300502-0605090006

CH2M HILL Mound, Inc.
1075 Mound Road
P.O. Box 750
Miamisburg, OH 45343-0750

SMO-241/06
April 5, 2006

Mr. Don Pfister, Director
Miamisburg Closure Project
U. S. Department of Energy
175 Tri-County Parkway
Springdale, OH 45246

ATTENTION: Paul Lucas

SUBJECT: **Contract No. DE-AC24-03OH20152:** Deliverable #36 Building Data Package; Section C.2.1.1 Facility Demolition; Building 50 Building Data Package, Final

Dear Mr. Pfister:

Attached is the following Final document for your records:

- Buildings 50 Building Data Package, Final

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

Sincerely,

Michael D. Ebben
Site Manager

ME/jg

Enclosures

cc: T. Fischer, USEPA, (1) w/attachments
B. Nickel, OEPA, (1) w/attachments
S. Helmer, ODH, (1) w/attachments
J. Colleli, ODH, (1) w/attachments
M. Wojciechowski, Tetra Tech, (1) w/attach
G. Gorsuch, DOE/MCP, (1) w/attachments
R. Tormey, DOE/OH, (1) w/attachments
G. Desai, DOE/HQ, (1) w/attachments
F. Bullock, MMCIC, (3) w/attachments
Public Reading Room, (1) w/attachments
Admin Record, (2) w/attachments
ER Records, CH2M Hill, (1) w/attachs
DCC (1) w/attachments
M. Ebben, CH2M Hill, w/o attachments
K. Armstrong, CH2M Hill, w/o attachments
D. Rakel, CH2M Hill, w/o attachments
D. Kramer, CH2M Hill, w/o attachments
A. Upshaw, CH2M Hill, w/o attachments
MOAT Coordinator, CH2M Hill, w/o attachs
S. Barr, CH2M Hill, w/o attachments
M. McDougal, CH2M Hill, w/o attachments
file, CH2M Hill, w/o attachments

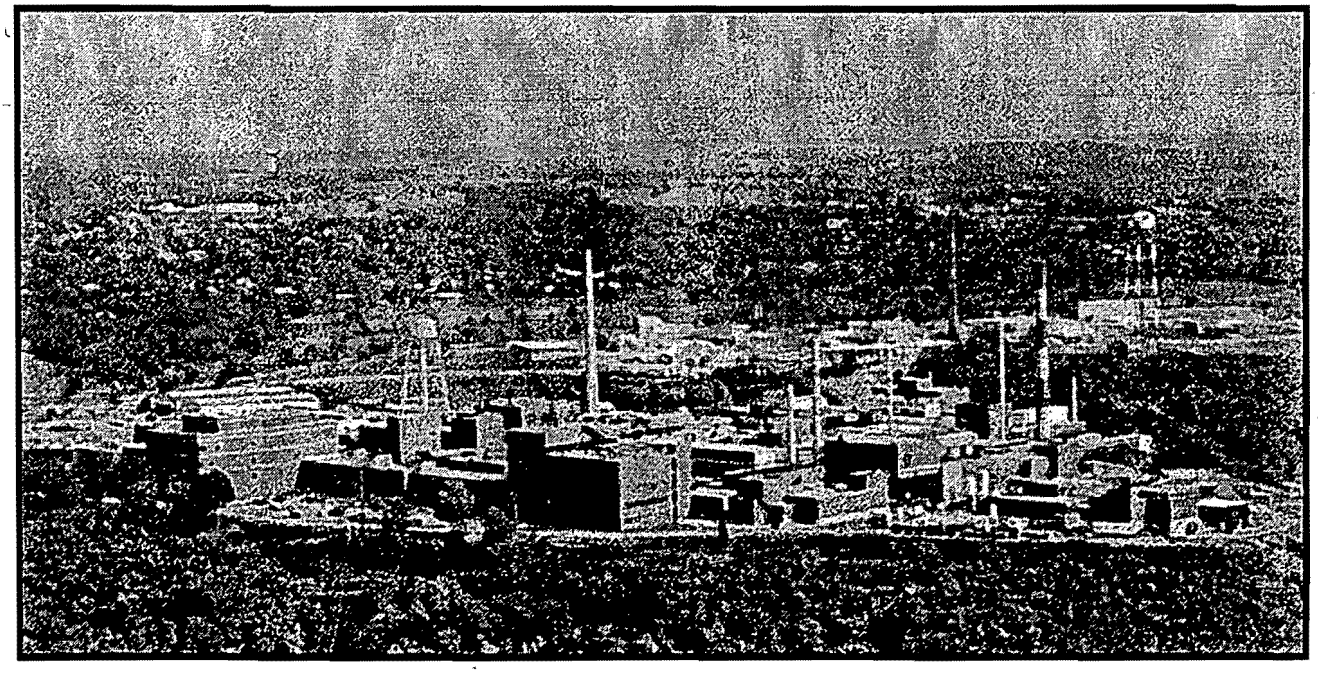
300502-0605090006

Environmental
Restoration
Program

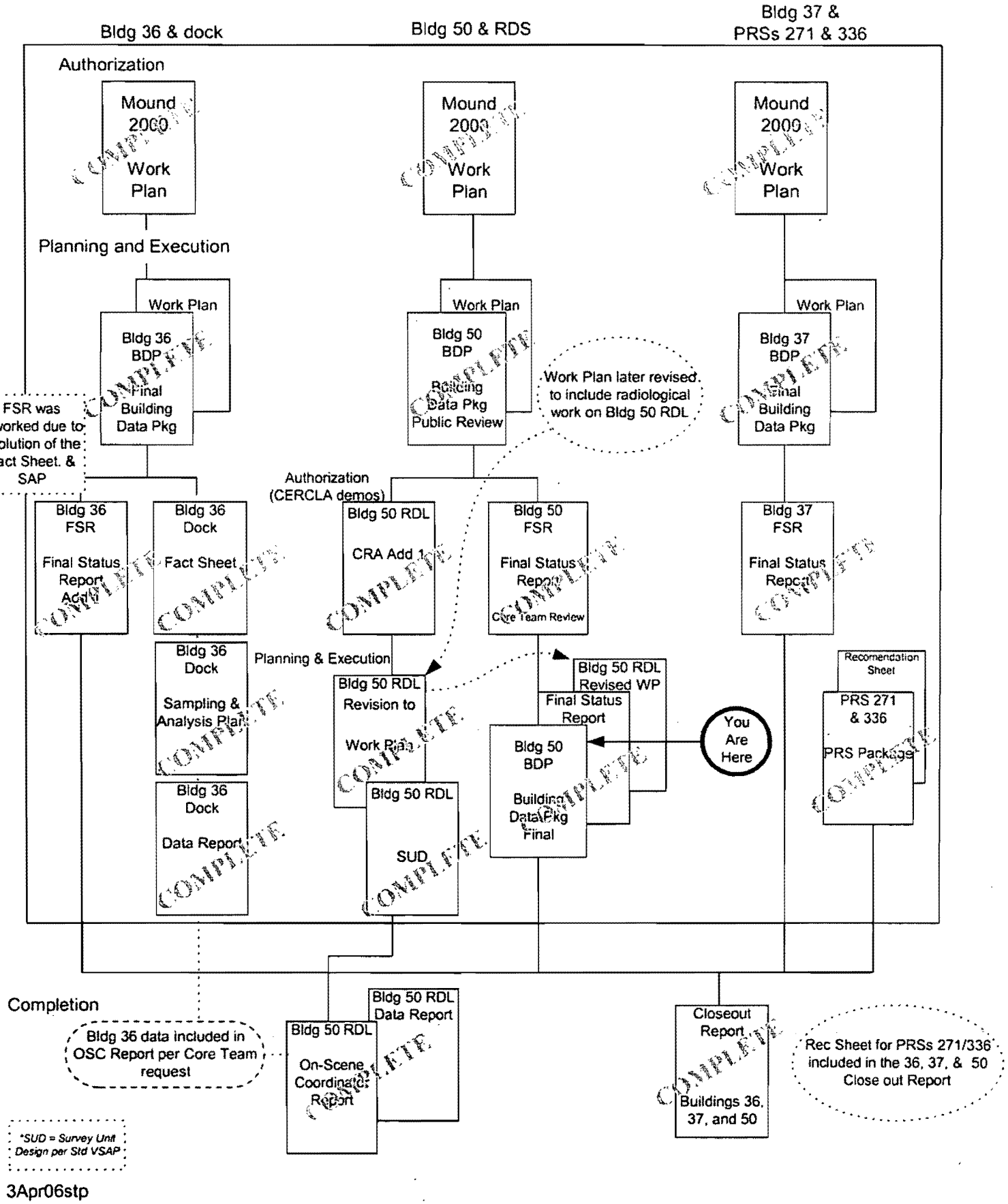
Miamisburg Closure Project
Building Data Package

Building 50
(Demolition)

Final
May 2004



Bldg 36, 36 dock, Bldg 37, 37 tanks (PRSs 271 & 336) & Bldg 50 & 50 RDS



3Apr06stp

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Response to Comments

on Building 50, BDP, Public Review Draft, November 2003

OEPA COMMENTS

Comment 1. Page 6, Table 1 – Summary of Environmental Concerns and Findings - In the Resolution section for the Drainage Sumps, add the following "Additional analyses may be performed with the concurrence of DOE, OEPA and USEPA. During excavation of the basin and sump, if stained soil, soil with an odor or any other indication of contamination is found, additional samples will be taken for further analyses".

Response 1. Change made as requested.

USEPA COMMENTS

Comment 1. Section #: 2.2, Page #: 4, Line #: Not Applicable (NA)
Comment: The text indicates that "all required equipment will be removed from the building, and any remaining equipment will be left in place and demolished/disposed of with the building." It is not clear how it will be determined which equipment is to remain during demolition and which equipment is to be removed. It is also not clear how the remaining equipment will be screened for potential contaminants. Additionally, the text does not state whether piping, canals, and trenches will remain in the building. Further information should be provided to clarify these three matters.

Response 1. Equipment disposition: DOE evaluates the potential reuse or sale value of each piece of equipment along with the cost of moving the equipment. Based on that evaluation, DOE decides which pieces are reused or sold and which are demolished with the building. The BDP has been revised to include a reference to 41 CFR 101-200 for equipment disposition regulations.

Equipment contamination: Any equipment remaining in a building during demolition will have been radiologically surveyed to ensure it meets free release criteria. Further, any equipment remaining in a demolition building will have gone through Safe Shutdown activities to eliminate any potential contaminants, such as the removal of oil or energetic materials. If any piece of equipment is found to be contaminated, it would either be decontaminated or removed from the building during Safe Shutdown activities. The Safe Shutdown Work Plan was and is referenced on page O4 of 48 (Appendix O), Section 7.4.1.

Interior building features: Yes, piping, canals, and trenches will remain in the building during demolition. It is standard practice in the demolition industry to leave interior

building features in a building during demolition; therefore, it is not necessary to list these interior structures in the Work Plan. Any building features requiring removal prior to demolition are removed during Safe Shutdown activities. Radiological surveys are in process for Building 50; survey results of the interior and exterior building surfaces, including trenches, canals, and drains, are provided in the Final Status Report. If any survey results are above surface release criteria, additional measures (i.e. decontamination, removal, etc.) will be taken to ensure proper handling of any contaminated surfaces, and the findings and actions taken will be documented in the Final Status Report.

Comment 2. Section #: 2.3, Page #: 4, Line #: NA
Comment: Table 1 indicates that previous lead surveys revealed process equipment contained lead-based paint. It is not clear whether this equipment will remain in the building during demolition. The table should be revised to describe how workers will be protected from generated dust that may contain lead. Additionally, Table 1 states that "per Waste Management, building debris containing lead-based paint can be disposed of in a sanitary landfill." Further information should be provided on how this determination was made. Specifically, the table should be revised to explain why the debris would not be disposed of in a construction and demolition debris landfill.

Response 2. Equipment remaining: Yes. Some equipment remaining in the building during demolition may have lead-based paint. The small amount of lead-based paint on equipment and building surfaces is not a concern for demolition by heavy-duty equipment, or for disposal at Stoney Hollow landfill.

Worker Safety: As related to building demolitions, lead-based paint is only a concern if close worker contact (i.e. sanding, grinding, scraping, torch cutting, etc.) is required. The Work Plan (Appendix O) states the goal of 'no visible fugitive dust' and the standard site dust prevention measures (see pages O 18, 20 and 21 of 64 for specific information about fugitive dust management). Since no surfaces that could contain lead-based paint will be disturbed by close worker contact, and fugitive dust prevention measures will be employed, the possibility of lead-based paint existing on equipment demolished with the structure will pose no risk to worker safety. These determinations were made by Mr. Christopher Ahlquist who is an Ohio Department of Health Licensed Lead Risk Assessor (Appendix J).

Lead-Based Paint: Waste with more than 5 ppm (parts per million) of lead (based on a TCLP test) is classified as hazardous waste. Site Waste Management personnel performed a calculation of the potential lead concentration that could possibly be present in site demolition debris. The calculation was based on a worst-case scenario that assumed all building surfaces were painted with lead-based paint, and included the calculated surface area of all painted surfaces, multiplied by the paint thickness, multiplied by an assumed worst-case lead concentration, and divided by the total volume of demolition debris. The results showed that the calculated worst-case value of possible lead concentration in demolition debris was significantly lower than what

causes the debris to be classified as hazardous waste. Accordingly, Waste Management has authorized the disposal of demolition debris to Stoney Hollow.

Waste Management: Waste from the MCP site that meets free release criteria is disposed of at Stoney Hollow Recycling and Disposal Facility in West Carrollton, Ohio. Stoney Hollow includes both a construction and demolition debris landfill, and a sanitary landfill. All waste shipments to Stoney Hollow meet the applicable waste acceptance criteria. As requested by Tetra Tech, the Table 1 was revised to specify disposal at Stoney Hollow.

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AFFIDAVIT OF PUBLICATION

State of Ohio

SS: CH2MHILL

Montgomery County

MIAMISBURG CLOSURE PROJECT

BUILDING DATA PACKAGE

The following document is available (November 7, 2003) for public information in the CERCLA Public Reading Room, 305 E. Central Ave., Miamisburg, Ohio.

BDP Building 50: Alpha Fuels Environmental Test Facility

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

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

44434 11-6/03

Before me, the undersigned, a Notary public in and for said County, personally came Marsha Cox , who being first duly sworn says she is the Legal Advertising Agent of the DAYTON DAILY NEWS, which she says is a newspaper of general circulation in Montgomery, Clark, Warren, Butler, Clinton, Greene, Preble, Miami, Darke, Mercer, Shelby, Fayette, Logan, Auglaize, and Champaign Counties, and State of Ohio, and she furthur says that the Legal Advertisement, a copy of which is hereunto attatched, has been published in the said DAYTON DAILY NEWS

19 Lines, **1** Time(s), last day of publication

being **11/6/03** , and he/she furthur says that the bona fide daily paid circulation of the said DAYTON DAILY NEWS was over Twenty-five Thousand (25,000) at the time the said advertisement was published, and that the price charged for same does not exceed the rates charged on annual contract for the like amount of space to other advertisers in the general display advertising columns.

Signed Marsha Cox

Sworn or affirmed to, and subscribed before me, this

6 day of **November** 2003

In Testimony Whereof, I have hereunto set my hand and affixed my official seal, the day and year aforesaid.

Notary Public in and for the State of Ohio

NOTARIAL SEAL STATE OF OHIO

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BDP Building 50

REV	DESCRIPTION	DATE
WORKING DRAFT (to DOE)		**October 2003**
DRAFT (to Core Team)	BDPs for construction demolitions undergo simultaneous review by the Core Team and public.	**N/A**
PUBLIC REVIEW DRAFT	Public review period was from November 7, 2003 through December 7, 2003.	**November 2003**
DRAFT PROPOSED FINAL (incorporates Core Team comments)	Text changes were made in response to OEPA and USEPA comments. No public comments were received.	**January 2004**
FINAL	Radiological contamination was identified in a limited portion of Building 50. The areas of contamination were removed via the Action Memorandum for Contingent Removal Actions for Contaminated Soils, Addendum 1: Structures, disposed of as LSA waste, and closed out via the Building 50 Red Drain Line OSC Report. The Building 50 superstructure and slab were removed as a standard industrial demolition and closed out via the Buildings 36, 37, and 50 Closeout Report. The Final BDP for Building 50 includes the Core Team approved Final Status Report (Appendix G) and the Core Team approved Demolition Work Plan (Appendix O), which was revised to include the Building 50 Red Drain Line work, as shown of the enclosed flow chart.	**May 2004**

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1.0 GENERAL OVERVIEW

1.1 Introduction

The purpose of this Building Data Package (BDP) is to prepare for the demolition of Building 50 (Alpha Fuels Environmental Test Facility) and to identify, if possible, any recognized environmental conditions (defined below) that may affect the subject property and building.

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

1.2 Scope

This document has been prepared in accordance with the agreements and requirements as specified in the *Work Plan for Environmental Restoration of the DOE Mound Site, The Mound 2000 Approach*. This document is a BDP for Building 50 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 Building 50, the soil beneath, and a 15-foot wide perimeter border around the building. The investigation of Building 50 included the following:

A) A building and perimeter inspection.
B) An examination of historical aerial photographs and maps.
C) A review of federal and state regulatory agency records.
D) Personnel interviews.
E) A review of site records for:

   1) History of spills, releases and chemical inventories
   2) Past sampling data

      - Radiological survey
      - Soil sampling
      - Lead-based paint
      - Asbestos
      - Radon

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

- Characterization of Mound's Hazardous, Radioactive, and Mixed Wastes, August 1990
- Operable Unit 9 (OU-9) Site Scoping Report, Volumes 1-12
- Mound Facility Physical Characterization, December 1992
- Active Underground Storage Tank Plan, November 1994
- OU-9 Hydrological Investigation, Bedrock Report, January 1994
- OU-9 Hydrological Investigation, Buried Valley Aquifer Report, March 1994
- Environmental Appraisal Report of the Mound Plant, March 1996
- Title Search
- Lease Information
- EDR Report - Radius Map
- Building Prints
- Potential Release Site (PRS) information
- MD-22153, Mound Site Radionuclides By Location, June 1995 Contaminant Surveys
- MLM-3791, Mound Facility Physical Characterization, December 1993

2.0 BUILDING 50 OVERVIEW

Constructed in 1970, Building 50 is located on the east central portion of the site (Figure 1). The facility is a two-story, reinforced concrete block, slab-on-grade structure, containing a row of seven test cells (107 through 113) constructed of reinforced concrete within the building (floor plans provided in Appendix D). The east wall of the row of test cells is 36 inches thick. The remaining walls of the test cells, as well as the inter-cell walls and ceilings are 27 inches thick. The floor and the ceilings of the building as well as the footer and foundation walls are constructed of reinforced concrete. The roofs (partially above the first floor and partially above the second floor) are a built-up membrane of asphalt. Building 50 has not had any major modifications, other than reconfiguration of some of the interior rooms, and contains 14,849 square feet of floor space.

Building 50 was designed and constructed for the purpose of conducting safe, nondestructive tests on sealed heat sources fueled with alpha-emitting isotopes. The design of the building used features and control systems, such as shielding, remote handling systems, air pressure differentials, and filtered ventilation to prevent or minimize the consequences of a potential accident. The operating side of the test cells (the east wall, adjacent to the operating gallery – Room 118) is 36 inches thick. Viewing windows (one window in each of the seven test cells) in the operating wall contained glass windows with a 36-inch space filled with a zinc bromide solution to moderate neutron and gamma emission. A byproduct of the zinc bromide solution was the prevention of algae build-up on the glass. The rear side of the cells (the west wall, adjacent to the service gallery – Room

114) is 27 inches thick. The access doors to each cell, which opens to the service gallery, are of concrete construction and are 27 inches thick (for shielding). These doors are hung on a manual monorail. The access door is made airtight by the use of a recessed rubber inflatable boot seal. During normal operations, the shielding of the cells assured adequate protection of personnel anywhere in the building outside the test cells. The test cells were equipped with manipulators to permit remote handling of high dose rate heat sources. The cells were connected by a water-filled canal, which permitted the transfer of high dose rate heat sources between cells, as well as to and from the storage pool in the floor of Cell 113 (high-radiation-level storage pool). The canal was formed by the installation of a low concrete wall running parallel to and about twenty-one inches from the operating wall (36 inches thick) inside of the cells. A low-radiation-level storage pool was in the floor of Room 116. Heat sources could also be transferred using the conveyer system as well as via the service corridor under appropriate administrative controls. The test cells were maintained at a pressure that is negative with respect to both the operating and service galleries. Zoning of areas as "White", "Yellow", "Red" Gallery/Equipment Areas, and "Red" Cells/Filter Room was to designate air flow patterns, dividing the building into four areas of decreasing pressure, from white to red. The purpose of this ventilation scheme was to minimize the spread of possible radioactive contamination within the habited areas. All exhaust ventilation is HEPA filtered before leaving the test cells.

The canal connecting the cells is no longer functional and the low wall of the canal has been removed from each cell except from cells 107, 111, and 112. The canal in Cells 111 and 112 is currently covered by metal plates and the canal in Room 107 is exposed. The high-radiation-level storage pool in Cell 113 was modified (increased length and width and decreased depth) to allow for the installation of a vibration tester for the Radioisotope Thermoelectric Generator (RTG) program. The low-radiation-level storage pool in the floor of Room 116 has been filled with concrete.

Building 50 had been classified as a Category 3 Nuclear Facility. The facility was downgraded to Standard Industrial Hazard on 10/24/2002 (DOE MB-0018-03). This downgrade was based on DOE's verification that all nuclear materials and chemicals in excess of releasable quantities were removed from the building.

The building uses hot water (from Building 128-PST Boiler Building) for heating and a chilled glycol (standalone) unit for cooling, which was recently removed. Electric service is 480 volts. The building has potable and service water, a fire sprinkler system (except for cells 108, 109, 110, 111, and 113), sanitary services, and storm drains.

2.1 Past Uses of Building 50

Building 50 was originally built as a test laboratory for evaluating the integrity of sealed, fueled sources (polonium-210, plutonium-238 and other alpha-emitting fuels). Facility capabilities included test equipment for vibration, shock, fire, external pressure, earth burial, fluoroscopy, vacuum environments, source integration, and fusion experiments. None of the tests were intended to breach the heat source capsule integrity; however, the facility was designed to mitigate the affects of a breached, fueled capsule. Testing was performed in the test cells, which were maintained at a pressure that was negative with respect to the rest of the building. Before leaving the cell, all exhaust ventilation was HEPA

filtered. An "Impact Gun" and a pressure burst facility were installed in Building 50 and from 1974 through 1979, Building 50 was used to perform impact tests and pressure burst tests on fueled capsules for the Milliwatt Generator (MWG) program. In the late 1970s and early 1980s an Inert Atmosphere Assembly Chamber (IAAC) was installed in Room 116 and Building 50 was further modified to provide the capability to assemble and test Radioisotope Thermoelectric Generators (RTGs). Testing capabilities included thermal vacuum, vibration, mass properties, and magnetics. These activities continued until December 2002 when all heat source/RTG production activities at the MCP site were terminated.

2.2 Current Uses of Building 50

Building 50 is currently inactive. The equipment is in the process of being removed. All required equipment will be removed from the building (in accordance with 41 CFR 101-200), and any remaining equipment will be left in place and demolished/disposed of with the building. Safe Shutdown activities will be conducted prior to the commencement of demolition.

2.3 Summary of Environmental Concerns and Findings - Building 50

Table 1: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Lead-Based Paint	Previous lead surveys (sampling data) for Buildings 50 indicate that selected tested surfaces of process equipment contain lead paint. 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. Although untested paint coatings must be assumed to contain lead, the observed condition of the untested paint indicates that there are currently no lead paint hazards within the buildings. (Appendix J).	No further action 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 should be tested to verify the absence of lead. Since the building is scheduled for demolition, these restrictions have been incorporated into work plans for which disturbance of paint is a possibility. Waste Management performed worst-case scenario calculations to determine that building demolition debris containing lead-based paint meets the waste acceptance criteria at Stoney Hollow Landfill.
Chemicals	Appendix K provides a list of chemicals reportedly used or stored in Building 50. Applicable pages from the CY2001 Emergency and Hazardous Chemical Inventory Report (dated March 2002) are also provided.	All cell windows (Section 4.2.2) have been drained of all chemical solutions. All remaining chemicals will be removed prior to demolition, and dispositioned by Waste Management.

Table 1: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Fluorescent Lamps and PCBs	Fluorescent lamps were used in the building. Ballasts may contain polychlorinated biphenyls (PCBs).	Ballasts that may contain PCBs will be removed prior to demolition, and disposed of by Waste Management.
Air Emissions	The Environmental Appraisal (Appendix F) indicates that when the building was operational, air emission sources included the RTG process and the ethanol cleaning process (Rooms 109-113, 114a, and 116). These processes were performed in the test cells (no fumehoods). All HVAC vented to a HEPA filter and the exhaust was released via the roof stack.	Air emissions from Building 50 processes are believed to have had no adverse impact on the building or the environment. All processes in Building 50 have ceased and the building is currently undergoing safe shutdown activities in preparation for demolition.
Asbestos	Previous asbestos surveys for Building 50 were completed in 1989 and 1993. These surveys were intended to identify all reasonably accessible asbestos-containing materials (ACMs) within the building for the purposes of identifying damaged material and managing asbestos in place. The following ACMs were previously identified: pipe insulation, transite cement pipes, tank insulation, and floor tiles. In September of 2003, a comprehensive walk-through survey of all areas of Building 50 was performed to identify all ACMs prior to facility demolition. The following ACMs were identified as requiring removal before demolition: pipe insulation and associated debris, transite cement board table top, fire rated doors, application points of fire-stop putty, sheet vinyl flooring, transite cement pipe, and tank insulation. (Appendix I)	ACM requiring removal before building demolition will be removed by a licensed asbestos hazard abatement contractor. The asphalt roofing is assumed to contain asbestos, but as a Nonfriable Category II material in accordance with NESHAP, it will remain in place during demolition and be disposed of as construction waste. One variety of floor tile within the building was found to be asbestos-containing, but it is also classified as a Category I Nonfriable and need not be removed. All work will be performed in accordance with current state and federal regulations.

Table 1: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Drainage Sumps	Sanitary waste from Building 50 drained into a sanitary sewage basin (concrete vault), which served as a lift station, where it was automatically pumped to the sanitary sewer line. Although partial walls of the basin remain in place, the lift station was removed in 2001 as part of the sanitary sewer upgrades during the construction of Building 126. Wastewater from the areas in Building 50 of potential radioactive contamination drains into a 1,100-gallon sump (adjacent to the above mentioned sanitary sewage basin). The sump is a steel tank in a secondary concrete containment pit. The water is tested to measure level of contamination, and subsequently released to the sanitary treatment plant or trucked to Building WD for treatment. No records of contaminated wastewater have been found; all indications are that the wastewater from the sump has always been released to the sanitary system.	The remaining walls and floor of the sanitary sewage basin, and the steel tank and concrete containment pit that constitute the sump will be removed during demolition activities. The removed concrete and tank will be radiologically surveyed, and disposed of per Waste Management direction. Following removal of the basin and sump, Radiological Control will perform a walkover survey of the soil at the base of excavation under the previous location of the basin and sumps. Radiological Control will collect three biased soil samples from the base of excavation below the removed vault and adjacent sump and send the samples to the onsite laboratory for gamma spec analysis. Additional analyses may be performed with the concurrence of DOE, OEPA and USEPA. During excavation of the basin and sump, if stained soil, soil with an odor or any other indication of contamination is found, additional samples will be taken for further analyses. Soil results will be included in the Closeout Report.
Lead	Lead bricks (approximately 10) are located in Room 119.	These items will be removed from the building and disposed of per Waste Management direction.
Mercury	N/A	N/A
Radiological	The Final Status Report for Building 50 is provided in Appendix G.	Refer to Section 2.4.
Septic System	N/A	N/A
Wastewater	Handled by site wastewater facility.	N/A
Stains & Corrosion/HVAC	N/A	N/A
Storage Tanks	Photos in Appendix C show two aboveground storage tanks on the north side of Building 50; one tank (Tank T04) contains nitrogen, and the other tank (Tank T18) contains argon.	The nitrogen tank has been removed. The argon tank is empty and disconnected from Building 50. The argon tank will be removed prior to building demolition.
Solid Waste Disposal	N/A	N/A
Migratory Hazards	N/A	N/A

Table 1: Summary of Environmental Concerns and Findings

Description	Comment	Resolution
Radon	Radon level is not applicable for open air demolitions.	N/A
HVAC	HVAC refrigerant will be drained and disposed of during Safe Shutdown.	No further action required.
Energetic Materials	Energetic materials were not present in Building 50.	N/A
Soil Contamination	Appendix L contains a graphic showing all soil sample locations within 15 feet of the Building 50 perimeter, and provides tables for detected compounds (results above laboratory detection limits) and non-detected compounds (results below laboratory detection limits). Maximum exceedances to screening levels (Core Team approved or the more stringent of either 10^{-6} Risk-Based Guideline Value [RBGV] plus background or Hazard Index = 1) are listed in Table 2. All other results are below applicable screening levels.	The existing soil data does not indicate the need for further soil sampling in this area. However, soil samples will be collected following removal of the basin and sump. Refer to discussion under Drainage Sumps, Table 1.

N/A: Not applicable

Table 2 - Maximum Results Exceeding Screening Levels

Analyte	Maximum Result	Background	RBGV (10^{-6})	Screening Level
Benzo(a)pyrene (mg/kg)	0.43*	NA	0.41	0.41
Radium-226 (pCi/g)	2.53*	2	0.09	2.1

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

NA: Not analyzed for as part of background soils investigation.

* All results are below Cleanup Objectives.

2.4 Radiological Summary for Building 50

A radiological assessment of Building 50 was performed by reviewing its operational history and preliminary radiological survey information.

Building 50 was constructed in 1970, as the Alpha Fuels Environmental Test Facility (AFETF). The AFETF was designed and constructed for conducting safe, non-destructive tests on heat sources fueled with alpha-emitting isotopes. Encapsulated heat sources were tested under conditions simulating environments that might be encountered in space, terrestrial, and marine applications. None of the tests was intended to breach the heat source capsule integrity, but should a breach occur, radioactivity would be locally contained. Based upon construction drawings, Building 50 square footage is approximately

15,275-ft2. Building 50 is designated as impacted and is scheduled for demolition in accordance with Miamisburg Closure Project goals.

Surveys were performed throughout the building in accordance with the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM). Residual activity was found and remediated in one survey unit. Activity was also found in the Red Drain system. The system piping was isolated and will be removed as low level waste during building slab removal. The fixed point, scanning, and smear surveys found no additional residual activity above the $DCGL_W$.

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

Supporting documentation for the information summarized in Table 3 is contained in the Final status Report (FSR) (Appendix G).

Table 3: Radiological Summary

TYPE	RSDS (Radiological Survey Data Sheet)	LOCATION	SURVEY RESULTS (dpm/100 cm^2) (Note 1)	SURFACE CONTAMINATION GUIDELINES (dpm/100 cm^2) (Note 2)
Highest Alpha Smearable Activity	03-TF-0267	Floor	10.92	20
Highest Alpha Fixed Activity	03-TF-0293	Wall	97	100
Highest Beta Smearable Activity	03-TF-0287	Roof	14.51	1000
Highest Beta Fixed Activity	03-TF-0284	Exterior Wall	3,229	5000
Highest Tritium Smearable Activity	03-TF-0288	Floor	3,529	10,000

Note 1: Residual radiological activity may be present and not be a concern (within applicable limits). This may result from or be a function of counting statistics, instrument variances, the randomness of decay, radon presence, and/or natural fluctuations in background levels.

Note 2: Guideline values per DOE Order 5400.5, Radiation Protection of the Public and the Environment.

3.0 SITE DESCRIPTION

3.1 Site/Vicinity Location and Characteristics

Building 50 is located at the DOE MCP site, formerly known as the Mound Plant. The MCP site is situated in the City of Miamisburg, Miami Township, Montgomery County, State of Ohio as shown in Appendix B.

The Mound Plant at one time was situated on approximately 300 acres of land and contained approximately 130 buildings with a total of approximately 1.4 million square feet of floor space (the number of buildings is constantly diminishing as buildings are decommissioned and either sold or demolished). The original 182-acre site, purchased by the Manhattan 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 Building 50

Building 50 is bordered by a concrete pad and Building 126 on the north; an asphalt service road and the current site fenceline on the east; an asphalt service road, the current site fenceline, and an asphalt parking lot on the south; and a concrete sidewalk and Buildings 36, 128, and 37 on the west. The terrain surrounding Building 50 is covered with rip-rap/rock (Figure 3).

3.3 Current and Past Uses of Buildings in Proximity to Building 50

Buildings in proximity to Building 50 include:

- Building 126 (PST Administration Building), located north of Building 50, is a 12,500 square-foot single-story office building that supported the Nuclear Energy mission at Mound.

- Building 36 (PST Assembly and Testing Support Facility), located west of Building 50, is a 4,255 square-foot single-story structure with a penthouse that supported the general purpose heat source (GPHS) assembly and testing program.

- Building 37 (Heat Source Testing Facility), located west of Building 50, is a 2,464 square-foot single-story structure with a penthouse that was used for three purposes: research, development, and production in conjunction with the US Advanced Battery Consortium; converting processes with freon and other hazardous materials to processes that use safer materials; and a machine shop in support of the heat source program.

- Building 128 (PST Boiler Building), located west of Building 50, is a 900 square-foot single-story building which houses the boilers for the hot water heating system for Buildings 36, 37, 50, and 126.

- Building 88 was a 7,200 square-foot, single-story modular structure that was located to the north of Building 50. It was constructed in 1984 to provide administrative offices for the RTG program, and demolished in 2000 to make room for the construction of Building 126. Other projects that were located in Building 88 include the Health Physics group, and later the Environmental Restoration (ER) project.

- Building 44 was a 2,480 square-foot, single story concrete block structure that was located to the south of Building 50. It was constructed in 1970 and originally used as a cafeteria. After the cafeteria services were discontinued in 1994, the building was used as a lunchroom and meeting facility, and later, a storage area, and an office area. Building 44 was demolished in 2000.

- SM Building (Special Metallurgical) was a 21,700 square-foot, single-story metal structure with a penthouse that was located southwest of Building 50. It was constructed in 1963 as a plutonium production facility. In 1972, a decontamination and decommissioning project removed the interior of the building along with the soil beneath the floor. During the 1990s, the outer shell of the building was taken down, with the last remnants being removed in 1995. Approximately 60 to 100 feet of the SM Building foundation remains near the Building 38 stack to prevent the undermining of the stack. The removal of the Building 38 stack was completed in July 2003.

These buildings are believed to have had no adverse environmental impact on Building 50.

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 Building 50 (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 Building 50 are listed in Table 4 along with their binning status. Their locations are shown on Figure 2. Of the five PRSs in the vicinity of Building 50, three have been determined by the Core Team to require No Further Assessment (NFA), and two are unbinned PRSs associated with Building 37. For a PRS to be binned NFA, the Core Team has reviewed the PRS data and agrees that all existing environmental issues associated with that PRS have been resolved and the PRS is protective of human health and the environment. No other PRSs associated with Building 50 have been identified.

4.2 Specific Record Sources for Building 50

4.2.1 Occurrence Reports

A search of the occurrence reporting system revealed twenty-nine reports, all of which were minor and without environmental impact:

- rupture of water shielded window (Appendix M),
- continuous air monitor (CAM) false alarm or equipment failure (9),

- fire alarm system false alarm or equipment failure (6),
- air handling system failure (4),
- communication (security alarm) system failure,
- standby generator battery failure (dead or weak battery),
- withdrawal of sealed source acceptance,
- filter bank deluge system test not performed,
- excavator breaks street light line,
- high winds cause damage across Mound Plant Site,
- electrical short circuit,
- low oxygen in test cell.

4.2.2 Spills and Releases

On April 27, 1994, it was observed that approximately 33 gallons of water containing zinc bromide (neutron/gamma radiation moderator with algae inhibitor properties) leaked from a water shielded observation window in Cell 107 onto the floor of Corridor 118. The spill was contained and cleaned up by the Fire Department hazardous material clean-up team. There was no evidence that the spill had entered the sanitary sewage lines. The Fire Department sampled the air for bromine and none was detected. The liquid was counted for radioactivity as a precaution and no significant counts were observed. (Shielding was not required in Cell 107 because it is an instrument and pump room that contains no radioactive material.) Exposed individuals were taken to the Mound Medical Department as a precaution and they found that no chemical exposures had occurred. See Appendix M for additional information.

In 1997/98, all shielding windows were drained of zinc bromide and filled a water/algaecide solution. Subsequently, all windows have been drained and either removed or left empty.

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, five are at or near Building 50, as identified in Table 4. The PRS locations are shown on Figure 2, and recommendation sheets are provided in Appendix N.

Table 4 - PRSs in Proximity to Building 50

PRS	CERCLA or Bldg. Related	Binning Status	Comments
269	CERCLA	No Further Assessment (NFA)	Building 36 Historic Gasoline Tanks (Tanks 239 and 240)
270	CERCLA	NFA	Underground Sanitary Sewer Lines G6 and G7
271*	Building	Unbinned	Building 37 Sanitary Waste Tank (Tank 100)
336*	Building	Unbinned	Building 37 Waste Tank (AKA Low Risk Waste Tank 267)
391	CERCLA	NFA	Elevated Soil Gas Location

* *PRSs 271 and 336 will be binned by the Core Team based on data and information collected as part of the Building 37 demolition activities; the Core Team recommendation will be included in the Building 37 Closeout Report.*

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 1968 (prior to construction), 1973 (following construction), 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, P.C. Molloy, was interviewed via a building manager questionnaire (included in Appendix F). The current Building Manager, Gary Weidenbach, was also interviewed regarding past facility operations and current conditions. No significant items in the building were identified based on the questionnaire or interviews.

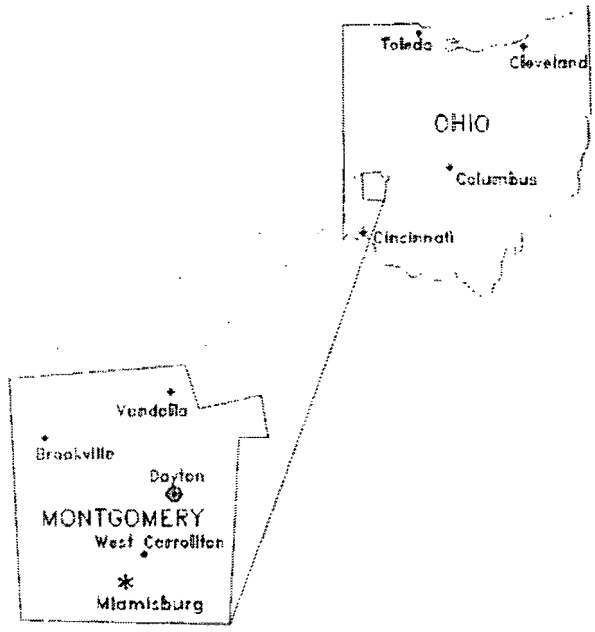
Appendix A

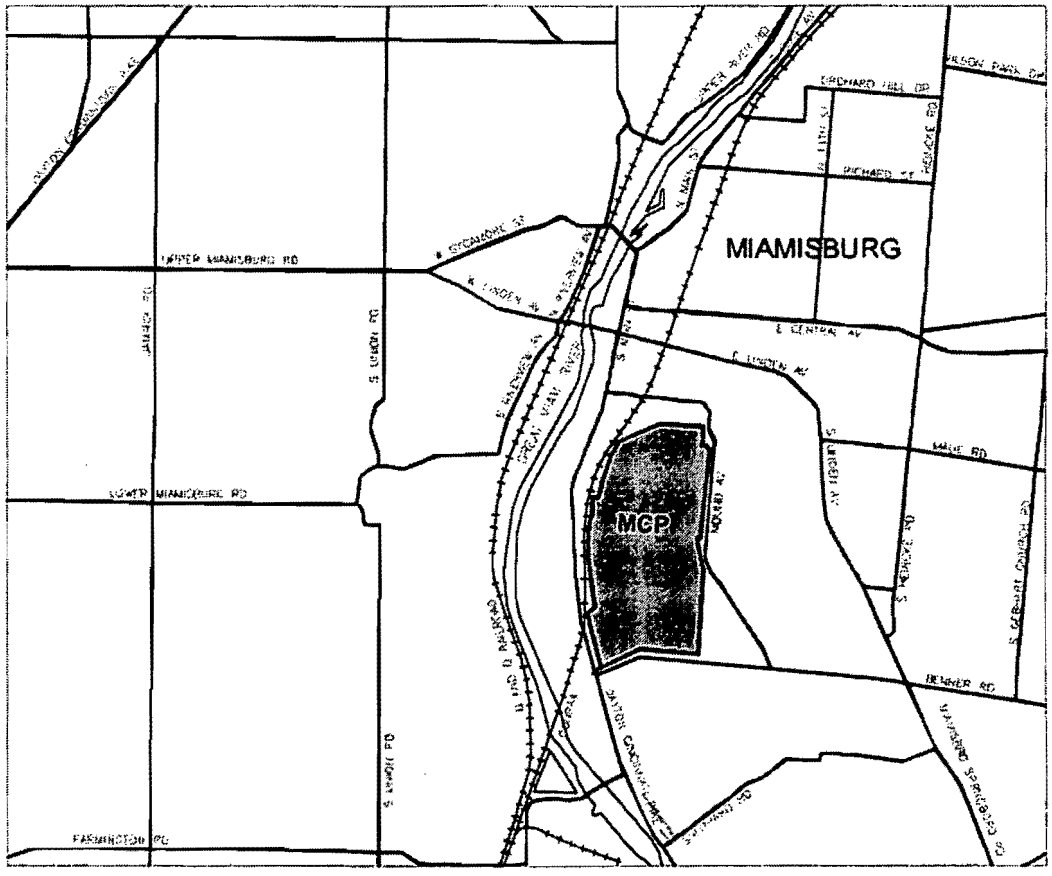
General Listing of Acronyms

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

Appendix B

Map of Montgomery County


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


MIAMISBURG
MCP
UPPER MIAMISBURG RD
LOWER MIAMISBURG RD
S. UNION RD
E. CENTRAL AV
E. LINDEN AV
S. MAIN ST
S. LINDEN AV
MAIN RD
DENVER RD
FARMINGTON RD
GREAT MIAMI RIVER
CANAL
DAYTON CINCINNATI LINE
B & O RAILROAD
S. DIXIE RD
S. DIXIE DR
S. ALEXANDER RD
S. GARBRIGHT CHURCH RD
RICHARD ST
RICHARD HILL DR
WILSON PARK DR
E. SYCAMORE ST
E. MAPLE AV
S. LINN ST
S. MAIN ST

B 1 of 1

Appendix C

Figures

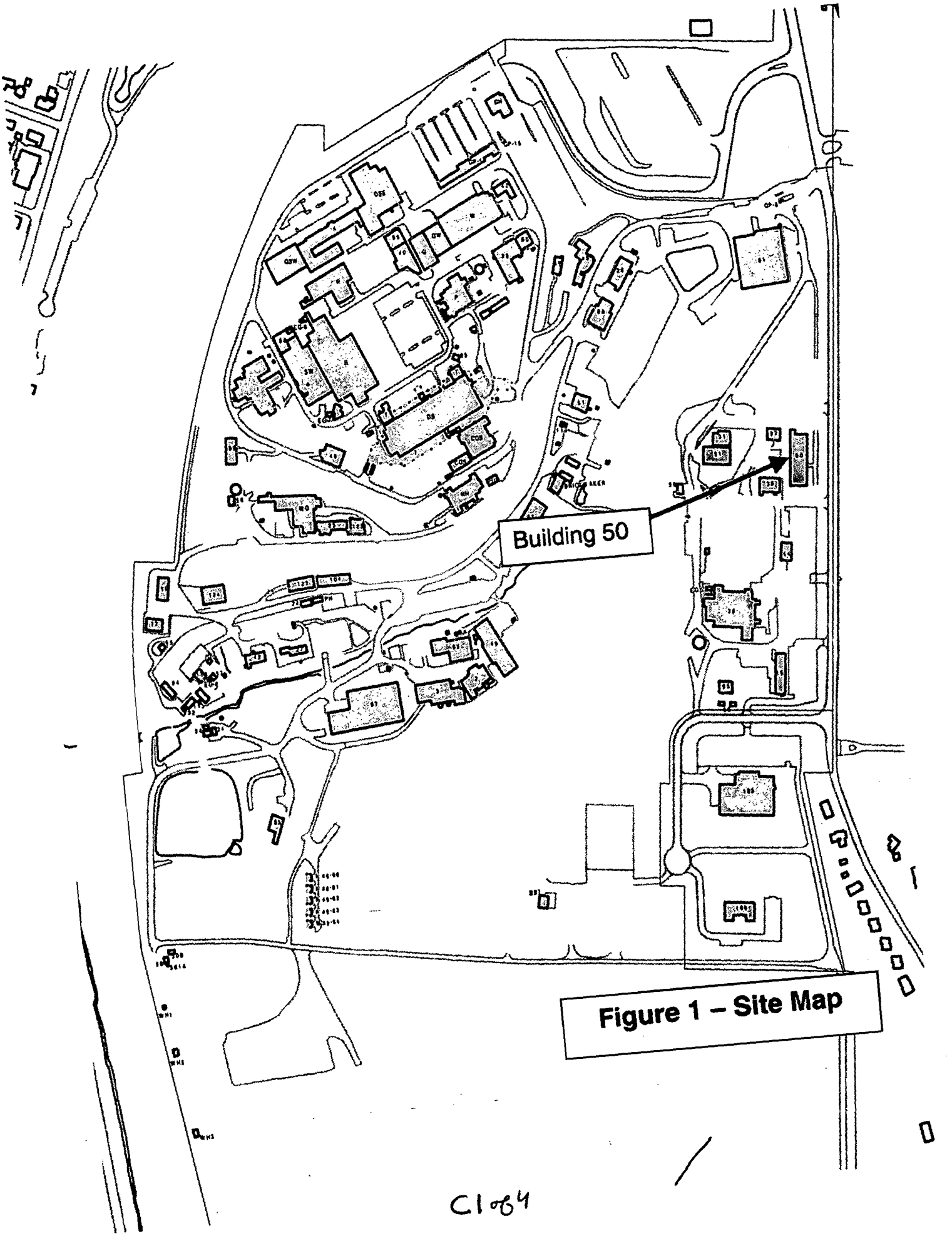


Figure 1 – Site Map

C1064

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

Figure 2
Building 50
and Vicinity

DRAWING CLASSIFICATION: UNCLASSIFIED

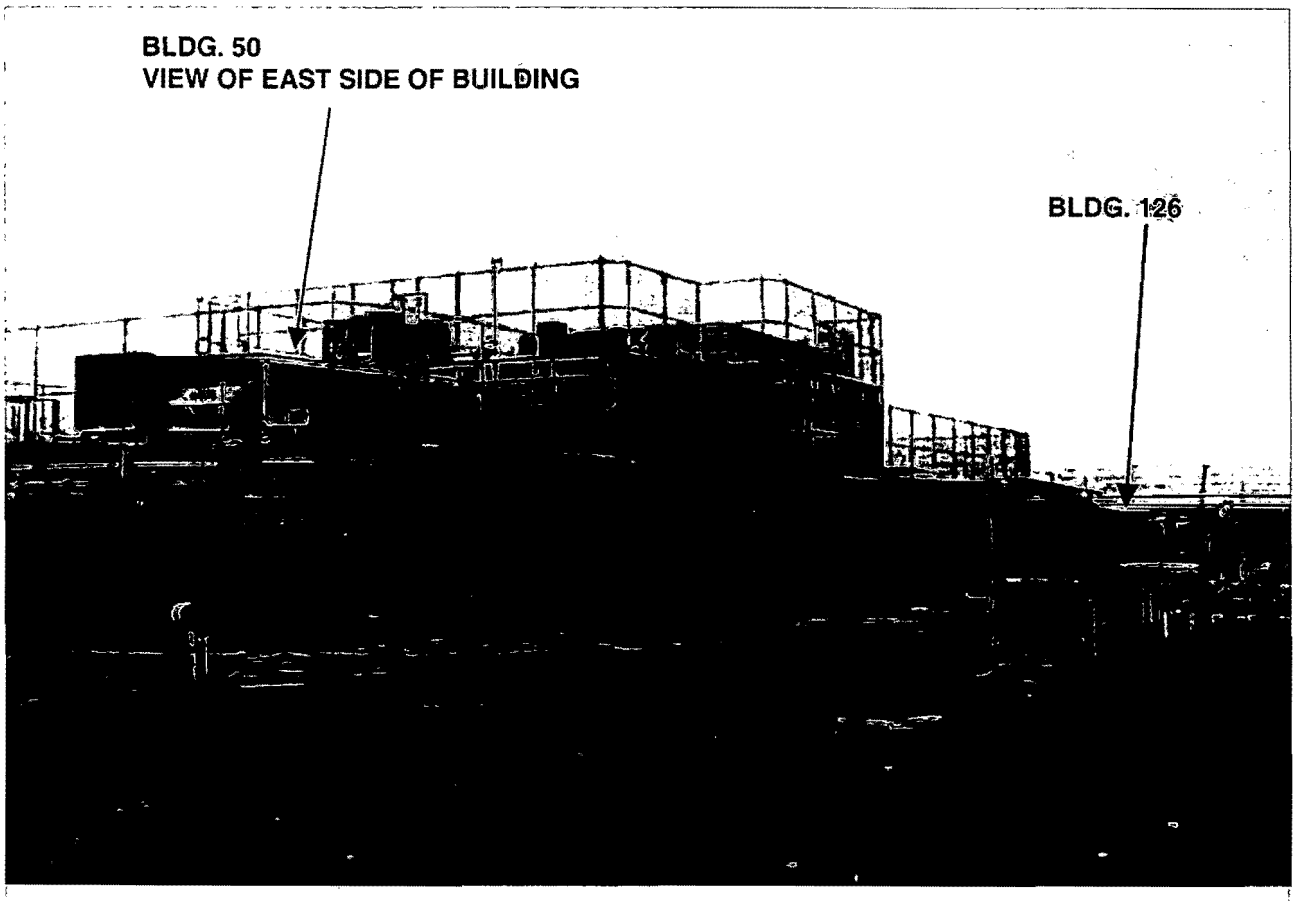
SIZE | DRAWING NUMBER: vicinity.dgn | JOB NUMBER

DGN TYPE: STE | PROJ: ER-GIS | CAGE | SCALE | SHEET 1 OF

STATUS: MD-REL -[illegible]/[illegible]/[illegible] | ORIGIN: MSTATION / J

ISS	DATE	REVISION	BY	CHKD	ENG	UPACC	APVD	B
	04/29/03		SSF					

C2 of 4



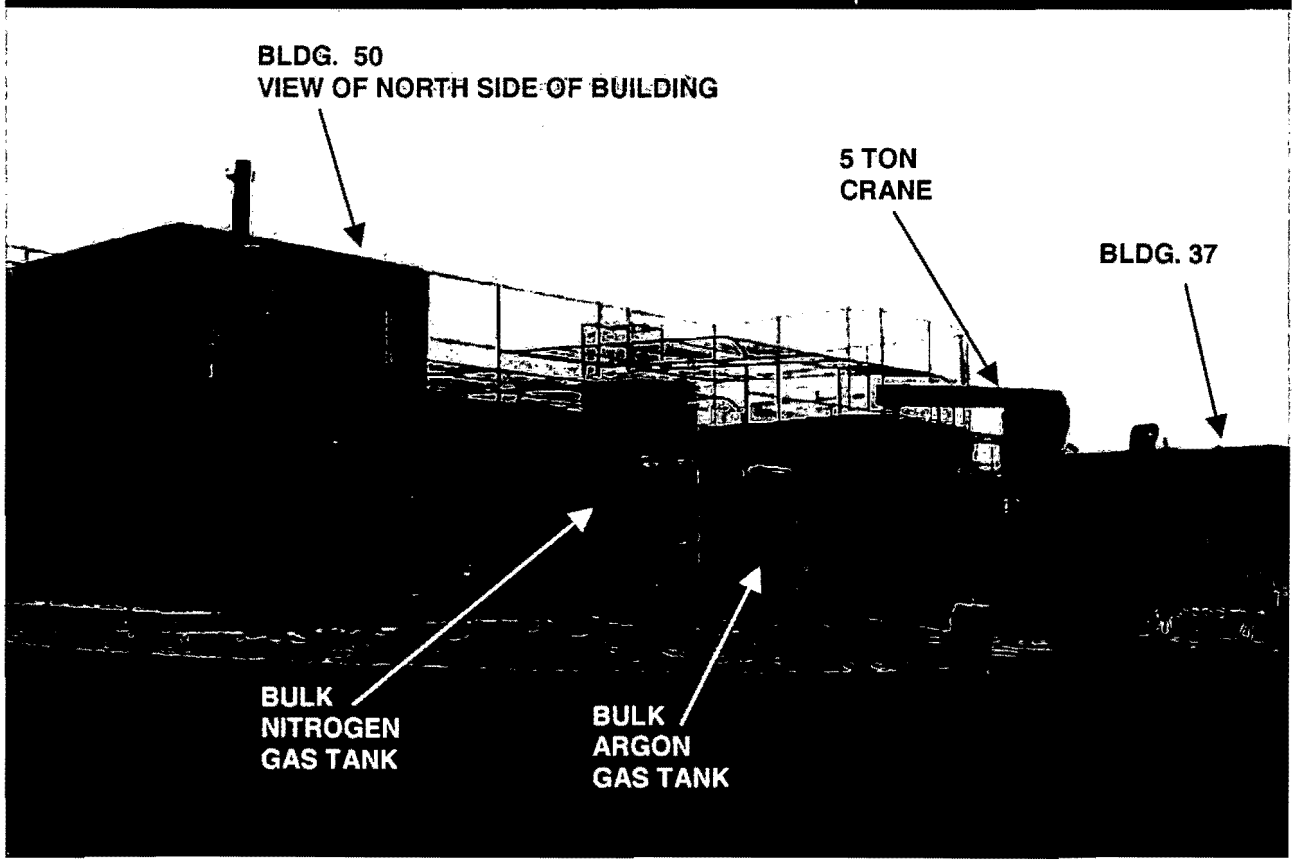
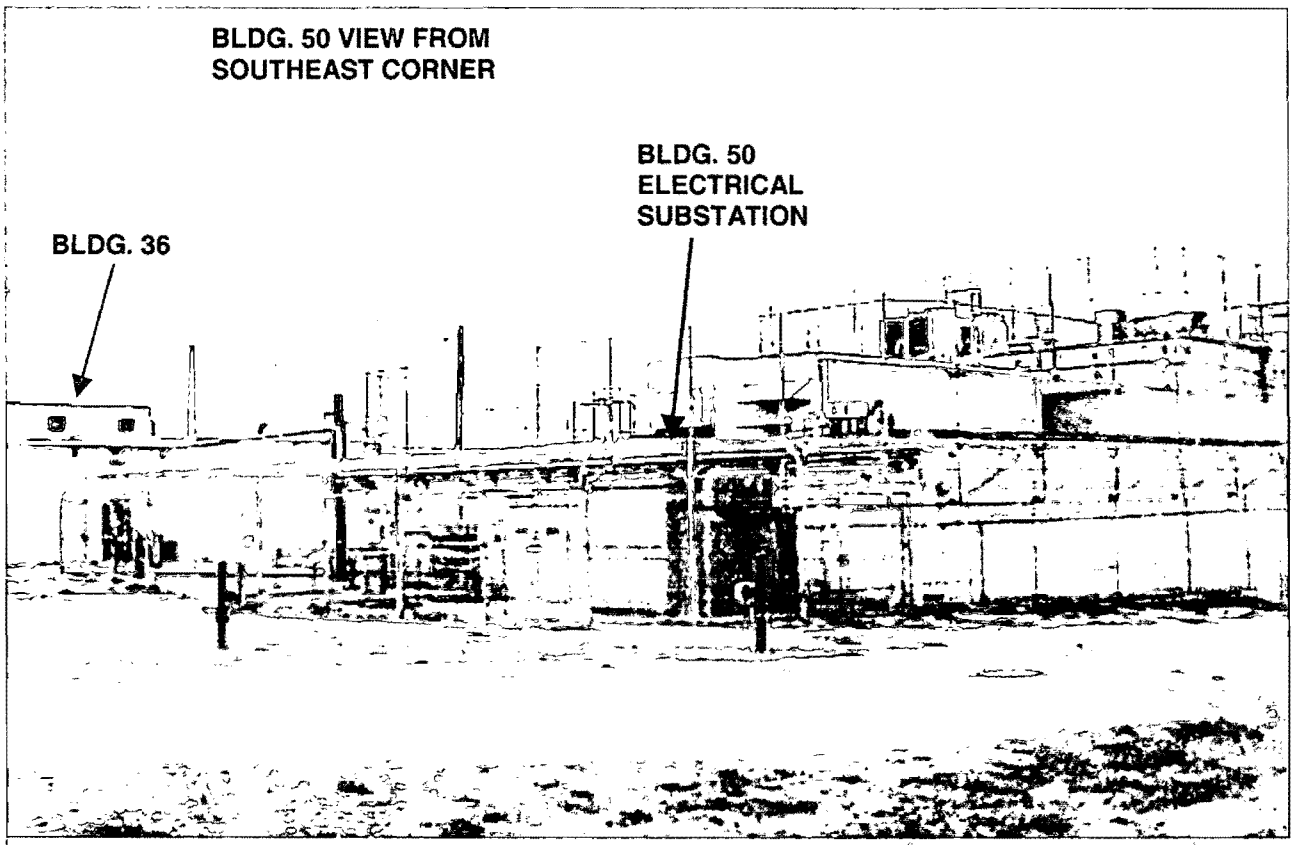


Figure 3A – Bldg. 50

C3of4



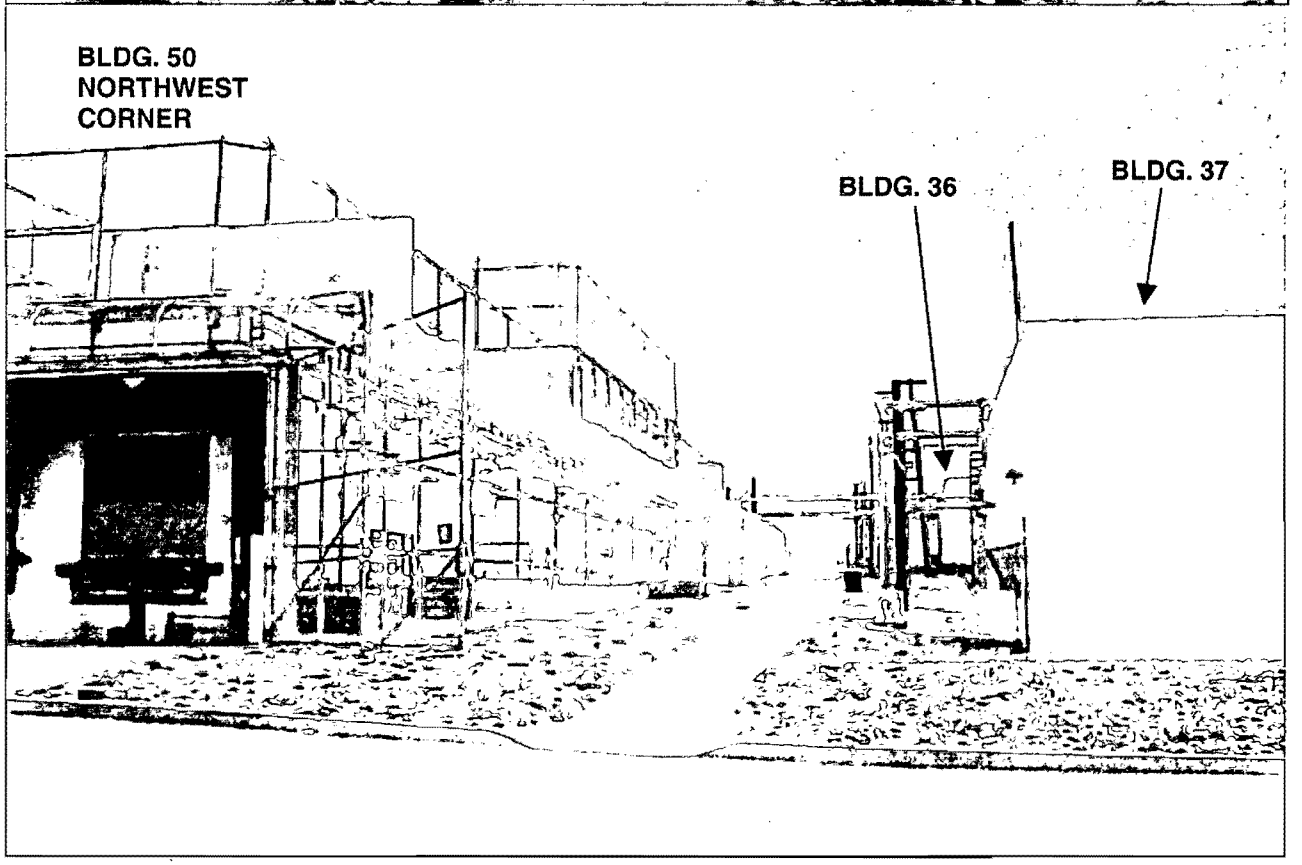


Figure 3B – Bldg. 50

C484

Appendix D

Floor Plans

According to floor plans, the following functions were assigned to the following rooms:

Room	Function
101	Entrance and Lobby
102	Operations Control
103	Health Physics
104	Air Lock
105	Men's toilet room (white)
106	Men's Change Room (white)
107	Shock / Vibration / Fire Test Cell
108	Pressure and Burial Test Cell
109	Fluoroscopy Test Cell
110	Assembly & Disassembly Cell
111	Vacuum Test Cell (non-hazardous)
112	Vacuum Test Cell (hazardous) (high bay room)
113	High Level A& D Cell (w/pool, standpipe, and guard rail)
114	Service Corridor (red)
115	Air Lock (yellow)
116	Low Level Storage Pool and Cell (yellow)
116a	Air Lock
116b	Service Area (red)
117	Janitors closet
118	Operating Gallery (yellow)
119	Machine Shop
120	Operating Control
121	Electronic Shop
122	Operation's Control
123	Counting Room
124	Operation's Control
125	Women's Change Room (yellow)
126	Air Lock
127	Women's Change Room (yellow)
128	Women's Restroom
129	Men's Change Room (yellow)
130	Corridor (white)
131	Janitors closet
132	Air Lock
201	Equipment Area (white)
202	Filter Equipment Area (red)
203	Equipment Area (red)
204	Operating Gallery (yellow)
205	Change Room (yellow)
206	Air Lock (red)

The zoning of areas as white, yellow, red gallery/equipment, and red cells/filter room was to designate air flow pattern, dividing the building into four areas of decreasing pressure from red to white. The purpose of the ventilation scheme was to minimize the spread of possible radioactive contamination.

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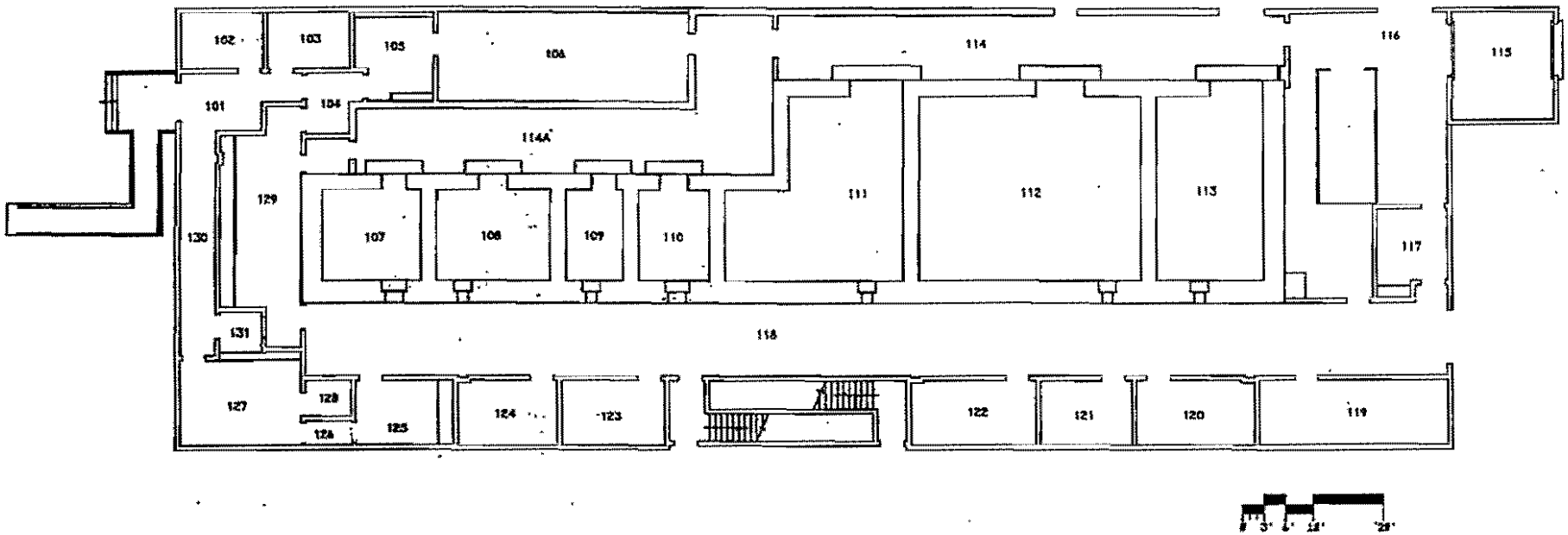
NO	DATE	REVISION	BY	CHKD	CHD	UNCC	APVD	X
X	12/12/91	ASBUILT ISSUE	DCW				DVD	



NOTICE: This document ___ or page ✓ does not contain Unclassified Controlled Nuclear Information (UCNI)
Reviewing Official: H.A. (Rob) Robinson
Date: 4-23-03

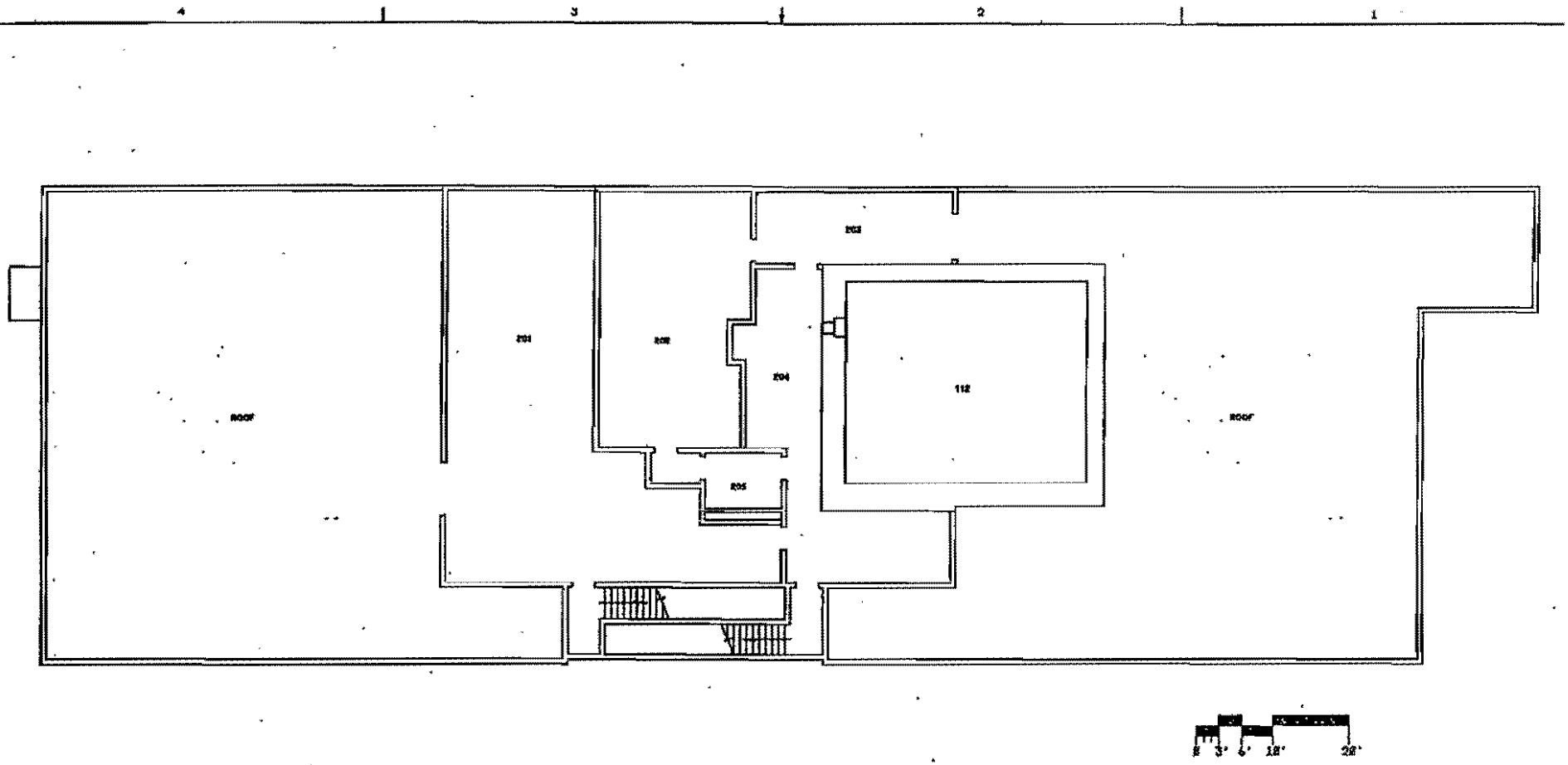
BLDG #50
FIRST FLOOR
BLDG CODE:3050

NOT FOR PUBLIC DISSEMINATION

MAY CONTAIN [redacted] NUCLEAR INFORMATION SUB[redacted] OF THE ATOMIC [redacted] OF 1954, AS [redacted] (42 [redacted]). APPROVAL BY THE DEPARTMENT [redacted] PRIOR TO RELEASE IS REQUIRED.

TITLE	(U) TITLE CLASSIFICATION
	BLDG #50 FLOOR PLANS
CHANGE CLASSIFICATION	UCNI
SIZE	D
DRAWING NUMBER	FSD911260
JOB NUMBER	12333
DWG TYPE	OFP
PARN	BLDG #50
CHKC	14843
SHEET	1 OF 2
STATUS	MO-REL-12/12/91
DRAWN	MO-DR3-V3.8

T 3 of 4



NOTICE: This document ___ or page ✓ does not contain Unclassified Controlled Nuclear Information (UCNI)
Reviewing Official: H.A. (Rob) Robinson
Date: 4-23-03

BLDG 050
PENTHOUSE
BLDG CODE:3050

NOT FOR PUBLIC DISSEMINATION

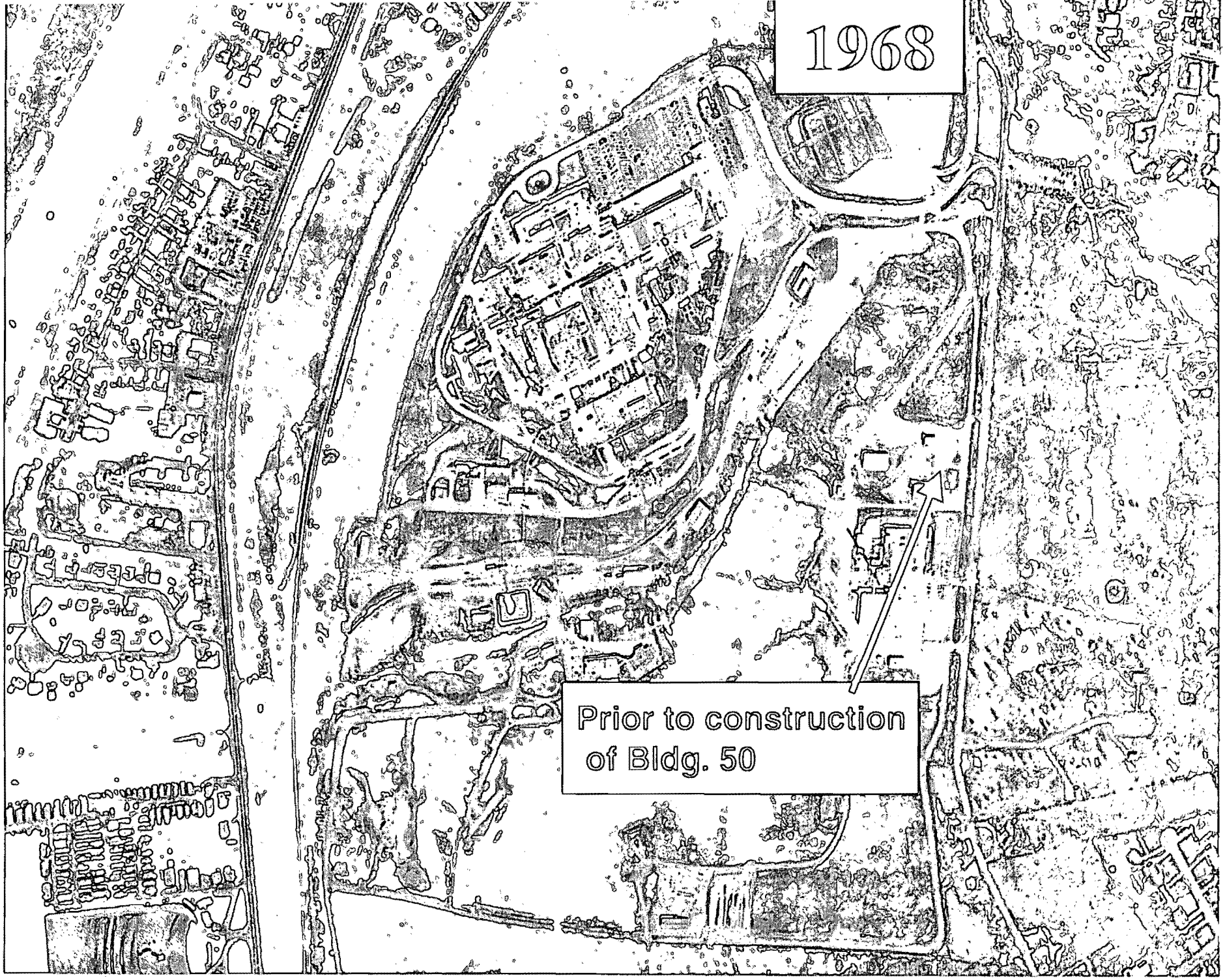
MAY CONTAIN UNCLASSIFIED CONTROLLED NUCLEAR INFORMATION PER SECTION 148 OF THE ATOMIC ENERGY ACT OF 1954, AS AMENDED (42 U.S.C. 2168). APPROVAL BY THE DEPARTMENT OF ENERGY PRIOR TO RELEASE IS REQUIRED.

DRAWING NUMBER	FSD911260
JOB NUMBER	12335
DRAWING CLASSIFICATION	UCNI
SIZE	D
CADD 14845	SCALE AS NOTED
TITLE #	SHEET 2
STATUS	MO-REL-12/12/91

D 4 of 4

Appendix E

Aerial Photographs



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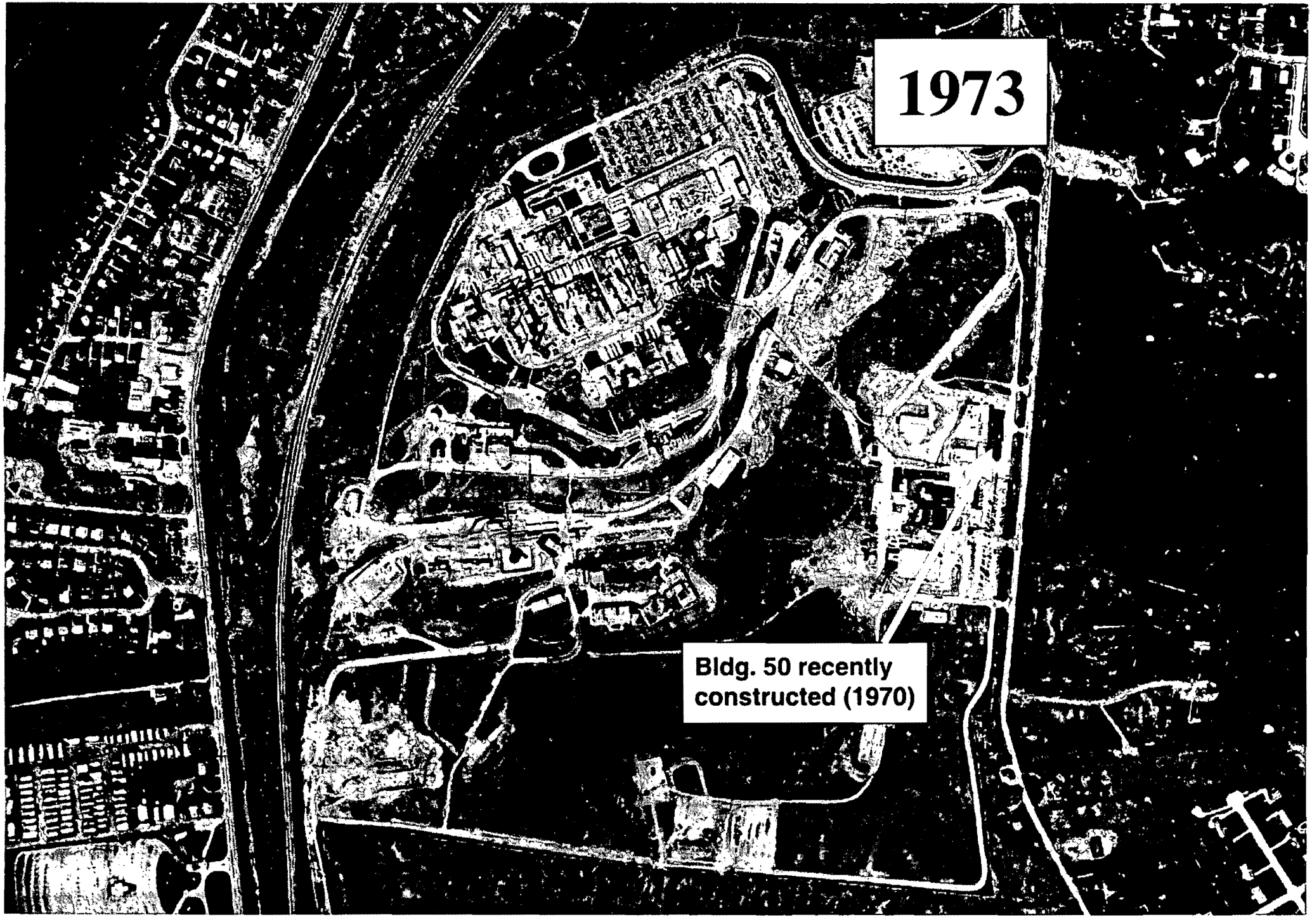
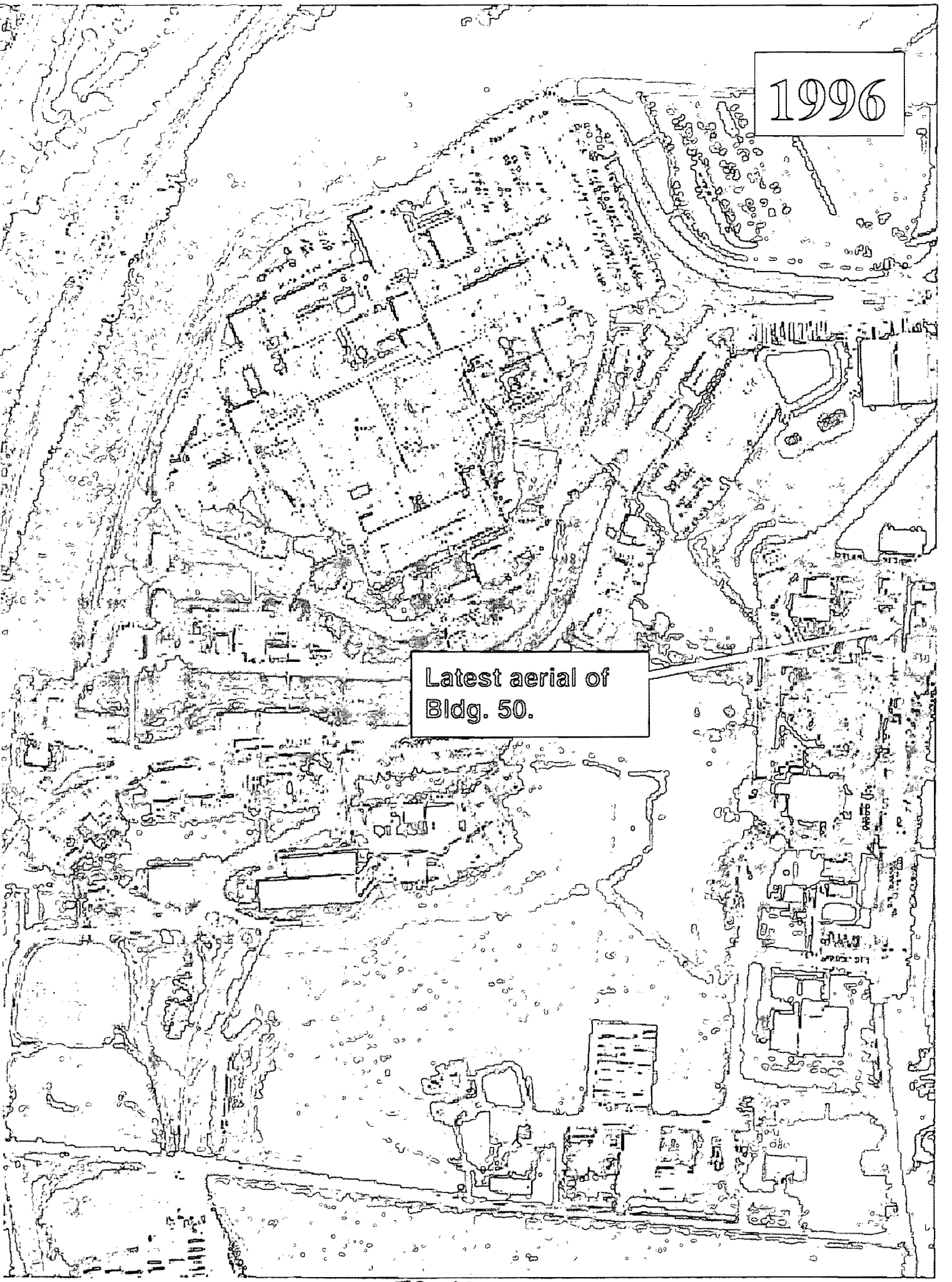

1973
Bldg. 50 recently constructed (1970)


1996
Latest aerial of Bldg. 50.

Appendix F

Environmental Appraisal Report of the Mound Plant (excerpt)

Based on an August 2003 review by subject matter experts,
hand-written corrections have been made to the report provided in this appendix.

9.72 BUILDING 50

9.72.1 Scope of Building 50 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 50 on the morning of January 17, 1996 and made a second visit on March 21, 1996. The Environmental Appraisal Checklist (EAC) was used to record findings. The EAC is found in Attachment 1 (Section 9.72.6.1). The appraisers were accompanied by the building manager and the process manager. Other information was supplied by the building manager and recorded on the Building Manager's Questionnaire (BMQ), included as Attachment 2 (Section 9.72.6.2).

9.72.2 Description of Building 50

Building 50 is the radioisotopic thermoelectric generator (RTG) assembly and testing facility. It is bordered by Building 36 and Building 37 to the ~~north~~ west, the site perimeter fence to the ~~south~~ east, and Building 88 to the ~~west~~ north. There is an electrical substation to the ~~south~~ east side of the building. Its location is shown in Attachment 3 (Section 9.72.6.3).

The building is a 14,849-square-foot concrete and concrete block structure with a built-up membrane bituminous material roof. It was constructed in ~~1971~~ 1970. There is electrical service of 480V. Heating and air conditioning systems are central steam and chilled water. The building has a fire sprinkler system except for cells 108, 109, 110, 111, and 113. The building is supplied with service water and potable water.

The first floor of the structure is a process area for the assembly of RTGs. RTGs are sealed contained radioactive sources. The building is segregated into two areas, a buffer area where RTG assembly and storage is conducted, and a controlled area, where support activities occur. The second floor penthouse houses utility services. A floor plan is presented as Attachment 4 (Section 9.72.6.4) and in Volume 12.

An excellent reference for information about Building 50 is the *Final Safety Analysis Report (SAR) for the Building 50 Radioisotopic Thermoelectric Generator Assembly and Testing Facility*, November 1995. This document provides details related to construction, operations, facility management, ES&H, and QA. Because of the high level of current and accurate documentation which exists for this building, some descriptions in this report are abbreviated. It is suggested that the SAR is reviewed in conjunction with this appraisal report.

Fl of 58

9.72.3 Summary of Findings

The building is well-maintained. There were several findings of environmental concern identified during the walk-through and subsequent review of reference materials. Of most concern were issues related to air emissions monitoring and wastewater disposition. These issues are discussed in detail in the following sections of this report.

It should be noted that the RTG process assembly was scheduled to begin the day after the appraisal. Continuing operations related to the RTG project had been ongoing in Building 50.

9.72.4 Observations

9.72.4.1 Air Emissions

There are sources of air emissions, including the RTG process and the ethanol cleaning process conducted in Rooms 109, 110, 111, and 112, 113, 114A, and 116. The building is not included in the Mound Air Emissions Database, 11-30-95. Emissions have not been calculated, and no documentation exists to support the determination by the EG&G MAT environmental monitoring group that emissions are de minimis. No air emissions permit applications have been submitted for activities in this building. There is no fugitive dust generated by process or environmental condition.

Building ventilation, both for the buffer and the controlled area, is routed through high efficiency particulate air (HEPA) filters, then exhausted. Ducts conveying air to the filters and subsequently to discharge points were not labelled by content. The HEPA filters are maintained by a technician in Building 50 in accordance with standards followed at Mound: Nuclear Standard NEF3-45, *Specifications for HEPA filters Used by Department of Energy (DOE) Contractors (DOE, 1986)*, and Nuclear Standard NEF3-43, *Quality Assurance Testing of HEPA Filters (DOE, 1984)*. On a weekly basis, pressure differential is measured across the filters by the technician. A report is provided to the building manager. There is no pollution control equipment other than the HEPA filter bank.

While inspecting the penthouse, the appraisal team noted two stack monitors (CAMs) on effluent ducts. For stack monitor RFB, a warning light was on. An audible alarm was not on. The warning light, a 6-inch red dome light, was mounted at the center top of monitor. Maintenance technicians working in the Building 50 penthouse indicated that the alarm was being repaired. The warning light was called to the attention of the building manager, and he accompanied the appraisal team to the penthouse. The building manager had not been notified by Health Physics technicians that it was non-functional. * See page 40

Posted beside the alarm was a two-page letter from a member of the EG&G MAT Environmental Monitoring Group, dated June 20, 1995, included as Figure 1. It explained that "alarm levels are now components of the Federal Facility Compliance Agreement (FFCA) between the United States Environmental Protection Agency (EPA) and DOE. For this reason it is mandatory that the monitors use the documented alarm values." The second page of the letter provided direction for the alarm setting in Building 50.

Fax Note			
To	E. WARMOTH	From	P.C. MOLLOY
Co./Dept.	EG&G MO	Co.	EG&G MO
Phone #	4317	Phone #	3269
Fax #	3099	Fax #	3223

MOUND

INTEROFFICE CORRESPONDENCE

DATE: June 20, 1995

cc: Distribution

FROM: B. M. Farmer

SUBJECT: Stack Alarm Settings

TO: R. L. Johnson
T. J. Quale

Staff from ET&M, Tritium and Plutonium Facilities, and Radiological Protection have evaluated the alarm settings for the alpha and tritium stacks. As documented on the attached table, alarm values have been established for each stack. These alarm levels are now components of the Federal Facility Compliance Agreement (FFCA) between the U.S. EPA and DOE. For this reason, it is mandatory that the monitors use the documented alarm values.

Since Radiological Protection personnel perform the daily monitor inspections, it is requested that confirmation of the proper alarm setting be added to the daily checklist for each monitor listed in the table. If any alarm value is not consistent with the table, it is further requested that ET&M management receive immediate notification.

Your cooperation in affecting these changes as soon as possible is greatly appreciated. ET&M must meet a 7/7/95 milestone to complete a Quality Assurance Plan (QAP) for the FFCA; documentation of effective stack alarm controls and procedures will be key sections of the QAP.

If you have any questions, please let me know.

Sincerely,

B. M. Farmer

B. M. Farmer

Figure 1

P.O. Box 3000 Miamisburg, Ohio 45343-3000 (513) 865-4020

STACK ALARM SETTINGS

ALPHA EMITTING STACKS	ALARM LEVEL
T-WEST (R BLDG) STACK	50 C/M
WDAHR STACK	100 C/M
WDALR STACK	100 C/M
WDSS STACK	100 C/M
BLDG 38	100 C/M
SM-PP STACK	100 C/M
HEPS STACK	50 C/M
SW1CN STACK	150 C/M
BLDG 50 (RED)	70 C/M
BLDG 50 (YELLOW)	70 C/M

TRITIUM EMITTING STACKS	ALARM LEVEL
HEFS STACK (LOW LEVEL)	10 uCi/M^3
HEFS STACK (HIGH LEVEL)	71 uCi/M^3
NCDPF STACK (LOW LEVEL)	15 uCi/M^3
NCDPF STACK (HIGH LEVEL)	15 uCi/M^3
SW219 STACK (LOW LEVEL)	30 uCi/M^3
SW219 STACK (HIGH LEVEL)	36 uCi/M^3
R STACK (LOW LEVEL)	15 uCi/M^3
R STACK (HIGH LEVEL)	231 uCi/M^3
HH STACK (LOW LEVEL)	10 uCi/M^3
HH STACK (HIGH LEVEL)	100 uCi/M^3
T-WEST KYLE (LOW LEVEL)	10 uCi/M^3
T-WEST KYLE (HIGH LEVEL)	100 uCi/M^3
T-WEST 61/63 (LOW LEVEL)	10 uCi/M^3
T-WEST 61/63 (HIGH LEVEL)	100 uCi/M^3
T-EAST (LOW LEVEL)	10 uCi/M^3
T-EAST (HIGH LEVEL)	100 uCi/M^3

During the debriefing, the red warning light on the stack monitor alarm was also called to the attention of the process manager also. He noted that it was a building manager responsibility to assure that the CAM was functional. The process manager added that in the past, the alarm has had several "false alarms" due to the presence of radon. The process manager understood that the process SAR required that the alarm be functioning, and had not been notified that it was non-functional. During the debriefing, there was discussion as to the requirement for the alarm, i.e., was it necessary as the source was encapsulated.

Neither the building manager nor the process manager had been alerted that the warning light was on prior to the appraisal team's discussions on the day of the walk-through. Neither took immediate action to determine the meaning of the red light. It was of concern to the appraisal team that line management had not been notified that the alarm light was on, indicating that it was non-functional.

Subsequent investigation by the building manager and his supervisor determined that the alarm had been inspected and recorded as functional by the Health Physics technician on the day of the appraisal. It has not been determined what caused the warning light to glow red.

To obtain addition information regarding requirements for effluent gas monitoring at Building 50, the appraisers reviewed the *EG&G MAT NESHAPs FFCA Compliance Work Plan, Feb 20, 1995*. There is no mention in the document of monitoring or alarm requirements or historical data from Building 50. The document states that, "The Compliance Work Plan (CWP) has been prepared as required under Section VI of the FFCA. The purpose of the CWP is to describe and characterize all emission points subject to NESHAPs regulations, identify point sources subject to continuous emission monitoring requirements,...." (p. 1-1). The document also states that, "Areas where radioactive materials are present only in sealed containers, such as soil screening laboratories, and areas where fixed contamination is present (it is not mobile in its present state) were not considered release points" (p. 2-4). As noted earlier in this report, the RTG source is encapsulated.

The letter posted by the alarms, calling for monitoring, is dated after the report. There is inconsistency regarding monitoring requirements between the letter and the NESHAPs report. The SAR requires that emissions be monitored and the alarm be functional; the SAR is the basis for the Segment Readiness Review which is performed prior to initiating RTG processes.

9.72.4.2 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.

9.72.4.2.1 Sanitary Wastewater

According to a diagram of underground utility lines, presented as Attachment 5 (Section 9.72.6.5), the building is serviced by a sanitary wastewater collection line. According to the building manager, water from the controlled area drains to the sanitary system. This includes effluent from the shower room. Confirmation of drainage of sanitary wastewater into sanitary lines was not within the scope of this appraisal, therefore neither dye nor smoke tests were conducted.

9.72.4.2.2 Storm Wastewater

The building is serviced by storm drains according to drawings presented in Attachment 5 (Section 9.72.6.5). There are four storm drains located on the east side of the building exterior, and one on the north side. It was outside the scope of this appraisal to perform tests to confirm drainage patterns. Inspection showed no signs of odors, colored discharges, or scarring which would indicate that any materials other than storm water had entered the drains.

9.72.4.2.3 Process Wastewater

Wastewater from the buffer area, i.e., that area of potential radioactive contamination, drains into a 1,100-gallon sump. The water is tested to measure levels of contamination, and subsequently is released to the sanitary treatment plant or trucked to Building WD for treatment. To date, wastewater has not been contaminated and has been released to the sanitary system.

Process cooling water treated with fungicides has on occasion been "dumped" to the storm or to the sanitary collection system. (The appraisal team received conflicting information from the building manager and the process manager.) This has occurred when temperatures of cooling water exceed acceptable limits to protect the process. According to the building manager and the process manager, this practice occurs infrequently, perhaps six times per year.According to the building manager, water drains to the sanitary treatment plant, and there has been no impact on the sanitary treatment plant. In the past, Dow Therm containing fungicide and ethylene glycol was used instead of the fungicide anacocide. On one occasion reported to the appraisal team, approximately 250 gallons of cooling water containing Dow Therm was discharged. Emergency response action by wastewater treatment personnel caused the wastewater to be contained. There is no monitoring of building effluent.

The sump has never overflowed. If it were to overflow, in-ground lines would carry water to the pond at Building 61. This pond is used for settling of surface runoff. Other sumps which have been designed for the same purpose at other buildings at Mound also overflow to the pond at Building 61. The pond at Building 61 has overflowed its banks during heavy rains. Effluent from

the pond is permitted under an NPDES permit. The sumps and potential for radioactive effluents have not been addressed in the permit application.

