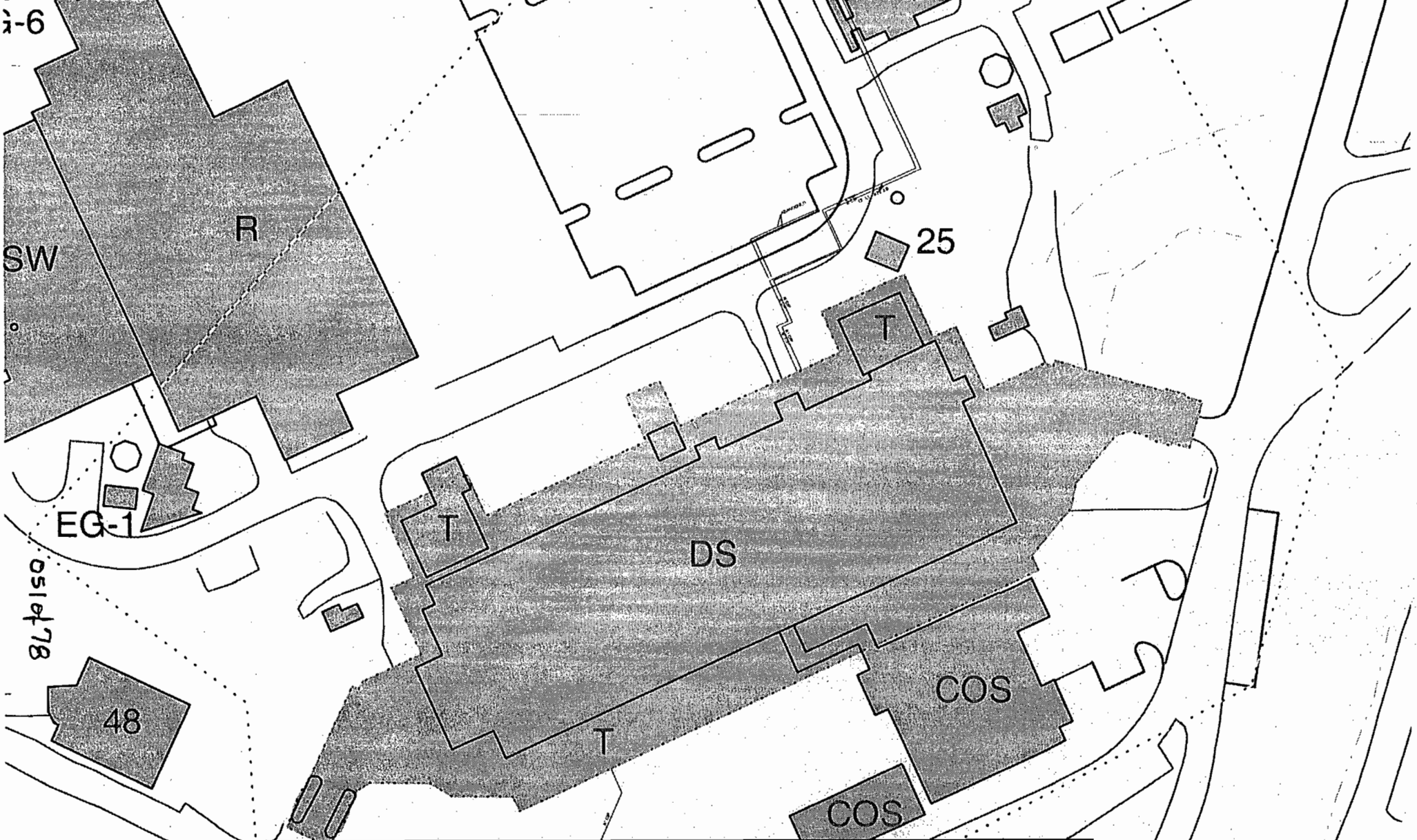
BLDGS DS & 25 – UG COMM LINES



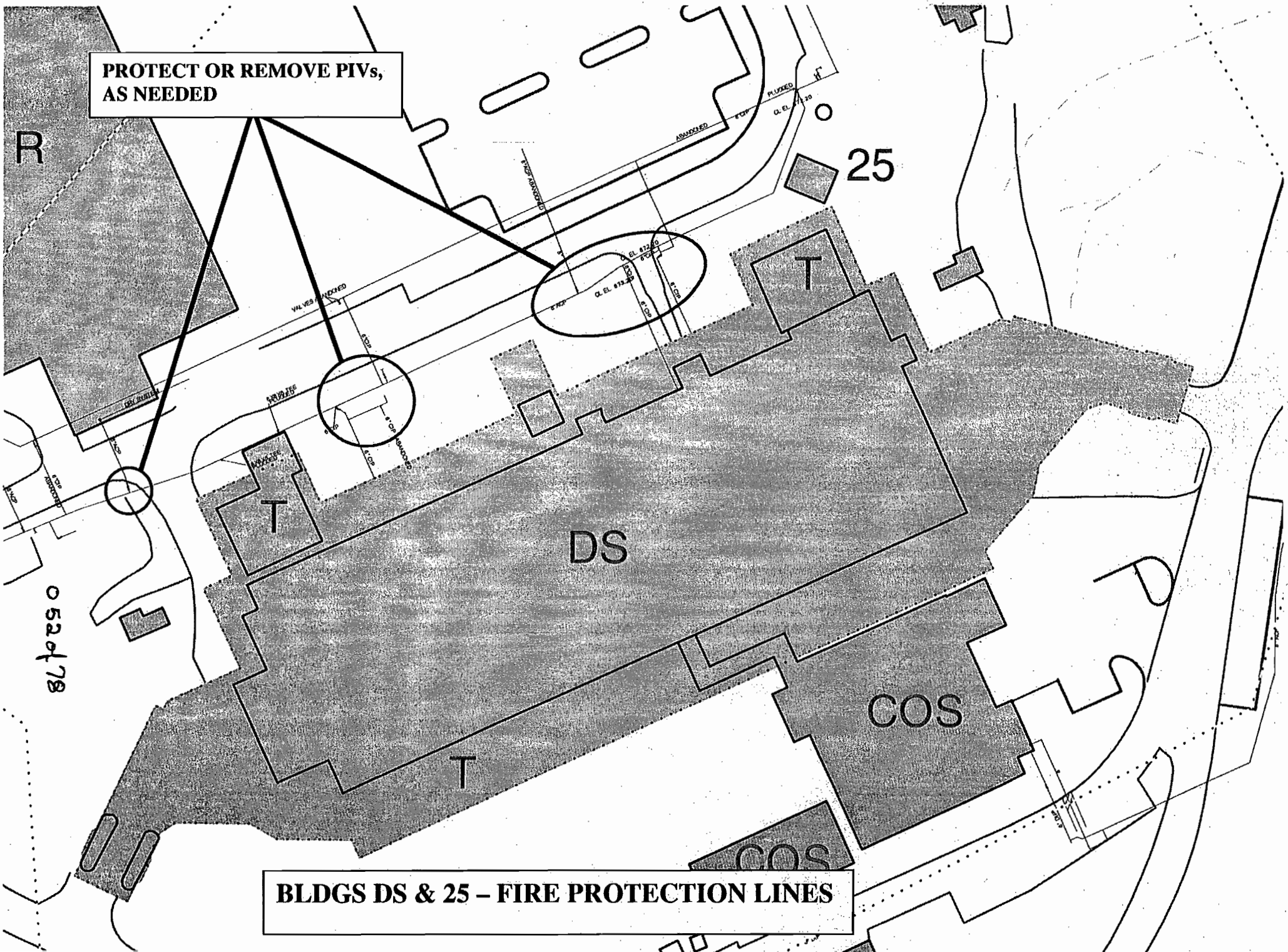
BUILDINGS DS & 25 – UG SIGNAL LINES



BLDGS DS & 25 – DOMESTIC WATER LINES



BLDGS DS & 25 – SUPPLY WATER SYSTEM LINES


PROTECT OR REMOVE PIVs, AS NEEDED
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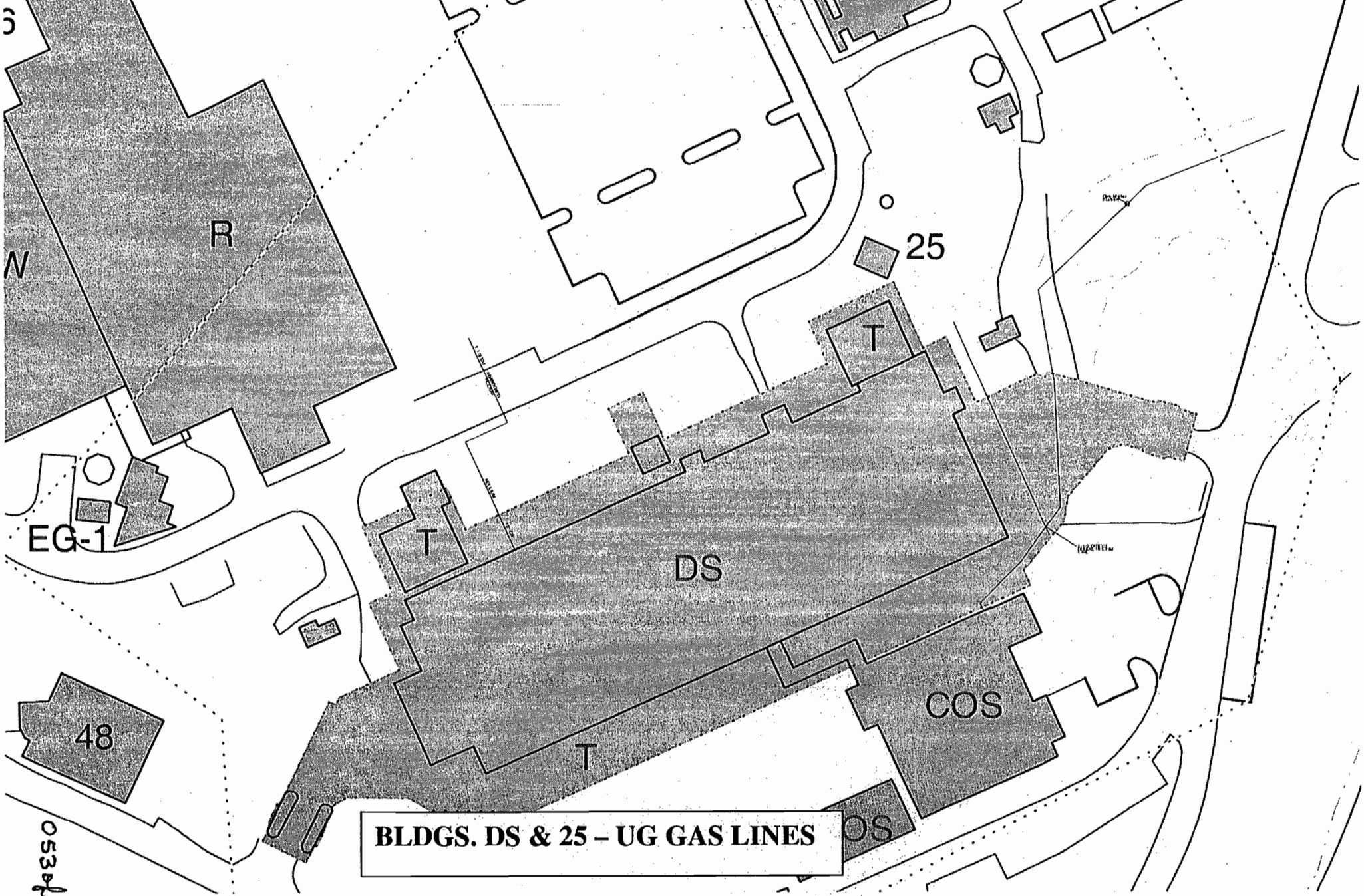
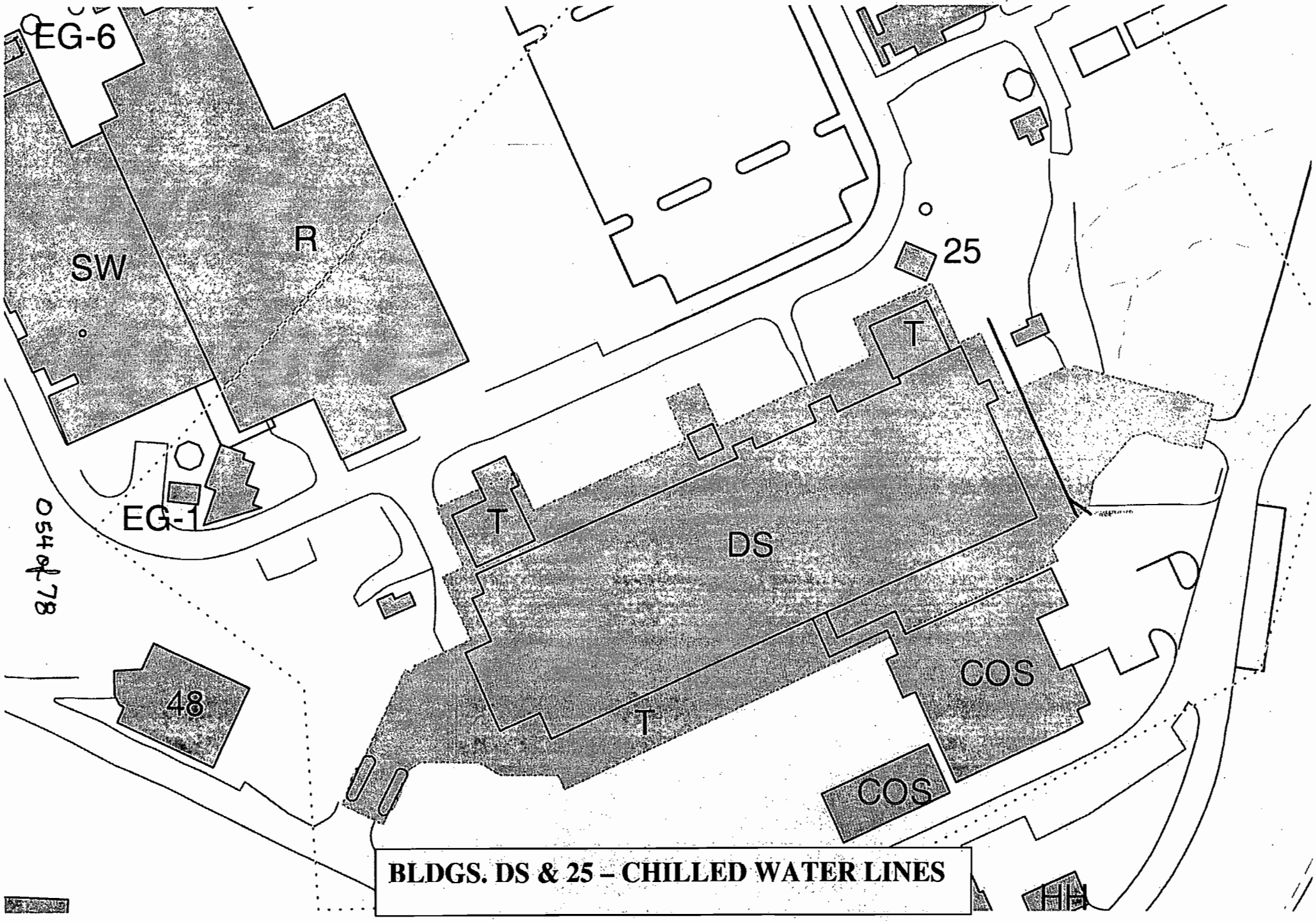
BLDGS DS & 25 – FIRE PROTECTION LINES