The sump was installed ~~approximately 15 years ago~~ in 1970 with the original building construction. VKO 10/14/03. It is a steel tank in a secondary concrete containment pit. Integrity has not been tested. There is no procedure in place for visual inspection, or to verify that the sump is watertight.

9.72.4.2.4 Chemicals

Chemicals related to the RTG process and related maintenance activities are found in Building 50. A list is detailed in the BMQ which is presented in Attachment 2 (Section 9.72.6.2). The information was gathered as part of the chemical inventory which is conducted annually. The inventory information dates to 1994, as 1995 data were not yet available at the time of the walk-through. No attempt was made to confirm the accuracy of the inventory by the appraisal team. However, storage, handling, and disposal of chemicals were reviewed to assure conformance to regulations 40 CFR 122, 40 CFR 26-265, and 29 CFR 1910. There was no visual evidence that chemicals had entered the drainage system in Building 50. Asbestos, a chemical listed as a priority pollutant in the Clean Water Act, is found in Building 50

9.72.4.3 Potable and Service Water

Potable water is supplied to the building from a 100-millimeter water line from the SM area water tower, according to information presented in the site drawing and shown as Attachment 5 (Section 9.72.6.5). Water is distributed through the building, servicing restrooms, showers, eyewash stations, safety showers, equipment rooms, and drinking fountains. A steam water heater located in Room 201 provides hot water for showers and lavatories.

Drinking fountains have not been tested for lead contamination. A program is underway at Mound to identify and replace all lead-contaminated fountains.

The potable water and fire main loop are interconnected in the event of a water supply disruption. Dual backflow preventers are installed in the piping crossover manifold in Room 106. Water sources are marked.

9.72.4.4 Chemical Storage and Hazardous Materials

There were janitorial supplies and chemicals stored in the building. Janitorial supplies were in restrooms and shower rooms. There were no Material Safety Data Sheets (MSDSs) available for janitorial supplies. Chemicals were stored in three different locations. All locations had flammable storage cabinets which met National Fire Protection Association (NFPA) requirements, and chemicals were stored in accordance to 29 CFR 1910. MSDSs were available.

The building is equipped with emergency response equipment such as an eyewash, safety shower, and a fire extinguisher. Inspection tags were current. Emergency Evacuation Plan information and signs were posted in work areas as required in 29 CFR 1910.

There are no aboveground storage tanks in or around the building. There are no separators or catch basins in the building. There is a sump; it was discussed in detail in Section 9.72.4.2.3 of this report.

According to the 1995 PCB Annual Document Log, the building does not contain polychlorinated biphenyls (PCBs). There are a number of capacitors located in the control room. Following the walk-through, the process manager and a utility specialist determined that they are a dry type and do not contain PCBs.

The building was tested and does contain asbestos, based on screening recorded in MD-10391, *Asbestos Program Manual* (9-14-95). There is visual evidence that asbestos insulating material on the HVAC chilled water circulation system requires repair. Appraisers noted that a piece of insulation had fallen into the foyer area. Repair has been scheduled.

Compressed gas cylinders are located in Building 50. All are in use. For some cylinders labelling was not in conformance with 29 CFR 1910.151. The process manager planned to label them properly. Near the entrance to Building 50 a large nitrogen tank obscures from view a small bank of hydrogen cylinders. A No Smoking sign should be posted in the area.

9.72.4.5 Solid, Hazardous, and Radioactive Waste

According to information provided in Attachment 2 (Section 9.72.6.2) on the BMQ, hazardous wastes are generated in Building 50. PCB-related waste is not from the building, but from the electrical substation located by the south door.

According to the process manager, the RTG assembly and testing process does not generate hazardous or radioactive waste. Disposable clothing worn by workers in the controlled area is monitored and is not contaminated. It is disposed as LSA waste, consistent with a management practice of diverting such items from local landfills.

Ethanol is used to wipe parts clean during the RTG testing and assembly process. The solvent is used in small quantities of less than 5 gallons per year. Solvent evaporates from paper wipes used to clean equipment. The paper wipes are disposed of as solid waste.

All waste generated in the buffer area is evaluated by Health Physics prior to disposal to determine if there is radioactive contamination, then handled accordingly.

The solid waste stream is characteristic of office waste. Solid waste is removed by janitorial personnel to a site collection point, where waste streams are segregated and sent to recycle or to a local landfill.

Four drums of waste were located on asphalt and gravel outside of the north door of the building. One was marked oil; the others were unmarked. According to the building manager, the origin and ownership was unknown, and the drums had been at the building for an indeterminate time. Following the walk-through, the building manager identified owners, and requested that they properly characterize, store, and dispose of the waste. The building was revisited 60 days

following the initial walk-through. The drums had not been removed. They had been placed on asphalt, but were not labeled as to characterization, and had no secondary containment. The building manager planned to contact owners again to request disposal.

9.72.4.6 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.

9.72.5 Findings and Recommendations

Photographs were taken to document environmental appraisal activities. Findings related to the environmental appraisal of Building 50 indicate that the following action items, in priority order, should be planned and scheduled.

50-1 Requirements for monitoring of air emissions and the reporting requirements for the associated alarm system must be clarified for members of the Environmental Monitoring Group (EMG) and line managers. Information directing monitoring requirements should be posted at the source. The Environmental Monitoring Group should inform the process and building managers of requirements for monitoring, in accordance with NESHAPs or other requirements. Inconsistencies between the *NESHAPs Compliance Work Plan*, the June 20, 1995 letter of instruction for monitoring in accordance with NESHAPS, should be resolved. Requirements for investigating and reporting of inconsistent information, such that found at Building 50 on the day of the walk-through, i.e., the red light indicating that an alarm was non-functional, should be delineated.

50-2 Operating procedures for the RTG process should be reviewed to determine why the red light on the stack monitor alarm (CAM) was not called to the attention of line management. The reason for the red light to glow, an indication that the CAM is non-functional, should be determined to avoid confusion in the future.

50-3 Process procedures including the Segment Readiness Review, should include a review and report of environmental monitoring and control equipment function.

50-4 Emissions from Building 50 should be included in the Mound Air Emissions Database, and emissions permits requirements investigated. Even though the RTG is an encapsulated source, since emissions from Building 50 come from a buffer area, a de minimis determination may not be allowed, as OAC 3745-15-05(C)(3) states that a de minimis exemption does not apply if the source emits radionuclides. The state may argue that by building configuration and work practice Mound handles the source as though it may emit radionuclides.

50-4 In the event of a system upset or failure, Building-50 has a sump to contain radioactive contaminated wastewater. Information to support design sizing was not available in the SAR. The design basis should be documented and reviewed to determine if it is an acceptable risk for the system to overflow to the pond at Building 61. It is recommended

that the issue of sitewide handling of overflow from "rad" sumps be reviewed to establish that handling is appropriate, and that the pond is adequate to contain the overflow if it occurs at the same time as a storm event.

50-5 The NPDES application contains details regarding sources of wastewater. In a review of information provided to the state by the EG&G MAT EMG, the "rad" sump overflow was not noted as a source or a potential source. Since many other sources were detailed (the sitewide appraisal has identified some sources not known or detailed at the time of submission of the application), the state could infer that the information was deliberately withheld. As data is currently being developed for submission of a new application. It is recommended that a full disclosure of contributors to the storm drainage system be made.

50-6 The emergency response plan or other appropriate document does not detail plans or procedures for wastewater evaluation, containment onsite, or other appropriate handling in the event of an overflow of radioactive wastewater to the pond at Building 61. There is no alarm in place, or any other system to alert appropriate personnel to an overflow. It would require a telephone call from Building 50 personnel to the emergency response center; they would notify the EMG who would then notify maintenance personnel to close effluent gates. Occasionally in the past, emergency response personnel have not notified the EMG regarding other wastewater issues in a timely fashion.

50-7 A routine inspection of the condition and the integrity of the sump should be instituted. Written records should be maintained.

50-8 Waste improperly stored outside of Building 50 must be properly characterized, stored, and disposed of, in accordance with OAC 3745-52-11. Following the walk-through, the building manager determined the owners of the waste, and requested that it be properly managed. A visit to the building made 60 days after the initial walk-through showed no evidence that action has been taken by owners of the waste.

EG&G MAT Waste Management professionals or other individuals knowledgeable of waste disposal practices and requirements have not performed routine field surveillance to evaluate waste characterization, storage, handling, or assure that the Building 50 generator/process manager is properly managing waste streams. It is recommended that such a review be completed.

Training requirements and records of the process manager were not verified to confirm that he had completed appropriate waste management training. This should be reviewed.

50-9 Air handling systems, red, yellow, and white, should be labelled by type, both for ease of maintenance and for emergency response.

ENVIRONMENTAL APPRAISAL CHECKLIST

Building Name 50

Appraisers: Nancy Vyas, civil/environmental engineer
Name Discipline

Name Discipline

Name Discipline

Name Discipline

Building Manager: Paul Millay

Process Manager: Tim Hoy

Date: 1-17-96 a.m.

Appraisal team:

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ENVIRONMENTAL APPRAISAL CHECKLIST

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Environmental Appraisal Checklist

Building Name: 50 Appraisers: Vyas Date: 1-17-95am

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	confirmed visually 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	to BMQ but add ethanol @ ≈ 5 gal/yr
	Is the building in operation? What are the processes and where do they discharge to?	(Y)/ N _____ _____	RTG assembly & storage
	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	non-buffer area to sanitary buffer area to sump → pond b
	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	contains process/cooling → storm water. 1100 gal steel tank in concrete. Fills ≈ 6 times/yr. ~~Water tested + discharged~~ to S
	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)	Storm drain + grate in Nat dock 4 Storm drains on E

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• Exhaust has alarms which are not functioning. Determine reason + maintenance/repair schedule.

• Check information about sump overflo to pond by B-61. This is potential cross

Environmental Appraisal Checklist

Building Name: 50 Appraisers: Vyas Date: 1-17-96 am

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	All HVAC vented to HEPA filter. Exhaust to stack on roof.
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	Rad sources not included in inventory.
	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)	Documentation to support decision for no permit is needed
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.	N/A Y / (N)	
OAC 3745-31	Are there any sources that are not included in the air emissions database? If so, note the room, hood number, active or not, POC, and applicable air emission database information on Table B.	(Y) / N	Rad source not included in Mound inventory. Other source: ethanol ≈ 5 gal/yr.
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)	used in Rms 113, 110, 109.
	Has there been any release of air contaminants from this building?	Y / (N)	Several false alarms due to radon

• Determine if permit application has

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Environmental Appraisal Checklist

Building Name: 50 Appraisers: Vyas Date: 1-17-96 km

CAA Checklist

Comments: Note the number of sources/hoods per room, the number that are active, and the POC on the reference document.
NONE

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

Source:_____

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Environmental Appraisal Checklist

Building Name: 50 Appraisers: Vyas Date: 1-17-96

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)	Penthouse flammables cabinet - small red can is full w no label
29 CFR 1910.1200(g)	MSDS shall be available to the employees in close proximity to the work area.	(Y) / N	dated 1993. 2 missing
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	Rm 127 - storeroom; improve housekeeping + storage procedures
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)	Spill in cabinet in penthouse.
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 N/A	

Environmental Appraisal Checklist

Building Name: 50 Appraisers: Vyas Date: 1-17-96

HM Checklist

Regulatory Guideline	Question	Response	Comments
29 CFR 1910.106(d)(7)	All flammable/combustible storage locations have at least one 12-B portable fire extinguisher located outside and within 10 ft. of a door opening into any room for storage. No smoking signs are posted.	(Y) / N	
29 CFR 1910.151	Eyewashes/showers shall be provided within the work area. Ensure unit is operational.	(Y) / N	
CGA P-1 3.3 & 3.3.10	All gas cylinders (full or empty) shall carry a legible label or marking identifying the contents.	(Y) / N	
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)	outside cell III - empty & full together. Segregate
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: Appraisers: Date:

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	to fill argon & Nitrogen tanks
	Is there proper containment?	Y / N	gases - not necessary
	Is there an above ground storage tank? If so, complete Table B.	Y / N	gas

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
50	5000	liquid N	unknown	Y / N	Y / N	Y / N	Y / N
				Y / N	Y / N	Y / N	Y / N
50	3000 (est)	argon	unknown	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

* not necessary

Source: Observation

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Environmental . . ,praisal Checklist

Building Name: 50 Appraisers: Vyas Date: 1-17-96 am

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 NA	
	Does the facility contain any water coolers or fountains that are not lead free? Complete Table C.	(Y) / N	

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TABLE C—Water Fountain Survey

Building	Location	Model #	Comments / Date of Analysis for Lead
50	Corridor by 113	Rwm 13A	S # 69605604 Hulsey Taylor (*)
			Not Working!

(*) Drinking fountain removed in 1997/98.

Source: Observation (VKD) 10-27-03

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Environmental Appraisal Checklist

Building Name: 50 Appraisers: Vigus Date: 1-17-96 am

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	There are 4 containers outside of N entrance of bldg. Characterize & dispose.
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	

- Update BMQ to reflect that hazwaste is not generated in bldg.

- Characterize & dispose of waste outside of N entrance (4 drums)
- Update waste stream documentation for characterization.
- Label + contain all wastes. Dispose of them immediately.

Environmental Appraisal Checklist

Building Name: 50 Appraisers: Vyas Date: 1-17-96

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	
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: 50 Appraisers: Vyas Date: 1-17-96

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:		
	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.		

Environmental Appraisal Checklist

Building Name: 50 Appraisers: Vyas Date: 1-17-96

RCRA Checklist

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

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Environmental Appraisal Checklist

Building Name: 5D Appraisers: Vyas Date: 1-17-96

RCRA Checklist

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

General Comments:

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Environmental Appraisal Checklist

Building Name: Appraisers: Date:

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	Work order written & maintenance scheduled for asbestos repair.
	If no for this building or area note this conclusion in the comment section.		Investigate men's room, kitchen, mechanical room in penthouse
	Is there any evidence of friable asbestos?	(Y) N	
	Is the asbestos removal properly managed? (See questions listed below)	Y / N	If there is no asbestos removal, do not complete the following section.
NESHAPS FOR ASBESTOS FOR ANY ONGOING ASBESTOS REMOVAL:			
40 CFR 61.156	There are no discharges of visible emissions to the outside air from collection, processing, packaging, transporting, or deposition of ACBM during the removal.	Y / N	NO CURRENT MAINT.
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: 50 Appraisers: Vyas Date: 1-17-96

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

Does this facility potentially contain any PCB's or PCB contaminated equipment? *	Y / N possible	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	N/A UCD 10-24-03
	If yes, are auditable records maintained.	Y / N	
40 CFR.30 (a) (1) (lx)	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	

* In amplifier room there is a bank of transformers. Check to see if they contain

Environmental Appraisal Checklist

Building Name: 50 Appraisers: Vyas Date: 1-17-96

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	N/A N/A 10-24-03
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: 50 Appraisers: Vyas Date: 1-17-96

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	N/A VPY 10-24-03
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:

Building Name: Appraisers: Date:

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	Rad material is encapsulated There is no contamination. There is a potential for contamination.
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 NA	
	Is the waste stored in a configuration that protects ground-water resources?	Y / N NA	
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 NA	
	Based on field data, does the monitoring conducted in this area conform to the performance standard?	Y / N NA	

(*) Technicians wear rad-type smocks, Clothing is handled as LLW.

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Environmental Appraisal Checklist

Building Name: 50 Appraisers: Vyas Date: 1-17-96

Low-Level Waste and Transuranic Waste Checklist

Regulatory Guideline	Question	Response NA	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	

Building Name: 50 Appraisers: N Yates Date: 1-17-96

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: 50 Appraisers: Vyas Date: 1-17-96

Low-Level Waste and Transuranic Waste Checklist

Regulatory Guideline	Question	Response NA	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	

Environmental Appraisal Checklist

Building Name: 50 Appraisers: V yus Date: 1-17-96

Low-Level Waste and Transuranic Waste Checklist

Regulatory Guideline	Question	Response N/A	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: Appraisers: Date:

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	
	Are there solvent wastes?	Y / N	Ethanol used @ 5gal/yr volatilizes.
	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? N/A	Y / N	
	Ion exchange process?	Y / N	
	Lead in gasoline lowered to reduce tank sludge toxicity?	Y / N	
	Storage tank agitators installed?	Y / N	
	Corrosive resistant materials used?	Y / N	
	Prevention of crude oil oxidation ?	Y / N	
	Drying?	Y / N	

Building Name: 50 Appraisers: Vyas Date: 1-17-96

Waste Minimization/Pollution Prevention Activities Checklist

Regulatory Guideline	Question	Response	Comments
HALOGENATED ORGANIC (NONSOLVENT) WASTES		N/A	
	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		N/A	
	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 N/A	

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Environmental Appraisal Checklist

Building Name: 50 Appraisers: Vyas Date: 1-17-96

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

Environmental Appraisal Checklist

Building Name: Appraisers: Date:

Waste Minimization/Pollution Prevention Activities Checklist

Regulatory Guideline	Question	Response	Comments
	Are cleaned parts drained on the sink to minimize solvent spills?	Y / N	
	Are drip tanks used to capture losses?	Y / N	
	Is a solvent sink used for mineral solvents rather than a dunk bucket or dip tank?	Y / N	
	Does a waste hauler collect solvent waste for recycling or treatment?	Y / N	
OILS			
	What kind of oils are used?		Vacuum pump, refrigerant oil, lube oil, capacitor oil
	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?	Yes	
	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: 50 Appraisers: Vyas Date: 1-17-96

Waste Minimization/Pollution Prevention Activities Checklist

Regulatory Guideline	Question	Response	Comments
	Are these treatment techniques used to promote separation of oil/water wastes?	NA	No oil/water wastes are produced.
	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:	N/A	
	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	

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Environmental Appraisal Checklist

Building Name: 50 Appraisers: Vigas Date: 1-17-96

Waste Minimization/Pollution Prevention Activities Checklist

Regulatory Guideline	Question	Response NA	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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M o u n d Electronic Message/AOS

From :Gary D. Miller
MILLGD
Dept. :Operations
Tel. No :3574
Date :22-Mar-1996 02:51pm EST
Subject :Building 50 Environmental Appraisal

TO :Nancy Vyas (PAPER MAIL)
TO :Eunice Warmoth (WARMEM)

This is to document that I find portions of the Building 50 Environmental Appraisal in conflict with information I have received from the Building Manager and through my own investigations.

While the team noted a nonfuctioning effluent CAM, the Building Manager did not notice it and does not recall it being pointed out on the tour. He also did not come away from the tour with the understanding that there was an unresolved issue regarding the effluent CAM. The Building Manager is very aware that this is designated as building safety equipment in the FSAR and is required to be functional. In fact, its operability is one of the items he independently verifies each workday on his walkthrough as he is verifying that all LCOs are in place.

Facts that have been retrieved since 3/21/96 when this issue came to my attention are:

1. The LCO daily record book shows that the RCT verified the CAMs as being operational the morning of 1/17/96. As well, the Building Manager noted nothing unusual on his tour.

2. The Plan of the Day does not indicate that any CAMs were under maintenance or repair.

3. The Plan of the Day does indicate that there was a maintenance job going on related to the chill water system, in particular the alarms on the part of it that services the IAAC. There should be no connection between this system and the CAMs, but it does explain the presence of maintenance personnel in the penthouse working on alarms.

My investgation leads me to believe that what was seen on the tour was a CAM with its red failure light on. (It is normal for the CAM to cycle between counting and failure.) However an individual on the tour believes he saw the large red light on top of the CAM either constantly lit or flashing. All parties agree that the bell was not ringing. CAM alarms come in to a central location at Mound. Neither I nor the Building Manager was informed of a CAM alarm.

As a follow-up, I will investigate with with experts from Mound Radiological Engineering and the HP Calibrations Laboratory what events might cause a CAM to display a constantly lit warning light or a flashing light with no bell actuation.

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Gary Miller
HS/RTG Facility Manager

- training ~~plans~~ posted
- flammables well managed except in storage room
- Good house keeping except for storage room
- Farmer letter posted by Rad monitoring device on exhaust

General Improvements Suggested

Get rid of stuff outside via characterization & disposal

Monitoring req? — farmer's letter posted

alarm to be repaired/removed

check sump overflow to Pond by B61. Reroute if necessary

Building Manager's Questionnaire

Building Name: 50 Building Manager: P.C. Mollov Phone: 3864 Date: 12-07-95
Alternate: T.J. GEESUFR Phone: 5568

Tim Hoye - Chem E

RWP 500296
503 96

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

PER TNC PLAN # B001; COURSE NO. 050041; 050050; 035063, 970103; G001; G002. PRIOR FOR ALL THOSE WHO REQUIRE PERMANENT (UNESCORTED) ACCESS TO BLDG. 50. ALL EMPLOYEES REQUIRE G001 NOTE: SEE ATTACHMENT

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

NORMAL PPE WITHIN THE B0-50 AREA IS SAFETY GLASSES, SAFETY SHOES; PENTHOUSE REQMT FOR HARD HAT. ROOF AREAS REQUIRE HARD HAT, OR AS DIRECTED BY THE RCT ON THE SPECIFIC RADIATION WORK PERMIT (RWP); DOSIMETER IS REQUIRED.

3. Are there any restricted areas? (Yes) No
Where are they? CELL 112; CELL 108

4. Provide a physical description of the building.

This is a two-story structure containing 14,849 ft². It is constructed of reinforced concrete and concrete block with a BUM roof (coal tar). HVAC systems are central steam and chilled water. The building was built in 1971.

(HEPA) (High Efficiency Particulate air)

SEE Ref: FSAR MLM-ML-91-52-000 REVISION 02 NOV. 1995

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 assemble and test RTGs.

Source: Mound Buildings, 5-9-95

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

Originally built as a test laboratory for evaluating the integrity of radioactive heat sources. Later modifications have provided the capability for assembly and testing of RTG's.

Source: Mound Buildings, 5-9-95

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Building Manager's Questionnaire

Building Name: 50 Building Manager: P.C. Mollov 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: RTG assembly and testing

How Wastes Are Generated:

Hazardous wastes are not routinely generated in this building. There are three possible sources of occasional wastes.

First, water from the building is collected in a 1,100-gal sump where it is tested for radioactive contamination. If it is not contaminated (the normal condition), it is released to the sewer. If it is contaminated, it is sent to WD for treatment.

Second, the coolant in the closed chilling loop can be released to the sewer if there is a loss of power or other failure of the system. The fluid in that cooling loop previously contained about ~~250 gal of~~ ethylene glycol. That material has been replaced with Dow Therm which is supposed to cause fewer environmental concerns. Several options for modifying the cooling system so that Dow Therm will not be released to the sewer are being considered.

Freon and alcohol are used to wipe parts clean. The solvents are normally used in very small quantities and evaporate, leaving no waste liquids. In the rare instances where larger amounts are needed and wastes are generated, the wastes are collected and Waste Management is asked to pick them up.

No radioactive or explosive wastes are generated in this building.

Contact:
Phone:

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

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Building Manager's Questionnaire

Building Name: 50 Building Manager: P.C. Mollov 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~~ Yes

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

Fold Wallet properly voted

Page 4 of 11 of the Building Manager's Questionnaire was not provided.

Building Manager's Questionnaire

Building Name: 50 Building Manager: P.C. Molloy 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)
OXYGEN	G	5/CF
PUMP OIL	L	1/QT
PUMP OIL 704	L	5/L
TAP MAGIC CUTTING FLUID	L	1/QT
TFE SPRAY	L	16/OZ
TRACIT-600 HARDENING CEMENT	L	2/GA
[illegible]E FLOOR FINISH	L	3/GA
[illegible]X CLEANER	S	4/LB
[illegible] STONE ACRYLIC SEAL	L	5/GA
[illegible]C BATHROOM CLEANER	L	4/QT
EMQ CLEANER	L	5/GA
POLISH, FURNITURE	L	17/OZ
STRIPPER PROFESSIONAL #237	L	1/GA
WINDOW SHINE GLASS CLEANER	L	2/GA
ARGON		6000/CF
ARGON LIQUID		600/GA
ARGON ULTRA PUR		1125/CF
ARGON(95)HYDROG		3500/CF
ARGON(96)HYDROG		800/CF
COS(1.97%)/CO(1 GON(R)		250/CF
HELIUM		3000/CF
LIQUID NITROGEN		110/GA
ACETYLENE GAS		225/CF
ACTIVATED ALUM		36/LB
ANCOCIDE 4020		3/GA
ANCOCIDE 4070		3/GA
ANCOOL 3310		5/GA
DOWTHERM SR-1,		30/GA
FREON GENETRON		90/LB
3 IN 1 OIL		3/OZ
ACETONE	L	1/L
BUTANE FUEL	G	9/OZ
CHEM GLAZE WASH PRIMER	L	6/GA
DUO SEAL PUMP OIL	L	2/GA
ETHYL ALCOHOL	L	2/GA
LAQUER THINNER	L	0.5/GA
MINERAL SPIRITS	L	2/GA

COORDINATE
MIKE

F476 58

9.72-53

Building Manager's Questionnaire

Building Name: 50 Building Manager: P.C. Molloy 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?

Normally collected in metal drums and eventually turned over to Waste Mgmt. for proper disposal.

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

General floor & restroom supplies as used at Mound.

23. Where do excess janitorial supplies go?

Normally close to south entry corridor.

Source: _____

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

Chemical	Amount	Chemical	Amount

Source: _____

9.72-54

F486 58

Page 7 of 11 of the Building Manager's Questionnaire was not provided.

Building Name: 50 Building Manager: P.C. Mollov Phone: _____ Date: 12-07-95
Alternate: _____ Phone: _____

Materials	Amount
ZINC BROMIDE, WATER WASTE	999.9
ZINC BROMIDE, WATER WATE	451.5
ZINC BROMIDE, WATER WASTE	999.9
ZINNC BROMIDE, WATER, ABSORBED IN	849.7
FLUORCO	
ZINC BROMIDE, WATER ABSORBED IN	961.4
FLUORCO	
ZINC BROMIDE, WATER, ABSORBED IN	368.1
FLUORCO	
ZINC BROMIDE, WATER, ABSORBED IN	328.9
FLUORCO	
PCB CAPACITORS(6)>500PM,SN:	345.4
6908-3946,6904-6800,-6794,-6809,800	
4-2465,-0592	
PCB OIL>500PM,FROM SN:G856883	686.4
PCB OIL>500PPM,FROM SN:G856883	499.4
PCB OILL>500PMM, FROM SN:G856883	686.4
PCB TRANSFORMER>500PPM,SN:	495.8
G856883,OUT OF SERVICE DATE	

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

Substation by South door -
Capacitors - have failed in ~~Bldg~~ Amplifier Bldg

Cc w Dave Weimer 3323

9.72-56

FS0 of 58

Page 8 of 11 of the Building Manager's Questionnaire was not provided.

Building Manager's Questionnaire

Building Name: 50 Building Manager: P.C. Mollov 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: _____

9.72-58

Page 10 of 11 of the Building Manager's Questionnaire was not provided.

Building Name: 50 Building Manager: P.C. Mollov 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.
Plantwide program exists.

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

9.72-60

NUCLEAR ENER PROGRAMS PARTMENT TRAINING PLAN

Issued: December 19, 1995

Section: Nuclear Energy **Training Plan:** #B001

Group: Plutonium Facilities and Quality Engineering **Facility:** Building 50

Course No.	Course Title	Position Affected	Type of Course	Regulatory Requirement	Re-training Period
050041	Building 50 OSR/LCO Orientation	1	Class	Mound	None
050050	Bldg. 50 Sensitivity Training	1	Class	Mound	None
035063	Rad Worker II	1	CBT	10 CFR 835	Biennial
470103	Criticality Alarms and Assembly Area Procedure	1	SS	DOE 5480.24 MD 10038	Biennial
G001	General Employee Training Plan (GET)	5	All Employees are required to complete the training requirements listed in the GET. Refer to training plan #G001.		
G002	Supervisory Training Plan	1	Supervisors are also required to complete the training requirements listed in the Supervisory Training Plan. Refer to training plan #G002.		

02

Radiation Work Permit Training (?)

~~Brian Brumley X9659~~
~~Gregory X9409~~

— Note: In approval/ Updated version review proc 01/16/96 Plan

9.72-61

NUCLEAR ENERGY PROGRGAMS DEPARTMENT TRAINING PLAN

Issued: December 18, 1995

Section: **Nuclear Energy** **Training Plan: #B001**

Group: **Plutonium Facilities and Quality Engineering** **Facility: Building 50**

KEY:

Position Affected	Type of Course	Regulatory Requirement	Re-training Period
1 = All those who require permament access (unescorted) to Bldg. 50 5 = All employees 2 = Supervisors	Class = Classroom OJT = On-the-job-training CBT = Computer based training SS = Self study Video = Videotape	DOE order or other Agency requiring the training	None = Course taken once, no re-training is required Annual = Employee must be re-trained every year Biennial = Employee must be re-trained every two years

NOTES:

This training plan lists the minimum required training, by position, for employees working in the facility listed. Individuals may have additional training needs depending on their job responsibilities.

ES&H 5e

NUCLEAR ENERGY PROGRGAMS DEPARTMENT TRAINING PLAN

Issued: December 18, 1995

ction: **Nuclear Energy** **Training Plan: #B001**

roup: **Plutonium Facilities and Quality Engineering** **Facility: Building 50**

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aining and Employee Development is responsible for reviewing this plan for format, providing assistance to the Group/Unit Manager in developing the required course list, d maintaining the approved document in Training Records.

is the responsibility of the area line supervisor to determine the exact training needs of each employee, approve the plan, and keep the plan up to date through periodic views as needed.

Reviewed by:

Training Analyst: Robert B. Abram _____ Date _____
(signature)

Approved by:

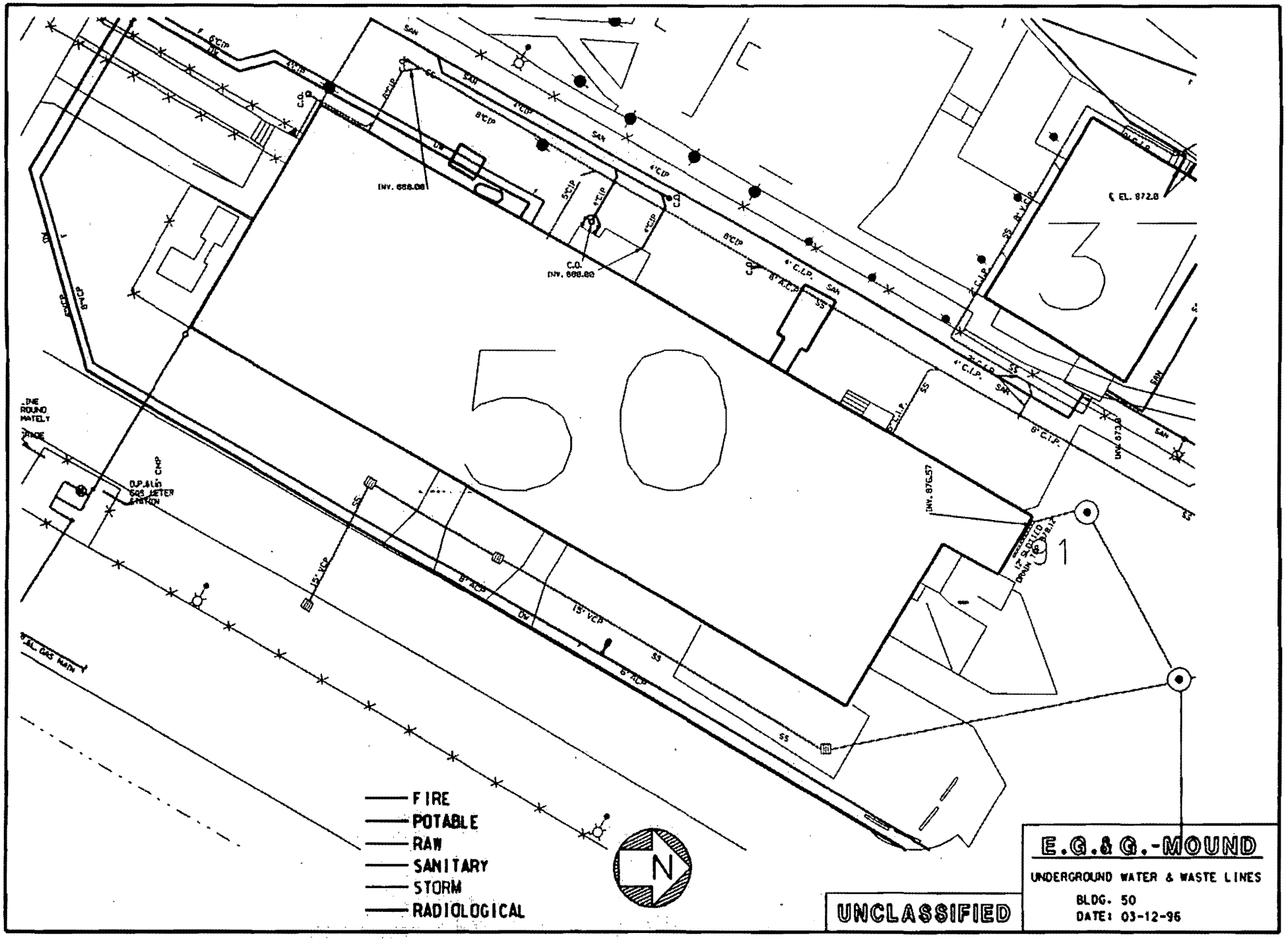
Building Manager: Paul C. Molloy _____ Date _____
(signature)

Plutonium Facility Manager: Gary D. Miller _____ Date _____
(signature)

FS74 Sf

9.72-63

TOTAL P.007



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9.72-77

Appendix G

Radiological Information

Response to Comments

on Building 50, FSR, December 2003

OEPA COMMENTS

GENERAL

Comment 1. It is the Ohio EPAs understanding that the unexpected contamination found as indicated in the Survey Data section for Building 50 will be addressed in a contingent removal action. A fact sheet will be issued for public review to inform the public of such contamination.

Response 1. As discussed at the December 17th Core Team meeting, the contamination in the drain, piping, and waste retention tank in Building 50 will be evaluated and addressed per the Contingent Action Memorandum.

SUBSTANTIVE

Comment 2. Page 6, Section 2.3 – Please provide any information available as to how the area (Room 129), floor drain and waste retention tank became contaminated with plutonium 238, thorium 228, 230 and 232.

Response 2. It is believed that the radiological contamination found in the floor drain and waste retention tank was not a result of Building 50 operations. It is theorized that the contamination was introduced into the Building 50 shower drain by personnel that had been working in contact with contaminated sludge from Building 21 and had used the Building 50 shower facility.

Comment 3. Page 8, Section 2.5 - The conclusion section of this document should indicate the path forward for the contaminated areas.

Response 3. The attached FSR Addendum 1 modifies the FSR and provides the path forward for the contaminated drain, piping, and waste retention tank. These contaminated structures will be handled per the Contingent Action Memorandum.

USEPA COMMENTS

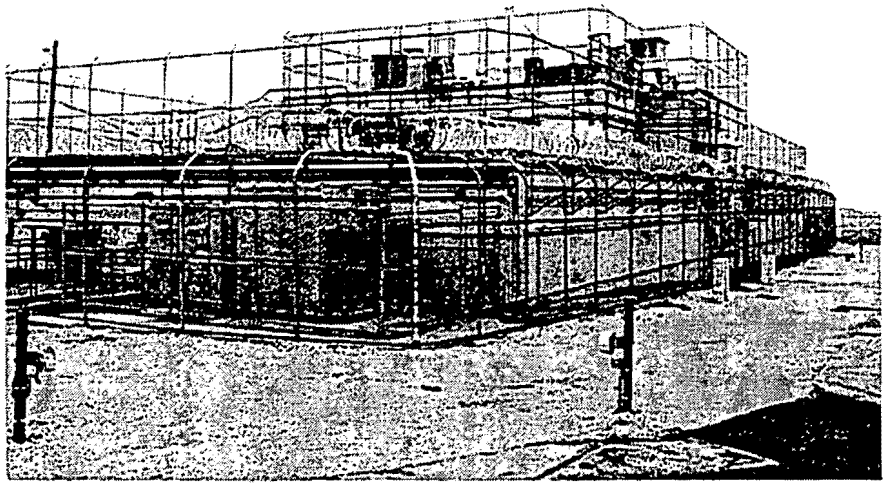
Comment 1. No comments received from USEPA.

Response 1. N/A.

Final Status Report for Building 50, Addendum 1

As described in the FSR (Section 2.2 - second paragraph, and Section 2.3 second paragraph), radiological contamination was found in the drain in Room 129 and in the waste retention tank sediment. The drain was sealed with concrete. This drain, piping, and waste retention tank will be removed via the Contingent Action Memorandum.

Final Status Report
For
Building 50



Prepared by:	**Roderick C. Case /**	**Date:**	**December 8, 2003**
Reviewed by:	**Kevin Doody /** CHP	**Date:**	12/9/2003
Approved by:	**A. Stephen Collas /**	**Date:**	12/9/03

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1.0 Historical Overview

Building 50 was constructed in 1970, as the Alpha Fuels Environmental Test Facility (AFETF). The AFETF was designed and constructed for the purpose of conducting safe, non-destructive tests on heat sources fueled with alpha-emitting isotopes. Encapsulated heat sources were tested under conditions simulating environments that might be encountered in space, terrestrial, and marine applications. None of the tests was intended to breach the heat source capsule integrity, but should a breach occur, radioactivity would be locally contained. Based upon construction drawings, Building 50 square footage is approximately 15,275-ft2. Waste Management plans from 1974 to 1984 list Building 50 as a contaminated facility based upon potential contamination of one hot cell during heat source tests. However, no information was found to indicate that any fueled heat sources failed during testing and no documentation of contamination was found. Since there is a potential for residual contamination to be present, Building 50 is designated as impacted and is scheduled for demolition in accordance with Miamisburg Closure Project goals.

A complete history of Building 50 can be found in Reference 1.

2.0 Survey Objectives

The objective of this survey plan was to determine whether or not the residual radioactivity of the surfaces of building materials associated with Building 50 satisfy the site release criteria. This was accomplished by measuring the fixed and removable contamination on building surfaces and performing isotopic analysis on any sediment found in building drains or ventilation systems. The survey data is compared to the release criteria of DOE Order 5400.5 using methods defined in Reference 2. The specific survey objectives are outlined on the Survey Plan Form (see Enclosures).

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

Table 1

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

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

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

2.1 Survey Design

The characterization survey was designed to evaluate the building internal and external surfaces. Area classification was based on operating history. Testing and radioactive storage areas are Class 2 areas. Administrative and support areas are Class 3. The building was divided into survey units as follows:

Building 50 Survey Units

Survey Unit	Room	Class	Area (Sq.Ft.)	Scan %
1	101-106	3	1,120	10
2	123-128	3	3,060	10
3	119-122	3	1,080	10
4	107	2	168	50
5	108	2	192	50
6	109/110	2	192	50
7	111	2	650	50
8	112	2	832	50
9	113	2	390	50
10	114	2	648	50
11	114A	2	749	50
12	115/116/117	2	1,080	50
13	118 South	2	790	50
14	118 North	2	790	50
15	129	2	288	50
16	107 Walls	3	416	10
17	108 Walls	3	448	10
18	109 Walls	3	320	10
19	110 Walls	3	352	10
20	111 Walls	3	816	10
21	112 Walls	3	920	10
22	113 Walls	3	656	10
23	114 Walls	3	1,296	10
24	114A Walls	3	1,088	10
25	115,116,117 Walls	3	1,272	10
26	118 Walls	3	2,688	10
27	201	3	2,250	10
28	202,206	2	640	50
29	203	2	240	50
30	204	2	650	50
31	201Walls	3	1520	10
32	202 Walls	3	808	10
33	203 Walls	3	544	10
34	204 Walls	3	1,104	10
35	205,206 Walls	3	464	10
36	Exterior Walls	Judgmental	10,080	Judgmental
37	Roof	Judgmental	12,152	Judgmental

Since the variability is expected to be small within the survey unit, the Type I error chosen is $\alpha = 0.05$ and the Type II error is $\beta = 0.01$. The number of data points is determined by calculating the relative shift (Δ/σ) from the DCGL value, the lower bound of the gray region (LBGR), and the standard deviation (σ) of the contaminant in the survey unit (Δ/σ = DCGL-LBGR/σ). For this survey plan, the LBGR is set at 50% of the $DCGL_w$. The standard deviation was estimated to be 17dpm/100cm^2 based on survey data from similar building surfaces and the relative shift was calculated as 2.95. The required number of data points ($n = 20$) was obtained from Table 5.5, Reference 2.

In the Class 2 survey units, the starting point was randomly selected and data points were placed within the survey unit using the triangular grid method. The spacing of data points in each survey unit was determined by:

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

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

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

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

Sediment smear samples were collected from floor drains and ventilation units. A water sample was collected from the building waste sump. Direct alpha and beta readings were taken at each sediment sample location. Acid etch samples were obtained in areas exhibiting elevated measurements.

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

Replicate surveys were performed in accordance with Reference 3.

The instruments selected for this survey were the Ludlum 2350-1 data logger with a 43-68 hand-held gas flow proportional (GFP) detector for alpha/beta fixed point measurements and a 43-37 GFP large area floor probe for alpha scan measurements. For safety reasons, a Ludlum 2360 with an L 43-93 scintillation probe was used for alpha/beta roof measurements in accordance with Reference 4. Laboratory instruments used were appropriate for the analysis requested. Instrument calibration and source check data is documented in accordance with Mound procedures.

2.2 Survey Data

The gross alpha and beta fixed point measurements from each survey unit were collected and compared directly to the $DCGL_w$. Two data points in Survey Unit 2 were found to be above the $DCGL_w$ (RSDS# 03-TF-0284). These data points were resurveyed. The highest observed measurement in the resurvey was 34 dpm/100cm^2 (RSDS# 03-TF-0297). Three data points in Survey Unit 36 were found to be above the $DCGL_w$. These areas were resurveyed and the highest observed activity was 79 dpm/100cm^2 (RSDS# 03-TF-0283). It is believed that these elevated readings were the result of short-lived activity from Radon daughters.

One data point in Survey Unit 15 (Room 129) was found to be >$DCGL_w$. This data point was part of an area that required additional decontamination and resurvey. The scan survey in this Survey Unit identified four distinct areas above the $DCGL_w$. These areas were acid etched and the sample results showed the presence of Pu-238 (217dpm), Th-232 (281 dpm), Th-230 (33 dpm), and Th-228 (293 dpm). See RSDS# 03-TF-0286. A post remedial survey showed that contamination was still present in this area from 160 dpm/100cm^2 to 340 dpm/100cm^2 alpha (RSDS# 03-TF-0303). This area also includes a floor drain, which was 344 dpm/100cm^2 alpha. Sediment samples were obtained from the drain as described in Section 2.3 and the floor drain was sealed with concrete. The floor tiles were removed as LSA waste. Survey Unit 15 was reclassified as a Class 1 area and resurveyed in accordance with Reference 2 (RSDS# 03-TF-0331). The highest observed activity was 79 dpm/100cm^2 and the average alpha activity in the survey unit was 43.5 dpm/100cm^2 ± 9.3 dpm/100cm^2 . The highest post remedial alpha activity observed by scanning was 28 dpm/100cm^2.

A graphical representation of the average and maximum total activity for each survey unit is shown in Attachment 1. A retrospective power curve (Attachment 2) demonstrates that the survey design had sufficient power (probability) to meet the DQO's for this survey plan. The average alpha measurement is 27.6 dpm/100 cm^2 ±1.27 dpm/100 cm^2 and the standard deviation (σ) is 17.6. The relative shift (Δ/σ) = 2.84 and Sign p (probability that a random measurement is < $DCGL_w$ when the median = LBGR) = 0.99379. The retrospective number of data points (n) per Equation 5-2, Reference 2 is 20.

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

Fixed Point Survey Results

Building 50	Smearable dpm/100cm^2			Fixed dpm/100cm^2	
	α	β	H^3	α	β
Average	0.48	1.00	6.4	27.2	1351
Standard Deviation	1.05	1.63	134.9	17.0	416
Maximum	10.92	14.51	3529	97	3229
Confidence Interval	± 0.08	± 0.12	± 10.1	± 1.22	± 30

Fifty percent of the Class 2 survey units and ten percent of the Class 3 survey units were scanned for alpha activity in accordance with the survey plan. Five areas of elevated measurement were observed in Survey Unit 10. These areas were resurveyed and all

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areas were found to be <$DCGL_w$. The highest re-measurement was 38 dpm/100cm^2 alpha. It is believed that these elevated readings were the result of short-lived activity from Radon daughters. No alpha activity was observed by scanning the remaining survey units above the alarm setpoint of 75 dpm/100cm^2 (RSDS# 03-TF-0296/298).

Judgmental surveys were performed on ceilings and upper wall areas. The highest observed activity was 91 dpm/100cm^2 alpha and 1788 dpm/100cm^2 beta (RSDS# 03-TF-0297). The average activity was 38.1 (±8.7) dpm/100cm^2 alpha and 1349.8 (±118.9) dpm/100cm^2 beta.

2.3 Sediment Sample Data

Sediment smear samples were obtained thirty-two (32) locations in the ventilation system. Smear samples were analyzed for gross alpha, beta and tritium activity in accordance with the survey plan. No smearable activity was detected above background levels on any sample. Direct alpha and beta measurements were taken at each sample location. The highest fixed activity observed in the ventilation system was 64 dpm/100cm^2 alpha and 1040 dpm/100cm^2 beta (See RSDS # 03-TF-0295).

Thirty (30) floor drains were surveyed and sampled. The floor drain in Survey Unit 15 was found to be above the $DCGL_w$ (344 dpm/100cm^2, RSDS# 03-TF-0292). An acid etch sample of the drain cover and a sediment sample from the drain were collected and analyzed by alpha spectroscopy. The acid etch results of the drain cover showed the presence of Pu-238 (86 dpm), Th-232 (198 dpm), Th-230 (27 dpm), and Th-228 (225 dpm). The sediment sample results were Pu-238 (36 dpm/g), Th-232 (31 dpm/g), and Th-228 (32 dpm/g). Similar results were found in the waste retention tank sediment (Pu-238 = 32 dpm/g, Th-232 = 31 dpm/g, Th-228 = 27 dpm/g, RSDS# 03-TF-0334). A water sample was collected from the waste retention tank and the results were <0.6 dpm/ml gross alpha. The section of drain line from the Room 129 floor drain up to and including the waste retention tank will be removed as LSA waste during building slab demolition.

No activity was observed in any of the remaining drains. No activity was detected above background levels on any sediment smear sample. The highest direct measurement on the remaining drains was 56 dpm/100cm2 alpha and 290 dpm/100cm^2 beta (RSDS 03-TF-0292).

2.4 Quality Control

Quality control measurements were taken to assess the precision of the measurement system in accordance with Reference 3. Sixteen data points were selected at random from the sample group of 739 data points. Replicate measurements were taken at these locations using the same instruments and performed in the same manner as the original survey. The acceptance criterion for fixed-point measurements is that the variance in the measurements of the original sample population is within a factor of two of the variance in the replicate samples (at 95% confidence level). The results of the replicate surveys are shown in the following table:

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Replicate Analysis Results

Location #	Alpha (dpm/100cm^2)			Beta (dpm/100cm^2)		
	Initial	2σ	Replicate	Initial	2σ	Replicate
SU5-9	14	7.48	38	1670	81.73	947
SU27-13	34	11.66	42	1186	68.88	1593
SU33-10	14	7.48	42	1184	68.82	1425
SU5-12	21	9.17	23	1252	70.77	1186
SU35-18	0	0.00	34	1184	68.82	1346
SU7-17	14	7.48	57	1474	76.79	1532
SU23-9	7	5.29	49	1082	65.79	1160
SU20-1	14	7.48	19	1193	69.08	1496
SU26-14	27	10.39	30	1142	67.59	1337
SU19-14	15	7.75	38	1133	67.32	1257
SU34-6	10	6.32	46	1227	70.06	1310
SU5-4	24	9.80	38	1159	68.09	1027
SU2-2	24	9.80	23	1287	71.75	1186
SU14-11	31	11.14	27	1210	69.57	1443
SU19-2	19	8.72	42	1213	69.66	1478
SU34-12	35	11.83	23	1431	75.66	1222
Variance (S^2)	96.33		116.36	22805		33385
Ratio			0.83			0.68
Agreement			YES			YES

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

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

2.5 Conclusion

The objective of this survey plan was to determine whether or not the residual radioactivity of the surfaces of building materials associated with Building 50 satisfy the site release criteria established by DOE Order 5400.5. This is accomplished by comparing the survey data to the release criteria in accordance with the MARSSIM (Reference 2).

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

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Building 50 meets the surface release criteria established by DOE Order 5400.5. The average and maximum residual contamination in each survey unit is less than the $DCGL_w$ and the survey is accepted as the Final Status Survey in accordance with the Survey Plan. The following tables show the maximum fixed and removable activity on the inside and outside building surfaces.

Building 50 Survey Results

TYPE	RSDS#	LOCATION	SURVEY RESULTS (dpm/100 cm^2)	SURFACE CONTAMINATION GUIDELINES (dpm/100 cm^2) (Note 1)
Highest Alpha Smearable Activity	03-TF-0267	Floor	10.92	20
Highest Alpha Fixed Activity	03-TF-0293	Wall	97	100
Highest Beta Smearable Activity	03-TF-0287	Roof	14.51	1000
Highest Beta Fixed Activity	03-TF-0284	Exterior Wall	3229	5000
Highest Tritium Smearable Activity	03-TF-0288	Floor	3529	10,000
Note 1: DOE Order 5400.5 (DCGLw)				

3.0 Attachments and Enclosures

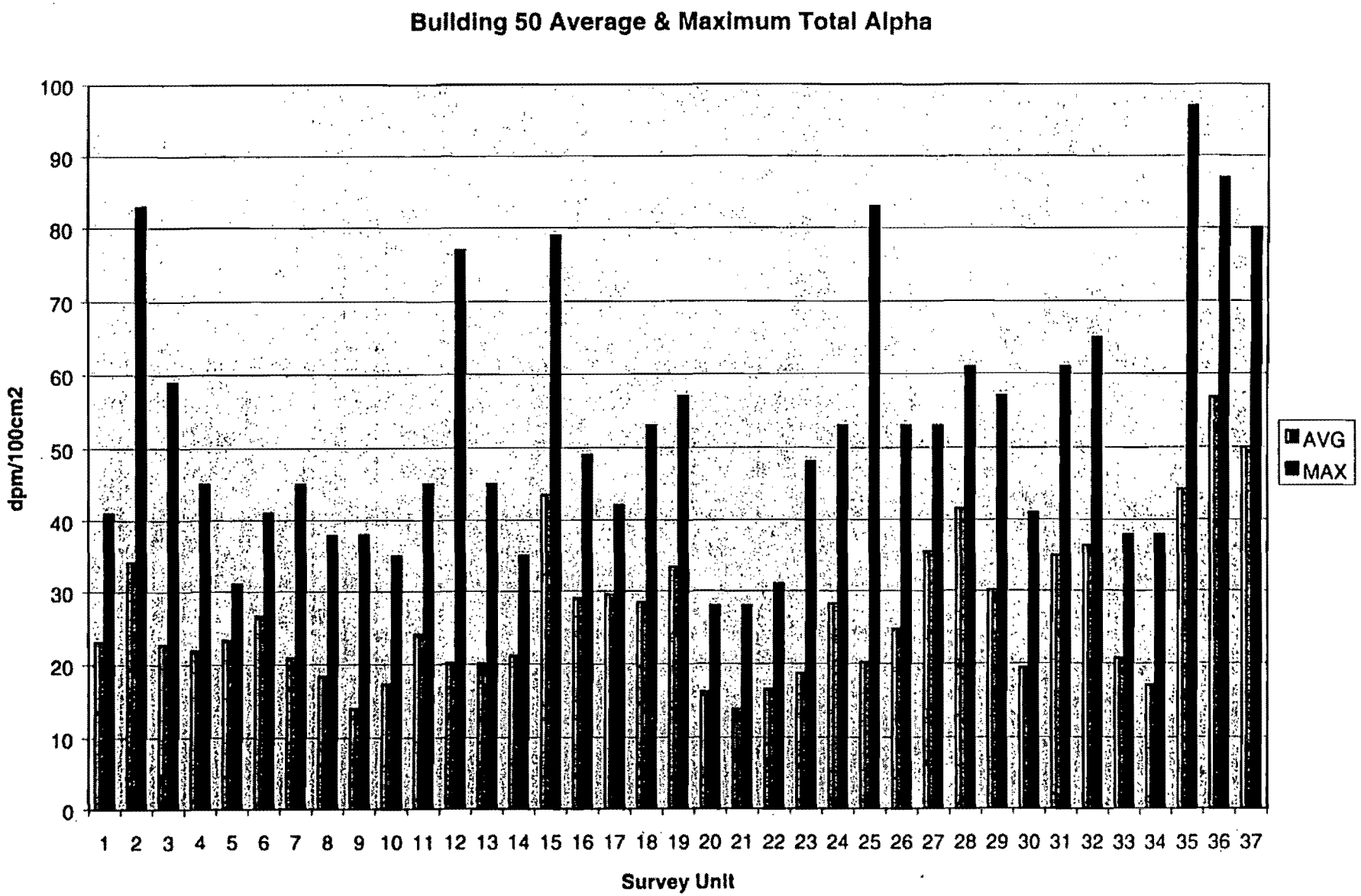
Attachment 1 – Average Total Alpha and Beta Graph

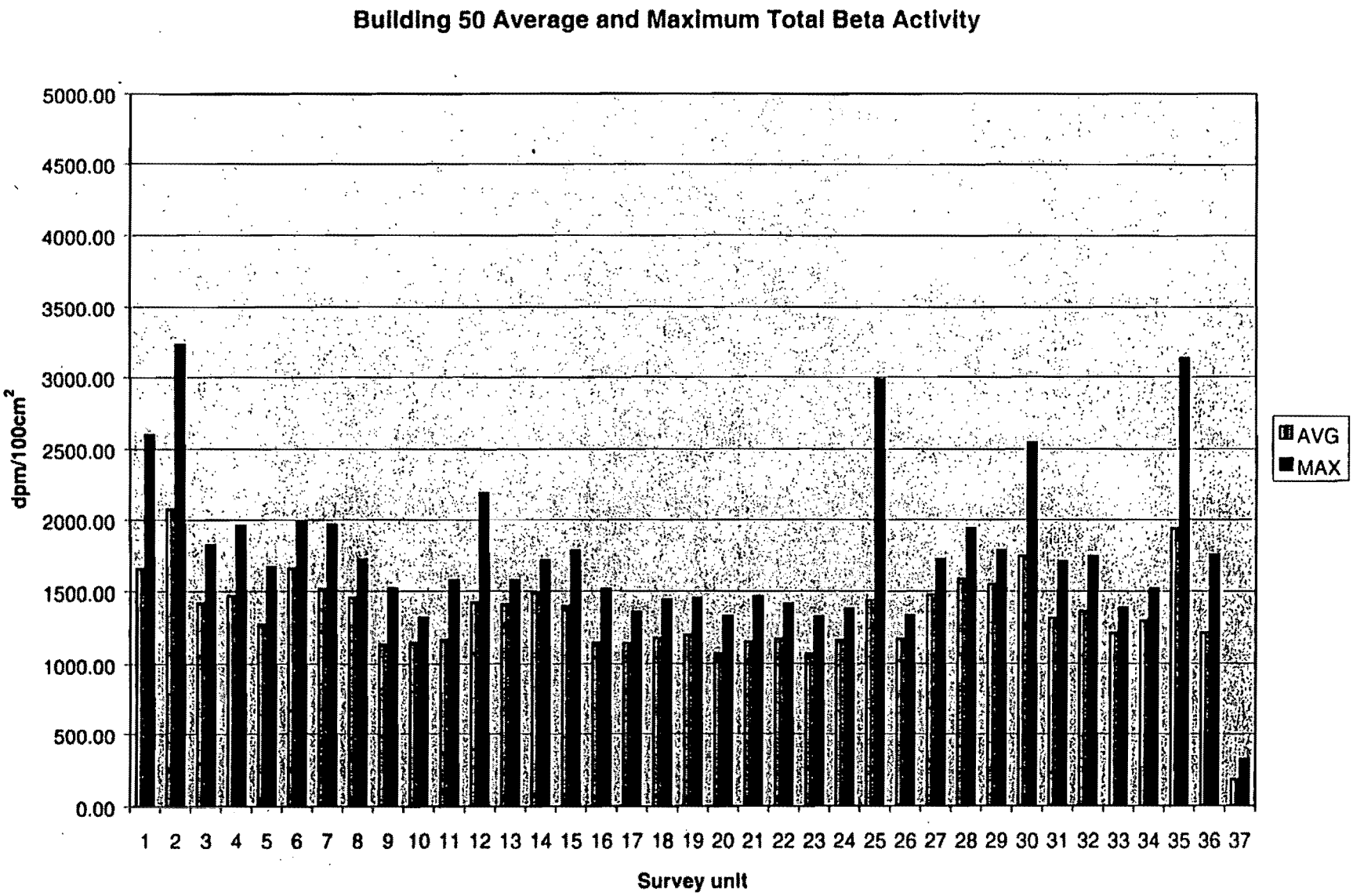
Enclosure 1 – Sample Data Analysis Worksheets

Enclosure 2 – SPF 50-01

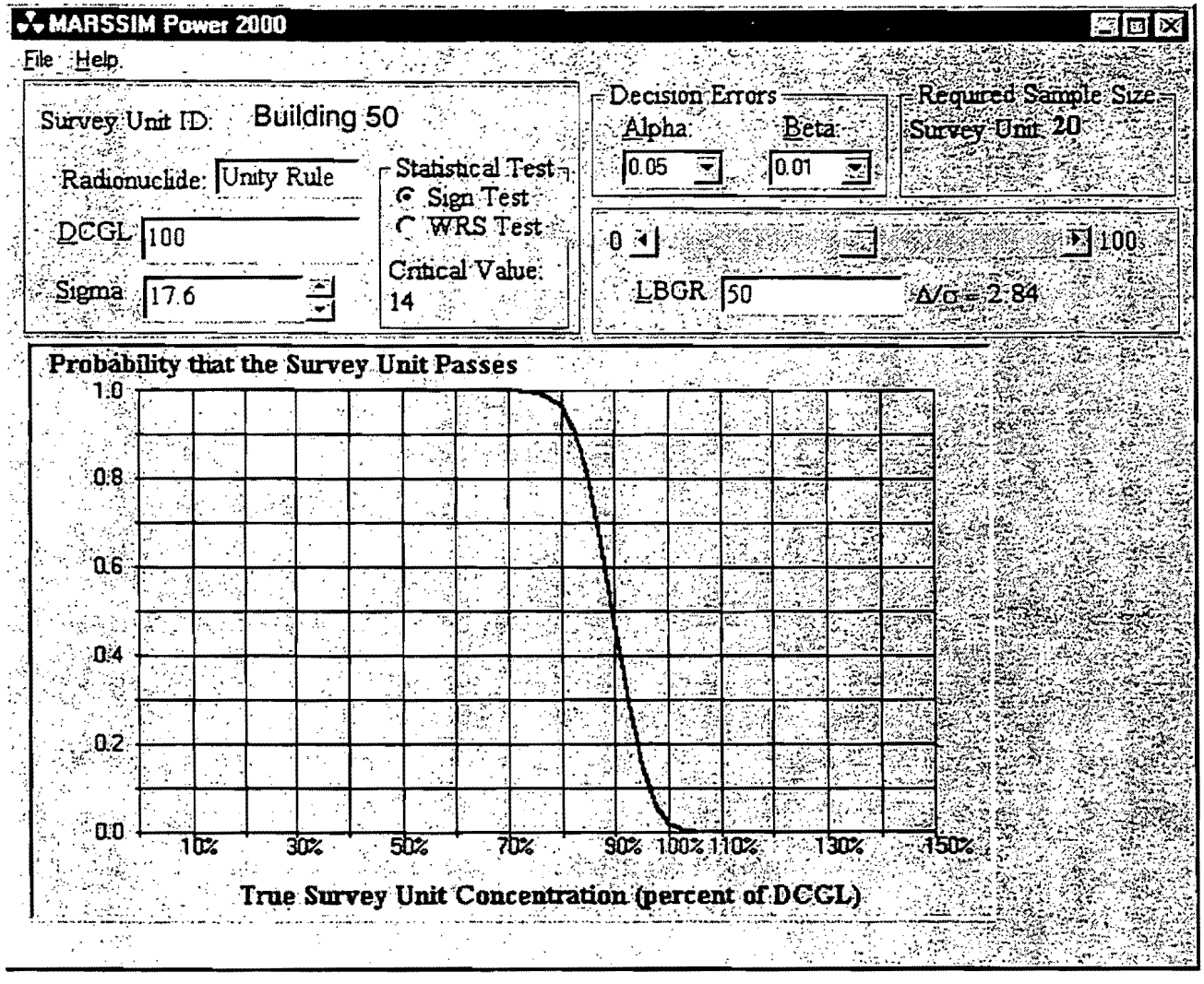
4.0 References

1. CH2MHILL Mound, Inc., EC&AS Department, White Paper: Building 50 Structural History and Process History Summary Background Document, January 2003
2. NUREG 1575, Rev 1, Aug 2000, *Multi-Agency Radiation Survey and Site Investigation Manual*, (MARSSIM)
3. MARSSIM Implementing Procedures, *Field Quality Control for Building Contamination Surveys*, MD-80046, Op. 402
4. MD80036, Op. No. 30031,*Operation of the Ludlum 2360 Scaler/Ratemeter with Ludlum 43-93 Alpha/Beta Scintillator,* Section 6.3


Building 50 Average & Maximum Total Alpha
dpm/100cm2
100
90
80
70
60
50
40
30
20
10
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37
Survey Unit
AVG
MAX


Building 50 Average and Maximum Total Beta Activity
5000.00
4500.00
4000.00
3500.00
3000.00
2500.00
2000.00
1500.00
1000.00
500.00
0.00
dpm/100cm²
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37
Survey unit
AVG
MAX

Retrospective Power Curve



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Building 50 Survey and Sample Data
Enclosure 1

Building 50 Survey Data Collection Sheet

		Smearable dpm/100cm^2			Fixed dpm/100cm^2			
Location	RSDS#	α	β	H^3	α	β	a Scan	
SU1-01	03-TF-0284	0	0.4	0	31	1857		
SU1-02	03-TF-0284	0	0	0	41	1747		
SU1-03	03-TF-0284	0	0.6	0	31	1619		
SU1-04	03-TF-0284	0	0	0	21	1806		
SU1-05	03-TF-0284	0	0	0	31	1823		
SU1-06	03-TF-0284	1.8	0.9	0	35	1312		
SU1-07	03-TF-0284	1.7	2.2	0	28	1227		
SU1-08	03-TF-0284	0	0.8	0	17	1414		
SU1-09	03-TF-0284	0	2	0	28	1380		
SU1-10	03-TF-0284	0	2.1	0	31	1721		
SU1-11	03-TF-0284	1.6	0	0	17	1781		
SU1-12	03-TF-0284	1.7	0.7	0	17	2173		
SU1-13	03-TF-0284	0	8.1	0	28	2411		
SU1-14	03-TF-0284	0	1.8	0	31	2599		
SU1-15	03-TF-0284	0	0	0	21	2207		
SU1-16	03-TF-0284	0	0.2	0	7	1116		
SU1-17	03-TF-0284	0	0.4	0	17	1270		
SU1-18	03-TF-0284	0	0.5	0	10	1227		
SU1-19	03-TF-0284	0	0	0	10	1389		
SU1-20	03-TF-0284	0	0.5	0	10	1056		
SU2-01	03-TF-0284	0	2.9	0	21	1167		49
SU2-02	03-TF-0284	1.9	1.7	0	24	1287		
SU2-03	03-TF-0284	0	5	0	17	1252		
SU2-04	03-TF-0284	0	1.4	43.39	14	1542		
SU2-05	03-TF-0284	0	2.8	265.73	38	1781		
SU2-06	03-TF-0284	1.8	0	0	21	1602		
SU2-07	03-TF-0284	0	0.6	5.54	62	2820		
SU2-08	03-TF-0284	0	0	0	55	2965		
SU2-09	03-TF-0284	1.7	0	0	24	2326		
SU2-10	03-TF-0284	0	0	0	62	1653		
SU2-11	03-TF-0284	0	0	0	21	1585		
SU2-12	03-TF-0284	0	0.8	0	23	3229	100/23	
SU2-13	03-TF-0284	0	0	0	38	2812		
SU2-14	03-TF-0284	1.7	0.8	0	34	3059	121/34	
SU2-15	03-TF-0284	0	0	0	83	2420		
SU2-16	03-TF-0284	0	0.9	0	41	1806		
SU2-17	03-TF-0284	0	0	0	24	1900		
SU2-18	03-TF-0284	0	5.6	0	7	1696		
SU2-19	03-TF-0284	0	0	0	35	1644		
SU2-20	03-TF-0284	0	0.2	0	38	2999		
SU3-01	03-TF-0284	1.7	0.6	0	59	1610		
SU3-02	03-TF-0284	0	0.9	0	48	1661		
SU3-03	03-TF-0284	0	0	0	35	1372		
SU3-04	03-TF-0284	0	0.9	0	41	1517		
SU3-05	03-TF-0284	0	0.3	0	35	1772		
SU3-06	03-TF-0284	0	3.1	0	28	1696		

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Building 50 Survey and Sample Data
Enclosure 1

Location	RSDS#	α	β	H^3	α	β	a	Scan
SU3-07	03-TF-0284	0	0	0	3	1201		
SU3-08	03-TF-0284	1.6	1.3	0	14	1082		
SU3-09	03-TF-0284	0	0	0	17	1193		
SU3-10	03-TF-0284	1.8	0	0	14	1270		
SU3-11	03-TF-0284	1.7	0.4	0	17	1252		
SU3-12	03-TF-0284	0	3.9	0	17	1039		
SU3-13	03-TF-0284	3.7	0	0	24	1261		
SU3-14	03-TF-0284	0	0	0	17	1304		
SU3-15	03-TF-0284	0	1.1	0	14	1321		
SU3-16	03-TF-0284	0	0.8	0	17	1270		
SU3-17	03-TF-0284	0	0	0	17	1483		
SU3-18	03-TF-0284	0	0	0	3	1534		
SU3-19	03-TF-0284	0	0	0	21	1772		
SU3-20	03-TF-0284	1.7	0.7	0	14	1823		
SU4-01	03-TF-0285	0	10.6	8.63	31	1142		11
SU4-02	03-TF-0285	0	0	0	21	954		
SU4-03	03-TF-0285	0	0.9	0	24	1252		
SU4-04	03-TF-0285	0	0.9	0	3	1423		
SU4-05	03-TF-0285	3.8	2.6	0	14	1329		
SU4-06	03-TF-0285	0	0	0	17	1517		
SU4-07	03-TF-0285	0	0	0	31	1218		
SU4-08	03-TF-0285	0	0.2	0	14	1048		
SU4-09	03-TF-0285	0	1.6	0	14	1551		
SU4-10	03-TF-0285							
SU4-11	03-TF-0285	0	0	0	45	1798		
SU4-12	03-TF-0285	1.7	0	0	31	1670		
SU4-13	03-TF-0285	0	1.1	0	28	1653		
SU4-14	03-TF-0285	0	0	0	10	1508		
SU4-15	03-TF-0285	0	0	0.87	14	1534		
SU4-16	03-TF-0285	0	0	0	17	1534		
SU4-17	03-TF-0285	0	4.5	0	21	1755		
SU4-18	03-TF-0285	0	0	0.85	31	1960		
SU4-19	03-TF-0285	1.6	4.2	0	28	1585		
SU4-20								
SU5 -01	03-TF-0285	0	0.5	0	24	1210		
SU5 -02	03-TF-0285	0	0	239.66	17	1278		
SU5 -03	03-TF-0285	0	0.2	0	24	1056		
SU5 -04	03-TF-0285	0	1.6	0	24	1159		
SU5 -05	03-TF-0285	0	0.5	0	24	1363		
SU5 -06	03-TF-0285	0	0	0	28	1193		
SU5 -07	03-TF-0285	0	0	0	24	1312		
SU5 -08	03-TF-0285	1.6	0	0	21	1346		
SU5 -09	03-TF-0285	0	0	0	14	1304		
SU5 -10	03-TF-0285	3.9	3.6	0	14	1670		
SU5 -11	03-TF-0285	0	2	0	28	1108		
SU5 -12	03-TF-0285	0	2	0	21	1252		
SU5 -13	03-TF-0285	0	2.1	0	24	1227		

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Building 50 Survey and Sample Data
Enclosure 1

Location	RSDS#	α	β	H^3	α	β	a Scan
SU5 -14	03-TF-0285	0	3.2	0	21	1312	
SU5 -15	03-TF-0285	0	0.3	0	28	1167	
SU5 -16	03-TF-0285	0	0.5	0	31	1125	
SU5 -17	03-TF-0285	0	3.4	0	28	1218	
SU5 -18	03-TF-0285	0	1.4	0	17	1252	
SU5 -19	03-TF-0285	3.6	0	0	24	1329	
SU5 -20	03-TF-0285	0	0.5	0	31	1636	
SU6 -01	03-TF-0285	1.8	2.9	0	38	1508	11
SU6 -02	03-TF-0285	0	0.5	0	28	1823	
SU6 -03	03-TF-0285	0	2	0.78	28	1500	
SU6 -04	03-TF-0285	0	2.3	0	24	1823	
SU6 -05	03-TF-0285	0	0	0	35	1491	
SU6 -06	03-TF-0285	0	2	0	38	1985	
SU6 -07	03-TF-0285	1.7	0.8	0	41	1730	
SU6 -08	03-TF-0285	0	0	0	24	1150	
SU6 -09	03-TF-0285	0	0	0	31	1747	
SU6 -10	03-TF-0285	0	2	0	28	1483	
SU6 -11	03-TF-0285	0	0.3	0	14	1815	
SU6 -12	03-TF-0285	0	0.5	0	31	1508	
SU6 -13	03-TF-0285	0	2.5	0	28	1730	
SU6 -14	03-TF-0285	0	2.7	0	21	1815	
SU6 -15	03-TF-0285	0	0	0	10	1576	
SU6 -16	03-TF-0285	0	0	0	24	1917	
SU6 -17	03-TF-0285	0	1.6	0	14	1508	
SU6 -18	03-TF-0285	0	0	0	41	1721	
SU6 -19	03-TF-0285	1.7	0.8	0	24	1568	
SU6 -20	03-TF-0285	0	1.1	0	10	1747	
SU7 -01	03-TF-0285	0	2.3	0	10	1159	
SU7 -02	03-TF-0285	0	0	0	10	1031	
SU7 -03	03-TF-0285	0	2	0	17	1176	
SU7 -04	03-TF-0285	1.5	0	0	17	1108	
SU7 -05	03-TF-0285	0	0	0	28	1602	
SU7 -06	03-TF-0285	0	1.9	0	45	1500	
SU7 -07	03-TF-0285	1.7	1.6	0	28	1567	
SU7 -08	03-TF-0285	0	0	0	21	1704	
SU7 -09	03-TF-0285	0	6.2	0	24	1627	
SU7 -10	03-TF-0285	0	0	0	24	1567	
SU7 -11	03-TF-0285	0	0.3	0	28	1968	
SU7 -12	03-TF-0285	1.8	0.5	0	10	1661	
SU7 -13	03-TF-0285	0	0.6	0	24	1730	
SU7 -14	03-TF-0285	0	0.2	0	21	1687	
SU7 -15	03-TF-0285	3.4	0	0	17	1721	
SU7 -16	03-TF-0285	0	1.1	0	17	1483	
SU7 -17	03-TF-0285	0	0	0	14	1474	
SU7 -18							
SU7 -19							
SU7 -20							
SU8-01	03-TF-0285	0	3	0	17	1287	
SU8-02	03-TF-0285	0	0	0	35	1218	

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Building 50 Survey and Sample Data
Enclosure 1

Location	RSDS#	a	b	H^3	a	b	a Scan	
SU8-03	03-TF-0285	1.5	2.1	0	28	1125		
SU8-04	03-TF-0285	0	3.2	0	17	1116		
SU8-05	03-TF-0285	0	0.7	0	21	1559		
SU8-06	03-TF-0285	1.7	0	0	24	1500		
SU8-07	03-TF-0285	0	4.4	0	7	1610		
SU8-08	03-TF-0285	0	0	0	7	1721		
SU8-09	03-TF-0285	0	0	0	28	1431		
SU8-10	03-TF-0285	0	5.1	0	14	1099		
SU8-11	03-TF-0285	1.8	0	0	17	1696		
SU8-12	03-TF-0285	3.7	0.6	0	38	1602		
SU8-13	03-TF-0285	0	0	0	21	1619		
SU8-14	03-TF-0285	0	0	0	14	1644		
SU8-15	03-TF-0285	0	0	0	3	1627		
SU8-16	03-TF-0285	0	0	0	14	1355		
SU8-17	03-TF-0285	0	2	0	10	1534		
SU8-18	03-TF-0285	0	0.8	0	21	1610		
SU8-19	03-TF-0285	0	1.7	0	10	1312		
SU8-20	03-TF-0285	0	0	0	21	1465		
SU9-01	03-TF-0288	1.44	0	0	38	1091		
SU9-02	03-TF-0288	1.44	3.04	0	10	920		
SU9-03	03-TF-0288	0	1.89	0	17	929		
SU9-04	03-TF-0288	0	0	0	17	1312		
SU9-05	03-TF-0288	0	0	0	31	861		
SU9-06	03-TF-0288	0	0	0	7	1039		
SU9-07	03-TF-0288	1.44	0.41	0	10	1210		
SU9-08	03-TF-0288	0	0	0	14	1363		
SU9-09	03-TF-0288	0	0	0	14	1295		
SU9-10	03-TF-0288	0	0	0	10	1244		
SU9-11	03-TF-0288	1.44	1.72	0	3	1517		
SU9-12	03-TF-0288	0	0.58	0	10	1082		
SU9-13	03-TF-0288	0	0	0	17	1065		
SU9-14	03-TF-0288	0	3.2	0	14	1039		
SU9-15	03-TF-0288	1.44	0.41	0	10	1278		
SU9-16	03-TF-0288	0	0	0	10	1116		
SU9-17	03-TF-0288	0	0	0	7	1167		
SU9-18	03-TF-0288	0	1.89	0	14	1167		
SU9-19	03-TF-0288	1.44	0.41	0	10	963		
SU9-20	03-TF-0288	5.52	0	0	17	1108		
SU10-01	03-TF-0287	0	0	0	10	1287	99/21	
SU10-02	03-TF-0287	0	3.2	0	17	1176	154/24	
SU10-03	03-TF-0287	0	0	0	24	1074	130/31	
SU10-04	03-TF-0287	0	0	0	7	1048	130/38	
SU10-05	03-TF-0287	1.44	0	0	31	1193	103/31	
SU10-06	03-TF-0287	3.48	0	0	3	1193		
SU10-07	03-TF-0287	0	0	0	24	1099		
SU10-08	03-TF-0287	0	5.86	0	21	929		
SU10-09	03-TF-0287	0	0	0	14	988		
SU10-10	03-TF-0287	1.44	3.14	0	35	1321		
SU10-11	03-TF-0287	0	0	0	21	1133		
SU10-12	03-TF-0287	3.48	0	0	21	1176		
SU10-13	03-TF-0287	0	0.58	0	21	1278		

Building 50 Survey and Sample Data
Enclosure 1

Location	RSDS#	α	β	H^3	α	β	a Scan
SU10-14	03-TF-0287	0	1.89	0	17	1295	
SU10-15	03-TF-0287	1.44	0	0	7	1252	
SU10-16	03-TF-0287	3.48	0.24	0	7	1201	
SU10-17	03-TF-0287	0	0	0	28	1022	
SU10-18	03-TF-0287	1.44	1.72	0	24	1193	
SU10-19	03-TF-0287	0	0	0	7	1133	
SU10-20	03-TF-0287	0	0	0	7	997	
SU11-01	03-TF-0287	1.43	5.66	0	14	929	
SU11-02	03-TF-0287	1.44	0	0	45	818	
SU11-03	03-TF-0287	0	0	0	21	997	
SU11-04	03-TF-0287	1.45	0	0	17	1167	
SU11-05	03-TF-0287	1.44	0	0	31	767	
SU11-06	03-TF-0287	0	0	0	24	886	
SU11-07	03-TF-0287	1.44	0	0	38	843	
SU11-08	03-TF-0287	1.44	0	0	35	1056	
SU11-09	03-TF-0287	0	0.58	0	24	1406	
SU11-10	03-TF-0287	5.49	14.51	0	10	1576	
SU11-11	03-TF-0287	1.43	6.97	0	24	1346	
SU11-12	03-TF-0287	0	1.89	0	35	1346	
SU11-13	03-TF-0287	1.44	0	0	21	1355	
SU11-14	03-TF-0287	0	0	0	21	1474	
SU11-15	03-TF-0287	0	0	0	14	1201	
SU11-16	03-TF-0287	0	3.2	0	7	1346	
SU11-17	03-TF-0287	1.44	0.41	0	35	1159	
SU11-18	03-TF-0287	0	0	0	21	1423	
SU11-19	03-TF-0287	0	0	0	21	1022	
SU11-20	03-TF-0287	0	0	0	24	1287	
SU12 -01	03-TF-0290	0	1.6	0	28	1244	
SU12 -02	03-TF-0290	0	2.9	0	17	1125	
SU12 -03	03-TF-0290	0	0	0	10	2190	
SU12 -04	03-TF-0290	1.6	0.3	0	10	1031	
SU12 -05	03-TF-0290	0	0.8	0	48	2070	
SU12 -06	03-TF-0290	0	0	0	21	1312	
SU12 -07	03-TF-0290	0	1.1	0	21	1610	
SU12 -08	03-TF-0290	3.4	0.5	0	17	1678	
SU12 -09	03-TF-0290	0	1	0	10	1375	
SU12 -10	03-TF-0290	1.7	4.3	0	21	1542	
SU12 -11	03-TF-0290	0	0	0	14	1321	
SU12 -12	03-TF-0290	0	0	0	7	1074	
SU12 -13	03-TF-0290	0	0.3	0	21	1423	
SU12 -14	03-TF-0290	1.9	0.4	0	14	1380	
SU12 -15	03-TF-0290	0	0	0	77	1363	
SU12 -16	03-TF-0290	0	0.2	0	24	1397	
SU12 -17	03-TF-0290	0	0	0	17	1193	
SU12 -18	03-TF-0290	0	0	0	7	1823	
SU12 -19	03-TF-0290	0	0	0	7	1508	
SU12 -20	03-TF-0290	0	0	0	14	852	
SU13 -01	03-TF-0287	1.44	0	0	10	1321	
SU13 -02	03-TF-0287	1.45	0	0	45	1270	
SU13 -03	03-TF-0287	1.44	1.72	0	14	1508	

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Location	RSDS#	α	β	H^3	α	β	a Scan
SU13 -04	03-TF-0287	0	0	0	21	1448	
SU13 -05	03-TF-0287	0	0	0	21	1491	
SU13 -06	03-TF-0287	0	0	0	10	1474	
SU13 -07	03-TF-0287	0	4.51	7.09	3	1576	
SU13 -08	03-TF-0287	1.45	0	0	17	1380	
SU13 -09	03-TF-0287	0	0	0	14	1133	
SU13 -10	03-TF-0287	0	0	0	21	1338	
SU13 -11	03-TF-0287	0	0	0	31	1389	
SU13 -12	03-TF-0287	0	0	0	24	1500	
SU13 -13	03-TF-0287	1.44	0	0	21	1406	
SU13 -14	03-TF-0287	1.44	0.41	0	28	1474	
SU13 -15	03-TF-0287	0	0.58	0	21	1568	
SU13 -16	03-TF-0287	0	0	0	21	1431	
SU13 -17	03-TF-0287	0	0.58	0	10	1474	
SU13 -18	03-TF-0287	0	0	0	21	1346	
SU13 -19	03-TF-0287	1.44	0	0	21	1431	
SU13 -20	03-TF-0287	1.44	0	0	28	1270	
SU14 -01	03-TF-0287	0	1.89	0	28	1414	
SU14 -02	03-TF-0287	0	1.89	0	24	1576	
SU14 -03	03-TF-0287	5.51	4.01	0	28	1414	
SU14 -04	03-TF-0287	1.44	3.04	0	24	1687	
SU14 -05	03-TF-0287	0	0.58	0	14	1491	
SU14 -06	03-TF-0287	0	0	0	21	1397	
SU14 -07	03-TF-0287	1.44	0.41	0	31	1593	
SU14 -08	03-TF-0287	0	0.58	0	7	1627	
SU14 -09	03-TF-0287	1.44	0	0	35	1610	
SU14 -10	03-TF-0287	0	0.58	0	24	1576	
SU14 -11	03-TF-0287	0	0.58	0	31	1210	
SU14 -12	03-TF-0287	0	0.58	0	17	1380	
SU14 -13	03-TF-0287	0	0.58	0	10	1363	
SU14 -14	03-TF-0287	1.44	0	0	28	1346	
SU14 -15	03-TF-0287	0	0	0	7	1465	
SU14 -16	03-TF-0287	0	0	0	21	1500	
SU14 -17	03-TF-0287	0	0.58	0	21	1372	
SU14 -18	03-TF-0287	0	0.58	0	21	1448	
SU14 -19	03-TF-0287	0	0.58	0	17	1713	
SU14 -20	03-TF-0287	3.48	1.56	0	14	1653	
SU15-01	03-TF-0288	0	0.58	0	69	2011	301
SU15-02	03-TF-0288	1.44	0	10.16	38	1960	414
SU15-03	03-TF-0288	0	1.89	0	48	2062	182
SU15-04	03-TF-0288	1.44	0.41	5.59	66	2139	342
SU15-05	03-TF-0288	1.44	0	3529.08	79	2139	
SU15-06	03-TF-0288	0	0	0	79	1934	
SU15-07	03-TF-0288	1.44	1.72	0	59	2130	
SU15-08	03-TF-0288	0	0	0	38	2300	
SU15-09	03-TF-0288	0	1.89	0	45	1968	
SU15-10	03-TF-0288	0	3.2	0	86	1900	
SU15-11	03-TF-0288	1.44	0.74	0	73	2104	
SU15-12	03-TF-0288	0	4.51	0	21	2122	

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Building 50 Survey and Sample Data
Enclosure 1

Location	RSDS#	a	b	H^3	a	b	a	Scan
SU15-13	03-TF-0288	0	0	0	76	2215		
SU15-14	03-TF-0288	3.48	0	0	117	2198	148/117	
SU15-15	03-TF-0288	0	1.89	0	21	1823		
SU15-16	03-TF-0288	0	0	0	48	1909		
SU15-17	03-TF-0288	0	0	0	48	1346		
SU15-18								
SU15-19								
SU15-20								
SU16-01	03-TF-0289	0	2	61.77	15	1160	<75	
SU16-02	03-TF-0289	0	0	0	19	983		
SU16-03	03-TF-0289	0	0	0.58	46	1177		
SU16-04	03-TF-0289	0	2	0	30	1045		
SU16-05	03-TF-0289	0	2.9	0	19	1204		
SU16-06	03-TF-0289	0	0	0	38	1514		
SU16-07	03-TF-0289	0	0	0	27	1177		
SU16-08	03-TF-0289	0	0	7.91	46	894		
SU16-09	03-TF-0289	0	0	0	27	1381		
SU16-10	03-TF-0289	0	0	2.45	30	1115		
SU16-11	03-TF-0289	0	0	0	19	1372		
SU16-12	03-TF-0289	1.6	0	0	23	1027		
SU16-13	03-TF-0289	0	0.8	1.5	38	1142		
SU16-14	03-TF-0289	0	0	0	30	876		
SU16-15	03-TF-0289	1.7	1	0	15	1195		
SU16-16	03-TF-0289	0	0.8	35.67	15	1151		
SU16-17	03-TF-0289	0	2	15.26	49	1213		
SU16-18	03-TF-0289	0	2.1	1.46	30	1089		
SU16-19	03-TF-0289	0	0.9	0	49	1222		
SU16-20	03-TF-0289	0	0.9	3.28	15	1045		
SU17-01	03-TF-0289	0	8.1	0	38	1098	<75	
SU17-02	03-TF-0289	1.9	0.4	0	42	1213		
SU17-03	03-TF-0289	0	0	0	34	1115		
SU17-04	03-TF-0289	1.6	0.1	0	34	1213		
SU17-05	03-TF-0289	0	0.4	0	38	1062		
SU17-06	03-TF-0289	0	0	0	15	1248		
SU17-07	03-TF-0289	0	0	0	34	938		
SU17-08	03-TF-0289	0	1.6	0	34	1151		
SU17-09	03-TF-0289	0	0	0	27	823		
SU17-10	03-TF-0289	0	2.3	5.18	27	1363		
SU17-11	03-TF-0289	1.7	0	0	11	1107		
SU17-12	03-TF-0289	0	0	0	30	1098		
SU17-13	03-TF-0289	0	0	1.52	30	1213		
SU17-14	03-TF-0289	1.7	2	0	23	1231		
SU17-15	03-TF-0289	0	0	0	19	1363		
SU17-16	03-TF-0289	0	0.9	0	38	1124		
SU17-17	03-TF-0289	0	2.9	0	27	1160		
SU17-18	03-TF-0289	1.9	4	0	30	1177		
SU17-19	03-TF-0289	0	0	0	30	1169		
SU17-20	03-TF-0289	0	0.2	0	30	1027		
SU18-01	03-TF-0289	0	0.4	0	27	1142	<75	
SU18-02	03-TF-0289	0	0	0	30	1363		

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Building 50 Survey and Sample Data
Enclosure 1

Location	RSDS#	α	β	H^3	α	β	a Scan
SU18-03	03-TF-0289	0	1.7	0	19	1018	
SU18-04	03-TF-0289	0	0	0	34	1293	
SU18-05	03-TF-0289	1.7	0	0	19	1293	
SU18-06	03-TF-0289	0	0	0	53	1115	
SU18-07	03-TF-0289	0	2.3	0	42	1124	
SU18-08	03-TF-0289	0	3.2	2.66	15	1062	
SU18-09	03-TF-0289	0	3.3	0	19	1062	
SU18-10	03-TF-0289	1.7	3.1	0	34	1045	
SU18-11	03-TF-0289	0	2	0	30	1036	
SU18-12	03-TF-0289	0	0.9	0	23	1301	
SU18-13	03-TF-0289	1.8	1.4	0	8	1107	
SU18-14	03-TF-0289	0	0	0.55	19	1275	
SU18-15	03-TF-0289	0	0	9.39	42	1142	
SU18-16	03-TF-0289	0	0	0	46	1443	
SU18-17	03-TF-0289	0	1.6	0	38	1301	
SU18-18	03-TF-0289	0	0	0	27	1213	
SU18-19	03-TF-0289	1.7	0	0	30	1089	
SU18-20	03-TF-0289	0	0.5	0	15	1239	
SU19 -01	03-TF-0291	0	0	0	15	1053	<75
SU19 -02	03-TF-0291	0	2.1	0	19	1213	
SU19 -03	03-TF-0291	0	0	0	19	1133	
SU19 -04	03-TF-0291	0	0.9	0	49	1124	
SU19 -05	03-TF-0291	0	0.3	0	11	1213	
SU19 -06	03-TF-0291	1.9	0	0	30	1346	
SU19 -07	03-TF-0291	1.7	0	0	34	1337	
SU19 -08	03-TF-0291	0	0.2	0	46	1151	
SU19 -09	03-TF-0291	0	0	0	38	1257	
SU19 -10	03-TF-0291	1.8	0	0	42	1045	
SU19 -11	03-TF-0291	0	2.9	0	38	1239	
SU19 -12	03-TF-0291	0	1.6	0	49	1257	
SU19 -13	03-TF-0291	0	0.8	0	46	1354	
SU19 -14	03-TF-0291	0	1.1	0	15	1133	
SU19 -15	03-TF-0291	0	4.8	0	27	1195	
SU19 -16	03-TF-0291	0	2	0	38	1452	
SU19 -17	03-TF-0291	1.7	0	0	42	1169	
SU19 -18	03-TF-0291	0	2.1	0	42	992	
SU19 -19	03-TF-0291	0	2	0	57	1354	
SU19 -20	03-TF-0291	0	0	0	11	1107	
SU20 -01	03-TF-0288	0	0	0	14	1193	<75
SU20 -02	03-TF-0288	0	0	0	21	1329	
SU20 -03	03-TF-0288	0	0	0	17	946	
SU20 -04	03-TF-0288	0	0	0	17	1065	
SU20 -05	03-TF-0288	1.44	0	0	17	861	
SU20 -06	03-TF-0288	0	0	0	21	1099	
SU20 -07	03-TF-0288	0	0.58	0	17	1176	
SU20 -08	03-TF-0288	0	0.58	0	10	1218	
SU20 -09	03-TF-0288	0	0	0	28	980	
SU20 -10	03-TF-0288	3.48	0	0	21	937	
SU20 -11	03-TF-0288	0	0	0	14	895	
SU20 -12	03-TF-0288	0	0	0	17	1048	

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Building 50 Survey and Sample Data
Enclosure 1

Location	RSDS#	α	β	H^3	α	β	a Scan
SU20 -13	03-TF-0288	1.45	0	0	21	912	
SU20 -14	03-TF-0288	0	0.58	0	7	1184	
SU20 -15	03-TF-0288	0	0	0	24	980	
SU20 -16	03-TF-0288	0	0	0	17	1167	
SU20 -17	03-TF-0288	0	0	0	7	1176	
SU20 -18	03-TF-0288	0	4.51	0	3	980	
SU20 -19	03-TF-0288	3.48	0.24	0	10	1287	
SU20 -20	03-TF-0288	0	1.89	0	21	1031	
SU21 -01	03-TF-0288	1.44	0	0	7	1091	<75
SU21 -02	03-TF-0288	0	0.58	0	21	954	
SU21 -03	03-TF-0288	0	1.89	0	10	1022	
SU21 -04	03-TF-0288	0	0	0	14	1278	
SU21 -05	03-TF-0288	0	0	0	10	1014	
SU21 -06	03-TF-0288	1.44	0.41	0	14	1235	
SU21 -07	03-TF-0288	0	0.58	0	7	1235	
SU21 -08	03-TF-0288	0	0	0	28	1193	
SU21 -09	03-TF-0288	0	0	0	24	1193	
SU21 -10	03-TF-0288	0	0	0	14	1091	
SU21 -11	03-TF-0288	0	3.2	0	14	1278	
SU21 -12	03-TF-0288	0	0	0	7	946	
SU21 -13	03-TF-0288	1.44	0.41	0	21	1465	
SU21 -14	03-TF-0288	0	0	4.71	10	1338	
SU21 -15	03-TF-0288	1.44	0	0	14	1048	
SU21 -16	03-TF-0288	3.48	0	0	21	1133	
SU21 -17	03-TF-0288	0	0	0	7	1108	
SU21 -18	03-TF-0288	0	0.58	0	10	954	
SU21 -19	03-TF-0288	1.44	1.72	0	10	1227	
SU21 -20	03-TF-0288	0	1.89	0	14	1295	
SU22-01	03-TF-0290	0	0	8.09	7	1116	<75
SU22-02	03-TF-0290	0	4.5	8.39	17	1261	
SU22-03	03-TF-0290	0	5.6	0	24	1414	
SU22-04	03-TF-0290	0	0	0	17	1150	
SU22-05	03-TF-0290	0	5.5	8.02	24	1082	
SU22-06	03-TF-0290	0	0.5	0	24	1227	
SU22-07	03-TF-0290	1.7	0	0	21	1321	
SU22-08	03-TF-0290	0	0	0	31	1252	
SU22-09	03-TF-0290	1.8	0	0	10	1116	
SU22-10	03-TF-0290	1.8	0	0	14	929	
SU22-11	03-TF-0290	0	0	0	7	1252	
SU22-12	03-TF-0290	0	0	0	31	1142	
SU22-13	03-TF-0290	0	0	11.44	24	1099	
SU22-14	03-TF-0290	0	0	0	3	1159	
SU22-15	03-TF-0290	0	0	0	14	1321	
SU22-16	03-TF-0290	0	0	0	14	1167	
SU22-17	03-TF-0290	0	0	0	14	1167	
SU22-18	03-TF-0290	0	0	0	10	1031	
SU22-19	03-TF-0290	0	0	0.99	14	1133	
SU22-20	03-TF-0290	0	0.9	14.37	10	1201	
SU23-01	03-TF-0290	0	1.6	0	7	1031	<75

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Location	RSDS#	a	b	H^3	a	b	Scan	
SU23-02	03-TF-0290	0	1.8	0	21	1005		
SU23-03	03-TF-0290	1.7	0	0	17	1150		
SU23-04	03-TF-0290	0	0.2	9.23	14	750		
SU23-05	03-TF-0290	1.8	0	0	17	1227		
SU23-06	03-TF-0290	1.8	1.6	0	7	1235		
SU23-07	03-TF-0290	0	4.1	0	21	792		
SU23-08	03-TF-0290	0	0	2.9	14	1227		
SU23-09	03-TF-0290	1.7	1.9	0	7	1082		
SU23-10	03-TF-0290	0	1.1	0	24	852		
SU23-11	03-TF-0290	1.7	2.2	0	21	1244		
SU23-12	03-TF-0290	0	0	26.26	10	1039		
SU23-13	03-TF-0290	1.7	1.9	0	48	1167		
SU23-14	03-TF-0290	0	5.7	0	41	963		
SU23-15	03-TF-0290	0	0	2.77	7	1193		
SU23-16	03-TF-0290	0	1	0	38	980		
SU23-17	03-TF-0290	0	5.5	7.17	24	1329		
SU23-18	03-TF-0290	0	0.5	0	10	1201		
SU23-19	03-TF-0290	0	0	0	24	835		
SU23-20	03-TF-0290	0	2.7	1.8	3	1125		
SU24-01	03-TF-0291	0	4.2	0	38	1160	<75	
SU24-02	03-TF-0291	0	0.5	0	30	1381		
SU24-03	03-TF-0291	0	0	0	19	1231		
SU24-04	03-TF-0291	0	2.7	0	19	1053		
SU24-05	03-TF-0291	0	2.8	0	38	1062		
SU24-06	03-TF-0291	0	0	0	27	1177		
SU24-07	03-TF-0291	0	1.7	0	15	1142		
SU24-08	03-TF-0291	1.6	0	0	34	1177		
SU24-09	03-TF-0291	0	0	0	53	1151		
SU24-10	03-TF-0291	0	0	0	19	1036		
SU24-11	03-TF-0291	0	1.1	0	38	1213		
SU24-12	03-TF-0291	0	0.8	0	38	1133		
SU24-13	03-TF-0291	0	2	0	15	1089		
SU24-14	03-TF-0291	0	2.1	0	27	1142		
SU24-15	03-TF-0291	0	0.9	0	30	1328		
SU24-16	03-TF-0291	0	3.2	0	23	1186		
SU24-17	03-TF-0291	0	1.6	0	15	1098		
SU24-18	03-TF-0291	0	0.5	0	15	1231		
SU24-19	03-TF-0291	0	0	0	42	1089		
SU24-20	03-TF-0291	0	0	9.83	30	1310		
SU25-01	03-TF-0290	1.7	3.1	0	28	1397	<75	
SU25-02	03-TF-0290	0	1.1	0	7	1602		
SU25-03	03-TF-0290	0	0	0	3	1397		
SU25-04	03-TF-0290	0	0	0	7	1201		
SU25-05	03-TF-0290	0	0.8	0	0	1338		
SU25-06	03-TF-0290	0	0	0	24	1227		
SU25-07	03-TF-0290	0	0	0	14	1278		
SU25-08	03-TF-0290	0	2	0	14	1082		
SU25-09	03-TF-0290	0	5.5	0	14	1176		
SU25-10	03-TF-0290	1.9	0	5.46	3	1201		
SU25-11	03-TF-0290	1.7	0	0	28	929		