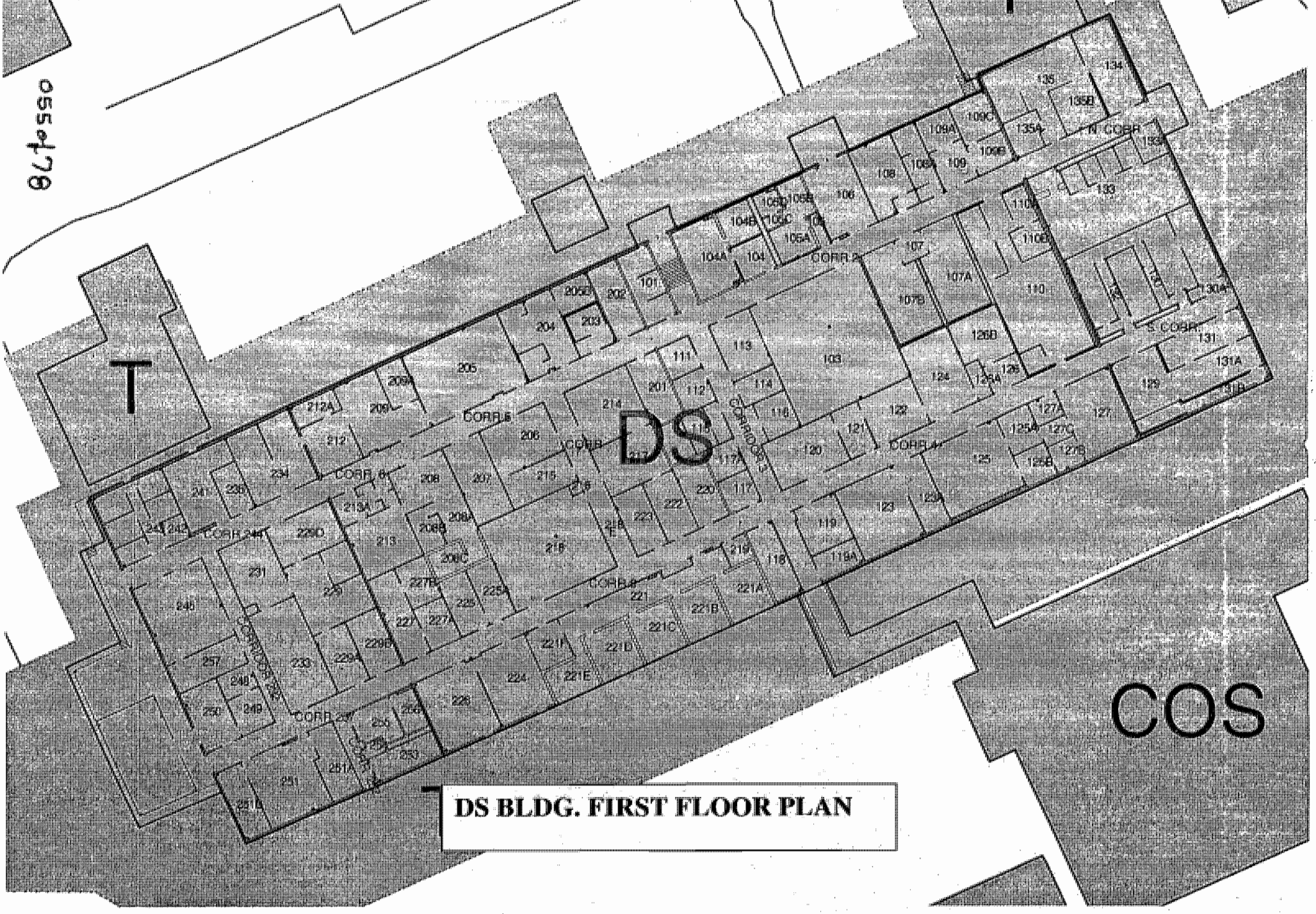


BLDGS. DS & 25 – UG GAS LINES

053of78



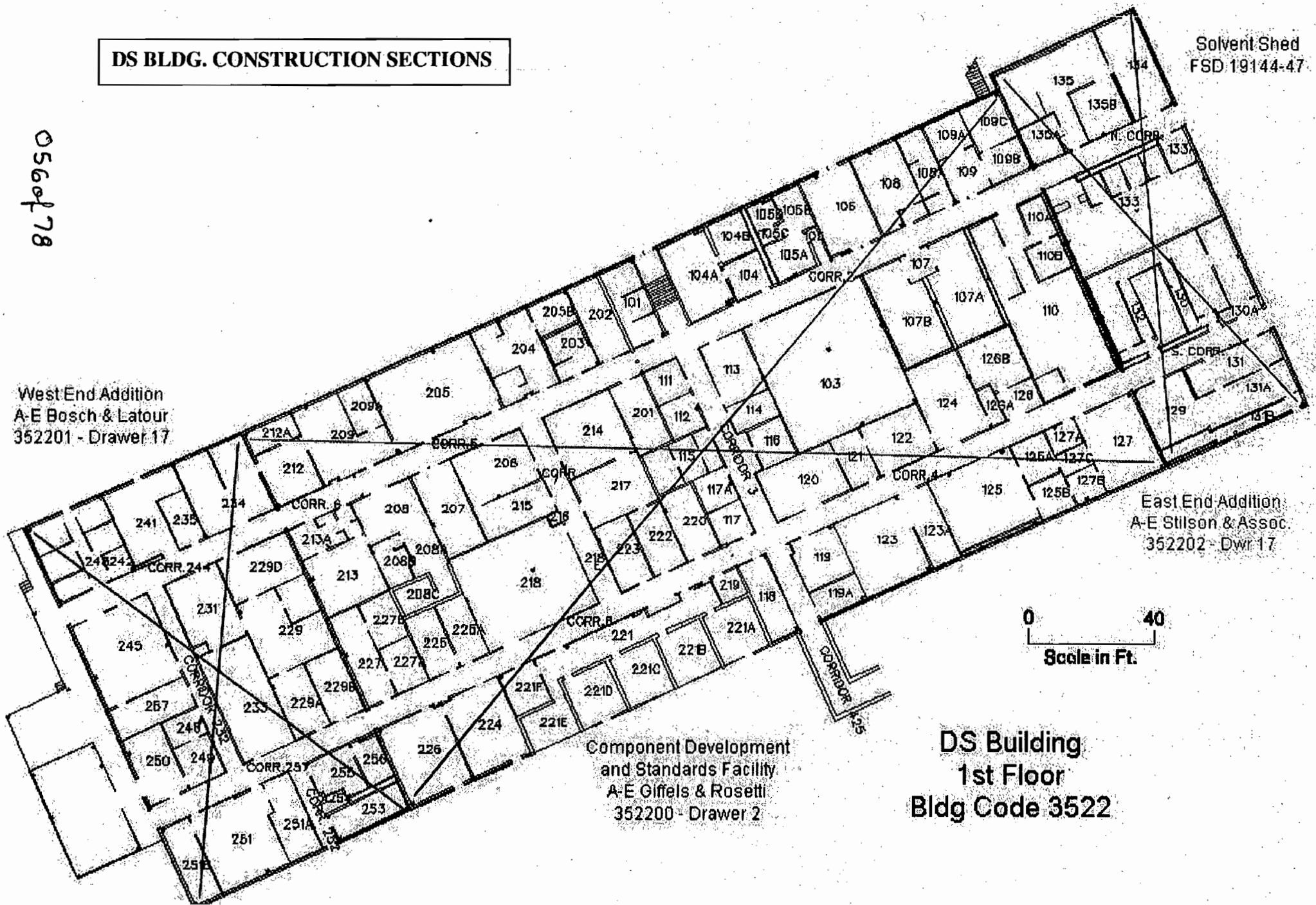
BLDGS. DS & 25 – CHILLED WATER LINES

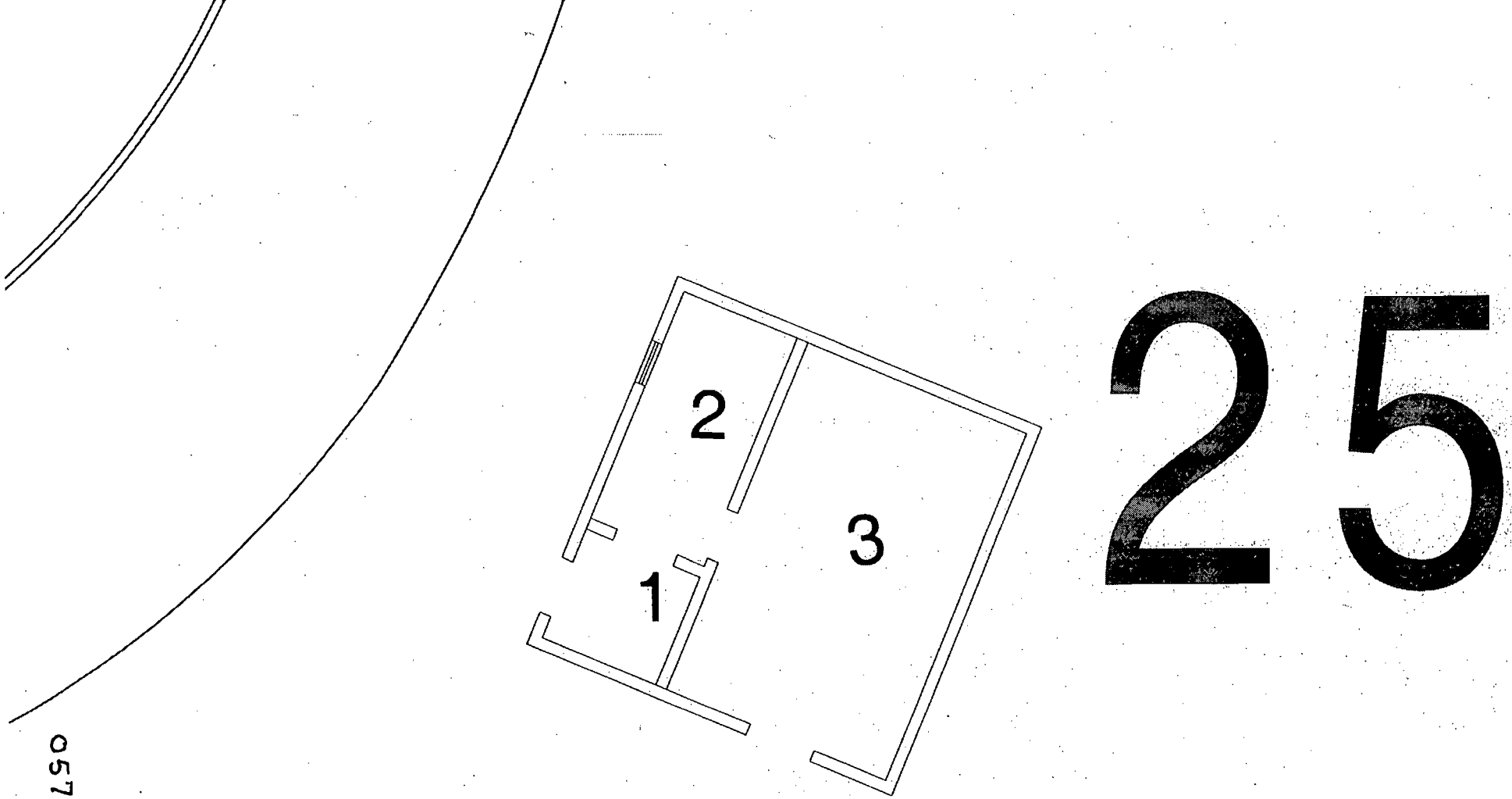


DS BLDG. FIRST FLOOR PLAN

DS BLDG. CONSTRUCTION SECTIONS

056 of 78





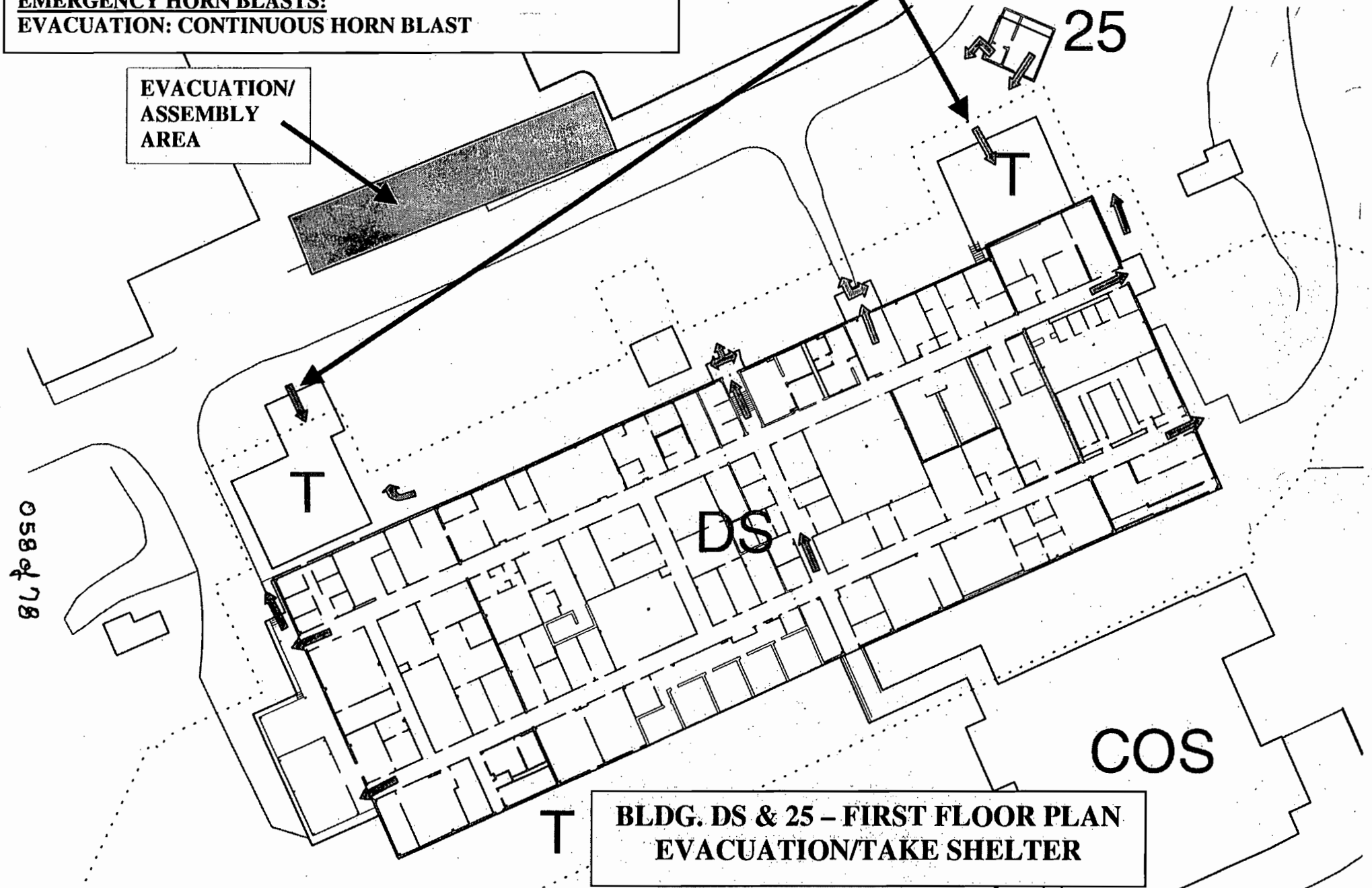
BLDG. 25 FLOOR PLAN

057#478

EMERGENCY TELEPHONE: 865-4040 OR NEXTEL AA911
BLDG MGR.: GARY WEIDENBACH, 865-3241 OR CELL 608-8207

EMERGENCY HORN BLASTS:
EVACUATION: CONTINUOUS HORN BLAST

TAKE SHELTER AREA: 1st or 2nd floor of T-bldg. Enter T-bldg. through east or west towers



BLDG. DS & 25 – FIRST FLOOR PLAN
EVACUATION/TAKE SHELTER

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EMERGENCY TELEPHONE: 865-4040 OR NEXTEL AA01
BLDG MGR.: GARY WEIDENBACH, 865-3241 OR CELL 608-8207

EMERGENCY HORN BLASTS:
EVACUATION: CONTINUOUS HORN BLAST

TAKE SHELTER AREA: 1st or 2nd floor of T-bldg. Enter T-bldg. through east or west towers