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Building 50 Survey and Sample Data
Enclosure 1

Location	RSDS#	α	β	H^3	α	β	a Scan
SU25-12	03-TF-0290	0	0	10.7	10	1423	
SU25-13	03-TF-0290	0	0.4	0	7	1218	
SU25-14	03-TF-0290	0	0.5	1.82	24	1167	
SU25-15	03-TF-0290	0	0	0	17	1295	
SU25-16	03-TF-0290	0	0	2.73	66	2956	
SU25-17	03-TF-0290	0	2	9.91	83	2982	
SU25-18	03-TF-0290	0	0	0	24	1201	
SU25-19	03-TF-0290	0	1.1	2.7	10	1363	
SU25-20	03-TF-0290	3.4	0.5	0	21	1338	
SU26 -01	03-TF-0291	0	0.4	0	42	983	
SU26 -02	03-TF-0291	1.8	1.6	0	23	1177	
SU26 -03	03-TF-0291	0	0	0	27	1231	
SU26 -04	03-TF-0291	0	2.8	0	19	1151	
SU26 -05	03-TF-0291	0	2	0	19	1062	
SU26 -06	03-TF-0291	1.8	0.9	0	23	1089	
SU26 -07	03-TF-0291	0	1.1	0	30	1177	
SU26 -08	03-TF-0291	0	2	0	34	1089	
SU26 -09	03-TF-0291	0	2	0	11	1222	
SU26 -10	03-TF-0291	0	2.1	0	11	956	
SU26 -11	03-TF-0291	0	0	0	53	1222	
SU26 -12	03-TF-0291	0	0	0	11	1319	
SU26 -13	03-TF-0291	0	0	0	27	1301	
SU26 -14	03-TF-0291	0	0	0	27	1142	
SU26 -15	03-TF-0291	0	0	0	30	1239	
SU26 -16	03-TF-0291	0	0	0	8	1337	
SU26 -17	03-TF-0291	0	0	0	30	1293	
SU26 -18	03-TF-0291	0	2.9	0	19	1160	
SU26 -19	03-TF-0291	0	4.1	0	19	1213	
SU26 -20	03-TF-0291	0	1.6	0	34	1169	
SU27 -01	03-TF-0291	1.7	0.6	0	27	1523	<75
SU27 -02	03-TF-0291	0	1.1	0	15	1496	
SU27 -03	03-TF-0291	0	6	0	38	1700	
SU27 -04	03-TF-0291	0	0	0	42	1452	
SU27 -05	03-TF-0291	0	3.3	0	27	1537	
SU27 -06	03-TF-0291	0	2.1	0	38	1496	
SU27 -07	03-TF-0291	0	0	0	53	1532	
SU27 -08	03-TF-0291	0	0	0	19	1337	
SU27 -09	03-TF-0291	0	0	0	49	1549	
SU27 -10	03-TF-0291	0	1.8	0	42	1133	
SU27 -11	03-TF-0291	0	2.5	0	23	1416	
SU27 -12	03-TF-0291	0	0	0	34	1487	
SU27 -13	03-TF-0291	0	0.4	0	34	1186	
SU27 -14	03-TF-0291	0	4.1	0	15	1337	
SU27 -15	03-TF-0291	0	0	0	38	1248	
SU27 -16	03-TF-0291	1.6	0	0	23	1567	
SU27 -17	03-TF-0291	0	0	0	53	1726	
SU27 -18	03-TF-0291	0	0	0	42	1496	
SU27 -19	03-TF-0291	0	1.1	0	53	1567	
SU27 -20	03-TF-0291	0	2	0	46	1726	
SU28 -01	03-TF-0294	1.8	1.5	0	30	1717	<75

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Location	RSDS#	a	b	H^3	a	b	a Scan
SU28 -02	03-TF-0294	0	1.7	0	19	1673	
SU28 -03	03-TF-0294	0	0	0	30	1647	
SU28 -04	03-TF-0294	0	0.5	0	42	1514	
SU28 -05	03-TF-0294	0	0	0	42	1523	
SU28 -06	03-TF-0294	0	5.9	0	34	1762	
SU28 -07	03-TF-0294	0	0	0	46	1567	
SU28 -08	03-TF-0294	0	2	0	38	1487	
SU28 -09	03-TF-0294	1.7	3.1	0	30	1664	
SU28 -10	03-TF-0294	1.7	0	0	38	1478	
SU28 -11	03-TF-0294	0	0	0	49	1700	
SU28 -12	03-TF-0294	0	0	0	42	1416	
SU28 -13	03-TF-0294	1.8	0.1	0	61	1939	
SU28 -14	03-TF-0294	0	0	0	49	1372	
SU28 -15	03-TF-0294	1.7	0	0	49	1532	
SU28 -16	03-TF-0294	0	0	0	57	1629	
SU28 -17	03-TF-0294	0	0.4	0	57	1514	
SU28 -18	03-TF-0294	0	0	0	38	1434	
SU28 -19	03-TF-0294	0	0	0	38	1540	
SU28 -20							
SU29-01	03-TF-0294	0	1.6	0	34	1691	<75
SU29-02	03-TF-0294	0	0.8	0	57	1788	
SU29-03	03-TF-0294	0	1.1	0	42	1478	
SU29-04	03-TF-0294	0	0	0	19	1434	
SU29-05	03-TF-0294	0	2	0	34	1558	
SU29-06	03-TF-0294	0	0.8	0	38	1717	
SU29-07	03-TF-0294	0	0	0	34	1549	
SU29-08	03-TF-0294	0	0	0	34	1540	
SU29-09	03-TF-0294	0	3.2	0	34	1461	
SU29-10	03-TF-0294	1.6	1.6	0	30	1771	
SU29-11	03-TF-0294	0	0.5	0	23	1691	
SU29-12	03-TF-0294	0	0	0	38	1426	
SU29-13	03-TF-0294	0	0	0	23	1310	
SU29-14	03-TF-0294	0	0.4	0	38	1301	
SU29-15	03-TF-0294	0	0	0	27	1372	
SU29-16	03-TF-0294	0	5.3	0	23	1629	
SU29-17	03-TF-0294	0	0	0	11	1346	
SU29-18	03-TF-0294	0	0	0	4	1655	
SU29-19	03-TF-0294	0	1.1	0	30	1549	
SU29-20	03-TF-0294	0	0	0	34	1655	
SU30-01	03-TF-0293	1.7	0.6	0	41	2513	<75
SU30-02	03-TF-0293	1.8	0	0	31	2548	
SU30-03	03-TF-0293	0	1.1	0	24	1738	
SU30-04	03-TF-0293	0	0	0	14	1670	
SU30-05	03-TF-0293	0	0	0	21	2352	
SU30-06	03-TF-0293	0	0	0	24	1445	
SU30-07	03-TF-0293	0	0	0	14	1627	
SU30-08	03-TF-0293	0	0	0	21	1653	
SU30-09	03-TF-0293	0	0	0	28	1678	
SU30-10	03-TF-0293	0	1.8	0	17	1568	
SU30-11	03-TF-0293	0	0	0	17	1508	

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Building 50 Survey and Sample Data
Enclosure 1

Location	RSDS#	α	β	H^3	α	β	a Scan
SU30-12	03-TF-0293	0	1.4	0	24	1661	
SU30-13	03-TF-0293	1.8	0	0	17	1517	
SU30-14	03-TF-0293	0	2.9	0	28	1534	
SU30-15	03-TF-0293	0	0.6	0	10	1687	
SU30-16	03-TF-0293	0	0.5	0	7	1649	
SU30-17	03-TF-0293	1.7	0.6	0	14	1483	
SU30-18	03-TF-0293	1.8	0	0	3	1644	
SU30-19	03-TF-0293	0	0	0	21	1943	
SU30-20	03-TF-0293	0	0	0	14	1542	
SU31-01	03-TF-0294	0	0	0	38	1487	<75
SU31-02	03-TF-0294	0	0	0	27	1213	
SU31-03	03-TF-0294	1.6	0	0	30	1107	
SU31-04	03-TF-0294	0	0	0	46	1709	
SU31-05	03-TF-0294	0	1.6	0	46	1310	
SU31-06	03-TF-0294	0	0	0	30	1514	
SU31-07	03-TF-0294	0	0	0	34	1416	
SU31-08	03-TF-0294	0	0	0	61	1381	
SU31-09	03-TF-0294	0	0.4	0	11	1390	
SU31-10	03-TF-0294	0	0	0	27	1371	
SU31-11	03-TF-0294	0	0.6	0	53	1372	
SU31-12	03-TF-0294	1.6	1.5	0	38	1133	
SU31-13	03-TF-0294	0	0	0	27	1425	
SU31-14	03-TF-0294	1.8	0.9	0	30	1027	
SU31-15	03-TF-0294	0	0	0	42	1293	
SU31-16	03-TF-0294	0	0	0	46	1620	
SU31-17	03-TF-0294	0	0.8	0	30	1461	
SU31-18	03-TF-0294	0	2.1	0	27	1293	
SU31-19	03-TF-0294	0	0.9	0	30	930	
SU31-20	03-TF-0294	0	0	0	27	921	
SU32-01	03-TF-0294	0	5.5	0	57	1416	<75
SU32-02	03-TF-0294	0	0	0	23	1452	
SU32-03	03-TF-0294	0	0	0	46	1478	
SU32-04	03-TF-0294	0	0.2	0	46	1266	
SU32-05	03-TF-0294	0	0	0	38	1169	
SU32-06	03-TF-0294	0	0.5	0	65	1408	
SU32-07	03-TF-0294	0	0	0	30	1487	
SU32-08	03-TF-0294	0	2.8	0	38	1381	
SU32-09	03-TF-0294	0	0.8	0	30	1408	
SU32-10	03-TF-0294	0	0	0	23	1328	
SU32-11	03-TF-0294	0	0	0	30	1239	
SU32-12	03-TF-0294	1.5	0.7	0	23	1301	
SU32-13	03-TF-0294	0	3.3	0	30	1275	
SU32-14	03-TF-0294	0	0	0	27	1248	
SU32-15	03-TF-0294	0	0	0	57	1416	
SU32-16	03-TF-0294	0	0	0	8	1071	
SU32-17	03-TF-0294	0	0	0	30	1284	
SU32-18	03-TF-0294	0	3.1	0	46	1585	
SU32-19	03-TF-0294	0	0	0	46	1744	
SU32-20	03-TF-0294	3.5	3.6	0	34	1381	
SU33 -01	03-TF-0293	0	0	0	17	1261	<75

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Building 50 Survey and Sample Data
Enclosure 1

Location	RSDS#	α	β	H^3	α	β	a Scan
SU33 -02	03-TF-0293	0	0	0	10	1184	
SU33 -03	03-TF-0293	0	0.6	0	7	1031	
SU33 -04	03-TF-0293	0	0.5	0	21	1329	
SU33 -05	03-TF-0293	0	0.8	0	38	1389	
SU33 -06	03-TF-0293	0	0	0	17	1184	
SU33 -07	03-TF-0293	1.7	1	0	21	1159	
SU33 -08	03-TF-0293	0	0	0	24	1389	
SU33 -09	03-TF-0293	0	0.8	0	17	1176	
SU33 -10	03-TF-0293	0	0.9	0	14	1184	
SU33 -11	03-TF-0293	0	0	0	17	1295	
SU33 -12	03-TF-0293	0	0.9	0	35	801	
SU33 -13	03-TF-0293	0	0	0	21	1355	
SU33 -14	03-TF-0293	0	0.5	0	28	1312	
SU33 -15	03-TF-0293	1.7	0	0	28	1372	
SU33 -16	03-TF-0293	0	1.4	0	17	1355	
SU33 -17	03-TF-0293	0	0.4	0	10	1108	
SU33 -18	03-TF-0293	0	1.7	0	24	1312	
SU33 -19	03-TF-0293	0	0.6	0	28	1022	
SU33 -20	03-TF-0293	0	0	0	21	1184	
SU34 -01	03-TF-0293	0	0	0	14	1218	<75
SU34 -02	03-TF-0293	0	0	0	17	1304	
SU34 -03	03-TF-0293	0	0	0	14	1116	
SU34 -04	03-TF-0293	1.6	0.1	0	14	1278	
SU34 -05	03-TF-0293	0	0	0	10	1295	
SU34 -06	03-TF-0293	0	0	0	10	1227	
SU34 -07	03-TF-0293	0	0	0	31	1167	
SU34 -08	03-TF-0293	0	0	0	28	1500	
SU34 -09	03-TF-0293	0	0	0	10	1423	
SU34 -10	03-TF-0293	1.8	0	0	10	1133	
SU34 -11	03-TF-0293	0	0	0	3	1372	
SU34 -12	03-TF-0293	0	0	0	35	1431	
SU34 -13	03-TF-0293	0	2	0	17	1210	
SU34 -14	03-TF-0293	0	0	0	14	1423	
SU34 -15	03-TF-0293	0	0	0	24	1500	
SU34 -16	03-TF-0293	0	0	0	38	1193	
SU34 -17	03-TF-0293	1.8	1.4	0	10	1150	
SU34 -18	03-TF-0293	0	0	0	7	1355	
SU34 -19	03-TF-0293	0	0	0	17	1517	
SU34 -20	03-TF-0293	0	1.4	0	17	1270	
SU35 -01	03-TF-0293	0	0.8	0	10	1176	<75
SU35 -02	03-TF-0293	0	2.1	0	10	1116	
SU35 -03	03-TF-0293	0	0.9	0	17	1329	
SU35 -04	03-TF-0293	0	0.9	0	14	1355	
SU35 -05	03-TF-0293	0	2.9	0	83	2658	
SU35 -06	03-TF-0293	1.9	1.7	0	14	1338	
SU35 -07	03-TF-0293	1.7	0	0	55	3016	
SU35 -08	03-TF-0293	0	0	0	90	3008	
SU35 -09	03-TF-0293	0	0.4	0	97	3127	
SU35 -10	03-TF-0293	1.8	1.6	0	97	2846	
SU35 -11	03-TF-0293	0	0	0	66	2871	

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Building 50 Survey and Sample Data
Enclosure 1

Location	RSDS#	α	β	H^3	α	β	a Scan
SU35 -12	03-TF-0293	1.6	0	0	90	2874	
SU35 -13	03-TF-0293	0	0	0	14	1312	
SU35 -14	03-TF-0293	1.8	5.8	0	83	2390	
SU35 -15	03-TF-0293	0	1.1	0	24	937	
SU35 -16	03-TF-0293	0	2	0	17	869	
SU35 -17	03-TF-0293	0	0.8	0	83	2786	
SU35 -18	03-TF-0293	0	0	0	0	1184	
SU35 -19	03-TF-0293	0	0	0	7	1287	
SU35 -20	03-TF-0293	0	2	0	14	1312	
SU36 -01	03-TF-0283	1.7	6.7		87	1222	
SU36 -02	03-TF-0283	1.7	0		27	1080	
SU36 -03	03-TF-0283	0	2		49	1045	
SU36 -04	03-TF-0283	0	3.2		23	1257	
SU36 -05	03-TF-0283	1.8	5.3		84	1045	
SU36 -06	03-TF-0283	1.9	0		53	965	
SU36 -07	03-TF-0283	1.7	0		46	868	
SU36 -08	03-TF-0283	3.5	1.1		68	938	
SU36 -09	03-TF-0283	0	0.4		53	1107	
SU36 -10	03-TF-0283	0	1.7		87	956	
SU36 -11	03-TF-0283	0	0.6		23	1266	
SU36 -12	03-TF-0283	0	3.9		46	1071	
SU36 -13	03-TF-0283	0	0		23	1000	
SU36 -14	03-TF-0283	0	0		15	1000	
SU36 -15	03-TF-0283	0	1.1		42	1239	
SU36 -16	03-TF-0283	0	0		46	1151	
SU36 -17	03-TF-0283	0	0.8		87	1213	
SU36 -18	03-TF-0283	0	2.1		38	1248	
SU36 -19	03-TF-0283	0	0		65	1071	
SU36 -20	03-TF-0283	1.7	0		42	1027	
SU36 -21	03-TF-0283	0	4.2		80	1478	
SU36 -22	03-TF-0283	1.9	1.7		76	1239	
SU36 -23	03-TF-0283	0	2.5		79	1593	
SU36 -24	03-TF-0283	0	2.7		76	1755	
SU36 -25	03-TF-0283	0	4.1		59	1559	
SU36 -26	03-TF-0283	0	1.7		84	1620	
SU36 -27	03-TF-0283	0	0		57	1647	
SU36 -28	03-TF-0283	0	0		76	1496	
SU37 -01	03-TF-0267	10.92	12.92		40	300	
SU37 -02	03-TF-0267	4.36	10.65		55	230	
SU37 -03	03-TF-0267	2.19	1.21		70	183	
SU37 -04	03-TF-0267	8.75	0.75		65	158	
SU37 -05	03-TF-0267	2.19	1.21		25	198	
SU37 -06	03-TF-0267	0	1.37		25	135	
SU37 -07	03-TF-0267	2.18	5.32		60	70	
SU37 -08	03-TF-0267	0	1.37		45	100	
SU37 -09	03-TF-0267	0	0		40	148	
SU37 -10	03-TF-0267	2.19	0		55	118	
SU37 -11	03-TF-0267	0	5.48		50	250	
SU37 -12	03-TF-0267	0	2.74		65	290	
SU37 -13	03-TF-0267	4.37	0		60	175	

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Building 50 Survey and Sample Data
Enclosure 1

Location	RSDS#	α	β	H^3	α	β	a Scan
SU37 -14	03-TF-0267	0	1.37		45	155	
SU37 -15	03-TF-0267	2.19	1.21		45	165	
SU37 -16	03-TF-0267	4.37	1.06		75	100	
SU37 -17	03-TF-0267	1.19	1.21		30	183	
SU37 -18	03-TF-0267	4.37	5.17		50	133	
SU37 -19	03-TF-0267	0	2.74		20	248	
SU37 -20	03-TF-0267	2.19	1.21		80	318	

		α	β	H^3	α	β	
	Average	0.476806	0.999702	6.390507	27.23545	1350.844	
	Standard De	1.050917	1.632256	134.938	16.96102	416.0177	
SU's	Max	10.92	14.51	3529.08	97	3229	
	#	739	739	691	739	739	3647
	+/-	0.075771	0.117685	10.06124	1.222886	29.99478	

Instrument Data

	Inst	SN	CDD	RSDS	α Bkg (cpm)	β Bkg (cpm)	
1	L2360	5833/5847	3/13/04	0267	1	116	✓
2	L2350	5855	6/18/04	0283	2.2	60	✓
3	L2360	5857	9/9/04	0284	2.8	123	✓
4	L2350	5857	9/9/04	0285	1.6	155	✓
5	L2350	5857	9/9/04	0287	1.6	129	✓
6	L2350	5857	9/9/04	0288	2.2	117	✓
7	L2350	5855	6/18/04	0289	2	109	✓
8	L2350	5857	9/9/04	0290	2.2	165	✓
9	L2350	5855	6/18/04	0291	4	140	✓
10	L2360	5833/5847	3/13/04	0292	1	112	✓
11	L2350	5857	9/9/04	0293	1	137	✓
12	L2350	5855	6/18/04	0294	4.6	133	✓
13	L2360	5833/5847	3/13/04	0295	1	112	✓
14	L2350	5857/5675	9/9/04	0296	3		✓
15	L2350	5855	6/18/04	0297	3	136	✓
16	L2350	5857/5859	9/9/04	0298	1		✓
17	L2350	5855/5864	6/18/04	0298	2		✓
18	L2360	5833/5847	3/13/04	0303			✓
19	L2350	5857	9/9/04	0331	1.8	138	✓
					2.3	129	
					17.15488	130.1153	

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Building 50 Survey and Sample Data
Enclosure 1

	Smearable dpm/100cm^2			Fixed dpm/100cm^2	
		Survey Unit 1			
	α	β	H^3	α	β
Number	20	20	20	20	20
Avg	0.34	1.06	0	23.1	1656.75
SD	0.6984193	1.817865	0	9.673077	437.9068
Max	1.8	8.1	0	41	2599
+/-	0.3060957	0.796714	0	4.239413	191.9211
		Survey Unit 2			
Number	20	20	20	20	20
Avg	0.355	1.135	15.733	34.1	2077.25
SD	0.7294374	1.688748	59.63718	18.9928	680.3068
Max	1.9	5.6	265.73	83	3229
+/-	0.31969	0.740126	26.13715	8.32396	298.1576
		Survey Unit 3			
Number	20	20	20	20	20
Avg	0.61	0.7	0	22.75	1421.65
SD	1.0442323	1.058301	0	14.33022	239.5011
Max	3.7	3.9	0	59	1823
+/-	0.457655	0.463821	0	6.280497	104.966
		Survey Unit 4			
Number	18	18	18	18	18
Avg	0.3944444	1.477778	0.575	21.88889	1468.389
SD	1.0026273	2.691283	2.029272	10.12213	267.7822
Max	3.8	10.6	8.63	45	1960
+/-	0.4631902	1.24331	0.937476	4.676185	123.7091
		Survey Unit 5			
Number	20	20	20	20	20
Avg	0.455	1.09	11.983	23.35	1275.85
SD	1.1829824	1.236676	53.58961	5.018649	153.3229
Max	3.9	3.6	239.66	31	1670
+/-	0.5184649	0.541997	23.48668	2.19952	67.19674
		Survey Unit 6			
Number	20	20	20	20	20
Avg	0.26	1.1	0.039	26.6	1657.25
SD	0.6352786	1.043274	0.174413	9.511212	196.2533
Max	1.8	2.9	0.78	41	1985
+/-	0.2784231	0.457235	0.07644	4.168473	86.0118
		Survey Unit 7			
Number	17	17	17	17	17
Avg	0.4941176	0.982353	0	20.88235	1515.588
SD	0.9933973	1.570126	0	8.752731	256.2345
Max	3.4	6.2	0	45	1968
+/-	0.4722311	0.74639	0	4.160784	121.8062

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Building 50 Survey and Sample Data
Enclosure 1

	Smearable dpm/100cm^2			Fixed dpm/100cm^2	
		Survey Unit 8			
	α	β	H^3	α	β
Number	20	20	20	20	20
Avg	0.435	1.18	0	18.35	1456.5
SD	0.9810172	1.61493	0	9.189668	202.0694
Max	3.7	5.1	0	38	1721
+/-	0.4299497	0.707774	0	4.02755	88.56083
		Survey Unit 9			
Number	20	20	20	20	20
Avg	0.708	0.6775	0	14	1138.3
SD	1.3156291	1.057424	0	8.05246	164.9737
Max	5.52	3.2	0	38	1517
+/-	0.5765999	0.463437	0	3.529146	72.30292
		Survey Unit 10			
Number	20	20	20	20	20
Avg	0.81	0.8315	0	17.3	1149.4
SD	1.2876662	1.581735	0	9.188666	112.2855
Max	3.48	5.86	0	35	1321
+/-	0.5643446	0.693226	0	4.02711	49.21131
		Survey Unit 11			
Number	20	20	20	20	20
Avg	0.922	1.661	0	24.1	1170.2
SD	1.2931463	3.629519	0	9.80816	242.324
Max	5.49	14.51	0	45	1576
+/-	0.5667464	1.590707	0	4.298616	106.2032
		Survey Unit 12			
Number	20	20	20	20	20
Avg	0.43	0.67	0	20.25	1425.55
SD	0.9437328	1.123013	0	16.31556	332.0235
Max	3.4	4.3	0	77	2190
+/-	0.4136091	0.492182	0	7.150608	145.5157
		Survey Unit 13			
Number	20	20	20	20	20
Avg	0.577	0.39	0.3545	20.1	1411.4
SD	0.7250416	1.05375	1.585372	9.08382	109.026
Max	1.45	4.51	7.09	45	1576
+/-	0.3177635	0.461826	0.69482	3.98116	47.78276

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Building 50 Survey and Sample Data
Enclosure 1

	Smearable dpm/100cm^2			Fixed dpm/100cm^2	
	α	β	H^3	α	β
		Survey Unit 14			
Number	20	20	20	20	20
Avg	0.7375	0.901	0	21.15	1491.75
SD	1.4488975	1.072606	0	7.988643	133.2974
Max	5.51	4.01	0	35	1713
+/-	0.6350073	0.47009	0	3.501177	58.42016
		Survey Unit 15			
Number	17	17	17	17	17
Avg	0.6282353	0.99	208.5194	58.875	2015.294
SD	0.9927502	1.33803	855.6932	25.50261	215.1984
Max	3.48	4.51	3529.08	117	2300
+/-	0.4719235	0.636059	406.7707	12.12317	102.2988
		Survey Unit 16			
Number	20	20	20	20	20
Avg	0.165	0.77	6.494	29	1149.1
SD	0.5081183	0.942058	15.49424	11.85882	155.8454
Max	1.7	2.9	61.77	49	1514
+/-	0.2226927	0.412875	6.790648	5.197356	68.30224
		Survey Unit 17			
Number	20	20	20	20	20
Avg	0.44	1.145	0.335	29.55	1144.65
SD	0.78432	2.010885	1.189832	7.877182	126.3522
Max	1.9	8.1	5.18	42	1363
+/-	0.3437434	0.881309	0.521467	3.452327	55.37628
		Survey Unit 18			
Number	20	20	20	20	20
Avg	0.345	1.02	0.63	28.5	1183.15
SD	0.7082038	1.210741	2.147363	11.71818	123.0718
Max	1.8	3.3	9.39	53	1443
+/-	0.310384	0.530631	0.941123	5.13572	53.93858
		Survey Unit 19			
Number	20	20	20	20	20
Avg	0.355	1.04	0	33.4	1206.2
SD	0.7294374	1.297528	0	14.13246	120.1528
Max	1.9	4.8	0	57	1452
+/-	0.31969	0.568667	0	6.193822	52.65929
		Survey Unit 20			
Number	20	20	20	20	20
Avg	0.4925	0.419	0	16.2	1073.2
SD	1.1132167	1.06296	0	6.279457	136.7636
Max	3.48	4.51	0	28	1329
+/-	0.4878887	0.465863	0	2.752093	59.93928

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Building 50 Survey and Sample Data
Enclosure 1

	Smearable dpm/100cm^2			Fixed dpm/100cm^2	
	α	β	H^3	α	β
		Survey Unit 21			
Number	20	20	20	20	20
Avg	0.534	0.563	0.2355	13.85	1154.9
SD	0.9396326	0.898789	1.053188	6.149668	142.2943
Max	3.48	3.2	4.71	28	1465
+/-	0.4118122	0.393912	0.46158	2.695211	62.36324
		Survey Unit 22			
	Smearable			Fixed	
Number	20	20	20	20	20
Avg	0.265	0.85	2.565	16.5	1177
SD	0.647485	1.898337	4.627872	7.90403	109.7384
Max	1.8	5.6	14.37	31	1414
+/-	0.2837728	0.831983	2.028254	3.464094	48.09499
		Survey Unit 23			
Number	20	20	20	20	20
Avg	0.52	1.59	2.5065	18.75	1071.35
SD	0.8153785	1.76513	6.155278	12.19092	167.6149
Max	1.8	5.7	26.26	48	1329
+/-	0.3573554	0.773602	2.697669	5.342904	73.46048
		Survey Unit 24			
Number	20	20	20	20	20
Avg	0.08	1.205	0.4915	28.25	1169.45
SD	0.3577709	1.277116	2.198055	10.79413	92.83175
Max	1.6	4.2	9.83	53	1381
+/-	0.1568	0.559721	0.96334	4.730734	40.68531
		Survey Unit 25			
Number	20	20	20	20	20
Avg	0.435	0.85	1.666	20.2	1438.55
SD	0.9504985	1.397931	3.285165	20.60046	541.9138
Max	3.4	5.5	10.7	83	2982
+/-	0.4165743	0.61267	1.439787	9.02855	237.5042
		Survey Unit 26			
Number	20	20	20	20	20
Avg	0.18	1.175	0	24.85	1176.6
SD	0.5540283	1.238792	0	11.12264	103.655
Max	1.8	4.1	0	53	1337
+/-	0.2428136	0.542924	0	4.874713	45.4288
		Survey Unit 27			
Number	20	20	20	20	20
Avg	0.165	1.25	0	35.55	1475.55
SD	0.5081183	1.674735	0	12.42017	162.8692
Max	1.7	6	0	53	1726
+/-	0.2226927	0.733985	0	5.443378	71.38056

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Building 50 Survey and Sample Data
Enclosure 1

	Smearable dpm/100cm^2			Fixed dpm/100cm^2	
	α	β	H^3	α	β
		Survey Unit 28			
Number	19	19	19	19	19
Avg	0.4578947	0.8	0	41.52632	1584.632
SD	0.7876236	1.524248	0	10.69459	138.2278
Max	1.8	5.9	0	61	1939
+/-	0.3541587	0.685386	0	4.808874	62.15478
		Survey Unit 29			
	Smearable			Fixed	
Number	20	20	20	19	20
Avg	0.08	0.92	0	30.15789	1546.05
SD	0.3577709	1.350088	0	11.68695	151.5046
Max	1.6	5.3	0	57	1788
+/-	0.1568	0.591702	0	5.255094	66.3998
		Survey Unit 30			
Number	20	20	20	20	20
Avg	0.44	0.475	0	19.5	1748
SD	0.7823043	0.782624	0	8.78096	331.5315
Max	1.8	2.9	0	41	2548
+/-	0.34286	0.343	0	3.848426	145.3001
		Survey Unit 3 1			
Number	20	20	20	20	20
Avg	0.25	0.44	0	35	1318.65
SD	0.6117275	0.654056	0	11.36013	211.6791
Max	1.8	2.1	0	61	1709
+/-	0.2681014	0.286653	0	4.978798	92.77244
		Survey Unit 32			
Number	20	20	20	20	20
Avg	0.25	1.025	0	36.35	1366.85
SD	0.8350859	1.653664	0	13.92565	148.8465
Max	3.5	5.5	0	65	1744
+/-	0.3659925	0.72475	0	6.103185	65.23487
		Survey Unit 33			
Number	20	20	20	20	20
Avg	0.17	0.505	0	20.75	1220.1
SD	0.523249	0.5145	0	7.999178	149.8529
Max	1.7	1.7	0	38	1389
+/-	0.229324	0.22549	0	3.505794	65.67592
		Survey Unit 34			
Number	20	20	20	20	20
Avg	0.26	0.245	0	17	1304.1
SD	0.6361066	0.595134	0	9.481284	129.237
Max	1.8	2	0	38	1517
+/-	0.278786	0.260829	0	4.155356	56.64061

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Building 50 Survey and Sample Data
Enclosure 1

	Smearable dpm/100cm^2			Fixed dpm/100cm^2	
	α	β	H^3	α	β
		Survey Unit 35			
Number	20	20	20	20	20
Avg	0.44	1.15	0	44.25	1939.55
SD	0.7836487	1.40918	0	37.05739	857.826
Max	1.9	5.8	0	97	3127
+/-	0.3434492	0.617601	0	16.24112	375.9588
		Survey Unit 36			
	α	β	H^3	α	β
Number	28	28	0	28	28
Avg	0.5678571	1.635714	N/A	56.82143	1219.857
SD	0.9668787	1.847564	N/A	22.64387	246.8593
Max	3.5	6.7	N/A	87	1755
+/-	0.3581369	0.684347	N/A	8.387406	91.43798
		Survey Unit 37			
Number	20	20	0	20	20
Avg	2.573	2.8495	N/A	50	182.85
SD	2.9899095	3.499399	N/A	16.93641	70.00321
Max	10.92	12.92	N/A	80	318
+/-	1.3103856	1.533679	N/A	7.422711	30.68026

Resurvey of SU 15 after remediation as Class 1

Location	RSDS#	a	b	H^3	a	b	a Scan
SU15-01	03-TF-0331	0	0	0	52	1602	28
SU15-02	03-TF-0331	0	0	0	21	1414	14
SU15-03	03-TF-0331	0	0.49	0	45	1380	4
SU15-04	03-TF-0331	0	0	0	55	1500	
SU15-05	03-TF-0331	0.66	0	0	79	1551	
SU15-06	03-TF-0331	0	1.56	0	52	1551	
SU15-07	03-TF-0331	1.73	0	0	45	1380	
SU15-08	03-TF-0331	1.16	2.56	0	55	1483	
SU15-09	03-TF-0331	0	0	0	35	1525	
SU15-10	03-TF-0331	0	0	0	76	1781	
SU15-11	03-TF-0331	0	3.14	0	45	1576	
SU15-12	03-TF-0331	0	2.52	0	17	1389	
SU15-13	03-TF-0331	0	0	0	7	1014	
SU15-14	03-TF-0331	0	0	0	41	1252	
SU15-15	03-TF-0331	0	0	0	24	895	
SU15-16	03-TF-0331	0	0	0	59	1602	
SU15-17	03-TF-0331	0	0	0	31	869	
		α	β	H^3	α	β	
	Average	0.2088235	0.604118	0	43.47059	1397.882	
	Standard De	0.5020444	1.096386	0	19.57076	255.5372	
	Max	1.73	3.14	0	79	1781	
	#	17	17	17	17	17	
	+/-	0.2386567	0.521189	0	9.303349	121.4747	

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Replicate Fixed Point QC

		alpha (dpm/100cm2)			beta (dpm/100cm2)		
	Location #	initial	2σ	replicate	initial	2σ	replicate
1	SU5-9	14	7.48	38	1670	81.73	947
2	SU27-13	34	11.66	42	1186	68.88	1593
3	SU33-10	14	7.48	42	1184	68.82	1425
4	SU5-12	21	9.17	23	1252	70.77	1186
5	SU35-18	0	0.00	34	1184	68.82	1346
6	SU7-17	14	7.48	57	1474	76.79	1532
7	SU23-9	7	5.29	49	1082	65.79	1160
8	SU20-1	14	7.48	19	1193	69.08	1496
9	SU26-14	27	10.39	30	1142	67.59	1337
10	SU19-14	15	7.75	38	1133	67.32	1257
11	SU34-6	10	6.32	46	1227	70.06	1310
12	SU5-4	24	9.80	38	1159	68.09	1027
13	SU2-2	24	9.80	23	1287	71.75	1186
14	SU14-11	31	11.14	27	1210	69.57	1443
15	SU19-2	19	8.72	42	1213	69.66	1478
16	SU34-12	35	11.83	23	1431	75.66	1222
	Variance (S2) =	96.32917		116.3625	22805.16		33385.4
	Ratio			0.827837			0.683088
	Agreement			YES			YES

QC Measurements

	Location	RSDS#	α	β		
1	SU5-9	0297	38	947	5	9
2	SU27-13		42	1593	27	13
3	SU33-10		42	1425	33	10
4	SU5-12		23	1186	5	12
5	SU35-18		34	1346	35	18
6	SU7-17		57	1532	7	17
7	SU23-9		49	1160	23	9
8	SU20-1		19	1496	20	1
9	SU26-14		30	1337	26	14
10	SU19-14		38	1257	19	14
11	SU34-6		46	1310	34	6
12	SU5-4		38	1027	5	4
13	SU2-2		23	1186	2	2
14	SU14-11		27	1443	14	11
15	SU19-2		42	1478	19	2
16	SU34-12		23	1222	34	12

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Building 50 Survey and Sample Data
Enclosure 1

Vents		Smearable dpm/100cm^2			Fixed dpm/100cm^2	
Location	RSDS#	α	β	H^3	α	β
V-01	0295	0	2	0	40	200
V-02	0295	0	0.9	0	40	60
V-03	0295	0	0	0	56	595
V-04	0295	3.6	0.6	0	16	205
V-05	0295	1.8	2.7	0	64	250
V-06	0295	4	0.2	0	10	95
V-07	0295	0	2.5	0	0	95
V-08	0295	0	0	0	40	100
V-09	0295	0	2.8	0	0	125
V-10	0295	1.8	0	0	0	130
V-11	0295	3.5	7.4	0	0	-40
V-12	0295	1.6	2.6	0	0	90
V-13	0295	0	0	0	16	35
V-14	0295	0	0	0	8	1040
V-15	0295	0	1.1	0	0	140
V-16	0295	3.4	1.7	0	24	785
V-17	0295	3.6	2.9	0	56	545
V-18	0295	0	0	0	40	110
V-19	0295	0	0	2.64	32	180
V-20	0295	0	0	0	16	40
V-21	0295	0	4.2	0	32	95
V-22	0295	0	0.5	0	40	310
V-23	0295	1.7	0	0	0	675
V-24	0295	1.6	2.5	3.11	24	730
V-25	0295	0	2.8	0	40	145
V-26	0295	0	0.5	0	0	25
V-27	0295	0	0.6	0	8	-75
V-28	0295	1.6	0.3	0	24	400
V-29	0295	0	4.5	0	0	35
V-30	0295	0	1.1	0	16	-20
V-31	0295	0	0	0	56	-35
V-32	0295	0	0.8	0	24	-85

	α	β	H^3	α	β
Avg	0.88125	1.4125	0.179688	22.5625	218.125
SD	1.3669928	1.718542	0.709577	20.01441	278.3991
Max	4	7.4	3.11	64	1040
#	32	32	32	32	32
+/-	0.4736388	0.595444	0.245856	6.934639	96.46036

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Drains		Smearable dpm/100cm^2			Fixed dpm/100cm^2	
Location	RSDS#	α	β	H^3	α	β
D-01	03-TF-0929	1.7	3.1	0	8	-40
D-02	03-TF-0929	0	0	0	8	-40
D-03	03-TF-0929	1.6	0	0	16	-70
D-04	03-TF-0929	0	2	0	24	-45
D-05	03-TF-0929	0	5.5	0	344	105
D-06	03-TF-0929	0	0.5	0	56	190
D-07	03-TF-0929	0	0	0	0	-70
D-08	03-TF-0929	0	0	0	0	-35
D-09	03-TF-0929	0	0	0	8	55
D-10	03-TF-0929	0	0	0	0	40
D-11	03-TF-0929	0	0	0	-8	45
D-12	03-TF-0929	0	2.8	0	8	-70
D-13	03-TF-0929	0	0	0	16	5
D-14	03-TF-0929	0	0	0	16	60
D-15	03-TF-0929	0	0	0	0	-160
D-16	03-TF-0929	0	3.2	0	24	-135
D-17	03-TF-0929	1.7	3.1	0	16	-55
D-18	03-TF-0929	0	0.9	0	24	30
D-19	03-TF-0929	0	2	0	8	-140
D-20	03-TF-0929	0	0.9	0	40	-10
D-21	03-TF-0929	0	0	0	0	-65
D-22	03-TF-0929	0	0	0	48	290
D-23	03-TF-0929	0	0	0	0	-60
D-24	03-TF-0929	0	0	0	24	40
D-25	03-TF-0929	0	0.4	0	48	75
D-26	03-TF-0929	1.8	1.6	0	24	85
D-27	03-TF-0929	0	0.6	0	16	-30
D-28	03-TF-0929	0	0.5	0	0	-10
D-29	03-TF-0929	0	0	0	16	-60
D-30	03-TF-0929	0	0	0	24	40
		α	β	H^3	α	β
	Avg	0.226667	0.903333	0	26.93333	-1.16667
	SD	0.588354	1.392958	0	61.94933	94.41913
	Max	1.8	5.5	0	344	290
	#	30	30	30	30	30
	+/-	0.21054	0.498464	0	22.16828	33.78745

Drain Grate Rm 129

	Pu238	Pu239/240	Th232	Th230	Th228	Th227	
SU 15	86.34		198.52	26.46	224.88	1.52	537.72
	16.06%	0.00%	36.92%	4.92%	41.82%	0.28%	100.00%

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Judgmental Location	RSDS#	a	b	H^3	a	b
JSCN-01	03-TF-0297	0	2	0	8	1160
JSCN-02	03-TF-0297	0	0.9	0	27	1762
JSCN-03	03-TF-0297	0	0	0	23	1071
JSCN-04	03-TF-0297	0	0	0	42	1425
JSCN-05	03-TF-0297	0	8.1	0	49	1399
JSCN-06	03-TF-0297	0	3.1	0	23	1709
JSCN-07	03-TF-0297	0	2.5	0	27	912
JSCN-08	03-TF-0297	0	0.2	0	49	1319
JSCN-09	03-TF-0297	0	1.6	0	11	965
JSCN-11	03-TF-0297	0	4.1	0	34	1416
JSCN-12	03-TF-0297	0	0	1.54	91	1788
JSCN-13	03-TF-0297	0	4.5	2.81	61	1576
JSCN-14	03-TF-0297	1.8	2.2	0	38	1602
JSCN-15	03-TF-0297	0	0	0	23	1204
JSCN-16	03-TF-0297	1.5	0.7	0	42	1239
JSCN-17	03-TF-0297	0	2	0	27	1195
JSCN-18	03-TF-0297	0	2.1	0.91	49	1585
JSCN-19	03-TF-0297	1.6	0	0	46	1195
JSCN-20	03-TF-0297	0	2	0	53	1124

	α	β	H^3	α	β
Avg	0.2578947	1.894737	0.276842	38.05263	1349.789
SD	0.6140175	2.04762	0.731802	19.30018	264.616
Max	1.8	8.1	2.81	91	1788
#	19	19	19	19	19
+/-	0.276096	0.920722	0.329058	8.678421	118.9859

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SU 15 Room 129 Sample Results RSDS# 0292

	Pu238	Pu239/240	Th232	Th230	Th228	Th227	
15-01	94.02	<LDL	72.24	9.04	78.75	<LDL	
15-02	217.25	0.63	281.03	32.95	293.88	<LDL	825.74
15-03	156.58	0.42	108.25	13.2	125.48	<LDL	403.93
15-04	172.52	<LDL	134.75	16.11	139.08	<LDL	462.46
Ave	160.0925	0.525	149.0675	17.825	159.2975	#DIV/0!	#DIV/0!
Total	640.37	1.05	596.27	71.3	637.19	0	1946.18
%	32.90%	0.05%	30.64%	3.66%	32.74%	0.00%	100.00%
σ	50.99	0.15	91.63	10.49	93.37	#DIV/0!	

B50 Sump <0.6dpm/ml gross alpha RSDS# 0292

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SURVEY PLAN FORM

SPF NUMBER	50-01	DATE OF REQUEST	September 25, 2003
TYPE OF SP	☐ FSS ☒ CHARACTERIZATION ☐ REFERENCE ☐ OTHER:		
AREA/LOCATION	Building 50		
PURPOSE	The purpose of this SPF is to characterize Building 50 to support decisions on final disposition.		
SURVEY UNIT	(See Attachment 1)	SURVEY UNIT	N/A
SURVEY UNIT	N/A	SURVEY UNIT	N/A
SURVEY UNIT	N/A	SURVEY UNIT	N/A
SURVEY UNIT	N/A	SURVEY UNIT	N/A

SAMPLE TYPE

☐ SURFACE SOIL SAMPLE:

☐ SUB-SURFACE SOIL SAMPLE:

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

☐ **Rubbelized Material:**

☐ OTHER:

SURVEY TYPE

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

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	50-01	DATE OF REQUEST	September 25, 2003

SPECIFIC SAMPLING / SURVEY INSTRUCTIONS

Safety Considerations

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

Sediment Samples

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

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

1. 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 least 10% of the surface in Class 3 Survey Units using the professional judgment of the surveyor.
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 least 10% of the surface in 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.

Continued Next Page

Specific Survey and Sampling Instructions (continued)

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

1. Perform an integrated alpha and beta measurement at each data point in each Survey Unit.
2. Perform at least 20 integrated alpha and beta measurements on ceilings, crawl spaces, and horizontal structural surfaces where, in the judgement of the surveyor, a potential exists for residual contamination.
3. Record location, material type, and results on RSDS map in accordance with Mound Rad Con procedures.
4. Document gross activity for each location (No "<" values). Record instrument background at survey location.

Loose Surface Contamination

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

Quality Control

1. QC measurements will be performed by re-surveying 16 data points. Data points selected for resurvey should include the highest and lowest readings in the data set.
2. Sediment samples or smears with measured activity above the MDA may be resubmitted for replicate analysis. Ensure alpha and beta smear results are obtained before performing H^3 analysis.
3. Record location, material, and results on RSDS in accordance with Mound Rad Con procedures.

APPROVAL SIGNATURES			
MARISSM Engineer	R. Case	DATE	September 25, 2003
Technical Reviewer	DOODY	DATE	10/4/03
Rad Con Manager	D. Draper	DATE	Oct 8, 2003
SP CLOSE-OUT SIGNATURES			
MARISSM Engineer	R. CASE	DATE	12/8/03
Technical Reviewer	K. R. DOODY CHP	DATE	12/8/03
Rad Con Manager	A. Collins	DATE	12/9/03

COMMENTS

SPF 50 --01
Attachment 1
Building 50 Survey Units

Survey Unit	Room	Class	Area (Sq.Ft.)	Scan %	Floor	Walls
1	101-106	3	1120	10	X	
2	123-128	3	3060	10	X	
3	119-122	3	1080	10	X	
4	107	2	168	50	X	
5	108	2	192	50	X	
6	109/110	2	192	50	X	
7	111	2	650	50	X	
8	112	2	832	50	X	
9	113	2	390	50	X	
10	114	2	648	50	X	
11	114A	2	749	50	X	
12	115/116/117	2	1105	50	X	
13	118 South	2	790	50	X	
14	118 North	2	790	50	X	
15	129	2	288	50	X	
16	107 Walls	3	416	10		X
17	108 Walls	3	448	10		X
18	109 Walls	3	320	10		X
19	110 Walls	3	352	10		X
20	111 Walls	3	816	10		X
21	112 Walls	3	920	10		X
22	113 Walls	3	656	10		X
23	114 Walls	3	1296	10		X
24	114A Walls	3	1088	10		X
25	115,116,117 Walls	3	1272	10		X
26	118 Walls	3	2688	10		X
27	201	3	2250	10	X	
28	202,206	2	640	50	X	
29	203	2	240	50	X	
30	204	2	650	50	X	
31	201Walls	3	1520	10		X
32	202 Walls	3	808	10		X
33	203 Walls	3	544	10		X
34	204 Walls	3	1104	10		X
35	205,206 Walls	3	464	10		X
36	Exterior Walls	J	10080	J		X
37	Roof	J	12152	J	X	

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
50-01-									
50-01-									
50-01-									
50-01-									
50-01-									
50-01-									
50-01-									
50-01-									
50-01-									
50-01-									
50-01-									
50-01-									
50-01-									
50-01-									

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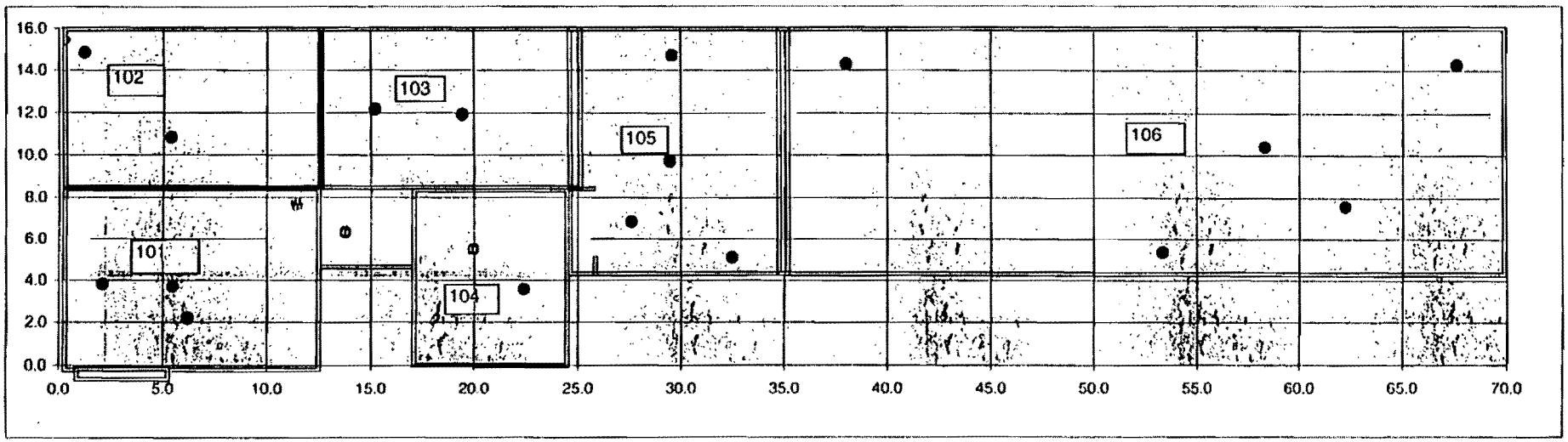

	Room 101-106	
	SU 1 Coordinates	
	X	Y
	70	16
1	29.5	9.7
2	6.2	2.2
3	1.3	14.8
4	27.6	6.8
5	29.6	14.7
6	19.5	11.9
7	32.5	5.1
8	5.4	10.8
9	5.5	3.7
10	13.8	6.3
11	2.1	3.8
12	11.5	7.6
13	53.3	5.4
14	62.2	7.6
15	67.6	14.2
16	15.2	12.2
17	58.3	10.4
18	22.4	3.6
19	38.0	14.3
20	20.0	5.5

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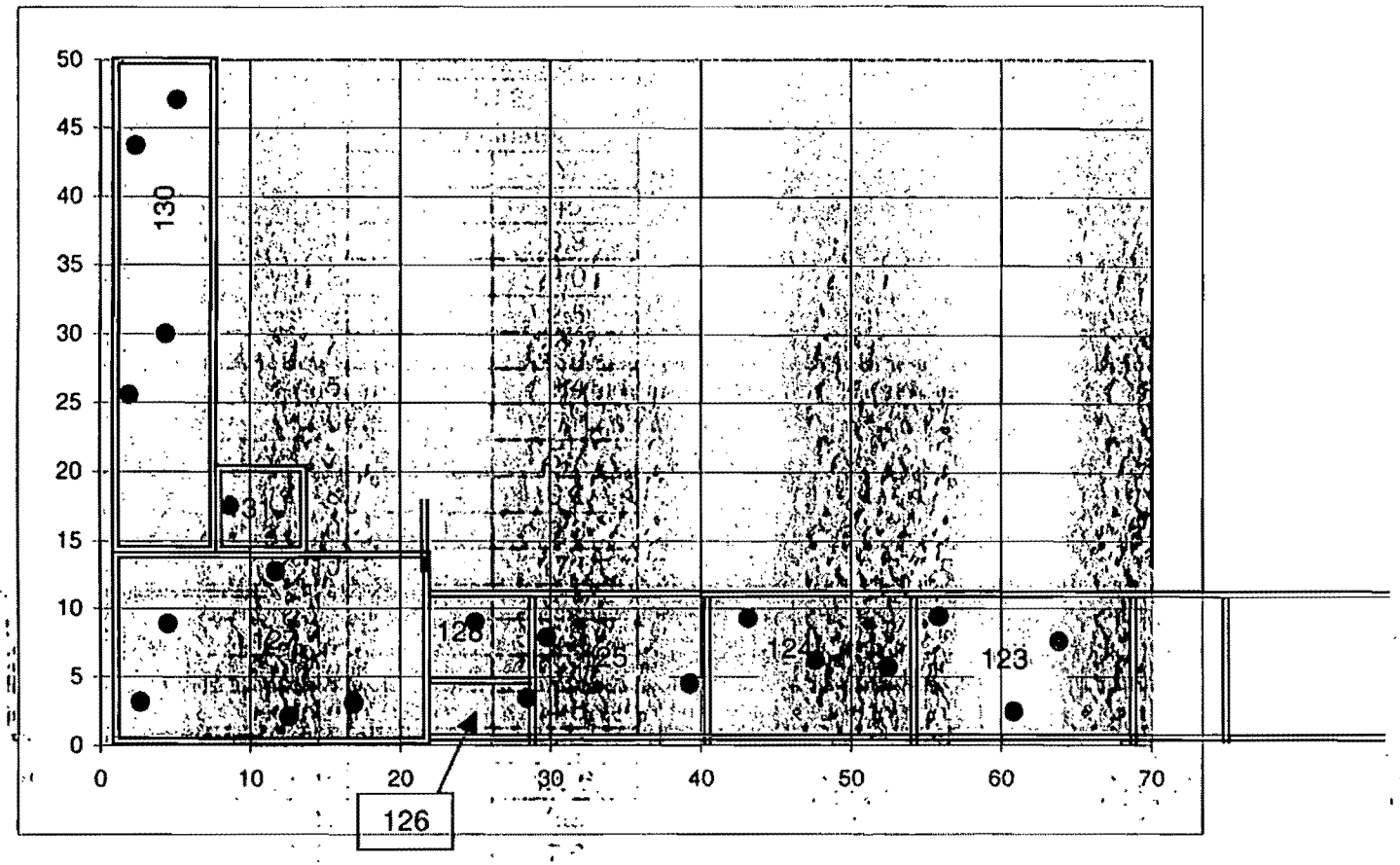

	Room 123-131	
	SU 2	
	Coordinates	
	X'	Y'
	68	45
1	4.5	8.9
2	25.0	9.0
3	60.8	2.5
4	2.4	43.7
5	55.9	9.4
6	5.1	47.1
7	52.5	5.7
8	2.7	3.2
9	43.2	9.3
10	8.7	17.6
11	28.4	3.5
12	47.7	6.2
13	16.9	3.1
14	39.3	4.5
15	63.8	7.6
16	2.0	25.6
17	12.6	2.2
18	29.8	7.9
19	4.4	30.0
20	11.7	12.8

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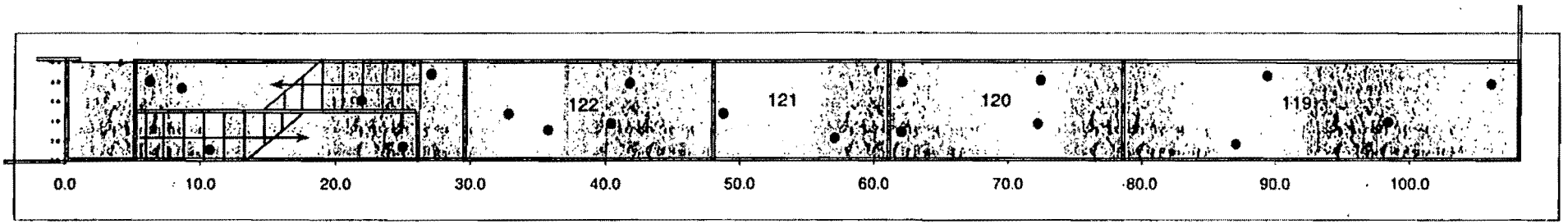

	Room 119- Stairs	
	SU 3	
	Coordinates	
	108	10
1	24.9	1.4
2	35.8	3.1
3	72.4	8.2
4	27.1	8.8
5	106.0	7.8
6	6.3	8.1
7	57.1	2.3
8	32.9	4.8
9	10.7	1.1
10	40.4	3.8
11	72.2	3.8
12	62.1	2.9
13	89.4	8.6
14	8.6	7.4
15	98.4	3.9
16	41.8	7.9
17	62.1	8.0
18	21.9	6.1
19	87.1	1.7
20	48.8	4.8

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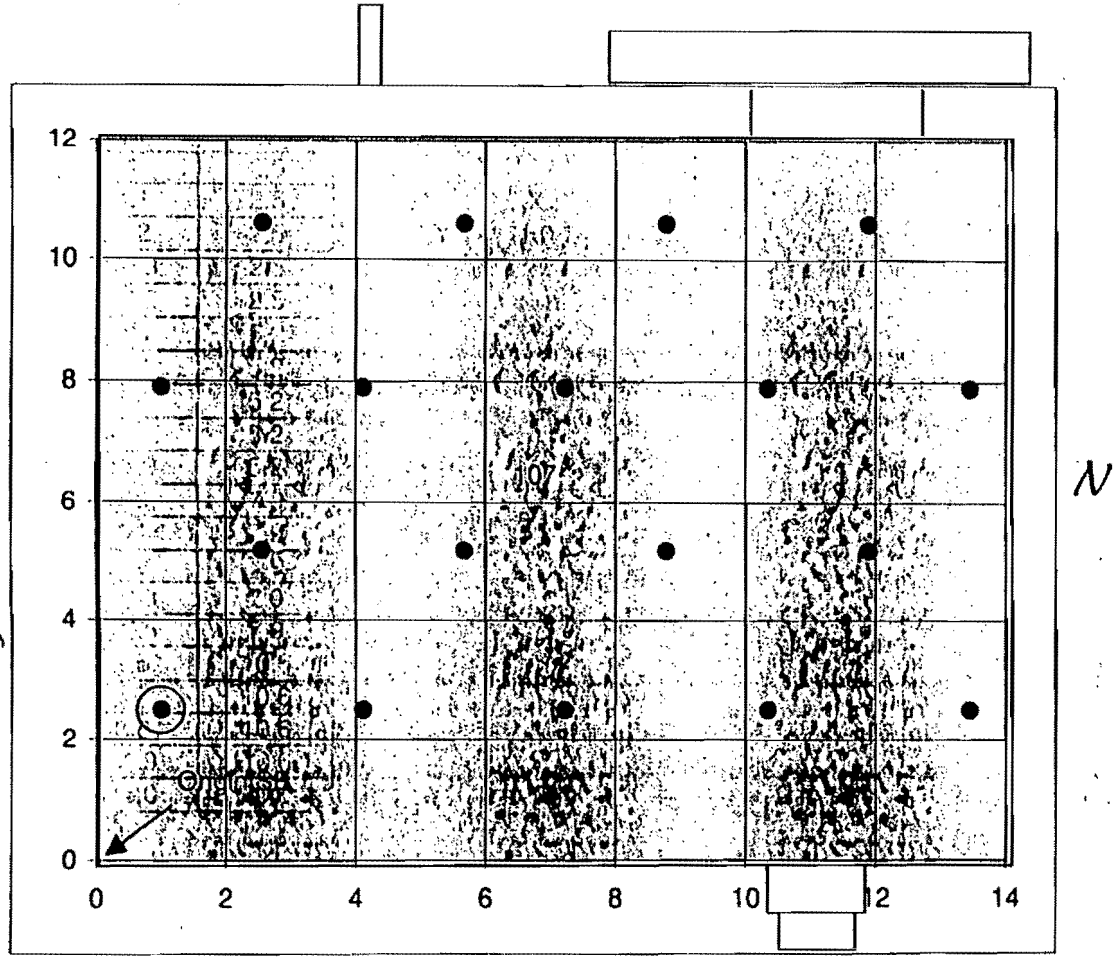

	Room 107	
	SU 4 Coordinates	
	X	Y
	14	12
1	1	2.5
2	4.1	2.5
3	7.2	2.5
4	10.3	2.5
5	13.5	2.5
6	2.6	5.2
7	5.7	5.2
8	8.8	5.2
9	11.9	5.2
10	15.0	5.2
11	1.0	7.9
12	4.1	7.9
13	7.2	7.9
14	10.3	7.9
15	13.5	7.9
16	2.6	10.6
17	5.7	10.6
18	8.8	10.6
19	11.9	10.6
20	15.0	10.6

Area	L	L'
168	3.1ft	2.7ft
Start	X	Y
Rand X:Y	1.0	2.5

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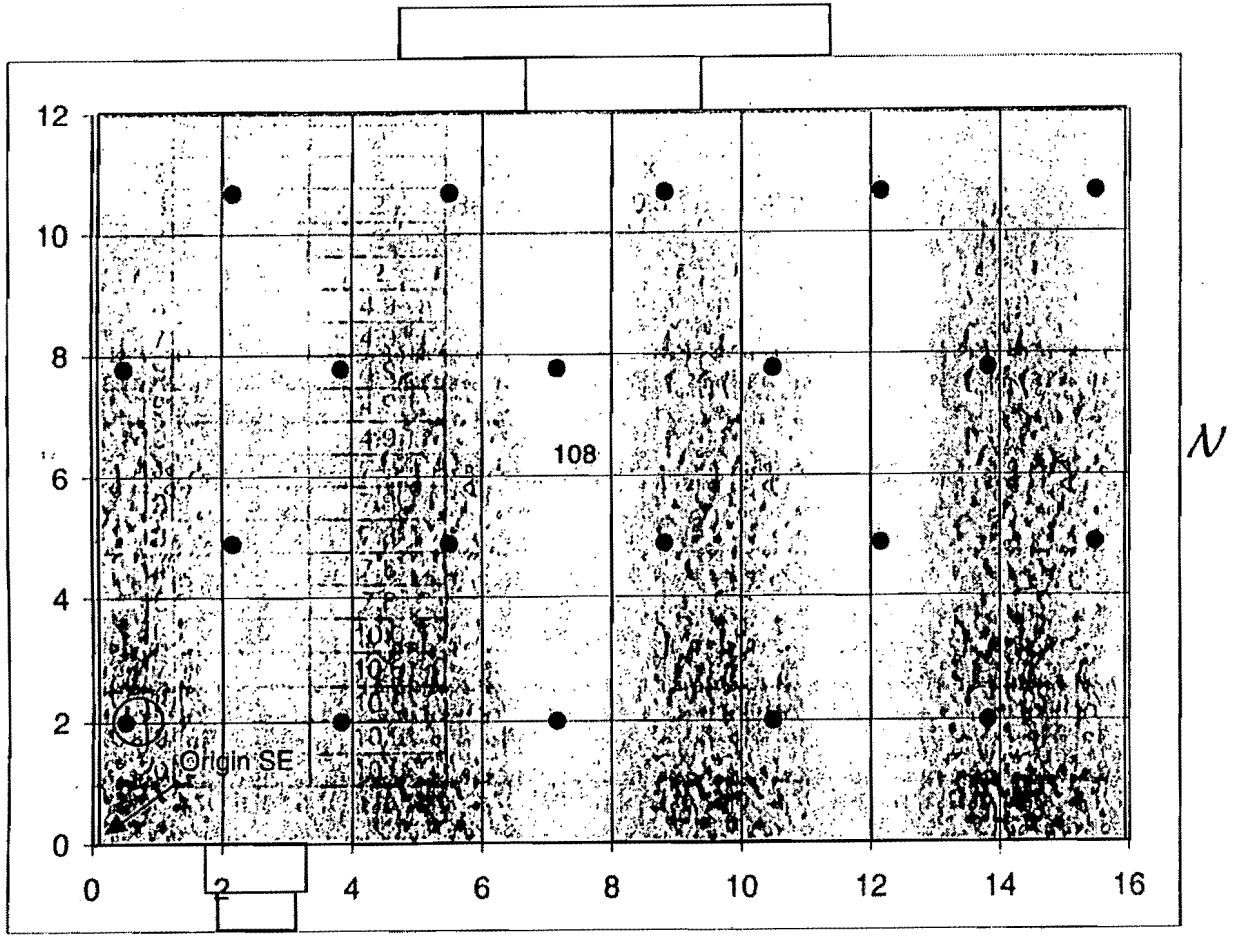

	Room 108	
	SU 5 Coordinates	
	X	Y
	16	12
1	0.5	2
2	3.8	2
3	7.2	2
4	10.5	2
5	13.8	2
6	2.2	4.9
7	5.5	4.9
8	8.8	4.9
9	12.2	4.9
10	15.5	4.9
11	0.5	7.8
12	3.8	7.8
13	7.2	7.8
14	10.5	7.8
15	13.8	7.8
16	2.2	10.6
17	5.5	10.6
18	8.8	10.6
19	12.2	10.6
20	15.5	10.6

Area	L	L'
192	3.3ft	2.9ft
Start	X	Y
Rand X:Y	0.5	2.0

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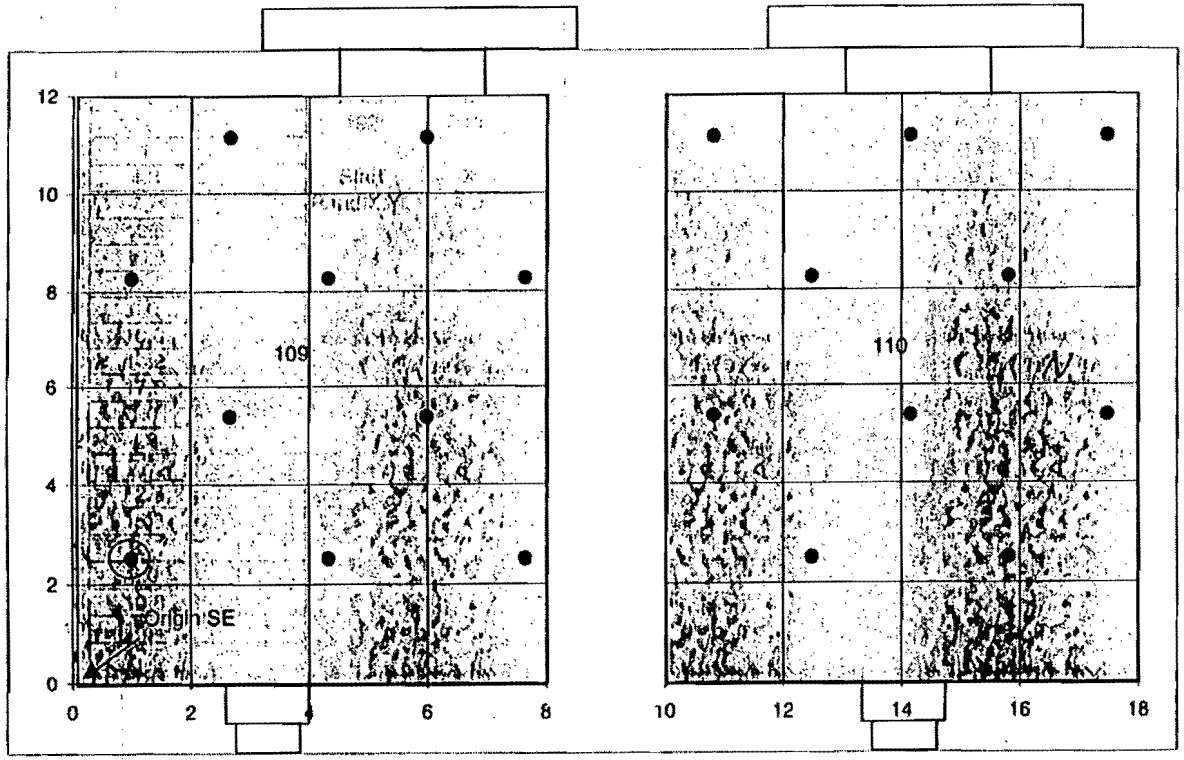

	Room 109, 110	
	SU 3 Coordinates	
	X	Y
	16	12
1	1	2.5
2	4.3	2.5
3	7.7	2.5
4	12.5	2.5
5	15.8	2.5
6	2.7	5.4
7	6.0	5.4
8	10.8	5.4
9	14.2	5.4
10	17.5	5.4
11	1.0	8.3
12	4.3	8.3
13	7.7	8.3
14	12.5	8.3
15	15.8	8.3
16	2.7	11.1
17	6.0	11.1
18	10.8	11.1
19	14.2	11.1
20	17.5	11.1

Area	L	L'
192	3.3ft	2.9ft
Start	X	Y
Rand X:Y	1.0	2.5

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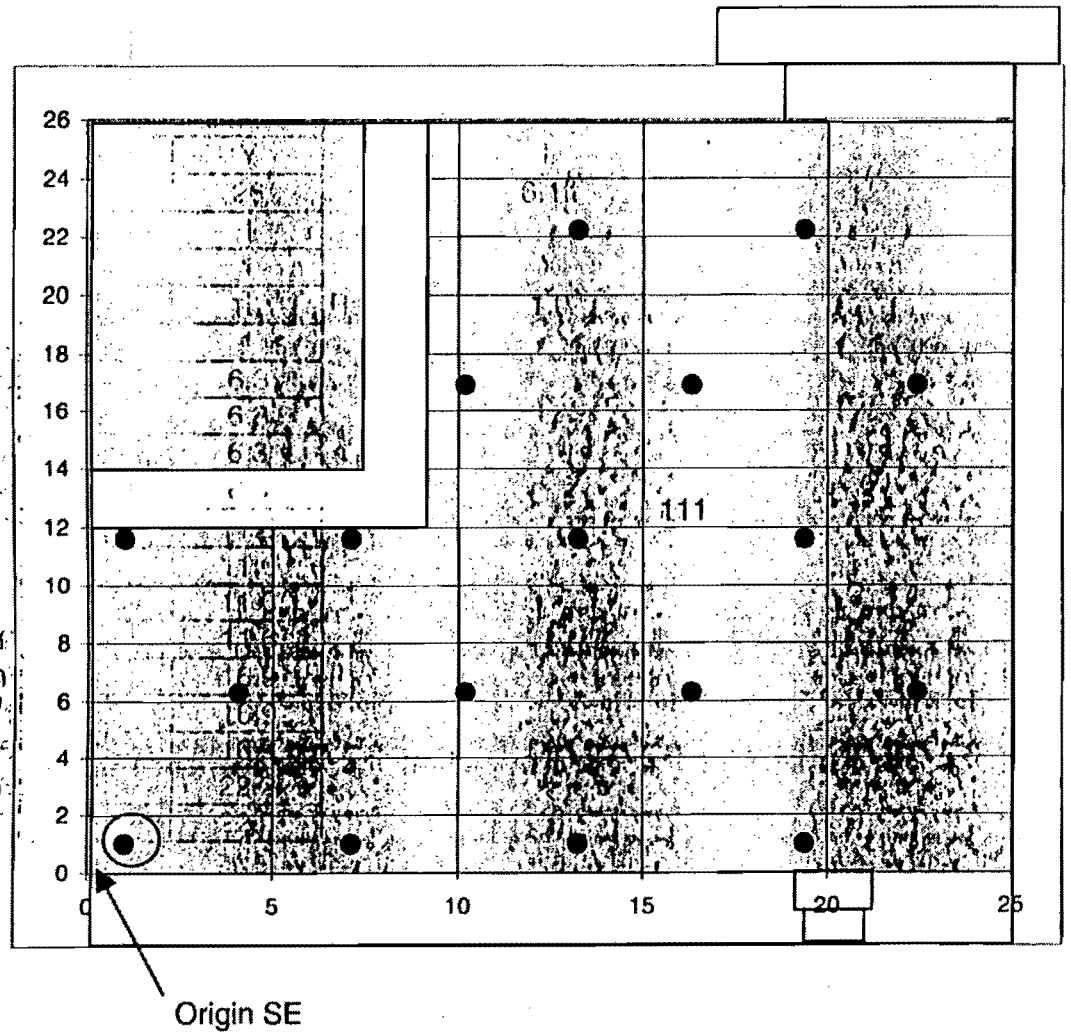

	Room 111				
	SU 7 Coordinates				
	X	Y	Area	L	L'
	25	26	650	6.1ft	5.3ft
1	1	1			
2	7.1	1	Start	X	Y
3	13.3	1	Rand X:Y	1.0	1.0
4	19.4	1			
5	4.1	6.3			
6	10.2	6.3			
7	16.3	6.3			
8	22.4	6.3			
9	1.0	11.6			
10	7.1	11.6			
11	13.3	11.6			
12	19.4	11.6			
13	10.2	16.9			
14	16.3	16.9			
15	22.4	16.9			
16	13.3	22.2			
17	19.4	22.2			

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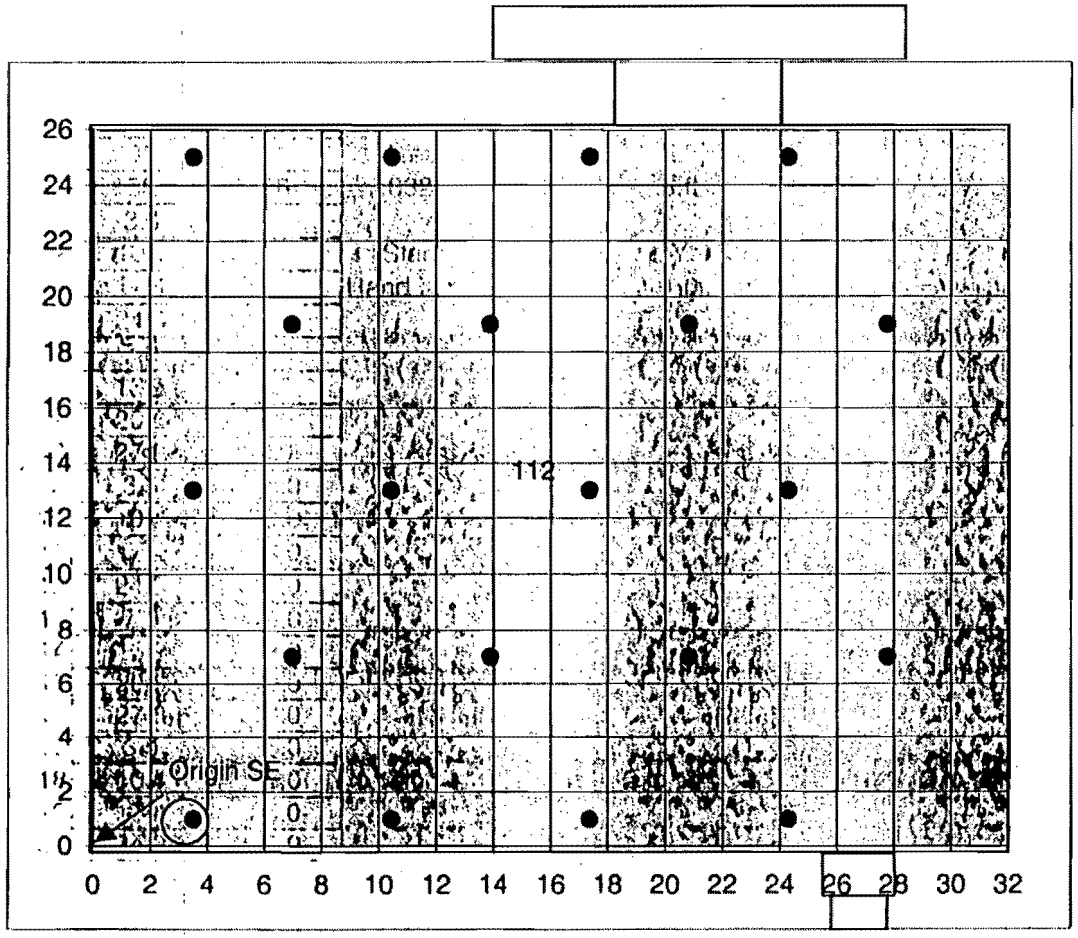

N

	Room 112	
	SU 8 Coordinates	
	X	Y
	32	26
1	3.5	1
2	10.4	1
3	17.4	1
4	24.3	1
5	7.0	7.0
6	13.9	7.0
7	20.8	7.0
8	27.8	7.0
9	3.5	13.0
10	10.4	13.0
11	17.4	13.0
12	24.3	13.0
13	7.0	19.0
14	13.9	19.0
15	20.8	19.0
16	27.8	19.0
17	3.5	25.0
18	10.4	25.0
19	17.4	25.0
20	24.3	25.0

Area	L	L'
832	6.9ft	6.ft
Start	X	Y
Rand X:Y	3.5	1:0

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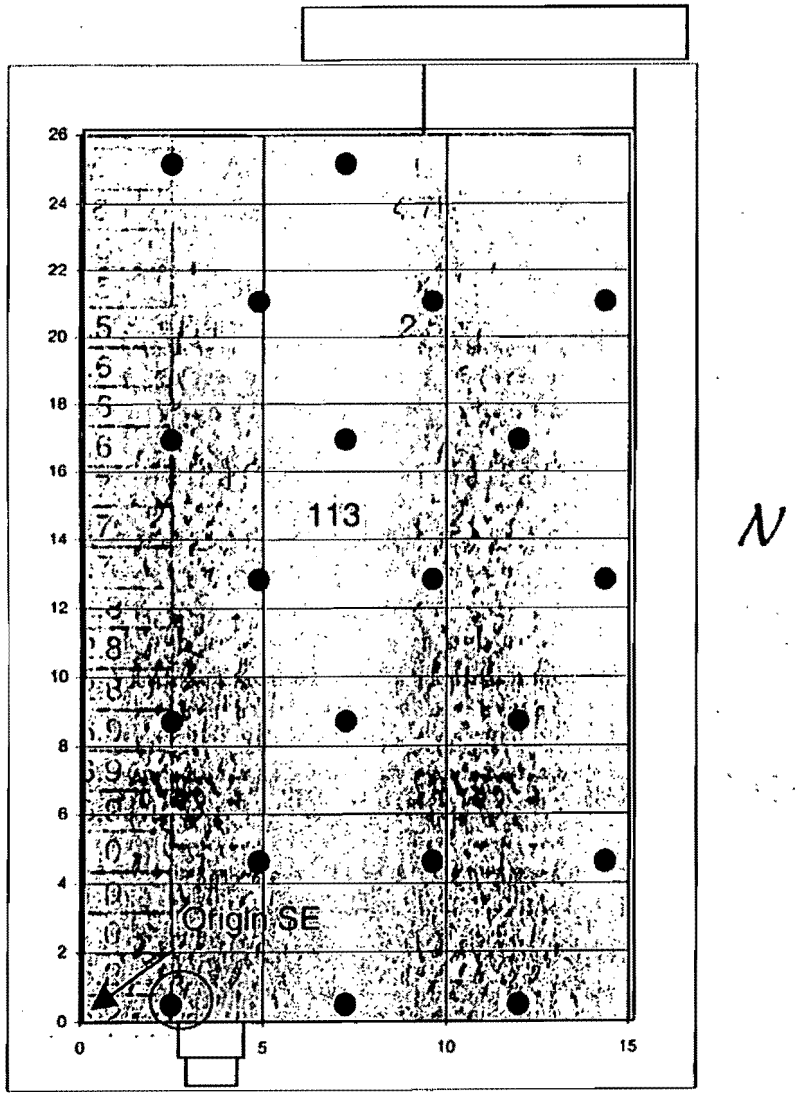

	Room 113				
	SU 9 Coordinates				
	X	Y	Area	L	L'
	15	26	390	4.7ft	4.1ft
1	2.5	0.5			
2	7.2	0.5	Start	X	Y
3	12.0	0.5	Rand X:Y	2.5	0.5
4	4.9	4.6			
5	9.6	4.6			
6	14.4	4.6			
7	2.5	8.7			
8	7.2	8.7			
9	12.0	8.7			
10	4.9	12.8			
11	9.6	12.8			
12	14.4	12.8			
13	2.5	16.9			
14	7.2	16.9			
15	12.0	16.9			
16	4.9	21.0			
17	9.6	21.0			
18	14.4	21.0			
19	2.5	25.2			
20	7.2	25.2			

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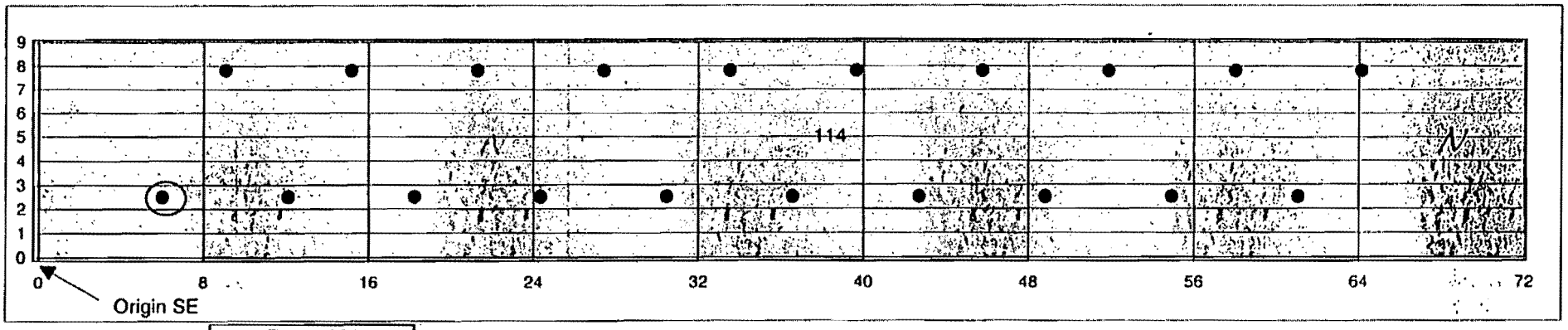

	Room 114	
	SU 10 Coordinates	
	X	Y
	72	9
1	6.0	2.5
2	12.1	2.5
3	18.2	2.5
4	24.3	2.5
5	30.5	2.5
6	36.6	2.5
7	42.7	2.5
8	48.8	2.5
9	54.9	2.5
10	61.0	2.5
11	9.1	7.8
12	15.2	7.8
13	21.3	7.8
14	27.4	7.8
15	33.5	7.8
16	39.6	7.8
17	45.8	7.8
18	51.9	7.8
19	58.0	7.8
20	64.1	7.8

A	L	L'
648	6.116649	5.297018
Start		
RandX:Y	6.0	2.5

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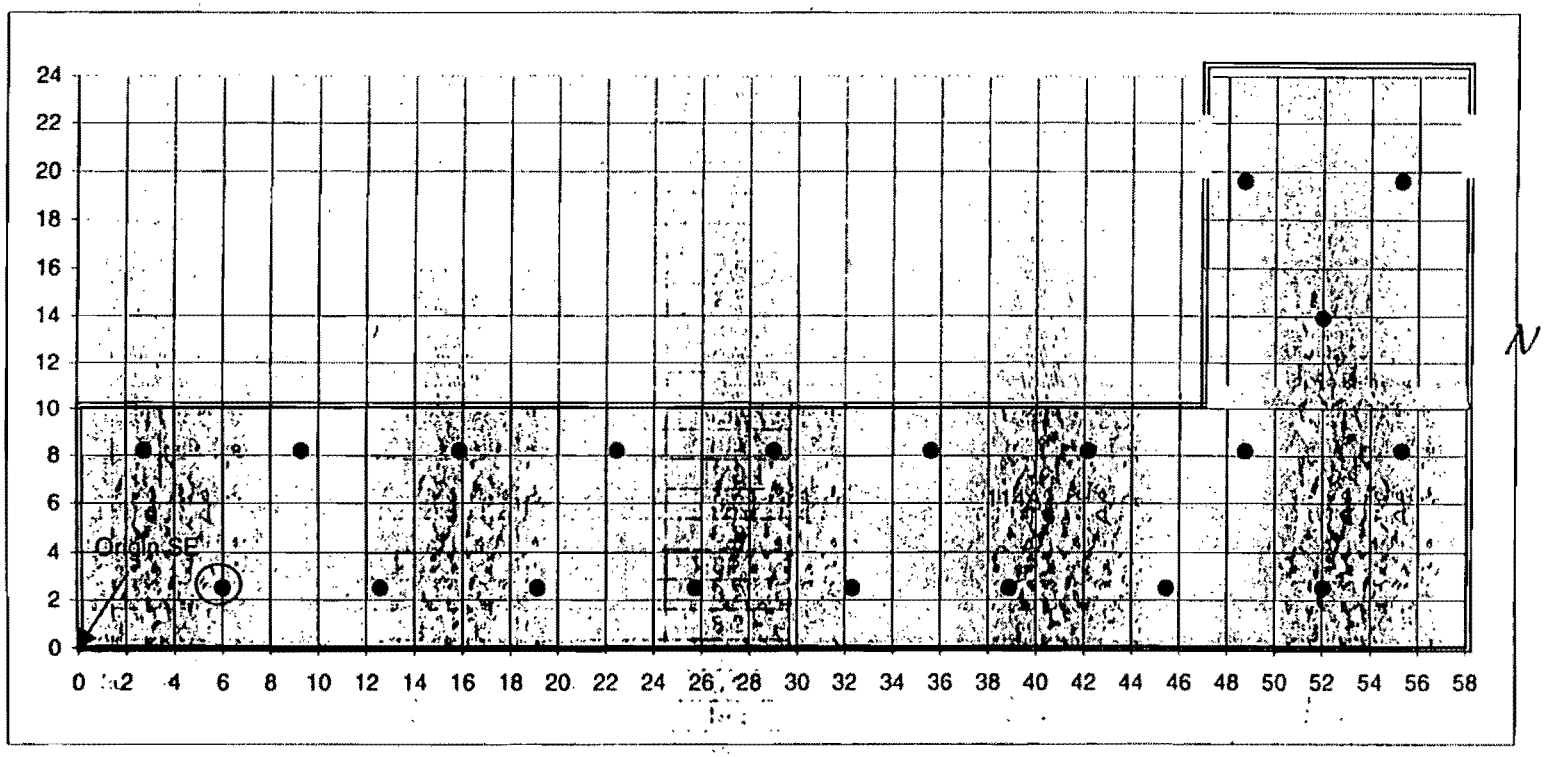

	Room 114A	
	SU 10 Coordinates	
	X	Y
	58	10
1	6.0	2.5
2	12.6	2.5
3	19.2	2.5
4	25.7	2.5
5	32.3	2.5
6	38.9	2.5
7	45.5	2.5
8	52.0	2.5
9	52.0	13.9
10	55.3	19.6
11	9.3	8.2
12	15.9	8.2
13	22.4	8.2
14	29.0	8.2
15	35.6	8.2
16	42.2	8.2
17	48.7	8.2
18	55.3	8.2
19	48.7	19.6
20	2.7	8.2

A	L	L'
749	6.576078	5.694884

Start
Rand X:Y 5.9 2.5

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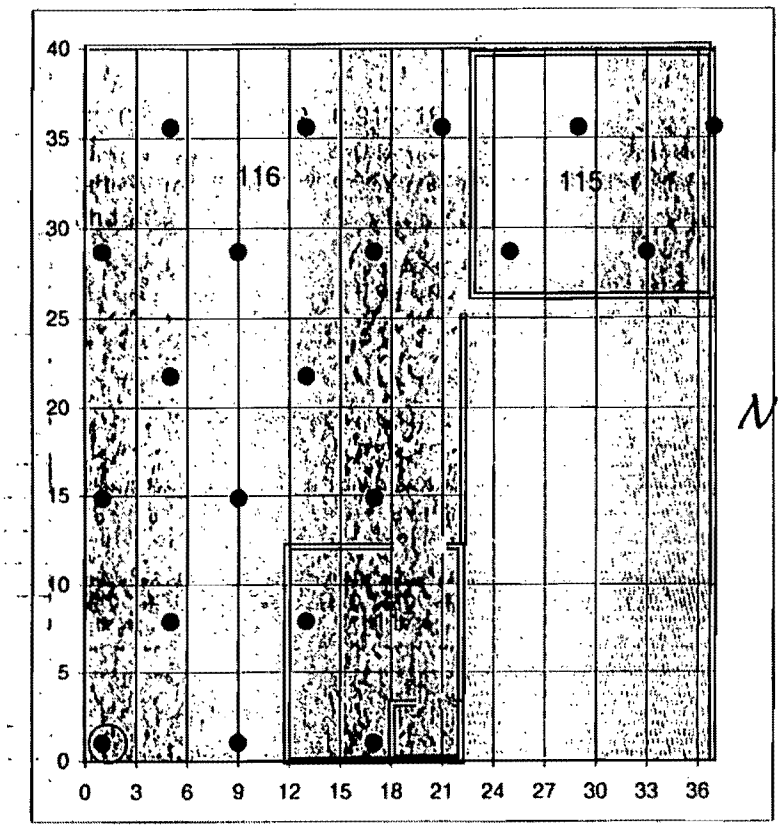
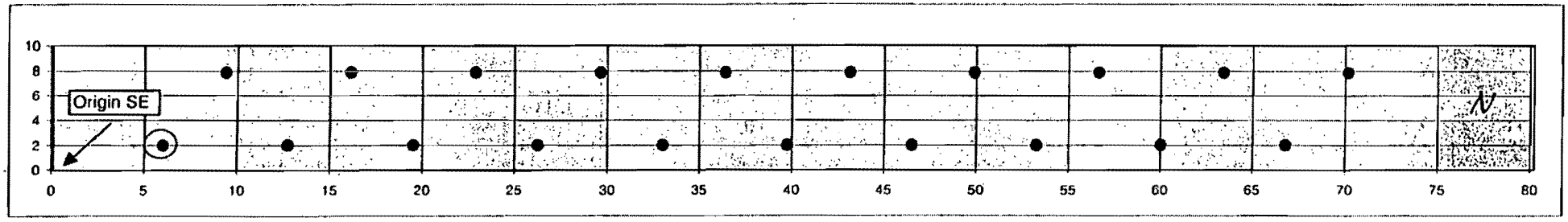


	SU 12 Coordinates				
	X	Y	A	L	L'
	37	40	1105	7.987432	6.917116
1	1.0	1.0			
2	9.0	1.0	Start	X	Y
3	17.0	1.0	Rand X:Y	1	1
4	5.0	7.9			
5	13.0	7.9			
6	25.0	28.7			
7	1.0	14.8			
8	9.0	14.8			
9	17.0	14.8			
10	5.0	21.8			
11	13.0	21.8			
12	1.0	28.7			
13	9.0	28.7			
14	17.0	28.7			
15	5.0	35.6			
16	13.0	35.6			
17	21.0	35.6			
18	33.0	28.7			
19	29.0	35.6			
20	36.9	35.6			



	Room 118 South	
	SU 13 Coordinates	
	X	Y
	79.0	10.0
1	6.0	2.0
2	12.8	2.0
3	19.5	2.0
4	26.3	2.0
5	33.0	2.0
6	39.8	2.0
7	46.5	2.0
8	53.3	2.0
9	60.0	2.0
10	66.8	2.0
11	9.4	7.8
12	16.1	7.8
13	22.9	7.8
14	29.6	7.8
15	36.4	7.8
16	43.1	7.8
17	49.9	7.8
18	56.7	7.8
19	63.4	7.8
20	70.2	7.8

A	L	L'
790	6.753666	5.848675

Start	X	Y
Rand X:Y	6	2

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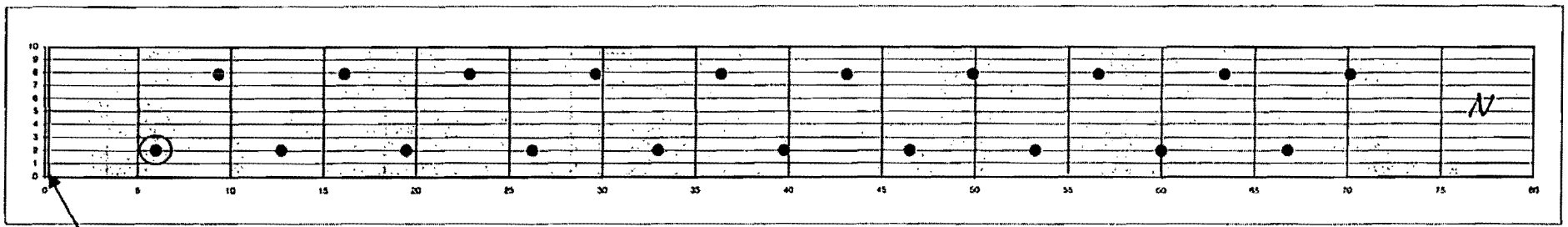

Origin SE
Begin @ 79'
from SU 13
Origin

	Room 118 North	
	SU 15 Coordinates	
	X	Y
	79.0	10.0
1	6.0	2.0
2	12.8	2.0
3	19.5	2.0
4	26.3	2.0
5	33.0	2.0
6	39.8	2.0
7	46.5	2.0
8	53.3	2.0
9	60.0	2.0
10	66.8	2.0
11	9.4	7.8
12	16.1	7.8
13	22.9	7.8
14	29.6	7.8
15	36.4	7.8
16	43.1	7.8
17	49.9	7.8
18	56.7	7.8
19	63.4	7.8
20	70.2	7.8

A	L	L'
790	6.75	5.85

Start	X	Y
Rand X:Y	6	2

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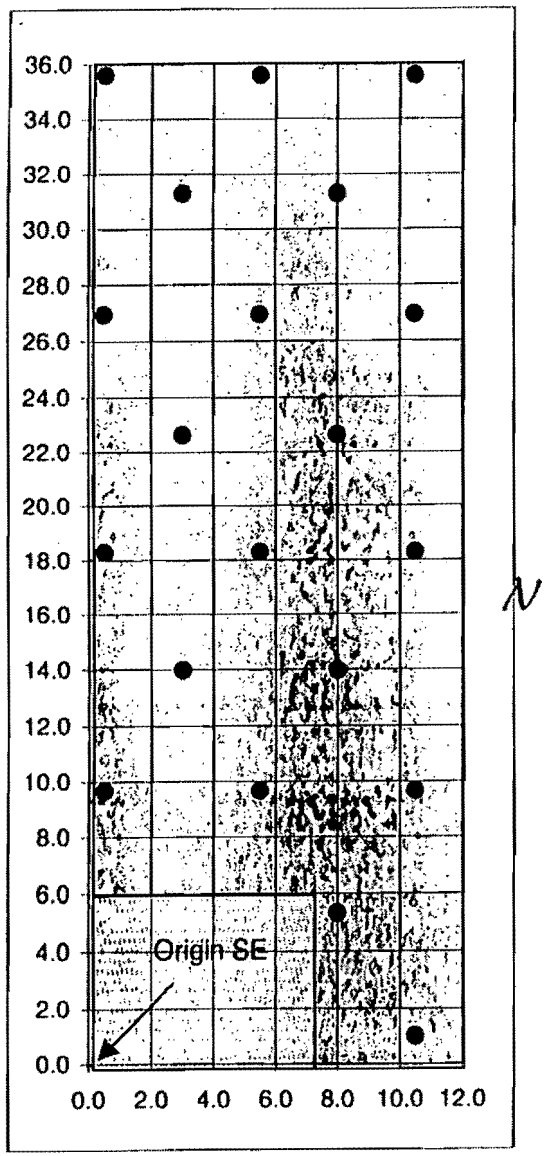

	Room 129	
	SU 15 Coordinates	
	X"	Y'
	24	12
1	5.5	35.6
2	10.5	1.0
3	8.0	5.3
4	10.5	27.0
5	0.5	9.6
6	5.5	9.6
7	10.5	9.6
8	3.0	14.0
9	8.0	14.0
10	3.0	31.3
11	0.5	18.3
12	5.5	18.3
13	10.5	18.3
14	3.0	22.6
15	8.0	22.6
16	8.0	31.3
17	0.5	26.9
18	5.5	26.9
19	0.5	35.6
20	10.5	35.6

	A	L	L'
	288	4.077766	3.531345
	Start	X	Y
	Rand X:Y	0.493022	1.024102

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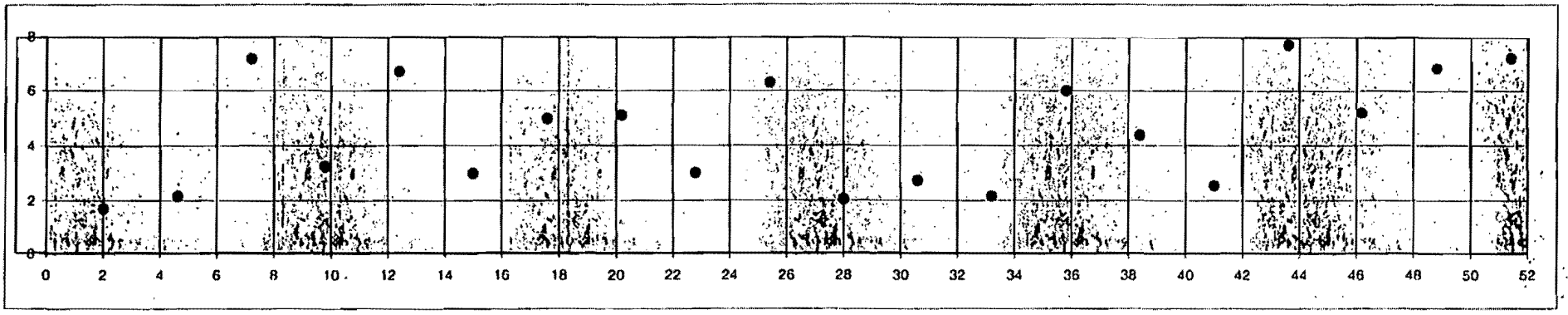
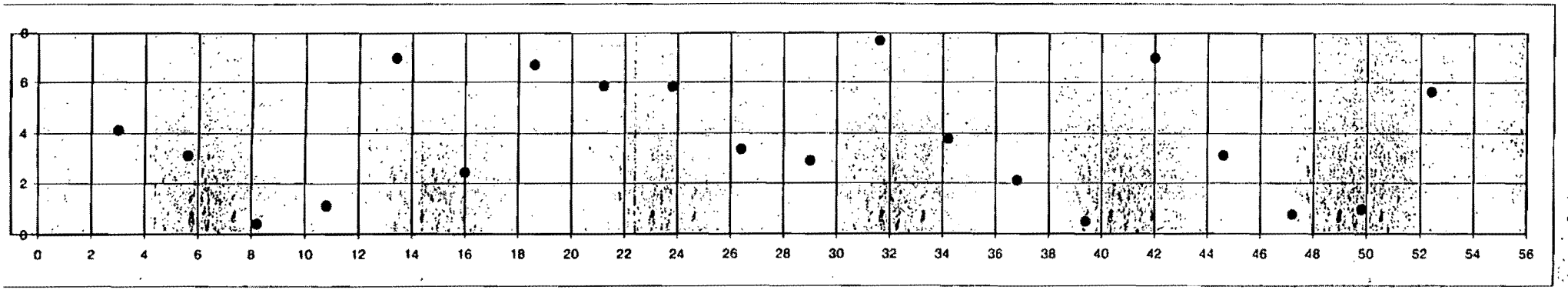


L = 52ft
W = 8ft

	Room 107 Walls	
	SU 16 Coordinates	
	X	Y
1	2	1.69931
2	4.6	2.155126
3	7.2	7.185579
4	9.8	3.262094
5	12.4	6.717983
6	15	3.002879
7	17.6	4.966846
8	20.2	5.089638
9	22.8	3.024193
10	25.4	6.294303
11	28	2.041446
12	30.6	2.729708
13	33.2	2.149303
14	35.8	5.992329
15	38.4	4.352394
16	41	2.549435
17	43.6	7.693257
18	46.2	5.172299
19	48.8	6.835712
20	51.4	7.219632

G1 of 313



L = 56ft
W = 8ft

Room 108 Walls

	SU 17 Coordinates	
	X'	Y'
1	3	4.117021
2	5.6	3.105054
3	8.2	0.424338
4	10.8	1.11407
5	13.4	6.972074
6	16	2.426333
7	18.6	6.708497
8	21.2	5.841781
9	23.8	5.823608
10	26.4	3.343162
11	29	2.883412
12	31.6	7.68171
13	34.2	3.760147
14	36.8	2.092536
15	39.4	0.490916
16	42	6.977845
17	44.6	3.106718
18	47.2	0.770519
19	49.8	0.95346
20	52.4	5.621671

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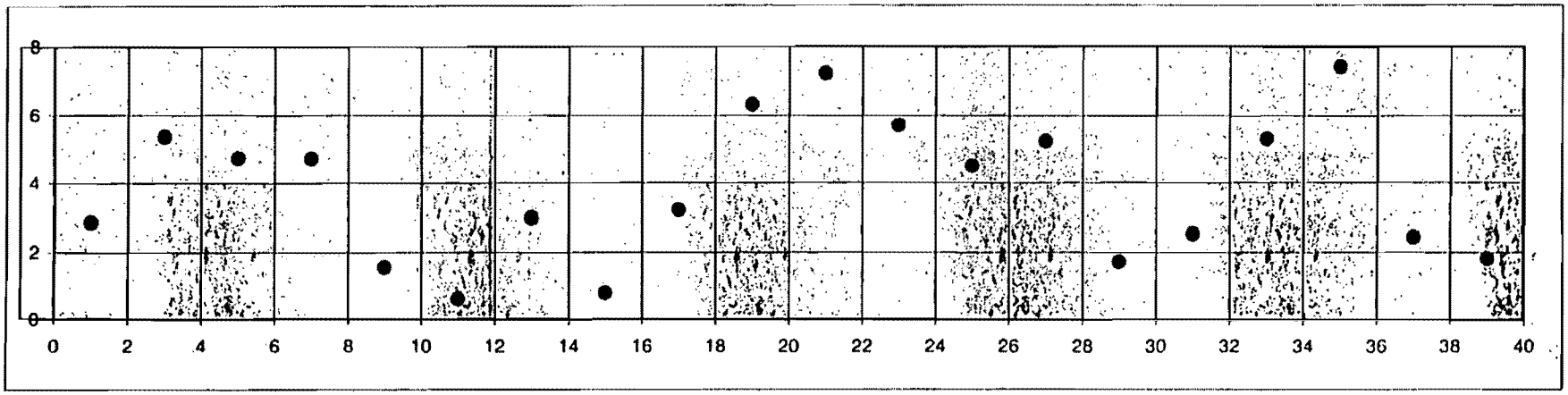

L = 40ft
W = 8ft

Room 109 Walls
SU 18 Coordinates

	X	Y
1	1	2.858534
2	3	5.35455
3	5	4.728135
4	7	4.70745
5	9	1.554112
6	11	0.620027
7	13	2.980461
8	15	0.801702
9	17	3.209105
10	19	6.311937
11	21	7.228184
12	23	5.688505
13	25	4.497662
14	27	5.226354
15	29	1.717221
16	31	2.521495
17	33	5.29373
18	35	7.416835
19	37	2.424205
20	39	1.811747

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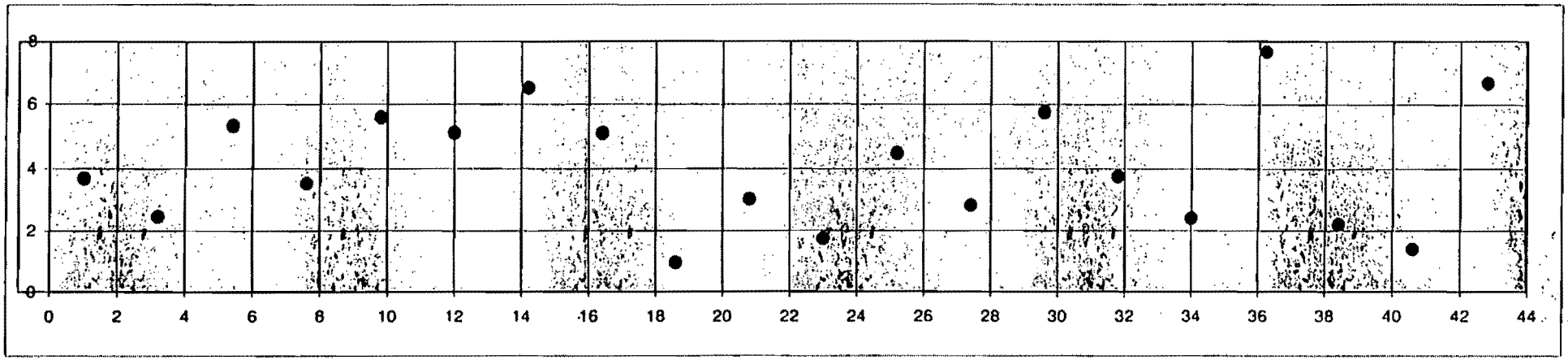
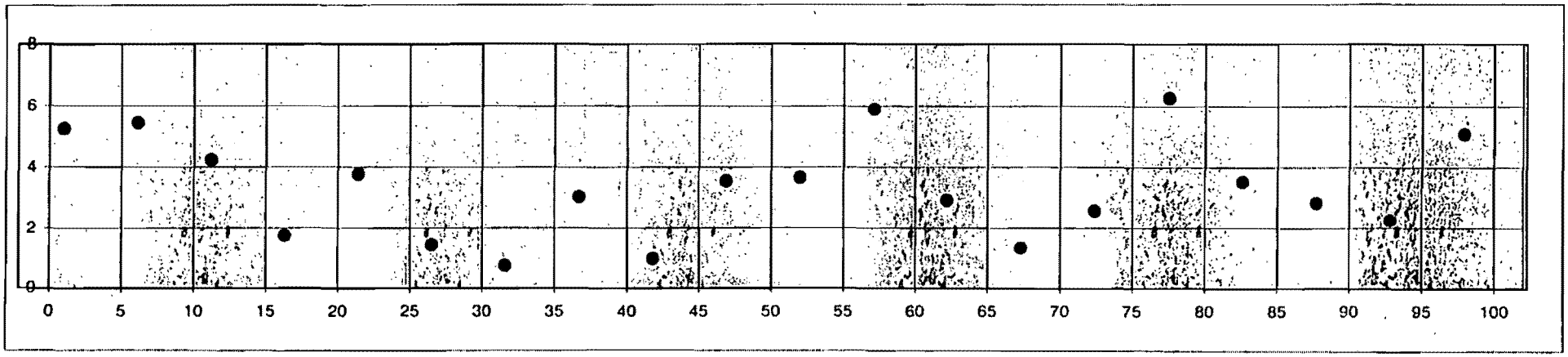


L = 44ft
W = 8ft

Room 110 Walls
SU 19 Coordinates

	X	Y
1	1	3.690085
2	3.2	2.452257
3	5.4	5.310441
4	7.6	3.528346
5	9.8	5.581042
6	12	5.102211
7	14.2	6.501518
8	16.4	5.095943
9	18.6	0.951566
10	20.8	3.018841
11	23	1.72801
12	25.2	4.472164
13	27.4	2.809904
14	29.6	5.75441
15	31.8	3.747145
16	34	2.403619
17	36.2	7.635119
18	38.4	2.191192
19	40.6	1.384479
20	42.8	6.656145

G6498 313



L = 102ft
W = 8ft

Room 111 Walls
SU 20 Coordinates

	X	Y
1	1	5.239323
2	6.1	5.433514
3	11.2	4.227681
4	16.3	1.745858
5	21.4	3.757635
6	26.5	1.421347
7	31.6	0.734887
8	36.7	3.016319
9	41.8	0.963023
10	46.9	3.53711
11	52	3.647307
12	57.1	5.896061
13	62.2	2.906387
14	67.3	1.322153
15	72.4	2.556621
16	77.5	6.266756
17	82.6	3.502813
18	87.7	2.815249
19	92.8	2.254291
20	97.9	5.078459

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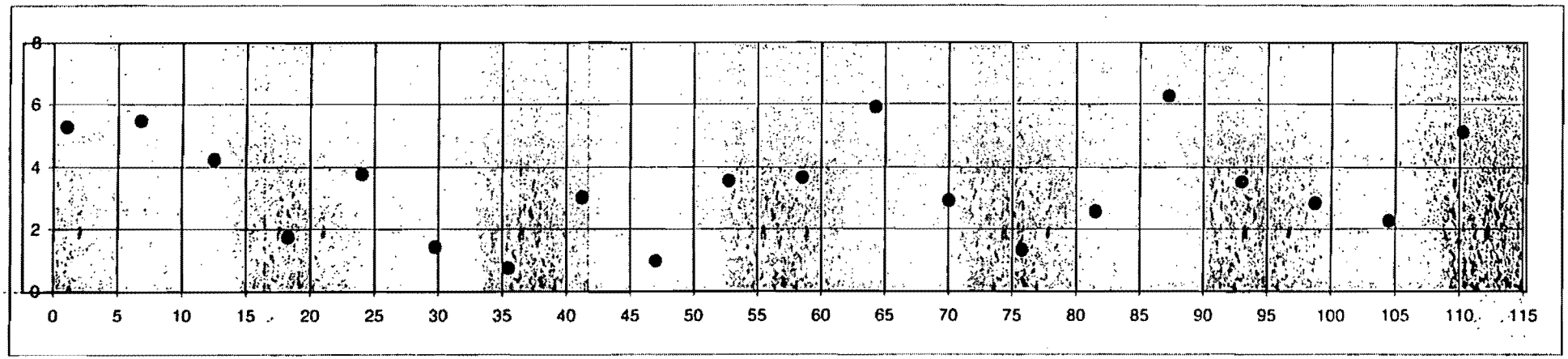

L = 115ft
W = 8ft

Room 112 Walls
SU 21 Coordinates

	X	Y
1	1	5.239323
2	6.75	5.433514
3	12.5	4.227681
4	18.25	1.745858
5	24	3.757635
6	29.75	1.421347
7	35.5	0.734887
8	41.25	3.016319
9	47	0.963023
10	52.75	3.53711
11	58.5	3.647307
12	64.25	5.896061
13	70	2.906387
14	75.75	1.322153
15	81.5	2.556621
16	87.25	6.266756
17	93	3.502813
18	98.75	2.815249
19	104.5	2.254291
20	110.25	5.078459

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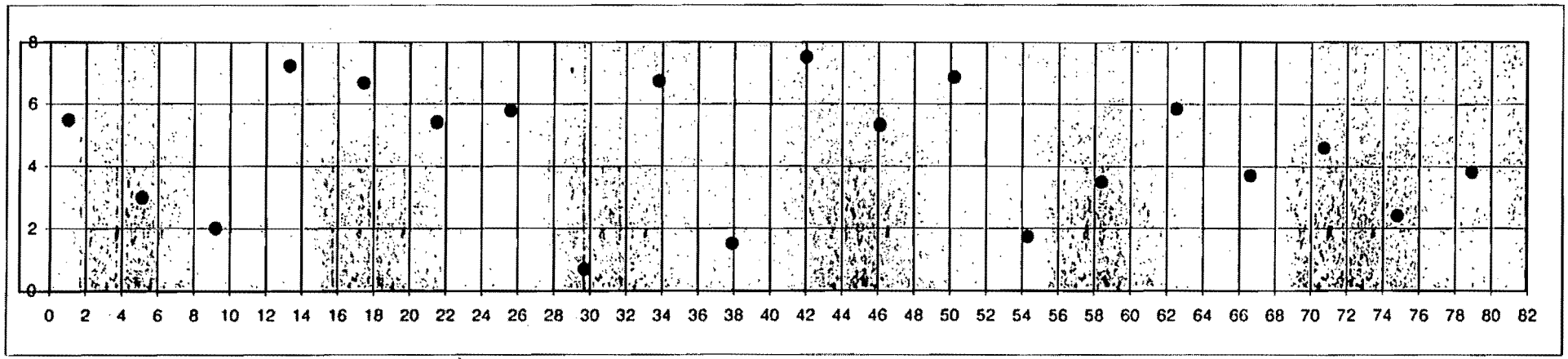

L = 82ft
W = 8ft

	Room 113 Walls	
	SU 22 Coordinates	
	X	Y
1	1	5.475032
2	5.1	2.991988
3	9.2	2.002805
4	13.3	7.242134
5	17.4	6.684016
6	21.5	5.410863
7	25.6	5.773646
8	29.7	0.669286
9	33.8	6.745527
10	37.9	1.507569
11	42	7.521395
12	46.1	5.314854
13	50.2	6.875068
14	54.3	1.729538
15	58.4	3.487644
16	62.5	5.844009
17	66.6	3.699308
18	70.7	4.590236
19	74.8	2.401601
20	78.9	3.809366

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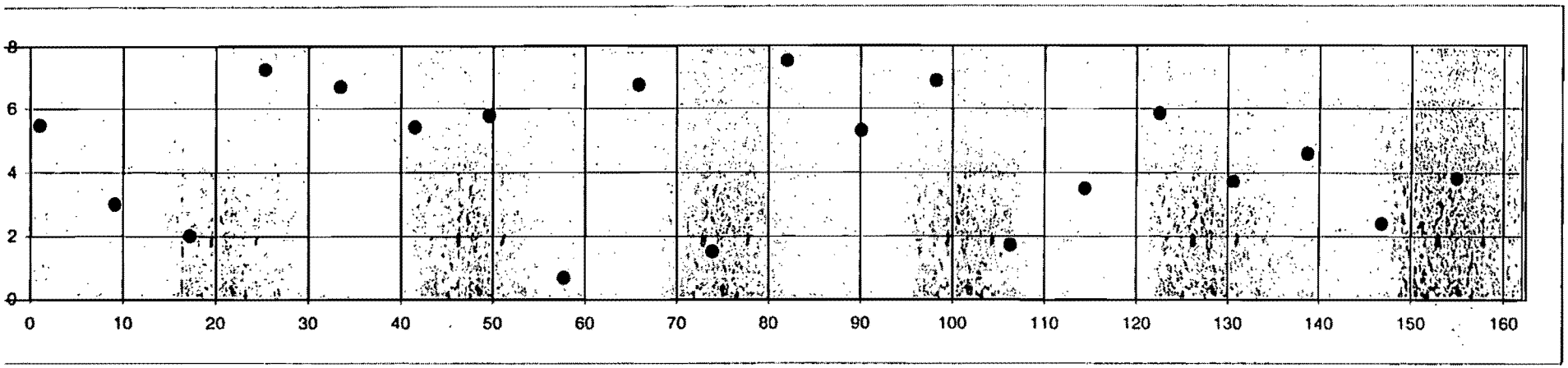
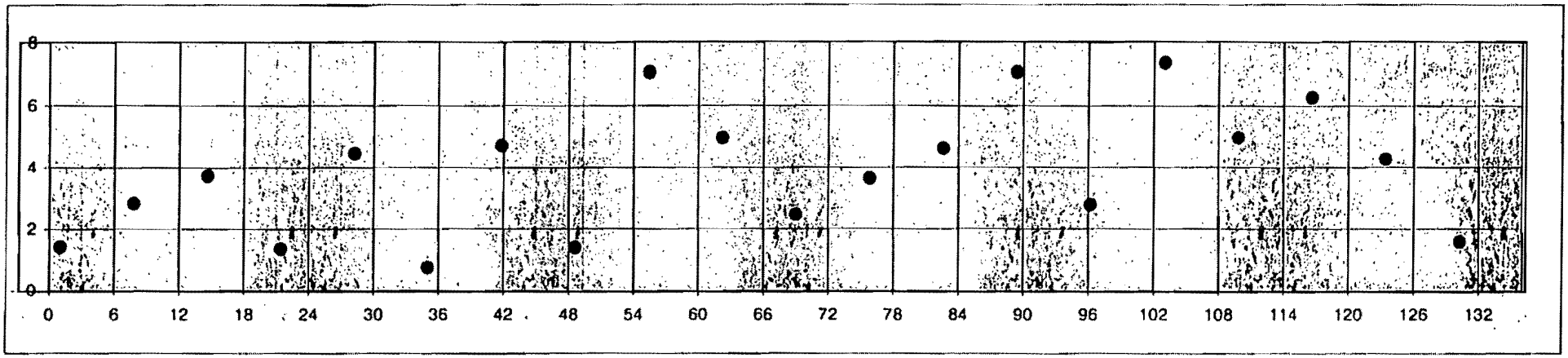


= 162ft
= 8ft

	Room 114 Walls	
	SU 23 Coordinates	
	X	Y
1	1	5.475032
2	9.1	2.991988
3	17.2	2.002805
4	25.3	7.242134
5	33.4	6.684016
6	41.5	5.410863
7	49.6	5.773646
8	57.7	0.669286
9	65.8	6.745527
10	73.9	1.507569
11	82	7.521395
12	90.1	5.314854
13	98.2	6.875068
14	106.3	1.729538
15	114.4	3.487644
16	122.5	5.844009
17	130.6	3.699308
18	138.7	4.590236
19	146.8	2.401601
20	154.9	3.809366

G 6 8 8 3 1 3



L = 136ft
W = 8ft

Room 114A Walls
SU 24 Coordinates

	X	Y
1	1	1.424168
2	7.8	2.844724
3	14.6	3.723416
4	21.4	1.357371
5	28.2	4.434484
6	35	0.755422
7	41.8	4.689513
8	48.6	1.40244
9	55.4	7.054603
10	62.2	4.949474
11	69	2.474082
12	75.8	3.650433
13	82.6	4.594784
14	89.4	7.060086
15	96.2	2.798662
16	103	7.347853
17	109.8	4.952304
18	116.6	6.263575
19	123.4	4.258618
20	130.2	1.58026

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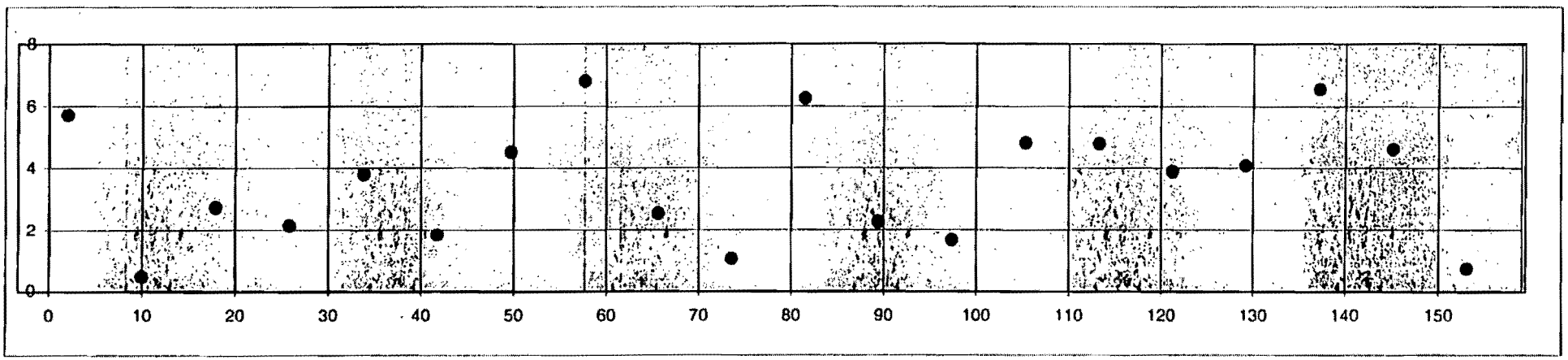

L = 159ft
W = 8ft

oom 115, 116, 117 Wa
SU 25 Coordinates

	X	Y
1	2	5.705794
2	9.95	0.461973
3	17.9	2.725634
4	25.85	2.146636
5	33.8	3.802478
6	41.75	1.82902
7	49.7	4.494565
8	57.65	6.809168
9	65.6	2.525949
10	73.55	1.03987
11	81.5	6.250337
12	89.45	2.253943
13	97.4	1.664505
14	105.35	4.794938
15	113.3	4.776926
16	121.25	3.876832
17	129.2	4.060366
18	137.15	6.549527
19	145.1	4.593323
20	153.05	0.712353

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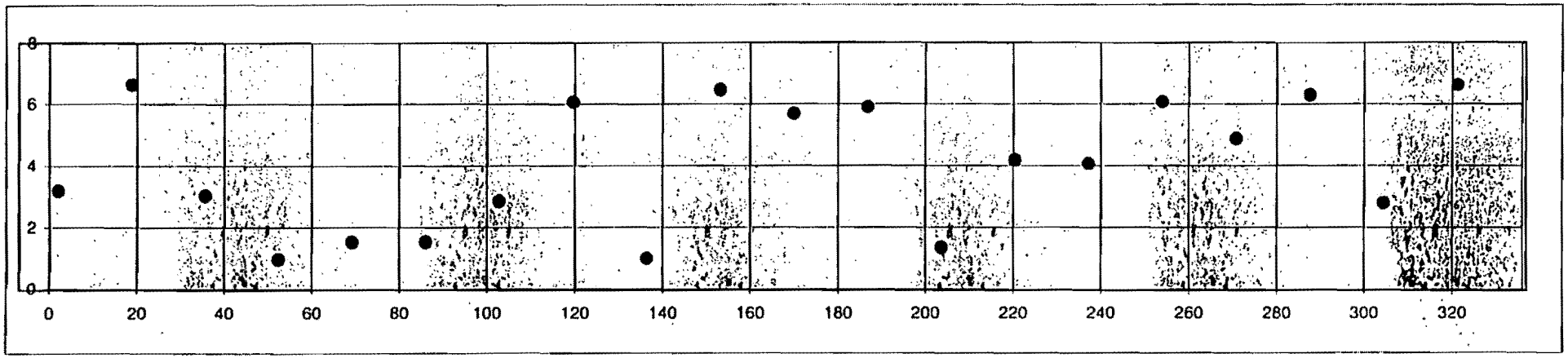

L = 336ft
W = 8ft

Room 118 Walls
SU 25 Coordinates

	X	Y
1	2	3.181144
2	18.8	6.615347
3	35.6	3.011433
4	52.4	0.969334
5	69.2	1.524064
6	86	1.525827
7	102.8	2.839259
8	119.6	6.050637
9	136.4	0.99753
10	153.2	6.43641
11	170	5.673984
12	186.8	5.888571
13	203.6	1.34757
14	220.4	4.17171
15	237.2	4.051356
16	254	6.056734
17	270.8	4.870847
18	287.6	6.278086
19	304.4	2.777406
20	321.2	6.598258

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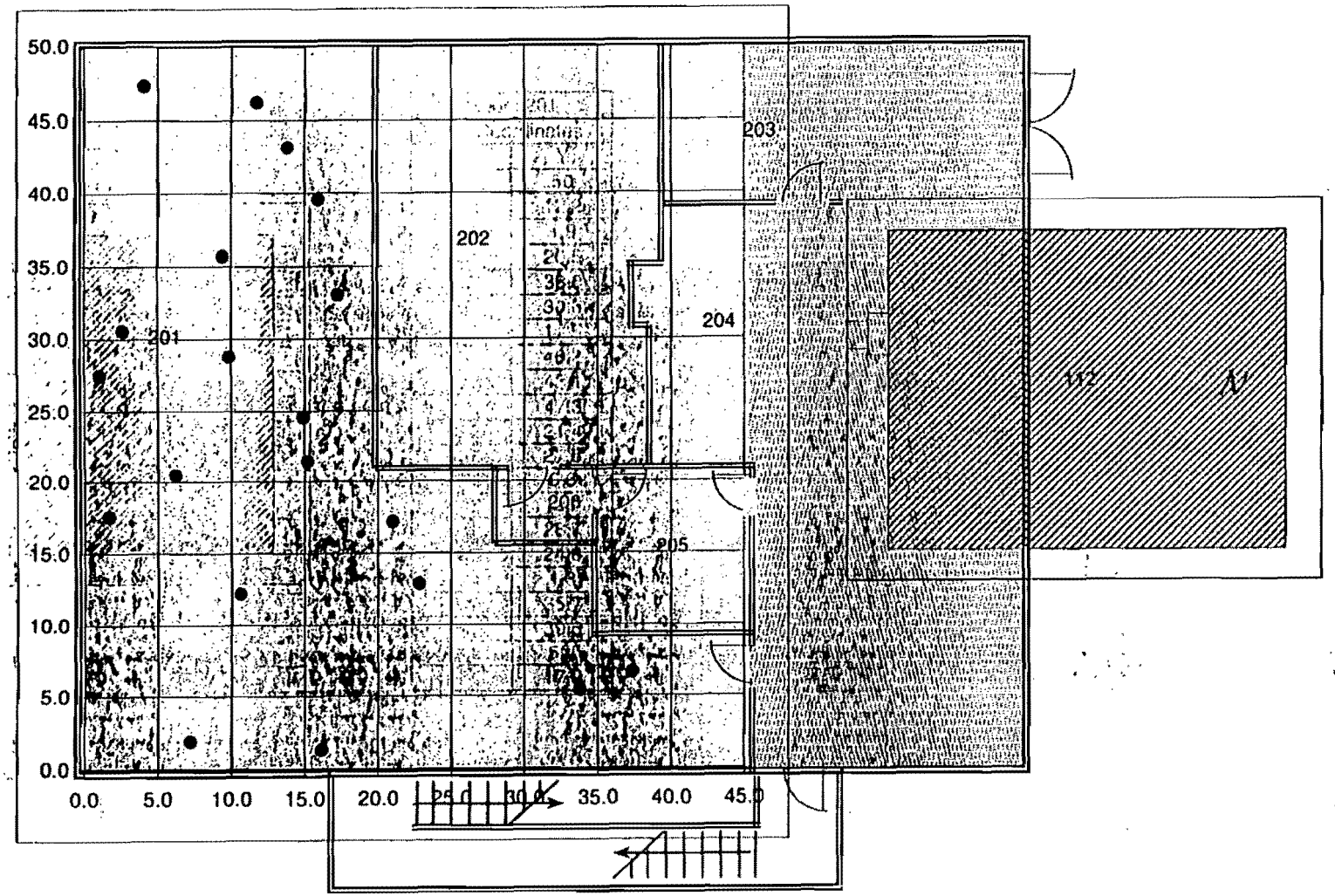
SPF 50-01
Attachment 3



	Room 201	
	SU 27 Coordinates	
	X	Y
	45	50
1	10.6	12.2
2	7.2	1.9
3	6.2	20.5
4	17.2	33.0
5	2.6	30.5
6	1.7	17.5
7	11.7	46.2
8	13.8	43.1
9	4.1	47.3
10	15.2	21.4
11	1.0	27.5
12	37.3	6.6
13	22.8	12.9
14	9.9	28.7
15	14.9	24.6
16	16.1	1.3
17	9.4	35.7
18	15.9	39.5
19	33.8	5.4
20	21.0	17.2

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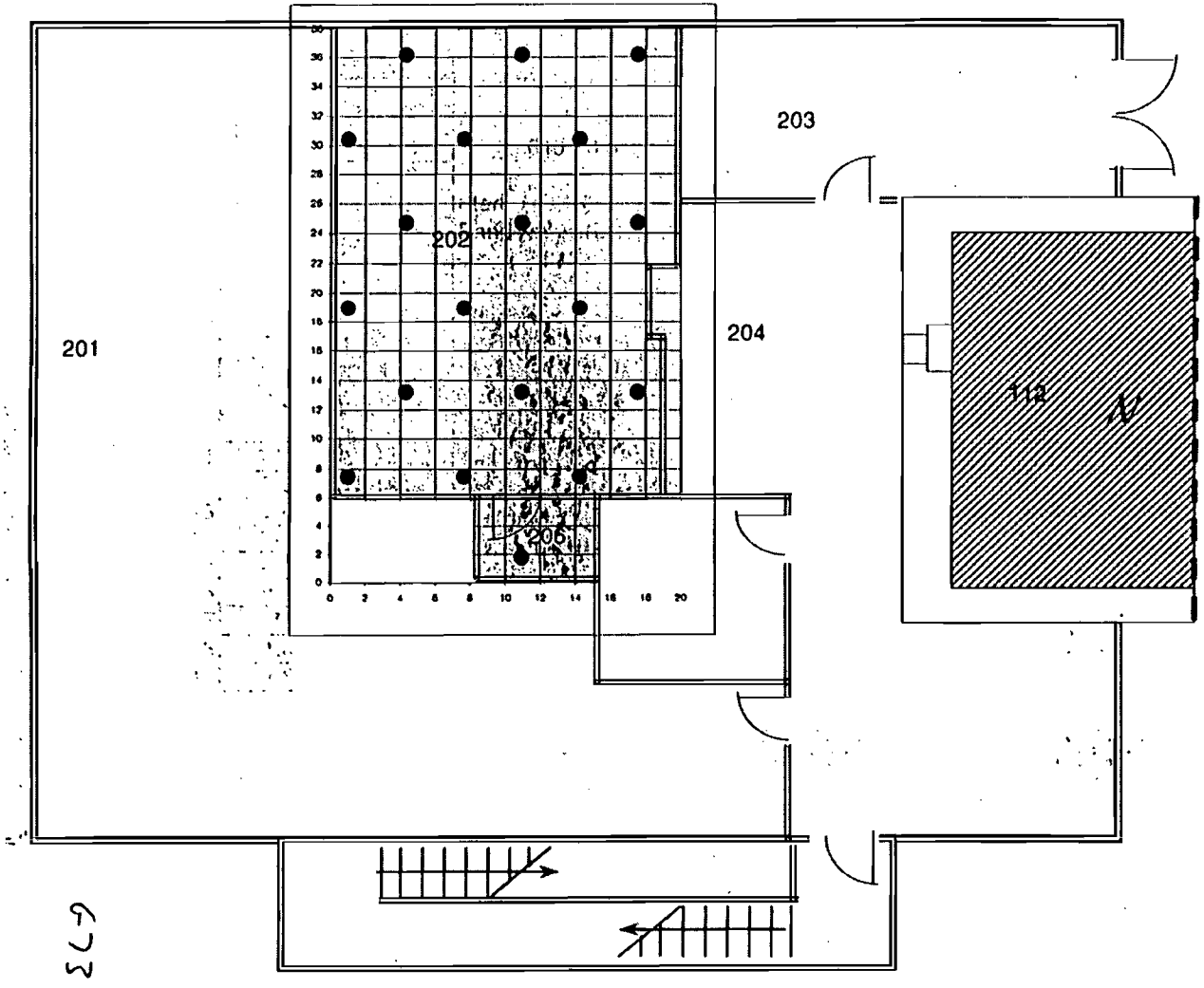
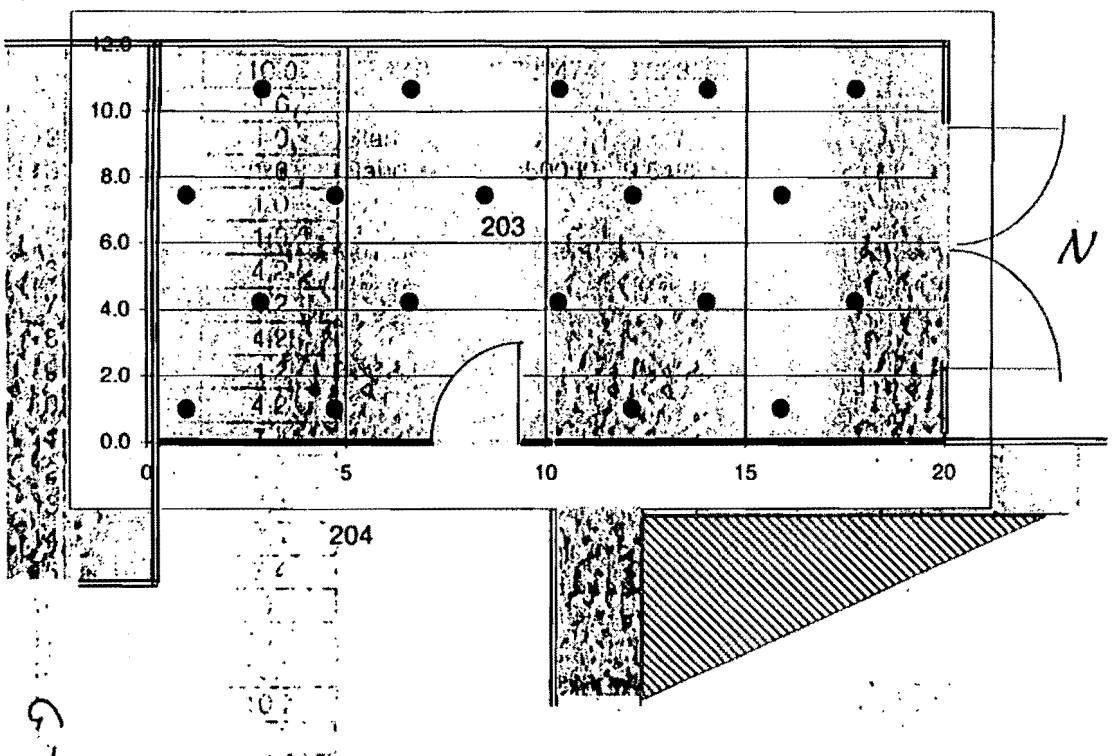


	Room 202/206	
	SU 28 Coordinates	
	X	Y
	20.0	38.0
1	4.3	36.2
2	14.2	30.4
3	10.9	36.2
4	10.9	1.7
5	17.6	36.2
6	1.0	7.5
7	7.6	7.5
8	14.2	7.5
9	4.3	13.2
10	10.9	13.2
11	17.6	13.2
12	1.0	18.9
13	7.6	18.9
14	14.2	18.9
15	4.3	24.7
16	10.9	24.7
17	17.6	24.7
18	1.0	30.4
19	7.6	30.4

A	L	L'
640	6.078775	5.264219
Start	X	Y
Rand X:Y	5.121217	6.577915



	Room 203	
	SU 29 Coordinates	
	X	Y
	24.0	10.0
1	1.0	1.0
2	4.7	1.0
3	8.4	1.0
4	12.2	1.0
5	15.9	1.0
6	2.9	4.2
7	6.6	4.2
8	10.3	4.2
9	14.0	4.2
10	17.8	4.2
11	1.0	7.4
12	4.7	7.4
13	8.4	7.4
14	12.2	7.4
15	15.9	7.4
16	2.9	10.7
17	6.6	10.7
18	10.3	10.7
19	14.0	10.7
20	17.8	10.7

A	L	L'
240	3.722474	3.223663
Start	X	Y
Rand X:Y	3.350059	9.848211

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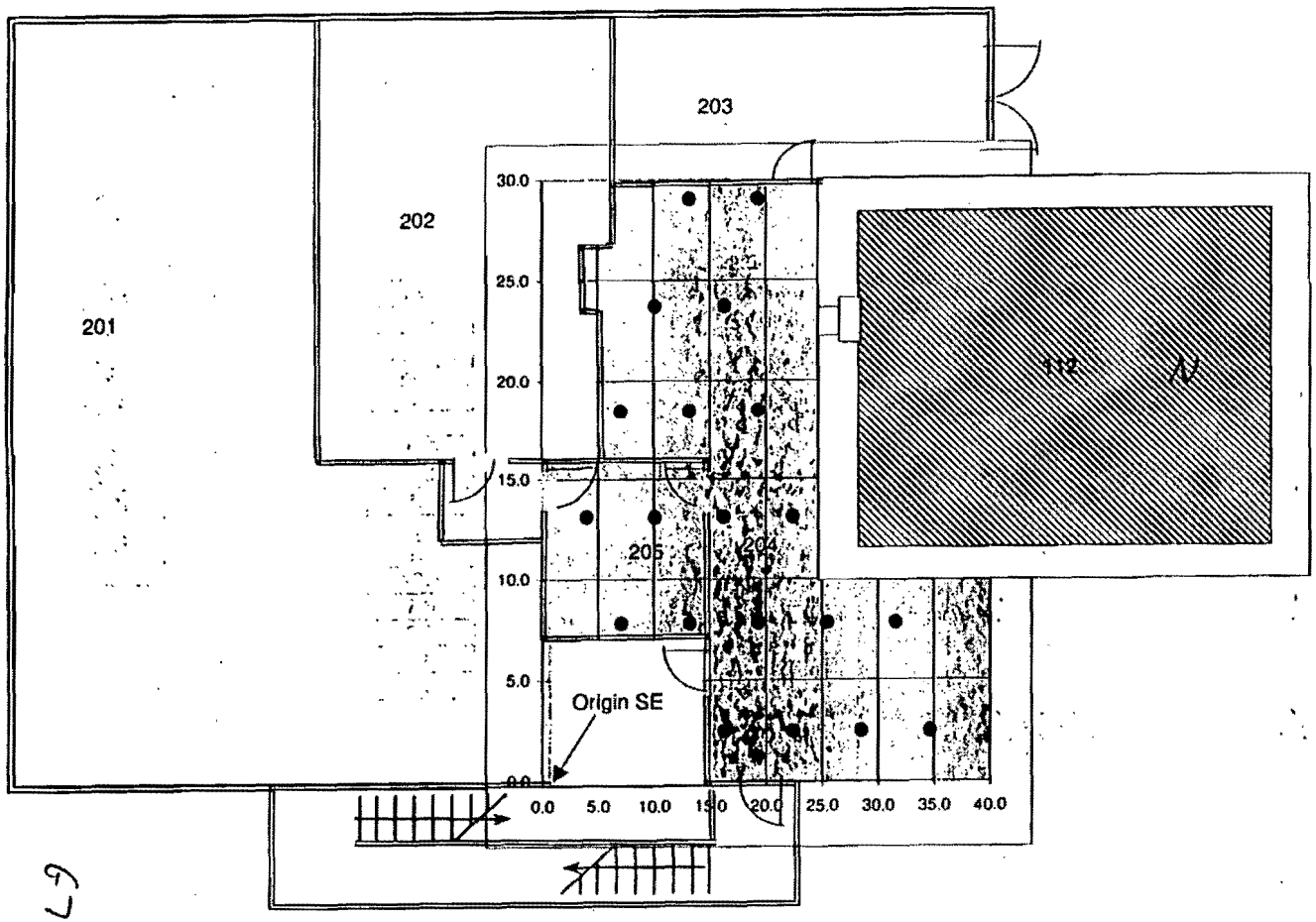

	Room 204	
	SU 30 Coordinates	
	X	Y
	21	31
1	4.0	13.1
2	7.1	7.8
3	7.1	18.4
4	10.1	23.7
5	10.1	13.1
6	13.2	7.8
7	13.2	18.4
8	13.2	29.0
9	16.3	2.5
10	16.3	13.1
11	16.3	23.7
12	19.3	29.0
13	19.3	7.8
14	19.3	18.4
15	22.4	2.5
16	22.4	13.1
17	25.4	7.8
18	28.5	2.5
19	31.6	7.8
20	34.6	2.5

A	L	L'
650	6.126081	5.305186

Start	X	Y
Rand X:Y	4.0	2.5

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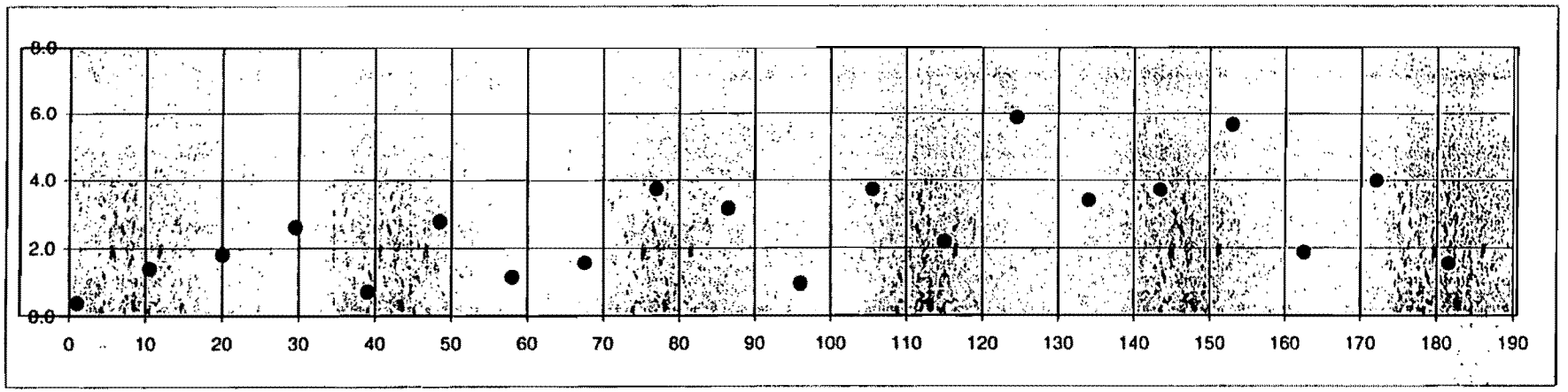
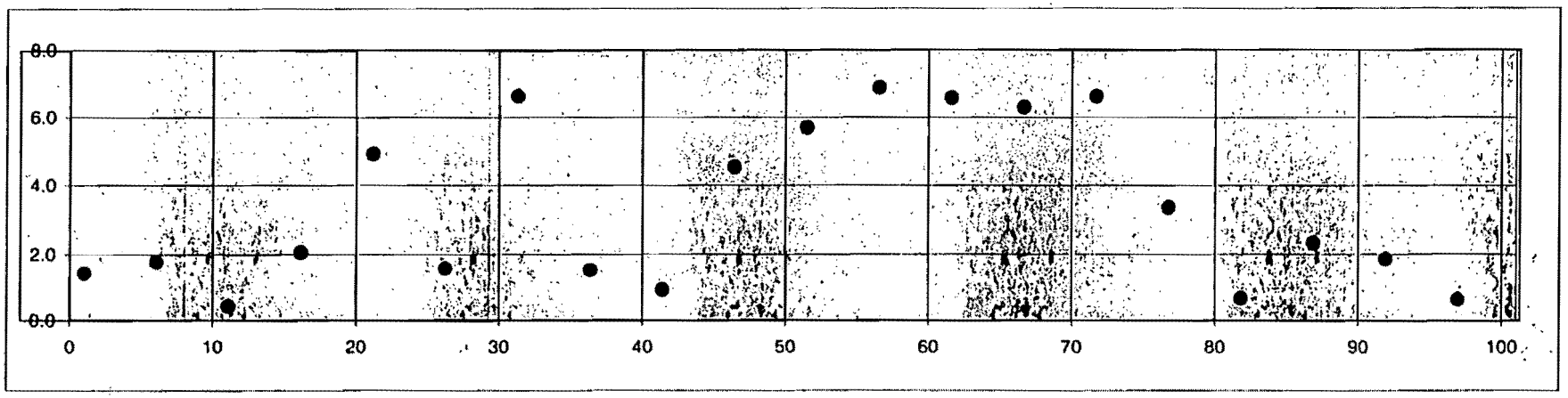


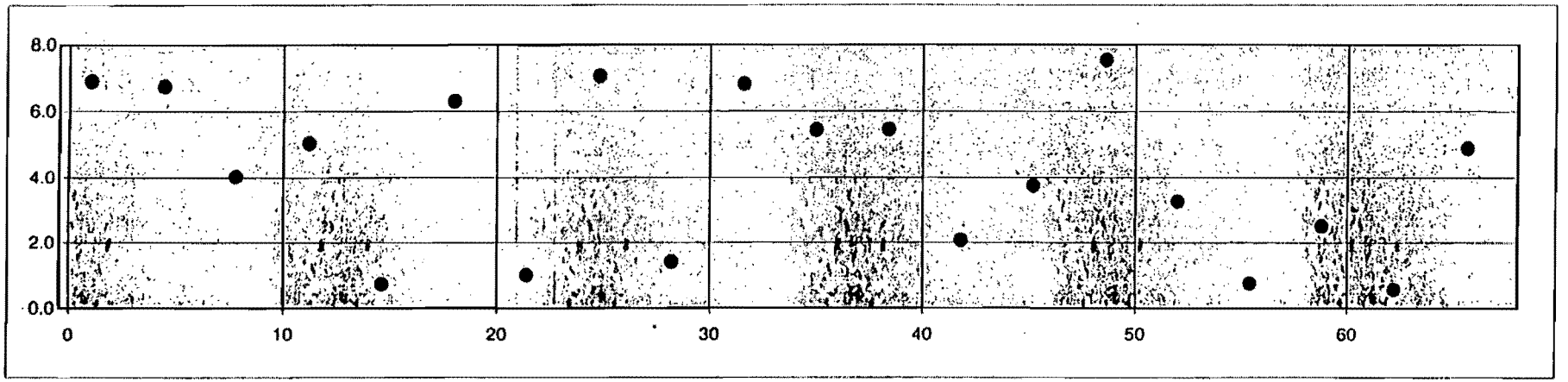
L = 190ft
W = 8ft

	Room 201 Walls	
	SU 31 Coordinates	
	X	Y
1	1	0.4
2	10.5	1.4
3	20	1.8
4	29.5	2.6
5	39	0.7
6	48.5	2.8
7	58	1.1
8	67.5	1.6
9	77	3.7
10	86.5	3.1
11	96	0.9
12	105.5	3.7
13	115	2.2
14	124.5	5.9
15	134	3.4
16	143.5	3.7
17	153	5.7
18	162.5	1.9
19	172	4.0
20	181.5	1.5



L = 101ft
W = 8ft

	Room 202 Walls SU 32 Coordinates	
	X	Y
1	1	1.4
2	6.05	1.8
3	11.1	0.4
4	16.15	2.1
5	21.2	4.9
6	26.25	1.6
7	31.3	6.6
8	36.35	1.5
9	41.4	0.9
10	46.45	4.5
11	51.5	5.7
12	56.55	6.9
13	61.6	6.6
14	66.65	6.3
15	71.7	6.6
16	76.75	3.4
17	81.8	0.7
18	86.85	2.3
19	91.9	1.8
20	96.95	0.6



L = 68ft
W = 8ft

	Room 203 Walls SU 33 Coordinates	
	X	Y
1	1	6.9
2	4.4	6.7
3	7.8	4.0
4	11.2	5.0
5	14.6	0.7
6	18	6.3
7	21.4	1.0
8	24.8	7.1
9	28.2	1.4
10	31.6	6.8
11	35	5.4
12	38.4	5.5
13	41.8	2.1
14	45.2	3.7
15	48.6	7.5
16	52	3.3
17	55.4	0.7
18	58.8	2.5
19	62.2	0.6
20	65.6	4.9

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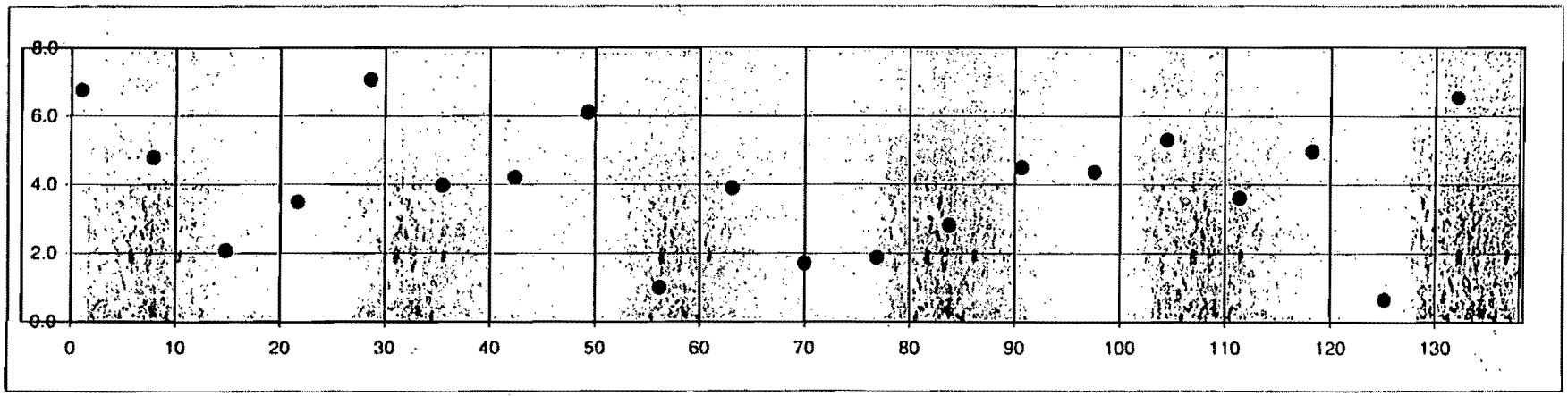

L = 138ft
W = 8ft

	Room 204 Walls SU 34 Coordinates	
	X	Y
1	1	6.8
2	7.9	4.8
3	14.8	2.1
4	21.7	3.5
5	28.6	7.1
6	35.5	4.0
7	42.4	4.2
8	49.3	6.1
9	56.2	1.0
10	63.1	3.9
11	70	1.7
12	76.9	1.9
13	83.8	2.8
14	90.7	4.5
15	97.6	4.3
16	104.5	5.3
17	111.4	3.6
18	118.3	5.0
19	125.2	0.7
20	132.1	6.5

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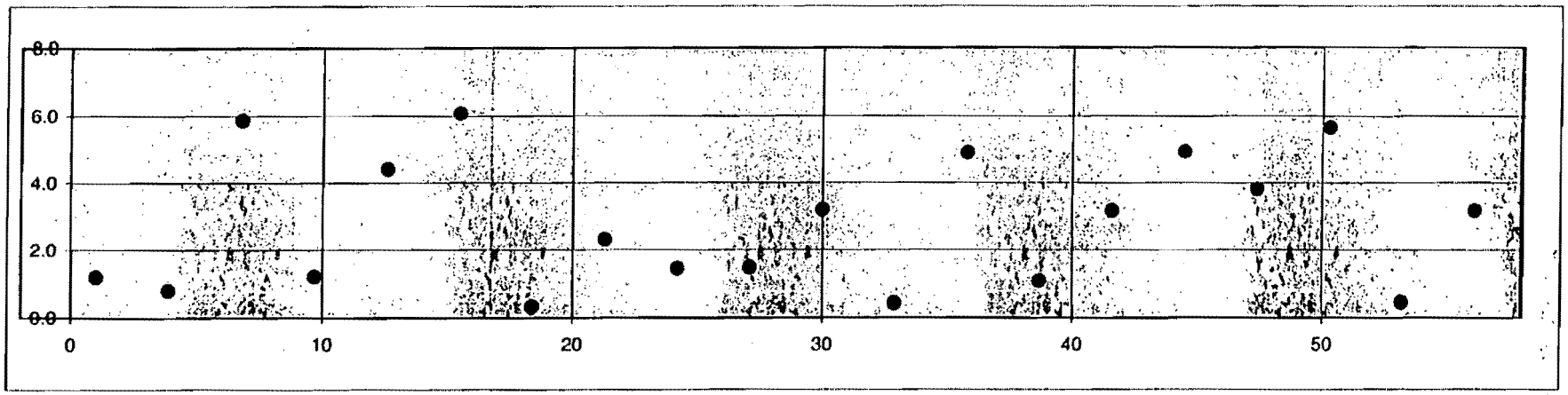

L = 58ft
W = 8ft

	Room 205/206 Walls SU 35 Coordinates	
	X	Y
1	1	1.2
2	3.9	0.8
3	6.8	5.9
4	9.7	1.2
5	12.6	4.4
6	15.5	6.1
7	18.4	0.3
8	21.3	2.3
9	24.2	1.4
10	27.1	1.5
11	30	3.2
12	32.9	0.4
13	35.8	4.9
14	38.7	1.1
15	41.6	3.2
16	44.5	4.9
17	47.4	3.8
18	50.3	5.6
19	53.2	0.4
20	56.1	3.2

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) BUILDING 50	SURVEY NO. 03-TF-0283
PURPOSE: MARSSIM SURVEY PLAN 50-1 UNIT 36 (EXTERIOR WALLS)	RWP NO. N/A
	DATE: 10-30-03
	TIME: 1830

MAP/DRAWING

COPY

SEE ATTACHED DRAWINGS AND RESULTS

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350	5855	06-18-04
2360	5833/5847	03-13-04
	N/A	

[redacted]	HP # 5214	Date: 10-30-03
Completed by: [redacted]		
Counted by: (Signature)	HP #	Date:
Counted by: (Print Name)		
[redacted]	HP # 6178	Date: 11-3-03
Reviewed/Appro[redacted]		

ML-9620 (2-98)

Survey No.
03-TF-0283

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-28	SEE ATTACHED RESULTS		N/A	UNIT 36
		N/A		

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

COMMENTS:

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

ML-9620A (4-98)

Alpha/Beta Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR008
Batch Ended: 10/23/2003 15:41
Recalibration Date: 3/24/2005
Serial Number: 64575

Batch ID: REYNOLDS 03-TP-0283 A/B (28) AG

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity s	Alpha Activity flags	Beta Activity DPM	Beta Activity s	Beta Activity flags
A1	1	1.7	2.0		6.7	3.2	
A2	2	1.7	1.9		0.0	1.2	
A3	3	0.0	1.9		2.0	2.4	
A4	4	0.0	1.9		3.2	2.3	
B1	5	1.8	2.1		5.3	3.7	
B2	6	1.9	2.1		0.0	1.3	
B3	7	1.7	2.0		0.0	1.8	
B4	8	3.5	2.7		1.1	2.2	
C1	9	0.0	2.0		0.4	1.7	
C2	10	0.0	2.0		1.7	2.1	
C3	11	0.0	1.9		0.6	1.7	
C4	12	0.0	1.8		3.9	2.6	
D1	13	0.0	2.0		0.0	1.3	
D2	14	0.0	2.1		0.0	1.2	
D3	15	0.0	2.0		1.1	1.7	
D4	16	0.0	2.0		0.0	1.2	
A1	17	0.0	1.9		0.8	1.7	
A2	18	0.0	1.9		2.1	2.4	
A3	19	0.0	1.8		0.0	1.2	
A4	20	1.7	1.9		0.0	1.2	
B1	21	0.0	2.0		4.2	3.4	
B2	22	1.9	2.2		1.7	2.2	
B3	23	0.0	2.0		2.5	2.8	
B4	24	0.0	2.0		2.7	2.5	
C1	25	0.0	2.0		4.1	2.7	
C2	26	0.0	2.0		1.7	2.1	
C3	27	0.0	1.9		0.0	1.2	
C4	28	0.0	1.8		0.0	1.2	

SR SR

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RDS 03-TP-0283

R 368

 SR 10-30-03

Albert Hudson

50-Building Characterization Survey Unit 36

RSDS# _03-TF-0283_ RCT: SKP RCT: _____

Alpha	43-68 BKG:	0	EFF:	0.2091	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Beta	43-68 BKG:	0	EFF:	0.1793	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Scan	43-37 BKG:	0	EFF:	0.2075	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # :
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5855	5214	5864	1		10/23/03	7:02	11	300	17
ALPHA	SRCCHECK	5855	5214	5864	1	0	10/23/03	7:04	1996	60	15152
ALPHA	SRCCHECK	5855	5214	5864	1	0	10/23/03	7:06	2117	60	16070
ALPHA	SRCCHECK	5855	5214	5864	1	0	10/23/03	7:07	1991	60	15114
ALPHA	SRCCHECK	5855	5214	5864	1	0	10/23/03	7:09	2012	60	15273
ALPHA	U-36 01	5855	5214	5864	1	1	10/23/03	8:28	23	120	87
ALPHA	U-36 02	5855	5214	5864	1	2	10/23/03	8:32	7	120	27
ALPHA	U-36 03	5855	5214	5864	1	3	10/23/03	8:36	13	120	49
ALPHA	U-36 04	5855	5214	5864	1	4	10/23/03	8:40	6	120	23
ALPHA	U-36 05	5855	5214	5864	1	5	10/23/03	8:45	22	120	84
ALPHA	U-36 06	5855	5214	5864	1	6	10/23/03	8:49	14	120	53
ALPHA	U-36 07	5855	5214	5864	1	7	10/23/03	8:53	12	120	46
ALPHA	U-36 08	5855	5214	5864	1	8	10/23/03	8:56	18	120	68
ALPHA	U-36 09	5855	5214	5864	1	9	10/23/03	9:00	14	120	53
ALPHA	U-36 10	5855	5214	5864	1	10	10/23/03	9:05	23	120	87
ALPHA	U-36 11	5855	5214	5864	1	11	10/23/03	9:09	6	120	23
ALPHA	U-36 12	5855	5214	5864	1	12	10/23/03	9:12	12	120	46
ALPHA	U-36 13	5855	5214	5864	1	13	10/23/03	9:16	6	120	23
ALPHA	U-36 14	5855	5214	5864	1	14	10/23/03	9:20	4	120	15
ALPHA	U-36 15	5855	5214	5864	1	15	10/23/03	9:24	11	120	42
ALPHA	U-36 16	5855	5214	5864	1	16	10/23/03	9:28	12	120	46
ALPHA	U-36 17	5855	5214	5864	1	17	10/23/03	9:32	23	120	87
ALPHA	U-36 18	5855	5214	5864	1	18	10/23/03	9:36	10	120	38
ALPHA	U-36 19	5855	5214	5864	1	19	10/23/03	9:40	17	120	65
ALPHA	U-36 20	5855	5214	5864	1	20	10/23/03	9:44	11	120	42
ALPHA	U-36 21	5855	5214	5864	1	21	10/23/03	9:56	21	120	80
ALPHA	U-36 22	5855	5214	5864	1	22	10/23/03	10:00	20	120	76
ALPHA	U-36 23	5855	5214	5864	1	23	10/23/03	10:04	29	120	110
ALPHA	U-36 24	5855	5214	5864	1	24	10/23/03	10:08	39	120	148
ALPHA	U-36 25	5855	5214	5864	1	25	10/23/03	10:11	32	120	121
ALPHA	U-36 26	5855	5214	5864	1	26	10/23/03	12:47	22	120	84
ALPHA	U-36 27	5855	5214	5864	1	27	10/23/03	12:52	15	120	57
ALPHA	U-36 28	5855	5214	5864	1	28	10/23/03	12:57	20	120	76
BETA	SRC BKG	5855	5214	5864	2	0	10/23/03	7:17	808	300	1431
BETA	SRCCHECK	5855	5214	5864	2	0	10/23/03	7:20	2583	60	22867
BETA	SRCCHECK	5855	5214	5864	2	0	10/23/03	7:22	2706	60	23956
BETA	SRCCHECK	5855	5214	5864	2	0	10/23/03	7:23	2566	60	22716
BETA	SRCCHECK	5855	5214	5864	2	0	10/23/03	7:26	2487	60	22017

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Ps 4 of 8

50-Building Characterization Survey Unit 36

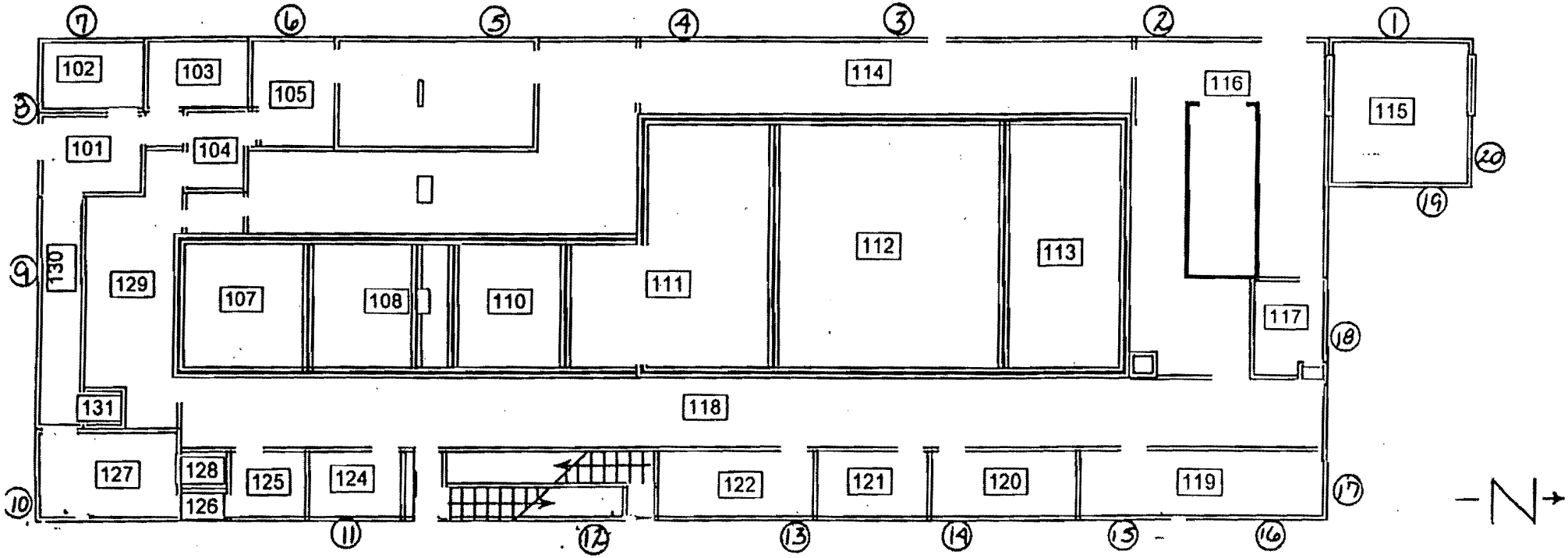
RSDS# _03-TF-0283_ RCT: DIR RCT: _____

Alpha	43-68 BKG:	0	EFF:	0.2091	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :	1
Beta	43-68 BKG:	0	EFF:	0.1793	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :	2
Scan	43-37 BKG:	0	EFF:	0.2075	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # :	3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
BETA	U-36 01	5855	5214	5864	2	1	10/23/03	8:29	138	60	1222	
BETA	U-36 02	5855	5214	5864	2	2	10/23/03	8:33	122	60	1080	
BETA	U-36 03	5855	5214	5864	2	3	10/23/03	8:37	118	60	1045	
BETA	U-36 04	5855	5214	5864	2	4	10/23/03	8:41	142	60	1257	
BETA	U-36 05	5855	5214	5864	2	5	10/23/03	8:46	118	60	1045	
BETA	U-36 06	5855	5214	5864	2	6	10/23/03	8:50	109	60	965	
BETA	U-36 07	5855	5214	5864	2	7	10/23/03	8:54	98	60	868	
BETA	U-36 08	5855	5214	5864	2	8	10/23/03	8:58	106	60	938	
BETA	U-36 09	5855	5214	5864	2	9	10/23/03	9:02	125	60	1107	
BETA	U-36 10	5855	5214	5864	2	10	10/23/03	9:06	108	60	956	
BETA	U-36 11	5855	5214	5864	2	11	10/23/03	9:10	143	60	1266	
BETA	U-36 12	5855	5214	5864	2	12	10/23/03	9:14	121	60	1071	
BETA	U-36 13	5855	5214	5864	2	13	10/23/03	9:17	113	60	1000	
BETA	U-36 14	5855	5214	5864	2	14	10/23/03	9:21	113	60	1000	
BETA	U-36 15	5855	5214	5864	2	15	10/23/03	9:26	140	60	1239	
BETA	U-36 16	5855	5214	5864	2	16	10/23/03	9:30	130	60	1151	
BETA	U-36 17	5855	5214	5864	2	17	10/23/03	9:34	137	60	1213	
BETA	U-36 18	5855	5214	5864	2	18	10/23/03	9:37	141	60	1248	
BETA	U-36 19	5855	5214	5864	2	19	10/23/03	9:41	121	60	1071	
BETA	U-36 20	5855	5214	5864	2	20	10/23/03	9:45	116	60	1027	
BETA	U-36 21	5855	5214	5864	2	21	10/23/03	9:57	167	60	1478	
BETA	U-36 22	5855	5214	5864	2	22	10/23/03	10:01	140	60	1239	
BETA	U-36 23	5855	5214	5864	2	23	10/23/03	10:05	183	60	1620	
BETA	U-36 24	5855	5214	5864	2	24	10/23/03	10:09	183	60	1620	
BETA	U-36 25	5855	5214	5864	2	25	10/23/03	10:13	191	60	1691	
BETA	U-36 26	5855	5214	5864	2	26	10/23/03	12:48	183	60	1620	
BETA	U-36 27	5855	5214	5864	2	27	10/23/03	12:53	186	60	1647	
BETA	U-36 28	5855	5214	5864	2	28	10/23/03	12:58	169	60	1496	

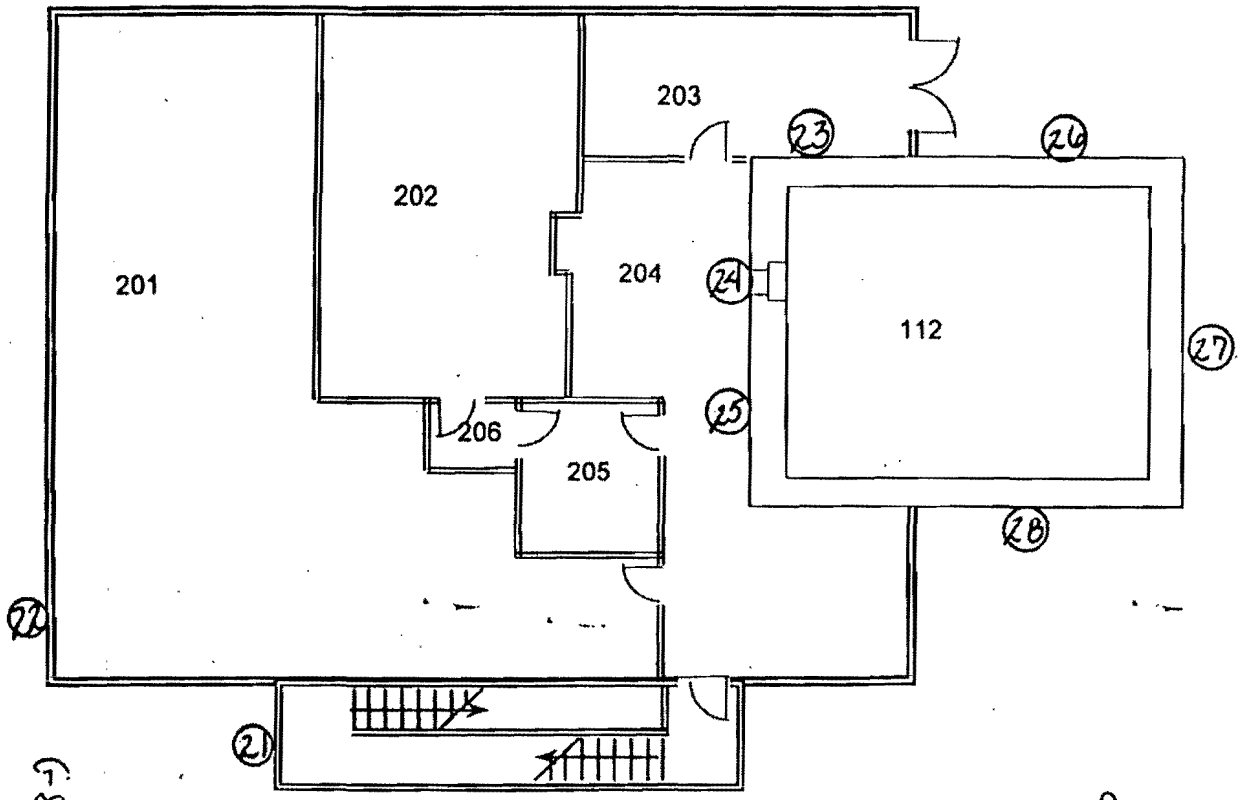
50-Building Characterization Survey Unit 36 Rescan

RSDS# _03TF-0283_ RCT: _____ RCT: _____

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :	1
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :	2
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # :	3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
ALPHA	SRC BKG	5857	5214	5859	1		10/30/03	7:08	8	300	11	
ALPHA	SRCCHECK	5857	5214	5859	1		10/30/03	7:29	2095	60	14477	
ALPHA	SRCCHECK	5857	5214	5859	1		10/30/03	7:31	2101	60	14519	
ALPHA	SRCCHECK	5857	5214	5859	1		10/30/03	7:36	1967	60	13593	
ALPHA	SRCCHECK	5857	5214	5859	1		10/30/03	7:39	2031	60	14035	
ALPHA	U-36R 23	5857	5214	5859	1	23	10/30/03	16:36	23	120	79	
ALPHA	U-36R 24	5857	5214	5859	1	24	10/30/03	16:40	22	120	76	
ALPHA	U-36R 25	5857	5214	5859	1	25	10/30/03	16:43	17	120	59	
BETA	SRC BKG	5857	5214	5859	2		10/30/03	7:47	644	300	1097	
BETA	SRCCHECK	5857	5214	5859	2		10/30/03	7:54	2533	60	21582	
BETA	SRCCHECK	5857	5214	5859	2		10/30/03	7:56	2541	60	21650	
BETA	SRCCHECK	5857	5214	5859	2		10/30/03	7:57	2482	60	21147	
BETA	SRCCHECK	5857	5214	5859	2		10/30/03	7:59	2295	60	19554	
BETA	U-36R 23	5857	5214	5859	2	23	10/30/03	16:37	187	60	1593	
BETA	U-36R 24	5857	5214	5859	2	24	10/30/03	16:41	206	60	1755	
BETA	U-36R 25	5857	5214	5859	2	25	10/30/03	16:45	183	60	1559	



BUILDING 50
UNIT 36



N

BUILDING 50 PENTHOUSE
UNIT 36

RADIOLOGICAL SURVEY DATA SHEET

BL65

LOCATION: (BLDG./AREA/ROOM) BUILDING 50	SURVEY NO. 03-TF-0267
PURPOSE: SURVEY PODE PER MARSSIM SURVEY PLAN 50-01 UNIT 37	RWP NO. N/A
	DATE: 10-13-03
	TIME: 1400

MAP/DRAWING

COPY

SEE ATTACHED DRAWING AND RESULTS

SMEARS TAKEN AT DIRECT READING LOCATIONS.

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2360/43-93	5233/5847	03-13-04
	N/A	

[redacted]	HP # 5214	Date: 10-15-03
Counted by: (Signature)	HP #	Date:
Counted by: (Print Name) SEE ATTACHED [redacted]	HP # 6178	Date: 10-15-03
Reviewed [redacted]		

ML-9620 (2-98)

Survey No. 03-TF-0267

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-20			N/A	ROOF
		N/A		

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

COMMENTS: NONE

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

MD-9620A (4-98)

Alpha/Beta Analysis

Batch ID:	Smear Unit 1 - 200310140646	Count Date:	10/14/200:
Group:	H	Count Minutes:	1.5
Serial Number:	78218-1	Count Mode:	Simultaneous
Batch ID:	03-TF-0267 RILEY-20 BSB	Operating Volts:	1410
Selected Geometry:	Swipe/Smear	Cal Due Dates:	6/19/2004

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

Sample ID	Carrier ID	Alpha (dpm)	σ	Beta (dpm)	σ
1	76	10.92	4.29	12.92	4.59
2	58	4.36	2.72	10.65	4.09
3	41	2.19	1.92	1.21	1.45
4	71	8.75	3.84	0.75	1.48
5	90	2.19	1.92	1.21	1.45
6	57	0.00	0.00	1.37	1.45
7	7	2.18	1.92	5.32	2.90
8	71	0.00	0.00	1.37	1.45
9	98	0.00	0.00	0.00	0.00
10	54	2.19	1.92	0.00	0.16
11	67	0.00	0.00	5.48	2.89
12	32	0.00	0.00	2.74	2.04
13	12	4.37	2.72	0.00	0.23
14	54	0.00	0.00	1.37	1.45
15	81	2.19	1.92	1.21	1.45
16	20	4.37	2.72	1.06	1.46
17	21	2.19	1.92	1.21	1.45
18	84	4.37	2.72	5.17	2.90
19	60	0.00	0.00	2.74	2.04
20	42	2.19	1.92	1.21	1.45
~~21~~	~~42~~	~~2.18~~	~~1.92~~	~~8.06~~	~~3.54~~
~~22~~	~~42~~	~~4.37~~	~~2.72~~	~~1.06~~	~~1.46~~
~~23~~	~~42~~	~~2.18~~	~~1.92~~	~~3.95~~	~~2.51~~
~~24~~	~~42~~	~~0.00~~	~~0.00~~	~~9.59~~	~~3.82~~
~~25~~	~~42~~	~~13.10~~	~~4.70~~	~~14.14~~	~~4.81~~
		SK		SK	

Delete Duplicates 10/14/03 bsb

G-91 of 313

50-BLDG CHARACTERIZATION APLHA and BETA SURVEY UNIT 37

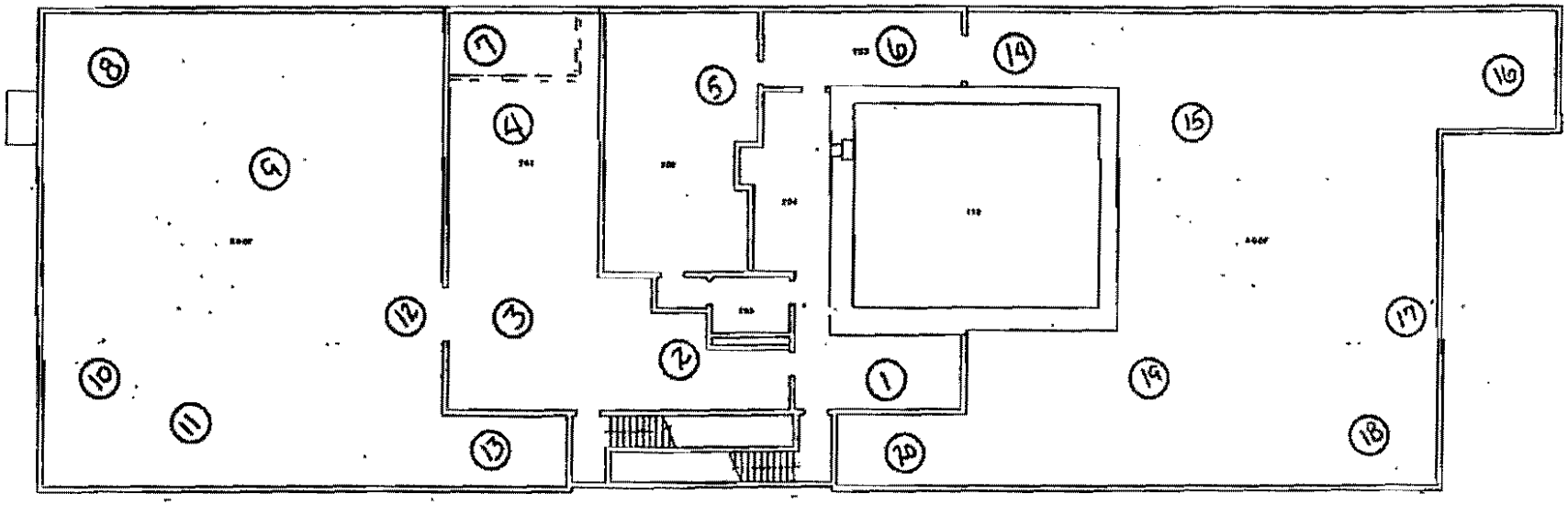
RSDS#03-TF-0267 RCT: SR RCT: N/A

						BETA			ALPHA		
LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2	gross count	CT TIME	dpm/100cm2
U37 - 1	5833	5214	5847	1	10/13/03	352	120	300	10	120	40
U37 - 2	5833	5214	5847	2	10/13/03	324	120	230	13	120	55
U37 - 3	5833	5214	5847	3	10/13/03	305	120	183	16	120	70
U37 - 4	5833	5214	5847	4	10/13/03	295	120	158	15	120	65
U37 - 5	5833	5214	5847	5	10/13/03	311	120	198	7	120	25
U37 - 6	5833	5214	5847	6	10/13/03	286	120	135	7	120	25
U37 - 7	5833	5214	5847	7	10/13/03	260	120	70	14	120	60
U37 - 8	5833	5214	5847	8	10/13/03	272	120	100	11	120	45
U37 - 9	5833	5214	5847	9	10/13/03	291	120	148	10	120	40
U37 - 10	5833	5214	5847	10	10/13/03	279	120	118	13	120	55
U37 - 11	5833	5214	5847	11	10/13/03	332	120	250	12	120	50
U37 - 12	5833	5214	5847	12	10/13/03	348	120	290	15	120	65
U37 - 13	5833	5214	5847	13	10/13/03	302	120	175	14	120	60
U37 - 14	5833	5214	5847	14	10/13/03	294	120	155	11	120	45
U37 - 15	5833	5214	5847	15	10/13/03	298	120	165	11	120	45
U37 - 16	5833	5214	5847	16	10/13/03	272	120	100	17	120	75
U37 - 17	5833	5214	5847	17	10/13/03	305	120	183	8	120	30
U37 - 18	5833	5214	5847	18	10/13/03	285	120	133	12	120	50
U37 - 19	5833	5214	5847	19	10/13/03	331	120	248	6	120	20
U37 - 20	5833	5214	5847	20	10/13/03	359	120	318	18	120	80
BETA BACKGROUND (CPM) FOR 10-13-2003 WAS---------->								116			
ALPHA BACKGROUND (CPM) FOR 10-13-2003 WAS---------->								1			

(Pg 2 of 32)

MARSSIM SURVEY PLAN 50-01 UNIT 37

BUILDING 50 ROOF



DOES NOT CONTAIN
UNCLASSIFIED CONTROLLED
NUCLEAR INFORMATION

Reviewing Official: J. A. NESHEIM
EMCBC Classification Officer Name
Date: 08-26-08

BLDG #50
PENTHOUSE
BLDG CODE:3050

FSD911260	19335
D	

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RSS 03-TE-0267

Pg 5 of 5

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G94n6 313

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) Building 50	SURVEY NO. 03-TF-0284
PURPOSE: MARSSIM Survey Plan 50-1 Units 3, 2 and 1	RWP NO. N/A
	DATE: 10-29-03
	TIME: 1830

MAP/DRAWING

COPY

See attached drawings and results.