EVACUATION/ ASSEMBLY AREA

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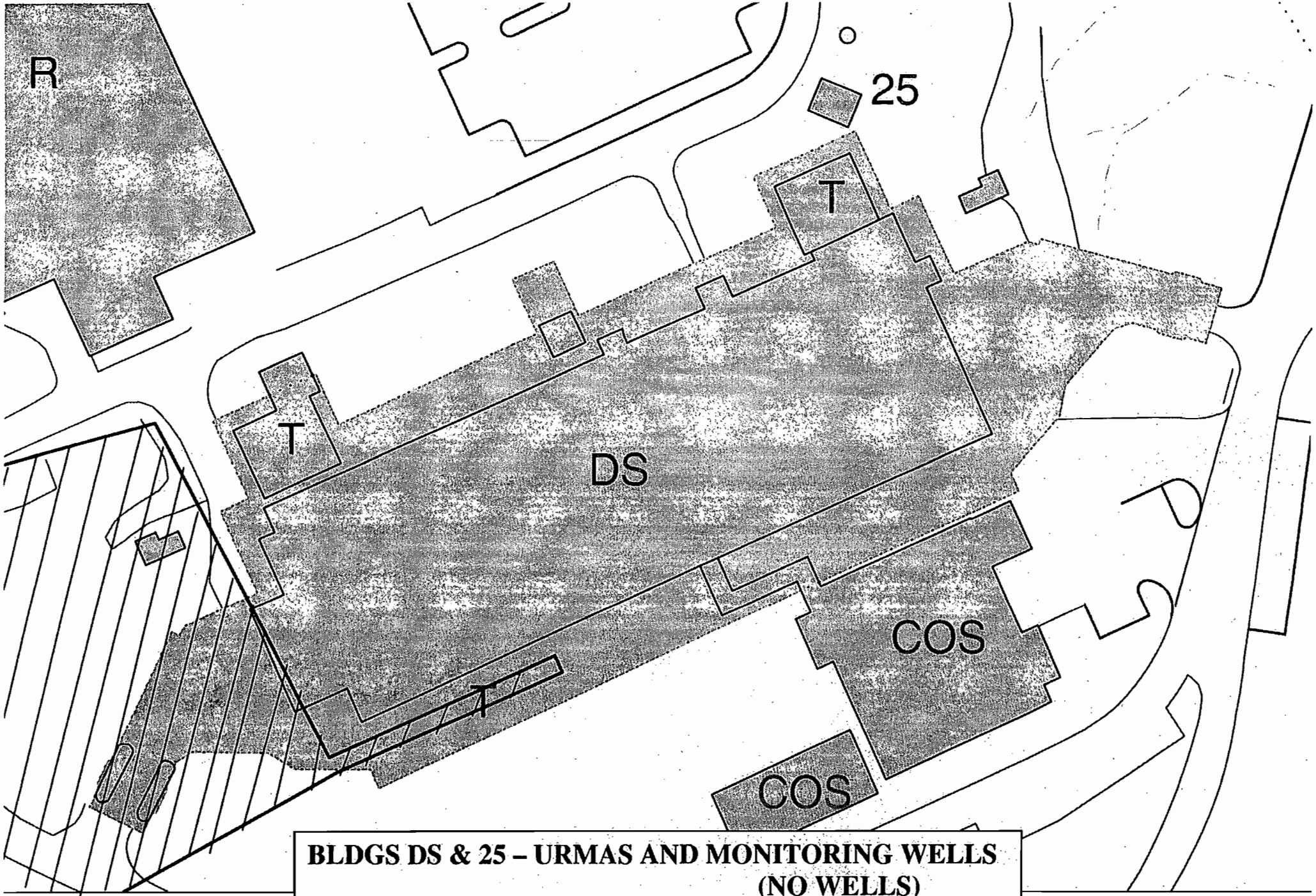
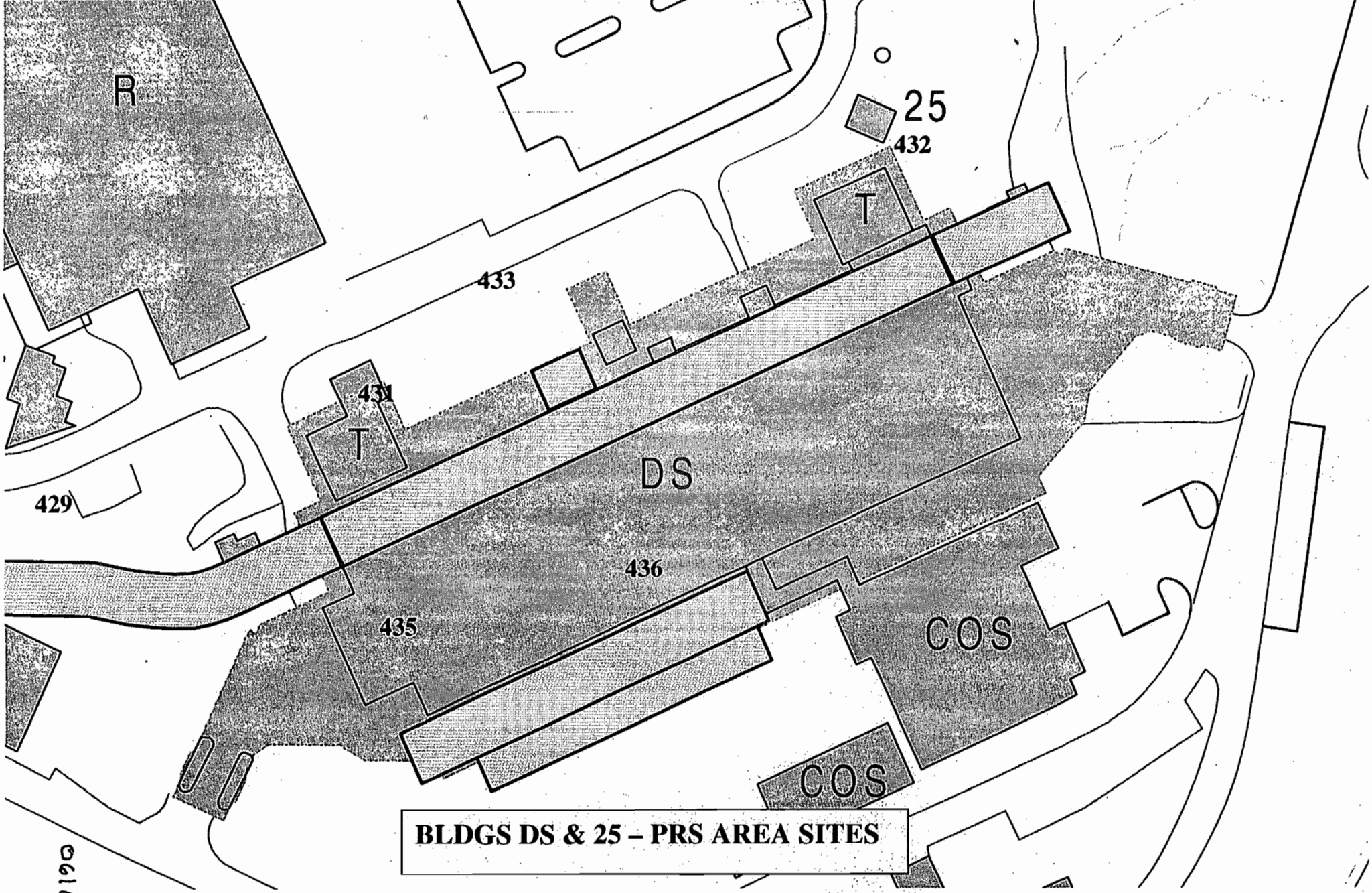
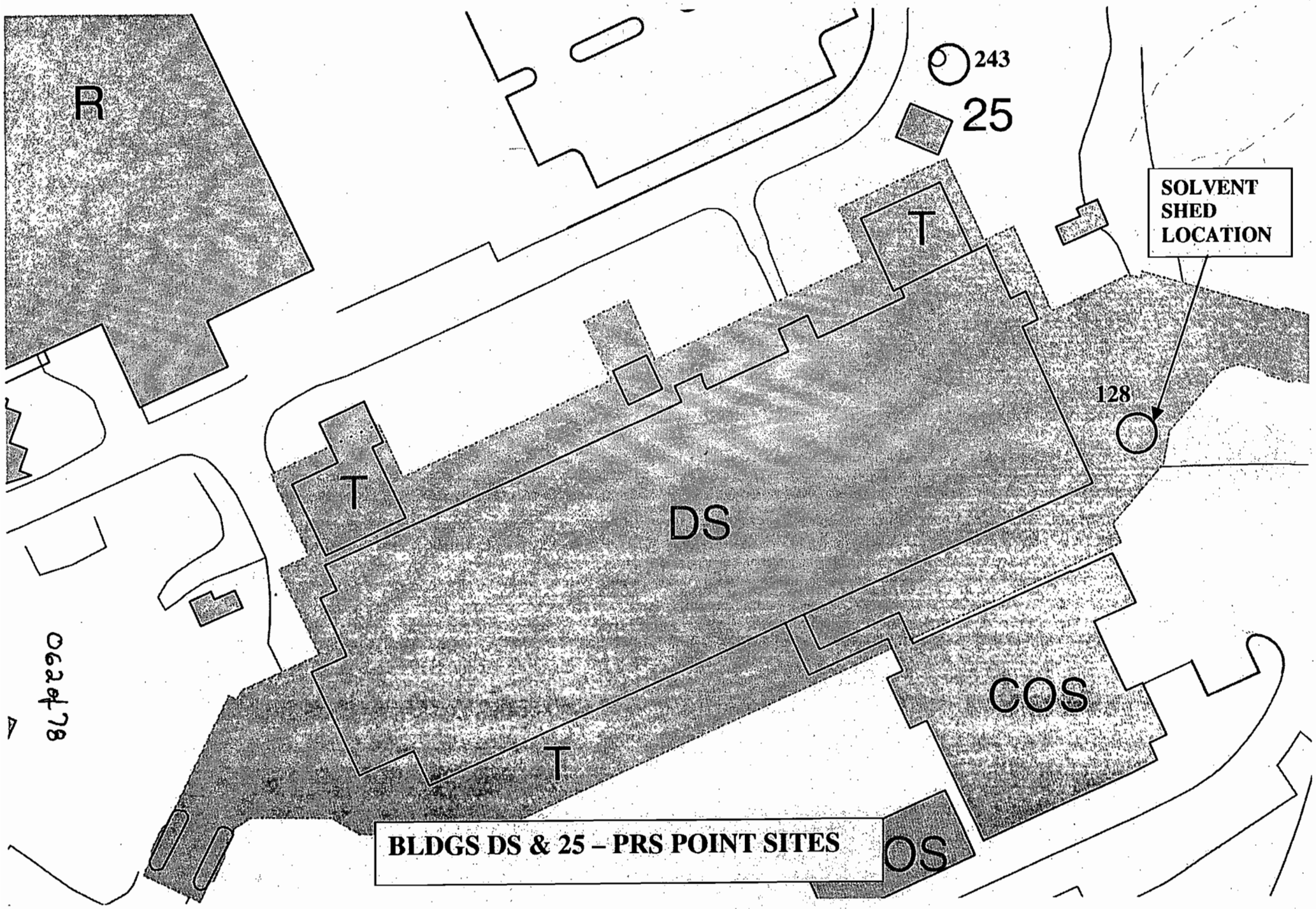
BLDG. DS - PENTHOUSE PLAN
EVACUATION/TAKE SHELTER WHILE WORKING ON BLDGS DS & 25



BLDGS DS & 25 – URMAS AND MONITORING WELLS (NO WELLS)



BLDGS DS & 25 – PRS AREA SITES



BLDGS DS & 25 – PRS POINT SITES

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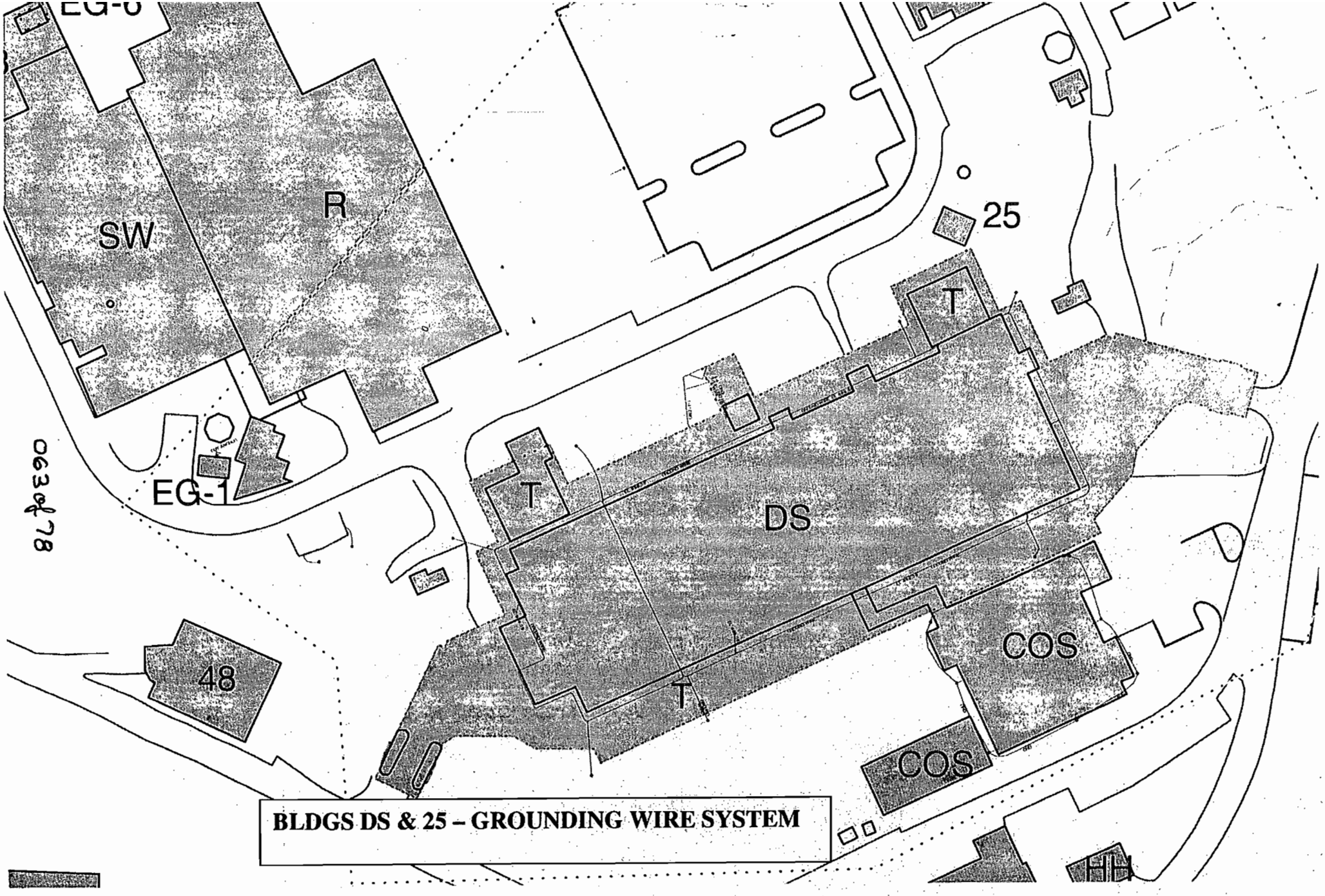
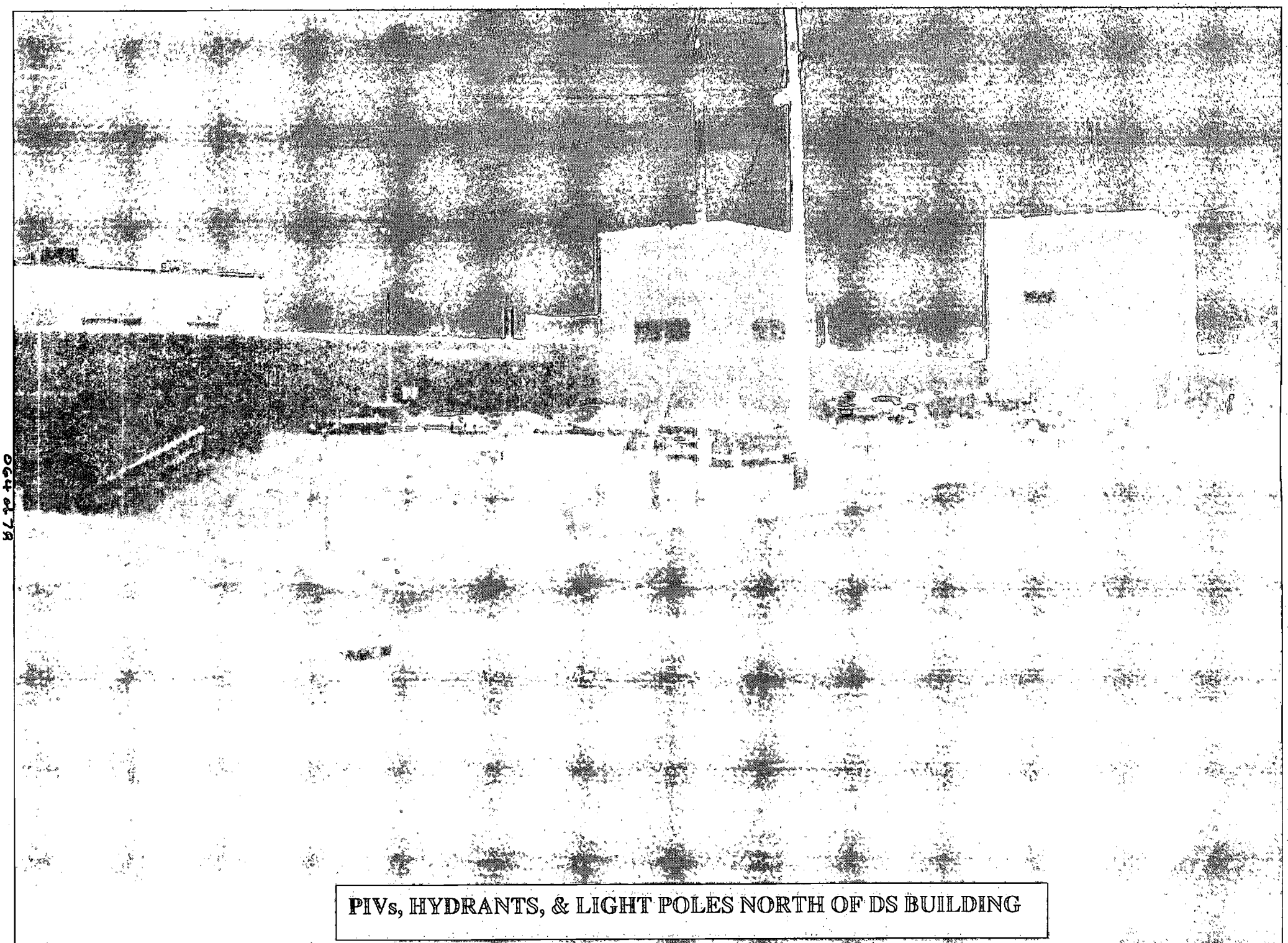
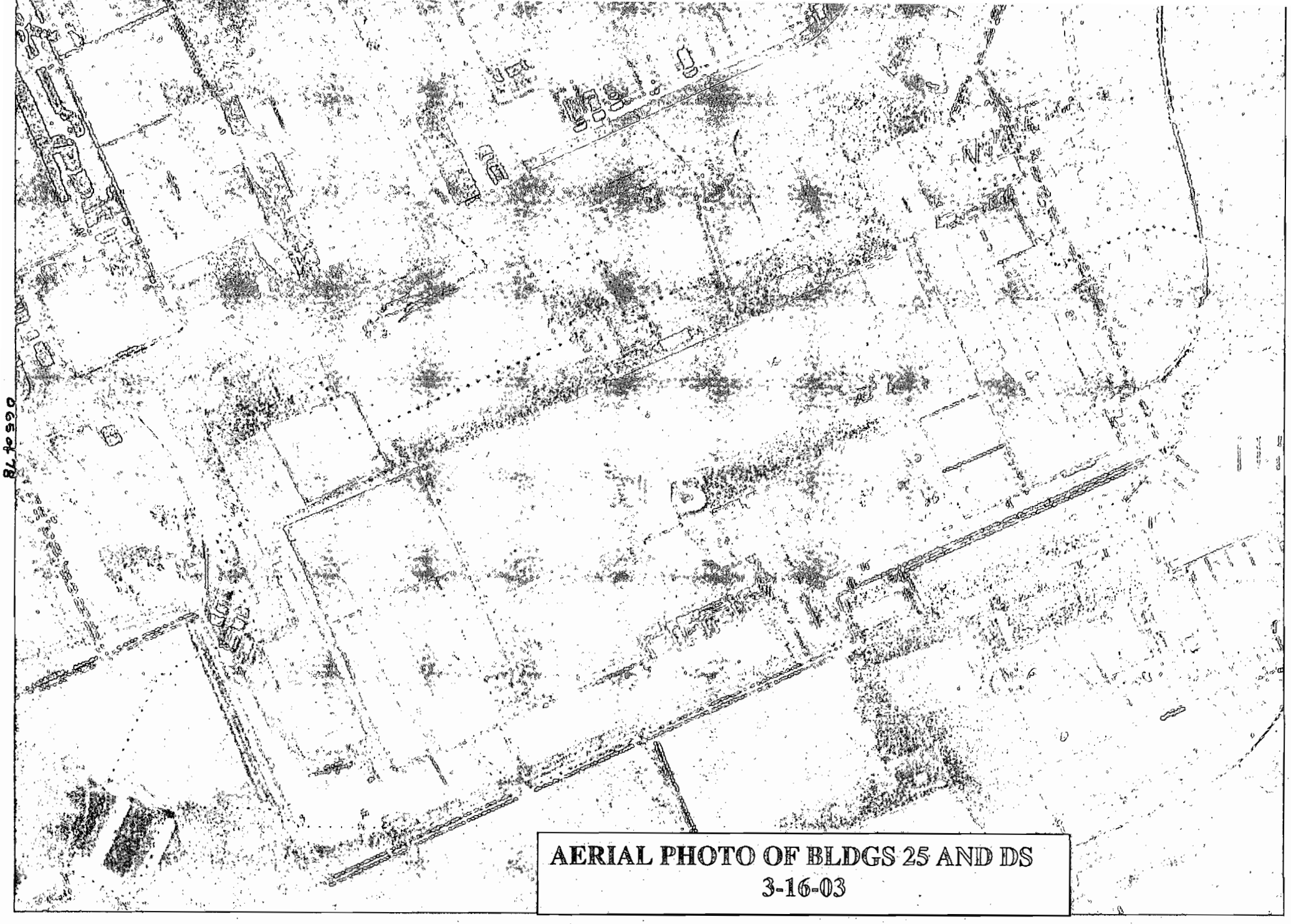