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350	5857	09-09-04
2360	5833/5847	03-13-04
	N/A	

[redacted]	HP # 5214 7474	Date: 10-29-03
Counted by: (Signature)	HP #	Date:
Counted by: (Print Name) See attached		
Reviewed/A[redacted]	HP # 5781	Date: 10/30/03
Reviewed/Approved by: (Print Name) [redacted]		

ML-9620 (2-98)

G-95-1 3/3

Survey No. 03-TF-0284

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-20				UNIT 3
21-40				UNIT 2
41-60	SEE ATTACHED RESULTS			UNIT 1
			N/A	

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

COMMENTS:

NOTES:

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

ML-9620A (4-98)

G96 of 313

Alpha/Beta Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR000
Batch Ended: 10/28/2003 8:17
Recalibration Date: 3/24/2005
Serial Number: 64575

Batch ID: 03-TF-0284 K. AMBERCROMBIE A/B (60) AG

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	s	flags	DPM	s	flags
A1	1	1.7	1.9		0.6	1.7	
A2	2	0.0	1.9		0.9	2.1	
A3	3	0.0	1.9		0.0	1.7	
A4	4	0.0	1.9		0.9	1.6	
B1	5	0.0	2.0		0.3	2.6	
B2	6	0.0	2.2		3.1	2.6	
B3	7	0.0	2.0		0.0	2.2	
B4	8	1.6	2.0		1.3	2.2	
C1	9	0.0	2.0		0.0	1.2	
C2	10	1.8	1.9		0.0	1.2	
C3	11	1.7	1.9		0.4	1.7	
C4	12	0.0	1.8		3.9	2.6	
D1	13	3.7	2.9		0.0	1.3	
D2	14	0.0	2.1		0.0	1.2	
D3	15	0.0	2.0		1.1	1.7	
D4	16	0.0	2.0		0.8	1.7	
A1	17	0.0	1.9		0.0	1.2	
A2	18	0.0	1.9		0.0	1.2	
A3	19	0.0	1.8		0.0	1.2	
A4	20	1.7	1.9		0.7	1.6	
B1	21	0.0	2.0		2.9	3.2	
B2	22	1.9	2.2		1.7	2.2	
B3	23	0.0	2.0		5.0	3.3	
B4	24	0.0	2.0		1.4	2.2	
C1	25	0.0	2.0		2.8	2.4	
C2	26	1.8	1.9		0.0	1.2	
C3	27	0.0	1.9		0.6	1.7	
C4	28	0.0	1.8		0.0	1.2	
D1	29	1.7	2.0		0.0	1.3	
D2	30	0.0	2.1		0.0	1.2	
D3	31	0.0	2.0		0.0	1.2	

SL SL

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Alpha/Beta Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR000
Batch Ended: 10/28/2003 8:17
Recalibration Date: 3/24/2005
Serial Number: 64575

Batch ID: 03-TF-0284 K. AMBERCROMBIE A/B (60) AG

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity s	Alpha Activity flags	Beta Activity DPM	Beta Activity s	Beta Activity flags
D4	32	0.0	2.0		0.8	1.7	
A1	33	0.0	1.9		0.0	1.2	
A2	34	1.7	1.9		0.8	2.1	
A3	35	0.0	1.9		0.0	1.7	
A4	36	0.0	1.9		0.9	1.6	
B1	37	0.0	2.0		0.0	2.3	
B2	38	0.0	2.2		5.6	3.1	
B3	39	0.0	2.0		0.0	1.3	
B4	40	0.0	2.0		0.2	1.8	
C1	41	0.0	2.0		0.4	1.7	
C2	42	0.0	1.9		0.0	1.2	
C3	43	0.0	1.9		0.6	1.7	
C4	44	0.0	1.8		0.0	1.2	
D1	45	0.0	2.0		0.0	1.3	
D2	46	1.8	2.1		0.9	1.7	
D3	47	1.7	2.0		2.2	2.1	
D4	48	0.0	2.0		0.8	1.7	
A1	49	0.0	1.9		2.0	2.1	
A2	50	0.0	1.9		2.1	2.4	
A3	51	1.6	1.8		0.0	1.2	
A4	52	1.7	1.9		0.7	1.6	
B1	53	0.0	2.1		8.1	4.1	
B2	54	0.0	2.2		1.8	2.2	
B3	55	0.0	2.0		0.0	2.2	
B4	56	0.0	2.0		0.2	1.8	
C1	57	0.0	2.0		0.4	1.7	
C2	58	0.0	2.0		0.5	1.7	
C3	59	0.0	1.9		0.0	1.2	
C4	60	0.0	1.8		0.5	1.6	

SK SK

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Protocol #: 1 Name:pW h3 10106B 28-Oct-2003 11:38
Region A: LL-UL= 0.5-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region B: LL-UL= 2.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region C: LL-UL=40.0-2000 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Time = 2.00 QIP = tSIE/AEC ES Terminator = Count
ABERCROMBIE 03-TF-0284 1-60 JC
Conventional DPM
Nuclide 1 = 206704
Luminescence Correction On

S#	TIME	LUM	FLAG	CPMA	CPMB	CPMC	tSIE	DPM1	2Sigma
-1	10.00	13	B	13.10	11.50	7.90	561.		0.00
0	2.00	1		200.40	190.00	0.00	484.	412.64	53.53
1	2.00	8		0.00	0.00	0.00	527.	0.00	0.00
2	2.00	10		0.00	0.00	0.00	564.	0.00	0.00
3	2.00	9		0.00	0.00	0.00	610.	0.00	0.00
4	2.00	0		0.00	0.00	0.00	572.	0.00	0.00
5	2.00	0		0.00	0.00	0.00	537.	0.00	0.00
6	2.00	36		0.00	0.00	0.00	522.	0.00	0.00
7	2.00	15		0.00	0.00	0.00	556.	0.00	0.00
8	2.00	0		0.00	0.00	2.10	577.	0.00	0.00
9	2.00	11		0.00	0.00	0.00	572.	0.00	0.00
10	2.00	17		0.00	0.00	0.00	545.	0.00	0.00
11	2.00	48		0.00	0.00	0.00	531.	0.00	0.00
12	2.00	10		0.00	0.00	0.00	537.	0.00	0.00
13	2.00	20		0.00	0.00	0.00	574.	0.00	0.00
14	2.00	0		0.00	0.00	0.00	574.	0.00	0.00
15	2.00	12		0.00	0.00	0.00	506.	0.00	0.00
16	2.00	9		0.00	0.00	0.00	573.	0.00	0.00
17	2.00	0		0.00	0.00	0.00	587.	0.00	0.00
18	2.00	0		0.00	0.00	0.00	495.	0.00	0.00
19	2.00	0		0.00	0.00	0.00	583.	0.00	0.00
20	2.00	12		0.00	0.00	0.00	538.	0.00	0.00
21	2.00	0		0.00	0.00	0.00	533.	0.00	0.00
22	2.00	0		0.00	0.00	0.00	531.	0.00	0.00
23	2.00	8		0.00	0.00	0.00	416.	0.00	0.00
24	2.00	3		22.90	18.50	0.00	563.	43.39	18.35
25	2.00	1		137.90	130.50	0.00	546.	265.73	39.37
26	2.00	0		0.00	0.00	0.00	470.	0.00	0.00
27	2.00	0		2.90	4.00	0.00	555.	5.54	11.66
28	2.00	0		0.00	0.00	0.00	582.	0.00	0.00
29	2.00	20		0.00	0.00	0.00	566.	0.00	0.00
30	2.00	0		0.00	0.00	0.00	511.	0.00	0.00
31	2.00	0		0.00	0.00	0.00	552.	0.00	0.00
32	2.00	0		0.00	0.00	0.00	590.	0.00	0.00
33	2.00	34		0.00	0.00	0.00	521.	0.00	0.00
34	2.00	0		0.00	0.00	0.00	526.	0.00	0.00
35	2.00	8		0.00	0.00	0.00	545.	0.00	0.00
36	2.00	0		0.00	0.00	0.00	545.	0.00	0.00
37	2.00	0		0.00	0.00	0.00	547.	0.00	0.00
38	2.00	0		0.00	0.00	0.00	624.	0.00	0.00
39	2.00	0		0.00	0.00	0.00	615.	0.00	0.00
40	2.00	30		0.00	0.00	0.00	555.	0.00	0.00
41	2.00	7		0.00	0.00	0.00	558.	0.00	0.00
42	2.00	0		0.00	0.00	0.00	544.	0.00	0.00
43	2.00	0		0.00	0.00	0.00	523.	0.00	0.00
44	2.00	12		0.00	0.00	0.00	534.	0.00	0.00

S#	TIME	LUM	FLAG	CPMA	CPMB	CPMC	tSIE	DPM1	2Sigma
45	2.00	0		0.00	0.00	0.00	487.	0.00	0.00
46	2.00	0		0.00	0.00	0.00	505.	0.00	0.00
47	2.00	17		0.00	0.00	0.00	475.	0.00	0.00
48	2.00	0		0.00	0.00	0.00	495.	0.00	0.00
49	2.00	0		0.00	0.00	0.00	507.	0.00	0.00
50	2.00	0		0.00	0.00	0.00	511.	0.00	0.00
51	2.00	0		0.00	0.00	0.00	464.	0.00	0.00
52	2.00	11		0.00	0.00	0.00	505.	0.00	0.00
53	2.00	11		0.00	0.00	0.00	332.	0.00	0.00
54	2.00	40		0.00	0.00	0.00	399.	0.00	0.00
55	2.00	11		0.00	0.00	0.00	499.	0.00	0.00
56	2.00	24		0.00	0.00	0.00	490.	0.00	0.00
57	2.00	0		0.00	0.00	0.00	526.	0.00	0.00
58	2.00	0		0.00	0.00	0.00	473.	0.00	0.00
59	2.00	0		0.00	0.00	0.00	470.	0.00	0.00
60	2.00	22		0.00	0.00	0.00	516.	0.00	0.00

50-Building Characterization Survey Unit 1, 2 and 3

RSDS# 03-TF-0284 RCT: SR RCT: _____

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5857	7474	5859	1		10/27/03	9:31	14	300	19
ALPHA	SRC CHECK	5857	7474	5859	1		10/27/03	9:37	2067	60	14284
ALPHA	SRC CHECK	5857	7474	5859	1		10/27/03	9:38	2074	60	14332
ALPHA	SRC CHECK	5857	7474	5859	1		10/27/03	9:40	1978	60	13669
ALPHA	SRC CHECK	5857	7474	5859	1		10/27/03	9:41	1995	60	13786
ALPHA	U-03 01	5857	7474	5859	1	1	10/27/03	10:35	17	120	59
ALPHA	U-03 02	5857	7474	5859	1	2	10/27/03	10:39	14	120	48
ALPHA	U-03 03	5857	7474	5859	1	3	10/27/03	10:43	10	120	35
ALPHA	U-03 04	5857	7474	5859	1	4	10/27/03	10:48	12	120	41
ALPHA	U-03 05	5857	7474	5859	1	5	10/27/03	10:52	10	120	35
ALPHA	U-03 06	5857	7474	5859	1	6	10/27/03	10:55	8	120	28
ALPHA	U-03 07	5857	7474	5859	1	7	10/27/03	11:02	1	120	3
ALPHA	U-03 08	5857	7474	5859	1	8	10/27/03	11:05	4	120	14
ALPHA	U-03 09	5857	7474	5859	1	9	10/27/03	11:11	5	120	17
ALPHA	U-03 10	5857	7474	5859	1	10	10/27/03	11:15	4	120	14
ALPHA	U-03 11	5857	7474	5859	1	11	10/27/03	11:19	5	120	17
ALPHA	U-03 12	5857	7474	5859	1	12	10/27/03	11:22	5	120	17
ALPHA	U-03 13	5857	7474	5859	1	13	10/27/03	11:26	7	120	24
ALPHA	U-03 14	5857	7474	5859	1	14	10/27/03	11:30	5	120	17
ALPHA	U-03 15	5857	7474	5859	1	15	10/27/03	11:33	4	120	14
ALPHA	U-03 16	5857	7474	5859	1	16	10/27/03	11:37	5	120	17
ALPHA	U-03 17	5857	7474	5859	1	17	10/27/03	13:45	5	120	17
ALPHA	U-03 18	5857	7474	5859	1	18	10/27/03	13:49	1	120	3
ALPHA	U-03 19	5857	7474	5859	1	19	10/27/03	13:53	6	120	21
ALPHA	U-03 20	5857	7474	5859	1	20	10/27/03	13:57	4	120	14
ALPHA	U-02 01	5857	7474	5859	1	21	10/27/03	14:18	6	120	21
ALPHA	U-02 02	5857	7474	5859	1	22	10/27/03	14:22	7	120	24
ALPHA	U-02 03	5857	7474	5859	1	23	10/27/03	14:28	5	120	17
ALPHA	U-02 04	5857	7474	5859	1	24	10/27/03	14:32	4	120	14
ALPHA	U-02 05	5857	7474	5859	1	25	10/27/03	14:36	11	120	38
ALPHA	U-02 06	5857	7474	5859	1	26	10/27/03	14:42	6	120	21
ALPHA	U-02 07	5857	7474	5859	1	27	10/27/03	14:46	18	120	62
ALPHA	U-02 08	5857	7474	5859	1	28	10/27/03	14:51	16	120	55
ALPHA	U-02 09	5857	7474	5859	1	29	10/27/03	14:54	7	120	24
ALPHA	U-02 10	5857	7474	5859	1	30	10/27/03	14:58	18	120	62
ALPHA	U-02 11	5857	7474	5859	1	31	10/27/03	15:02	6	120	21
ALPHA	U-02 12	5857	7474	5859	1	32	10/27/03	15:06	29	120	100
ALPHA	U-02 13	5857	7474	5859	1	33	10/27/03	15:09	11	120	38
ALPHA	U-02 14	5857	7474	5859	1	34	10/27/03	15:13	35	120	121

50-Building Characterization Survey Unit 1, 2 and 3

RSDS# 03-TF-0284 RCT: SR RCT: _____

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :	1
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :	2
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # :	3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
ALPHA	U-02 15	5857	7474	5859	1	35	10/27/03	14:16	24	120	83	
ALPHA	U-02 16	5857	7474	5859	1	36	10/27/03	14:20	12	120	41	
ALPHA	U-02 17	5857	7474	5859	1	37	10/27/03	14:23	7	120	24	
ALPHA	U-02 18	5857	7474	5859	1	38	10/27/03	14:27	2	120	7	
ALPHA	U-02 19	5857	7474	5859	1	39	10/27/03	14:30	10	120	35	
ALPHA	U-02 20	5857	7474	5859	1	40	10/27/03	14:34	11	120	38	
ALPHA	U-01 01	5857	7474	5859	1	41	10/27/03	14:38	9	120	31	
ALPHA	U-01 02	5857	7474	5859	1	42	10/27/03	14:41	12	120	41	
ALPHA	U-01 03	5857	7474	5859	1	43	10/27/03	14:46	9	120	31	
ALPHA	U-01 04	5857	7474	5859	1	44	10/27/03	14:49	6	120	21	
ALPHA	U-01 05	5857	7474	5859	1	45	10/27/03	14:53	9	120	31	
ALPHA	U-01 06	5857	7474	5859	1	46	10/27/03	14:56	10	120	35	
ALPHA	U-01 07	5857	7474	5859	1	47	10/27/03	15:00	8	120	28	
ALPHA	U-01 08	5857	7474	5859	1	48	10/27/03	15:04	5	120	17	
ALPHA	U-01 09	5857	7474	5859	1	49	10/27/03	15:07	8	120	28	
ALPHA	U-01 10	5857	7474	5859	1	50	10/27/03	15:11	9	120	31	
ALPHA	U-01 11	5857	7474	5859	1	51	10/27/03	15:15	5	120	17	
ALPHA	U-01 12	5857	7474	5859	1	52	10/27/03	15:18	5	120	17	
ALPHA	U-01 13	5857	7474	5859	1	53	10/27/03	15:22	8	120	28	
ALPHA	U-01 14	5857	7474	5859	1	54	10/27/03	15:25	9	120	31	
ALPHA	U-01 15	5857	7474	5859	1	55	10/27/03	15:29	6	120	21	
ALPHA	U-01 16	5857	7474	5859	1	56	10/27/03	15:32	2	120	7	
ALPHA	U-01 17	5857	7474	5859	1	57	10/27/03	15:36	5	120	17	
ALPHA	U-01 18	5857	7474	5859	1	58	10/27/03	15:40	3	120	10	
ALPHA	U-01 19	5857	7474	5859	1	59	10/27/03	15:44	3	120	10	
ALPHA	U-01 20	5857	7474	5859	1	60	10/27/03	15:47	3	120	10	
BETA	SRC CHECK	5857	7474	5859	2		10/27/03	9:47	614	300	1046	
BETA	SRC CHECK	5857	7474	5859	2		10/27/03	10:24	2725	60	23217	
BETA	SRC CHECK	5857	7474	5859	2		10/27/03	10:25	2585	60	22025	
BETA	SRC CHECK	5857	7474	5859	2		10/27/03	10:27	2561	60	21820	
BETA	SRC CHECK	5857	7474	5859	2		10/27/03	10:28	2553	60	21752	
BETA	U-03 01	5857	7474	5859	2	1	10/27/03	10:36	189	60	1610	
BETA	U-03 02	5857	7474	5859	2	2	10/27/03	10:40	195	60	1661	
BETA	U-03 03	5857	7474	5859	2	3	10/27/03	10:44	161	60	1372	
BETA	U-03 04	5857	7474	5859	2	4	10/27/03	10:49	178	60	1517	
BETA	U-03 05	5857	7474	5859	2	5	10/27/03	10:53	208	60	1772	
BETA	U-03 06	5857	7474	5859	2	6	10/27/03	10:56	199	60	1696	
BETA	U-03 07	5857	7474	5859	2	7	10/27/03	11:03	141	60	1201	
BETA	U-03 08	5857	7474	5859	2	8	10/27/03	11:06	127	60	1082	

50-Building Characterization Survey Unit 1, 2 and 3

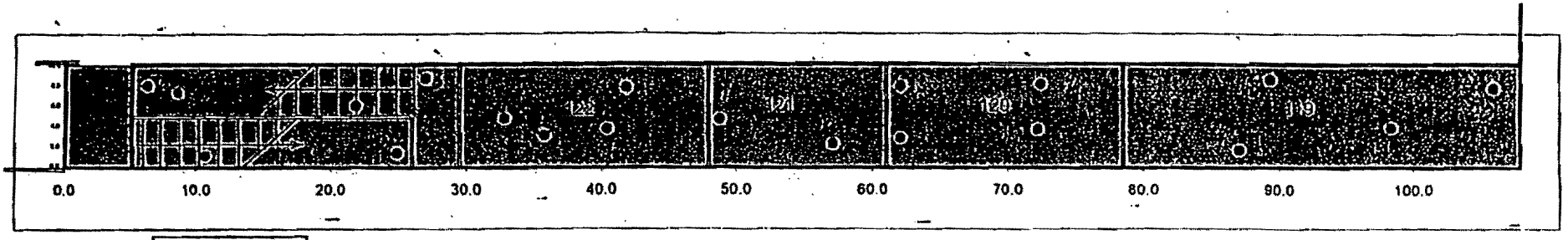
RSDS# 03-TF-0284 RCT: [illegible] RCT: _____

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
BETA	U-03 09	5857	7474	5859	2	9	10/27/03	11:12	140	60	1193
BETA	U-03 10	5857	7474	5859	2	10	10/27/03	11:16	149	60	1270
BETA	U-03 11	5857	7474	5859	2	11	10/27/03	11:20	147	60	1252
BETA	U-03 12	5857	7474	5859	2	12	10/27/03	11:23	122	60	1039
BETA	U-03 13	5857	7474	5859	2	13	10/27/03	11:27	148	60	1261
BETA	U-03 14	5857	7474	5859	2	14	10/27/03	11:31	153	60	1304
BETA	U-03 15	5857	7474	5859	2	15	10/27/03	11:34	155	60	1321
BETA	U-03 16	5857	7474	5859	2	16	10/27/03	11:38	149	60	1270
BETA	U-03 17	5857	7474	5859	2	17	10/27/03	13:47	174	60	1483
BETA	U-03 18	5857	7474	5859	2	18	10/27/03	13:50	180	60	1534
BETA	U-03 19	5857	7474	5859	2	19	10/27/03	13:54	208	60	1772
BETA	U-03 20	5857	7474	5859	2	20	10/27/03	13:58	214	60	1823
BETA	U-02 01	5857	7474	5859	2	21	10/27/03	14:19	137	60	1167
BETA	U-02 02	5857	7474	5859	2	22	10/27/03	14:23	151	60	1287
BETA	U-02 03	5857	7474	5859	2	23	10/27/03	14:29	147	60	1252
BETA	U-02 04	5857	7474	5859	2	24	10/27/03	14:33	181	60	1542
BETA	U-02 05	5857	7474	5859	2	25	10/27/03	14:37	209	60	1781
BETA	U-02 06	5857	7474	5859	2	26	10/27/03	14:43	188	60	1602
BETA	U-02 07	5857	7474	5859	2	27	10/27/03	14:47	331	60	2820
BETA	U-02 08	5857	7474	5859	2	28	10/27/03	14:52	348	60	2965
BETA	U-02 09	5857	7474	5859	2	29	10/27/03	14:55	273	60	2326
BETA	U-02 10	5857	7474	5859	2	30	10/27/03	14:59	194	60	1653
BETA	U-02 11	5857	7474	5859	2	31	10/27/03	15:03	186	60	1585
BETA	U-02 12	5857	7474	5859	2	32	10/27/03	15:07	379	60	3229
BETA	U-02 13	5857	7474	5859	2	33	10/27/03	15:10	330	60	2812
BETA	U-02 14	5857	7474	5859	2	34	10/27/03	15:14	359	60	3059
BETA	U-02 15	5857	7474	5859	2	35	10/27/03	14:17	284	60	2420
BETA	U-02 16	5857	7474	5859	2	36	10/27/03	14:21	212	60	1806
BETA	U-02 17	5857	7474	5859	2	37	10/27/03	14:24	223	60	1900
BETA	U-02 18	5857	7474	5859	2	38	10/27/03	14:28	199	60	1696
BETA	U-02 19	5857	7474	5859	2	39	10/27/03	14:31	193	60	1644
BETA	U-02 20	5857	7474	5859	2	40	10/27/03	14:35	352	60	2999
BETA	U-01 01	5857	7474	5859	2	41	10/27/03	14:39	218	60	1857
BETA	U-01 02	5857	7474	5859	2	42	10/27/03	14:42	205	60	1747
BETA	U-01 03	5857	7474	5859	2	43	10/27/03	14:47	190	60	1619
BETA	U-01 04	5857	7474	5859	2	44	10/27/03	14:50	212	60	1806
BETA	U-01 05	5857	7474	5859	2	45	10/27/03	14:54	214	60	1823
BETA	U-01 06	5857	7474	5859	2	46	10/27/03	14:58	154	60	1312
BETA	U-01 07	5857	7474	5859	2	47	10/27/03	15:02	144	60	1227
BETA	U-01 08	5857	7474	5859	2	48	10/27/03	15:05	166	60	1414

50-Building Characterization Survey Unit 1, 2 and 3

RSDS# 03-TF-0284 *RCT:* [illegible] *RCT:* _____

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
BETA	U-01 09	5857	7474	5859	2	49	10/27/03	15:08	162	60	1380
BETA	U-01 10	5857	7474	5859	2	50	10/27/03	15:12	202	60	1721
BETA	U-01 11	5857	7474	5859	2	51	10/27/03	15:16	209	60	1781
BETA	U-01 12	5857	7474	5859	2	52	10/27/03	15:19	255	60	2173
BETA	U-01 13	5857	7474	5859	2	53	10/27/03	15:23	283	60	2411
BETA	U-01 14	5857	7474	5859	2	54	10/27/03	15:26	305	60	2599
BETA	U-01 15	5857	7474	5859	2	55	10/27/03	15:30	259	60	2207
BETA	U-01 16	5857	7474	5859	2	56	10/27/03	15:34	131	60	1116
BETA	U-01 17	5857	7474	5859	2	57	10/27/03	15:37	149	60	1270
BETA	U-01 18	5857	7474	5859	2	58	10/27/03	15:41	144	60	1227
BETA	U-01 19	5857	7474	5859	2	59	10/27/03	15:45	163	60	1389
BETA	U-01 20	5857	7474	5859	2	60	10/27/03	15:48	124	60	1056



		Room 119- Stairs	
		SU 3	
		Coordinates	
		108	10
5	1	24.9	1.4
0	2	35.8	3.1
16	3	72.4	6.2
6	4	27.1	8.8
20	5	106.0	7.8
1	6	6.3	6.1
12	7	57.1	2.3
7	8	32.9	4.8
3	9	10.7	1.1
9	10	40.4	3.8
15	11	72.2	3.8
13	12	62.1	2.9
10	13	89.4	8.6
2	14	8.6	7.4
19	15	98.4	3.9
10	16	41.8	7.9
14	17	62.1	8.0
4	18	21.9	6.1
17	19	87.1	1.7
11	20	48.8	4.6

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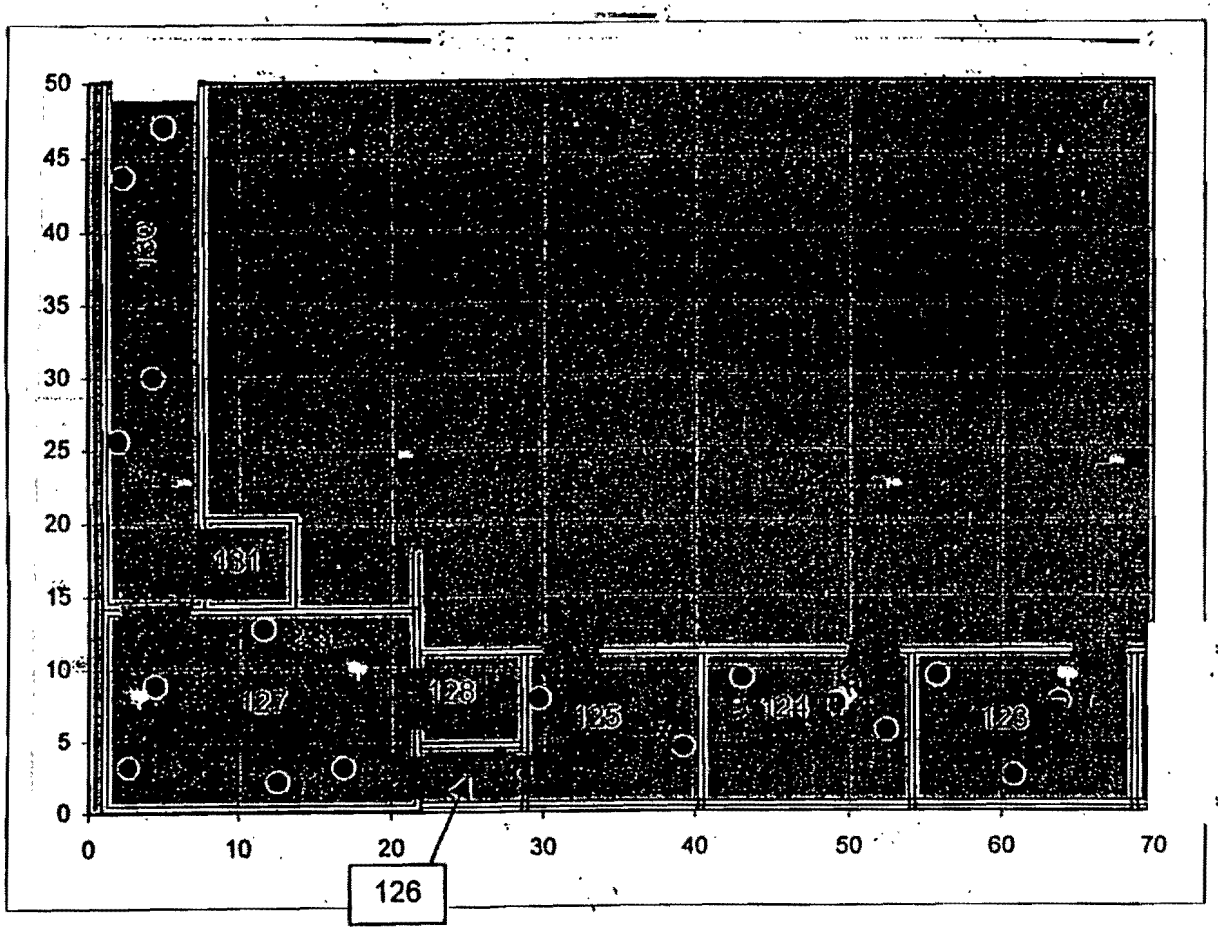

		Room 123-131		
		SU 2		
		Coordinates		
		X'	Y'	
		68	45	
5	1	4.5	8.9	-127
11	2	25.0	9.0	-128
19	3	60.8	2.5	-123
2	4	2.4	43.7	-130
18	5	55.9	9.4	-123
6	6	5.1	47.1	-130
17 ~~18~~	7	52.5	5.7	-129
3	8	2.7	3.2	-127
15	9	43.2	9.3	-124
7	10	8.7	17.6	- SLOPE LINE
12	11	28.4	3.5	-126
16	12	47.7	6.2	-124
10	13	16.9	3.1	-127
14	14	39.3	4.5	-125
20	15	63.8	7.6	-123
1	16	2.0	25.6	-130
9	17	12.6	2.2	-127
13	18	29.8	7.9	-125
4	19	4.4	30.0	-130
8	20	11.7	12.8	-127

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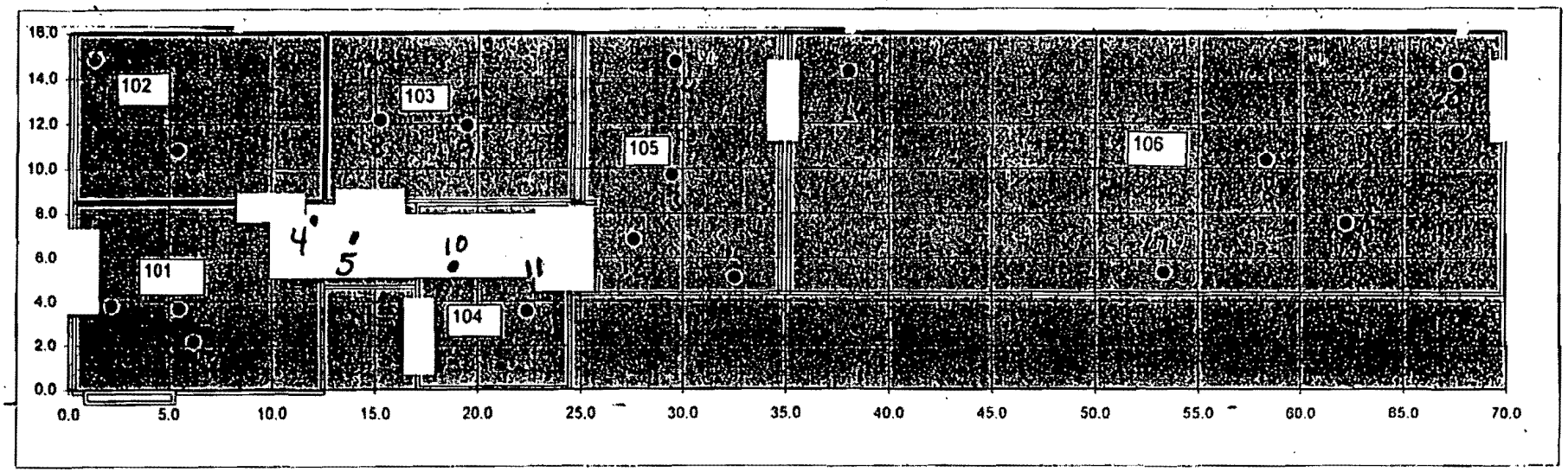

	Room 101-106	
	SU 1 Coordinates	
	X	Y
	70	16
1 13 1	29.5	9.7
1 5 2	6.2	2.2
1 1 3	1.3	14.8
1 12 4	27.6	6.8
1 14 5	29.6	14.7
1 9 6	19.5	11.9
1 15 7	32.5	5.1
1 3 8	5.4	10.8
1 4 9	5.5	3.7
1 7 10	13.8	6.3
1 2 11	2.1	3.8
1 6 12	11.5	7.6
1 17 13	53.3	5.4
1 19 14	62.2	7.6
1 20 15	67.6	14.2
1 8 16	15.2	12.2
1 18 17	58.3	10.4
1 11 18	22.4	3.6
1 16 19	38.0	14.3
1 10 20	20.0	5.5

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG/AREA/ROOM) BUILDING 50	SURVEY NO. 03-TF-0285
PURPOSE: MARSSIM SURVEY PLAN 50-01 UNITS 4, 5, 6, 7 AND 8	RWP NO. N/A
	DATE: 10-29-03
	TIME: 1830

MAP/DRAWING

COPY

SEE ATTACHED DRAWINGS AND RESULTS

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350	5857	09-09-04
2360	5833/5847	03-13-04
	N/A	

[redacted]	HP # 5014/6178	Date: 10-29-03
Counted by: (Signature)	HP #	Date:
Counted by: (Print Name) SEE ATTACHED		
Reviewed/Ap[redacted]	HP # 5781	Date: 10/30/03
Reviewed/Approved by: (Print Name) [redacted]		

ML-9620 (2-98)

Survey No. 03-TF-0285

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-20				UNIT 4
21-40				UNIT 5
41-60				UNIT 6
61-77	SEE ATTACHED RESULTS			UNIT 7
78-97				UNIT 8
			N/A	

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

COMMENTS:

NOTES:

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

ML-9620A (4-98)

Alpha/Beta Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR005
Batch Ended: 10/28/2003 16:49
Recalibration Date: 3/24/2005
Serial Number: 64575

Batch ID: HARVEY 03-TF-0285 [97] JC

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity s	Alpha Activity flags	Beta Activity DPM	Beta Activity s	Beta Activity flags
A1	1	0.0	2.0		10.6	3.9	
A2	2	0.0	1.9		0.0	1.7	
A3	3	0.0	1.9		0.9	2.1	
A4	4	0.0	1.9		0.9	1.6	
B1	5	3.8	2.8		2.6	3.2	
B2	6	0.0	2.1		0.0	1.3	
B3	7	0.0	2.0		0.0	1.3	
B4	8	0.0	2.0		0.2	1.8	
C1	9	0.0	2.0		1.6	2.1	
C3	11	0.0	1.9		0.0	1.2	
C4	12	0.0	1.8		0.0	1.2	
D1	13	1.7	2.0		0.0	1.3	
D2	14	0.0	2.1		1.1	1.7	
D3	15	0.0	2.0		0.0	1.2	
D4	16	0.0	2.0		0.0	1.2	
A1	17	0.0	1.9		0.0	1.2	
A2	18	0.0	2.0		4.5	2.9	
A3	19	1.6	1.9		0.0	1.7	
B1	21	0.0	2.0		~~4.2~~	3.4	
B2	22	0.0	2.1		0.5	1.8	
B3	23	0.0	2.0		0.0	1.8	
B4	24	0.0	2.0		0.2	1.8	
C1	25	0.0	2.0		1.6	2.1	
C2	26	0.0	2.0		0.5	1.7	
C3	27	0.0	1.9		0.0	1.2	
C4	28	1.6	1.8		0.0	1.2	
D1	29	0.0	2.0		0.0	1.3	
D2	30	3.9	3.0		0.0	1.2	
D3	31	0.0	2.0		3.6	2.4	
D4	32	0.0	2.0		2.0	2.1	
A1	33	0.0	1.9		2.0	2.1	

SR SR

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RDS 03-TF-0285

PS 3/18

Alpha/Beta Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR005
Batch Ended: 10/28/2003 16:49
Recalibration Date: 3/24/2005
Serial Number: 64575

Batch ID: HARVEY 03-TF-0285 [97] JC

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity s	Alpha Activity flags	Beta Activity DPM	Beta Activity s	Beta Activity flags
A2	34	0.0	1.9		2.1	2.4	
A3	35	0.0	1.9		0.0	1.7	
A4	36	0.0	1.9		3.2	2.3	
B1	37	0.0	2.0		0.3	2.6	
B2	38	0.0	2.1		0.5	1.8	
B3	39	3.6	2.8		3.4	3.1	
B4	40	0.0	2.0		1.4	2.2	
C1	41	1.8	2.0		0.0	1.2	
C2	42	0.0	2.0		0.5	1.7	
C3	43	0.0	1.9		2.9	2.4	
C4	44	0.0	1.8		0.5	1.6	
D1	45	0.0	2.1		2.0	2.2	
D2	46	0.0	2.1		2.3	2.1	
D3	47	1.7	2.0		0.0	1.2	
D4	48	0.0	2.0		2.0	2.1	
A1	49	0.0	1.9		0.8	1.7	
A2	50	0.0	1.9		0.0	1.2	
A3	51	0.0	1.8		0.0	1.2	
A4	52	0.0	1.9		2.0	2.0	
B1	53	0.0	2.0		0.3	2.6	
B2	54	0.0	2.1		0.5	1.8	
B3	55	0.0	2.0		2.5	2.8	
B4	56	0.0	2.0		2.7	2.5	
C1	57	0.0	2.0		0.0	1.2	
C2	58	0.0	1.9		0.0	1.2	
C3	59	1.7	1.9		1.6	2.1	
C4	60	0.0	1.8		0.0	1.2	
D1	61	0.0	2.0		0.8	1.8	
D2	62	0.0	2.1		1.1	1.7	
D3	63	0.0	2.0		2.3	2.1	
D4	64	1.5	2.0		0.0	1.2	
A1	65	0.0	1.9		2.0	2.1	
A2	66	0.0	1.9		0.0	1.2	

SLR SLR

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10-29-03

Alpha/Beta Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR005
Batch Ended: 10/28/2003 16:49
Recalibration Date: 3/24/2005
Serial Number: 64575

Batch ID: HARVEY 03-TF-0285 [97] JC

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity s	Alpha Activity flags	Beta Activity DPM	Beta Activity s	Beta Activity flags
A3	67	0.0	1.9		0.0	1.7	
A4	68	1.7	1.9		1.9	2.0	
B1	69	0.0	2.0		1.6	2.9	
B2	70	0.0	2.1		0.0	1.3	
B3	71	0.0	2.0		6.2	3.5	
B4	72	0.0	1.9		0.0	1.3	
C1	73	1.8	2.0		0.3	1.7	
C2	74	0.0	2.0		0.5	1.7	
C3	75	0.0	1.9		0.6	1.7	
C4	76	3.4	2.5		0.2	1.6	
D1	77	0.0	2.0		0.0	1.3	
D2	78	0.0	2.1		1.1	1.7	
D3	79	0.0	2.0		0.0	1.2	
D4	80	1.5	2.0		3.0	2.4	
A1	81	0.0	1.9		0.0	1.2	
A2	82	0.0	1.9		2.1	2.4	
A3	83	0.0	1.9		3.2	2.6	
A4	84	1.7	1.9		0.7	1.6	
B1	85	0.0	2.0		0.0	1.9	
B2	86	0.0	2.2		4.4	2.9	
B3	87	0.0	2.0		0.0	1.8	
B4	88	0.0	1.9		0.0	1.3	
C1	89	1.8	2.0		5.1	3.0	
C2	90	3.7	2.7		0.0	1.2	
C3	91	0.0	1.9		0.6	1.7	
C4	92	0.0	1.8		0.0	1.2	
D1	93	0.0	2.0		0.0	1.3	
D2	94	0.0	2.1		0.0	1.2	
D3	95	0.0	2.0		0.0	1.2	
D4	96	0.0	2.0		2.0	2.1	
A1	97	0.0	1.9		0.8	1.7	
C2	10 NO SAMPLE	0.0	2.0		1.7	2.1	
A4	20 NO SAMPLE	0.0	1.9		0.0	1.2	

SR SR

Allen Pibro

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RSAS 03-TF-0285
PS 5/8/10

Protocol #: 5 Name:pW h3 101068 28-Oct-2003 19:37
Region A: LL-UL= 0.5-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region B: LL-UL= 2.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region C: LL-UL=40.0-2000 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Time = 2.00 QIP = tSIE/AEC ES Terminator = Count
HARVEY 03-TF-0285 1-97 JC
Conventional DPM
Nuclide 1 = 206704
Luminescence Correction On

S#	TIME	LUM	FLAG	CPMA	CPMB	CPMC	tSIE	DPM1	2Sigma
-1	10.00	25	B	8.60	8.40	6.40	558.		0.00
0	2.00	2		376.40	351.60	0.00	460.	798.29	86.67
1	2.00	4		4.40	3.10	1.10	529.	8.63	12.33
2	2.00	17		0.00	0.00	0.00	522.	0.00	0.00
3	2.00	8		0.00	0.00	0.00	459.	0.00	0.00
4	2.00	13		0.00	0.00	0.00	479.	0.00	0.00
5	2.00	10		0.00	0.00	0.00	526.	0.00	0.00
6	2.00	40		0.00	0.00	0.00	554.	0.00	0.00
7	2.00	17		0.00	0.00	0.10	587.	0.00	0.00
8	2.00	10		0.00	0.00	0.00	522.	0.00	0.00
9	2.00	0		0.00	0.00	0.10	435.	0.00	0.00
(1 missing vial)									
11	2.00	11		0.00	0.00	0.00	460.	0.00	0.00
12	2.00	0		0.00	0.00	0.10	405.	0.00	0.00
13	2.00	0		0.00	0.00	1.10	470.	0.00	0.00
14	2.00	24		0.00	0.00	1.10	465.	0.00	0.00
15	2.00	0		0.40	0.00	0.00	438.	0.87	10.11
16	2.00	0		0.00	0.00	0.00	506.	0.00	0.00
17	2.00	17		0.00	0.00	0.00	539.	0.00	0.00
18	2.00	0		0.40	0.00	0.00	457.	0.85	9.86
19	2.00	27		0.00	0.00	0.00	412.	0.00	0.00
(1 missing vial)									
21	2.00	0		0.00	0.00	0.00	559.	0.00	0.00
22	2.00	1		112.40	103.60	0.00	456.	239.66	39.11
23	2.00	24		0.00	0.00	0.00	487.	0.00	0.00
24	2.00	7		0.00	0.00	0.00	489.	0.00	0.00
25	2.00	0		0.00	0.00	0.00	546.	0.00	0.00
26	2.00	9		0.00	0.00	0.00	524.	0.00	0.00
27	2.00	0		0.00	0.00	0.00	485.	0.00	0.00
28	2.00	0		0.00	0.00	0.00	509.	0.00	0.00
29	2.00	20		0.00	0.00	0.00	439.	0.00	0.00
30	2.00	0		0.00	0.00	0.00	498.	0.00	0.00
31	2.00	12		0.00	0.00	0.00	556.	0.00	0.00
32	2.00	15		0.00	0.00	0.00	472.	0.00	0.00
33	2.00	24		0.00	0.00	0.00	331.	0.00	0.00
34	2.00	17		0.00	0.00	0.00	385.	0.00	0.00
35	2.00	60		0.00	0.00	0.00	321.	0.00	0.00
36	2.00	11		0.00	0.00	0.10	315.	0.00	0.00
37	2.00	30		0.00	0.00	3.10	306.	0.00	0.00
38	2.00	0		0.00	0.00	0.00	316.	0.00	0.00
39	2.00	13		0.00	0.00	0.00	502.	0.00	0.00
40	2.00	45		0.00	0.00	0.10	396.	0.00	0.00
41	2.00	9		0.00	0.00	0.00	555.	0.00	0.00
42	2.00	13		0.00	0.00	0.00	509.	0.00	0.00
43	2.00	0		0.40	0.00	0.00	532.	0.78	9.05
44	2.00	24		0.00	0.00	0.00	556.	0.00	0.00

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S#	TIME	LUM	FLAG	CPMA	CPMB	CPMC	tSIE	DPM1	2Sigma
45	2.00	12		0.00	0.00	0.00	551.	0.00	0.00
46	2.00	0		0.00	0.00	0.10	523.	0.00	0.00
47	2.00	20		0.00	0.00	3.10	525.	0.00	0.00
48	2.00	27		0.00	0.00	0.00	610.	0.00	0.00
49	2.00	15		0.00	0.00	0.00	533.	0.00	0.00
50	2.00	0		0.00	0.00	0.00	519.	0.00	0.00
51	2.00	0		0.00	0.00	3.10	562.	0.00	0.00
52	2.00	17		0.00	0.00	0.00	531.	0.00	0.00
53	2.00	9		0.00	0.00	0.00	564.	0.00	0.00
54	2.00	17		0.00	0.00	0.00	512.	0.00	0.00
55	2.00	24		0.00	0.00	1.10	498.	0.00	0.00
56	2.00	0		0.00	0.00	0.00	538.	0.00	0.00
57	2.00	0		0.00	0.00	0.00	552.	0.00	0.00
58	2.00	13		0.00	0.00	0.00	528.	0.00	0.00
59	2.00	33		0.00	0.00	0.00	552.	0.00	0.00
60	2.00	0		0.00	0.00	0.00	560.	0.00	0.00
61	2.00	60		0.00	0.00	0.00	577.	0.00	0.00
62	2.00	42		0.00	0.00	0.00	419.	0.00	0.00
63	2.00	0		0.00	0.00	0.00	511.	0.00	0.00
64	2.00	0		0.00	0.00	0.00	508.	0.00	0.00
65	2.00	45		0.00	0.00	0.10	295.	0.00	0.00
66	2.00	0		0.00	0.00	0.00	456.	0.00	0.00
67	2.00	0		0.00	0.00	0.00	340.	0.00	0.00
68	2.00	0		0.00	0.00	0.00	417.	0.00	0.00
69	2.00	12		0.00	0.00	0.60	406.	0.00	0.00
70	2.00	0		0.00	0.00	0.00	455.	0.00	0.00
71	2.00	33		0.00	0.00	0.00	425.	0.00	0.00
72	2.00	0		0.00	0.00	0.00	450.	0.00	0.00
73	2.00	22		0.00	0.00	0.00	488.	0.00	0.00
74	2.00	0		0.00	0.00	0.00	474.	0.00	0.00
75	2.00	48		0.00	0.00	1.60	393.	0.00	0.00
76	2.00	0		0.00	0.00	0.00	461.	0.00	0.00
77	2.00	0		0.00	0.00	0.00	442.	0.00	0.00
78	2.00	40		0.00	0.00	0.00	498.	0.00	0.00
79	2.00	8		0.00	0.00	0.00	512.	0.00	0.00
80	2.00	0		0.00	0.00	0.00	465.	0.00	0.00
81	2.00	0		0.00	0.00	0.00	570.	0.00	0.00
82	2.00	36		0.00	0.00	0.10	371.	0.00	0.00
83	2.00	0		0.00	0.00	0.00	367.	0.00	0.00
84	2.00	11		0.00	0.00	0.00	443.	0.00	0.00
85	2.00	0		0.00	0.00	0.00	405.	0.00	0.00
86	2.00	0		0.00	0.00	0.00	297.	0.00	0.00
87	2.00	13		0.00	0.00	0.00	492.	0.00	0.00
88	2.00	8		0.00	0.00	0.00	397.	0.00	0.00
89	2.00	13		0.00	0.00	0.00	444.	0.00	0.00
90	2.00	20		0.00	0.00	0.00	379.	0.00	0.00
91	2.00	22		0.00	0.00	0.00	489.	0.00	0.00
92	2.00	54		0.00	0.00	0.00	376.	0.00	0.00
93	2.00	0		0.00	0.00	0.00	404.	0.00	0.00
94	2.00	0		0.00	0.00	0.00	444.	0.00	0.00
95	2.00	0		0.00	0.00	0.00	334.	0.00	0.00
96	2.00	0		0.00	0.00	0.00	408.	0.00	0.00
97	2.00	0		0.00	0.00	0.00	474.	0.00	0.00

Albert Pabro

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RSDS# 03-TF-0285 RCT: SR RCT: _____

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5857	6178	5859	1		10/28/03	6:50	8	300	11
ALPHA	SRC CHECK	5857	6178	5859	1		10/28/03	6:53	2165	60	14961
ALPHA	SRC CHECK	5857	6178	5859	1		10/28/03	6:54	2253	60	15569
ALPHA	SRC CHECK	5857	6178	5859	1		10/28/03	6:56	2004	60	13848
ALPHA	SRC CHECK	5857	6178	5859	1		10/28/03	6:57	2067	60	14284
ALPHA	U-4 01	5857	6178	5859	1	1	10/28/03	7:23	9	120	31
ALPHA	U-4 02	5857	6178	5859	1	2	10/28/03	7:29	6	120	21
ALPHA	U-4 03	5857	6178	5859	1	3	10/28/03	7:33	7	120	24
ALPHA	U-4 04	5857	6178	5859	1	4	10/28/03	7:36	1	120	3
ALPHA	U-4 05	5857	6178	5859	1	5	10/28/03	7:40	4	120	14
ALPHA	U-4 06	5857	6178	5859	1	6	10/28/03	7:43	5	120	17
ALPHA	U-4 07	5857	6178	5859	1	7	10/28/03	7:47	9	120	31
ALPHA	U-4 08	5857	6178	5859	1	8	10/28/03	7:50	4	120	14
ALPHA	U-4 09	5857	6178	5859	1	9	10/28/03	7:54	4	120	14
	U-4 10	No reading taken			Off map						
ALPHA	U-4 11	5857	6178	5859	1	11	10/28/03	7:57	13	120	45
ALPHA	U-4 12	5857	6178	5859	1	12	10/28/03	8:01	9	120	31
ALPHA	U-4 13	5857	6178	5859	1	13	10/28/03	8:04	8	120	28
ALPHA	U-4 14	5857	6178	5859	1	14	10/28/03	8:08	3	120	10
ALPHA	U-4 15	5857	6178	5859	1	15	10/28/03	8:11	4	120	14
ALPHA	U-4 16	5857	6178	5859	1	16	10/28/03	8:15	5	120	17
ALPHA	U-4 17	5857	6178	5859	1	17	10/28/03	8:20	6	120	21
ALPHA	U-4 18	5857	6178	5859	1	18	10/28/03	8:25	9	120	31
ALPHA	U-4 19	5857	6178	5859	1	19	10/28/03	8:29	8	120	28
	U-4 20	No reading taken			Off map						
ALPHA	U-5 01	5857	6178	5859	1	21	10/28/03	8:34	7	120	24
ALPHA	U-5 02	5857	6178	5859	1	22	10/28/03	8:37	5	120	17
ALPHA	U-5 03	5857	6178	5859	1	23	10/28/03	8:41	7	120	24
ALPHA	U-5 04	5857	6178	5859	1	24	10/28/03	8:44	7	120	24
ALPHA	U-5 05	5857	6178	5859	1	25	10/28/03	8:48	7	120	24
ALPHA	U-5 06	5857	6178	5859	1	26	10/28/03	8:51	8	120	28
ALPHA	U-5 07	5857	6178	5859	1	27	10/28/03	8:55	7	120	24
ALPHA	U-5 08	5857	6178	5859	1	28	10/28/03	8:58	6	120	21
ALPHA	U-5 09	5857	6178	5859	1	29	10/28/03	9:02	4	120	14
ALPHA	U-5 10	5857	6178	5859	1	30	10/28/03	9:05	4	120	14
ALPHA	U-5 11	5857	6178	5859	1	31	10/28/03	9:09	8	120	28
ALPHA	U-5 12	5857	6178	5859	1	32	10/28/03	9:12	6	120	21
ALPHA	U-5 13	5857	6178	5859	1	33	10/28/03	9:16	7	120	24
ALPHA	U-5 14	5857	6178	5859	1	34	10/28/03	9:19	6	120	21

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50-Building Characterization Survey Unit 4-8

RSDS# 03-TF-0285 RCT: SR RCT: _____

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	U-5 15	5857	6178	5859	1	35	10/28/03	9:23	8	120	28
ALPHA	U-5 16	5857	6178	5859	1	36	10/28/03	9:26	9	120	31
ALPHA	U-5 17	5857	6178	5859	1	37	10/28/03	9:31	8	120	28
ALPHA	U-5 18	5857	6178	5859	1	38	10/28/03	9:34	5	120	17
ALPHA	U-5 19	5857	6178	5859	1	39	10/28/03	9:38	7	120	24
ALPHA	U-5 20	5857	6178	5859	1	40	10/28/03	9:42	9	120	31
ALPHA	U-6 01	5857	6178	5859	1	41	10/28/03	9:46	11	120	38
ALPHA	U-6 02	5857	6178	5859	1	42	10/28/03	9:50	8	120	28
ALPHA	U-6 03	5857	6178	5859	1	43	10/28/03	9:53	8	120	28
ALPHA	U-6 04	5857	6178	5859	1	44	10/28/03	9:57	7	120	24
ALPHA	U-6 05	5857	6178	5859	1	45	10/28/03	10:00	10	120	35
ALPHA	U-6 06	5857	6178	5859	1	46	10/28/03	10:03	11	120	38
ALPHA	U-6 07	5857	6178	5859	1	47	10/28/03	10:07	12	120	41
ALPHA	U-6 08	5857	6178	5859	1	48	10/28/03	10:11	7	120	24
ALPHA	U-6 09	5857	6178	5859	1	49	10/28/03	10:14	9	120	31
ALPHA	U-6 10	5857	6178	5859	1	50	10/28/03	10:18	8	120	28
ALPHA	U-6 11	5857	6178	5859	1	51	10/28/03	10:21	4	120	14
ALPHA	U-6 12	5857	6178	5859	1	52	10/28/03	10:25	9	120	31
ALPHA	U-6 13	5857	6178	5859	1	53	10/28/03	10:28	8	120	28
ALPHA	U-6 14	5857	6178	5859	1	54	10/28/03	10:32	6	120	21
ALPHA	U-6 15	5857	6178	5859	1	55	10/28/03	10:35	3	120	10
ALPHA	U-6 16	5857	6178	5859	1	56	10/28/03	10:39	7	120	24
ALPHA	U-6 17	5857	6178	5859	1	57	10/28/03	10:42	4	120	14
ALPHA	U-6 18	5857	6178	5859	1	58	10/28/03	10:46	12	120	41
ALPHA	U-6 19	5857	6178	5859	1	59	10/28/03	12:00	7	120	24
ALPHA	U-6 20	5857	6178	5859	1	60	10/28/03	12:04	3	120	10
ALPHA	U-7 01	5857	6178	5859	1	61	10/28/03	12:08	3	120	10
ALPHA	U-7 02	5857	6178	5859	1	62	10/28/03	12:11	3	120	10
ALPHA	U-7 03	5857	6178	5859	1	63	10/28/03	12:15	5	120	17
ALPHA	U-7 04	5857	6178	5859	1	64	10/28/03	12:19	5	120	17
ALPHA	U-7 05	5857	6178	5859	1	65	10/28/03	12:22	8	120	28
ALPHA	U-7 06	5857	6178	5859	1	66	10/28/03	12:26	13	120	45
ALPHA	U-7 07	5857	6178	5859	1	67	10/28/03	12:30	8	120	28
ALPHA	U-7 08	5857	6178	5859	1	68	10/28/03	12:34	6	120	21
ALPHA	U-7 09	5857	6178	5859	1	69	10/28/03	12:37	7	120	24
ALPHA	U-7 10	5857	6178	5859	1	70	10/28/03	12:41	7	120	24
ALPHA	U-7 11	5857	6178	5859	1	71	10/28/03	12:44	8	120	28
ALPHA	U-7 12	5857	6178	5859	1	72	10/28/03	12:48	3	120	10
ALPHA	U-7 13	5857	6178	5859	1	73	10/28/03	12:51	7	120	24
ALPHA	U-7 14	5857	6178	5859	1	74	10/28/03	12:56	6	120	21

50-Building Characterization Survey Unit 4-8

RSDS# 03-TF-0285 RCT: SR RCT: _____

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # :
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm
ALPHA	U-7 15	5857	6178	5859	1	75	10/28/03	12:59	5	120	17
ALPHA	U-7 16	5857	6178	5859	1	76	10/28/03	13:03	5	120	17
ALPHA	U-7 17	5857	6178	5859	1	77	10/28/03	13:06	4	120	14
ALPHA	U-8 01	5857	6178	5859	1	78	10/28/03	13:11	5	120	17
ALPHA	U-8 02	5857	6178	5859	1	79	10/28/03	13:15	10	120	35
ALPHA	U-8 03	5857	6178	5859	1	80	10/28/03	13:18	8	120	28
ALPHA	U-8 04	5857	6178	5859	1	81	10/28/03	13:22	5	120	17
ALPHA	U-8 05	5857	6178	5859	1	82	10/28/03	13:26	6	120	21
ALPHA	U-8 06	5857	6178	5859	1	83	10/28/03	13:29	7	120	24
ALPHA	U-8 07	5857	6178	5859	1	84	10/28/03	13:33	2	120	7
ALPHA	U-8 08	5857	6178	5859	1	85	10/28/03	13:36	2	120	7
ALPHA	U-8 09	5857	6178	5859	1	86	10/28/03	13:40	8	120	28
ALPHA	U-8 10	5857	6178	5859	1	87	10/28/03	13:44	4	120	14
ALPHA	U-8 11	5857	6178	5859	1	88	10/28/03	13:47	5	120	17
ALPHA	U-8 12	5857	6178	5859	1	89	10/28/03	13:51	11	120	38
ALPHA	U-8 13	5857	6178	5859	1	90	10/28/03	13:55	6	120	21
ALPHA	U-8 14	5857	6178	5859	1	91	10/28/03	13:59	4	120	14
ALPHA	U-8 15	5857	6178	5859	1	92	10/28/03	14:03	1	120	3
ALPHA	U-8 16	5857	6178	5859	1	93	10/28/03	14:06	4	120	14
ALPHA	U-8 17	5857	6178	5859	1	94	10/28/03	14:10	3	120	10
ALPHA	U-8 18	5857	6178	5859	1	95	10/28/03	14:14	6	120	21
ALPHA	U-8 19	5857	6178	5859	1	96	10/28/03	14:17	3	120	10
ALPHA	U-8 20	5857	6178	5859	1	97	10/28/03	14:21	6	120	21
BETA	SRC BKG	5857	6178	5859	2		10/28/03	7:05	777	300	1324
BETA	SRC CHECK	5857	6178	5859	2		10/28/03	7:10	2887	60	24598
BETA	SRC CHECK	5857	6178	5859	2		10/28/03	7:11	2963	60	25245
BETA	SRC CHECK	5857	6178	5859	2		10/28/03	7:13	2688	60	22902
BETA	SRC CHECK	5857	6178	5859	2		10/28/03	7:14	2631	60	22416
BETA	U-4 01	5857	6178	5859	2	1	10/28/03	7:25	134	60	1142
BETA	U-4 02	5857	6178	5859	2	2	10/28/03	7:30	112	60	954
BETA	U-4 03	5857	6178	5859	2	3	10/28/03	7:34	147	60	1252
BETA	U-4 04	5857	6178	5859	2	4	10/28/03	7:37	167	60	1423
BETA	U-4 05	5857	6178	5859	2	5	10/28/03	7:41	156	60	1329
BETA	U-4 06	5857	6178	5859	2	6	10/28/03	7:44	178	60	1517
BETA	U-4 07	5857	6178	5859	2	7	10/28/03	7:48	143	60	1218
BETA	U-4 08	5857	6178	5859	2	8	10/28/03	7:51	123	60	1048
BETA	U-4 09	5857	6178	5859	2	9	10/28/03	7:55	182	60	1551
	U-4 10	No reading taken			Off map						
BETA	U-4 11	5857	6178	5859	2	11	10/28/03	7:58	211	60	1798

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50-Building Characterization Survey Unit 4-8

RSDS# 03-TF-0285 RCT: [illegible] RCT: _____

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
BETA	U-4 12	5857	6178	5859	2	12	10/28/03	8:02	196	60	1670
BETA	U-4 13	5857	6178	5859	2	13	10/28/03	8:05	194	60	1653
BETA	U-4 14	5857	6178	5859	2	14	10/28/03	8:09	177	60	1508
BETA	U-4 15	5857	6178	5859	2	15	10/28/03	8:13	180	60	1534
BETA	U-4 16	5857	6178	5859	2	16	10/28/03	8:16	180	60	1534
BETA	U-4 17	5857	6178	5859	2	17	10/28/03	8:22	206	60	1755
BETA	U-4 18	5857	6178	5859	2	18	10/28/03	8:26	230	60	1960
BETA	U-4 19	5857	6178	5859	2	19	10/28/03	8:30	186	60	1585
	U-4 20	No reading taken			Off map						
BETA	U-5 01	5857	6178	5859	2	21	10/28/03	8:35	142	60	1210
BETA	U-5 02	5857	6178	5859	2	22	10/28/03	8:39	150	60	1278
BETA	U-5 03	5857	6178	5859	2	23	10/28/03	8:42	124	60	1056
BETA	U-5 04	5857	6178	5859	2	24	10/28/03	8:45	136	60	1159
BETA	U-5 05	5857	6178	5859	2	25	10/28/03	8:49	160	60	1363
BETA	U-5 06	5857	6178	5859	2	26	10/28/03	8:52	140	60	1193
BETA	U-5 07	5857	6178	5859	2	27	10/28/03	8:56	154	60	1312
BETA	U-5 08	5857	6178	5859	2	28	10/28/03	8:59	158	60	1346
BETA	U-5 09	5857	6178	5859	2	29	10/28/03	9:03	153	60	1304
BETA	U-5 10	5857	6178	5859	2	30	10/28/03	9:06	196	60	1670
BETA	U-5 11	5857	6178	5859	2	31	10/28/03	9:10	130	60	1108
BETA	U-5 12	5857	6178	5859	2	32	10/28/03	9:13	147	60	1252
BETA	U-5 13	5857	6178	5859	2	33	10/28/03	9:17	144	60	1227
BETA	U-5 14	5857	6178	5859	2	34	10/28/03	9:20	154	60	1312
BETA	U-5 15	5857	6178	5859	2	35	10/28/03	9:24	137	60	1167
BETA	U-5 16	5857	6178	5859	2	36	10/28/03	9:28	132	60	1125
BETA	U-5 17	5857	6178	5859	2	37	10/28/03	9:32	143	60	1218
BETA	U-5 18	5857	6178	5859	2	38	10/28/03	9:35	147	60	1252
BETA	U-5 19	5857	6178	5859	2	39	10/28/03	9:39	156	60	1329
BETA	U-5 20	5857	6178	5859	2	40	10/28/03	9:43	192	60	1636
BETA	U-6 01	5857	6178	5859	2	41	10/28/03	9:47	177	60	1508
BETA	U-6 02	5857	6178	5859	2	42	10/28/03	9:51	214	60	1823
BETA	U-6 03	5857	6178	5859	2	43	10/28/03	9:54	176	60	1500
BETA	U-6 04	5857	6178	5859	2	44	10/28/03	9:58	214	60	1823
BETA	U-6 05	5857	6178	5859	2	45	10/28/03	10:01	175	60	1491
BETA	U-6 06	5857	6178	5859	2	46	10/28/03	10:05	233	60	1985
BETA	U-6 07	5857	6178	5859	2	47	10/28/03	10:08	203	60	1730
BETA	U-6 08	5857	6178	5859	2	48	10/28/03	10:12	135	60	1150
BETA	U-6 09	5857	6178	5859	2	49	10/28/03	10:15	205	60	1747
BETA	U-6 10	5857	6178	5859	2	50	10/28/03	10:19	174	60	1483
BETA	U-6 11	5857	6178	5859	2	51	10/28/03	10:22	213	60	1815

50-Building Characterization Survey Unit 4-8

RSDS# 03-TF-0285 RCT: SR RCT: _____

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # :
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm²
BETA	U-6 12	5857	6178	5859	2	52	10/28/03	10:26	177	60	1508
BETA	U-6 13	5857	6178	5859	2	53	10/28/03	10:30	203	60	1730
BETA	U-6 14	5857	6178	5859	2	54	10/28/03	10:33	213	60	1815
BETA	U-6 15	5857	6178	5859	2	55	10/28/03	10:36	185	60	1576
BETA	U-6 16	5857	6178	5859	2	56	10/28/03	10:40	225	60	1917
BETA	U-6 17	5857	6178	5859	2	57	10/28/03	10:43	177	60	1508
BETA	U-6 18	5857	6178	5859	2	58	10/28/03	10:47	202	60	1721
BETA	U-6 19	5857	6178	5859	2	59	10/28/03	12:01	184	60	1568
BETA	U-6 20	5857	6178	5859	2	60	10/28/03	12:05	205	60	1747
BETA	U-7 01	5857	6178	5859	2	61	10/28/03	12:09	136	60	1159
BETA	U-7 02	5857	6178	5859	2	62	10/28/03	12:12	121	60	1031
BETA	U-7 03	5857	6178	5859	2	63	10/28/03	12:16	138	60	1176
BETA	U-7 04	5857	6178	5859	2	64	10/28/03	12:20	130	60	1108
BETA	U-7 05	5857	6178	5859	2	65	10/28/03	12:23	188	60	1602
BETA	U-7 06	5857	6178	5859	2	66	10/28/03	12:27	176	60	1500
BETA	U-7 07	5857	6178	5859	2	67	10/28/03	12:31	184	60	1568
BETA	U-7 08	5857	6178	5859	2	68	10/28/03	12:35	200	60	1704
BETA	U-7 09	5857	6178	5859	2	69	10/28/03	12:38	191	60	1627
BETA	U-7 10	5857	6178	5859	2	70	10/28/03	12:42	184	60	1568
BETA	U-7 11	5857	6178	5859	2	71	10/28/03	12:45	231	60	1968
BETA	U-7 12	5857	6178	5859	2	72	10/28/03	12:49	195	60	1661
BETA	U-7 13	5857	6178	5859	2	73	10/28/03	12:53	203	60	1730
BETA	U-7 14	5857	6178	5859	2	74	10/28/03	12:57	198	60	1687
BETA	U-7 15	5857	6178	5859	2	75	10/28/03	13:00	202	60	1721
BETA	U-7 16	5857	6178	5859	2	76	10/28/03	13:04	174	60	1483
BETA	U-7 17	5857	6178	5859	2	77	10/28/03	13:07	173	60	1474
BETA	U-8 01	5857	6178	5859	2	78	10/28/03	13:12	151	60	1287
BETA	U-8 02	5857	6178	5859	2	79	10/28/03	13:16	143	60	1218
BETA	U-8 03	5857	6178	5859	2	80	10/28/03	13:19	132	60	1125
BETA	U-8 04	5857	6178	5859	2	81	10/28/03	13:23	131	60	1116
BETA	U-8 05	5857	6178	5859	2	82	10/28/03	13:27	183	60	1559
BETA	U-8 06	5857	6178	5859	2	83	10/28/03	13:30	176	60	1500
BETA	U-8 07	5857	6178	5859	2	84	10/28/03	13:34	189	60	1610
BETA	U-8 08	5857	6178	5859	2	85	10/28/03	13:38	202	60	1721
BETA	U-8 09	5857	6178	5859	2	86	10/28/03	13:41	168	60	1431
BETA	U-8 10	5857	6178	5859	2	87	10/28/03	13:45	129	60	1099
BETA	U-8 11	5857	6178	5859	2	88	10/28/03	13:49	199	60	1696
BETA	U-8 12	5857	6178	5859	2	89	10/28/03	13:52	188	60	1602
BETA	U-8 13	5857	6178	5859	2	90	10/28/03	13:56	190	60	1619
BETA	U-8 14	5857	6178	5859	2	91	10/28/03	14:00	193	60	1644

50-Building Characterization Survey Unit 4-8

RSDS# 03-TF-0285 *RCT:* SR *RCT:* _____

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
BETA	U-8 15	5857	6178	5859	2	92	10/28/03	14:04	191	60	1627
BETA	U-8 16	5857	6178	5859	2	93	10/28/03	14:07	159	60	1355
BETA	U-8 17	5857	6178	5859	2	94	10/28/03	14:11	180	60	1534
BETA	U-8 18	5857	6178	5859	2	95	10/28/03	14:15	189	60	1610
BETA	U-8 19	5857	6178	5859	2	96	10/28/03	14:18	154	60	1312
BETA	U-8 20	5857	6178	5859	2	97	10/28/03	14:22	172	60	1465

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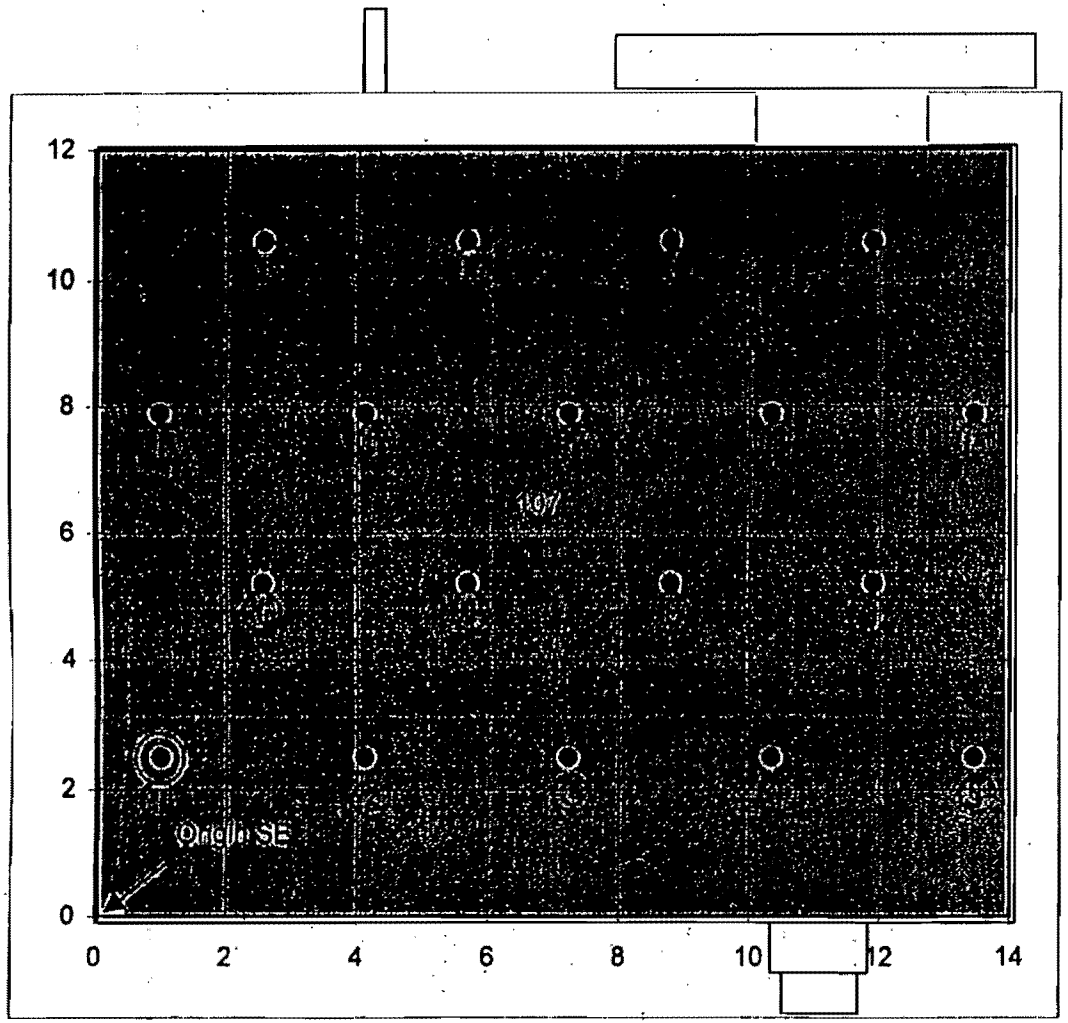
SPF 50-01
Attachment 3



N

	Room 107	
	SU 4 Coordinates	
	X	Y
	14	12
1	1	2.5
2	4.1	2.5
3	7.2	2.5
4	10.3	2.5
5	13.5	2.5
6	2.6	5.2
7	5.7	5.2
8	8.8	5.2
9	11.9	5.2
~~10~~	~~15.0~~	~~5.2~~
11	1.0	7.9
12	4.1	7.9
13	7.2	7.9
14	10.3	7.9
15	13.5	7.9
16	2.6	10.6
17	5.7	10.6
18	8.8	10.6
19	11.9	10.6
~~20~~	~~15.0~~	~~10.6~~

OFF MAP

OFF MAP

Area	L	L'
168	3.1ft	2.7ft

Start	X	Y
Rand X:Y	1.0	2.5

2525 03-TF-0285

PS 14618

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Closed
JG

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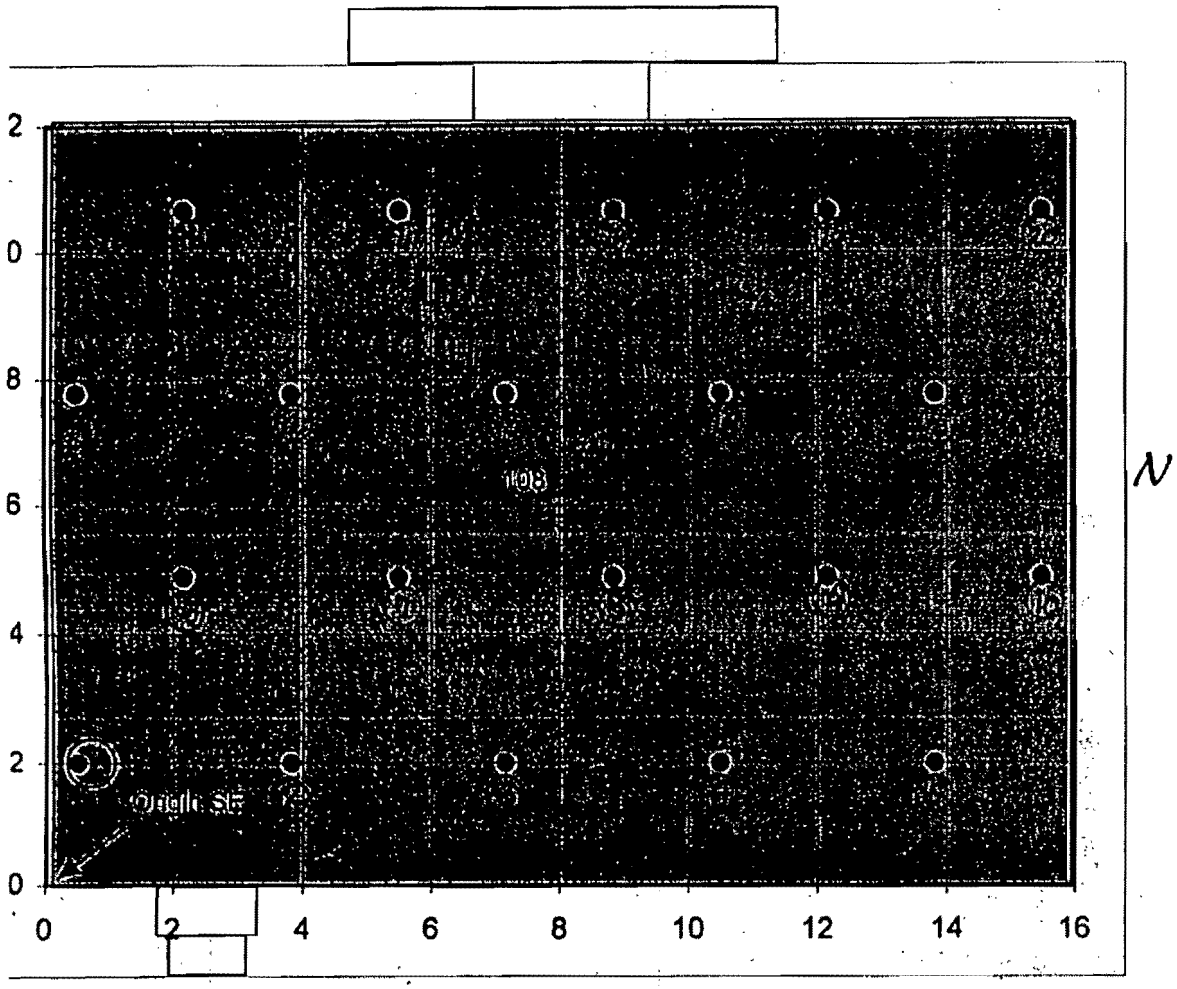

	Room 108	
	SU 5 Coordinates	
	X	Y
	16	12
1	0.5	2
2	3.8	2
3	7.2	2
4	10.5	2
5	13.8	2
6	2.2	4.9
7	5.5	4.9
8	8.8	4.9
9	12.2	4.9
10	15.5	4.9
11	0.5	7.8
12	3.8	7.8
13	7.2	7.8
14	10.5	7.8
15	13.8	7.8
16	2.2	10.6
17	5.5	10.6
18	8.8	10.6
19	12.2	10.6
20	15.5	10.6

Area	L	L'
192	3.3ft	2.9ft
Start	X	Y
Rand X:Y	0.5	2.0

R 15 of 18

2505 03-TF-0285

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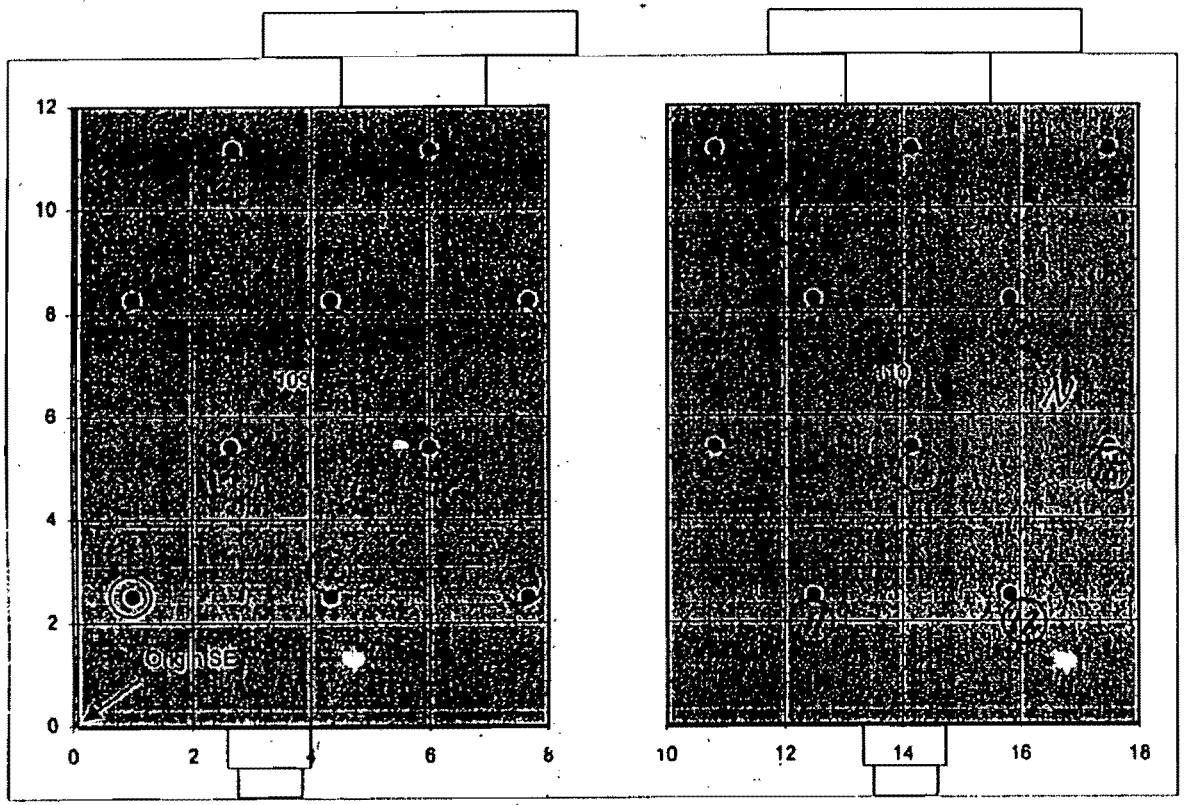

		Room 109, 110	
		SU 6 Coordinates	
		X	Y
		16	12
1	1	1	2.5
2	2	4.3	2.5
3	3	7.7	2.5
11	4	12.5	2.5
12	5	15.8	2.5
4	6	2.7	5.4
5	7	6.0	5.4
13	8	10.8	5.4
14	9	14.2	5.4
15	10	17.5	5.4
6	11	1.0	8.3
7	12	4.3	8.3
8	13	7.7	8.3
16	14	12.5	8.3
17	15	15.8	8.3
9	16	2.7	11.1
10	17	6.0	11.1
18	18	10.8	11.1
19	19	14.2	11.1
20	20	17.5	11.1

Area	L	L'
192	3.3ft	2.9ft
Start	X	Y
Rand X:Y	1.0	2.5

1039.03

03-TF-0285

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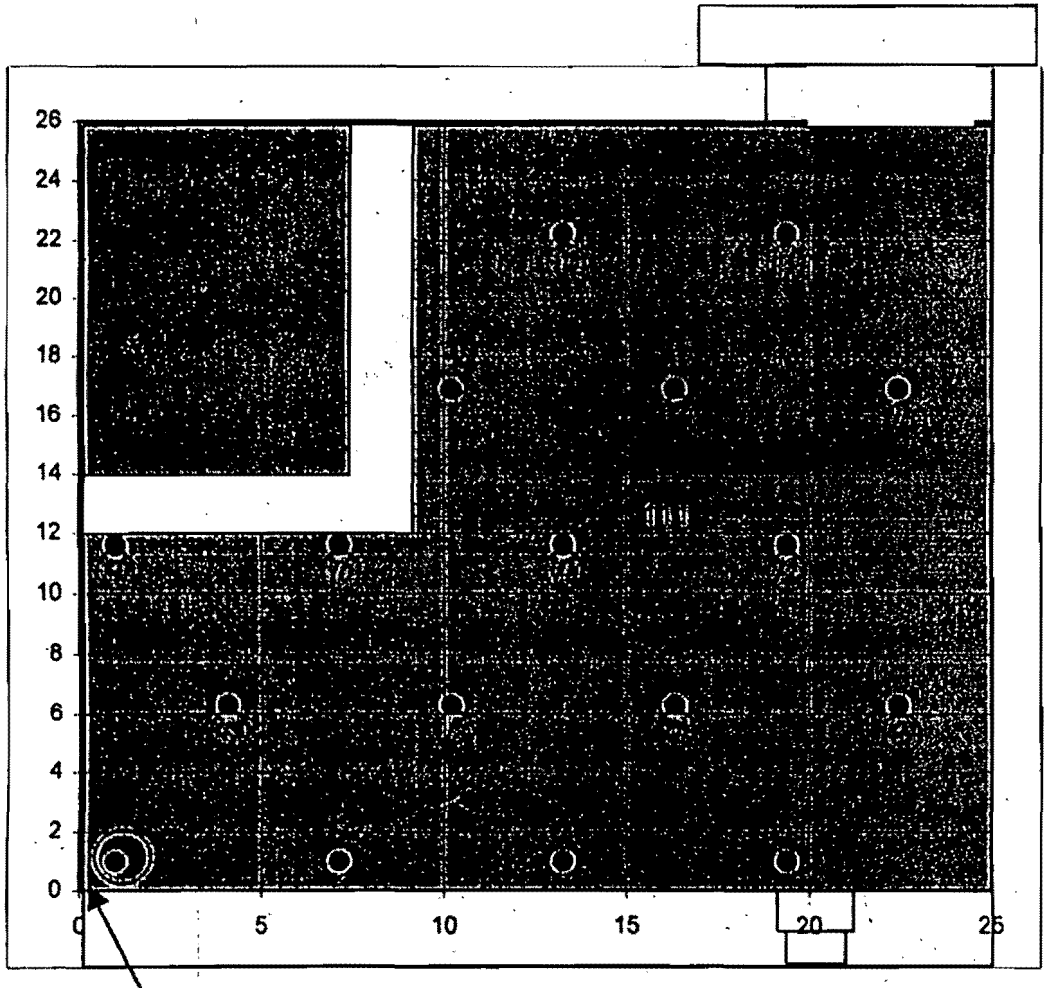

Origin SE

	Room 111	
	SU 7 Coordinates	
	X	Y
	25	26
1	1	1
2	7.1	1
3	13.3	1
4	19.4	1
5	4.1	6.3
6	10.2	6.3
7	16.3	6.3
8	22.4	6.3
9	1.0	11.6
10	7.1	11.6
11	13.3	11.6
12	19.4	11.6
13	10.2	16.9
14	16.3	16.9
15	22.4	16.9
16	13.3	22.2
17	19.4	22.2

Area	L	L'
650	6.1ft	5.3ft
Start	X	Y
Rand X:Y	1.0	1.0

Exhibit 03-TF-0285

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10-24-03

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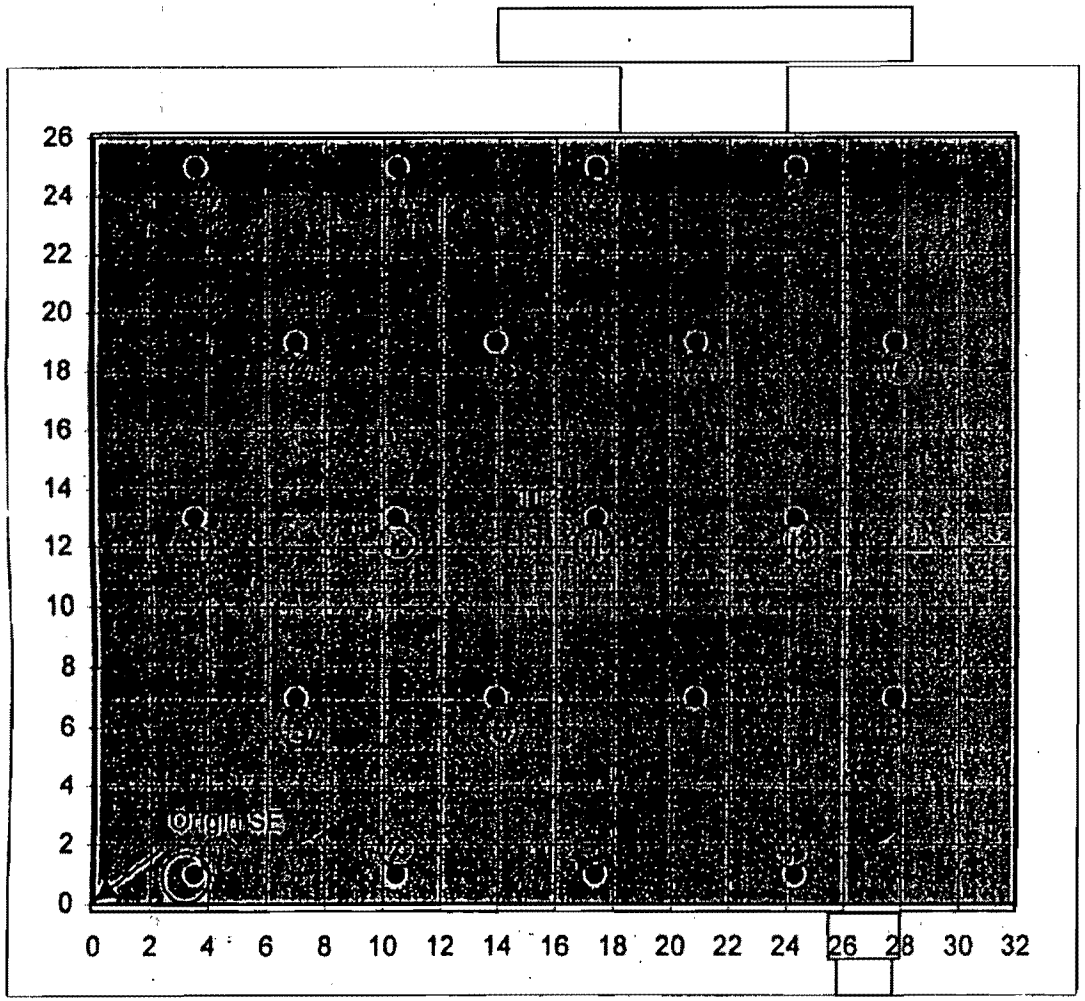

	Room 112	
	SU 8 Coordinates	
	X	Y
	32	26
1	3.5	1
2	10.4	1
3	17.4	1
4	24.3	1
5	7.0	7.0
6	13.9	7.0
7	20.8	7.0
N 8	27.8	7.0
9	3.5	13.0
10	10.4	13.0
11	17.4	13.0
12	24.3	13.0
13	7.0	19.0
14	13.9	19.0
15	20.8	19.0
16	27.8	19.0
17	3.5	25.0
18	10.4	25.0
19	17.4	25.0
20	24.3	25.0

Area	L	L'
832	6.9ft	6.ft
Start	X	Y
Rand X:Y	3.5	1.0

RS 03-TF-0285

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 50 118, 129, 114A, 114	SURVEY NO. 03-TF-0286
PURPOSE: MARSSIM Survey Plan 50-01 Survey Units 10, 11, 13, 14, 15	RWP NO. NA
	DATE: 11-13-03
	TIME: 1200

MAP/DRAWING

See Attached

COPY

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350	5854 / 5852	6-17-04
2360	5833 / 5847	3-13-04
	NA	

[redacted]	HP # 7474	Date: 11-13-03
Counted by: (Signature) See	HP #	Date:
Counted by: (Print Name) Attached		
[redacted]	HP # 678	Date: 11-13-03
Reviewed/Appr [redacted]		

ML-9620 (2-98)

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Survey No. 03-TF-0286

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1	See	ATTAC	hed	Floor
2				
3				
4				
5				
6				
7				
8	See	ATTAC	hed	Floor
		N/A		

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

COMMENTS: N/A

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

ML-9620A (4-98)

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50-Building Characterization Floor Scan Survey

RSDS# 03-TF-0286 RCT: KA RCT: NA

Alpha	43-68 BKG:	0	EFF:	0.2165	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.177	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.2002	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
SCAN	SRC BKG	5854	7474	5852	3		10/28/03	7:16	18	300	6
SCAN	SRCCHECK	5854	7474	5852	3		10/28/03	7:23	2098	60	3589
SCAN	SRCCHECK	5854	7474	5852	3		10/28/03	7:25	2138	60	3657
SCAN	SRCCHECK	5854	7474	5852	3		10/28/03	7:27	2219	60	3796
SCAN	SRCCHECK	5854	7474	5852	3		10/28/03	7:28	2175	60	3721
SCAN	SRCCHECK	5854	7474	5852	3		10/28/03	7:30	2219	60	3796
SCAN	SRCCHECK	5854	7474	5852	3		10/28/03	7:32	2152	60	3681
SCAN	U-10 01	5854	7474	5852	3		10/28/03	7:50	29	30	99
SCAN	U-10 02	5854	7474	5852	3		10/28/03	7:51	45	30	154
SCAN	U-10 03	5854	7474	5852	3		10/28/03	7:53	38	30	130
SCAN	U-10 04	5854	7474	5852	3		10/28/03	7:54	38	30	130
SCAN	U-10 05	5854	7474	5852	3		10/28/03	7:55	30	30	103
SCAN	U-15 01	5854	7474	5852	3		10/28/03	10:07	88	30	301
SCAN	U-15 02	5854	7474	5852	3		10/28/03	10:07	121	30	414
SCAN	U-15 03	5854	7474	5852	3		10/28/03	10:09	56	30	192
SCAN	U-15 04	5854	7474	5852	3		10/28/03	10:10	100	30	342
SCAN	U-10R 05	5854	7474	5852	3		10/28/03	14:31	9	30	31
SCAN	U-10R 04	5854	7474	5852	3		10/28/03	14:33	11	30	38
SCAN	U-10R 03	5854	7474	5852	3		10/28/03	14:34	9	30	31
SCAN	U-10R 02	5854	7474	5852	3		10/28/03	14:35	7	30	24
SCAN	U-10R 01	5854	7474	5852	3		10/28/03	14:36	6	30	21

Alpha/Beta Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR012
Batch Ended: 10/29/2003 14:05
Recalibration Date: 3/24/2005
Serial Number: 64575

Batch ID: 03-TF-0286 REYNOLDS A/B (8) AG

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	s	flags	DPM	s	flags
A1	1	0.0	1.9		2.0	2.1	
A2	2	0.0	1.9		3.3	2.7	
A3	3	0.0	1.9		2.0	2.4	
A4	4	0.0	1.9		0.9	1.6	
B1	5	0.0	2.0		2.9	3.2	
B2	6	1.9	2.2		1.7	2.2	
B3	7	0.0	2.0		1.3	2.5	
B4	8	0.0	2.0		0.2	1.8	

KA KA

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Albert Gibson

Protocol #: 1 Name:pW h3 101068 29-Oct-2003 14:49
Region A: LL-UL= 0.5-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region B: LL-UL= 2.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region C: LL-UL=40.0-2000 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Time = 2.00 QIP = tSIE/AEC ES Terminator = Count
reynolds 03-tf-0286 (8) AG
Conventional DPM
Nuclide 1 = 206704
Luminescence Correction On

S#	TIME	LUM	FLAG	CPMA	CPMB	CPMC	tSIE	DPM1	2Sigma
-1	10.00	13	B	14.20	12.80	6.40	549.		0.00
0	2.00	1		191.30	185.20	1.60	474.	398.67	53.10
1	2.00	20		0.00	0.00	0.00	572.	0.00	0.00
2	2.00	0		0.00	0.00	0.00	611.	0.00	0.00
3	2.00	16		0.00	0.00	0.00	604.	0.00	0.00
4	2.00	22		0.00	0.00	0.00	592.	0.00	0.00
5	2.00	11		0.00	0.00	0.00	621.	0.00	0.00
6	2.00	9		0.00	0.00	0.00	599.	0.00	0.00
7	2.00	9		0.00	0.00	0.00	613.	0.00	0.00
8	2.00	0		0.00	0.00	0.00	633.	0.00	0.00

KA

Albert Pibro

03-TF-0286

KA

BWXT of Ohio, Inc.