BLDGS DS & 25 – GROUNDING WIRE SYSTEM

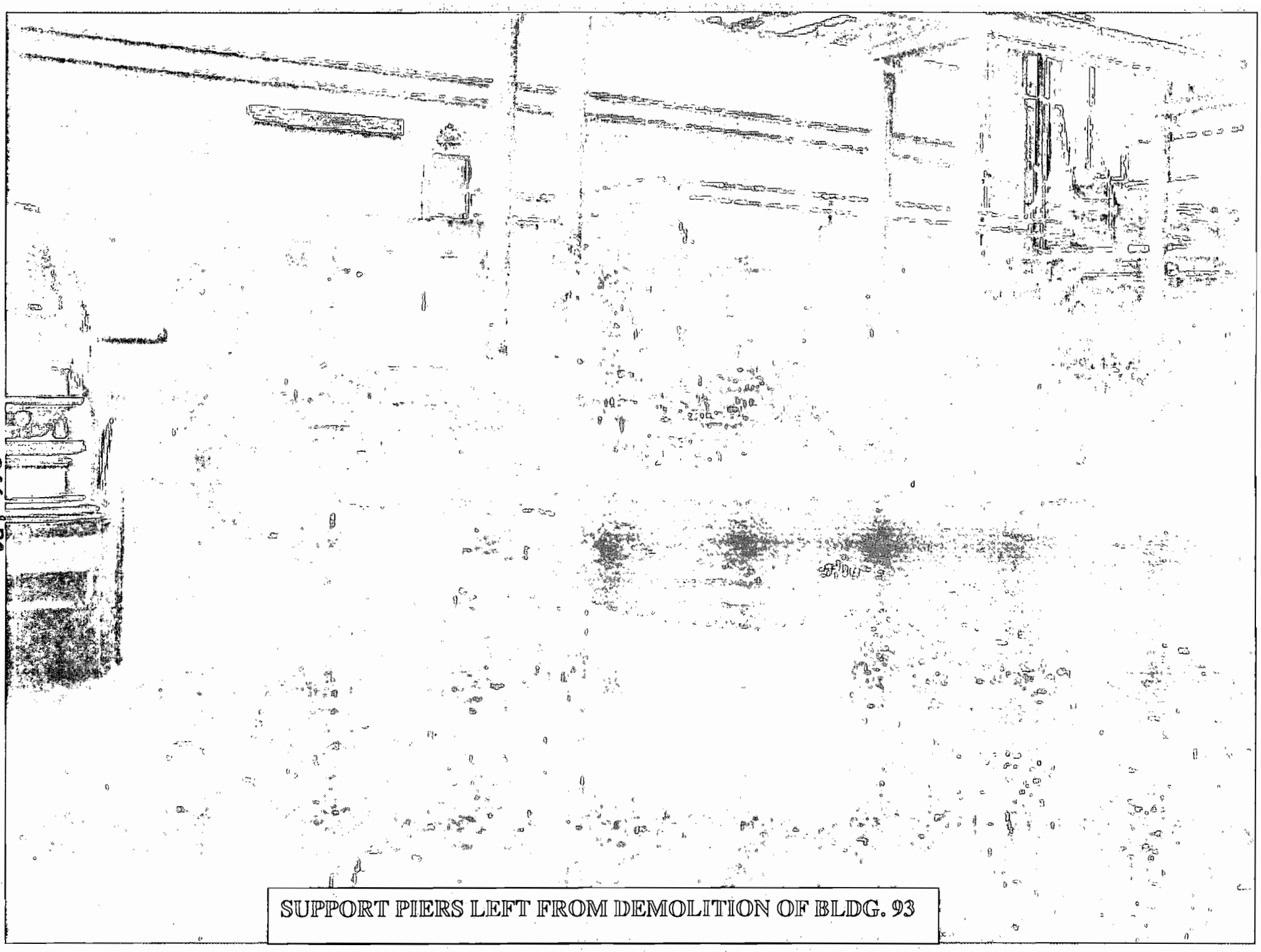


PIVs, HYDRANTS, & LIGHT POLES NORTH OF DS BUILDING

0644-79



AERIAL PHOTO OF BLDGS 25 AND DS
3-16-03



SUPPORT PIERS LEFT FROM DEMOLITION OF BLDG. 93

Appendix D
MISCELLANEOUS
(USQ, RWP, etc.)

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

INTER OFFICE MEMO CH2MHILL MOUND, INC.

Date: March 8, 2004 cc. S. Davis

From: W. L. Johanan – 61 rm 220

Subject: Structural Survey of DS Building 25, RE: 29 CFR 1926.850 (a)

To: Kurt Kehler-Project Manager

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

Please call me if you have any further questions.

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

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

Attachment 1, (Example) Solid Waste Debris/Roll-off Release – ML9901 (10/02)

SOLID WATE ROLL-OFF RELEASE

ROLL-OFF NUMBER: _____ **WASTE GENERATED:** _____

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

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

_____ Date_____

Waste Operations Manager or Designated Representative

ML-9901 (10/02).

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

I. BUILDINGS WITH NO RAD HISTORY (MARSSIM NON-IMPACTED AREAS)	II BUILDINGS/ROOMS WITH RAD HISTORY (MARSSIM CAT,. 1, 2, & 3)	
ANNUAL SURVEY **AND** ROLL-OFF/DEBRIS PILE SURVEY	PRE-DEMOLITION/TRANSITION SURVEY OR MARRSIM methodology for unrestricted release of building structure. Equipment/furniture left in the building for D&D or that is part of a clean-out will have a representative survey of horizontal surfaces. OR Item Specific free release requires a survey/ evaluation in accordance with MD-80043, OP 400 or OP 500, as appropriate.	NOTES: Structural materials or specific item identified as contaminated above the limits in MD-80043, OP 400 may be decontaminated and resurveyed to determine if it meets release survey criteria

WORK PACKAGE MATERIAL LIST

Work Package # _BOSS-37556__ Page ____ of ____

Work Package Description _Demolition of Buildings DS and 25_____

Item #	Qty.	Units	Material Description	Used For	Suggested Supplier
1		Ea.	Check Spill Kits	Spills	

Appendix E

POST-JOB CONFERENCE/ LESSONS LEARNED

Laborer's Personal Protective Equipment (PPE) Burned While Cutting Rebar With a Portable, Abrasive Wheel Saw (i.e.,cut-off machine)

L03-024 (R-2003-OR-BJCETTP-0201)

LESSON LEARNED STATEMENT: Hot work is any work involving burning, welding, cutting, or similar operations that is capable of initiating fires or explosions. The use of abrasive wheel cutting saws (hereafter referred to as cut-off machine) can generate hot surfaces and a large quantity of hot sparks that must be controlled. Sparks from cutting metal can burn or cause clothing to catch fire. Operators must have knowledge and training in tool manufacturer's safety manual and observe warnings.

DISCUSSION OF ACTIVITIES: A Subcontractor laborer was using a cut-off machine to cut rebar protruding from the K-1302 pad. The cut-off machine was approximately 12-inch diameter and driven by a gasoline engine. The work was being executed under the Subcontractor's Activity Hazard Assessment (AHA), and workers had signed in on a radiation work permit (RWP). The workers were wearing the following PPE: steel-toed shoes, safety glasses, face-shield, and hard hat, as well as, anti-contamination coveralls, gloves, clear plastic booties, and rubber shoe-covers. Before work began, the Subcontractor's ES&H representative, Bechtel Jacobs Company (BJC's) Safety Advocate, and BJC's Subcontractor Technical Representative discussed the requirement for a hot work permit. It was determined that the governing hot work procedure did not require a hot work permit for grinding and other abrasive cutting work; however, the Subcontractor's AHA did require a permit. No permit was obtained prior to starting work.

The Subcontractor had a portable water sprayer in the area for dust suppression and contamination control and another worker observing in the area as an additional safety precaution. After making 8-10 cuts, the Subcontractor laborer advanced to the next piece of rebar. While making this cut, he noticed his anti-contamination plastic bootie smoldering due to sparks.

Anti-contamination clothing was burned, scorched, or melted, including a yellow rubber shoe cover, clear plastic bootie, duct tape, and yellow cotton coveralls on the right leg below mid-shin. The worker's personal blue jeans (between cuff and mid-shin on right leg) appeared to have melted plastic on them. The worker was unsure whether the one hole near the plastic area was present before the incident. The second worker extinguished the smoldering material with the water sprayer in the area. Both workers proceeded to the boundary control station, doffed their clothing, and reported the incident. The worker was not burned, injured or contaminated during this event.