ANALYTICAL SERVICES REQUEST FOR ANALYSIS

DATE SUBMITTED:	SAMPLE TYPE:	COLLECTED BY:	NUMBER OF SAMPLES
10-30-03	Acid Etch	HOP	4

PROJECT/FUNCTION:	PRIMARY CONTACT/PHONE NO.:	MAIL STOP:
Boss	H. Reynolds 3320	

CHARGE NUMBER:	DATE(S) COLLECTED:	RSDS# (if applicable):	ATTACHMENTS (list):
EA554A	10-29-03		

ANALYSES REQUESTED (check):

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

ADDITIONAL INFORMATION:

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

LAB IDENTIFICATION	SAMPLE LOCATION	SAMPLE NUMBER	RESULTS
0309981	Bldg 50 Unit 15	01	
0309982	↓	02	
0309983		03	
0309984	↓	04	

COMMENTS:

ANALYZED BY:	DATE:
L.C. Hopkins	11-4-03

ML-5222 (1-01)

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03-TF-0286

KA

Laboratory ID#:	0309981-0309984
Project/function:	BOSS
Submitted:	Oct 30, 2003
Submitted by:	L. Hopkins
Point of Contact:	H. Reynolds x3320
RSDS#:	N/A
Date:	Nov 12, 2003

Lab ID 0309981
Sample Location Bldg - Unit 15-01

Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	94.02	7.58	0.62
Pu-239/240	<LDL	<LDL	0.78
Th-232	72.24	6.16	0.20
Th-230	9.04	1.08	0.20
Th-228	78.75	6.67	0.20
Th-227	<LDL	<LDL	0.20

Lab ID 0309982
Sample Location Bldg - Unit 15-02

Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	217.25	16.25	0.65
Pu-239/240	0.63	0.22	0.19
Th-232	281.03	23.34	0.75
Th-230	32.95	3.14	0.59
Th-228	293.88	24.38	0.75
Th-227	<LDL	<LDL	0.22

Lab ID 0309983
Sample Location Bldg - Unit 15-03

Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	156.58	11.85	0.65
Pu-239/240	0.42	0.18	0.19
Th-232	108.25	9.88	0.27
Th-230	13.20	1.63	0.74
Th-228	125.48	11.37	1.21
Th-227	<LDL	<LDL	0.27

Lab ID 0309984
Sample Location Bldg - Unit 15-04

Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	172.52	12.92	0.18
Pu-239/240	<LDL	<LDL	0.63
Th-232	134.75	10.78	0.59
Th-230	16.11	1.60	0.47
Th-228	139.08	11.11	0.17
Th-227	<LDL	<LDL	0.17

[redacted]

1585 11-12-03
HP # Date

5791 11/12/03
Data Verification HP # Date

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Sample Data Collection Sheet
Attachment 2

03-TF-0286 KA

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
50-01-01	10/29/03			ACID ETCH UNIT 15 BY SHOWER 01	[illegible]	10/29/03	1000	[illegible]	HOP
50-01-02	10/29/03			02	[illegible]	10/29/03	1000	[illegible]	
50-01-03	10/29/03			03	[illegible]	10/29/03	1000	[illegible]	
50-01-04	10/29/03			04	[illegible]	10/29/03	1000	[illegible]	
50-01-									
50-01-									
50-01-									
50-01-									
50-01-				N A					
50-01-									
50-01-									
50-01-									
50-01-									

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50-BLDG CHARACTERIZATION ALPHA SURVEY UNIT 15 ACID ETCH

RSDS# 03-TF-0286 RCT: KA RCT: NA

						BETA			ALPHA		
LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2	gross count	CT TIME	dpm/100cm2
U-15 01	5833	5760	5847	1	10/29/03		60	-595	25	60	192
U-15 02	5833	5760	5847	2	10/29/03		60	-595	41	60	320
U-15 03	5833	5760	5847	3	10/29/03		60	-595	28	60	216
U-15 04	5833	5760	5847	4	10/29/03		60	-595	30	60	232
U-15R 01	5833	5760	5847	5	10/29/03		60	-595	8	60	56
U-15R 02	5833	5760	5847	6	10/29/03		60	-595	5	60	32
U-15R 03	5833	5760	5847	7	10/29/03		60	-595	5	60	32
U-15R 04	5833	5760	5847	8	10/29/03		60	-595	8	60	56
BETA BACKGROUND FOR 10-29-2003 WAS---------->								119			
ALPHA BACKGROUND FOR 10-29-2003 WAS---------->								1			

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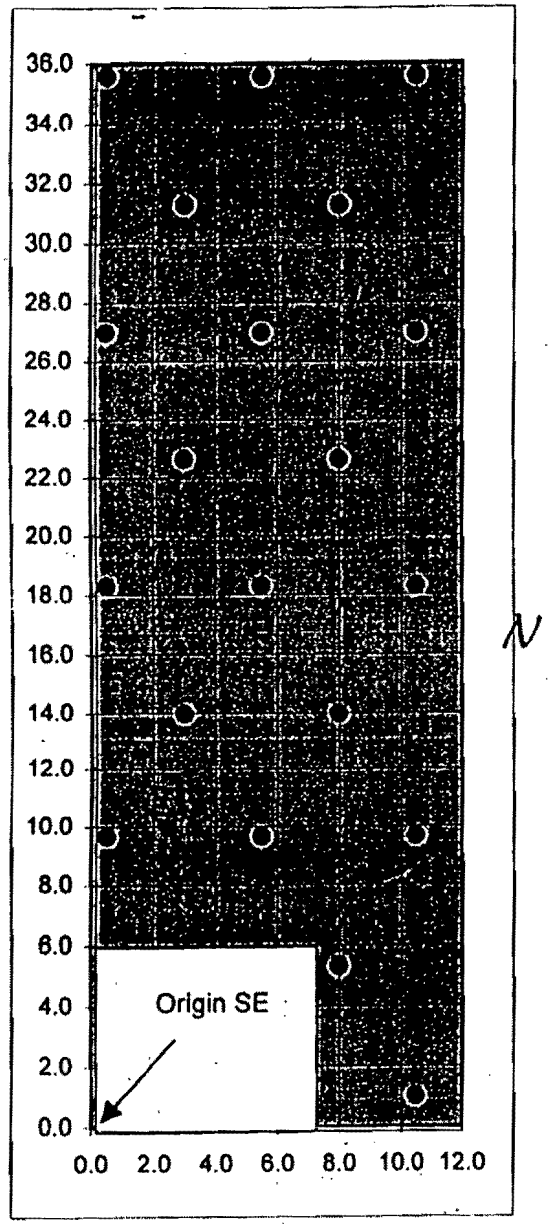
03-TF-0286

KA



	Room 129	
	SU 15 Coordinates	
	X"	Y'
	24	12
1	5.5	35.6
2	10.5	1.0
3	8.0	5.3
4	10.5	27.0
5	0.5	9.6
6	5.5	9.6
7	10.5	9.6
8	3.0	14.0
9	8.0	14.0
10	3.0	31.3
11	0.5	18.3
12	5.5	18.3
13	10.5	18.3
14	3.0	22.6
15	8.0	22.6
16	8.0	31.3
17	0.5	26.9
18	5.5	26.9
19	0.5	35.6
20	10.5	35.6

	A	L	L'
	288	4.077766	3.531345
Start		X	Y
Rand X:Y		0.493022	1.024102

ACID ETCH LOCATIONS
UNIT 15 (FLOOR)

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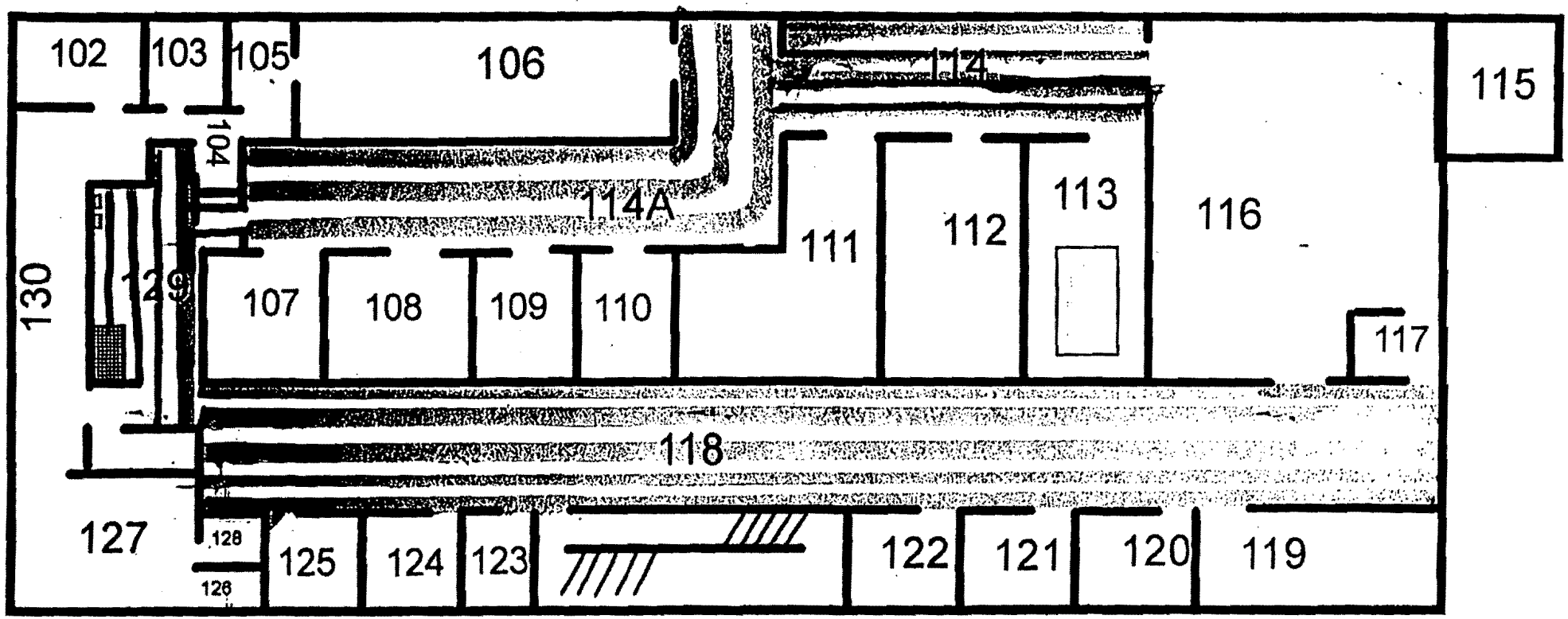
Building 50

03-TF-0286
KA



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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) BUILDING 50	SURVEY NO. 03-TF-0287
PURPOSE: MARSSIM SURVEY PLAN 50-1 UNITS 10, 11, 13 AND 14 (FLOORS)	RWP NO. N/A
	DATE: 10-30-04
	TIME: 1830

MAP/DRAWING

SEE ATTACHED DRAWINGS AND RESULTS

COPY

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350	5857	09-09-04
2360	5833/5847	03-15-04
	N/A	

[redacted] HP # 5214 Date: 11-06-03

Completed [redacted]

Counted by: (Signature) HP # Date:

Counted by: (Print Name) [redacted] HP # 6178 Date: 11-6-03

Review [redacted]

ML-8620 (2-88)

Survey No. 03-TF-0287

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-20	SEE	ATTACHED		UNIT 10
21-40	↓	↓	↓	UNIT 11
41-60				UNIT 13
61-80	↓	↓	↓	UNIT 14
			N/A	

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

COMMENTS:

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

ML-8620A (4-98)

Alpha/Beta Analysis

Batch ID: 03-97-0287 Reynolds (80) 11/3/03 bc

Batch File:	Smear Unit 1 - 200311030800	Acquisition Date:	11/3/03
Group:	H	Count Time (min):	1.5
Device:	Unit 1	Recalibration Date:	4/30/2004
Selected:	Swipe/Smear		
Serial Number:	31575-1		

Sample ID	Carrier	Alpha (dpm)	2σ	Beta (dpm)	2σ
1	9	0.00	0.82	0.00	4.13
2	62	0.00	0.82	3.20	6.14
3	34	0.00	0.82	0.00	4.13
4	139	0.00	0.82	0.00	1.81
5	133	1.44	4.16	0.00	4.14
6	16	3.48	5.82	0.00	4.16
7	25	0.00	0.82	0.00	4.13
8	4	0.00	0.82	5.83	7.18
9	15	0.00	0.82	0.00	4.13
10	47	1.44	4.16	3.04	6.15
11	48	0.00	0.82	0.00	3.19
12	46	3.48	5.82	0.00	3.22
13	101	0.00	0.82	0.58	4.89
14	59	0.00	0.82	1.89	5.55
15	91	1.44	4.16	0.00	3.21
16	147	3.48	5.82	0.24	4.92
17	7	0.00	0.82	0.00	4.13
18	38	1.44	4.16	1.72	5.56
19	95	0.00	0.82	0.00	4.13
20	37	0.00	0.82	0.00	3.19
21	5	1.43	4.16	5.66	7.18
22	128	1.44	4.16	0.00	4.14
23	127	0.00	0.82	0.00	3.19
24	115	1.45	4.16	0.00	1.84
25	32	1.44	4.16	0.00	3.21
26	121	0.00	0.82	0.00	3.19
27	54	1.44	4.16	0.00	3.21

SR SR

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B. Brown

~~1 of 3~~ SR 11-06-03

Alpha/Beta Analysis

Sample ID	Carrier	Alpha (dpm)	2σ	Beta (dpm)	2σ
28	134	1.44	4.16	0.00	3.21
29	131	0.00	0.82	0.58	4.89
30	109	5.49	7.10	14.51	10.00
31	74	1.43	4.16	6.97	7.65
32	69	0.00	0.82	1.89	5.55
33	77	1.44	4.16	0.00	4.14
34	145	0.00	0.82	0.00	4.13
35	94	0.00	0.82	0.00	3.19
36	100	0.00	0.82	3.20	6.14
37	11	1.44	4.16	0.41	4.90
38	131	0.00	0.82	0.00	4.13
39	49	0.00	0.82	0.00	4.13
40	123	0.00	0.82	0.00	4.13
41	38	1.44	4.16	0.00	3.21
42	34	1.45	4.16	0.00	1.84
43	69	1.44	4.16	1.72	5.56
44	9	0.00	0.82	0.00	3.19
45	39	0.00	0.82	0.00	4.13
46	119	0.00	0.82	0.00	1.81
47	29	0.00	0.82	4.51	6.68
48	76	1.45	4.16	0.00	1.84
49	139	0.00	0.82	0.00	4.13
50	23	0.00	0.82	0.00	3.19
51	124	0.00	0.82	0.00	4.13
52	126	0.00	0.82	0.00	4.13
53	124	1.44	4.16	0.00	4.14
54	31	1.44	4.16	0.41	4.90
55	34	0.00	0.82	0.58	4.89
56	83	0.00	0.82	0.00	3.19
57	73	0.00	0.82	0.58	4.89
58	47	0.00	0.82	0.00	4.13
59	110	1.44	4.16	0.00	4.14
60	123	1.44	4.16	0.00	3.21
61	28	0.00	0.82	1.89	5.55
62	10	0.00	0.82	1.89	5.55
63	106	5.51	7.10	4.01	6.70
64	77	1.44	4.16	3.04	6.15

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03-TF-0287

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Alpha/Beta Analysis

Sample ID	Carrier	Alpha (dpm)	2σ	Beta (dpm)	2σ
65	142	0.00	0.82	0.58	4.89
66	33	0.00	0.82	0.00	3.19
67	32	1.44	4.16	0.41	4.90
68	27	0.00	0.82	0.58	4.89
69	76	1.44	4.16	0.00	3.21
70	86	0.00	0.82	0.58	4.89
71	104	0.00	0.82	0.58	4.89
72	122	0.00	0.82	0.58	4.89
73	118	0.00	0.82	0.58	4.89
74	35	1.44	4.16	0.00	3.21
75	55	0.00	0.82	0.00	1.81
76	122	0.00	0.82	0.00	4.13
77	27	0.00	0.82	0.58	4.89
78	77	0.00	0.82	0.58	4.89
79	129	0.00	0.82	0.58	4.89
80	114	3.48	5.82	1.56	5.57

Albert Pitron

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03-TF-0287

R 56/6

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11-06-03

Protocol #: 5 Name:pW h3 101068 03-Nov-2003 16:29
Region A: LL-UL= 0.5-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region B: LL-UL= 2.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region C: LL-UL=40.0-2000 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Time = 2.00 ~~SIF~~ = tSIE/AEC ES Terminator = Count
03-TF-0287 REYNOLDS-80 BSB
Conventional DPM
Nuclide 1 = 206704
Luminescence Correction On

S#	TIME	LUM	FLAG	CPMA	CPMB	CPMC	tSIE	DPM1	2Sigma
-1	10.00	13	B	9.70	9.20	6.00	552.		0.00
0	2.00	2		383.30	361.80	0.00	453.	820.11	88.98
1	2.00	60		0.00	0.00	1.00	517.	0.00	0.00
2	2.00	15		0.00	0.00	0.00	420.	0.00	0.00
3	2.00	0		0.00	0.00	1.00	578.	0.00	0.00
4	2.00	13		0.00	0.00	0.00	394.	0.00	0.00
5	2.00	0		0.00	0.00	0.00	511.	0.00	0.00
6	2.00	20		0.00	0.00	0.00	389.	0.00	0.00
7	2.00	60		0.00	0.00	0.50	462.	0.00	0.00
8	2.00	48		0.00	0.00	1.00	433.	0.00	0.00
9	2.00	0		0.00	0.00	0.00	331.	0.00	0.00
10	2.00	11		0.00	0.00	0.00	437.	0.00	0.00
11	2.00	9		0.00	0.00	0.00	562.	0.00	0.00
12	2.00	17		0.00	0.00	0.00	482.	0.00	0.00
13	2.00	27		0.00	0.00	0.00	370.	0.00	0.00
14	2.00	17		0.00	0.00	2.00	493.	0.00	0.00
15	2.00	13		0.00	0.00	0.00	587.	0.00	0.00
16	2.00	30		0.00	0.00	0.00	480.	0.00	0.00
17	2.00	0		0.00	0.00	0.00	466.	0.00	0.00
18	2.00	15		0.00	0.00	0.00	453.	0.00	0.00
19	2.00	0		0.00	0.00	0.00	387.	0.00	0.00
20	2.00	7		0.00	0.00	0.00	507.	0.00	0.00
21	2.00	0		0.00	0.00	0.00	532.	0.00	0.00
22	2.00	24		0.00	0.00	0.00	525.	0.00	0.00
23	2.00	0		0.00	0.00	0.00	506.	0.00	0.00
24	2.00	0		0.00	0.00	0.00	493.	0.00	0.00
25	2.00	0		0.00	0.00	0.00	528.	0.00	0.00
26	2.00	15		0.00	0.00	0.00	578.	0.00	0.00
27	2.00	11		0.00	0.00	0.00	515.	0.00	0.00
28	2.00	15		0.00	0.00	0.00	585.	0.00	0.00
29	2.00	0		0.00	0.00	0.00	589.	0.00	0.00
30	2.00	0		0.00	0.00	0.00	579.	0.00	0.00
31	2.00	17		0.00	0.00	0.00	543.	0.00	0.00
32	2.00	10		0.00	0.00	0.00	630.	0.00	0.00
33	2.00	9		0.00	0.00	0.00	527.	0.00	0.00
34	2.00	0		0.00	0.00	1.00	490.	0.00	0.00
35	2.00	0		0.00	0.00	0.00	543.	0.00	0.00
36	2.00	13		0.00	0.00	0.00	465.	0.00	0.00
37	2.00	0		0.00	0.00	3.00	485.	0.00	0.00
38	2.00	11		0.00	0.00	0.00	441.	0.00	0.00
39	2.00	0		0.00	0.00	0.50	465.	0.00	0.00
40	2.00	0		0.00	0.00	0.00	658.	0.00	0.00
41	2.00	0		0.00	0.00	0.00	540.	0.00	0.00
42	2.00	0		0.00	0.00	0.50	498.	0.00	0.00
43	2.00	12		0.00	0.00	0.00	502.	0.00	0.00
44	2.00	9		0.00	0.00	0.00	521.	0.00	0.00

S#	TIME	LUM	FLAG	CPMA	CPMB	CPMC	tSIE	DPM1	2Sigma
45	2.00	0		0.00	0.00	0.00	565.	0.00	0.00
46	2.00	20		0.00	0.00	0.00	490.	0.00	0.00
47	2.00	12		0.00	0.00	0.00	508.	0.00	0.00
48	2.00	30		0.00	0.00	0.00	488.	0.00	0.00
49	2.00	30		0.00	0.00	0.00	558.	0.00	0.00
50	2.00	0		0.00	0.00	0.00	589.	0.00	0.00
51	2.00	0		0.00	0.00	1.00	522.	0.00	0.00
52	2.00	0		0.00	0.00	0.50	600.	0.00	0.00
53	2.00	11		0.00	0.00	0.00	556.	0.00	0.00
54	2.00	16		0.00	0.00	0.00	548.	0.00	0.00
55	2.00	24		0.00	0.00	0.50	558.	0.00	0.00
56	2.00	14		3.80	0.00	0.00	578.	7.09	12.79
57	2.00	30		0.00	0.00	0.00	497.	0.00	0.00
58	2.00	0		0.00	0.00	0.00	498.	0.00	0.00
59	2.00	24		0.00	0.00	0.00	620.	0.00	0.00
60	2.00	0		0.00	0.00	0.00	581.	0.00	0.00
61	2.00	33		0.00	0.00	0.00	588.	0.00	0.00
62	2.00	0		0.00	0.00	0.00	392.	0.00	0.00
63	2.00	17		0.00	0.00	0.00	557.	0.00	0.00
64	2.00	0		0.00	0.00	0.00	602.	0.00	0.00
65	2.00	0		0.00	0.00	0.00	595.	0.00	0.00
66	2.00	13		0.00	0.00	1.00	540.	0.00	0.00
67	2.00	0		0.00	0.00	1.00	613.	0.00	0.00
68	2.00	24		0.00	0.00	0.00	605.	0.00	0.00
69	2.00	0		0.00	0.00	0.50	478.	0.00	0.00
70	2.00	0		0.00	0.00	1.50	511.	0.00	0.00
71	2.00	22		0.00	0.00	2.00	590.	0.00	0.00
72	2.00	15		0.00	0.00	0.00	479.	0.00	0.00
73	2.00	10		0.00	0.00	0.00	493.	0.00	0.00
74	2.00	0		0.00	0.00	0.00	564.	0.00	0.00
75	2.00	10		0.00	0.00	0.00	566.	0.00	0.00
76	2.00	11		0.00	0.00	0.00	585.	0.00	0.00
77	2.00	36		0.00	0.00	0.00	516.	0.00	0.00
78	2.00	0		0.00	0.00	0.50	566.	0.00	0.00
79	2.00	30		0.00	0.00	0.00	542.	0.00	0.00
80	2.00	0		0.00	0.00	0.00	455.	0.00	0.00

SR

Albert Huber

RSDS 03-TF-0287

50-Building Characterization Survey Unit 10,11,13 and 14

RSDS# _03-TF-0287_ RCT: SR RCT: N/A

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # :
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5857	5214	5859	1		10/30/03	7:08	8	300	11
ALPHA	SRCCHECK	5857	5214	5859	1		10/30/03	7:29	2095	60	14477
ALPHA	SRCCHECK	5857	5214	5859	1		10/30/03	7:31	2101	60	14519
ALPHA	SRCCHECK	5857	5214	5859	1		10/30/03	7:36	1967	60	13593
ALPHA	SRCCHECK	5857	5214	5859	1		10/30/03	7:39	2031	60	14035
ALPHA	U-10 01	5857	5214	5859	1	1	10/30/03	8:16	3	120	10
ALPHA	U-10 02	5857	5214	5859	1	2	10/30/03	8:26	5	120	17
ALPHA	U-10 03	5857	5214	5859	1	3	10/30/03	8:30	7	120	24
ALPHA	U-10 04	5857	5214	5859	1	4	10/30/03	8:34	2	120	7
ALPHA	U-10 05	5857	5214	5859	1	5	10/30/03	8:38	9	120	31
ALPHA	U-10 06	5857	5214	5859	1	6	10/30/03	8:41	1	120	3
ALPHA	U-10 07	5857	5214	5859	1	7	10/30/03	8:45	7	120	24
ALPHA	U-10 08	5857	5214	5859	1	8	10/30/03	8:48	6	120	21
ALPHA	U-10 09	5857	5214	5859	1	9	10/30/03	8:52	4	120	14
ALPHA	U-10 10	5857	5214	5859	1	10	10/30/03	8:57	10	120	35
ALPHA	U-10 11	5857	5214	5859	1	11	10/30/03	9:01	6	120	21
ALPHA	U-10 12	5857	5214	5859	1	12	10/30/03	9:07	6	120	21
ALPHA	U-10 13	5857	5214	5859	1	13	10/30/03	9:12	6	120	21
ALPHA	U-10 14	5857	5214	5859	1	14	10/30/03	9:16	5	120	17
ALPHA	U-10 15	5857	5214	5859	1	15	10/30/03	9:20	2	120	7
ALPHA	U-10 16	5857	5214	5859	1	16	10/30/03	9:23	2	120	7
ALPHA	U-10 17	5857	5214	5859	1	17	10/30/03	9:27	8	120	28
ALPHA	U-10 18	5857	5214	5859	1	18	10/30/03	9:31	7	120	24
ALPHA	U-10 19	5857	5214	5859	1	19	10/30/03	9:34	2	120	7
ALPHA	U-10 20	5857	5214	5859	1	20	10/30/03	9:38	2	120	7
ALPHA	U-11 01	5857	5214	5859	1	21	10/30/03	9:44	4	120	14
ALPHA	U-11 02	5857	5214	5859	1	22	10/30/03	9:47	13	120	45
ALPHA	U-11 03	5857	5214	5859	1	23	10/30/03	9:51	6	120	21
ALPHA	U-11 04	5857	5214	5859	1	24	10/30/03	9:55	5	120	17
ALPHA	U-11 05	5857	5214	5859	1	25	10/30/03	9:58	9	120	31
ALPHA	U-11 06	5857	5214	5859	1	26	10/30/03	10:07	7	120	24
ALPHA	U-11 07	5857	5214	5859	1	27	10/30/03	10:12	11	120	38
ALPHA	U-11 08	5857	5214	5859	1	28	10/30/03	10:16	10	120	35
ALPHA	U-11 09	5857	5214	5859	1	29	10/30/03	10:21	7	120	24
ALPHA	U-11 10	5857	5214	5859	1	30	10/30/03	10:25	3	120	10
ALPHA	U-11 11	5857	5214	5859	1	31	10/30/03	10:29	7	120	24
ALPHA	U-11 12	5857	5214	5859	1	32	10/30/03	10:32	10	120	35
ALPHA	U-11 13	5857	5214	5859	1	33	10/30/03	10:36	6	120	21
ALPHA	U-11 14	5857	5214	5859	1	34	10/30/03	10:40	6	120	21

50-Building Characterization Survey Unit 10,11,13 and 14

RSDS# _03-TF-0287_ RCT: SKR RCT: NA

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	U-11 15	5857	5214	5859	1	35	10/30/03	12:39	4	120	14
ALPHA	U-11 16	5857	5214	5859	1	36	10/30/03	12:43	2	120	7
ALPHA	U-11 17	5857	5214	5859	1	37	10/30/03	12:47	10	120	35
ALPHA	U-11 18	5857	5214	5859	1	38	10/30/03	12:50	6	120	21
ALPHA	U-11 19	5857	5214	5859	1	39	10/30/03	12:54	6	120	21
ALPHA	U-11 20	5857	5214	5859	1	40	10/30/03	12:58	7	120	24
ALPHA	U-13 01	5857	5214	5859	1	41	10/30/03	13:02	3	120	10
ALPHA	U-13 02	5857	5214	5859	1	42	10/30/03	13:06	13	120	45
ALPHA	U-13 03	5857	5214	5859	1	43	10/30/03	13:10	4	120	14
ALPHA	U-13 04	5857	5214	5859	1	44	10/30/03	13:13	6	120	21
ALPHA	U-13 05	5857	5214	5859	1	45	10/30/03	13:17	6	120	21
ALPHA	U-13 06	5857	5214	5859	1	46	10/30/03	13:20	3	120	10
ALPHA	U-13 07	5857	5214	5859	1	47	10/30/03	13:25	1	120	3
ALPHA	U-13 08	5857	5214	5859	1	48	10/30/03	13:29	5	120	17
ALPHA	U-13 09	5857	5214	5859	1	49	10/30/03	13:34	4	120	14
ALPHA	U-13 10	5857	5214	5859	1	50	10/30/03	13:37	6	120	21
ALPHA	U-13 11	5857	5214	5859	1	51	10/30/03	13:41	9	120	31
ALPHA	U-13 12	5857	5214	5859	1	52	10/30/03	13:44	7	120	24
ALPHA	U-13 13	5857	5214	5859	1	53	10/30/03	13:48	6	120	21
ALPHA	U-13 14	5857	5214	5859	1	54	10/30/03	13:52	8	120	28
ALPHA	U-13 15	5857	5214	5859	1	55	10/30/03	13:56	6	120	21
ALPHA	U-13 16	5857	5214	5859	1	56	10/30/03	14:09	6	120	21
ALPHA	U-13 17	5857	5214	5859	1	57	10/30/03	14:13	3	120	10
ALPHA	U-13 18	5857	5214	5859	1	58	10/30/03	14:20	6	120	21
ALPHA	U-13 19	5857	5214	5859	1	59	10/30/03	14:23	6	120	21
ALPHA	U-13 20	5857	5214	5859	1	60	10/30/03	14:26	8	120	28
ALPHA	U-14 01	5857	5214	5859	1	61	10/30/03	14:31	8	120	28
ALPHA	U-14 02	5857	5214	5859	1	62	10/30/03	14:38	7	120	24
ALPHA	U-14 03	5857	5214	5859	1	63	10/30/03	14:42	8	120	28
ALPHA	U-14 04	5857	5214	5859	1	64	10/30/03	14:46	7	120	24
ALPHA	U-14 05	5857	5214	5859	1	65	10/30/03	14:49	4	120	14
ALPHA	U-14 06	5857	5214	5859	1	66	10/30/03	14:53	6	120	21
ALPHA	U-14 07	5857	5214	5859	1	67	10/30/03	14:56	9	120	31
ALPHA	U-14 08	5857	5214	5859	1	68	10/30/03	15:00	2	120	7
ALPHA	U-14 09	5857	5214	5859	1	69	10/30/03	15:04	10	120	35
ALPHA	U-14 10	5857	5214	5859	1	70	10/30/03	15:07	7	120	24
ALPHA	U-14 11	5857	5214	5859	1	71	10/30/03	15:11	9	120	31
ALPHA	U-14 12	5857	5214	5859	1	72	10/30/03	15:48	5	120	17
ALPHA	U-14 13	5857	5214	5859	1	73	10/30/03	15:57	3	120	10
ALPHA	U-14 14	5857	5214	5859	1	74	10/30/03	16:04	8	120	28

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50-Building Characterization Survey Unit 10,11,13 and 14

RSDS# _03-TF-0287_ *RCT:* SKR *RCT:* NA

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # :
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm
ALPHA	U-14 15	5857	5214	5859	1	75	10/30/03	16:09	2	120	7
ALPHA	U-14 16	5857	5214	5859	1	76	10/30/03	16:14	6	120	21
ALPHA	U-14 17	5857	5214	5859	1	77	10/30/03	16:17	6	120	21
ALPHA	U-14 18	5857	5214	5859	1	78	10/30/03	16:21	6	120	21
ALPHA	U-14 19	5857	5214	5859	1	79	10/30/03	16:25	5	120	17
ALPHA	U-14 20	5857	5214	5859	1	80	10/30/03	16:28	4	120	14
BETA	SRC BKG	5857	5214	5859	2		10/30/03	7:47	644	300	1097
BETA	SRCCHECK	5857	5214	5859	2		10/30/03	7:54	2533	60	21582
BETA	SRCCHECK	5857	5214	5859	2		10/30/03	7:56	2541	60	21650
BETA	SRCCHECK	5857	5214	5859	2		10/30/03	7:57	2482	60	21147
BETA	SRCCHECK	5857	5214	5859	2		10/30/03	7:59	2295	60	19554
BETA	U-10 01	5857	5214	5859	2	1	10/30/03	8:17	151	60	1287
BETA	U-10 02	5857	5214	5859	2	2	10/30/03	8:27	138	60	1176
BETA	U-10 03	5857	5214	5859	2	3	10/30/03	8:31	126	60	1074
BETA	U-10 04	5857	5214	5859	2	4	10/30/03	8:35	123	60	1048
BETA	U-10 05	5857	5214	5859	2	5	10/30/03	8:39	140	60	1193
BETA	U-10 06	5857	5214	5859	2	6	10/30/03	8:42	140	60	1193
BETA	U-10 07	5857	5214	5859	2	7	10/30/03	8:46	129	60	1099
BETA	U-10 08	5857	5214	5859	2	8	10/30/03	8:49	109	60	929
BETA	U-10 09	5857	5214	5859	2	9	10/30/03	8:53	116	60	988
BETA	U-10 10	5857	5214	5859	2	10	10/30/03	8:58	155	60	1321
BETA	U-10 11	5857	5214	5859	2	11	10/30/03	9:02	133	60	1133
BETA	U-10 12	5857	5214	5859	2	12	10/30/03	9:09	138	60	1176
BETA	U-10 13	5857	5214	5859	2	13	10/30/03	9:13	150	60	1278
BETA	U-10 14	5857	5214	5859	2	14	10/30/03	9:17	152	60	1295
BETA	U-10 15	5857	5214	5859	2	15	10/30/03	9:21	147	60	1252
BETA	U-10 16	5857	5214	5859	2	16	10/30/03	9:25	141	60	1201
BETA	U-10 17	5857	5214	5859	2	17	10/30/03	9:28	120	60	1022
BETA	U-10 18	5857	5214	5859	2	18	10/30/03	9:32	140	60	1193
BETA	U-10 19	5857	5214	5859	2	19	10/30/03	9:35	133	60	1133
BETA	U-10 20	5857	5214	5859	2	20	10/30/03	9:39	117	60	997
BETA	U-11 01	5857	5214	5859	2	21	10/30/03	9:45	109	60	929
BETA	U-11 02	5857	5214	5859	2	22	10/30/03	9:48	96	60	818
BETA	U-11 03	5857	5214	5859	2	23	10/30/03	9:52	117	60	997
BETA	U-11 04	5857	5214	5859	2	24	10/30/03	9:56	137	60	1167
BETA	U-11 05	5857	5214	5859	2	25	10/30/03	10:00	90	60	767
BETA	U-11 06	5857	5214	5859	2	26	10/30/03	10:08	104	60	886
BETA	U-11 07	5857	5214	5859	2	27	10/30/03	10:13	99	60	843
BETA	U-11 08	5857	5214	5859	2	28	10/30/03	10:17	124	60	1056

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RSDS# _03-TF-0287_ RCT: SLR RCT: N/A

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
BETA	U-11 09	5857	5214	5859	2	29	10/30/03	10:22	165	60	1406
BETA	U-11 10	5857	5214	5859	2	30	10/30/03	10:26	185	60	1576
BETA	U-11 11	5857	5214	5859	2	31	10/30/03	10:30	158	60	1346
BETA	U-11 12	5857	5214	5859	2	32	10/30/03	10:34	158	60	1346
BETA	U-11 13	5857	5214	5859	2	33	10/30/03	10:37	159	60	1355
BETA	U-11 14	5857	5214	5859	2	34	10/30/03	10:41	173	60	1474
BETA	U-11 15	5857	5214	5859	2	35	10/30/03	12:40	141	60	1201
BETA	U-11 16	5857	5214	5859	2	36	10/30/03	12:44	158	60	1346
BETA	U-11 17	5857	5214	5859	2	37	10/30/03	12:48	136	60	1159
BETA	U-11 18	5857	5214	5859	2	38	10/30/03	12:52	167	60	1423
BETA	U-11 19	5857	5214	5859	2	39	10/30/03	12:55	120	60	1022
BETA	U-11 20	5857	5214	5859	2	40	10/30/03	12:59	151	60	1287
BETA	U-13 01	5857	5214	5859	2	41	10/30/03	13:03	155	60	1321
BETA	U-13 02	5857	5214	5859	2	42	10/30/03	13:07	149	60	1270
BETA	U-13 03	5857	5214	5859	2	43	10/30/03	13:11	177	60	1508
BETA	U-13 04	5857	5214	5859	2	44	10/30/03	13:15	170	60	1448
BETA	U-13 05	5857	5214	5859	2	45	10/30/03	13:18	175	60	1491
BETA	U-13 06	5857	5214	5859	2	46	10/30/03	13:22	173	60	1474
BETA	U-13 07	5857	5214	5859	2	47	10/30/03	13:27	185	60	1576
BETA	U-13 08	5857	5214	5859	2	48	10/30/03	13:30	162	60	1380
BETA	U-13 09	5857	5214	5859	2	49	10/30/03	13:35	133	60	1133
BETA	U-13 10	5857	5214	5859	2	50	10/30/03	13:38	157	60	1338
BETA	U-13 11	5857	5214	5859	2	51	10/30/03	13:42	163	60	1389
BETA	U-13 12	5857	5214	5859	2	52	10/30/03	13:46	176	60	1500
BETA	U-13 13	5857	5214	5859	2	53	10/30/03	13:49	165	60	1406
BETA	U-13 14	5857	5214	5859	2	54	10/30/03	13:53	173	60	1474
BETA	U-13 15	5857	5214	5859	2	55	10/30/03	13:57	184	60	1568
BETA	U-13 16	5857	5214	5859	2	56	10/30/03	14:11	168	60	1431
BETA	U-13 17	5857	5214	5859	2	57	10/30/03	14:14	173	60	1474
BETA	U-13 18	5857	5214	5859	2	58	10/30/03	14:21	158	60	1346
BETA	U-13 19	5857	5214	5859	2	59	10/30/03	14:24	168	60	1431
BETA	U-13 20	5857	5214	5859	2	60	10/30/03	14:28	149	60	1270
BETA	U-14 01	5857	5214	5859	2	61	10/30/03	14:32	166	60	1414
BETA	U-14 02	5857	5214	5859	2	62	10/30/03	14:39	185	60	1576
BETA	U-14 03	5857	5214	5859	2	63	10/30/03	14:43	166	60	1414
BETA	U-14 04	5857	5214	5859	2	64	10/30/03	14:47	198	60	1687
BETA	U-14 05	5857	5214	5859	2	65	10/30/03	14:50	175	60	1491
BETA	U-14 06	5857	5214	5859	2	66	10/30/03	14:54	164	60	1397
BETA	U-14 07	5857	5214	5859	2	67	10/30/03	14:57	187	60	1593
BETA	U-14 08	5857	5214	5859	2	68	10/30/03	15:01	191	60	1627

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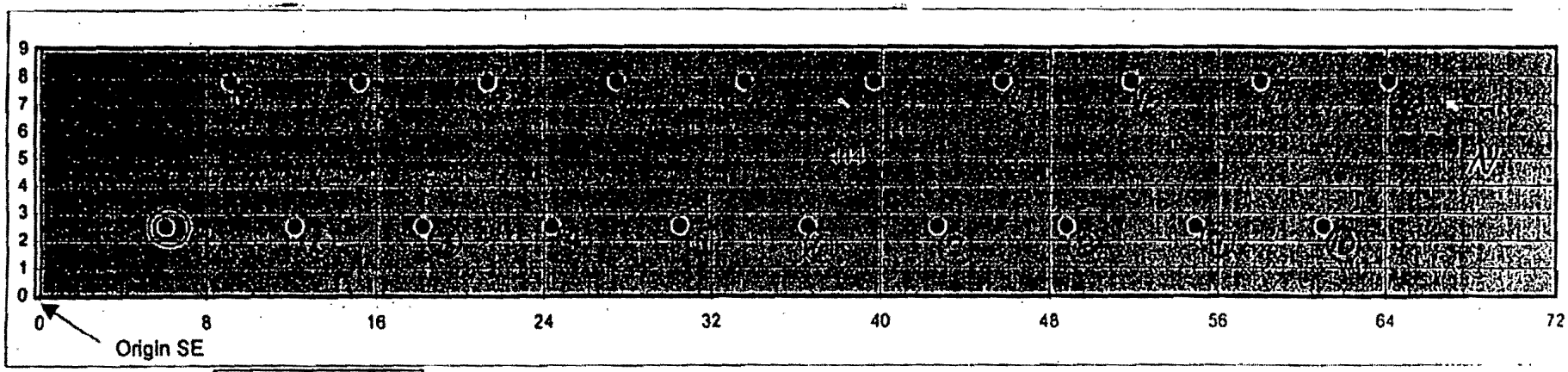
RSDS# _03-TF-0287_ *RCT:* [illegible] *RCT:* N/A

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # :
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
BETA	U-14 09	5857	5214	5859	2	69	10/30/03	15:05	189	60	1610
BETA	U-14 10	5857	5214	5859	2	70	10/30/03	15:08	185	60	1576
BETA	U-14 11	5857	5214	5859	2	71	10/30/03	15:12	142	60	1210
BETA	U-14 12	5857	5214	5859	2	72	10/30/03	15:49	162	60	1380
BETA	U-14 13	5857	5214	5859	2	73	10/30/03	15:58	160	60	1363
BETA	U-14 14	5857	5214	5859	2	74	10/30/03	16:05	158	60	1346
BETA	U-14 15	5857	5214	5859	2	75	10/30/03	16:10	172	60	1465
BETA	U-14 16	5857	5214	5859	2	76	10/30/03	16:15	176	60	1500
BETA	U-14 17	5857	5214	5859	2	77	10/30/03	16:19	161	60	1372
BETA	U-14 18	5857	5214	5859	2	78	10/30/03	16:22	170	60	1448
BETA	U-14 19	5857	5214	5859	2	79	10/30/03	16:26	201	60	1713
BETA	U-14 20	5857	5214	5859	2	80	10/30/03	16:29	194	60	1653



	Room 114				
	SU 10 Coordinates				
	X	Y	A	L	L'
	72	9	648	6.116649	5.297018
1	6.0	2.5			
2	12.1	2.5	Start		
3	18.2	2.5	RandX:Y	6.0	2.5
4	24.3	2.5			
5	30.5	2.5			
6	36.6	2.5			
7	42.7	2.5			
8	48.8	2.5			
9	54.9	2.5			
10	61.0	2.5			
11	9.1	7.8			
12	15.2	7.8			
13	21.3	7.8			
14	27.4	7.8			
15	33.5	7.8			
16	39.6	7.8			
17	45.8	7.8			
18	51.9	7.8			
19	58.0	7.8			
20	64.1	7.8			

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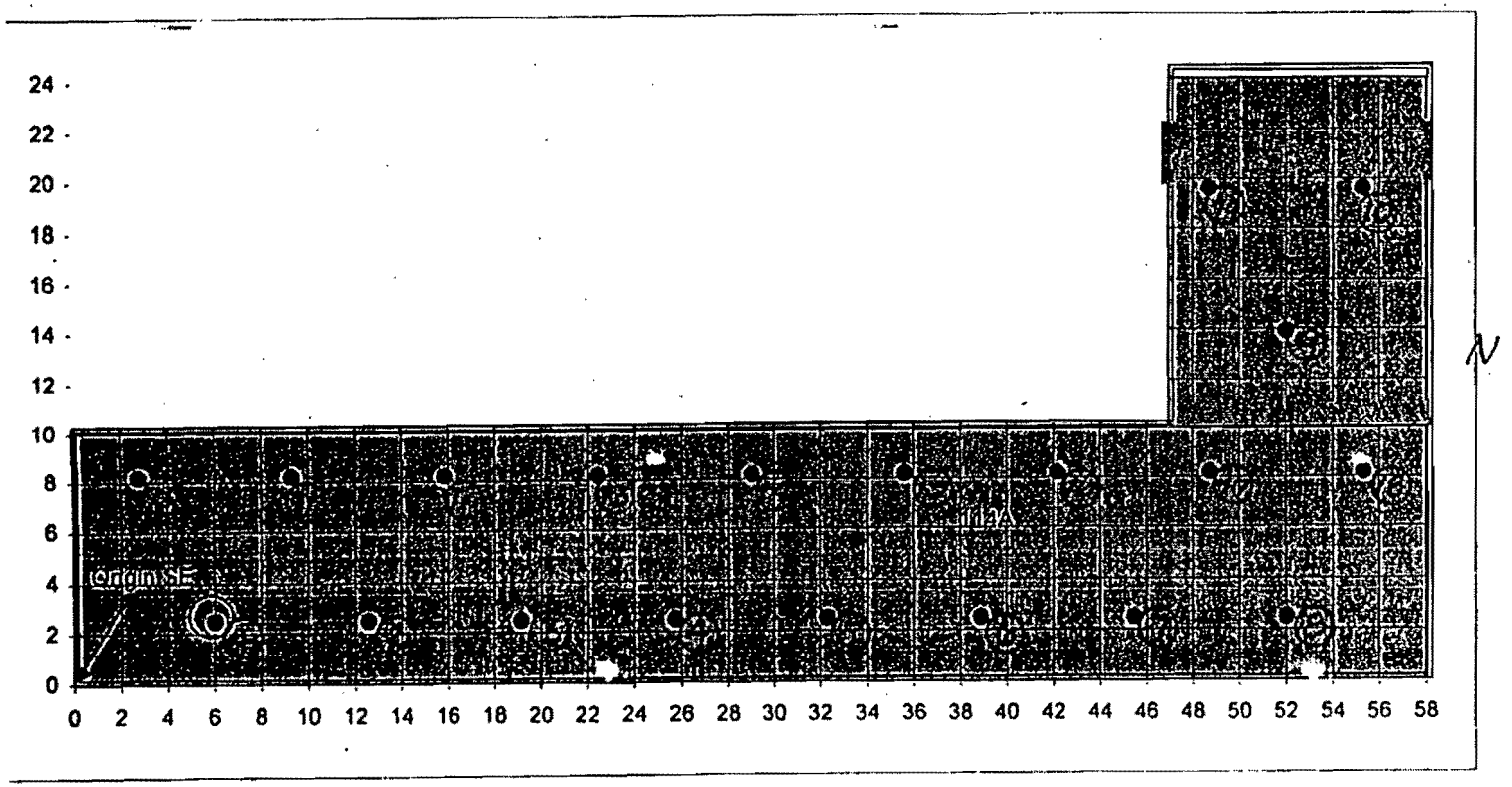

	Room 114A	
	SU 11 Coordinates	
	X	Y
	58	10
1	6.0	2.5
2	12.6	2.5
3	19.2	2.5
4	25.7	2.5
5	32.3	2.5
6	38.9	2.5
7	45.5	2.5
8	52.0	2.5
9	52.0	13.9
10	55.3	19.6
11	9.3	8.2
12	15.9	8.2
13	22.4	8.2
14	29.0	8.2
15	35.6	8.2
16	42.2	8.2
17	48.7	8.2
18	55.3	8.2
19	48.7	19.6
20	2.7	8.2

	A	L	L'
	749	6.576078	5.694884
Start			
Rand X:Y		5.9	2.5

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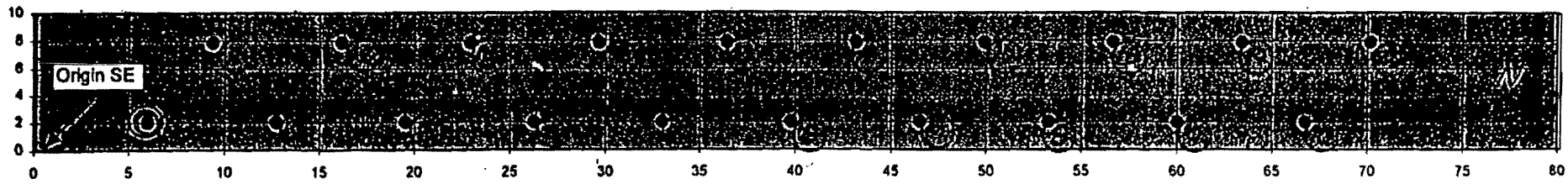
D 140 11.

RSDS 03-TF-0287



	Room 118 South	
	SU 13 Coordinates	
	X	Y
	79.0	10.0
1	6.0	2.0
2	12.8	2.0
3	19.5	2.0
4	26.3	2.0
5	33.0	2.0
6	39.8	2.0
7	46.5	2.0
8	53.3	2.0
9	60.0	2.0
10	66.8	2.0
11	9.4	7.8
12	16.1	7.8
13	22.9	7.8
14	29.6	7.8
15	36.4	7.8
16	43.1	7.8
17	49.9	7.8
18	56.7	7.8
19	63.4	7.8
20	70.2	7.8

A	L	L'
790	6.753666	5.848675

Start	X	Y
Rand X:Y	6	2

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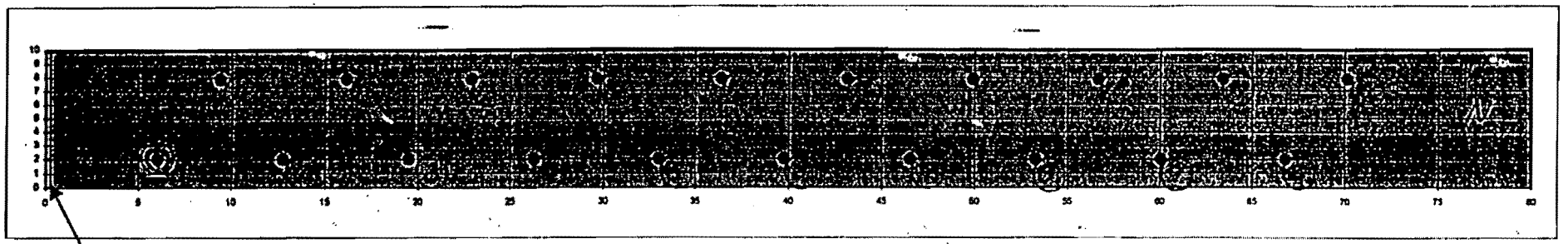
RSDS 03-TF-0287



Origin SE
Begin @ 79'
from SU 13
Origin

Room 118 North		
SU 14 Coordinates		
	X	Y
	79.0	10.0
1	6.0	2.0
2	12.8	2.0
3	19.5	2.0
4	26.3	2.0
5	33.0	2.0
6	39.8	2.0
7	46.5	2.0
8	53.3	2.0
9	60.0	2.0
10	66.8	2.0
11	9.4	7.8
12	16.1	7.8
13	22.9	7.8
14	29.6	7.8
15	36.4	7.8
16	43.1	7.8
17	49.9	7.8
18	56.7	7.8
19	63.4	7.8
20	70.2	7.8

A	L	L'
790	6.75	5.85

Start	X	Y
Rand X:Y	6	2

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DOE03-TF-0287

RADIOLOGICAL SURVEY DATA SHEET

1 of 16

LOCATION: (BLDG./AREA/ROOM) BUILDING 50	SURVEY NO. 03-TF-0283
PURPOSE: MARSSIM SURVEY PLAN 50.01 UNITS 9, 15, 20 AND 21	RWP NO. N/A
	DATE: 11-06-03
	TIME: 0530

MAP/DRAWING

SEE ATTACHED DRAWINGS AND RESULTS

COPY

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350	5857	09-09-04
2360	5833/5847	03-13-04
	N/A	

[redacted]	HP # 5214	Date: 11-06-03
Completed by: (Print Name [redacted]		
Counted by: (Signature)	HP #	Date:
Counted by: (Print Name) SEE ATTACHED		
[redacted]	HP # 6178	Date: 11-6-03
Review [redacted]		

ML-9620 (2-98)

GISS of 313

Survey No. 03-TF-0288

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-20	SEE	ATTAC	HED	UNIT 9
21-37	↓	↓	↓	UNIT 15
38-57	↓	↓	↓	UNIT 20
58-77	↓	↓	↓	UNIT 21
			N/A	

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

COMMENTS:

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

ML-9620A (4-98)

Alpha/Beta Analysis

Batch ID: 03-J7-0288 Reynolds-77 (1-51) 11/4/03 [illegible]

Batch File: Smear Unit 1 - 200311031551

Group: C

Device: Unit 1

Selected: Swipe/Smear

Serial Number: 31575-1

Acquisition Date: 11/3/03

Count Time (min): 1.5

Recalibration Date: 4/30/2004

Sample ID	Carrier	Alpha (dpm)	2σ	Beta (dpm)	2σ
1	126	1.44	4.16	0.00	4.14
2	64	1.44	4.16	3.04	6.15
3	73	0.00	0.82	1.89	5.55
4	144	0.00	0.82	0.00	3.19
5	107	0.00	0.82	0.00	1.81
6	6	0.00	0.82	0.00	3.19
7	10	1.44	4.16	0.41	4.90
8	113	0.00	0.82	0.00	3.19
9	99	0.00	0.82	0.00	4.13
10	53	0.00	0.82	0.00	3.19
11	31	1.44	4.16	1.72	5.56
12	47	0.00	0.82	0.58	4.89
13	65	0.00	0.82	0.00	4.13
14	79	0.00	0.82	3.20	6.14
15	35	1.44	4.16	0.41	4.90
16	132	0.00	0.82	0.00	4.13
17	14	0.00	0.82	0.00	4.13
18	50	0.00	0.82	1.89	5.55
19	134	1.44	4.16	0.41	4.90
20	104	5.52	7.10	0.00	3.24
21	126	0.00	0.82	0.58	4.89
22	9	1.44	4.16	0.00	3.21
23	62	0.00	0.82	1.89	5.55
24	34	1.44	4.16	0.41	4.90
25	139	1.44	4.16	0.00	3.21
26	133	0.00	0.82	0.00	3.19
27	16	1.44	4.16	1.72	5.56

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RSDS 03-TF-0288

PS3 616

~~1 of 2~~ SK 11-06-03

Alpha/Beta Analysis

Sample ID	Carrier	Alpha (dpm)	2σ	Beta (dpm)	2σ
28	25	0.00	0.82	0.00	4.13
29	17	0.00	0.82	1.89	5.55
30	4	0.00	0.82	3.20	6.14
31	15	1.44	4.16	0.41	4.90
32	47	0.00	0.82	4.51	6.68
33	48	0.00	0.82	0.00	3.19
34	46	3.48	5.82	0.00	4.16
35	101	0.00	0.82	1.89	5.55
36	59	0.00	0.82	0.00	3.19
37	91	0.00	0.82	0.00	4.13
38	147	0.00	0.82	0.00	3.19
39	7	0.00	0.82	0.00	3.19
40	38	0.00	0.82	0.00	4.13
41	95	0.00	0.82	0.00	4.13
42	37	1.44	4.16	0.00	4.14
43	5	0.00	0.82	0.00	4.13
44	128	0.00	0.82	0.58	4.89
45	24	0.00	0.82	0.58	4.89
46	32	0.00	0.82	0.00	3.19
47	27	3.48	5.82	0.00	4.16
48	77	0.00	0.82	0.00	3.19
49	129	0.00	0.82	0.00	4.13
50	114	1.45	4.16	0.00	1.84
51	15	0.00	0.82	0.58	4.89

Albert Hibson

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RSAC 03-TF-0298

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Alpha/Beta Analysis

Batch ID: 03-J7-0218 #52-77 11/4/03

Batch File: Smear Unit 1 - 200311040727
Group: C
Device: Unit 1
Selected: Swipe/Smear
Serial Number: 31575-1

Acquisition Date: 11/4/03
Count Time (min): 1.5
Recalibration Date: 4/30/2004

Sample ID	Carrier	Alpha (dpm)	2σ	Beta (dpm)	2σ
1	118	0.00	0.82	0.00	3.19
2	4	0.00	0.82	0.00	4.13
3	125	0.00	0.82	0.00	4.13
4	72	0.00	0.82	4.51	6.68
5	125	3.48	5.82	0.24	4.92
6	149	0.00	0.82	1.89	5.55
7	65	1.44	4.16	0.00	4.14
8	127	0.00	0.82	0.58	4.89
9	87	0.00	0.82	1.89	5.55
10	10	0.00	0.82	0.00	1.81
11	17	0.00	0.82	0.00	1.81
12	43	1.44	4.16	0.41	4.90
13	71	0.00	0.82	0.58	4.89
14	32	0.00	0.82	0.00	4.13
15	19	0.00	0.82	0.00	4.13
16	39	0.00	0.82	0.00	4.13
17	144	0.00	0.82	3.20	6.14
18	75	0.00	0.82	0.00	3.19
19	33	1.44	4.16	0.41	4.90
20	50	0.00	0.82	0.00	4.13
21	115	1.44	4.16	0.00	4.14
22	123	3.48	5.82	0.00	4.16
23	64	0.00	0.82	0.00	4.13
24	28	0.00	0.82	0.58	4.89
25	26	1.44	4.16	1.72	5.56
26	61	0.00	0.82	1.89	5.55

#52 to #77

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RS 03-J7-0218

RS 56/16

Albert Gibson

~~1 of 2~~ SLR 11-06-03

Protocol #: 1 Name:pW h3 101068 04-Nov-2003 20:13
Region A: LL-UL= 0.5-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region B: LL-UL= 2.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region C: LL-UL=40.0-2000 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Time = 2.00 QIP = tSIE/AEC ES Terminator = Count
03-TF-0288 REYNOLDS-77 BSB
Conventional DPM
Nuclide 1 = 206704
Luminescence Correction On

S#	TIME	LUM	FLAG	CPMA	CPMB	CPMC	tSIE	DPM1	2Sigma
-1	10.00	16	B	12.00	11.00	5.20	551.		0.00
0	2.00	1		216.00	207.00	0.30	476.	449.21	56.99
1	2.00	0		0.00	0.00	0.00	474.	0.00	0.00
2	2.00	16		0.00	0.00	0.00	598.	0.00	0.00
3	2.00	0		0.00	0.00	0.00	401.	0.00	0.00
4	2.00	60		0.00	0.00	0.00	561.	0.00	0.00
5	2.00	60		0.00	0.00	4.30	393.	0.00	0.00
6	2.00	14		0.00	0.00	0.00	447.	0.00	0.00
7	2.00	30		0.00	0.00	0.80	567.	0.00	0.00
8	2.00	17		0.00	0.00	1.30	465.	0.00	0.00
9	2.00	0		0.00	0.00	0.00	541.	0.00	0.00
10	2.00	23		0.00	0.00	0.00	470.	0.00	0.00
11	2.00	36		0.00	0.00	0.00	443.	0.00	0.00
12	2.00	22		0.00	0.00	3.80	420.	0.00	0.00
13	2.00	27		0.00	0.00	0.80	494.	0.00	0.00
14	2.00	50		0.00	0.00	0.00	535.	0.00	0.00
15	2.00	36		0.00	0.00	0.00	417.	0.00	0.00
16	2.00	10		0.00	0.00	0.00	370.	0.00	0.00
17	2.00	9		0.00	0.00	0.80	451.	0.00	0.00
18	2.00	55		0.00	0.00	1.80	425.	0.00	0.00
19	2.00	40		0.00	0.00	0.80	519.	0.00	0.00
20	2.00	11		0.00	0.00	1.30	342.	0.00	0.00
21	2.00	20		0.00	0.00	0.00	536.	0.00	0.00
22	2.00	18		5.50	4.50	0.00	590.	10.16	14.77
23	2.00	5		0.00	0.00	0.00	547.	0.00	0.00
24	2.00	13		3.00	0.00	0.00	581.	5.59	13.28
25	2.00	3		1784.00	1221.00	0.80	521.	3529.08	283.49
26	2.00	0		0.00	0.00	0.80	509.	0.00	0.00
27	2.00	19		0.00	0.00	0.00	555.	0.00	0.00
28	2.00	15		0.00	0.00	0.00	543.	0.00	0.00
29	2.00	36		0.00	0.00	0.00	565.	0.00	0.00
30	2.00	0		0.00	0.00	0.00	525.	0.00	0.00
31	2.00	5		0.00	0.00	0.30	543.	0.00	0.00
32	2.00	20		0.00	0.00	1.30	569.	0.00	0.00
33	2.00	0		0.00	0.00	0.00	516.	0.00	0.00
34	2.00	6		0.00	0.00	1.80	451.	0.00	0.00
35	2.00	5		0.00	0.00	0.30	625.	0.00	0.00
36	2.00	24		0.00	0.00	0.00	576.	0.00	0.00
37	2.00	15		0.00	0.00	0.30	586.	0.00	0.00
38	2.00	0		0.00	0.00	0.00	559.	0.00	0.00
39	2.00	9		0.00	0.00	0.00	581.	0.00	0.00
40	2.00	17		0.00	0.00	1.30	602.	0.00	0.00
41	2.00	0		0.00	0.00	1.30	542.	0.00	0.00
42	2.00	10		0.00	0.00	0.00	577.	0.00	0.00
43	2.00	0		0.00	0.00	0.00	587.	0.00	0.00
44	2.00	20		0.00	0.00	0.00	568.	0.00	0.00

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B66616

S#	TIME	LUM	FLAG	CPMA	CPMB	CPMC	tSIE	DPM1	2Sigma
45	2.00	24		0.00	0.00	0.00	613.	0.00	0.00
46	2.00	27		0.00	0.00	2.30	624.	0.00	0.00
47	2.00	0		0.00	0.00	0.00	619.	0.00	0.00
48	2.00	0		0.00	0.00	0.00	598.	0.00	0.00
49	2.00	19		0.00	0.00	0.00	590.	0.00	0.00
50	2.00	0		0.00	0.00	0.80	572.	0.00	0.00
51	2.00	5		0.00	0.00	0.00	595.	0.00	0.00
52	2.00	10		0.00	0.00	1.80	563.	0.00	0.00
53	2.00	7		0.00	0.00	0.00	608.	0.00	0.00
54	2.00	7		0.00	0.00	0.80	584.	0.00	0.00
55	2.00	0		0.00	0.00	0.00	605.	0.00	0.00
56	2.00	9		0.00	0.00	0.00	604.	0.00	0.00
57	2.00	0		0.00	0.00	0.00	581.	0.00	0.00
58	2.00	27		0.00	0.00	0.00	638.	0.00	0.00
59	2.00	8		0.00	0.00	1.30	595.	0.00	0.00
60	2.00	0		0.00	0.00	0.00	602.	0.00	0.00
61	2.00	19		0.00	0.00	0.00	599.	0.00	0.00
62	2.00	22		0.00	0.00	0.30	580.	0.00	0.00
63	2.00	0		0.00	0.00	0.00	551.	0.00	0.00
64	2.00	69		0.00	0.00	0.80	570.	0.00	0.00
65	2.00	20		0.00	0.00	0.00	597.	0.00	0.00
66	2.00	40		0.00	0.00	0.00	579.	0.00	0.00
67	2.00	23		0.00	0.00	0.00	642.	0.00	0.00
68	2.00	6		0.00	0.00	0.30	604.	0.00	0.00
69	2.00	22		0.00	0.00	0.00	637.	0.00	0.00
70	2.00	5		0.00	0.00	1.30	564.	0.00	0.00
71	2.00	16		2.50	2.00	0.00	569.	4.71	13.30
72	2.00	6		0.00	0.00	0.00	570.	0.00	0.00
73	2.00	15		0.00	0.00	0.30	599.	0.00	0.00
74	2.00	5		0.00	0.00	0.30	631.	0.00	0.00
75	2.00	7		0.00	0.00	0.00	631.	0.00	0.00
76	2.00	0		0.00	0.00	0.00	586.	0.00	0.00
77	2.00	11		0.00	0.00	0.00	530.	0.00	0.00

Helmut Hahn

RSD503-TF-0288

B 7616

50-Building Characterization Survey Unit 9, 15, 20 and 21

RSDS# 03-TF-0288 RCT: SR RCT: NA

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5857	5214	5859	1		11/3/03	7:30	4	300	6
ALPHA	SRCCHECK	5857	5214	5859	1		11/3/03	7:36	2021	60	13966
ALPHA	SRCCHECK	5857	5214	5859	1		11/3/03	7:38	2085	60	14408
ALPHA	SRCCHECK	5857	5214	5859	1		11/3/03	7:39	2087	60	14422
ALPHA	SRCCHECK	5857	5214	5859	1		11/3/03	7:41	2083	60	14394
ALPHA	U-9 01	5857	5214	5859	1	1	11/3/03	8:07	11	120	38
ALPHA	U-9 02	5857	5214	5859	1	2	11/3/03	8:11	3	120	10
ALPHA	U-9 03	5857	5214	5859	1	3	11/3/03	8:14	5	120	17
ALPHA	U-9 04	5857	5214	5859	1	4	11/3/03	8:20	5	120	17
ALPHA	U-9 05	5857	5214	5859	1	5	11/3/03	8:24	9	120	31
ALPHA	U-9 06	5857	5214	5859	1	6	11/3/03	8:27	2	120	7
ALPHA	U-9 07	5857	5214	5859	1	7	11/3/03	8:31	3	120	10
ALPHA	U-9 08	5857	5214	5859	1	8	11/3/03	8:42	4	120	14
ALPHA	U-9 09	5857	5214	5859	1	9	11/3/03	8:45	4	120	14
ALPHA	U-9 10	5857	5214	5859	1	10	11/3/03	8:49	3	120	10
ALPHA	U-9 11	5857	5214	5859	1	11	11/3/03	8:53	1	120	3
ALPHA	U-9 12	5857	5214	5859	1	12	11/3/03	8:56	3	120	10
ALPHA	U-9 13	5857	5214	5859	1	13	11/3/03	9:00	5	120	17
ALPHA	U-9 14	5857	5214	5859	1	14	11/3/03	9:04	4	120	14
ALPHA	U-9 15	5857	5214	5859	1	15	11/3/03	9:07	3	120	10
ALPHA	U-9 16	5857	5214	5859	1	16	11/3/03	9:11	3	120	10
ALPHA	U-9 17	5857	5214	5859	1	17	11/3/03	9:14	2	120	7
ALPHA	U-9 18	5857	5214	5859	1	18	11/3/03	9:18	4	120	14
ALPHA	U-9 19	5857	5214	5859	1	19	11/3/03	9:22	3	120	10
ALPHA	U-9 20	5857	5214	5859	1	20	11/3/03	9:27	5	120	17
ALPHA	U-15 01	5857	5214	5859	1	21	11/3/03	9:39	20	120	69
ALPHA	U-15 02	5857	5214	5859	1	22	11/3/03	9:43	11	120	38
ALPHA	U-15 03	5857	5214	5859	1	23	11/3/03	9:48	14	120	48
ALPHA	U-15 04	5857	5214	5859	1	24	11/3/03	9:54	19	120	66
ALPHA	U-15 05	5857	5214	5859	1	25	11/3/03	9:59	23	120	79
ALPHA	U-15 06	5857	5214	5859	1	26	11/3/03	10:03	23	120	79
ALPHA	U-15 07	5857	5214	5859	1	27	11/3/03	10:06	17	120	59
ALPHA	U-15 08	5857	5214	5859	1	28	11/3/03	10:10	11	120	38
ALPHA	U-15 09	5857	5214	5859	1	29	11/3/03	10:13	13	120	45
ALPHA	U-15 10	5857	5214	5859	1	30	11/3/03	10:17	25	120	86
ALPHA	U-15 11	5857	5214	5859	1	31	11/3/03	10:20	21	120	73
ALPHA	U-15 12	5857	5214	5859	1	32	11/3/03	10:24	6	120	21
ALPHA	U-15 13	5857	5214	5859	1	33	11/3/03	10:28	22	120	76
ALPHA	U-15 14	5857	5214	5859	1	34	11/3/03	10:31	34	120	117

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50-Building Characterization Survey Unit 9, 15, 20 and 21

RSDS# 03-TF-0288 RCT: [illegible] RCT: N/A

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	U-15 15	5857	5214	5859	1	35	11/3/03	10:35	6	120	21
ALPHA	U-15 16	5857	5214	5859	1	36	11/3/03	10:39	14	120	48
ALPHA	U-15 17	5857	5214	5859	1	37	11/3/03	10:43	14	120	48
ALPHA	U-20 01	5857	5214	5859	1	38	11/3/03	12:23	4	120	14
ALPHA	U-20 02	5857	5214	5859	1	39	11/3/03	12:28	6	120	21
ALPHA	U-20 03	5857	5214	5859	1	40	11/3/03	12:32	5	120	17
ALPHA	U-20 04	5857	5214	5859	1	41	11/3/03	12:37	5	120	17
ALPHA	U-20 05	5857	5214	5859	1	42	11/3/03	12:41	5	120	17
ALPHA	U-20 06	5857	5214	5859	1	43	11/3/03	12:44	6	120	21
ALPHA	U-20 07	5857	5214	5859	1	44	11/3/03	12:48	5	120	17
ALPHA	U-20 08	5857	5214	5859	1	45	11/3/03	12:52	3	120	10
ALPHA	U-20 09	5857	5214	5859	1	46	11/3/03	12:56	8	120	28
ALPHA	U-20 10	5857	5214	5859	1	47	11/3/03	13:00	6	120	21
ALPHA	U-20 11	5857	5214	5859	1	48	11/3/03	13:03	4	120	14
ALPHA	U-20 12	5857	5214	5859	1	49	11/3/03	13:08	5	120	17
ALPHA	U-20 13	5857	5214	5859	1	50	11/3/03	13:11	6	120	21
ALPHA	U-20 14	5857	5214	5859	1	51	11/3/03	13:15	2	120	7
ALPHA	U-20 15	5857	5214	5859	1	52	11/3/03	13:19	7	120	24
ALPHA	U-20 16	5857	5214	5859	1	53	11/3/03	13:23	5	120	17
ALPHA	U-20 17	5857	5214	5859	1	54	11/3/03	13:27	2	120	7
ALPHA	U-20 18	5857	5214	5859	1	55	11/3/03	13:30	1	120	3
ALPHA	U-20 19	5857	5214	5859	1	56	11/3/03	13:37	3	120	10
ALPHA	U-20 20	5857	5214	5859	1	57	11/3/03	13:41	6	120	21
ALPHA	U-21 01	5857	5214	5859	1	58	11/3/03	13:46	2	120	7
ALPHA	U-21 02	5857	5214	5859	1	59	11/3/03	13:53	6	120	21
ALPHA	U-21 03	5857	5214	5859	1	60	11/3/03	13:57	3	120	10
ALPHA	U-21 04	5857	5214	5859	1	61	11/3/03	14:02	4	120	14
ALPHA	U-21 05	5857	5214	5859	1	62	11/3/03	14:05	3	120	10
ALPHA	U-21 06	5857	5214	5859	1	63	11/3/03	14:09	4	120	14
ALPHA	U-21 07	5857	5214	5859	1	64	11/3/03	14:13	2	120	7
ALPHA	U-21 08	5857	5214	5859	1	65	11/3/03	14:17	8	120	28
ALPHA	U-21 09	5857	5214	5859	1	66	11/3/03	14:21	7	120	24
ALPHA	U-21 10	5857	5214	5859	1	67	11/3/03	14:25	4	120	14
ALPHA	U-21 11	5857	5214	5859	1	68	11/3/03	14:29	4	120	14
ALPHA	U-21 12	5857	5214	5859	1	69	11/3/03	14:33	2	120	7
ALPHA	U-21 13	5857	5214	5859	1	70	11/3/03	14:37	6	120	21
ALPHA	U-21 14	5857	5214	5859	1	71	11/3/03	14:41	3	120	10
ALPHA	U-21 15	5857	5214	5859	1	72	11/3/03	14:45	4	120	14
ALPHA	U-21 16	5857	5214	5859	1	73	11/3/03	14:49	6	120	21
ALPHA	U-21 17	5857	5214	5859	1	74	11/3/03	14:53	2	120	7

50-Building Characterization Survey Unit 9, 15, 20 and 21

RSDS# 03-TF-0288 RCT: NA RCT: NA

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	U-21 18	5857	5214	5859	1	75	11/3/03	14:57	3	120	10
ALPHA	U-21 19	5857	5214	5859	1	76	11/3/03	15:01	3	120	10
ALPHA	U-21 20	5857	5214	5859	1	77	11/3/03	15:05	4	120	14
BETA	SRC BKG	5857	5214	5859	2		11/3/03	7:48	583	300	993
BETA	SRCCHECK	5857	5214	5859	2		11/3/03	7:50	2315	60	19724
BETA	SRCCHECK	5857	5214	5859	2		11/3/03	7:52	2500	60	21300
BETA	SRCCHECK	5857	5214	5859	2		11/3/03	7:54	2534	60	21590
BETA	SRCCHECK	5857	5214	5859	2		11/3/03	7:55	2363	60	20133
BETA	U-9 01	5857	5214	5859	2	1	11/3/03	8:08	128	60	1091
BETA	U-9 02	5857	5214	5859	2	2	11/3/03	8:12	108	60	920
BETA	U-9 03	5857	5214	5859	2	3	11/3/03	8:15	109	60	929
BETA	U-9 04	5857	5214	5859	2	4	11/3/03	8:21	154	60	1312
BETA	U-9 05	5857	5214	5859	2	5	11/3/03	8:25	101	60	861
BETA	U-9 06	5857	5214	5859	2	6	11/3/03	8:29	122	60	1039
BETA	U-9 07	5857	5214	5859	2	7	11/3/03	8:32	142	60	1210
BETA	U-9 08	5857	5214	5859	2	8	11/3/03	8:43	160	60	1363
BETA	U-9 09	5857	5214	5859	2	9	11/3/03	8:47	152	60	1295
BETA	U-9 10	5857	5214	5859	2	10	11/3/03	8:50	146	60	1244
BETA	U-9 11	5857	5214	5859	2	11	11/3/03	8:54	178	60	1517
BETA	U-9 12	5857	5214	5859	2	12	11/3/03	8:58	127	60	1082
BETA	U-9 13	5857	5214	5859	2	13	11/3/03	9:01	125	60	1065
BETA	U-9 14	5857	5214	5859	2	14	11/3/03	9:05	122	60	1039
BETA	U-9 15	5857	5214	5859	2	15	11/3/03	9:08	150	60	1278
BETA	U-9 16	5857	5214	5859	2	16	11/3/03	9:12	131	60	1116
BETA	U-9 17	5857	5214	5859	2	17	11/3/03	9:16	137	60	1167
BETA	U-9 18	5857	5214	5859	2	18	11/3/03	9:19	137	60	1167
BETA	U-9 19	5857	5214	5859	2	19	11/3/03	9:23	113	60	963
BETA	U-9 20	5857	5214	5859	2	20	11/3/03	9:28	130	60	1108
BETA	U-15 01	5857	5214	5859	2	21	11/3/03	9:40	236	60	2011
BETA	U-15 02	5857	5214	5859	2	22	11/3/03	9:44	230	60	1960
BETA	U-15 03	5857	5214	5859	2	23	11/3/03	9:49	242	60	2062
BETA	U-15 04	5857	5214	5859	2	24	11/3/03	9:55	251	60	2139
BETA	U-15 05	5857	5214	5859	2	25	11/3/03	10:00	251	60	2139
BETA	U-15 06	5857	5214	5859	2	26	11/3/03	10:04	227	60	1934
BETA	U-15 07	5857	5214	5859	2	27	11/3/03	10:07	250	60	2130
BETA	U-15 08	5857	5214	5859	2	28	11/3/03	10:11	270	60	2300
BETA	U-15 09	5857	5214	5859	2	29	11/3/03	10:14	231	60	1968
BETA	U-15 10	5857	5214	5859	2	30	11/3/03	10:18	223	60	1900
BETA	U-15 11	5857	5214	5859	2	31	11/3/03	10:22	247	60	2104

50-Building Characterization Survey Unit 9, 15, 20 and 21

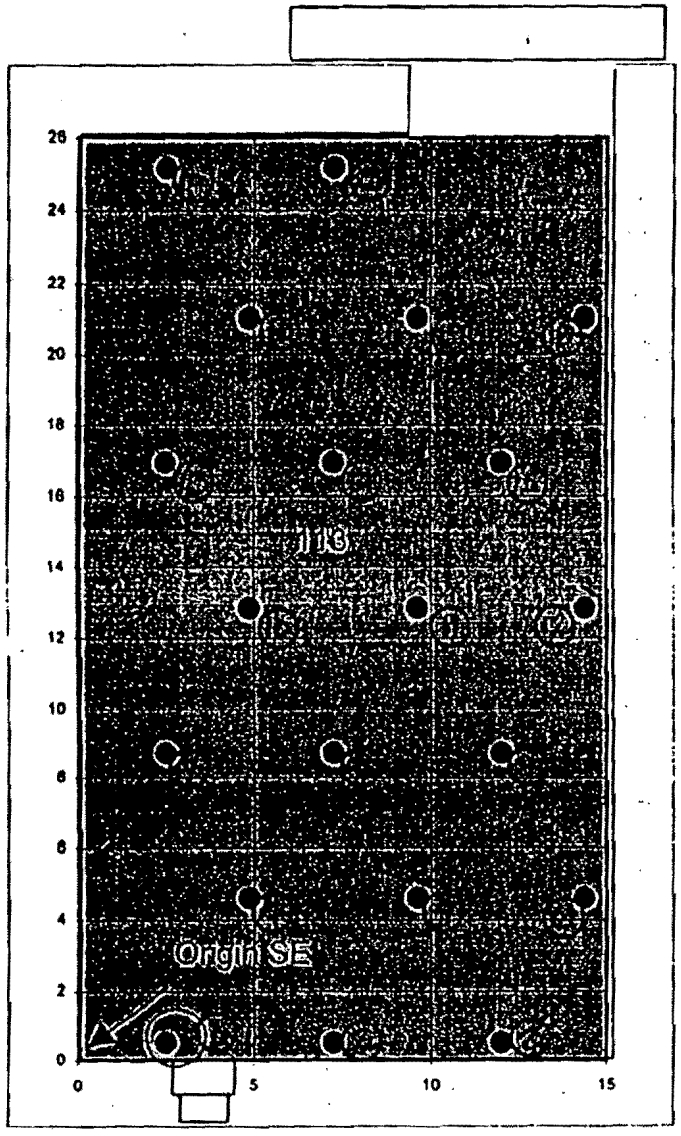
RSDS# 03-TF-0288 RCT: [illegible] RCT: N/A

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
BETA	U-15 12	5857	5214	5859	2	32	11/3/03	10:25	249	60	2122
BETA	U-15 13	5857	5214	5859	2	33	11/3/03	10:29	260	60	2215
BETA	U-15 14	5857	5214	5859	2	34	11/3/03	10:32	258	60	2198
BETA	U-15 15	5857	5214	5859	2	35	11/3/03	10:36	214	60	1823
BETA	U-15 16	5857	5214	5859	2	36	11/3/03	10:40	224	60	1909
BETA	U-15 17	5857	5214	5859	2	37	11/3/03	10:44	158	60	1346
BETA	U-20 01	5857	5214	5859	2	38	11/3/03	12:24	140	60	1193
BETA	U-20 02	5857	5214	5859	2	39	11/3/03	12:29	156	60	1329
BETA	U-20 03	5857	5214	5859	2	40	11/3/03	12:33	111	60	946
BETA	U-20 04	5857	5214	5859	2	41	11/3/03	12:38	125	60	1065
BETA	U-20 05	5857	5214	5859	2	42	11/3/03	12:42	101	60	861
BETA	U-20 06	5857	5214	5859	2	43	11/3/03	12:45	129	60	1099
BETA	U-20 07	5857	5214	5859	2	44	11/3/03	12:49	138	60	1176
BETA	U-20 08	5857	5214	5859	2	45	11/3/03	12:53	143	60	1218
BETA	U-20 09	5857	5214	5859	2	46	11/3/03	12:57	115	60	980
BETA	U-20 10	5857	5214	5859	2	47	11/3/03	13:01	110	60	937
BETA	U-20 11	5857	5214	5859	2	48	11/3/03	13:04	105	60	895
BETA	U-20 12	5857	5214	5859	2	49	11/3/03	13:09	123	60	1048
BETA	U-20 13	5857	5214	5859	2	50	11/3/03	13:12	107	60	912
BETA	U-20 14	5857	5214	5859	2	51	11/3/03	13:16	139	60	1184
BETA	U-20 15	5857	5214	5859	2	52	11/3/03	13:20	115	60	980
BETA	U-20 16	5857	5214	5859	2	53	11/3/03	13:24	137	60	1167
BETA	U-20 17	5857	5214	5859	2	54	11/3/03	13:28	138	60	1176
BETA	U-20 18	5857	5214	5859	2	55	11/3/03	13:31	115	60	980
BETA	U-20 19	5857	5214	5859	2	56	11/3/03	13:38	151	60	1287
BETA	U-20 20	5857	5214	5859	2	57	11/3/03	13:42	121	60	1031
BETA	U-21 01	5857	5214	5859	2	58	11/3/03	13:47	128	60	1091
BETA	U-21 02	5857	5214	5859	2	59	11/3/03	13:54	112	60	954
BETA	U-21 03	5857	5214	5859	2	60	11/3/03	13:58	120	60	1022
BETA	U-21 04	5857	5214	5859	2	61	11/3/03	14:03	150	60	1278
BETA	U-21 05	5857	5214	5859	2	62	11/3/03	14:06	119	60	1014
BETA	U-21 06	5857	5214	5859	2	63	11/3/03	14:10	145	60	1235
BETA	U-21 07	5857	5214	5859	2	64	11/3/03	14:14	145	60	1235
BETA	U-21 08	5857	5214	5859	2	65	11/3/03	14:18	140	60	1193
BETA	U-21 09	5857	5214	5859	2	66	11/3/03	14:22	140	60	1193
BETA	U-21 10	5857	5214	5859	2	67	11/3/03	14:26	128	60	1091
BETA	U-21 11	5857	5214	5859	2	68	11/3/03	14:30	150	60	1278
BETA	U-21 12	5857	5214	5859	2	69	11/3/03	14:34	111	60	946
BETA	U-21 13	5857	5214	5859	2	70	11/3/03	14:38	172	60	1465
BETA	U-21 14	5857	5214	5859	2	71	11/3/03	14:42	157	60	1338

50-Building Characterization Survey Unit 9, 15, 20 and 21

RSDS# 03-TF-0288 RCT: [illegible] RCT: N/A

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # :
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
BETA	U-21 15	5857	5214	5859	2	72	11/3/03	14:46	123	60	1048
BETA	U-21 16	5857	5214	5859	2	73	11/3/03	14:50	133	60	1133
BETA	U-21 17	5857	5214	5859	2	74	11/3/03	14:54	130	60	1108
BETA	U-21 18	5857	5214	5859	2	75	11/3/03	14:58	112	60	954
BETA	U-21 19	5857	5214	5859	2	76	11/3/03	15:02	144	60	1227
BETA	U-21 20	5857	5214	5859	2	77	11/3/03	15:06	152	60	1295



N

	Room 113	
	SU 9 Coordinates	
	X	Y
	15	26
1	2.5	0.5
2	7.2	0.5
3	12.0	0.5
4	4.9	4.6
5	9.6	4.6
6	14.4	4.6
7	2.5	8.7
8	7.2	8.7
9	12.0	8.7
10	4.9	12.8
11	9.6	12.8
12	14.4	12.8
13	2.5	16.9
14	7.2	16.9
15	12.0	16.9
16	4.9	21.0
17	9.6	21.0
18	14.4	21.0
19	2.5	25.2
20	7.2	25.2

Area	L	L'
390	4.7ft	4.1ft
Start	X	Y
Rand X:Y	2.5	0.5

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RSDS 03-TF-0299

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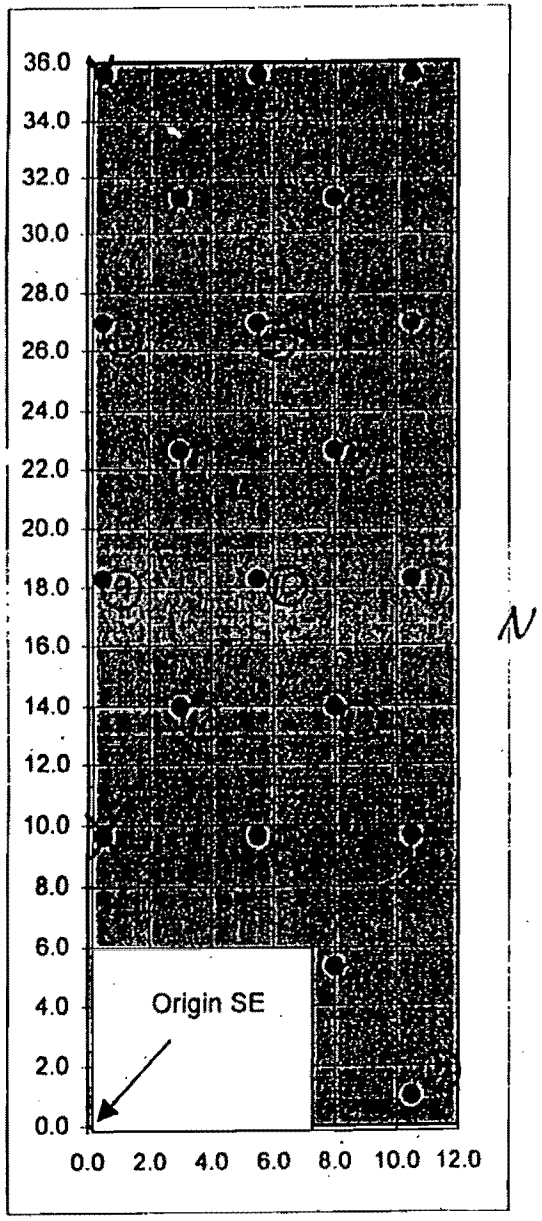

	Room 129	
	SU 15 Coordinates	
	X"	Y'
	24	12
2 ~~1~~	5.5	35.6
17 ~~2~~	10.5	1.0
16 ~~3~~	8.0	5.3
4 ~~4~~	10.5	27.0
~~X~~	~~0.5~~	~~9.6~~
14 ~~X~~	5.5	9.6
15 ~~7~~	10.5	9.6
12 ~~8~~	3.0	14.0
13 ~~9~~	8.0	14.0
~~X~~	~~3.0~~	~~31.3~~
9 ~~11~~	0.5	18.3
10 ~~12~~	5.5	18.3
11 ~~13~~	10.5	18.3
7 ~~14~~	3.0	22.6
8 ~~15~~	8.0	22.6
3 ~~16~~	8.0	31.3
6 ~~17~~	0.5	26.9
5 ~~18~~	5.5	26.9
~~X~~	~~0.5~~	~~35.6~~
1 ~~20~~	10.5	35.6

A	L	L'
288	4.077766	3.531345
Start	X	Y
Rand X:Y	0.493022	1.024102

X = NOT ACCESSIBLE

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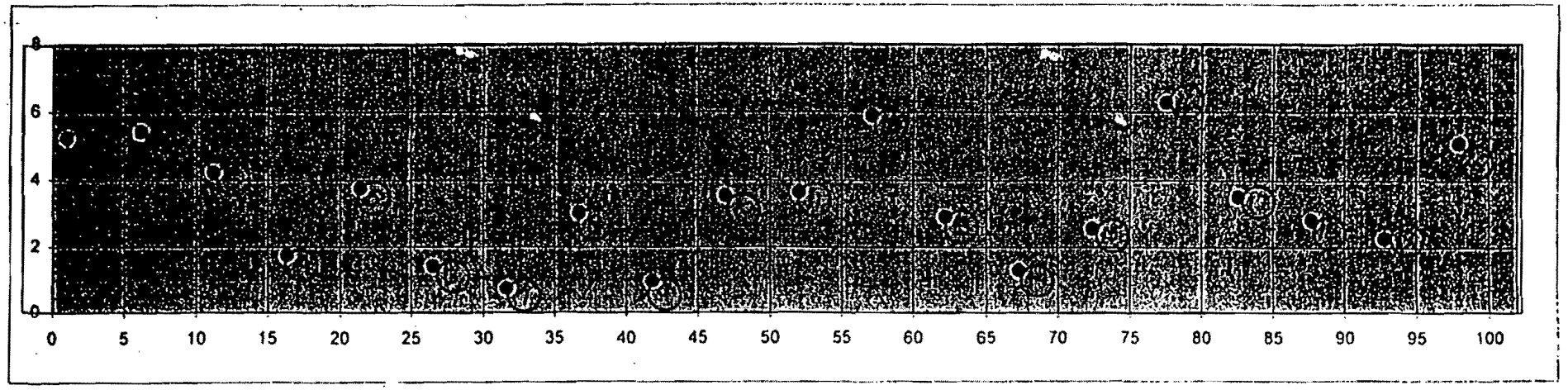
2505 03-TF-0288
8/14/16



L = 102ft
W = 8ft

Room 111 Walls
SU 20 Coordinates

	X	Y
1	1	5.239323
2	6.1	5.433514
3	11.2	4.227681
4	16.3	1.745858
5	21.4	3.757635
6	26.5	1.421347
7	31.6	0.734887
8	36.7	3.016319
9	41.8	0.963023
10	46.9	3.53711
11	52	3.647307
12	57.1	5.896061
13	62.2	2.906387
14	67.3	1.322153
15	72.4	2.556621
16	77.5	6.266756
17	82.6	3.502813
18	87.7	2.815249
19	92.8	2.254291
20	97.9	5.078459

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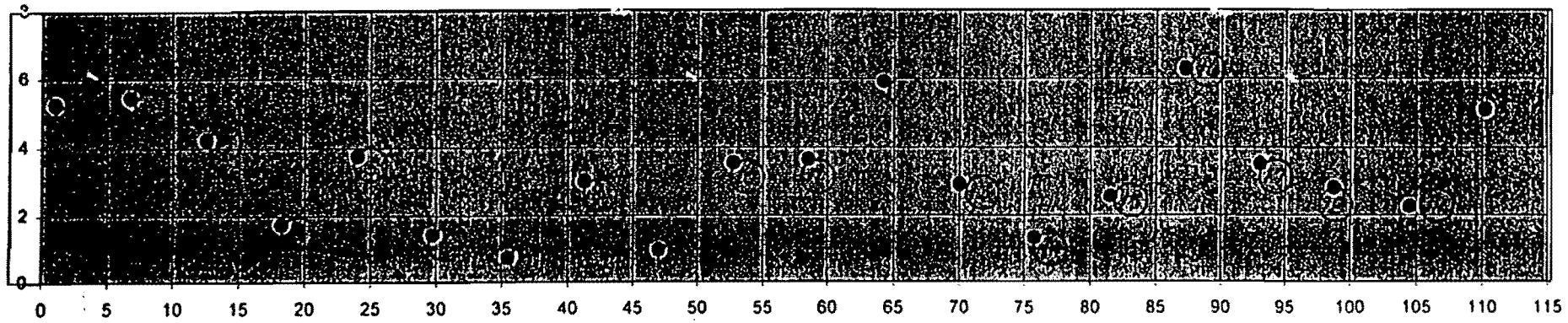
RSDS 03-TF-0288
A 158616



L = 115ft
W = 8ft

Room 112 Walls
SU 21 Coordinates

	X	Y
1	1	5.239323
2	6.75	5.433514
3	12.5	4.227681
4	18.25	1.745858
5	24	3.757635
6	29.75	1.421347
7	35.5	0.734887
8	41.25	3.016319
9	47	0.963023
10	52.75	3.53711
11	58.5	3.647307
12	64.25	5.896061
13	70	2.906387
14	75.75	1.322153
15	81.5	2.556621
16	87.25	6.266756
17	93	3.502813
18	98.75	2.815249
19	104.5	2.254291
20	110.25	5.078459

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) BUILDING 50	SURVEY NO. 03-TF-0289
PURPOSE: MARSSIM SURVEY PLAN 50-01 UNITS 16, 17 AND 18	RWP NO. N/A
	DATE: 11-3-03
	TIME: 1630

MAP/DRAWING

SEE ATTACHED DRAWINGS AND RESULTS

COPY

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350	5855	06-18-04
2360	5833 / 5847	03-13-04
	NA	

[redacted]	HP # [illegible]	Date: [illegible]-03
Completed by: (Print) [redacted]		
Counted by: (Signature)	HP #	Date:
Counted by: (Print Name) [redacted] ATTACHED		
Review [redacted]	HP # [illegible]	Date: [illegible]-03
Reviewed/Approved [redacted]		

ML-9620 (2-98)

Survey No. 03-TF-0289

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-20				UNIT 16
21-40				UNIT 17
41-60	SEE ATTACHED RESULTS			UNIT 18
		N/A		

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

COMMENTS:

NOTES:

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

ML-9620A (4-98)

G172 of 3B

50-Building Characterization Survey Unit 16, 17 AND 18

RSDS# 03-TF-0289 RCT: Dgt RCT: N/A

Alpha	43-68 BKG:	0	EFF:	0.2091	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1793	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.2075	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5855	6178	5864	1		11/3/03	8:42	10	300	15
ALPHA	SRC CHECK	5855	6178	5864	1		11/3/03	8:44	2044	60	15516
ALPHA	SRC CHECK	5855	6178	5864	1		11/3/03	8:45	2161	60	16404
ALPHA	SRC CHECK	5855	6178	5864	1		11/3/03	8:47	1984	60	15061
ALPHA	SRC CHECK	5855	6178	5864	1		11/3/03	8:48	2038	60	15471
ALPHA	U-16 01	5855	6178	5864	1	1	11/3/03	12:28	4	120	15
ALPHA	U-16 02	5855	6178	5864	1	2	11/3/03	12:31	5	120	19
ALPHA	U-16 03	5855	6178	5864	1	3	11/3/03	12:34	12	120	46
ALPHA	U-16 04	5855	6178	5864	1	4	11/3/03	12:37	8	120	30
ALPHA	U-16 05	5855	6178	5864	1	5	11/3/03	12:40	5	120	19
ALPHA	U-16 06	5855	6178	5864	1	6	11/3/03	12:43	10	120	38
ALPHA	U-16 07	5855	6178	5864	1	7	11/3/03	12:46	7	120	27
ALPHA	U-16 08	5855	6178	5864	1	8	11/3/03	12:50	12	120	46
ALPHA	U-16 09	5855	6178	5864	1	9	11/3/03	12:54	7	120	27
ALPHA	U-16 10	5855	6178	5864	1	10	11/3/03	12:58	8	120	30
ALPHA	U-16 11	5855	6178	5864	1	11	11/3/03	13:01	5	120	19
ALPHA	U-16 12	5855	6178	5864	1	12	11/3/03	13:05	6	120	23
ALPHA	U-16 13	5855	6178	5864	1	13	11/3/03	13:09	10	120	38
ALPHA	U-16 14	5855	6178	5864	1	14	11/3/03	13:13	8	120	30
ALPHA	U-16 15	5855	6178	5864	1	15	11/3/03	13:17	4	120	15
ALPHA	U-16 16	5855	6178	5864	1	16	11/3/03	13:20	4	120	15
ALPHA	U-16 17	5855	6178	5864	1	17	11/3/03	13:24	13	120	49
ALPHA	U-16 18	5855	6178	5864	1	18	11/3/03	13:28	8	120	30
ALPHA	U-16 19	5855	6178	5864	1	19	11/3/03	13:31	13	120	49
ALPHA	U-16 20	5855	6178	5864	1	20	11/3/03	13:35	4	120	15
ALPHA	U-17 01	5855	6178	5864	1	21	11/3/03	13:41	10	120	38
ALPHA	U-17 02	5855	6178	5864	1	22	11/3/03	13:44	11	120	42
ALPHA	U-17 03	5855	6178	5864	1	23	11/3/03	13:48	9	120	34
ALPHA	U-17 04	5855	6178	5864	1	24	11/3/03	13:51	9	120	34
ALPHA	U-17 05	5855	6178	5864	1	25	11/3/03	13:55	10	120	38
ALPHA	U-17 06	5855	6178	5864	1	26	11/3/03	13:59	4	120	15
ALPHA	U-17 07	5855	6178	5864	1	27	11/3/03	14:03	9	120	34
ALPHA	U-17 08	5855	6178	5864	1	28	11/3/03	14:06	9	120	34
ALPHA	U-17 09	5855	6178	5864	1	29	11/3/03	14:10	7	120	27
ALPHA	U-17 10	5855	6178	5864	1	30	11/3/03	14:15	7	120	27
ALPHA	U-17 11	5855	6178	5864	1	31	11/3/03	14:18	3	120	11
ALPHA	U-17 12	5855	6178	5864	1	32	11/3/03	14:22	8	120	30
ALPHA	U-17 13	5855	6178	5864	1	33	11/3/03	14:26	8	120	30
ALPHA	U-17 14	5855	6178	5864	1	34	11/3/03	14:29	6	120	23

50-Building Characterization Survey Unit 16, 17 AND 18

RSDS# 03-TF-0289 RCT: Dogh RCT: N/A

Alpha	43-68 BKG:	0	EFF:	0.2091	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Beta	43-68 BKG:	0	EFF:	0.1793	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Scan	43-37 BKG:	0	EFF:	0.2075	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # :
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	U-17 15	5855	6178	5864	1	35	11/3/03	14:33	5	120	19
ALPHA	U-17 16	5855	6178	5864	1	36	11/3/03	14:37	10	120	38
ALPHA	U-17 17	5855	6178	5864	1	37	11/3/03	14:41	7	120	27
ALPHA	U-17 18	5855	6178	5864	1	38	11/3/03	14:44	8	120	30
ALPHA	U-17 19	5855	6178	5864	1	39	11/3/03	14:49	8	120	30
ALPHA	U-17 20	5855	6178	5864	1	40	11/3/03	14:53	8	120	30
ALPHA	U-18 01	5855	6178	5864	1	41	11/3/03	14:57	7	120	27
ALPHA	U-18 02	5855	6178	5864	1	42	11/3/03	15:01	8	120	30
ALPHA	U-18 03	5855	6178	5864	1	43	11/3/03	15:05	5	120	19
ALPHA	U-18 04	5855	6178	5864	1	44	11/3/03	15:08	9	120	34
ALPHA	U-18 05	5855	6178	5864	1	45	11/3/03	15:12	5	120	19
ALPHA	U-18 06	5855	6178	5864	1	46	11/3/03	15:16	14	120	53
ALPHA	U-18 07	5855	6178	5864	1	47	11/3/03	15:19	11	120	42
ALPHA	U-18 08	5855	6178	5864	1	48	11/3/03	15:23	4	120	15
ALPHA	U-18 09	5855	6178	5864	1	49	11/3/03	15:27	5	120	19
ALPHA	U-18 10	5855	6178	5864	1	50	11/3/03	15:30	9	120	34
ALPHA	U-18 11	5855	6178	5864	1	51	11/3/03	15:34	8	120	30
ALPHA	U-18 12	5855	6178	5864	1	52	11/3/03	15:38	6	120	23
ALPHA	U-18 13	5855	6178	5864	1	53	11/3/03	15:42	2	120	8
ALPHA	U-18 14	5855	6178	5864	1	54	11/3/03	15:45	5	120	19
ALPHA	U-18 15	5855	6178	5864	1	55	11/3/03	15:49	11	120	42
ALPHA	U-18 16	5855	6178	5864	1	56	11/3/03	15:53	12	120	46
ALPHA	U-18 17	5855	6178	5864	1	57	11/3/03	15:56	10	120	38
ALPHA	U-18 18	5855	6178	5864	1	58	11/3/03	16:00	7	120	27
ALPHA	U-18 19	5855	6178	5864	1	59	11/3/03	16:03	8	120	30
ALPHA	U-18 20	5855	6178	5864	1	60	11/3/03	16:07	4	120	15
BETA	SRC BKG	5855	6178	5864	2		11/3/03	8:53	544	300	963
BETA	SRC CHECK	5855	6178	5864	2		11/3/03	8:54	2385	60	21114
BETA	SRC CHECK	5855	6178	5864	2		11/3/03	8:56	2397	60	21220
BETA	SRC CHECK	5855	6178	5864	2		11/3/03	8:57	2225	60	19697
BETA	SRC CHECK	5855	6178	5864	2		11/3/03	8:58	2382	60	21087
BETA	U-16 01	5855	6178	5864	2	1	11/3/03	12:29	131	60	1160
BETA	U-16 02	5855	6178	5864	2	2	11/3/03	12:32	111	60	983
BETA	U-16 03	5855	6178	5864	2	3	11/3/03	12:35	133	60	1177
BETA	U-16 03	5855	6178	5864	2	4	11/3/03	12:38	118	60	1045
BETA	U-16 05	5855	6178	5864	2	5	11/3/03	12:41	136	60	1204
BETA	U-16 06	5855	6178	5864	2	6	11/3/03	12:44	171	60	1514
BETA	U-16 07	5855	6178	5864	2	7	11/3/03	12:47	133	60	1177
BETA	U-16 08	5855	6178	5864	2	8	11/3/03	12:51	101	60	894

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50-Building Characterization Survey Unit 16, 17 AND 18

RSDS# 03-TF-0289 RCT: 29H RCT: N/A

Alpha	43-68 BKG:	0	EFF:	0.2091	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1793	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.2075	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
BETA	U-16 09	5855	6178	5864	2	9	11/3/03	12:55	156	60	1381
BETA	U-16 10	5855	6178	5864	2	10	11/3/03	12:59	126	60	1115
BETA	U-16 11	5855	6178	5864	2	11	11/3/03	13:02	155	60	1372
BETA	U-16 12	5855	6178	5864	2	12	11/3/03	13:06	116	60	1027
BETA	U-16 13	5855	6178	5864	2	13	11/3/03	13:10	129	60	1142
BETA	U-16 14	5855	6178	5864	2	14	11/3/03	13:14	99	60	876
BETA	U-16 15	5855	6178	5864	2	15	11/3/03	13:18	135	60	1195
BETA	U-16 16	5855	6178	5864	2	16	11/3/03	13:21	130	60	1151
BETA	U-16 17	5855	6178	5864	2	17	11/3/03	13:25	137	60	1213
BETA	U-16 18	5855	6178	5864	2	18	11/3/03	13:29	123	60	1089
BETA	U-16 19	5855	6178	5864	2	19	11/3/03	13:33	138	60	1222
BETA	U-16 20	5855	6178	5864	2	20	11/3/03	13:36	118	60	1045
BETA	U-17 01	5855	6178	5864	2	21	11/3/03	13:42	124	60	1098
BETA	U-17 02	5855	6178	5864	2	22	11/3/03	13:45	137	60	1213
BETA	U-17 03	5855	6178	5864	2	23	11/3/03	13:49	126	60	1115
BETA	U-17 04	5855	6178	5864	2	24	11/3/03	13:52	137	60	1213
BETA	U-17 05	5855	6178	5864	2	25	11/3/03	13:56	120	60	1062
BETA	U-17 06	5855	6178	5864	2	26	11/3/03	14:00	141	60	1248
BETA	U-17 07	5855	6178	5864	2	27	11/3/03	14:04	106	60	938
BETA	U-17 08	5855	6178	5864	2	28	11/3/03	14:08	130	60	1151
BETA	U-17 09	5855	6178	5864	2	29	11/3/03	14:12	93	60	823
BETA	U-17 10	5855	6178	5864	2	30	11/3/03	14:16	154	60	1363
BETA	U-17 11	5855	6178	5864	2	31	11/3/03	14:20	125	60	1107
BETA	U-17 12	5855	6178	5864	2	32	11/3/03	14:23	124	60	1098
BETA	U-17 13	5855	6178	5864	2	33	11/3/03	14:27	137	60	1213
BETA	U-17 14	5855	6178	5864	2	34	11/3/03	14:30	139	60	1231
BETA	U-17 15	5855	6178	5864	2	35	11/3/03	14:34	154	60	1363
BETA	U-17 16	5855	6178	5864	2	36	11/3/03	14:38	127	60	1124
BETA	U-17 17	5855	6178	5864	2	37	11/3/03	14:42	131	60	1160
BETA	U-17 18	5855	6178	5864	2	38	11/3/03	14:45	133	60	1177
BETA	U-17 19	5855	6178	5864	2	39	11/3/03	14:50	132	60	1169
BETA	U-17 20	5855	6178	5864	2	40	11/3/03	14:54	116	60	1027
BETA	U-18 01	5855	6178	5864	2	41	11/3/03	14:58	129	60	1142
BETA	U-18 02	5855	6178	5864	2	42	11/3/03	15:02	154	60	1363
BETA	U-18 03	5855	6178	5864	2	43	11/3/03	15:06	115	60	1018
BETA	U-18 04	5855	6178	5864	2	44	11/3/03	15:09	146	60	1293
BETA	U-18 05	5855	6178	5864	2	45	11/3/03	15:13	146	60	1293
BETA	U-18 06	5855	6178	5864	2	46	11/3/03	15:17	126	60	1115
BETA	U-18 07	5855	6178	5864	2	47	11/3/03	15:20	127	60	1124
BETA	U-18 08	5855	6178	5864	2	48	11/3/03	15:24	120	60	1062

50-Building Characterization Survey Unit 16, 17 AND 18

RSDS# 03-TF-0289 RCT: 294 RCT: N/A

Alpha	43-68 BKG:	0	EFF:	0.2091	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1793	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.2075	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
BETA	U-18 09	5855	6178	5864	2	49	11/3/03	15:28	120	60	1062
BETA	U-18 10	5855	6178	5864	2	50	11/3/03	15:32	118	60	1045
BETA	U-18 11	5855	6178	5864	2	51	11/3/03	15:35	117	60	1036
BETA	U-18 12	5855	6178	5864	2	52	11/3/03	15:39	147	60	1301
BETA	U-18 13	5855	6178	5864	2	53	11/3/03	15:43	125	60	1107
BETA	U-18 14	5855	6178	5864	2	54	11/3/03	15:47	144	60	1275
BETA	U-18 15	5855	6178	5864	2	55	11/3/03	15:50	129	60	1142
BETA	U-18 16	5855	6178	5864	2	56	11/3/03	15:54	163	60	1443
BETA	U-18 17	5855	6178	5864	2	57	11/3/03	15:57	147	60	1301
BETA	U-18 18	5855	6178	5864	2	58	11/3/03	16:01	137	60	1213
BETA	U-18 19	5855	6178	5864	2	59	11/3/03	16:04	123	60	1089
BETA	U-18 20	5855	6178	5864	2	60	11/3/03	16:08	140	60	1239

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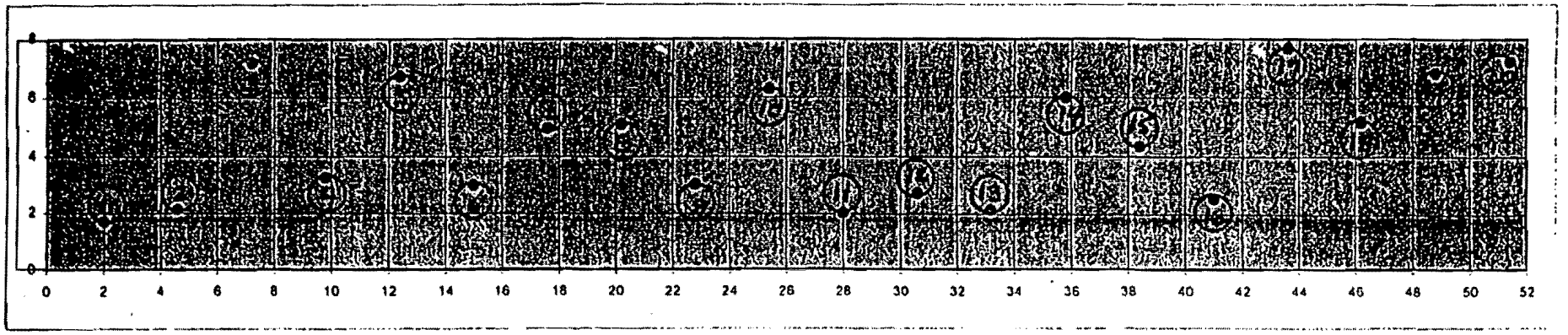
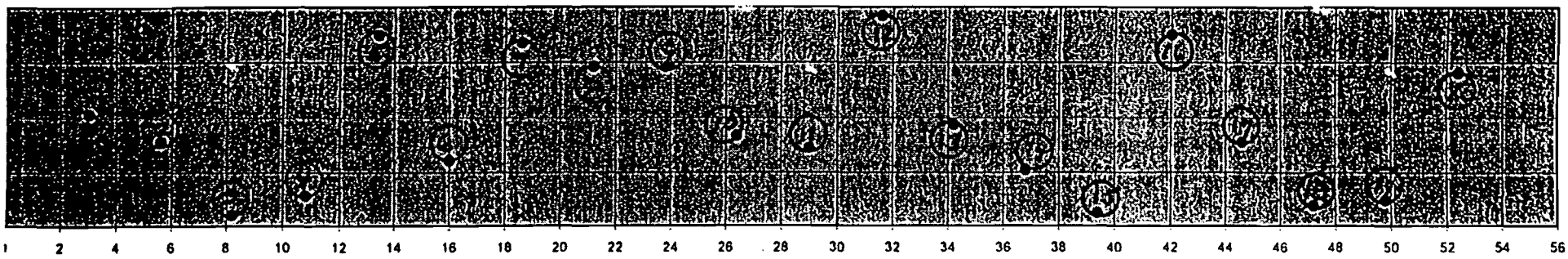


03-TF-0289

L = 52ft
W = 8ft

	Room 107 Walls	
	SU 16 Coordinates	
	X	Y
1	2	1.69931
2	4.6	2.155126
3	7.2	7.185579
4	9.8	3.2[illegible]94
5	12.4	6.717983
6	15	3.002879
7	17.6	4.966846
8	20.2	5.089638
9	22.8	3.024193
10	25.4	6.294303
11	28	2.041446
12	30.6	2.729708
13	33.2	2.149303
14	35.8	5.992329
15	38.4	4.352394
16	41	2.549435
17	43.6	7.693257
18	46.2	5.172299
19	48.8	6.835712
20	51.4	7.219632

GTTd 313



03-TF-0289

56ft
8ft

Room 108 Walls

	SU 17 Coordinates	
	X'	Y'
1	3	4.117021
2	5.6	3.105054
3	8.2	0.424338
4	10.8	1.11407
5	13.4	6.972074
6	16	2.426333
7	18.6	6.708497
8	21.2	5.841781
9	23.8	5.823608
10	26.4	3.343162
11	29	2.883412
12	31.6	7.68171
13	34.2	3.760147
14	36.8	2.092536
15	39.4	0.490916
16	42	6.977845
17	44.6	3.106718
18	47.2	0.770519
19	49.8	0.95346
20	52.4	5.621671

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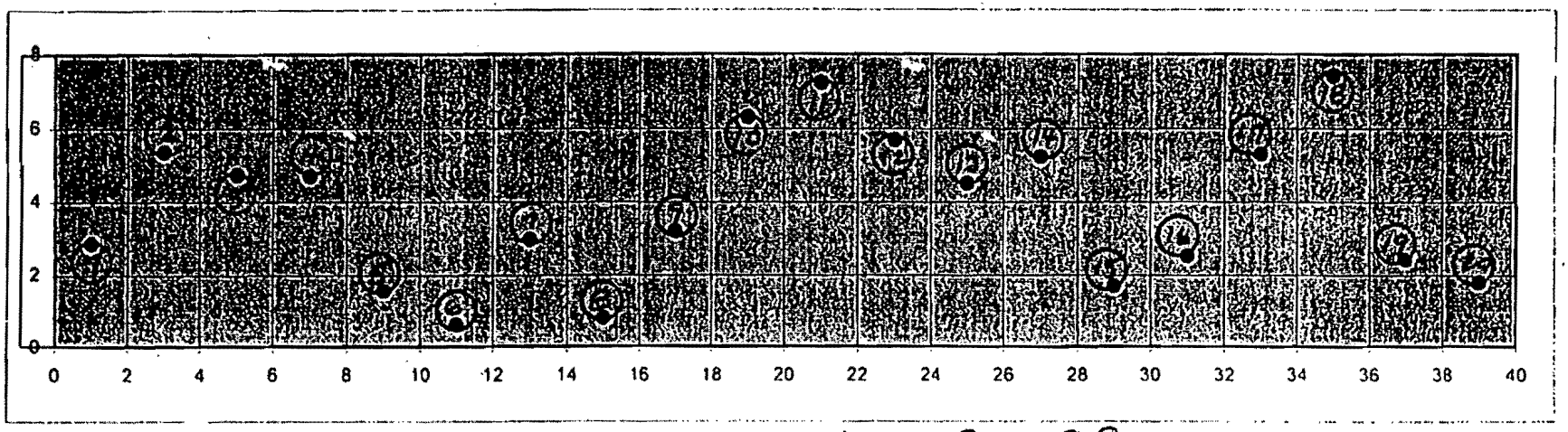

03-TF-0289

L = 40ft
W = 8ft

Room 109 Walls
SU 18 Coordinates

	X	Y
1	1	2.858534
2	3	5.35455
3	5	4.728135
4	7	4.70745
5	9	1.554112
6	11	0.620027
7	13	2.980461
8	15	0.801702
9	17	3.209105
10	19	6.311937
11	21	7.228184
12	23	5.688505
13	25	4.497662
14	27	5.226354
15	29	1.717221
16	31	2.521495
17	33	5.29373
18	35	7.416835
19	37	2.424205
20	39	1.811747

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Alpha/Beta Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR022
Batch Ended: 11/3/2003 16:36
Recalibration Date: 3/24/2005
Serial Number: 64575

Batch ID: 03-TF-0289 REYNOLDS-60 BSB

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity s	Alpha Activity flags	Beta Activity DPM	Beta Activity s	Beta Activity flags
A1	1	0.0	1.9		2.0	2.1	
A2	2	0.0	1.9		0.0	1.7	
A3	3	0.0	1.8		0.0	1.2	
A4	4	0.0	1.9		2.0	2.0	
B1	5	0.0	2.0		2.9	3.2	
B2	6	0.0	2.1		0.0	1.3	
B3	7	0.0	2.0		0.0	2.2	
B4	8	0.0	1.9		0.0	1.3	
C1	9	0.0	2.0		0.0	1.2	
C2	10	0.0	1.9		0.0	1.2	
C3	11	0.0	1.9		0.0	1.2	
C4	12	1.6	1.8		0.0	1.2	
D1	13	0.0	2.0		0.8	1.8	
D2	14	0.0	2.1		0.0	1.2	
D3	15	1.7	2.0		1.0	1.7	
D4	16	0.0	2.0		0.8	1.7	
A1	17	0.0	1.9		2.0	2.1	
A2	18	0.0	1.9		2.1	2.4	
A3	19	0.0	1.9		0.9	2.1	
A4	20	0.0	1.9		0.9	1.6	
B1	21	0.0	2.1		8.1	4.1	
B2	22	1.9	2.1		0.4	1.8	
B3	23	0.0	2.0		0.0	2.2	
B4	24	1.6	2.0		0.1	1.8	
C1	25	0.0	2.0		0.4	1.7	
C2	26	0.0	1.9		0.0	1.2	
C3	27	0.0	1.9		0.0	1.2	
C4	28	0.0	1.8		1.6	2.0	
D1	29	0.0	2.0		0.0	1.3	
D2	30	0.0	2.1		2.3	2.1	
D3	31	1.7	2.0		0.0	1.2	

DH DH

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DH 11-5-03

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Alpha/Beta Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR022
Batch Ended: 11/3/2003 16:36
Recalibration Date: 3/24/2005
Serial Number: 64575

Batch ID: 03-TF-0289 REYNOLDS-60 BSB

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	s	flags	DPM	s	flags
D4	32	0.0	2.0		0.0	1.2	
A1	33	0.0	1.9		0.0	1.2	
A2	34	1.7	1.9		2.0	2.4	
A3	35	0.0	1.8		0.0	1.2	
A4	36	0.0	1.9		0.9	1.6	
B1	37	0.0	2.0		2.9	3.2	
B2	38	1.9	2.1		0.4	1.8	
B3	39	0.0	2.0		0.0	2.2	
B4	40	0.0	2.0		0.2	1.8	
C1	41	0.0	2.0		0.4	1.7	
C2	42	0.0	1.9		0.0	1.2	
C3	43	0.0	1.9		1.7	2.1	
C4	44	0.0	1.8		0.0	1.2	
D1	45	1.7	2.0		0.0	1.3	
D2	46	0.0	2.1		0.0	1.2	
D3	47	0.0	2.0		2.3	2.1	
D4	48	0.0	2.0		3.2	2.4	
A1	49	0.0	1.9		3.3	2.5	
A2	50	1.7	1.9		3.1	2.7	
A3	51	0.0	1.9		2.0	2.4	
A4	52	0.0	1.9		0.9	1.6	
B1	53	1.8	2.0		1.4	2.9	
B2	54	0.0	2.1		0.0	1.3	
B3	55	0.0	2.0		0.0	2.2	
B4	56	0.0	1.9		0.0	1.3	
C1	57	0.0	2.0		1.6	2.1	
C2	58	0.0	1.9		0.0	1.2	
C3	59	1.7	1.9		0.0	1.2	
C4	60	0.0	1.8		0.5	1.6	

AgH AgH

Albert Robson

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AgH 11-3-03

Protocol #: 2 Name:pW h3 10106B 04-Nov-2003 09:29
Region A: LL-UL= 0.5-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region B: LL-UL= 2.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region C: LL-UL=40.0-2000 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Time = 2.00 ~~QIP = tSIE/AEC~~ ES Terminator = Count
03-TF-0289 REYNOLDS (G1-G60) AG
Conventional DPM
Nuclide 1 = 206704
Luminescence Correction On

S#	TIME	LUM	FLAG	CPMA	CPMB	CPMC	tSIE	DPM1	2Sigma
-1	10.00	15	B	7.20	6.80	5.30	559.		0.00
0	2.00	0		696.80	658.70	3.70	480.	1442.62	134.40
1	2.00	4		29.80	29.20	0.00	479.	61.77	20.52
2	2.00	14		0.00	0.20	1.70	553.	0.00	0.00
3	2.00	0		0.30	0.00	1.20	536.	0.58	8.23
4	2.00	0		0.00	0.00	0.00	580.	0.00	0.00
5	2.00	9		0.00	0.00	0.00	584.	0.00	0.00
6	2.00	8		0.00	0.00	1.20	550.	0.00	0.00
7	2.00	14		0.00	0.00	0.70	487.	0.00	0.00
8	2.00	0		4.30	3.70	3.20	597.	7.91	9.37
9	2.00	22		0.00	0.00	0.00	575.	0.00	0.00
10	2.00	0		1.30	0.70	2.70	568.	2.45	8.41
11	2.00	0		0.00	0.00	0.00	542.	0.00	0.00
12	2.00	13		0.00	0.00	0.00	571.	0.00	0.00
13	2.00	5		0.80	0.00	0.00	576.	1.50	10.40
14	2.00	9		0.00	0.00	0.00	526.	0.00	0.00
15	2.00	17		0.00	0.00	1.70	604.	0.00	0.00
16	2.00	8		17.30	16.20	0.00	483.	35.67	17.44
17	2.00	3		8.30	6.20	1.20	596.	15.26	12.50
18	2.00	0		0.80	0.00	0.00	602.	1.46	7.96
19	2.00	12		0.00	0.00	3.20	616.	0.00	0.00
20	2.00	0		1.80	0.20	0.00	607.	3.28	8.34
21	2.00	15		0.00	0.00	0.00	589.	0.00	0.00
22	2.00	19		0.00	0.00	1.70	527.	0.00	0.00
23	2.00	28		0.00	0.00	0.00	478.	0.00	0.00
24	2.00	12		0.00	0.00	0.70	506.	0.00	0.00
25	2.00	0		0.00	0.00	2.20	592.	0.00	0.00
26	2.00	8		0.00	0.00	0.20	594.	0.00	0.00
27	2.00	23		0.00	0.00	2.70	587.	0.00	0.00
28	2.00	13		0.00	0.00	3.20	576.	0.00	0.00
29	2.00	24		0.00	0.00	0.00	547.	0.00	0.00
30	2.00	5		2.80	1.20	0.00	588.	5.18	10.28
31	2.00	0		0.00	0.00	0.00	515.	0.00	0.00
32	2.00	0		0.00	0.00	0.00	477.	0.00	0.00
33	2.00	6		0.80	0.20	0.00	560.	1.52	10.22
34	2.00	0		0.00	0.00	0.00	421.	0.00	0.00
35	2.00	24		0.00	0.00	0.00	484.	0.00	0.00
36	2.00	8		0.00	0.00	0.00	589.	0.00	0.00
37	2.00	30		0.00	0.00	0.00	424.	0.00	0.00
38	2.00	15		0.00	0.00	0.00	466.	0.00	0.00
39	2.00	17		0.00	0.00	1.20	451.	0.00	0.00
40	2.00	0		0.00	0.00	0.20	477.	0.00	0.00
41	2.00	10		0.00	0.00	0.00	402.	0.00	0.00
42	2.00	27		0.00	0.00	0.00	530.	0.00	0.00
43	2.00	0		0.00	0.00	0.20	585.	0.00	0.00
44	2.00	0		0.00	0.00	0.00	578.	0.00	0.00

DJH

S#	TIME	LUM	FLAG	CPMA	CPMB	CPMC	tSIE	DPM1	2Sigma
45	2.00	11		0.00	0.00	0.00	513.	0.00	0.00
46	2.00	19		0.00	0.00	0.00	480.	0.00	0.00
47	2.00	0		0.00	0.00	0.00	460.	0.00	0.00
48	2.00	0		1.30	1.20	0.00	491.	2.66	9.11
49	2.00	0		0.00	0.00	0.00	529.	0.00	0.00
50	2.00	0		0.00	0.00	0.00	490.	0.00	0.00
51	2.00	0		0.00	0.00	0.00	581.	0.00	0.00
52	2.00	24		0.00	0.00	0.70	541.	0.00	0.00
53	2.00	0		0.00	0.00	0.70	561.	0.00	0.00
54	2.00	0		0.30	0.20	0.00	590.	0.55	7.81
55	2.00	4		4.80	4.20	0.70	531.	9.39	11.90
56	2.00	80		0.00	0.00	0.00	606.	0.00	0.00
57	2.00	0		0.00	0.00	0.00	596.	0.00	0.00
58	2.00	11		0.00	0.00	0.00	521.	0.00	0.00
59	2.00	24		0.00	0.00	0.70	523.	0.00	0.00
60	2.00	30		0.00	0.00	3.20	441.	0.00	0.00

DGH

03-TF-0289

Albert Hutson

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RADIOLOGICAL SURVEY DATA SHEET

1 of 16

LOCATION: (BLDG./AREA/ROOM) BUILDING 50	SURVEY NO. 03-TF-0290
PURPOSE: MARSSIM SURVEY PLAN 50-01 UNITS 22, 23, 12 AND 25	RWP NO. N/A
	DATE: 11-06-03
	TIME: 0545

MAP/DRAWING

SEE ATTACHED DRAWINGS AND RESULTS

COPY

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350	5857	09-09-04
2360	5833/5841	03-13-04
	N/A	

[redacted] HP # 5214 Date: 11-06-03

Completed by: (Print Na[redacted]

Counted by: (Signature) HP # Date:

Counted by: (Print Name) SEE ATTACHED

[redacted] HP # 6178 Date: 11-6-03

Review[redacted]

ML-9620 (2-88)

Survey No. 03-TF-0290

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-20	SEE	ATTACHED		UNIT 22
21-40				UNIT 23
41-60				UNIT 12
61-80				UNIT 25
		NA		

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

COMMENTS:

NOTES:

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

ML-9620A (4-98)

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Alpha/Beta Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR028
Batch Ended: 11/4/2003 13:52
Recalibration Date: 3/24/2005
Serial Number: 64575

Batch ID: 03-TF-0290 REYNOLDS-80

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	s	flags	DPM	s	flags
A1	1	0.0	1.9		0.0	1.2	
A2	2	0.0	2.0		4.5	2.9	
A3	3	0.0	1.9		5.6	3.1	
A4	4	0.0	1.9		0.0	1.2	
B1	5	0.0	2.1		5.5	3.7	
B2	6	0.0	2.1		0.5	1.8	
B3	7	1.7	2.0		0.0	1.3	
B4	8	0.0	1.9		0.0	1.3	
C1	9	1.8	2.0		0.0	1.2	
C2	10	1.8	1.9		0.0	1.2	
C3	11	0.0	1.9		0.0	1.2	
C4	12	0.0	1.8		0.0	1.2	
D1	13	0.0	2.0		0.0	1.3	
D2	14	0.0	2.1		0.0	1.2	
D3	15	0.0	2.0		0.0	1.2	
D4	16	0.0	2.0		0.0	1.2	
A1	17	0.0	1.9		0.0	1.2	
A2	18	0.0	1.9		0.0	1.2	
A3	19	0.0	1.9		0.0	1.7	
A4	20	0.0	1.9		0.9	1.6	
B1	21	0.0	2.0		1.6	2.9	
B2	22	0.0	2.2		1.8	2.2	
B3	23	1.7	2.0		0.0	1.3	
B4	24	0.0	2.0		0.2	1.8	
C1	25	1.8	2.0		0.0	1.2	
C2	26	1.8	2.0		1.6	2.1	
C3	27	0.0	1.9		4.1	2.7	
C4	28	0.0	1.8		0.0	1.2	
D1	29	1.7	2.1		1.9	2.2	
D2	30	0.0	2.1		1.1	1.7	
D3	31	1.7	2.0		2.2	2.1	

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R505 03-TF-0290
P5 3616

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1.06-03

Alpha/Beta Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR028
Batch Ended: 11/4/2003 13:52
Recalibration Date: 3/24/2005
Serial Number: 64575

Batch ID: 03-TF-0290 REYNOLDS-80

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity s	Alpha Activity flags	Beta Activity DPM	Beta Activity s	Beta Activity flags
D4	32	0.0	2.0		0.0	1.2	
A1	33	1.7	1.9		1.9	2.1	
A2	34	0.0	2.0		5.7	3.1	
A3	35	0.0	1.8		0.0	1.2	
A4	36	0.0	1.9		2.0	2.0	
B1	37	0.0	2.1		5.5	3.7	
B2	38	0.0	2.1		0.5	1.8	
B3	39	0.0	2.0		0.0	1.3	
B4	40	0.0	2.0		2.7	2.5	
C1	41	0.0	2.0		1.6	2.1	
C2	42	0.0	2.0		2.9	2.4	
C3	43	0.0	1.9		0.0	1.2	
C4	44	1.6	1.8		0.3	1.6	
D1	45	0.0	2.0		0.8	1.8	
D2	46	0.0	2.1		0.0	1.2	
D3	47	0.0	2.0		1.1	1.7	
D4	48	3.4	2.8		0.5	1.7	
A1	49	0.0	1.9		2.0	2.1	
A2	50	1.7	2.0		4.3	2.9	
A3	51	0.0	1.9		0.0	1.7	
A4	52	0.0	1.9		0.0	1.2	
B1	53	0.0	2.0		0.3	2.6	
B2	54	1.9	2.1		0.4	1.8	
B3	55	0.0	2.0		0.0	1.8	
B4	56	0.0	2.0		0.2	1.8	
C1	57	0.0	2.0		0.0	1.2	
C2	58	0.0	1.9		0.0	1.2	
C3	59	0.0	1.9		0.0	1.2	
C4	60	0.0	1.8		0.0	1.2	
D1	61	1.7	2.1		3.1	2.5	
D2	62	0.0	2.1		1.1	1.7	
D3	63	0.0	2.0		0.0	1.2	
D4	64	0.0	2.0		0.0	1.2	

G18&P 3/3

PDS 03-TF-0290

PS 4/6/05

11-06-03

Alpha/Beta Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR028
Batch Ended: 11/4/2003 13:52
Recalibration Date: 3/24/2005
Serial Number: 64575

Batch ID: 03-TF-0290 REYNOLDS-80

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	s	flags	DPM	s	flags
A1	65	0.0	1.9		0.8	1.7	
A2	66	0.0	1.9		0.0	1.7	
A3	67	0.0	1.9		0.0	1.7	
A4	68	0.0	1.9		2.0	2.0	
B1	69	0.0	2.1		5.5	3.7	
B2	70	1.9	2.1		0.0	1.3	
B3	71	1.7	2.0		0.0	2.2	
B4	72	0.0	1.9		0.0	1.3	
C1	73	0.0	2.0		0.4	1.7	
C2	74	0.0	2.0		0.5	1.7	
C3	75	0.0	1.9		0.0	1.2	
C4	76	0.0	1.8		0.0	1.2	
D1	77	0.0	2.1		2.0	2.2	
D2	78	0.0	2.1		0.0	1.2	
D3	79	0.0	2.0		1.1	1.7	
D4	80	3.4	2.8		0.5	1.7	

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BS25 03-TF-0290
RJ 8/6

Allen Hibbs

~~Page 2 of 5~~ QC
11-06-03

Protocol #: 6 Name:pW h3 101068 05-Nov-2003 00:21
Region A: LL-UL= 0.5-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region B: LL-UL= 2.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region C: LL-UL=40.0-2000 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Time = 2.00 QIP = tSIE/AEC ES Terminator = Count
03-TF-0290 H. REYNOLDS (K1-K80) AG
Conventional DPM
Nuclide 1 = 206704
Luminescence Correction On

S#	TIME	LUM	FLAG	CPMA	CPMB	CPMC	tSIE	DPM1	2Sigma
-1	10.00	8	B	7.50	5.80	6.70	621.		0.00
0	2.00	1		879.00	827.70	0.00	525.	1731.30	150.23
1	2.00	4		4.50	1.70	0.00	627.	8.09	10.95
2	2.00	0		4.50	3.20	0.00	580.	8.39	9.71
3	2.00	13		0.00	0.00	0.00	615.	0.00	0.00
4	2.00	30		0.00	0.00	0.80	465.	0.00	0.00
5	2.00	8		4.50	3.70	0.00	639.	8.02	11.14
6	2.00	26		0.00	0.00	0.00	621.	0.00	0.00
7	2.00	19		0.00	0.00	0.00	596.	0.00	0.00
8	2.00	9		0.00	0.00	0.00	562.	0.00	0.00
9	2.00	8		0.00	0.00	0.00	616.	0.00	0.00
10	2.00	14		0.00	0.00	0.00	642.	0.00	0.00
11	2.00	21		0.00	0.00	0.00	608.	0.00	0.00
12	2.00	8		0.00	0.00	1.30	589.	0.00	0.00
13	2.00	0		6.00	4.20	0.00	557.	11.44	10.47
14	2.00	23		0.00	0.00	0.00	578.	0.00	0.00
15	2.00	44		0.00	0.00	0.00	602.	0.00	0.00
16	2.00	32		0.00	0.00	0.00	599.	0.00	0.00
17	2.00	12		0.00	0.00	0.30	618.	0.00	0.00
18	2.00	8		0.00	0.00	0.00	626.	0.00	0.00
19	2.00	0		0.50	0.00	0.00	520.	0.99	8.63
20	2.00	0		8.00	6.70	0.00	629.	14.37	10.51
21	2.00	0		0.00	0.00	0.00	452.	0.00	0.00
22	2.00	8		0.00	0.00	0.30	568.	0.00	0.00
23	2.00	16		0.00	0.00	0.00	552.	0.00	0.00
24	2.00	11		5.00	2.20	0.30	591.	9.23	12.26
25	2.00	18		0.00	0.00	0.00	652.	0.00	0.00
26	2.00	8		0.00	0.20	0.00	571.	0.00	0.00
27	2.00	14		0.00	0.00	0.00	608.	0.00	0.00
28	2.00	0		1.50	2.20	0.00	543.	2.90	8.86
29	2.00	0		0.00	0.00	0.00	609.	0.00	0.00
30	2.00	8		0.00	0.00	0.00	580.	0.00	0.00
31	2.00	20		0.00	0.00	1.80	587.	0.00	0.00
32	2.00	17		15.00	8.20	0.00	665.	26.26	15.15
33	2.00	17		0.00	0.20	0.00	600.	0.00	0.00
34	2.00	13		0.00	0.00	0.00	616.	0.00	0.00
35	2.00	0		1.50	0.20	0.30	592.	2.77	8.46
36	2.00	6		0.00	0.00	0.00	610.	0.00	0.00
37	2.00	0		4.00	1.20	0.00	631.	7.17	9.15
38	2.00	12		0.00	0.00	0.00	587.	0.00	0.00
39	2.00	11		0.00	0.00	0.00	571.	0.00	0.00
40	2.00	15		1.00	0.00	0.00	628.	1.80	5.08
41	2.00	6		0.00	0.20	0.00	605.	0.00	0.00
42	2.00	14		0.00	0.00	0.00	541.	0.00	0.00
43	2.00	9		0.00	0.00	0.00	542.	0.00	0.00
44	2.00	9		0.00	0.00	0.30	413.	0.00	0.00

S#	TIME	LUM	FLAG	CPMA	CPMB	CPMC	tSIE	DPM1	2Sigma
45	2.00	8		0.00	0.00	0.00	576.	0.00	0.00
46	2.00	21		0.00	0.00	0.00	573.	0.00	0.00
47	2.00	32		0.00	0.00	0.80	522.	0.00	0.00
48	2.00	12		0.00	0.00	0.00	511.	0.00	0.00
49	2.00	15		0.00	0.00	1.80	571.	0.00	0.00
50	2.00	7		0.00	0.00	0.00	528.	0.00	0.00
51	2.00	7		0.00	0.00	0.00	486.	0.00	0.00
52	2.00	13		0.00	0.00	0.00	589.	0.00	0.00
53	2.00	0		0.00	0.00	0.00	625.	0.00	0.00
54	2.00	15		0.00	0.00	0.00	534.	0.00	0.00
55	2.00	0		0.00	0.00	0.00	550.	0.00	0.00
56	2.00	26		0.00	0.00	0.00	448.	0.00	0.00
57	2.00	24		0.00	0.00	0.00	501.	0.00	0.00
58	2.00	11		0.00	0.00	0.00	381.	0.00	0.00
59	2.00	33		0.00	0.00	0.00	573.	0.00	0.00
60	2.00	21		0.00	0.00	0.00	561.	0.00	0.00
61	2.00	20		0.00	0.00	0.00	577.	0.00	0.00
62	2.00	17		0.00	0.00	0.30	417.	0.00	0.00
63	2.00	16		0.00	0.00	0.00	513.	0.00	0.00
64	2.00	30		0.00	0.00	0.00	513.	0.00	0.00
65	2.00	0		0.00	0.00	0.00	614.	0.00	0.00
66	2.00	6		0.00	0.00	0.00	616.	0.00	0.00
67	2.00	5		0.00	0.70	0.00	515.	0.00	0.00
68	2.00	9		0.00	0.00	0.00	593.	0.00	0.00
69	2.00	20		0.00	0.00	0.00	575.	0.00	0.00
70	2.00	5		3.00	1.70	0.00	611.	5.46	5.16
71	2.00	6		0.00	0.20	0.00	535.	0.00	0.00
72	2.00	0		6.00	4.70	0.00	639.	10.70	9.79
73	2.00	7		0.00	0.00	0.00	532.	0.00	0.00
74	2.00	14		1.00	1.70	0.00	610.	1.82	10.93
75	2.00	6		0.00	0.20	0.00	635.	0.00	0.00
76	2.00	5		1.50	1.70	0.00	610.	2.73	10.46
77	2.00	7		5.50	3.20	0.00	624.	9.91	11.84
78	2.00	17		0.00	0.00	0.00	635.	0.00	0.00
79	2.00	14		1.50	0.70	0.00	627.	2.70	10.94
80	2.00	24		0.00	0.00	0.00	495.	0.00	0.00

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50-Building Characterization Survey Unit 22, 23, 12 and 25

RSDS# 03-TF-0290 RCT: SR RCT: N/A

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5857	5214	5859	1		11/4/03	6:38	11	300	15
ALPHA	SRCCHECK	5857	5214	5859	1		11/4/03	6:41	2105	60	14546
ALPHA	SRCCHECK	5857	5214	5859	1		11/4/03	6:43	2217	60	15320
ALPHA	SRCCHECK	5857	5214	5859	1		11/4/03	6:44	2031	60	14035
ALPHA	SRCCHECK	5857	5214	5859	1		11/4/03	6:46	2024	60	13986
ALPHA	U-22 01	5857	5214	5859	1	1	11/4/03	7:07	2	120	7
ALPHA	U-22 02	5857	5214	5859	1	2	11/4/03	7:14	5	120	17
ALPHA	U-22 03	5857	5214	5859	1	3	11/4/03	7:18	7	120	24
ALPHA	U-22 04	5857	5214	5859	1	4	11/4/03	7:23	5	120	17
ALPHA	U-22 05	5857	5214	5859	1	5	11/4/03	7:27	7	120	24
ALPHA	U-22 06	5857	5214	5859	1	6	11/4/03	7:31	7	120	24
ALPHA	U-22 07	5857	5214	5859	1	7	11/4/03	7:35	6	120	21
ALPHA	U-22 08	5857	5214	5859	1	8	11/4/03	7:39	9	120	31
ALPHA	U-22 09	5857	5214	5859	1	9	11/4/03	7:43	3	120	10
ALPHA	U-22 10	5857	5214	5859	1	10	11/4/03	7:47	4	120	14
ALPHA	U-22 11	5857	5214	5859	1	11	11/4/03	7:51	2	120	7
ALPHA	U-22 12	5857	5214	5859	1	12	11/4/03	7:54	9	120	31
ALPHA	U-22 13	5857	5214	5859	1	13	11/4/03	7:58	7	120	24
ALPHA	U-22 14	5857	5214	5859	1	14	11/4/03	8:03	1	120	3
ALPHA	U-22 15	5857	5214	5859	1	15	11/4/03	8:09	4	120	14
ALPHA	U-22 16	5857	5214	5859	1	16	11/4/03	8:14	4	120	14
ALPHA	U-22 17	5857	5214	5859	1	17	11/4/03	8:18	4	120	14
ALPHA	U-22 18	5857	5214	5859	1	18	11/4/03	8:22	3	120	10
ALPHA	U-22 19	5857	5214	5859	1	19	11/4/03	8:26	4	120	14
ALPHA	U-22 20	5857	5214	5859	1	20	11/4/03	8:30	3	120	10
ALPHA	U-23 01	5857	5214	5859	1	21	11/4/03	8:37	2	120	7
ALPHA	U-23 02	5857	5214	5859	1	22	11/4/03	8:42	6	120	21
ALPHA	U-23 03	5857	5214	5859	1	23	11/4/03	8:46	5	120	17
ALPHA	U-23 04	5857	5214	5859	1	24	11/4/03	8:51	4	120	14
ALPHA	U-23 05	5857	5214	5859	1	25	11/4/03	8:54	5	120	17
ALPHA	U-23 06	5857	5214	5859	1	26	11/4/03	9:02	2	120	7
ALPHA	U-23 07	5857	5214	5859	1	27	11/4/03	9:06	6	120	21
ALPHA	U-23 08	5857	5214	5859	1	28	11/4/03	9:14	4	120	14
ALPHA	U-23 09	5857	5214	5859	1	29	11/4/03	9:17	2	120	7
ALPHA	U-23 10	5857	5214	5859	1	30	11/4/03	9:21	7	120	24
ALPHA	U-23 11	5857	5214	5859	1	31	11/4/03	9:25	6	120	21
ALPHA	U-23 12	5857	5214	5859	1	32	11/4/03	9:29	3	120	10
ALPHA	U-23 13	5857	5214	5859	1	33	11/4/03	9:33	14	120	48
ALPHA	U-23 14	5857	5214	5859	1	34	11/4/03	9:37	12	120	41

50-Building Characterization Survey Unit 22, 23, 12 and 25

RSDS# 03-TF-0290 RCT: [illegible] RCT: N/A

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	U-23 15	5857	5214	5859	1	35	11/4/03	9:41	2	120	7
ALPHA	U-23 16	5857	5214	5859	1	36	11/4/03	9:45	11	120	38
ALPHA	U-23 17	5857	5214	5859	1	37	11/4/03	9:48	7	120	24
ALPHA	U-23 18	5857	5214	5859	1	38	11/4/03	9:52	3	120	10
ALPHA	U-23 19	5857	5214	5859	1	39	11/4/03	9:56	7	120	24
ALPHA	U-23 20	5857	5214	5859	1	40	11/4/03	10:00	1	120	3
ALPHA	U-12 01	5857	5214	5859	1	41	11/4/03	10:06	8	120	28
ALPHA	U-12 02	5857	5214	5859	1	42	11/4/03	10:11	5	120	17
ALPHA	U-12 03	5857	5214	5859	1	43	11/4/03	10:15	3	120	10
ALPHA	U-12 04	5857	5214	5859	1	44	11/4/03	10:18	3	120	10
ALPHA	U-12 05	5857	5214	5859	1	45	11/4/03	10:23	14	120	48
ALPHA	U-12 06	5857	5214	5859	1	46	11/4/03	10:26	6	120	21
ALPHA	U-12 07	5857	5214	5859	1	47	11/4/03	10:31	6	120	21
ALPHA	U-12 08	5857	5214	5859	1	48	11/4/03	10:34	5	120	17
ALPHA	U-12 09	5857	5214	5859	1	49	11/4/03	10:38	3	120	10
ALPHA	U-12 10	5857	5214	5859	1	50	11/4/03	10:41	6	120	21
ALPHA	U-12 11	5857	5214	5859	1	51	11/4/03	10:45	4	120	14
ALPHA	U-12 12	5857	5214	5859	1	52	11/4/03	12:34	2	120	7
ALPHA	U-12 13	5857	5214	5859	1	53	11/4/03	12:45	6	120	21
ALPHA	U-12 14	5857	5214	5859	1	54	11/4/03	12:52	4	120	14
ALPHA	U-12 15	5857	5214	5859	1	55	11/4/03	12:55	2	120	7
ALPHA	U-12 16	5857	5214	5859	1	56	11/4/03	12:59	7	120	24
ALPHA	U-12 17	5857	5214	5859	1	57	11/4/03	13:02	5	120	17
ALPHA	U-12 18	5857	5214	5859	1	58	11/4/03	13:06	2	120	7
ALPHA	U-12 19	5857	5214	5859	1	59	11/4/03	13:10	2	120	7
ALPHA	U-12 20	5857	5214	5859	1	60	11/4/03	13:14	4	120	14
ALPHA	U-25 01	5857	5214	5859	1	61	11/4/03	13:20	8	120	28
ALPHA	U-25 02	5857	5214	5859	1	62	11/4/03	13:24	2	120	7
ALPHA	U-25 03	5857	5214	5859	1	63	11/4/03	13:27	1	120	3
ALPHA	U-25 04	5857	5214	5859	1	64	11/4/03	13:31	2	120	7
ALPHA	U-25 05	5857	5214	5859	1	65	11/4/03	13:35	0	120	0
ALPHA	U-25 06	5857	5214	5859	1	66	11/4/03	13:39	7	120	24
ALPHA	U-25 07	5857	5214	5859	1	67	11/4/03	13:42	4	120	14
ALPHA	U-25 08	5857	5214	5859	1	68	11/4/03	13:46	4	120	14
ALPHA	U-25 09	5857	5214	5859	1	69	11/4/03	13:50	4	120	14
ALPHA	U-25 10	5857	5214	5859	1	70	11/4/03	13:54	1	120	3
ALPHA	U-25 11	5857	5214	5859	1	71	11/4/03	13:58	8	120	28
ALPHA	U-25 12	5857	5214	5859	1	72	11/4/03	14:01	3	120	10
ALPHA	U-25 13	5857	5214	5859	1	73	11/4/03	14:05	2	120	7
ALPHA	U-25 14	5857	5214	5859	1	74	11/4/03	14:09	7	120	24

50-Building Characterization Survey Unit 22, 23, 12 and 25

RSDS# 03-TF-0290 RCT: SR RCT: N/A

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	U-25 15	5857	5214	5859	1	75	11/4/03	14:13	5	120	17
ALPHA	U-25 16	5857	5214	5859	1	76	11/4/03	14:17	19	120	66
ALPHA	U-25 17	5857	5214	5859	1	77	11/4/03	14:21	24	120	83
ALPHA	U-25 18	5857	5214	5859	1	78	11/4/03	14:24	7	120	24
ALPHA	U-25 19	5857	5214	5859	1	79	11/4/03	14:28	3	120	10
ALPHA	U-25 20	5857	5214	5859	1	80	11/4/03	14:32	6	120	21
BETA	SRC BKG	5857	5214	5859	2		11/4/03	6:52	823	300	1402
BETA	SRCCHECK	5857	5214	5859	2		11/4/03	6:54	2640	60	22493
BETA	SRCCHECK	5857	5214	5859	2		11/4/03	6:55	2662	60	22681
BETA	SRCCHECK	5857	5214	5859	2		11/4/03	6:57	2521	60	21479
BETA	SRCCHECK	5857	5214	5859	2		11/4/03	6:58	2637	60	22468
BETA	U-22 01	5857	5214	5859	2	1	11/4/03	7:09	131	60	1116
BETA	U-22 02	5857	5214	5859	2	2	11/4/03	7:15	148	60	1261
BETA	U-22 03	5857	5214	5859	2	3	11/4/03	7:20	166	60	1414
BETA	U-22 04	5857	5214	5859	2	4	11/4/03	7:24	135	60	1150
BETA	U-22 05	5857	5214	5859	2	5	11/4/03	7:28	127	60	1082
BETA	U-22 06	5857	5214	5859	2	6	11/4/03	7:32	144	60	1227
BETA	U-22 07	5857	5214	5859	2	7	11/4/03	7:36	155	60	1321
BETA	U-22 08	5857	5214	5859	2	8	11/4/03	7:40	147	60	1252
BETA	U-22 09	5857	5214	5859	2	9	11/4/03	7:44	131	60	1116
BETA	U-22 10	5857	5214	5859	2	10	11/4/03	7:48	109	60	929
BETA	U-22 11	5857	5214	5859	2	11	11/4/03	7:52	147	60	1252
BETA	U-22 12	5857	5214	5859	2	12	11/4/03	7:55	134	60	1142
BETA	U-22 13	5857	5214	5859	2	13	11/4/03	7:59	129	60	1099
BETA	U-22 14	5857	5214	5859	2	14	11/4/03	8:05	136	60	1159
BETA	U-22 15	5857	5214	5859	2	15	11/4/03	8:10	155	60	1321
BETA	U-22 16	5857	5214	5859	2	16	11/4/03	8:15	137	60	1167
BETA	U-22 17	5857	5214	5859	2	17	11/4/03	8:19	137	60	1167
BETA	U-22 18	5857	5214	5859	2	18	11/4/03	8:23	121	60	1031
BETA	U-22 19	5857	5214	5859	2	19	11/4/03	8:27	133	60	1133
BETA	U-22 20	5857	5214	5859	2	20	11/4/03	8:31	141	60	1201
BETA	U-23 01	5857	5214	5859	2	21	11/4/03	8:38	121	60	1031
BETA	U-23 02	5857	5214	5859	2	22	11/4/03	8:43	118	60	1005
BETA	U-23 03	5857	5214	5859	2	23	11/4/03	8:47	135	60	1150
BETA	U-23 04	5857	5214	5859	2	24	11/4/03	8:52	88	60	750
BETA	U-23 05	5857	5214	5859	2	25	11/4/03	8:55	144	60	1227
BETA	U-23 06	5857	5214	5859	2	26	11/4/03	9:03	145	60	1235
BETA	U-23 07	5857	5214	5859	2	27	11/4/03	9:07	93	60	792
BETA	U-23 08	5857	5214	5859	2	28	11/4/03	9:15	144	60	1227

50-Building Characterization Survey Unit 22, 23, 12 and 25

RSDS# 03-TF-0290 RCT: SR RCT: NA

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
BETA	U-23 09	5857	5214	5859	2	29	11/4/03	9:19	127	60	1082
BETA	U-23 10	5857	5214	5859	2	30	11/4/03	9:23	100	60	852
BETA	U-23 11	5857	5214	5859	2	31	11/4/03	9:26	146	60	1244
BETA	U-23 12	5857	5214	5859	2	32	11/4/03	9:30	122	60	1039
BETA	U-23 13	5857	5214	5859	2	33	11/4/03	9:34	137	60	1167
BETA	U-23 14	5857	5214	5859	2	34	11/4/03	9:38	113	60	963
BETA	U-23 15	5857	5214	5859	2	35	11/4/03	9:42	140	60	1193
BETA	U-23 16	5857	5214	5859	2	36	11/4/03	9:46	115	60	980
BETA	U-23 17	5857	5214	5859	2	37	11/4/03	9:49	156	60	1329
BETA	U-23 18	5857	5214	5859	2	38	11/4/03	9:53	141	60	1201
BETA	U-23 19	5857	5214	5859	2	39	11/4/03	9:57	98	60	835
BETA	U-23 20	5857	5214	5859	2	40	11/4/03	10:01	132	60	1125
BETA	U-12 01	5857	5214	5859	2	41	11/4/03	10:07	146	60	1244
BETA	U-12 02	5857	5214	5859	2	42	11/4/03	10:12	132	60	1125
BETA	U-12 03	5857	5214	5859	2	43	11/4/03	10:16	257	60	2190
BETA	U-12 04	5857	5214	5859	2	44	11/4/03	10:20	121	60	1031
BETA	U-12 05	5857	5214	5859	2	45	11/4/03	10:24	243	60	2070
BETA	U-12 06	5857	5214	5859	2	46	11/4/03	10:28	154	60	1312
BETA	U-12 07	5857	5214	5859	2	47	11/4/03	10:32	189	60	1610
BETA	U-12 08	5857	5214	5859	2	48	11/4/03	10:35	197	60	1678
BETA	U-12 09	5857	5214	5859	2	49	11/4/03	10:39	161	60	1372
BETA	U-12 10	5857	5214	5859	2	50	11/4/03	10:43	181	60	1542
BETA	U-12 11	5857	5214	5859	2	51	11/4/03	10:46	155	60	1321
BETA	U-12 12	5857	5214	5859	2	52	11/4/03	12:35	126	60	1074
BETA	U-12 13	5857	5214	5859	2	53	11/4/03	12:47	167	60	1423
BETA	U-12 14	5857	5214	5859	2	54	11/4/03	12:53	162	60	1380
BETA	U-12 15	5857	5214	5859	2	55	11/4/03	12:56	160	60	1363
BETA	U-12 16	5857	5214	5859	2	56	11/4/03	13:00	164	60	1397
BETA	U-12 17	5857	5214	5859	2	57	11/4/03	13:04	140	60	1193
BETA	U-12 18	5857	5214	5859	2	58	11/4/03	13:07	214	60	1823
BETA	U-12 19	5857	5214	5859	2	59	11/4/03	13:11	177	60	1508
BETA	U-12 20	5857	5214	5859	2	60	11/4/03	13:15	100	60	852
BETA	U-25 01	5857	5214	5859	2	61	11/4/03	13:21	164	60	1397
BETA	U-25 02	5857	5214	5859	2	62	11/4/03	13:25	188	60	1602
BETA	U-25 03	5857	5214	5859	2	63	11/4/03	13:28	164	60	1397
BETA	U-25 04	5857	5214	5859	2	64	11/4/03	13:32	141	60	1201
BETA	U-25 05	5857	5214	5859	2	65	11/4/03	13:36	157	60	1338
BETA	U-25 06	5857	5214	5859	2	66	11/4/03	13:40	144	60	1227
BETA	U-25 07	5857	5214	5859	2	67	11/4/03	13:44	150	60	1278
BETA	U-25 08	5857	5214	5859	2	68	11/4/03	13:47	127	60	1082

50-Building Characterization Survey Unit 22, 23, 12 and 25

RSDS# 03-TF-0290 RCT: SR RCT: N/A

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # :
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
BETA	U-25 09	5857	5214	5859	2	69	11/4/03	13:51	138	60	1176
BETA	U-25 10	5857	5214	5859	2	70	11/4/03	13:55	141	60	1201
BETA	U-25 11	5857	5214	5859	2	71	11/4/03	13:59	109	60	929
BETA	U-25 12	5857	5214	5859	2	72	11/4/03	14:02	167	60	1423
BETA	U-25 13	5857	5214	5859	2	73	11/4/03	14:06	143	60	1218
BETA	U-25 14	5857	5214	5859	2	74	11/4/03	14:11	137	60	1167
BETA	U-25 15	5857	5214	5859	2	75	11/4/03	14:14	152	60	1295
BETA	U-25 16	5857	5214	5859	2	76	11/4/03	14:18	347	60	2956
BETA	U-25 17	5857	5214	5859	2	77	11/4/03	14:22	350	60	2982
BETA	U-25 18	5857	5214	5859	2	78	11/4/03	14:26	141	60	1201
BETA	U-25 19	5857	5214	5859	2	79	11/4/03	14:30	160	60	1363
BETA	U-25 20	5857	5214	5859	2	80	11/4/03	14:33	157	60	1338

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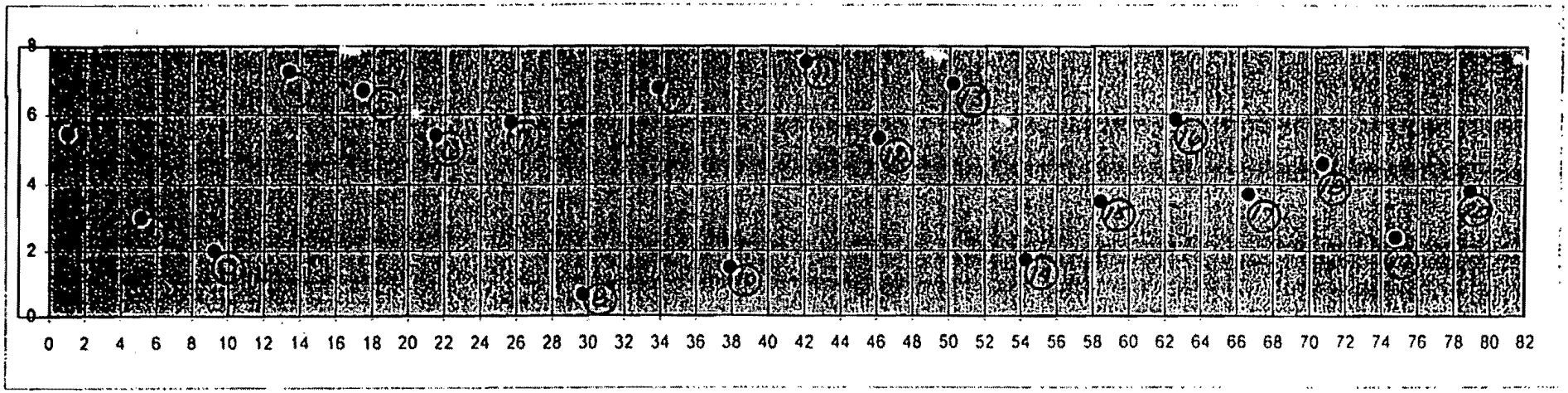

L = 82ft
W = 8ft

	Room 113 Walls	
	SU 22 Coordinates	
	X	Y
1	1	5.475032
2	5.1	2.991988
3	9.2	2.002805
4	13.3	7.242134
5	17.4	6.684016
6	21.5	5.410863
7	25.6	5.773646
8	29.7	0.669286
9	33.8	6.745527
10	37.9	1.507569
11	42	7.521395
12	46.1	5.314854
13	50.2	6.875068
14	54.3	1.729538
15	58.4	3.487644
16	62.5	5.844009
17	66.6	3.699308
18	70.7	4.590236
19	74.8	2.401601
20	78.9	3.809366

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PS 13 of 16

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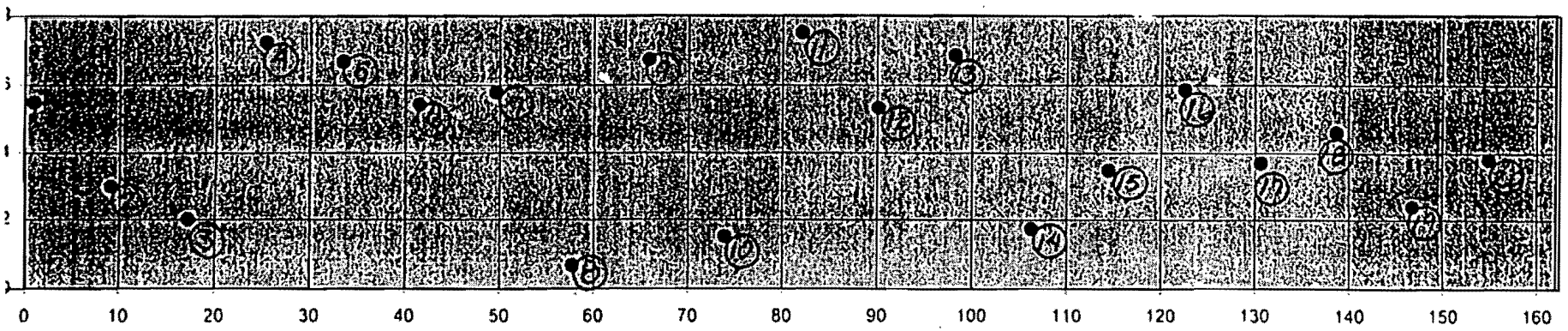

= 162ft
= 8ft

	Room 114 Walls SU 23 Coordinates	
	X	Y
1	1	5.475032
2	9.1	2.991988
3	17.2	2.002805
4	25.3	7.242134
5	33.4	6.684016
6	41.5	5.410863
7	49.6	5.773646
8	57.7	0.669286
9	65.8	6.745527
10	73.9	1.507569
11	82	7.521395
12	90.1	5.314854
13	98.2	6.875068
14	106.3	1.729538
15	114.4	3.487644
16	122.5	5.844009
17	130.6	3.699308
18	138.7	4.590236
19	146.8	2.401601
20	154.9	3.809366

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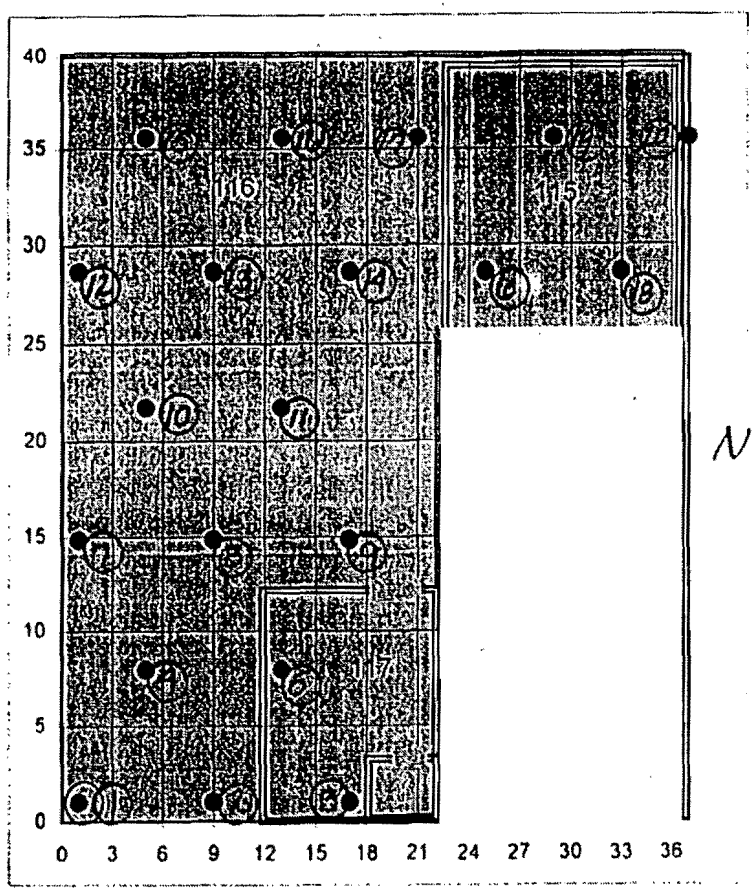

	SU 12 Coordinates	
	X	Y
	37	40
1	1.0	1.0
2	9.0	1.0
3	17.0	1.0
4	5.0	7.9
5	13.0	7.9
6	25.0	28.7
7	1.0	14.8
8	9.0	14.8
9	17.0	14.8
10	5.0	21.8
11	13.0	21.8
12	1.0	28.7
13	9.0	28.7
14	17.0	28.7
15	5.0	35.6
16	13.0	35.6
17	21.0	35.6
18	33.0	28.7
19	29.0	35.6
20	36.9	35.6

A	L	L'
1105	7.987432	6.917116
Start	X	Y
Rand X:Y	1	1

G

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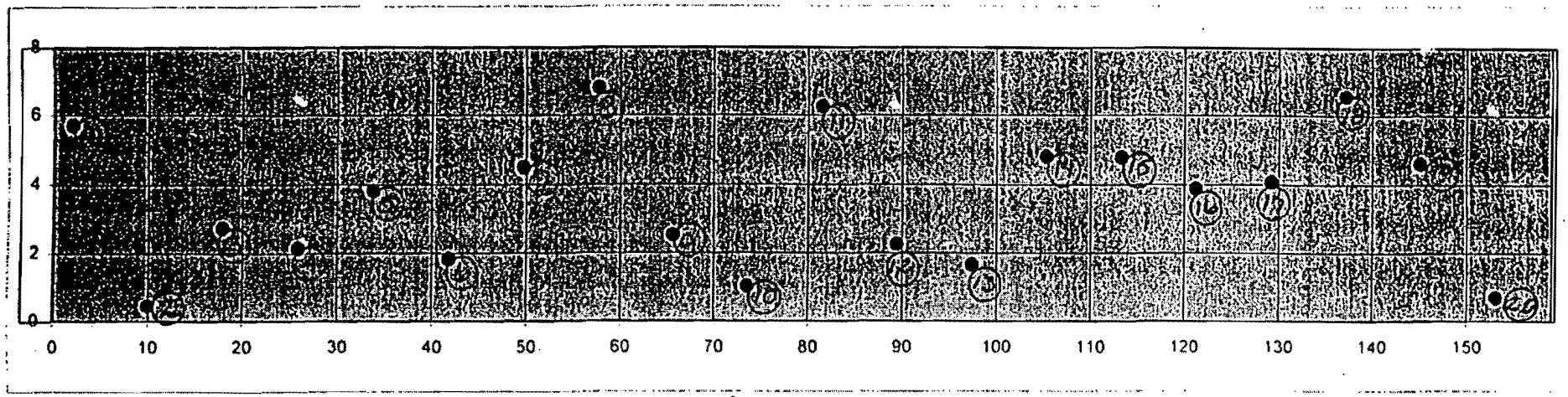
p 15 of 16

SPF 50-01
Attachment 3



L = 159ft
W = 8ft

om 115, 116, 117 W
SU 25 Coordinates

	X	Y
1	2	5.705794
2	9.95	0.461973
3	17.9	2.725634
4	25.85	2.146636
5	33.8	3.802478
6	41.75	1.82902
7	49.7	4.494565
8	57.65	6.809168
9	65.6	2.525949
10	73.55	1.03987
11	81.5	6.250337
12	89.45	2.253943
13	97.4	1.664505
14	105.35	4.794938
15	113.3	4.776926
16	121.25	3.876832
17	129.2	4.060366
18	137.15	6.549527
19	145.1	4.593323
20	153.05	0.712353

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PSDS 03-TF-0290
B 16 8/16

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG/AREA/ROOM) BUILDING 50	SURVEY NO. 03-TF-0291
PURPOSE: MARSSIM SURVEY PLAN 50-01 UNITS 19, 24, 26 AND 27	RWP NO. N/A
	DATE: 11-4-03
	TIME: 1630

MAP/DRAWING

SEE ATTACHED DRAWINGS AND RESULTS

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350	5855	06-18-04
2360	5833/5847	03-13-04
	N/A	

[redacted]	HP # 6178	Date: 11-7-03
Completed by: (Print Name) [redacted]		
Counted by: (Signature)	HP #	Date:
Counted by: (Print Name) [redacted] ATTACHED		
Reviewed [redacted]	HP # 5214	Date: 11-08-03
Reviewed/Approved by [redacted]		

ML-9620 (2-98)

Survey No. 03-TF-0291

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-20	SEE ATTACHED			UNIT 19
21-40	↓	↓	↓	UNIT 24
41-60	↓	↓	↓	UNIT 26
61-80	↓	↓	↓	UNIT 27
		N/A		

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

COMMENTS:

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

ML-9620A (4-98)

50-Building Characterization Survey Unit 19, 24, 26 and 27

RSDS# 03-TF-0291 RCT: 29# RCT: 21A

Alpha	43-68 BKG:	0	EFF:	0.2091	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1793	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.2075	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5855	6178	5864	1		11/4/03	6:51	20	300	30
ALPHA	SRC CHECK	5855	6178	5864	1		11/4/03	6:52	1999	60	15175
ALPHA	SRC CHECK	5855	6178	5864	1		11/4/03	6:54	2050	60	15562
ALPHA	SRC CHECK	5855	6178	5864	1		11/4/03	6:55	1966	60	14924
ALPHA	SRC CHECK	5855	6178	5864	1		11/4/03	6:57	2019	60	15326
ALPHA	U-19 01	5855	6178	5864	1	1	11/4/03	7:06	4	120	15
ALPHA	U-19 02	5855	6178	5864	1	2	11/4/03	7:10	5	120	19
ALPHA	U-19 03	5855	6178	5864	1	3	11/4/03	7:14	5	120	19
ALPHA	U-19 04	5855	6178	5864	1	4	11/4/03	7:18	13	120	49
ALPHA	U-19 05	5855	6178	5864	1	5	11/4/03	7:21	3	120	11
ALPHA	U-19 06	5855	6178	5864	1	6	11/4/03	7:25	8	120	30
ALPHA	U-19 07	5855	6178	5864	1	7	11/4/03	7:29	9	120	34
ALPHA	U-19 08	5855	6178	5864	1	8	11/4/03	7:32	12	120	46
ALPHA	U-19 09	5855	6178	5864	1	9	11/4/03	7:36	10	120	38
ALPHA	U-19 10	5855	6178	5864	1	10	11/4/03	7:40	11	120	42
ALPHA	U-19 11	5855	6178	5864	1	11	11/4/03	7:43	10	120	38
ALPHA	U-19 12	5855	6178	5864	1	12	11/4/03	7:47	13	120	49
ALPHA	U-19 13	5855	6178	5864	1	13	11/4/03	7:51	12	120	46
ALPHA	U-19 14	5855	6178	5864	1	14	11/4/03	7:54	4	120	15
ALPHA	U-19 15	5855	6178	5864	1	15	11/4/03	7:58	7	120	27
ALPHA	U-19 16	5855	6178	5864	1	16	11/4/03	8:02	10	120	38
ALPHA	U-19 17	5855	6178	5864	1	17	11/4/03	8:05	11	120	42
ALPHA	U-19 18	5855	6178	5864	1	18	11/4/03	8:09	11	120	42
ALPHA	U-19 19	5855	6178	5864	1	19	11/4/03	8:13	15	120	57
ALPHA	U-19 20	5855	6178	5864	1	20	11/4/03	8:16	3	120	11
ALPHA	U-24 01	5855	6178	5864	1	21	11/4/03	8:50	10	120	38
ALPHA	U-24 02	5855	6178	5864	1	22	11/4/03	8:54	8	120	30
ALPHA	U-24 03	5855	6178	5864	1	23	11/4/03	8:57	5	120	19
ALPHA	U-24 04	5855	6178	5864	1	24	11/4/03	9:01	5	120	19
ALPHA	U-24 05	5855	6178	5864	1	25	11/4/03	9:05	10	120	38
ALPHA	U-24 06	5855	6178	5864	1	26	11/4/03	9:08	7	120	27
ALPHA	U-24 07	5855	6178	5864	1	27	11/4/03	9:12	4	120	15
ALPHA	U-24 08	5855	6178	5864	1	28	11/4/03	9:15	9	120	34
ALPHA	U-24 09	5855	6178	5864	1	29	11/4/03	9:19	14	120	53
ALPHA	U-24 10	5855	6178	5864	1	30	11/4/03	9:23	5	120	19
ALPHA	U-24 11	5855	6178	5864	1	31	11/4/03	9:26	10	120	38
ALPHA	U-24 12	5855	6178	5864	1	32	11/4/03	9:30	10	120	38
ALPHA	U-24 13	5855	6178	5864	1	33	11/4/03	9:34	4	120	15
ALPHA	U-24 14	5855	6178	5864	1	34	11/4/03	9:38	7	120	27

G-203083B

50-Building Characterization Survey Unit 19, 24, 26 and 27

RSDS# 03-TF-0291 RCT: DGH RCT: N/A

Alpha	43-68 BKG:	0	EFF:	0.2091	PROBE AREA:	126	cm^2	Surface Eff:	0.5	Detector # :
Beta	43-68 BKG:	0	EFF:	0.1793	PROBE AREA:	126	cm^2	Surface Eff:	0.5	Detector # :
Scan	43-37 BKG:	0	EFF:	0.2075	PROBE AREA:	584	cm^2	Surface Eff:	0.5	Detector # :

TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	U-24 15	5855	6178	5864	1	35	11/4/03	9:41	8	120	30
ALPHA	U-24 16	5855	6178	5864	1	36	11/4/03	9:45	6	120	23
ALPHA	U-24 17	5855	6178	5864	1	37	11/4/03	9:49	4	120	15
ALPHA	U-24 18	5855	6178	5864	1	38	11/4/03	9:53	4	120	15
ALPHA	U-24 19	5855	6178	5864	1	39	11/4/03	9:57	11	120	42
ALPHA	U-24 20	5855	6178	5864	1	40	11/4/03	10:00	8	120	30
ALPHA	U-26 01	5855	6178	5864	1	41	11/4/03	10:05	11	120	42
ALPHA	U-26 02	5855	6178	5864	1	42	11/4/03	10:09	6	120	23
ALPHA	U-26 03	5855	6178	5864	1	43	11/4/03	10:13	7	120	27
ALPHA	U-26 04	5855	6178	5864	1	44	11/4/03	10:16	5	120	19
ALPHA	U-26 05	5855	6178	5864	1	45	11/4/03	10:20	5	120	19
ALPHA	U-26 06	5855	6178	5864	1	46	11/4/03	10:24	6	120	23
ALPHA	U-26 07	5855	6178	5864	1	47	11/4/03	10:27	8	120	30
ALPHA	U-26 08	5855	6178	5864	1	48	11/4/03	10:31	9	120	34
ALPHA	U-26 09	5855	6178	5864	1	49	11/4/03	10:35	3	120	11
ALPHA	U-26 10	5855	6178	5864	1	50	11/4/03	10:39	3	120	11
ALPHA	U-26 11	5855	6178	5864	1	51	11/4/03	10:42	14	120	53
ALPHA	U-26 12	5855	6178	5864	1	52	11/4/03	10:46	3	120	11
ALPHA	U-26 13	5855	6178	5864	1	53	11/4/03	12:34	7	120	27
ALPHA	U-26 14	5855	6178	5864	1	54	11/4/03	12:37	7	120	27
ALPHA	U-26 15	5855	6178	5864	1	55	11/4/03	12:41	8	120	30
ALPHA	U-26 16	5855	6178	5864	1	56	11/4/03	12:45	2	120	8
ALPHA	U-26 17	5855	6178	5864	1	57	11/4/03	12:49	8	120	30
ALPHA	U-26 18	5855	6178	5864	1	58	11/4/03	12:53	5	120	19
ALPHA	U-26 19	5855	6178	5864	1	59	11/4/03	12:57	5	120	19
ALPHA	U-26 20	5855	6178	5864	1	60	11/4/03	13:01	9	120	34
ALPHA	U-27 01	5855	6178	5864	1	61	11/4/03	13:11	7	120	27
ALPHA	U-27 02	5855	6178	5864	1	62	11/4/03	13:14	4	120	15
ALPHA	U-27 03	5855	6178	5864	1	63	11/4/03	13:18	10	120	38
ALPHA	U-27 04	5855	6178	5864	1	64	11/4/03	13:22	11	120	42
ALPHA	U-27 05	5855	6178	5864	1	65	11/4/03	13:26	7	120	27
ALPHA	U-27 06	5855	6178	5864	1	66	11/4/03	13:29	10	120	38
ALPHA	U-27 07	5855	6178	5864	1	67	11/4/03	13:33	14	120	53
ALPHA	U-27 08	5855	6178	5864	1	68	11/4/03	13:36	5	120	19
ALPHA	U-27 09	5855	6178	5864	1	69	11/4/03	13:40	13	120	49
ALPHA	U-27 10	5855	6178	5864	1	70	11/4/03	13:44	11	120	42
ALPHA	U-27 11	5855	6178	5864	1	71	11/4/03	13:48	6	120	23
ALPHA	U-27 12	5855	6178	5864	1	72	11/4/03	13:51	9	120	34
ALPHA	U-27 13	5855	6178	5864	1	73	11/4/03	13:55	9	120	34
ALPHA	U-27 14	5855	6178	5864	1	74	11/4/03	13:59	4	120	15

 G204076313

50-Building Characterization Survey Unit 19, 24, 26 and 27

RSDS# 03-TF-0291 RCT: DGH RCT: N/A

Alpha	43-68 BKG:	0	EFF:	0.2091	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1793	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.2075	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	U-27 15	5855	6178	5864	1	75	11/4/03	14:02	10	120	38
ALPHA	U-27 16	5855	6178	5864	1	76	11/4/03	14:06	6	120	23
ALPHA	U-27 17	5855	6178	5864	1	77	11/4/03	14:10	14	120	53
ALPHA	U-27 18	5855	6178	5864	1	78	11/4/03	14:13	11	120	42
ALPHA	U-27 19	5855	6178	5864	1	79	11/4/03	14:17	14	120	53
ALPHA	U-27 20	5855	6178	5864	1	80	11/4/03	14:21	12	120	46
BETA	SRC BKG	5855	6178	5864	2		11/4/03	6:38	698	300	1236
BETA	SRC CHECK	5855	6178	5864	2		11/4/03	6:40	2483	60	21981
BETA	SRC CHECK	5855	6178	5864	2		11/4/03	6:41	2628	60	23265
BETA	SRC CHECK	5855	6178	5864	2		11/4/03	6:44	2445	60	21645
BETA	SRC CHECK	5855	6178	5864	2		11/4/03	6:45	2327	60	20600
BETA	U-19 01	5855	6178	5864	2	1	11/4/03	7:07	119	60	1053
BETA	U-19 02	5855	6178	5864	2	2	11/4/03	7:12	137	60	1213
BETA	U-19 03	5855	6178	5864	2	3	11/4/03	7:15	128	60	1133
BETA	U-19 04	5855	6178	5864	2	4	11/4/03	7:19	127	60	1124
BETA	U-19 05	5855	6178	5864	2	5	11/4/03	7:22	137	60	1213
BETA	U-19 06	5855	6178	5864	2	6	11/4/03	7:26	152	60	1346
BETA	U-19 07	5855	6178	5864	2	7	11/4/03	7:30	151	60	1337
BETA	U-19 08	5855	6178	5864	2	8	11/4/03	7:33	130	60	1151
BETA	U-19 09	5855	6178	5864	2	9	11/4/03	7:37	142	60	1257
BETA	U-19 10	5855	6178	5864	2	10	11/4/03	7:41	118	60	1045
BETA	U-19 11	5855	6178	5864	2	11	11/4/03	7:44	140	60	1239
BETA	U-19 12	5855	6178	5864	2	12	11/4/03	7:48	142	60	1257
BETA	U-19 13	5855	6178	5864	2	13	11/4/03	7:52	153	60	1354
BETA	U-19 14	5855	6178	5864	2	14	11/4/03	7:56	128	60	1133
BETA	U-19 15	5855	6178	5864	2	15	11/4/03	7:59	135	60	1195
BETA	U-19 16	5855	6178	5864	2	16	11/4/03	8:03	164	60	1452
BETA	U-19 17	5855	6178	5864	2	17	11/4/03	8:06	132	60	1169
BETA	U-19 18	5855	6178	5864	2	18	11/4/03	8:10	112	60	992
BETA	U-19 19	5855	6178	5864	2	19	11/4/03	8:14	153	60	1354
BETA	U-19 20	5855	6178	5864	2	20	11/4/03	8:17	125	60	1107
BETA	U-24 01	5855	6178	5864	2	21	11/4/03	8:51	131	60	1160
BETA	U-24 02	5855	6178	5864	2	22	11/4/03	8:55	156	60	1381
BETA	U-24 03	5855	6178	5864	2	23	11/4/03	8:58	139	60	1231
BETA	U-24 04	5855	6178	5864	2	24	11/4/03	9:02	119	60	1053
BETA	U-24 05	5855	6178	5864	2	25	11/4/03	9:06	120	60	1062
BETA	U-24 06	5855	6178	5864	2	26	11/4/03	9:09	133	60	1177
BETA	U-24 07	5855	6178	5864	2	27	11/4/03	9:13	129	60	1142
BETA	U-24 08	5855	6178	5864	2	28	11/4/03	9:16	133	60	1177

 G20506 313

50-Building Characterization Survey Unit 19, 24, 26 and 27

RSDS# 03-TF-0291 RCT: DGH RCT: N/A

Alpha	43-68 BKG:	0	EFF:	0.2091	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Beta	43-68 BKG:	0	EFF:	0.1793	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Scan	43-37 BKG:	0	EFF:	0.2075	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # :
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
BETA	U-24 09	5855	6178	5864	2	29	11/4/03	9:20	130	60	1151
BETA	U-24 10	5855	6178	5864	2	30	11/4/03	9:24	117	60	1036
BETA	U-24 11	5855	6178	5864	2	31	11/4/03	9:28	137	60	1213
BETA	U-24 12	5855	6178	5864	2	32	11/4/03	9:31	128	60	1133
BETA	U-24 13	5855	6178	5864	2	33	11/4/03	9:35	123	60	1089
BETA	U-24 14	5855	6178	5864	2	34	11/4/03	9:39	129	60	1142
BETA	U-24 15	5855	6178	5864	2	35	11/4/03	9:42	150	60	1328
BETA	U-24 16	5855	6178	5864	2	36	11/4/03	9:46	134	60	1186
BETA	U-24 17	5855	6178	5864	2	37	11/4/03	9:50	124	60	1098
BETA	U-24 18	5855	6178	5864	2	38	11/4/03	9:54	139	60	1231
BETA	U-24 19	5855	6178	5864	2	39	11/4/03	9:58	123	60	1089
BETA	U-24 20	5855	6178	5864	2	40	11/4/03	10:02	148	60	1310
BETA	U-26 01	5855	6178	5864	2	41	11/4/03	10:06	111	60	983
BETA	U-26 02	5855	6178	5864	2	42	11/4/03	10:10	133	60	1177
BETA	U-26 03	5855	6178	5864	2	43	11/4/03	10:14	139	60	1231
BETA	U-26 04	5855	6178	5864	2	44	11/4/03	10:17	130	60	1151
BETA	U-26 05	5855	6178	5864	2	45	11/4/03	10:21	120	60	1062
BETA	U-26 06	5855	6178	5864	2	46	11/4/03	10:25	123	60	1089
BETA	U-26 07	5855	6178	5864	2	47	11/4/03	10:28	133	60	1177
BETA	U-26 08	5855	6178	5864	2	48	11/4/03	10:32	123	60	1089
BETA	U-26 09	5855	6178	5864	2	49	11/4/03	10:36	138	60	1222
BETA	U-26 10	5855	6178	5864	2	50	11/4/03	10:40	108	60	956
BETA	U-26 11	5855	6178	5864	2	51	11/4/03	10:44	138	60	1222
BETA	U-26 12	5855	6178	5864	2	52	11/4/03	10:47	149	60	1319
BETA	U-26 13	5855	6178	5864	2	53	11/4/03	12:35	147	60	1301
BETA	U-26 14	5855	6178	5864	2	54	11/4/03	12:39	129	60	1142
BETA	U-26 15	5855	6178	5864	2	55	11/4/03	12:42	140	60	1239
BETA	U-26 16	5855	6178	5864	2	56	11/4/03	12:46	151	60	1337
BETA	U-26 17	5855	6178	5864	2	57	11/4/03	12:50	146	60	1293
BETA	U-26 18	5855	6178	5864	2	58	11/4/03	12:54	131	60	1160
BETA	U-26 19	5855	6178	5864	2	59	11/4/03	12:58	137	60	1213
BETA	U-26 20	5855	6178	5864	2	60	11/4/03	13:02	132	60	1169
BETA	U-27 01	5855	6178	5864	2	61	11/4/03	13:12	172	60	1523
BETA	U-27 02	5855	6178	5864	2	62	11/4/03	13:16	169	60	1496
BETA	U-27 03	5855	6178	5864	2	63	11/4/03	13:20	192	60	1700
BETA	U-27 04	5855	6178	5864	2	64	11/4/03	13:23	164	60	1452
BETA	U-27 05	5855	6178	5864	2	65	11/4/03	13:27	177	60	1567
BETA	U-27 06	5855	6178	5864	2	66	11/4/03	13:30	169	60	1496
BETA	U-27 07	5855	6178	5864	2	67	11/4/03	13:34	173	60	1532
BETA	U-27 08	5855	6178	5864	2	68	11/4/03	13:38	151	60	1337

 G20606313

50-Building Characterization Survey Unit 19, 24, 26 and 27

RSDS# 03-TF-0291 RCT: DJH RCT: N/A

Alpha	43-68 BKG:	0	EFF:	0.2091	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1793	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.2075	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
BETA	U-27 09	5855	6178	5864	2	69	11/4/03	13:41	175	60	1549
BETA	U-27 10	5855	6178	5864	2	70	11/4/03	13:45	128	60	1133
BETA	U-27 11	5855	6178	5864	2	71	11/4/03	13:49	160	60	1416
BETA	U-27 12	5855	6178	5864	2	72	11/4/03	13:52	168	60	1487
BETA	U-27 13	5855	6178	5864	2	73	11/4/03	13:56	134	60	1186
BETA	U-27 14	5855	6178	5864	2	74	11/4/03	14:00	151	60	1337
BETA	U-27 15	5855	6178	5864	2	75	11/4/03	14:03	141	60	1248
BETA	U-27 16	5855	6178	5864	2	76	11/4/03	14:07	177	60	1567
BETA	U-27 17	5855	6178	5864	2	77	11/4/03	14:11	195	60	1726
BETA	U-27 18	5855	6178	5864	2	78	11/4/03	14:14	169	60	1496
BETA	U-27 19	5855	6178	5864	2	79	11/4/03	14:18	177	60	1567
BETA	U-27 20	5855	6178	5864	2	80	11/4/03	14:22	195	60	1726

G 20706 313

Alpha/Beta Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR032
Batch Ended: 11/4/2003 16:53
Recalibration Date: 3/24/2005
Serial Number: 64575

Batch ID: 03-TF-0291 HARVEY A/B (80) AG

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	s	flags	DPM	s	flags
A1	1	0.0	1.9		0.0	1.2	
A2	2	0.0	1.9		2.1	2.4	
A3	3	0.0	1.9		0.0	1.7	
A4	4	0.0	1.9		0.9	1.6	
B1	5	0.0	2.0		0.3	2.6	
B2	6	1.9	2.1		0.0	1.3	
B3	7	1.7	2.0		0.0	1.3	
B4	8	0.0	2.0		0.2	1.8	
C1	9	0.0	2.0		0.0	1.2	
C2	10	1.8	1.9		0.0	1.2	
C3	11	0.0	1.9		2.9	2.4	
C4	12	0.0	1.8		1.6	2.0	
D1	13	0.0	2.0		0.8	1.8	
D2	14	0.0	2.1		1.1	1.7	
D3	15	0.0	2.0		4.8	2.7	
D4	16	0.0	2.0		2.0	2.1	
A1	17	1.7	1.9		0.0	1.2	
A2	18	0.0	1.9		2.1	2.4	
A3	19	0.0	1.9		2.0	2.4	
A4	20	0.0	1.9		0.0	1.2	
B1	21	0.0	2.0		4.2	3.4	
B2	22	0.0	2.1		0.5	1.8	
B3	23	0.0	2.0		0.0	1.3	
B4	24	0.0	2.0		2.7	2.5	
C1	25	0.0	2.0		2.8	2.4	
C2	26	0.0	1.9		0.0	1.2	
C3	27	0.0	1.9		1.7	2.1	
C4	28	1.6	1.8		0.0	1.2	
D1	29	0.0	2.0		0.0	1.3	
D2	30	0.0	2.1		0.0	1.2	
D3	31	0.0	2.0		1.1	1.7	

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11-7-03

Alpha/Beta Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR032
Batch Ended: 11/4/2003 16:53
Recalibration Date: 3/24/2005
Serial Number: 64575

Batch ID: 03-TF-0291 HARVEY A/B (80) AG

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity s	Alpha Activity flags	Beta Activity DPM	Beta Activity s	Beta Activity flags
D4	32	0.0	2.0		0.8	1.7	
A1	33	0.0	1.9		2.0	2.1	
A2	34	0.0	1.9		2.1	2.4	
A3	35	0.0	1.9		0.9	2.1	
A4	36	0.0	1.9		3.2	2.3	
B1	37	0.0	2.0		1.6	2.9	
B2	38	0.0	2.1		0.5	1.8	
B3	39	0.0	2.0		0.0	1.3	
B4	40	0.0	1.9		0.0	1.3	
C1	41	0.0	2.0		0.4	1.7	
C2	42	1.8	2.0		1.6	2.1	
C3	43	0.0	1.9		0.0	1.2	
C4	44	0.0	1.8		2.8	2.3	
D1	45	0.0	2.1		2.0	2.2	
D2	46	1.8	2.1		0.9	1.7	
D3	47	0.0	2.0		1.1	1.7	
D4	48	0.0	2.0		2.0	2.1	
A1	49	0.0	1.9		2.0	2.1	
A2	50	0.0	1.9		2.1	2.4	
A3	51	0.0	1.8		0.0	1.2	
A4	52	0.0	1.9		0.0	1.2	
B1	53	0.0	2.0		0.0	2.3	
B2	54	0.0	2.1		0.0	1.3	
B3	55	0.0	2.0		0.0	1.3	
B4	56	0.0	1.9		0.0	1.3	
C1	57	0.0	2.0		0.0	1.2	
C2	58	0.0	2.0		2.9	2.4	
C3	59	0.0	1.9		4.1	2.7	
C4	60	0.0	1.8		1.6	2.0	
D1	61	1.7	2.0		0.6	1.8	
D2	62	0.0	2.1		1.1	1.7	
D3	63	0.0	2.0		6.0	3.0	
D4	64	0.0	2.0		0.0	1.2	

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DQ# 11-7-03

G20908 313

Alpha/Beta Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR032
Batch Ended: 11/4/2003 16:53
Recalibration Date: 3/24/2005
Serial Number: 64575

Batch ID: 03-TF-0291 HARVEY A/B (80) AG

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	s	flags	DPM	s	flags
A1	65	0.0	1.9		3.3	2.5	
A2	66	0.0	1.9		2.1	2.4	
A3	67	0.0	1.8		0.0	1.2	
A4	68	0.0	1.9		0.0	1.2	
B1	69	0.0	2.0		0.0	2.3	
B2	70	0.0	2.2		1.8	2.2	
B3	71	0.0	2.0		2.5	2.8	
B4	72	0.0	1.9		0.0	1.3	
C1	73	0.0	2.0		0.4	1.7	
C2	74	0.0	2.0		4.1	2.6	
C3	75	0.0	1.9		0.0	1.2	
C4	76	1.6	1.8		0.0	1.2	
D1	77	0.0	2.0		0.0	1.3	
D2	78	0.0	2.1		0.0	1.2	
D3	79	0.0	2.0		1.1	1.7	
D4	80	0.0	2.0		2.0	2.1	

DJH DJH

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DJH

Protocol #: 1 Name:pW h3 101068 05-Nov-2003 18:51
Region A: LL-UL= 0.5-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region B: LL-UL= 2.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region C: ~~LL-UL=40.0-2000~~ Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Time = 2.00 QIP = tSIE/AEC ES Terminator = Count
HARVEY 03-TF-0291 1-80 JC
~~Conventional DPM~~
Nuclide 1 = 206704
Luminescence Correction On

S#	TIME	LUM	FLAG	CPMA	CPMB	CPMC	tSIE	DPM1	2Sigma
-1	10.00	10	B	17.80	15.10	5.60	550.		0.00
0	2.00	0		190.20	181.90	0.00	477.	395.31	52.74
1	2.00	13		0.00	0.00	0.00	553.	0.00	0.00
2	2.00	0		0.00	0.00	0.00	569.	0.00	0.00
3	2.00	16		0.00	0.00	0.00	581.	0.00	0.00
4	2.00	11		0.00	0.00	0.00	526.	0.00	0.00
5	2.00	0		0.00	0.00	0.00	566.	0.00	0.00
6	2.00	20		0.00	0.00	0.00	504.	0.00	0.00
7	2.00	0		0.00	0.00	0.00	562.	0.00	0.00
8	2.00	16		0.00	0.00	0.00	551.	0.00	0.00
9	2.00	24		0.00	0.00	0.00	498.	0.00	0.00
10	2.00	23		0.00	0.00	1.90	521.	0.00	0.00
11	2.00	0		0.00	0.00	0.00	577.	0.00	0.00
12	2.00	9		0.00	0.00	0.00	572.	0.00	0.00
13	2.00	20		0.00	0.00	0.40	564.	0.00	0.00
14	2.00	8		0.00	0.00	0.00	554.	0.00	0.00
15	2.00	7		0.00	0.00	0.40	553.	0.00	0.00
16	2.00	0		0.00	0.00	0.00	560.	0.00	0.00
17	2.00	22		0.00	0.00	0.00	535.	0.00	0.00
18	2.00	0		0.00	0.00	0.00	440.	0.00	0.00
19	2.00	6		0.00	0.00	0.90	543.	0.00	0.00
20	2.00	0		0.00	0.00	0.00	583.	0.00	0.00
21	2.00	10		0.00	0.00	0.00	553.	0.00	0.00
22	2.00	0		0.00	0.00	1.40	539.	0.00	0.00
23	2.00	0		0.00	0.00	0.00	607.	0.00	0.00
24	2.00	15		0.00	0.00	0.00	574.	0.00	0.00
25	2.00	23		0.00	0.00	0.00	608.	0.00	0.00
26	2.00	5		0.00	0.00	0.00	596.	0.00	0.00
27	2.00	0		0.00	0.00	0.00	575.	0.00	0.00
28	2.00	0		0.00	0.00	0.00	598.	0.00	0.00
29	2.00	0		0.00	0.00	0.40	575.	0.00	0.00
30	2.00	6		0.00	0.00	0.00	597.	0.00	0.00
31	2.00	0		0.00	0.00	0.00	587.	0.00	0.00
32	2.00	20		0.00	0.00	1.90	513.	0.00	0.00
33	2.00	12		0.00	0.00	0.00	575.	0.00	0.00
34	2.00	16		0.00	0.00	0.00	589.	0.00	0.00
35	2.00	0		0.00	0.00	0.00	570.	0.00	0.00
36	2.00	0		0.00	0.00	0.00	596.	0.00	0.00
37	2.00	0		0.00	0.00	0.00	575.	0.00	0.00
38	2.00	11		0.00	0.00	0.00	600.	0.00	0.00
39	2.00	9		0.00	0.00	0.00	557.	0.00	0.00
40	2.00	2		5.20	3.90	0.00	565.	9.83	15.27
41	2.00	19		0.00	0.00	0.00	541.	0.00	0.00
42	2.00	0		0.00	0.00	0.40	564.	0.00	0.00
43	2.00	0		0.00	0.00	4.40	481.	0.00	0.00
44	2.00	12		0.00	0.00	0.00	597.	0.00	0.00

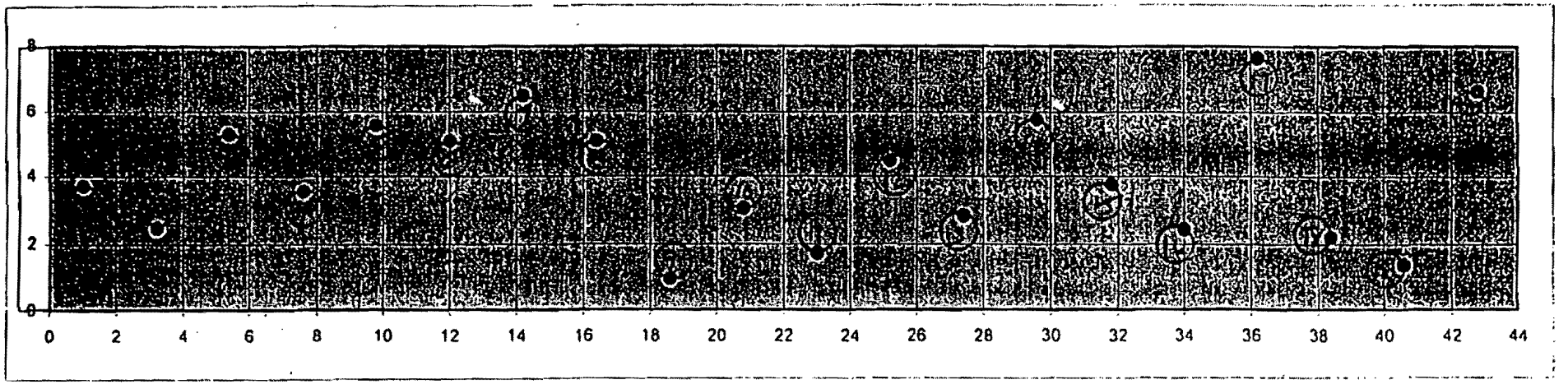
DJH

S#	TIME	LUM	FLAG	CPMA	CPMB	CPMC	tSIE	DPM1	2Sigma
45	2.00	0		0.00	0.00	0.00	578.	0.00	0.00
46	2.00	0		0.00	0.00	0.00	563.	0.00	0.00
47	2.00	8		0.00	0.00	0.90	523.	0.00	0.00
48	2.00	0		0.00	0.00	0.00	597.	0.00	0.00
49	2.00	8		0.00	0.00	0.00	548.	0.00	0.00
50	2.00	0		0.00	0.00	0.40	553.	0.00	0.00
51	2.00	27		0.00	0.00	0.00	552.	0.00	0.00
52	2.00	13		0.00	0.00	0.40	429.	0.00	0.00
53	2.00	10		0.00	0.00	0.00	521.	0.00	0.00
54	2.00	7		0.00	0.00	0.00	512.	0.00	0.00
55	2.00	0		0.00	0.00	0.00	562.	0.00	0.00
56	2.00	20		0.00	0.00	0.00	588.	0.00	0.00
57	2.00	9		0.00	0.00	0.00	536.	0.00	0.00
58	2.00	37		0.00	0.00	0.00	541.	0.00	0.00
59	2.00	11		0.00	0.00	0.00	542.	0.00	0.00
60	2.00	44		0.00	0.00	0.00	584.	0.00	0.00
61	2.00	0		0.00	0.00	0.40	464.	0.00	0.00
62	2.00	0		0.00	0.00	0.00	453.	0.00	0.00
63	2.00	12		0.00	0.00	0.00	503.	0.00	0.00
64	2.00	0		0.00	0.00	0.00	432.	0.00	0.00
65	2.00	0		0.00	0.00	0.00	325.	0.00	0.00
66	2.00	12		0.00	0.00	0.40	422.	0.00	0.00
67	2.00	24		0.00	0.00	0.00	436.	0.00	0.00
68	2.00	12		0.00	0.00	0.00	471.	0.00	0.00
69	2.00	45		0.00	0.00	0.00	503.	0.00	0.00
70	2.00	0		0.00	0.00	0.00	495.	0.00	0.00
71	2.00	17		0.00	0.00	2.40	392.	0.00	0.00
72	2.00	30		0.00	0.00	0.00	464.	0.00	0.00
73	2.00	24		0.00	0.00	2.40	465.	0.00	0.00
74	2.00	9		0.00	0.00	0.00	544.	0.00	0.00
75	2.00	0		0.00	0.00	0.00	460.	0.00	0.00
76	2.00	19		0.00	0.00	0.00	438.	0.00	0.00
77	2.00	12		0.00	0.00	0.00	441.	0.00	0.00
78	2.00	0		0.00	0.00	0.00	424.	0.00	0.00
79	2.00	0		0.00	0.00	0.00	496.	0.00	0.00
80	2.00	15		0.00	0.00	0.00	495.	0.00	0.00

D9A

03-TF-0291

G 212 of 313



L = 44ft
W = 8ft

Room 110 Walls
SU 19 Coordinates

	X	Y
1	1	3.690085
2	3.2	2.452257
3	5.4	5.310441
4	7.6	3.528346
5	9.8	5.581042
6	12	5.102211
7	14.2	6.501518
8	16.4	5.095943
9	18.6	0.951566
10	20.8	3.018841
11	23	1.72801
12	25.2	4.472164
13	27.4	2.809904
14	29.6	5.75441
15	31.8	3.747145
16	34	2.403619
17	36.2	7.635119
18	38.4	2.191192
19	40.6	1.384479
20	42.8	6.656145

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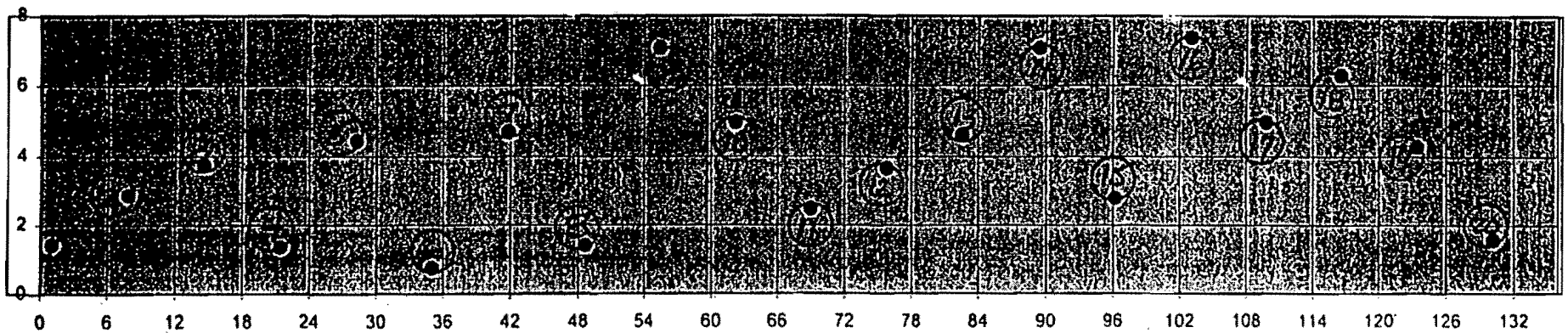
H 11-7-03



L = 136ft
W = 8ft

Room 114A Walls
SU 24 Coordinates

	X	Y
1	1	1.424168
2	7.8	2.844724
3	14.6	3.723416
4	21.4	1.357371
5	28.2	4.434484
6	35	0.755422
7	41.8	4.689513
8	48.6	1.40244
9	55.4	7.054603
10	62.2	4.949474
11	69	2.474082
12	75.8	3.650433
13	82.6	4.594784
14	89.4	7.060086
15	96.2	2.798662
16	103	7.347853
17	109.8	4.952304
18	116.6	6.263575
19	123.4	4.258618
20	130.2	1.58026

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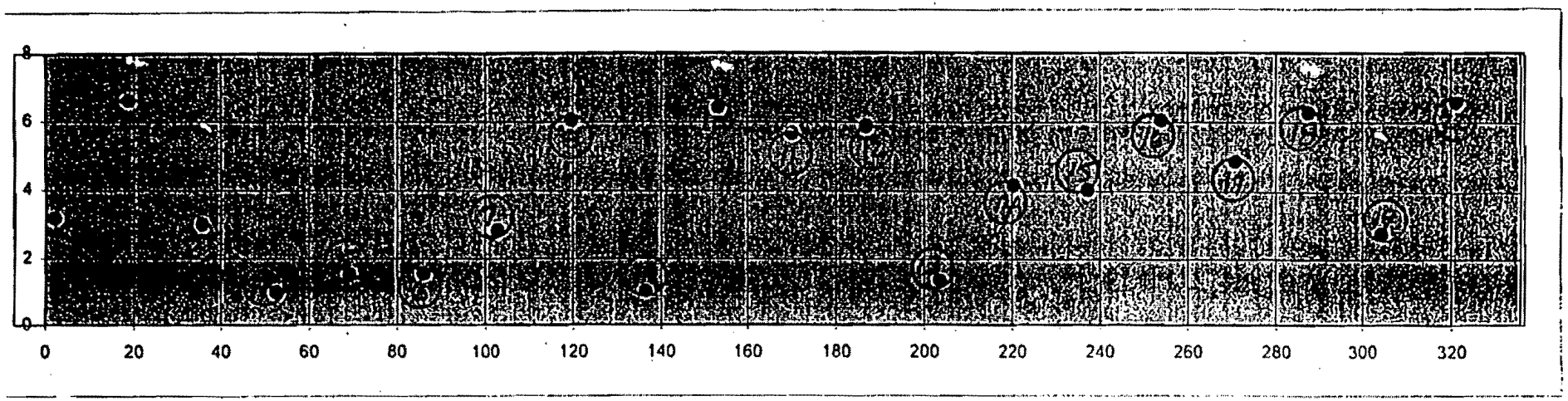
03-TF-0291



L = 336ft
W = 8ft

Room 118 Walls
SU 26 Coordinates

	X	Y
1	2	3.181144
2	18.8	6.615347
3	35.6	3.011433
4	52.4	0.969334
5	69.2	1.524064
6	86	1.525827
7	102.8	2.839259
8	119.6	6.050637
9	136.4	0.99753
10	153.2	6.43641
11	170	5.673984
12	186.8	5.888571
13	203.6	1.34757
14	220.4	4.17171
15	237.2	4.051356
16	254	6.056734
17	270.8	4.870847
18	287.6	6.278086
19	304.4	2.777406
20	321.2	6.598258

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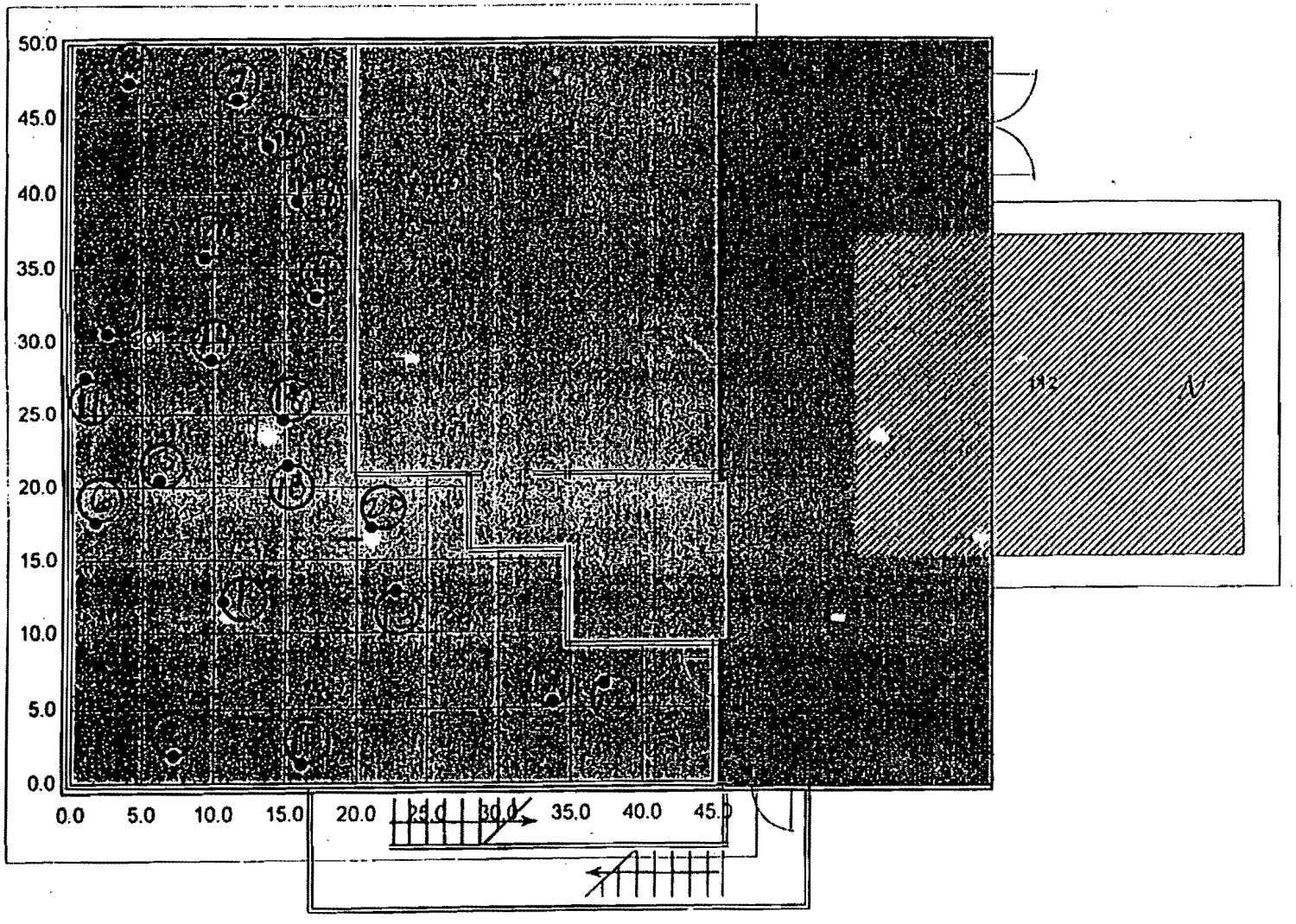
DJH 11-7-03



	Room 201	
	SU 27 Coordinates	
	X	Y
	45	50
1	10.6	12.2
2	7.2	1.9
3	6.2	20.5
4	17.2	33.0
5	2.6	30.5
6	1.7	17.5
7	11.7	46.2
8	13.8	43.1
9	4.1	47.3
10	15.2	21.4
11	1.0	27.5
12	37.3	6.6
13	22.8	12.9
14	9.9	28.7
15	14.9	24.6
16	16.1	1.3
17	9.4	35.7
18	15.9	39.5
19	33.8	5.4
20	21.0	17.2

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03-TF-0291

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) BUILDING 50	SURVEY NO. 03-TF-029R
PURPOSE: MARSSIM SURVEY PLAN 50-01 DRAINS	RWP NO. N/A
	DATE: 11-6-03
	TIME: 0900

MAP/DRAWING

COPY

SEE ATTACHED MAPS AND RESULTS

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

INSTRUMENTS USED

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

[redacted]

HP # 5760	Date: 11-6-03
HP # 5760	Date: 11-17-03
HP # 608	Date: 11-17-03

(Counted by: Print Name) [redacted]

Review [redacted]

ML-9620 (2-98) 62176 313

Survey No. RSDS 03-TF-0292

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-30	SEE	ATTACHED		DRAINS
		N/A		

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

COMMENTS:

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

ML-9620A (4-98)

Alpha/Beta Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR000
Batch Ended: 11/5/2003 7:51
Recalibration Date: 3/24/2005
Serial Number: 64575

Batch ID: HARVEY 03-TF-0292 [30] JC

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	s	flags	DPM	s	flags
A1	1	1.7	1.9		3.1	2.5	
A2	2	0.0	1.9		0.0	1.7	
A3	3	1.6	1.8		0.0	1.2	
A4	4	0.0	1.9		2.0	2.0	
B1	5	0.0	2.1		5.5	3.7	
B2	6	0.0	2.1		0.5	1.8	
B3	7	0.0	2.0		0.0	1.8	
B4	8	0.0	1.9		0.0	1.3	
C1	9	0.0	2.0		0.0	1.2	
C2	10	0.0	1.9		0.0	1.2	
C3	11	0.0	1.9		0.0	1.2	
C4	12	0.0	1.8		2.8	2.3	
D1	13	0.0	2.0		0.0	1.3	
D2	14	0.0	2.1		0.0	1.2	
D3	15	0.0	2.0		0.0	1.2	
D4	16	0.0	2.0		3.2	2.4	
A1	17	1.7	1.9		3.1	2.5	
A2	18	0.0	1.9		0.9	2.1	
A3	19	0.0	1.9		2.0	2.4	
A4	20	0.0	1.9		0.9	1.6	
B1	21	0.0	2.0		0.0	2.3	
B2	22	0.0	2.1		0.0	1.3	
B3	23	0.0	2.0		0.0	1.8	
B4	24	0.0	1.9		0.0	1.3	
C1	25	0.0	2.0		0.4	1.7	
C2	26	1.8	2.0		1.6	2.1	
C3	27	0.0	1.9		0.6	1.7	
C4	28	0.0	1.8		0.5	1.6	
D1	29	0.0	2.0		0.0	1.3	
D2	30	0.0	2.1		0.0	1.2	

11-13-03

Allison Hibbs

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Protocol #: 1 Name:PW H3 #401388 05-Nov-2003 09:13
Region A: LL-UL= 0.5-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region B: LL-UL= 2.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region C: LL-UL=40.0-2000 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Time = 2.00 QIP = tSIE/AEC ES Terminator = Count
03-TF-0292 HARVEY (30) AG
Conventional DPM
Nuclide 1 = 207149
Luminescence Correction On
Data/Application Drive & Path = c:\data

SAMP	TIME	CPMA	CPMB	CPMC	FLAG	LUM	tSIE	DPM1	A:2S%
-1	10.00	18.42	17.59	6.00	B	7	556.		14.73
0	2.00	614.89	596.32	0.50		1	491.	1409.73	5.85
1	2.00	0.00	0.00	1.00		0	554.	0.00	0.00
2	2.00	0.00	0.00	0.00		0	526.	0.00	0.00
3	2.00	0.00	0.00	0.50		9	588.	0.00	0.00
4	2.00	0.00	0.00	0.00		0	614.	0.00	0.00
5	2.00	0.00	0.00	0.00		0	640.	0.00	0.00
6	2.00	0.00	0.00	2.50		6	573.	0.00	0.00
7	2.00	0.00	0.00	0.00		0	579.	0.00	0.00
8	2.00	0.00	0.00	0.50		0	580.	0.00	0.00
9	2.00	0.00	0.00	0.00		14	532.	0.00	0.00
10	2.00	0.00	0.00	0.00		0	543.	0.00	0.00
11	2.00	0.00	0.00	0.00		0	553.	0.00	0.00
12	2.00	0.00	0.00	0.00		0	603.	0.00	0.00
13	2.00	0.00	0.00	0.00		0	575.	0.00	0.00
14	2.00	0.00	0.00	0.00		14	527.	0.00	0.00
15	2.00	0.00	0.00	0.00		18	560.	0.00	0.00
16	2.00	0.00	0.00	0.00		12	411.	0.00	0.00
17	2.00	0.00	0.00	0.00		16	585.	0.00	0.00
18	2.00	0.00	0.00	0.00		14	595.	0.00	0.00
19	2.00	0.00	0.00	0.00		0	568.	0.00	0.00
20	2.00	0.00	0.00	0.00		0	587.	0.00	0.00
21	2.00	0.00	0.00	0.50		0	490.	0.00	0.00
22	2.00	0.00	0.00	0.00		47	624.	0.00	0.00
23	2.00	0.00	0.00	0.00		0	400.	0.00	0.00
24	2.00	0.00	0.00	0.00		8	539.	0.00	0.00
25	2.00	0.00	0.00	0.00		0	591.	0.00	0.00
26	2.00	0.00	0.00	0.00		0	568.	0.00	0.00
27	2.00	0.00	0.00	0.00		100	604.	0.00	0.00
28	2.00	0.00	0.00	0.00		0	598.	0.00	0.00
29	2.00	0.00	0.00	0.00		16	578.	0.00	0.00
30	2.00	0.00	0.00	0.00		18	506.	0.00	0.00

Albert Hibbs

50-BLDG CHARACTERIZATION ALPHA/BETA SURVEY DRAINS

RSDS# 03-TF-0292 RCT: [illegible] RCT: D/A

						BETA			ALPHA		
LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2	gross count	CT TIME	dpm/100cm2
1	5833	5760	5847	1		104	60	-40	2	60	8
2	5833	5760	5847	2		104	60	-40	2	60	8
3	5833	5760	5847	3		98	60	-70	3	60	16
4	5833	5760	5847	4		103	60	-45	4	60	24
5	5833	5760	5847	5		133	60	105	44	60	344
6	5833	5760	5847	6		150	60	190	8	60	56
7	5833	5760	5847	7		98	60	-70	1	60	0
8	5833	5760	5847	8		105	60	-35	1	60	0
9	5833	5760	5847	9		123	60	55	2	60	8
10	5833	5760	5847	10		120	60	40	1	60	0
11	5833	5760	5847	11		121	60	45	0	60	-8
12	5833	5760	5847	12		98	60	-70	2	60	8
13	5833	5760	5847	13		113	60	5	3	60	16
14	5833	5760	5847	14		124	60	60	3	60	16
15	5833	5760	5847	15		80	60	-160	1	60	0
16	5833	5760	5847	16		85	60	-135	4	60	24
17	5833	5760	5847	17		101	60	-55	3	60	16
18	5833	5760	5847	18		118	60	30	4	60	24
19	5833	5760	5847	19		84	60	-140	2	60	8
20	5833	5760	5847	20		110	60	-10	6	60	40
21	5833	5760	5847	21		99	60	-65	1	60	0
22	5833	5760	5847	22		170	60	290	7	60	48
23	5833	5760	5847	23		100	60	-60	1	60	0
24	5833	5760	5847	24		120	60	40	4	60	24
25	5833	5760	5847	25		127	60	75	7	60	48

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50-BLDG CHARACTERIZATION ALPHA/BETA SURVEY DRAINS

RSDS# 03-TF-0292 RCT: [illegible] RCT: _____

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2	gross count	CT TIME	dpm/100cm2
26	5833	5760	5847	26		129	60	85	4	60	24
27	5833	5760	5847	27		106	60	-30	3	60	16
28	5833	5760	5847	28		110	60	-10	1	60	0
29	5833	5760	5847	29		100	60	-60	3	60	16
30	5833	5760	5847	30		120	60	40	4	60	24
BETA BACKGROUND FOR 11-05-2003 WAS---------->								112			
ALPHA BACKGROUND FOR 11-05-2003 WAS---------->								1			

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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
50-01-001	10-21-03			BLDG. 50 SUMP H_2O	SR	10-23-03	0845	SR	MJA
50-01-002	11-04-03			DRAIN GRATE 50-129	SR	11/04/03	1600	SR	LP.
50-01-									
50-01-									
50-01-									
50-01-									
50-01-									
50-01-									
50-01-									
50-01-									
50-01-									
50-01-									
50-01-									

N/A

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03-TF-0292 FAR

BWXT of Ohio, Inc.