On Tuesday, February 18, 2003, the East Tennessee Technology Park (ETTP) Closure Project Manager of Projects (MOP) halted all hot and spark/heat generating activities at the Site. Later in the day, the Vice President and Deputy General Manager for BJC issued a stand down on all hot work (including any work that produces sparks or heat) across the company. This stand down applied to all BJC self-performed and subcontractor work at all BJC project locations.

ANALYSIS: The Subcontractor's scope of work was to decontaminate and demolish buildings at the ETTP as part of the Main Plant Decontamination and Decommissioning (D&D) Project. The Subcontractor performed characterization, removed contaminated components, decontaminated selected materials when economically practical, demolished the superstructures to the slab or grade, and disposed of the waste. At the time of the February 18, 2003, incident, work was at a point that rubble piles were being loaded on trucks for shipment to a permitted disposal facility. The Subcontractor decided to have personnel remove protruding rebar from the K-1302 concrete pad. Since the work area was considered to be a contamination area, entry required the workers to wear anti-contamination PPE. Although the Subcontractor's AHA for General Construction Hazards required this operation to be carried out using a hot work permit, the permit was not obtained. The Contractor's procedure BJC-EH-2007, "Welding/Burning/Hotwork", dated December 15, 2002, did not require a hot work permit for grinding and abrasive work. A WBH Permit was required for welding, arc and torch cutting, and open-flame operations occurring outside fixed weld shop areas. The National Fire Protection Association's Standard NFPA 51B "Standards for Fire Prevention During Welding, Cutting, and other Hot Work-1999 edition" specifically includes grinding processes.

The Subcontractor had a previous incident in May 2002 that also resulted in a laborer's PPE being burned by sparks from the same type of cut-off machine. The PPE did not ignite, but the material was charred, and it resulted in a lessons learned by the Subcontractor. However, the lessons learned was only disseminated internally and was not included in the Contractor or Department of Energy (DOE) Lessons Learned System.

Significant changes had occurred in the project staffing for both the Contractor (Safety Advocate and Subcontract Technical Representative) and the Subcontractor (Environment, Safety, and Health Representative, Project Manager, and Site Superintendent). Over the previous 11 months, there had been 25 individuals who had occupied 10 positions that were involved in the Main Plant D&D Project. Due to this large staff changeover in key critical positions over a short period, lack of project and work knowledge contributed to failures that allowed this incident to occur.

The Subcontractor selected the cut-off machine based on its availability. The hazards and its appropriateness for the task were not evaluated. The laborer did not have sufficient knowledge of the proper techniques and the hazards associated with the cut-off machine, and hot sparks were allowed to impact his leg. Neither the Contractor's nor the Subcontractor's hazard assessment process properly evaluated this hazard. Although the Subcontractor's AHA required a hot work permit, the Subcontractor did not obtain a permit and followed the existing RWP. The laborer wore 100% cotton anti-contamination coveralls instead of the fire-resistant PPE that would be

required for hot work protection. The cut-off machine's manufacturer's safety manual was not at the work site until after the incident, and the Subcontractor's personnel were not familiar with the precautions contained in the manual.
The manufacturer's safety manual provides the following warnings:
* When cutting metal, a cut-off machine generates sparks which can ignite clothing. Most fabrics used in clothing are combustible – even flame-retardant fabrics will ignite at higher temperatures. To reduce the risk of burn injury the manufacturer recommends wearing clothing made of leather, wool, flame-retardant-treated cotton or tightly woven, heavier cotton such as denim. Some flame-retardant synthetic fabrics are also suitable but others such as polyester, nylon, rayon, and acetate can melt during a fire into a tar-like matter that buns into the skin. Check the clothing manufacturer's instructions.
* Sparks from cutting metal can burn or cause clothing to catch fire. Do not use a cut-off machine on flammable ground. Always direct sparks away from the operator or any flammable surroundings.
* The wheel guard is adjustable. It is extremely important that the wheel guard is in place and set to suit the type of work and your stance. The guard should always be adjusted so that the user is not endangered by particles of the material being cut; sparks or pieces of damaged wheels either directly or by ricochet. Failure to follow this instruction could result in serious or fatal injury.
A Warning label on the saw instructed personnel to adjust the blade guard to direct sparks and material fragments away from the operator. Sparks created during cutting may cause fire. Furthermore, his body position was incorrect when using the cut-off machine and the combustible coveralls were exposed to sparks. Therefore, both the direct and root causes of this event were work planning deficiencies. The Subcontractor did not train their
workers to the requirements contained in the cut-off machine manufacturer's owners/safety manual nor to the precautions listed on the equipment label. Therefore, a contributing cause to this event was a training deficiency - No Training Provided.
RECOMMENDED ACTIONS:
* Obtain manufacturer's safety manuals for powered-hand tools and equipment.
* Provide training to recognize the hazards identified in powered-hand tool manufacturer's safety manuals and adhere to manufacturer's warning label.
* Ensure appropriate selection and identification of flame-resistant clothing in work control documentation for hot work activities.
* Consider the use of hydraulic cutters instead of abrasive cutting to reduce the size of rebar at demolition sites.
* Ensure lessons learned are shared with employees as related to specific activities and hazards.
* Revise hot work procedures to include current (1999 edition) NFPA 51B requirements and applicable ASTM standards.
* Obtain hot work permits for welding and allied processes, heat treating, grinding (including abrasive wheel cutting), thawing of pipe, powder-driven fasteners, hot-riveting, and similar applications producing a spark, flame, or heat.

Inattention to Potential Obstructions Leads to Downed Communication Lines

L03-049

Lessons Learned Statement:
Inattention to overhead obstacles can lead to striking of lines as equipment is being placed or removed.
Discussion:
A waste management subcontractor was picking up a full roll-off waste container from the HH Building dock. Before the roll-off truck had completely lowered the roll-off onto the bed, it began to pull away from the dock, contacting and pulling down a low hanging communications line. The communications Line had previously been abandon. The roll-off and pickup evolution had been performed under Waste Management personnel supervision several times prior to the incident. This pick up had been scheduled for Thursday afternoon, but the subcontractor failed to complete the pickup as scheduled. The pickup was rescheduled for Friday (a non-work day at Mound). The subcontractor driver that arrived on Friday was not a regular driver and had never been at Mound before. Security arranged badging for the driver, knowing that Waste Management Personnel were aware of the Friday Pickup. Security personnel escorted the driver to the pickup location, but were not performing in a spotter capacity. When the line was pulled down, work was stopped, management was notified and an electrician was dispatched to verify the lines were not power lines and were dead.
Recommendations:
Placement of waste containers should be reviewed by supervision to identify potential hazards including overhead hazards. Control the identified hazards through engineered controls (such as removing overhead lines) or administrative controls (such as the use of spotters) as appropriate. This also applies to Projects moving containers such as dumpsters and roll-offs after initial placement
Maintain a list of approved personnel to perform subcontractor waste pickups. If these personnel are not on the approved list, Security should deny access until the personnel have completed appropriate orientation, management authorization has been obtained, and supervision has been arranged.

Title: **Worker Injured By Falling Overhead Pipe During Demolition Work**

Identifier: **2003-SR-WSRC-0019**

Date: **2003-11-13**

Lesson Learned Statement:

During overhead pipe removal activities, workers failed to adequately analyze hazards of cutting overhead piping and to properly secure all portions of the cut pipe. When doing work in the overhead, the job must be planned and conducted to prevent loose items from falling. Access to the area must be closely controlled to keep people out of harm's way.

Discussion:

On 10/29/03, Bechtel Savannah River Incorporated (BSRI) employees were performing D&D work in the 247-F Naval Fuels Facility at the Savannah River Site. Two individuals were removing a two-inch steel steam condensate line in sections approximately six-feet long from the overhead. With fourteen feet of pipe remaining, a cut was made between two pipe hangers that left an eight-foot section of pipe being supported by one hanger. The eight-foot section of pipe became unbalanced, slid from the pipe hanger, and fell 13 feet.

A Radiological Control Inspector, who was observing cutting operations from an adjacent area below the pipe, was struck and injured by the falling pipe. The pipe glanced off the employee's hard hat and left shoulder and then hit the back of the inspector's left leg, causing an abrasion to the calf and ankle.

The worker was evaluated and treated by Medical and released to return to work with no restrictions.

Analysis:

A safety stand-down was conducted with affected employees, and the incident was reviewed.

Recommended Actions:

Safety Engineer to perform pipe-cutting observations over the next week

Project Lessons Learned Coordinators should share this information with those individuals/work groups involved with D&D work as well as overhead activities.

This information should be thoroughly reviewed for incorporation into work packages, pre-job briefings, procedures, etc., to prevent recurrence.

Please inform your Project Lessons Learned Coordinator if this Lessons Learned is incorporated into work processes/procedures or otherwise used for performance improvement.

Originator:

Westinghouse Savannah River Company

POST JOB CONFERENCE

1. WORK PACKAGE TITLE: **Demolition of Buildings DS and 25**
2. WORK PACKAGE NUMBER: BOSS-37556-00

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

Title: (This is a brief descriptive title)
Demolition of Buildings DS and 25

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

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

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

Recommended Actions: (Identify specific corrective actions)

Submitted by: _____ Date: _____

OPTIONAL

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