ANALYTICAL SERVICES REQUEST FOR ANALYSIS

DATE SUBMITTED:	SAMPLE TYPE:	COLLECTED BY:	NUMBER OF SAMPLES
10-23-03	H_2O	D.K. Riley	1
PROJECT/FUNCTION:	**PRIMARY CONTACT/PHONE NO.:**		**MAIL STOP:**
BOSS	D.K. Riley 865-4235		Bldg. 102
CHARGE NUMBER:	**DATE(S) COLLECTED:**	**RSDS# (if applicable):**	**ATTACHMENTS (list):**
		03-TF-0292	

ANALYSES REQUESTED (check):

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

ADDITIONAL INFORMATION:

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

LAB IDENTIFICATION	SAMPLE LOCATION	SAMPLE NUMBER	RESULTS
030 9797	Bldg. 50 Sump	5001-001	<0.6 DPM/mL ALPHA

COMMENTS:

ANALYZED BY:	DATE:
Martha Anderson	10/23/03

ML-5222 (1-01)

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G22408 313

BWXT of Ohio, Inc.

ANALYTICAL SERVICES REQUEST FOR ANALYSIS

DATE SUBMITTED:	SAMPLE TYPE:	COLLECTED BY:	NUMBER OF SAMPLES
11-4-03	METAL ISOTOPIC	H REYNOLDS	1
PROJECT/FUNCTION:	**PRIMARY CONTACT/PHONE NO.:**		**MAIL STOP:**
BOSS	H. REYNOLDS 3320		

CHARGE NUMBER:	DATE(S) COLLECTED:	RSDS# (if applicable):	ATTACHMENTS (list):
	11-4-03	03-TF-0292	N/A

ANALYSES REQUESTED (check):

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

ADDITIONAL INFORMATION:

DRAIN COVER FROM 50-129 (MAP LOCATION #5)

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

LAB IDENTIFICATION	SAMPLE LOCATION	SAMPLE NUMBER	RESULTS
0310051	BLDG 50	1	

COMMENTS:

ANALYZED BY:	DATE:
S.C. Hopkins	11-12-03

ML-5222 (1-01)

G22508 313

Laboratory ID#:	03010051
Project/function:	BOSS
Submitted:	Nov 4, 2003
Submitted by:	H. Reynolds
Point of Contact:	H. Reynolds x3320
RSDS#:	N/A
Date:	Nov 12, 2003

Lab ID	0310051		
Sample Location	Bldg 50 #1		
Isotope	dpm/sample	Uncertainty +/-	LDL
Pu-238	86.34	7.73	0.91
Pu-239/240	<LDL	<LDL	0.91
Th-232	198.52	17.37	0.26
Th-230	26.46	2.75	0.26
Th-228	224.88	19.61	1.14
Th-227	1.52	0.40	0.26

[redacted]

03-TF-0292

1585 12-12-03
HP # Date

5791 Nov 12, 2003
HP # Date

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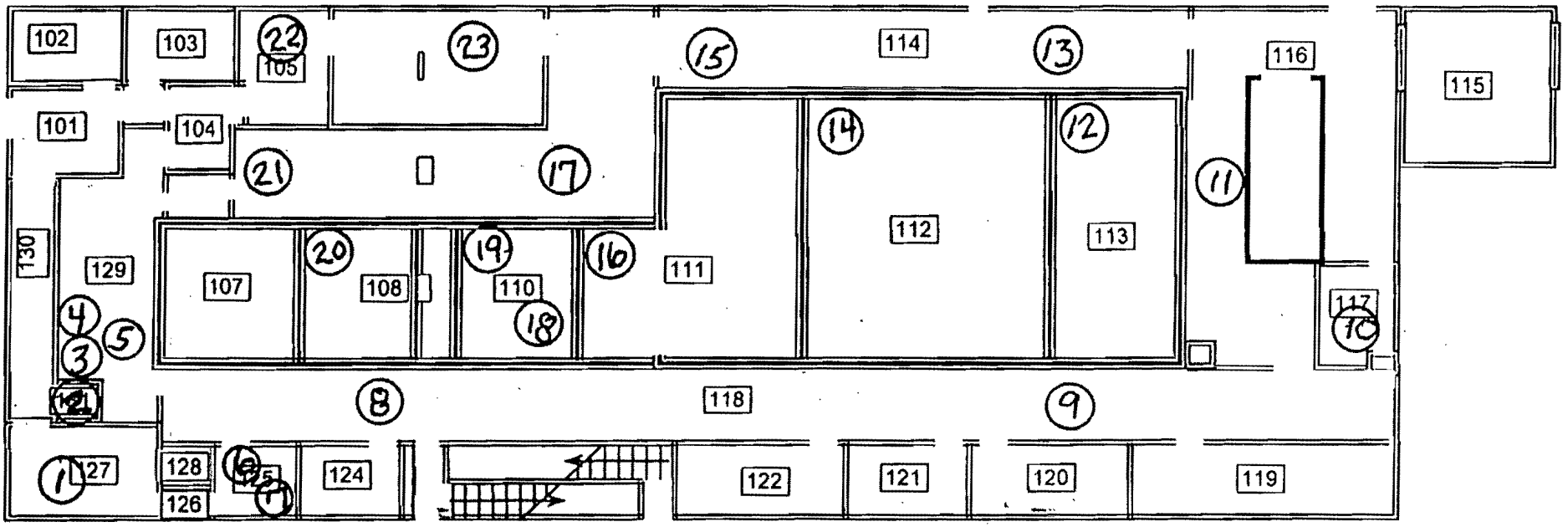
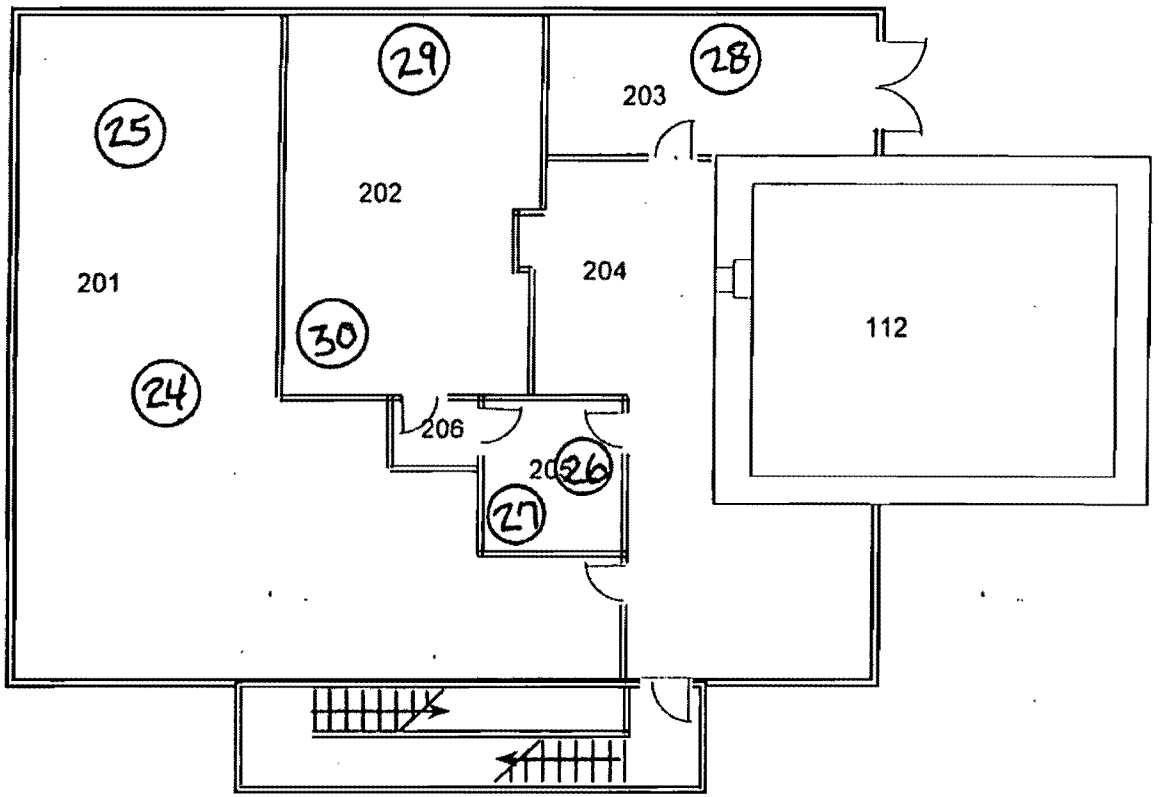


03-TF-0292 BLDG 50 DRAINS

FHR

SIE 2PCERD



G22f of 313

03-TF-0292 BLDG 50 DRAINS

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) BUILDING 50	SURVEY NO. 03-TF-0293
PURPOSE: MARSSIM SURVEY PLAN 50-01 UNITS 35, 34, 33 AND 30	RWP NO. N/A
	DATE: 11-05-03
	TIME: 1630

MAP/DRAWING

SEE ATTACHED DRAWINGS AND RESULTS

COPY

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350	5B57	09-09-04
2360	5B33/5B47	03-13-04
	N/A	

Co[redacted]	HP # 5214	Date: 11-07-03
Completed by: (Print Name) [redacted]		
Counted by: (Signature)	HP #	Date:
Counted by: (Print Name) [redacted] ATTACHED		
[redacted]	HP #: 6178	Date: 11-7-03
Reviewed: [redacted]		

ML-9620 (2-98)

Survey No. 03-TF-0293

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-20			RESULTS	UNITS 35
21-40				UNIT 34
41-60		ATTACHED		UNIT 33
61-80	SEE			UNIT 30
		N/A		

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

COMMENTS:

NOTES:

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

ML-9620A (4-98)

Alpha/Beta Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR012
Batch Ended: 11/5/2003 16:37
Recalibration Date: 3/24/2005
Serial Number: 64575

Batch ID: RILEY 03-TF-0293 [80] JC

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity s	Alpha Activity flags	Beta Activity DPM	Beta Activity s	Beta Activity flags
A1	1	0.0	1.9		0.8	1.7	
A2	2	0.0	1.9		2.1	2.4	
A3	3	0.0	1.9		0.9	2.1	
A4	4	0.0	1.9		0.9	1.6	
B1	5	0.0	2.0		2.9	3.2	
B2	6	1.9	2.2		1.7	2.2	
B3	7	1.7	2.0		0.0	1.3	
B4	8	0.0	1.9		0.0	1.3	
C1	9	0.0	2.0		0.4	1.7	
C2	10	1.8	2.0		1.6	2.1	
C3	11	0.0	1.9		0.0	1.2	
C4	12	1.6	1.8		0.0	1.2	
D1	13	0.0	2.0		0.0	1.3	
D2	14	1.8	2.2		5.8	3.0	
D3	15	0.0	2.0		1.1	1.7	
D4	16	0.0	2.0		2.0	2.1	
A1	17	0.0	1.9		0.8	1.7	
A2	18	0.0	1.9		0.0	1.2	
A3	19	0.0	1.9		0.0	1.7	
A4	20	0.0	1.9		2.0	2.0	
B1	21	0.0	2.0		0.0	1.3	
B2	22	0.0	2.1		0.0	1.3	
B3	23	0.0	2.0		0.0	1.8	
B4	24	1.6	2.0		0.1	1.8	
C1	25	0.0	2.0		0.0	1.2	
C2	26	0.0	1.9		0.0	1.2	
C3	27	0.0	1.9		0.0	1.2	
C4	28	0.0	1.8		0.0	1.2	
D1	29	0.0	2.0		0.0	1.3	
D2	30	1.8	2.1		0.0	1.2	
D3	31	0.0	2.0		0.0	1.2	

11-07-03

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PDS 03-TF-0293

P3816

Alpha/Beta Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR012
Batch Ended: 11/5/2003 16:37
Recalibration Date: 3/24/2005
Serial Number: 64575

Batch ID: RILEY 03-TF-0293 [80] JC

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity s	Alpha Activity flags	Beta Activity DPM	Beta Activity s	Beta Activity flags
D4	32	0.0	2.0		0.0	1.2	
A1	33	0.0	1.9		2.0	2.1	
A2	34	0.0	1.9		0.0	1.7	
A3	35	0.0	1.8		0.0	1.2	
A4	36	0.0	1.9		0.0	1.2	
B1	37	1.8	2.0		1.4	2.9	
B2	38	0.0	2.1		0.0	1.3	
B3	39	0.0	2.0		0.0	1.8	
B4	40	0.0	2.0		1.4	2.2	
C1	41	0.0	2.0		0.0	1.2	
C2	42	0.0	1.9		0.0	1.2	
C3	43	0.0	1.9		0.6	1.7	
C4	44	0.0	1.8		0.5	1.6	
D1	45	0.0	2.0		0.8	1.8	
D2	46	0.0	2.1		0.0	1.2	
D3	47	1.7	2.0		1.0	1.7	
D4	48	0.0	2.0		0.0	1.2	
A1	49	0.0	1.9		0.8	1.7	
A2	50	0.0	1.9		0.9	2.1	
A3	51	0.0	1.9		0.0	1.7	
A4	52	0.0	1.9		0.9	1.6	
B1	53	0.0	2.0		0.0	2.3	
B2	54	0.0	2.1		0.5	1.8	
B3	55	1.7	2.0		0.0	1.8	
B4	56	0.0	2.0		1.4	2.2	
C1	57	0.0	2.0		0.4	1.7	
C2	58	0.0	2.0		1.7	2.1	
C3	59	0.0	1.9		0.6	1.7	
C4	60	0.0	1.8		0.0	1.2	
D1	61	1.7	2.0		0.6	1.8	
D2	62	1.8	2.1		0.0	1.2	
D3	63	0.0	2.0		1.1	1.7	
D4	64	0.0	2.0		0.0	1.2	

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RWS 03-TF-0293

R 4/6 10

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Alpha/Beta Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR012
Batch Ended: 11/5/2003 16:37
Recalibration Date: 3/24/2005
Serial Number: 64575

Batch ID: RILEY 03-TF-0293 [80] JC

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	s	flags	DPM	s	flags
A1	65	0.0	1.9		0.0	1.2	
A2	66	0.0	1.9		0.0	1.7	
A3	67	0.0	1.8		0.0	1.2	
A4	68	0.0	1.9		0.0	1.2	
B1	69	0.0	2.0		0.0	1.9	
B2	70	0.0	2.2		1.8	2.2	
B3	71	0.0	2.0		0.0	2.2	
B4	72	0.0	2.0		1.4	2.2	
C1	73	1.8	2.0		0.0	1.2	
C2	74	0.0	2.0		2.9	2.4	
C3	75	0.0	1.9		0.6	1.7	
C4	76	0.0	1.8		0.5	1.6	
D1	77	1.7	2.0		0.6	1.8	
D2	78	1.8	2.1		0.0	1.2	
D3	79	0.0	2.0		0.0	1.2	
D4	80	0.0	2.0		0.0	1.2	

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RDS 03-TF-0293

PS 5/6/16

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Protocol #: 1 Name:PW H3 #401388 05-Nov-2003 20:25
Region A: LL-UL= 0.5-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region B: LL-UL= 2.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region C: LL-UL=40.0-2000 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Time = 2.00 QIP = tSIE/AEC ES Terminator = Count
03-TF-0293 RILEY (T1-T80) AG
Conventional DPM
Nuclide 1 = 207149
Luminescence Correction On
Data/Application Drive & Path = c:\data

SAMP	TIME	CPMA	CPMB	CPMC	FLAG	LUM	tSIE	DPM1	A:2S%
-1	10.00	82.92	71.86	6.80	B	4	556.		6.95
0	2.00	571.70	565.02	0.00		1	484.	1322.10	6.48
1	2.00	0.00	0.00	0.00		0	556.	0.00	0.00
2	2.00	0.00	0.00	0.00		3	574.	0.00	0.00
3	2.00	0.00	0.00	0.00		5	609.	0.00	0.00
4	2.00	0.00	0.00	0.00		6	579.	0.00	0.00
5	2.00	0.00	0.00	0.00		15	582.	0.00	0.00
6	2.00	0.00	0.00	0.00		4	619.	0.00	0.00
7	2.00	0.00	0.00	0.00		11	541.	0.00	0.00
8	2.00	0.00	0.00	0.00		5	518.	0.00	0.00
9	2.00	0.00	0.00	0.00		7	560.	0.00	0.00
10	2.00	0.00	0.00	0.00		6	511.	0.00	0.00
11	2.00	0.00	0.00	0.00		9	546.	0.00	0.00
12	2.00	0.00	0.00	1.70		12	544.	0.00	0.00
13	2.00	0.00	0.00	0.00		6	595.	0.00	0.00
14	2.00	0.00	0.00	0.00		7	541.	0.00	0.00
15	2.00	0.00	0.00	0.00		17	592.	0.00	0.00
16	2.00	0.00	0.00	0.00		0	598.	0.00	0.00
17	2.00	0.00	0.00	0.00		14	584.	0.00	0.00
18	2.00	0.00	0.00	0.00		17	611.	0.00	0.00
19	2.00	0.00	0.00	0.00		41	426.	0.00	0.00
20	2.00	0.00	0.00	0.00		0	621.	0.00	0.00
21	2.00	0.00	0.00	2.20		6	626.	0.00	0.00
22	2.00	0.00	0.00	0.00		23	614.	0.00	0.00
23	2.00	0.00	0.00	0.00		6	631.	0.00	0.00
24	2.00	0.00	0.00	0.00		24	617.	0.00	0.00
25	2.00	0.00	0.00	0.00		36	646.	0.00	0.00
26	2.00	0.00	0.00	0.00		0	629.	0.00	0.00
27	2.00	0.00	0.00	0.00		5	626.	0.00	0.00
28	2.00	0.00	0.00	0.70		12	630.	0.00	0.00
29	2.00	0.00	0.00	0.00		5	616.	0.00	0.00
30	2.00	0.00	0.00	0.00		0	611.	0.00	0.00
31	2.00	0.00	0.00	0.00		0	600.	0.00	0.00
32	2.00	0.00	0.00	0.00		7	594.	0.00	0.00
33	2.00	0.00	0.00	0.00		18	613.	0.00	0.00
34	2.00	0.00	0.00	0.00		5	630.	0.00	0.00
35	2.00	0.00	0.00	0.00		0	634.	0.00	0.00
36	2.00	0.00	0.00	0.00		7	630.	0.00	0.00
37	2.00	0.00	0.00	0.00		8	598.	0.00	0.00
38	2.00	0.00	0.00	0.00		4	638.	0.00	0.00
39	2.00	0.00	0.00	0.00		5	623.	0.00	0.00
40	2.00	0.00	0.00	0.00		9	604.	0.00	0.00
41	2.00	0.00	0.00	0.00		18	627.	0.00	0.00
42	2.00	0.00	0.00	0.00		20	621.	0.00	0.00
43	2.00	0.00	0.00	0.00		16	644.	0.00	0.00

RSAS 03-TF-0293

SAMP	TIME	CPMA	CPMB	CPMC	FLAG	LUM	tSIE	DPM1	A:2S%
44	2.00	0.00	0.00	0.00		26	633.	0.00	0.00
45	2.00	0.00	0.00	0.00		0	631.	0.00	0.00
46	2.00	0.00	0.00	0.00		0	637.	0.00	0.00
47	2.00	0.00	0.00	0.00		14	554.	0.00	0.00
48	2.00	0.00	0.00	0.00		27	619.	0.00	0.00
49	2.00	0.00	0.00	0.00		7	601.	0.00	0.00
50	2.00	0.00	0.00	0.00		17	632.	0.00	0.00
51	2.00	0.00	0.00	0.00		0	641.	0.00	0.00
52	2.00	0.00	0.00	0.00		29	521.	0.00	0.00
53	2.00	0.00	0.00	0.00		0	576.	0.00	0.00
54	2.00	0.00	0.00	0.00		8	643.	0.00	0.00
55	2.00	0.00	0.00	0.00		14	637.	0.00	0.00
56	2.00	0.00	0.00	0.00		0	639.	0.00	0.00
57	2.00	0.00	0.00	0.00		0	536.	0.00	0.00
58	2.00	0.00	0.00	0.00		24	638.	0.00	0.00
59	2.00	0.00	0.00	0.00		23	607.	0.00	0.00
60	2.00	0.00	0.00	0.00		14	616.	0.00	0.00
61	2.00	0.00	0.00	0.00		22	521.	0.00	0.00
62	2.00	0.00	0.00	0.00		28	602.	0.00	0.00
63	2.00	0.00	0.00	0.00		54	548.	0.00	0.00
64	2.00	0.00	0.00	0.00		14	505.	0.00	0.00
65	2.00	0.00	0.00	0.70		20	582.	0.00	0.00
66	2.00	0.00	0.00	0.00		18	581.	0.00	0.00
67	2.00	0.00	0.00	0.00		8	544.	0.00	0.00
68	2.00	0.00	0.00	0.00		13	491.	0.00	0.00
69	2.00	0.00	0.00	0.00		42	548.	0.00	0.00
70	2.00	0.00	0.00	0.00		14	493.	0.00	0.00
71	2.00	0.00	0.00	0.00		12	554.	0.00	0.00
72	2.00	0.00	0.00	0.00		22	474.	0.00	0.00
73	2.00	0.00	0.00	0.00		0	463.	0.00	0.00
74	2.00	0.00	0.00	0.00		87	487.	0.00	0.00
75	2.00	0.00	0.00	0.00		41	425.	0.00	0.00
76	2.00	0.00	0.00	0.00		36	400.	0.00	0.00
77	2.00	0.00	0.00	0.00		16	510.	0.00	0.00
78	2.00	0.00	0.00	0.00		68	438.	0.00	0.00
79	2.00	0.00	0.00	0.00		59	455.	0.00	0.00
80	2.00	0.00	0.00	0.00		65	466.	0.00	0.00

PCDS 03-TF-0293

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AJ 7/6/16

50-Building Characterization Survey Unit 35,34,33 and 30

RSDS# 03-TF-0293 RCT: DR RCT: N/A

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm²	Surface Eff:		0.5	Detector #:	1
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm²	Surface Eff:		0.5	Detector #:	2
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm²	Surface Eff:		0.5	Detector #:	3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
ALPHA	SRC BKG	5857	5214	5859	1		11/5/03	7:19	5	300	7	
ALPHA	SRCCHECK	5857	5214	5859	1	0	11/5/03	7:22	2109	60	14574	
ALPHA	SRCCHECK	5857	5214	5859	1	0	11/5/03	7:23	2150	60	14857	
ALPHA	SRCCHECK	5857	5214	5859	1	0	11/5/03	7:25	2004	60	13848	
ALPHA	SRCCHECK	5857	5214	5859	1	0	11/5/03	7:27	2018	60	13945	
ALPHA	U-35 01	5857	5214	5859	1	1	11/5/03	8:08	3	120	10	
ALPHA	U-35 02	5857	5214	5859	1	2	11/5/03	8:14	3	120	10	
ALPHA	U-35 03	5857	5214	5859	1	3	11/5/03	8:19	5	120	17	
ALPHA	U-35 04	5857	5214	5859	1	4	11/5/03	8:24	4	120	14	
ALPHA	U-35 05	5857	5214	5859	1	5	11/5/03	8:28	24	120	83	
ALPHA	U-35 06	5857	5214	5859	1	6	11/5/03	8:32	4	120	14	
ALPHA	U-35 07	5857	5214	5859	1	7	11/5/03	8:36	16	120	55	
ALPHA	U-35 08	5857	5214	5859	1	8	11/5/03	8:40	26	120	90	
ALPHA	U-35 09	5857	5214	5859	1	9	11/5/03	8:43	28	120	97	
ALPHA	U-35 10	5857	5214	5859	1	10	11/5/03	8:47	28	120	97	
ALPHA	U-35 11	5857	5214	5859	1	11	11/5/03	8:51	19	120	66	
ALPHA	U-35 12	5857	5214	5859	1	12	11/5/03	8:55	26	120	90	
ALPHA	U-35 13	5857	5214	5859	1	13	11/5/03	9:00	4	120	14	
ALPHA	U-35 14	5857	5214	5859	1	14	11/5/03	9:04	24	120	83	
ALPHA	U-35 15	5857	5214	5859	1	15	11/5/03	9:09	7	120	24	
ALPHA	U-35 16	5857	5214	5859	1	16	11/5/03	9:13	5	120	17	
ALPHA	U-35 17	5857	5214	5859	1	17	11/5/03	9:17	24	120	83	
ALPHA	U-35 18	5857	5214	5859	1	18	11/5/03	9:21	0	120	0	
ALPHA	U-35 19	5857	5214	5859	1	19	11/5/03	9:24	2	120	7	
ALPHA	U-35 20	5857	5214	5859	1	20	11/5/03	9:27	4	120	14	
ALPHA	U-34 01	5857	5214	5859	1	21	11/5/03	9:38	4	120	14	
ALPHA	U-34 02	5857	5214	5859	1	22	11/5/03	9:42	5	120	17	
ALPHA	U-34 03	5857	5214	5859	1	23	11/5/03	9:45	4	120	14	
ALPHA	U-34 04	5857	5214	5859	1	24	11/5/03	9:49	4	120	14	
ALPHA	U-34 05	5857	5214	5859	1	25	11/5/03	9:53	3	120	10	
ALPHA	U-34 06	5857	5214	5859	1	26	11/5/03	9:59	3	120	10	
ALPHA	U-34 07	5857	5214	5859	1	27	11/5/03	10:03	9	120	31	
ALPHA	U-34 08	5857	5214	5859	1	28	11/5/03	10:07	8	120	28	
ALPHA	U-34 09	5857	5214	5859	1	29	11/5/03	10:11	3	120	10	
ALPHA	U-34 10	5857	5214	5859	1	30	11/5/03	10:15	3	120	10	
ALPHA	U-34 11	5857	5214	5859	1	31	11/5/03	10:18	1	120	3	
ALPHA	U-34 12	5857	5214	5859	1	32	11/5/03	10:25	10	120	35	
ALPHA	U-34 13	5857	5214	5859	1	33	11/5/03	10:28	5	120	17	
ALPHA	U-34 14	5857	5214	5859	1	34	11/5/03	10:32	4	120	14	

50-Building Characterization Survey Unit 35,34,33 and 30

RSDS# 03-TF-0293 RCT: SLR RCT: N/H

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :	1
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :	2
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # :	3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
ALPHA	U-34 15	5857	5214	5859	1	35	11/5/03	10:37	7	120	24	
ALPHA	U-34 16	5857	5214	5859	1	36	11/5/03	10:41	11	120	38	
ALPHA	U-34 17	5857	5214	5859	1	37	11/5/03	12:30	3	120	10	
ALPHA	U-34 18	5857	5214	5859	1	38	11/5/03	12:35	2	120	7	
ALPHA	U-34 19	5857	5214	5859	1	39	11/5/03	12:39	5	120	17	
ALPHA	U-34 20	5857	5214	5859	1	40	11/5/03	12:43	5	120	17	
ALPHA	U-33 01	5857	5214	5859	1	41	11/5/03	12:53	5	120	17	
ALPHA	U-33 02	5857	5214	5859	1	42	11/5/03	12:57	3	120	10	
ALPHA	U-33 03	5857	5214	5859	1	43	11/5/03	13:02	2	120	7	
ALPHA	U-33 04	5857	5214	5859	1	44	11/5/03	13:06	6	120	21	
ALPHA	U-33 05	5857	5214	5859	1	45	11/5/03	13:12	11	120	38	
ALPHA	U-33 06	5857	5214	5859	1	46	11/5/03	13:16	5	120	17	
ALPHA	U-33 07	5857	5214	5859	1	47	11/5/03	13:19	6	120	21	
ALPHA	U-33 08	5857	5214	5859	1	48	11/5/03	13:23	7	120	24	
ALPHA	U-33 09	5857	5214	5859	1	49	11/5/03	13:27	5	120	17	
ALPHA	U-33 10	5857	5214	5859	1	50	11/5/03	13:31	4	120	14	
ALPHA	U-33 11	5857	5214	5859	1	51	11/5/03	13:35	5	120	17	
ALPHA	U-33 12	5857	5214	5859	1	52	11/5/03	13:39	10	120	35	
ALPHA	U-33 13	5857	5214	5859	1	53	11/5/03	13:42	6	120	21	
ALPHA	U-33 14	5857	5214	5859	1	54	11/5/03	13:46	8	120	28	
ALPHA	U-33 15	5857	5214	5859	1	55	11/5/03	13:50	8	120	28	
ALPHA	U-33 16	5857	5214	5859	1	56	11/5/03	13:53	5	120	17	
ALPHA	U-33 17	5857	5214	5859	1	57	11/5/03	13:57	3	120	10	
ALPHA	U-33 18	5857	5214	5859	1	58	11/5/03	14:00	7	120	24	
ALPHA	U-33 19	5857	5214	5859	1	59	11/5/03	14:04	8	120	28	
ALPHA	U-33 20	5857	5214	5859	1	60	11/5/03	14:07	6	120	21	
ALPHA	U-30 01	5857	5214	5859	1	61	11/5/03	14:11	12	120	41	
ALPHA	U-30 02	5857	5214	5859	1	62	11/5/03	14:15	9	120	31	
ALPHA	U-30 03	5857	5214	5859	1	63	11/5/03	14:19	7	120	24	
ALPHA	U-30 04	5857	5214	5859	1	64	11/5/03	14:23	4	120	14	
ALPHA	U-30 05	5857	5214	5859	1	65	11/5/03	14:27	6	120	21	
ALPHA	U-30 06	5857	5214	5859	1	66	11/5/03	14:31	7	120	24	
ALPHA	U-30 07	5857	5214	5859	1	67	11/5/03	14:34	4	120	14	
ALPHA	U-30 08	5857	5214	5859	1	68	11/5/03	14:38	6	120	21	
ALPHA	U-30 09	5857	5214	5859	1	69	11/5/03	14:42	8	120	28	
ALPHA	U-30 10	5857	5214	5859	1	70	11/5/03	14:46	5	120	17	
ALPHA	U-30 11	5857	5214	5859	1	71	11/5/03	14:49	5	120	17	
ALPHA	U-30 12	5857	5214	5859	1	72	11/5/03	14:53	7	120	24	
ALPHA	U-30 13	5857	5214	5859	1	73	11/5/03	14:56	5	120	17	
ALPHA	U-30 14	5857	5214	5859	1	74	11/5/03	15:00	8	120	28	

50-Building Characterization Survey Unit 35,34,33 and 30

RSDS# 03-TF-0293 RCT: SR RCT: N/A

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # :
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	U-30 15	5857	5214	5859	1	75	11/5/03	15:03	3	120	10
ALPHA	U-30 16	5857	5214	5859	1	76	11/5/03	15:07	2	120	7
ALPHA	U-30 17	5857	5214	5859	1	77	11/5/03	15:10	4	120	14
ALPHA	U-30 18	5857	5214	5859	1	78	11/5/03	15:14	1	120	3
ALPHA	U-30 19	5857	5214	5859	1	79	11/5/03	15:17	6	120	21
ALPHA	U-30 20	5857	5214	5859	1	80	11/5/03	15:21	4	120	14
BETA	SRC BKG	5857	5214	5859	2		11/5/03	7:37	686	300	1169
BETA	SRCCHECK	5857	5214	5859	2		11/5/03	7:39	2781	60	23695
BETA	SRCCHECK	5857	5214	5859	2		11/5/03	7:40	2576	60	21948
BETA	SRCCHECK	5857	5214	5859	2		11/5/03	7:41	2755	60	23473
BETA	SRCCHECK	5857	5214	5859	2		11/5/03	7:43	2530	60	21556
BETA	U-35 01	5857	5214	5859	2	1	11/5/03	8:09	138	60	1176
BETA	U-35 02	5857	5214	5859	2	2	11/5/03	8:16	131	60	1116
BETA	U-35 03	5857	5214	5859	2	3	11/5/03	8:21	156	60	1329
BETA	U-35 04	5857	5214	5859	2	4	11/5/03	8:25	159	60	1355
BETA	U-35 05	5857	5214	5859	2	5	11/5/03	8:29	312	60	2658
BETA	U-35 06	5857	5214	5859	2	6	11/5/03	8:33	157	60	1338
BETA	U-35 07	5857	5214	5859	2	7	11/5/03	8:37	354	60	3016
BETA	U-35 08	5857	5214	5859	2	8	11/5/03	12:48	353	60	3008
BETA	U-35 09	5857	5214	5859	2	9	11/5/03	8:44	367	60	3127
BETA	U-35 10	5857	5214	5859	2	10	11/5/03	8:48	334	60	2846
BETA	U-35 11	5857	5214	5859	2	11	11/5/03	8:52	337	60	2871
BETA	U-35 12	5857	5214	5859	2	12	11/5/03	8:57	349	60	2974
BETA	U-35 13	5857	5214	5859	2	13	11/5/03	9:01	154	60	1312
BETA	U-35 14	5857	5214	5859	2	14	11/5/03	9:05	277	60	2360
BETA	U-35 15	5857	5214	5859	2	15	11/5/03	9:10	110	60	937
BETA	U-35 16	5857	5214	5859	2	16	11/5/03	9:14	102	60	869
BETA	U-35 17	5857	5214	5859	2	17	11/5/03	9:18	327	60	2786
BETA	U-35 18	5857	5214	5859	2	18	11/5/03	9:22	139	60	1184
BETA	U-35 19	5857	5214	5859	2	19	11/5/03	12:50	151	60	1287
BETA	U-35 20	5857	5214	5859	2	20	11/5/03	9:29	154	60	1312
BETA	U-34 01	5857	5214	5859	2	21	11/5/03	9:39	143	60	1218
BETA	U-34 02	5857	5214	5859	2	22	11/5/03	9:43	153	60	1304
BETA	U-34 03	5857	5214	5859	2	23	11/5/03	9:46	131	60	1116
BETA	U-34 04	5857	5214	5859	2	24	11/5/03	9:50	150	60	1278
BETA	U-34 05	5857	5214	5859	2	25	11/5/03	9:54	152	60	1295
BETA	U-34 06	5857	5214	5859	2	26	11/5/03	10:00	144	60	1227
BETA	U-34 07	5857	5214	5859	2	27	11/5/03	10:04	137	60	1167
BETA	U-34 08	5857	5214	5859	2	28	11/5/03	10:08	176	60	1500

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50-Building Characterization Survey Unit 35,34,33 and 30

RSDS# 03-TF-0293 RCT: SK RCT: D/H

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
BETA	U-34 09	5857	5214	5859	2	29	11/5/03	10:12	167	60	1423
BETA	U-34 10	5857	5214	5859	2	30	11/5/03	10:16	133	60	1133
BETA	U-34 11	5857	5214	5859	2	31	11/5/03	10:20	161	60	1372
BETA	U-34 12	5857	5214	5859	2	32	11/5/03	10:26	168	60	1431
BETA	U-34 13	5857	5214	5859	2	33	11/5/03	10:30	142	60	1210
BETA	U-34 14	5857	5214	5859	2	34	11/5/03	10:33	167	60	1423
BETA	U-34 15	5857	5214	5859	2	35	11/5/03	10:38	176	60	1500
BETA	U-34 16	5857	5214	5859	2	36	11/5/03	10:42	140	60	1193
BETA	U-34 17	5857	5214	5859	2	37	11/5/03	12:32	135	60	1150
BETA	U-34 18	5857	5214	5859	2	38	11/5/03	12:36	159	60	1355
BETA	U-34 19	5857	5214	5859	2	39	11/5/03	12:40	178	60	1517
BETA	U-34 20	5857	5214	5859	2	40	11/5/03	12:44	149	60	1270
BETA	U-33 01	5857	5214	5859	2	41	11/5/03	12:54	148	60	1261
BETA	U-33 02	5857	5214	5859	2	42	11/5/03	12:58	139	60	1184
BETA	U-33 03	5857	5214	5859	2	43	11/5/03	13:03	121	60	1031
BETA	U-33 04	5857	5214	5859	2	44	11/5/03	13:07	156	60	1329
BETA	U-33 05	5857	5214	5859	2	45	11/5/03	13:13	163	60	1389
BETA	U-33 06	5857	5214	5859	2	46	11/5/03	13:17	139	60	1184
BETA	U-33 07	5857	5214	5859	2	47	11/5/03	13:21	136	60	1159
BETA	U-33 08	5857	5214	5859	2	48	11/5/03	13:25	163	60	1389
BETA	U-33 09	5857	5214	5859	2	49	11/5/03	13:28	138	60	1176
BETA	U-33 10	5857	5214	5859	2	50	11/5/03	13:32	139	60	1184
BETA	U-33 11	5857	5214	5859	2	51	11/5/03	13:36	152	60	1295
BETA	U-33 12	5857	5214	5859	2	52	11/5/03	13:40	94	60	801
BETA	U-33 13	5857	5214	5859	2	53	11/5/03	13:43	159	60	1355
BETA	U-33 14	5857	5214	5859	2	54	11/5/03	13:47	154	60	1312
BETA	U-33 15	5857	5214	5859	2	55	11/5/03	13:51	161	60	1372
BETA	U-33 16	5857	5214	5859	2	56	11/5/03	13:54	159	60	1355
BETA	U-33 17	5857	5214	5859	2	57	11/5/03	13:58	130	60	1108
BETA	U-33 18	5857	5214	5859	2	58	11/5/03	14:01	154	60	1312
BETA	U-33 19	5857	5214	5859	2	59	11/5/03	14:05	120	60	1022
BETA	U-33 20	5857	5214	5859	2	60	11/5/03	14:08	139	60	1184
BETA	U-30 01	5857	5214	5859	2	61	11/5/03	14:13	295	60	2513
BETA	U-30 02	5857	5214	5859	2	62	11/5/03	14:16	299	60	2548
BETA	U-30 03	5857	5214	5859	2	63	11/5/03	14:20	204	60	1738
BETA	U-30 04	5857	5214	5859	2	64	11/5/03	14:24	196	60	1670
BETA	U-30 05	5857	5214	5859	2	65	11/5/03	14:28	276	60	2352
BETA	U-30 06	5857	5214	5859	2	66	11/5/03	14:32	287	60	2445
BETA	U-30 07	5857	5214	5859	2	67	11/5/03	14:36	191	60	1627
BETA	U-30 08	5857	5214	5859	2	68	11/5/03	14:39	194	60	1653

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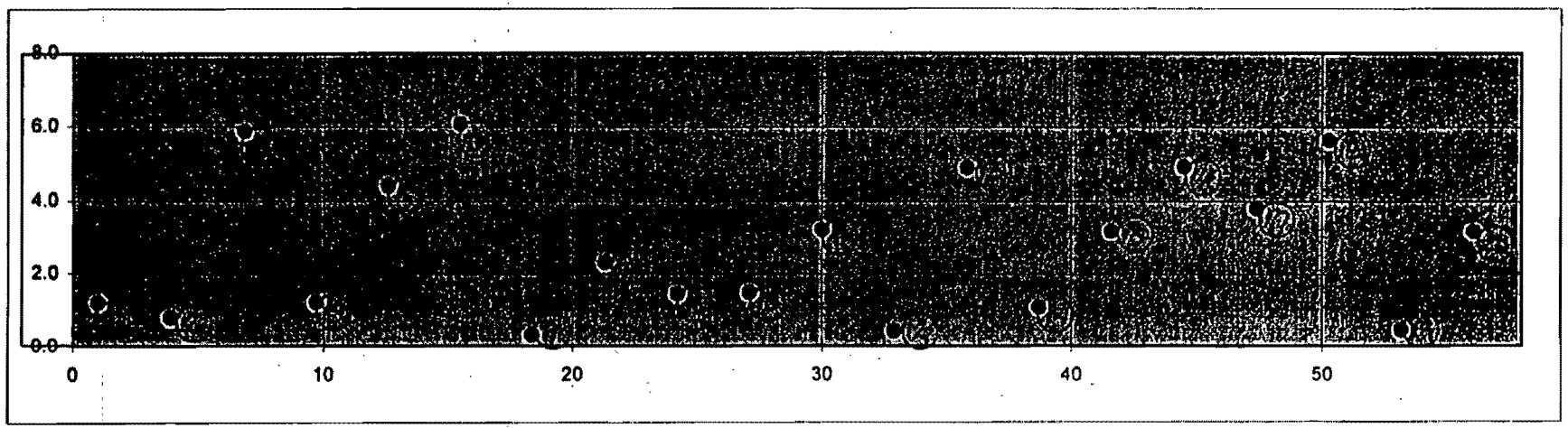
50-Building Characterization Survey Unit 35,34,33 and 30

RSDS# 03-TF-0293 RCT: SR RCT: N/A

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :	1
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :	2
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # :	3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
BETA	U-30 09	5857	5214	5859	2	69	11/5/03	14:43	197	60	1678	
BETA	U-30 10	5857	5214	5859	2	70	11/5/03	14:47	184	60	1568	
BETA	U-30 11	5857	5214	5859	2	71	11/5/03	14:50	177	60	1508	
BETA	U-30 12	5857	5214	5859	2	72	11/5/03	14:54	195	60	1661	
BETA	U-30 13	5857	5214	5859	2	73	11/5/03	14:57	178	60	1517	
BETA	U-30 14	5857	5214	5859	2	74	11/5/03	15:01	180	60	1534	
BETA	U-30 15	5857	5214	5859	2	75	11/5/03	15:05	198	60	1687	
BETA	U-30 16	5857	5214	5859	2	76	11/5/03	15:08	190	60	1619	
BETA	U-30 17	5857	5214	5859	2	77	11/5/03	15:12	174	60	1483	
BETA	U-30 18	5857	5214	5859	2	78	11/5/03	15:15	193	60	1644	
BETA	U-30 19	5857	5214	5859	2	79	11/5/03	15:18	228	60	1943	
BETA	U-30 20	5857	5214	5859	2	80	11/5/03	15:22	181	60	1542	

G2408313

SPF 50-01
Attachment 3



L = 58ft
W = 8ft

	Room 205/206 Walls	
	SU 35 Coordinates	
	X	Y
1	1	1.2
2	3.9	0.8
3	6.8	5.9
4	9.7	1.2
5	12.6	4.4
6	15.5	6.1
7	18.4	0.3
8	21.3	2.3
9	24.2	1.4
10	27.1	1.5
11	30	3.2
12	32.9	0.4
13	35.8	4.9
14	38.7	1.1
15	41.6	3.2
16	44.5	4.9
17	47.4	3.8
18	50.3	5.6
19	53.2	0.4
20	56.1	3.2

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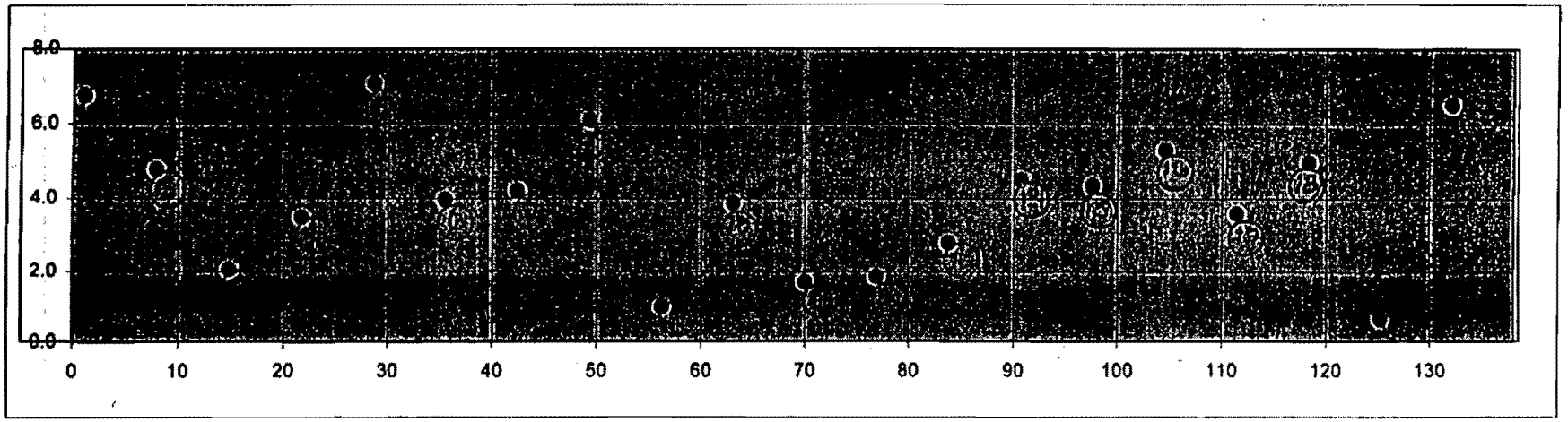
BSDS 03-TF-0293
PS 13616

SPF 50-01
Attachment 3



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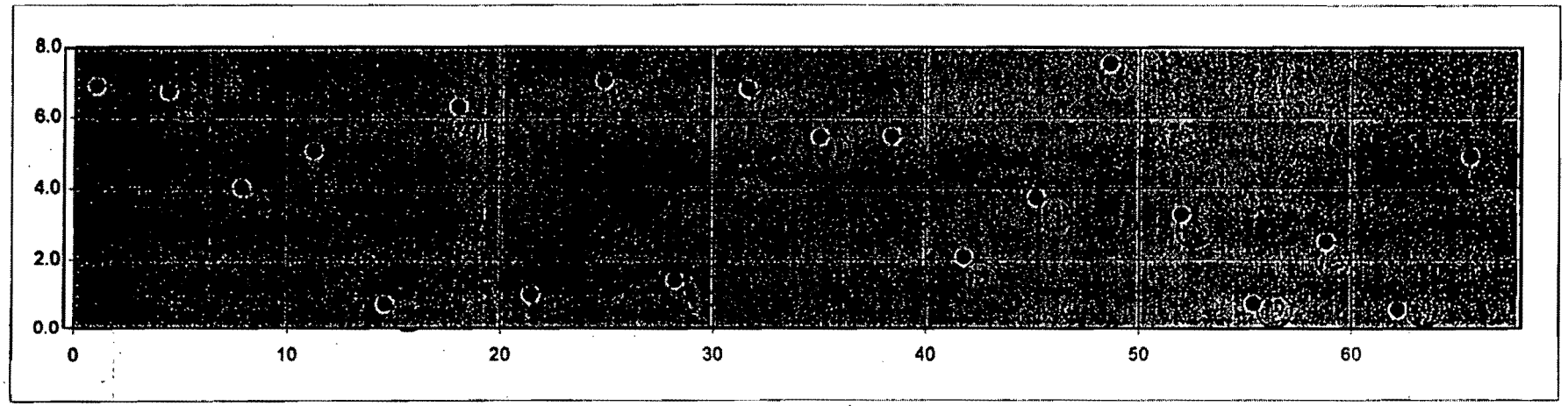
L = 138ft
W = 8ft

	Room 204 Walls SU 34 Coordinates	
	X	Y
1	1	6.8
2	7.9	4.8
3	14.8	2.1
4	21.7	3.5
5	28.6	7.1
6	35.5	4.0
7	42.4	4.2
8	49.3	6.1
9	56.2	1.0
10	63.1	3.9
11	70	1.7
12	76.9	1.9
13	83.8	2.8
14	90.7	4.5
15	97.6	4.3
16	104.5	5.3
17	111.4	3.6
18	118.3	5.0
19	125.2	0.7
20	132.1	6.5

BSDS 03-TF-0293
B 14 of 16



L = 68ft
W = 8ft

	Room 203 Walls	
	SU 33 Coordinates	
	X	Y
1	1	6.9
2	4.4	6.7
3	7.8	4.0
4	11.2	5.0
5	14.6	0.7
6	18	6.3
7	21.4	1.0
8	24.8	7.1
9	28.2	1.4
10	31.6	6.8
11	35	5.4
12	38.4	5.5
13	41.8	2.1
14	45.2	3.7
15	48.6	7.5
16	52	3.3
17	55.4	0.7
18	58.8	2.5
19	62.2	0.6
20	65.6	4.9

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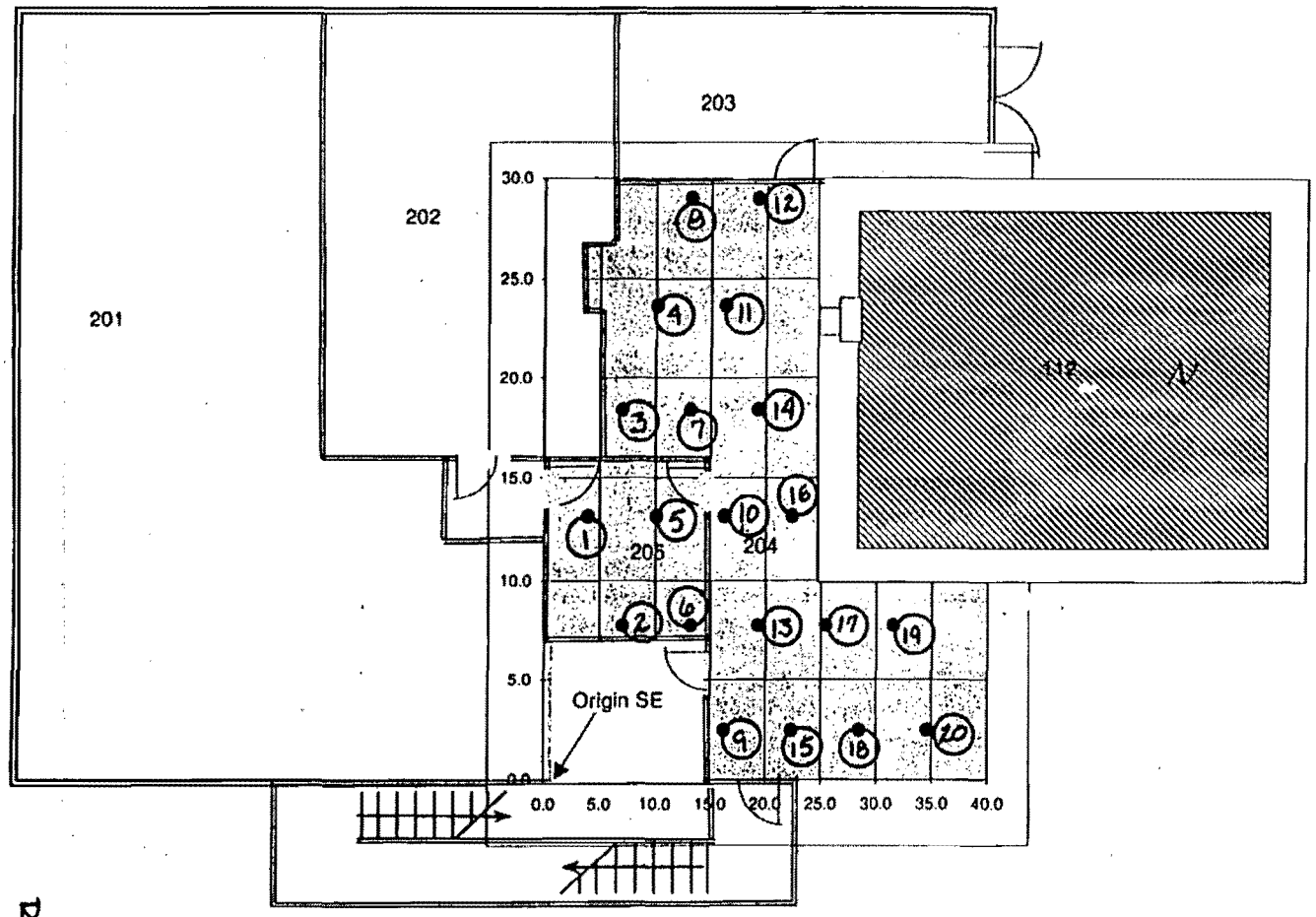
SPF 50-01
Attachment 3



	Room 204	
	SU 30 Coordinates	
	X	Y
	21	31
1	4.0	13.1
2	7.1	7.8
3	7.1	18.4
4	10.1	23.7
5	10.1	13.1
6	13.2	7.8
7	13.2	18.4
8	13.2	29.0
9	16.3	2.5
10	16.3	13.1
11	16.3	23.7
12	19.3	29.0
13	19.3	7.8
14	19.3	18.4
15	22.4	2.5
16	22.4	13.1
17	25.4	7.8
18	28.5	2.5
19	31.6	7.8
20	34.6	2.5

A	L	L'
650	6.1	5.3

Start	X	Y
Rand X:Y	4.0	2.5

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RCRS 03-TF-0293

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RADIOLOGICAL SURVEY DATA SHEET

1 of 16

LOCATION: (BLDG./AREA/ROOM) Building 50	SURVEY NO. 03-TF-0294
PURPOSE: MARSSIM Survey Plan 50-01 Units 31, 32, 28 and 29	RWP NO. NA
	DATE: 11-5-03
	TIME: 1630

MAP/DRAWING

See attached drawings and results

COPY

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350	5855	06-18-04
2360	5833/5847	03-13-04
	N/A	

[redacted]	HP # 6178	Date: 11-7-03
Completed by: (Print/[redacted]		
Counted by: (Signature)	HP #	Date:
Counted by: (Print Name) [redacted] ACHED		
Revie[redacted]	HP # 5214	Date: 11-08-03
Revie[redacted]		

ML-9620 (2-98)

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Survey No. 03-TF-0294

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-20				UNIT 31
21-40				UNIT 32
41-59				UNIT 28
60-79	SEE ATTACHED RESULTS			UNIT 29
		N/A		

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

COMMENTS:

NOTES:

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

ML-9620A (4-98)

50-Building Characterization Survey Unit 31,32,28 and 29

RSDS# 03-TF-0294 RCT: N/A RCT: N/A

Alpha	43-68 BKG:	0	EFF:	0.2091	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1793	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0:2075	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5855	6178	5864	1		11/5/03	7:13	23	300	35
ALPHA	SRC CHECK	5855	6178	5864	1		11/5/03	7:15	2173	60	16495
ALPHA	SRC CHECK	5855	6178	5864	1		11/5/03	7:16	2119	60	16086
ALPHA	SRC CHECK	5855	6178	5864	1		11/5/03	7:18	2012	60	15273
ALPHA	SRC CHECK	5855	6178	5864	1		11/5/03	7:19	2033	60	15433
ALPHA	U-31 01	5855	6178	5864	1	1	11/5/03	7:41	10	120	38
ALPHA	U-31 02	5855	6178	5864	1	2	11/5/03	7:45	7	120	27
ALPHA	U-31 03	5855	6178	5864	1	3	11/5/03	7:49	8	120	30
ALPHA	U-31 04	5855	6178	5864	1	4	11/5/03	7:53	12	120	46
ALPHA	U-31 05	5855	6178	5864	1	5	11/5/03	7:57	12	120	46
ALPHA	U-31 06	5855	6178	5864	1	6	11/5/03	8:02	8	120	30
ALPHA	U-31 07	5855	6178	5864	1	7	11/5/03	8:06	9	120	34
ALPHA	U-31 08	5855	6178	5864	1	8	11/5/03	8:10	16	120	61
ALPHA	U-31 09	5855	6178	5864	1	9	11/5/03	8:14	3	120	11
ALPHA	U-31 10	5855	6178	5864	1	10	11/5/03	8:17	7	120	27
ALPHA	U-31 11	5855	6178	5864	1	11	11/5/03	8:21	14	120	53
ALPHA	U-31 12	5855	6178	5864	1	12	11/5/03	8:26	10	120	38
ALPHA	U-31 13	5855	6178	5864	1	13	11/5/03	8:30	7	120	27
ALPHA	U-31 14	5855	6178	5864	1	14	11/5/03	8:34	8	120	30
ALPHA	U-31 15	5855	6178	5864	1	15	11/5/03	8:38	11	120	42
ALPHA	U-31 16	5855	6178	5864	1	16	11/5/03	8:41	12	120	46
ALPHA	U-31 17	5855	6178	5864	1	17	11/5/03	8:45	8	120	30
ALPHA	U-31 18	5855	6178	5864	1	18	11/5/03	8:49	7	120	27
ALPHA	U-31 19	5855	6178	5864	1	19	11/5/03	8:53	8	120	30
ALPHA	U-31 20	5855	6178	5864	1	20	11/5/03	8:56	7	120	27
ALPHA	U-32 01	5855	6178	5864	1	21	11/5/03	9:05	15	120	57
ALPHA	U-32 02	5855	6178	5864	1	22	11/5/03	9:09	6	120	23
ALPHA	U-32 03	5855	6178	5864	1	23	11/5/03	9:13	12	120	46
ALPHA	U-32 04	5855	6178	5864	1	24	11/5/03	9:16	12	120	46
ALPHA	U-32 05	5855	6178	5864	1	25	11/5/03	9:21	10	120	38
ALPHA	U-32 06	5855	6178	5864	1	26	11/5/03	9:24	17	120	65
ALPHA	U-32 07	5855	6178	5864	1	27	11/5/03	9:28	8	120	30
ALPHA	U-32 08	5855	6178	5864	1	28	11/5/03	9:32	10	120	38
ALPHA	U-32 09	5855	6178	5864	1	29	11/5/03	9:35	8	120	30
ALPHA	U-32 10	5855	6178	5864	1	30	11/5/03	9:39	6	120	23
ALPHA	U-32 11	5855	6178	5864	1	31	11/5/03	9:43	8	120	30
ALPHA	U-32 12	5855	6178	5864	1	32	11/5/03	9:47	6	120	23
ALPHA	U-32 13	5855	6178	5864	1	33	11/5/03	9:51	8	120	30
ALPHA	U-32 14	5855	6178	5864	1	34	11/5/03	9:55	7	120	27

50-Building Characterization Survey Unit 31,32,28 and 29

RSDS# 03-TF-0294 RCT: [illegible] RCT: N/A

Alpha	43-68 BKG:	0	EFF:	0.2091	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Beta	43-68 BKG:	0	EFF:	0.1793	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Scan	43-37 BKG:	0	EFF:	0.2075	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # :
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	U-32 15	5855	6178	5864	1	35	11/5/03	9:58	15	120	57
ALPHA	U-32 16	5855	6178	5864	1	36	11/5/03	10:02	2	120	8
ALPHA	U-32 17	5855	6178	5864	1	37	11/5/03	10:06	8	120	30
ALPHA	U-32 18	5855	6178	5864	1	38	11/5/03	10:12	12	120	46
ALPHA	U-32 19	5855	6178	5864	1	39	11/5/03	10:16	12	120	46
ALPHA	U-32 20	5855	6178	5864	1	40	11/5/03	10:19	9	120	34
ALPHA	U-28 01	5855	6178	5864	1	41	11/5/03	10:28	8	120	30
ALPHA	U-28 02	5855	6178	5864	1	42	11/5/03	10:31	5	120	19
ALPHA	U-28 03	5855	6178	5864	1	43	11/5/03	10:36	8	120	30
ALPHA	U-28 04	5855	6178	5864	1	44	11/5/03	10:40	11	120	42
ALPHA	U-28 05	5855	6178	5864	1	45	11/5/03	10:44	11	120	42
ALPHA	U-28 06	5855	6178	5864	1	46	11/5/03	12:31	9	120	34
ALPHA	U-28 07	5855	6178	5864	1	47	11/5/03	12:35	12	120	46
ALPHA	U-28 08	5855	6178	5864	1	48	11/5/03	12:39	10	120	38
ALPHA	U-28 09	5855	6178	5864	1	49	11/5/03	12:42	8	120	30
ALPHA	U-28 10	5855	6178	5864	1	50	11/5/03	12:46	10	120	38
ALPHA	U-28 11	5855	6178	5864	1	51	11/5/03	12:49	13	120	49
ALPHA	U-28 12	5855	6178	5864	1	52	11/5/03	12:53	11	120	42
ALPHA	U-28 13	5855	6178	5864	1	53	11/5/03	12:57	16	120	61
ALPHA	U-28 14	5855	6178	5864	1	54	11/5/03	13:01	13	120	49
ALPHA	U-28 15	5855	6178	5864	1	55	11/5/03	13:05	13	120	49
ALPHA	U-28 16	5855	6178	5864	1	56	11/5/03	13:09	15	120	57
ALPHA	U-28 17	5855	6178	5864	1	57	11/5/03	13:13	15	120	57
ALPHA	U-28 18	5855	6178	5864	1	58	11/5/03	13:17	10	120	38
ALPHA	U-28 19	5855	6178	5864	1	59	11/5/03	13:21	10	120	38
ALPHA	U-29 01	5855	6178	5864	1	60	11/5/03	13:25	9	120	34
ALPHA	U-29 02	5855	6178	5864	1	61	11/5/03	13:29	15	120	57
ALPHA	U-29 03	5855	6178	5864	1	62	11/5/03	13:32	11	120	42
ALPHA	U-29 04	5855	6178	5864	1	63	11/5/03	13:36	5	120	19
ALPHA	U-29 05	5855	6178	5864	1	64	11/5/03	13:39	9	120	34
ALPHA	U-29 06	5855	6178	5864	1	65	11/5/03	13:43	10	120	38
ALPHA	U-29 07	5855	6178	5864	1	66	11/5/03	13:47	9	120	34
ALPHA	U-29 08	5855	6178	5864	1	67	11/5/03	13:50	9	120	34
ALPHA	U-29 09	5855	6178	5864	1	68	11/5/03	13:54	9	120	34
ALPHA	U-29 10	5855	6178	5864	1	69	11/5/03	13:57	8	120	30
ALPHA	U-29 11	5855	6178	5864	1	70	11/5/03	14:01	6	120	23
ALPHA	U-29 12	5855	6178	5864	1	71	11/5/03	14:04	10	120	38
ALPHA	U-29 13	5855	6178	5864	1	72	11/5/03	14:08	6	120	23
ALPHA	U-29 14	5855	6178	5864	1	73	11/5/03	14:11	10	120	38
ALPHA	U-29 15	5855	6178	5864	1	74	11/5/03	14:15	7	120	27

50-Building Characterization Survey Unit 31,32,28 and 29

RSDS# 03-TF-0294 RCT: [illegible] RCT: N/A

Alpha	43-68 BKG:	0	EFF:	0.2091	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1793	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.2075	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector.#.: 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	U-29 16	5855	6178	5864	1	75	11/5/03	14:18	6	120	23
ALPHA	U-29 17	5855	6178	5864	1	76	11/5/03	14:22	3	120	11
ALPHA	U-29 18	5855	6178	5864	1	77	11/5/03	14:25	1	120	4
ALPHA	U-29 19	5855	6178	5864	1	78	11/5/03	14:29	8	120	30
ALPHA	U-29 20	5855	6178	5864	1	79	11/5/03	14:32	9	120	34
BETA	BKGCHECK	5855	6178	5864	2		11/5/03	7:25	665	300	1177
BETA	SRC CHECK	5855	6178	5864	2		11/5/03	7:28	2634	60	23318
BETA	SRC CHECK	5855	6178	5864	2		11/5/03	7:29	2676	60	23690
BETA	SRC CHECK	5855	6178	5864	2		11/5/03	7:30	2469	60	21857
BETA	SRC CHECK	5855	6178	5864	2		11/5/03	7:32	2498	60	22114
BETA	U-31 01	5855	6178	5864	2	1	11/5/03	7:42	168	60	1487
BETA	U-31 02	5855	6178	5864	2	2	11/5/03	7:46	137	60	1213
BETA	U-31 03	5855	6178	5864	2	3	11/5/03	7:50	125	60	1107
BETA	U-31 04	5855	6178	5864	2	4	11/5/03	7:54	193	60	1709
BETA	U-31 05	5855	6178	5864	2	5	11/5/03	7:58	148	60	1310
BETA	U-31 06	5855	6178	5864	2	6	11/5/03	8:04	171	60	1514
BETA	U-31 07	5855	6178	5864	2	7	11/5/03	8:07	160	60	1416
BETA	U-31 08	5855	6178	5864	2	8	11/5/03	8:11	156	60	1381
BETA	U-31 09	5855	6178	5864	2	9	11/5/03	8:15	157	60	1390
BETA	U-31 10	5855	6178	5864	2	10	11/5/03	8:18	156	60	1381
BETA	U-31 11	5855	6178	5864	2	11	11/5/03	8:22	155	60	1372
BETA	U-31 12	5855	6178	5864	2	12	11/5/03	8:27	128	60	1133
BETA	U-31 13	5855	6178	5864	2	13	11/5/03	8:31	161	60	1425
BETA	U-31 14	5855	6178	5864	2	14	11/5/03	8:35	116	60	1027
BETA	U-31 15	5855	6178	5864	2	15	11/5/03	8:39	146	60	1293
BETA	U-31 16	5855	6178	5864	2	16	11/5/03	8:43	183	60	1620
BETA	U-31 17	5855	6178	5864	2	17	11/5/03	8:46	165	60	1461
BETA	U-31 18	5855	6178	5864	2	18	11/5/03	8:50	146	60	1293
BETA	U-31 19	5855	6178	5864	2	19	11/5/03	8:54	105	60	930
BETA	U-31 20	5855	6178	5864	2	20	11/5/03	8:57	104	60	921
BETA	U-32 01	5855	6178	5864	2	21	11/5/03	9:06	160	60	1416
BETA	U-32 02	5855	6178	5864	2	22	11/5/03	9:10	164	60	1452
BETA	U-32 03	5855	6178	5864	2	23	11/5/03	9:14	167	60	1478
BETA	U-32 04	5855	6178	5864	2	24	11/5/03	9:18	143	60	1266
BETA	U-32 05	5855	6178	5864	2	25	11/5/03	9:22	132	60	1169
BETA	U-32 06	5855	6178	5864	2	26	11/5/03	9:25	159	60	1408
BETA	U-32 07	5855	6178	5864	2	27	11/5/03	9:29	168	60	1487
BETA	U-32 08	5855	6178	5864	2	28	11/5/03	9:33	156	60	1381
BETA	U-32 09	5855	6178	5864	2	29	11/5/03	9:36	159	60	1408

50-Building Characterization Survey Unit 31,32,28 and 29

RSDS# 03-TF-0294 RCT: 2941 RCT: 2/A

Alpha	43-68 BKG:	0	EFF:	0.2091	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Beta	43-68 BKG:	0	EFF:	0.1793	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Scan	43-37 BKG:	0	EFF:	0.2075	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # :
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
BETA	U-32 10	5855	6178	5864	2	30	11/5/03	9:40	150	60	1328
BETA	U-32 11	5855	6178	5864	2	31	11/5/03	9:44	140	60	1239
BETA	U-32 12	5855	6178	5864	2	32	11/5/03	9:48	147	60	1301
BETA	U-32 13	5855	6178	5864	2	33	11/5/03	9:52	144	60	1275
BETA	U-32 14	5855	6178	5864	2	34	11/5/03	9:56	141	60	1248
BETA	U-32 15	5855	6178	5864	2	35	11/5/03	9:59	160	60	1416
BETA	U-32 16	5855	6178	5864	2	36	11/5/03	10:03	121	60	1071
BETA	U-32 17	5855	6178	5864	2	37	11/5/03	10:07	145	60	1284
BETA	U-32 18	5855	6178	5864	2	38	11/5/03	10:13	179	60	1585
BETA	U-32 19	5855	6178	5864	2	39	11/5/03	10:17	197	60	1744
BETA	U-32 20	5855	6178	5864	2	40	11/5/03	10:21	156	60	1381
BETA	U-28 01	5855	6178	5864	2	41	11/5/03	10:29	194	60	1717
BETA	U-28 02	5855	6178	5864	2	42	11/5/03	10:32	189	60	1673
BETA	U-28 03	5855	6178	5864	2	43	11/5/03	10:37	186	60	1647
BETA	U-28 04	5855	6178	5864	2	44	11/5/03	10:41	171	60	1514
BETA	U-28 05	5855	6178	5864	2	45	11/5/03	10:45	172	60	1523
BETA	U-28 06	5855	6178	5864	2	46	11/5/03	12:32	199	60	1762
BETA	U-28 07	5855	6178	5864	2	47	11/5/03	12:36	177	60	1567
BETA	U-28 08	5855	6178	5864	2	48	11/5/03	12:40	168	60	1487
BETA	U-28 09	5855	6178	5864	2	49	11/5/03	12:43	188	60	1664
BETA	U-28 10	5855	6178	5864	2	50	11/5/03	12:47	167	60	1478
BETA	U-28 11	5855	6178	5864	2	51	11/5/03	12:51	192	60	1700
BETA	U-28 12	5855	6178	5864	2	52	11/5/03	12:55	160	60	1416
BETA	U-28 13	5855	6178	5864	2	53	11/5/03	12:59	219	60	1939
BETA	U-28 14	5855	6178	5864	2	54	11/5/03	13:02	155	60	1372
BETA	U-28 15	5855	6178	5864	2	55	11/5/03	13:06	173	60	1532
BETA	U-28 16	5855	6178	5864	2	56	11/5/03	13:10	184	60	1629
BETA	U-28 17	5855	6178	5864	2	57	11/5/03	13:14	171	60	1514
BETA	U-28 18	5855	6178	5864	2	58	11/5/03	13:18	162	60	1434
BETA	U-28 19	5855	6178	5864	2	59	11/5/03	13:22	174	60	1540
BETA	U-29 01	5855	6178	5864	2	60	11/5/03	13:26	191	60	1691
BETA	U-29 02	5855	6178	5864	2	61	11/5/03	13:30	202	60	1788
BETA	U-29 03	5855	6178	5864	2	62	11/5/03	13:33	167	60	1478
BETA	U-29 04	5855	6178	5864	2	63	11/5/03	13:37	162	60	1434
BETA	U-29 05	5855	6178	5864	2	64	11/5/03	13:41	176	60	1558
BETA	U-29 06	5855	6178	5864	2	65	11/5/03	13:44	194	60	1717
BETA	U-29 07	5855	6178	5864	2	66	11/5/03	13:48	175	60	1549
BETA	U-29 08	5855	6178	5864	2	67	11/5/03	13:52	174	60	1540
BETA	U-29 09	5855	6178	5864	2	68	11/5/03	13:55	165	60	1461
BETA	U-29 10	5855	6178	5864	2	69	11/5/03	13:58	200	60	1771

50-Building Characterization Survey Unit 31,32,28 and 29

RSDS# 03-TF-0294 RCT: DJH RCT: N/A

Alpha	43-68 BKG:	0	EFF:	0.2091	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1793	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.2075	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
BETA	U-29 11	5855	6178	5864	2	70	11/5/03	14:02	191	60	1691
BETA	U-29 12	5855	6178	5864	2	71	11/5/03	14:06	195	60	1726
BETA	U-29 13	5855	6178	5864	2	72	11/5/03	14:09	148	60	1310
BETA	U-29 14	5855	6178	5864	2	73	11/5/03	14:13	147	60	1301
BETA	U-29 15	5855	6178	5864	2	74	11/5/03	14:16	155	60	1372
BETA	U-29 16	5855	6178	5864	2	75	11/5/03	14:20	184	60	1629
BETA	U-29 17	5855	6178	5864	2	76	11/5/03	14:23	152	60	1346
BETA	U-29 18	5855	6178	5864	2	77	11/5/03	14:27	187	60	1655
BETA	U-29 19	5855	6178	5864	2	78	11/5/03	14:30	175	60	1549
BETA	U-29 20	5855	6178	5864	2	79	11/5/03	14:33	187	60	1655

Alpha/Beta Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR013
Batch Ended: 11/5/2003 17:00
Recalibration Date: 3/24/2005
Serial Number: 64575

Batch ID: HARVEY 03-TP-0294 [79] JC

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	s	flags	DPM	s	flags
A1	1	0.0	1.9		0.0	1.2	
A2	2	0.0	1.9		0.0	1.7	
A3	3	1.6	1.8		0.0	1.2	
A4	4	0.0	1.9		0.0	1.2	
B1	5	0.0	2.0		1.6	2.9	
B2	6	0.0	2.1		0.0	1.3	
B3	7	0.0	2.0		0.0	1.3	
B4	8	0.0	1.9		0.0	1.3	
C1	9	0.0	2.0		0.4	1.7	
C2	10	0.0	1.9		0.0	1.2	
C3	11	0.0	1.9		0.6	1.7	
C4	12	1.6	1.8		1.5	2.0	
D1	13	0.0	2.0		0.0	1.3	
D2	14	1.8	2.1		0.9	1.7	
D3	15	0.0	2.0		0.0	1.2	
D4	16	0.0	2.0		0.0	1.2	
A1	17	0.0	1.9		0.8	1.7	
A2	18	0.0	1.9		2.1	2.4	
A3	19	0.0	1.9		0.9	2.1	
A4	20	0.0	1.9		0.0	1.2	
B1	21	0.0	2.1		5.5	3.7	
B2	22	0.0	2.1		0.0	1.3	
B3	23	0.0	2.0		0.0	1.3	
B4	24	0.0	2.0		0.2	1.8	
C1	25	0.0	2.0		0.0	1.2	
C2	26	0.0	2.0		0.5	1.7	
C3	27	0.0	1.9		0.0	1.2	
C4	28	0.0	1.8		2.8	2.3	
D1	29	0.0	2.0		0.8	1.8	
D2	30	0.0	2.1		0.0	1.2	
D3	31	0.0	2.0		0.0	1.2	

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Alpha/Beta Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR013
Batch Ended: 11/5/2003 17:00
Recalibration Date: 3/24/2005
Serial Number: 64575

Batch ID: HARVEY 03-TF-0294 [79] JC

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity s	Alpha Activity flags	Beta Activity DPM	Beta Activity s	Beta Activity flags
D4	32	1.5	2.0		0.7	1.7	
A1	33	0.0	1.9		3.3	2.5	
A2	34	0.0	1.9		0.0	1.2	
A3	35	0.0	1.9		0.0	1.7	
A4	36	0.0	1.9		0.0	1.2	
B1	37	0.0	2.0		0.0	1.9	
B2	38	0.0	2.2		3.1	2.6	
B3	39	0.0	2.0		0.0	1.8	
B4	40	3.5	2.8		3.6	2.8	
C1	41	1.8	2.0		1.5	2.1	
C2	42	0.0	2.0		1.7	2.1	
C3	43	0.0	1.9		0.0	1.2	
C4	44	0.0	1.8		0.5	1.6	
D1	45	0.0	2.0		0.0	1.3	
D2	46	0.0	2.2		5.9	3.0	
D3	47	0.0	2.0		0.0	1.2	
D4	48	0.0	2.0		2.0	2.1	
A1	49	1.7	1.9		3.1	2.5	
A2	50	1.7	1.9		0.0	1.2	
A3	51	0.0	1.9		0.0	1.7	
A4	52	0.0	1.9		0.0	1.2	
B1	53	1.8	2.0		0.1	2.6	
B2	54	0.0	2.1		0.0	1.3	
B3	55	1.7	2.0		0.0	1.8	
B4	56	0.0	1.9		0.0	1.3	
C1	57	0.0	2.0		0.4	1.7	
C2	58	0.0	1.9		0.0	1.2	
C3	59	0.0	1.9		0.0	1.2	
C4	60	0.0	1.8		1.6	2.0	
D1	61	0.0	2.0		0.8	1.8	
D2	62	0.0	2.1		1.1	1.7	
D3	63	0.0	2.0		0.0	1.2	
D4	64	0.0	2.0		2.0	2.1	

DJH 9 of 16 DJH

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DJH 11-7-03

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Alpha/Beta Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR013
Batch Ended: 11/5/2003 17:00
Recalibration Date: 3/24/2005
Serial Number: 64575

Batch ID: HARVEY 03-TF-0294 [79] JC

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	s	flags	DPM	s	flags
A1	65	0.0	1.9		0.8	1.7	
A2	66	0.0	1.9		0.0	1.7	
A3	67	0.0	1.8		0.0	1.2	
A4	68	0.0	1.9		3.2	2.3	
B1	69	0.0	2.0		1.6	2.9	
B2	70	0.0	2.1		0.5	1.8	
B3	71	0.0	2.0		0.0	1.3	
B4	72	1.6	1.9		0.0	1.3	
C1	73	0.0	2.0		0.4	1.7	
C2	74	0.0	1.9		0.0	1.2	
C3	75	0.0	1.9		5.3	2.9	
C4	76	0.0	1.8		0.0	1.2	
D1	77	0.0	2.0		0.0	1.3	
D2	78	0.0	2.1		1.1	1.7	
D3	79	0.0	2.0		0.0	1.2	

DGH DGH

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DGH 11-7-03 J. Carlson

Protocol #: 2 Name:pW h3 101068 05-Nov-2003 23:07
Region A: LL-UL= 0.5-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region B: LL-UL= 2.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region C: LL-UL=40.0-2000 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Time = 2.00 QIP = tSIE/AEC ~~ES Terminator = Count~~
HARVEY 03-TF-~~0297~~ 1-79 JC 03-TF-0294
Conventional DPM JC 11-6-03
Nuclide 1 = 206704
Luminescence Correction On

S#	TIME	LUM	FLAG	CPMA	CPMB	CPMC	tSIE	DPM1	2Sigma
-1	10.00	8	B	10.50	9.50	6.30	558.		0.00
0	2.00	1		653.50	622.00	0.00	480.	1352.15	127.75
1	2.00	0		0.00	0.00	0.00	539.	0.00	0.00
2	2.00	12		0.00	0.00	0.20	579.	0.00	0.00
3	2.00	0		0.00	0.00	0.00	424.	0.00	0.00
4	2.00	0		0.00	0.00	0.00	516.	0.00	0.00
5	2.00	0		0.00	0.00	0.00	476.	0.00	0.00
6	2.00	38		0.00	0.00	0.00	440.	0.00	0.00
7	2.00	13		0.00	0.00	0.00	565.	0.00	0.00
8	2.00	0		0.00	0.00	0.00	588.	0.00	0.00
9	2.00	24		0.00	0.00	0.00	557.	0.00	0.00
10	2.00	24		0.00	0.00	0.00	460.	0.00	0.00
11	2.00	8		0.00	0.00	0.00	516.	0.00	0.00
12	2.00	9		0.00	0.00	0.00	545.	0.00	0.00
13	2.00	0		0.00	0.00	0.00	476.	0.00	0.00
14	2.00	0		0.00	0.00	0.00	485.	0.00	0.00
15	2.00	14		0.00	0.00	0.00	527.	0.00	0.00
16	2.00	13		0.00	0.00	0.00	596.	0.00	0.00
17	2.00	24		0.00	0.00	0.00	551.	0.00	0.00
18	2.00	19		0.00	0.00	0.00	602.	0.00	0.00
19	2.00	7		0.00	0.00	0.00	511.	0.00	0.00
20	2.00	0		0.00	0.00	0.00	399.	0.00	0.00
21	2.00	0		0.00	0.00	0.00	493.	0.00	0.00
22	2.00	0		0.00	0.00	0.00	528.	0.00	0.00
23	2.00	0		0.00	0.00	0.00	571.	0.00	0.00
24	2.00	0		0.00	0.00	0.00	429.	0.00	0.00
25	2.00	0		0.00	0.00	0.00	559.	0.00	0.00
26	2.00	21		0.00	0.00	0.00	559.	0.00	0.00
27	2.00	0		0.00	0.00	0.00	531.	0.00	0.00
28	2.00	8		0.00	0.00	0.00	563.	0.00	0.00
29	2.00	12		0.00	0.00	0.00	502.	0.00	0.00
30	2.00	0		0.00	0.00	0.00	581.	0.00	0.00
31	2.00	0		0.00	0.00	0.00	600.	0.00	0.00
32	2.00	8		0.00	0.00	0.00	598.	0.00	0.00
33	2.00	10		0.00	0.00	0.00	527.	0.00	0.00
34	2.00	7		0.00	0.00	0.70	571.	0.00	0.00
35	2.00	15		0.00	0.00	0.20	586.	0.00	0.00
36	2.00	0		0.00	0.00	0.00	552.	0.00	0.00
37	2.00	0		0.00	0.00	0.00	385.	0.00	0.00
38	2.00	0		0.00	0.00	0.00	165.	0.00	0.00
39	2.00	9		0.00	0.00	0.00	496.	0.00	0.00
40	2.00	19		0.00	0.00	0.00	517.	0.00	0.00
41	2.00	0		0.00	0.00	0.00	502.	0.00	0.00
42	2.00	0		0.00	0.00	0.00	314.	0.00	0.00
43	2.00	11		0.00	0.00	0.00	403.	0.00	0.00
44	2.00	13		0.00	0.00	0.00	415.	0.00	0.00

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S#	TIME	LUM	FLAG	CPMA	CPMB	CPMC	tSIE	DPM1	2Sigma
45	2.00	10		0.00	0.00	0.00	368.	0.00	0.00
46	2.00	30		0.00	0.00	0.00	380.	0.00	0.00
47	2.00	0		0.00	0.00	0.00	361.	0.00	0.00
48	2.00	0		0.00	0.00	2.20	366.	0.00	0.00
49	2.00	9		0.00	0.00	0.00	407.	0.00	0.00
50	2.00	7		0.00	0.00	0.00	383.	0.00	0.00
51	2.00	0		0.00	0.00	1.70	389.	0.00	0.00
52	2.00	0		0.00	0.00	0.00	422.	0.00	0.00
53	2.00	13		0.00	0.00	0.00	384.	0.00	0.00
54	2.00	0		0.00	0.00	0.00	459.	0.00	0.00
55	2.00	0		0.00	0.00	0.00	379.	0.00	0.00
56	2.00	0		0.00	0.00	1.20	293.	0.00	0.00
57	2.00	0		0.00	0.00	0.00	372.	0.00	0.00
58	2.00	12		0.00	0.00	0.00	495.	0.00	0.00
59	2.00	0		0.00	0.00	0.00	376.	0.00	0.00
60	2.00	0		0.00	0.00	0.00	404.	0.00	0.00
61	2.00	9		0.00	0.00	0.20	372.	0.00	0.00
62	2.00	22		0.00	0.00	0.00	293.	0.00	0.00
63	2.00	12		0.00	0.00	0.00	292.	0.00	0.00
64	2.00	0		0.00	0.00	0.00	208.	0.00	0.00
65	2.00	12		0.00	0.00	0.00	365.	0.00	0.00
66	2.00	0		0.00	0.00	0.00	245.	0.00	0.00
67	2.00	11		0.00	0.00	0.00	324.	0.00	0.00
68	2.00	45		0.00	0.00	0.00	419.	0.00	0.00
69	2.00	11		0.00	0.00	0.00	453.	0.00	0.00
70	2.00	0		0.00	0.00	0.00	400.	0.00	0.00
71	2.00	0		0.00	0.00	2.70	463.	0.00	0.00
72	2.00	28		0.00	0.00	0.00	392.	0.00	0.00
73	2.00	0		0.00	0.00	1.20	453.	0.00	0.00
74	2.00	20		0.00	0.00	0.00	366.	0.00	0.00
75	2.00	12		0.00	0.00	0.00	473.	0.00	0.00
76	2.00	52		0.00	0.00	0.00	349.	0.00	0.00
77	2.00	0		0.00	0.00	0.20	374.	0.00	0.00
78	2.00	15		0.00	0.00	0.00	398.	0.00	0.00
79	2.00	16		0.00	0.00	0.00	432.	0.00	0.00

DJH

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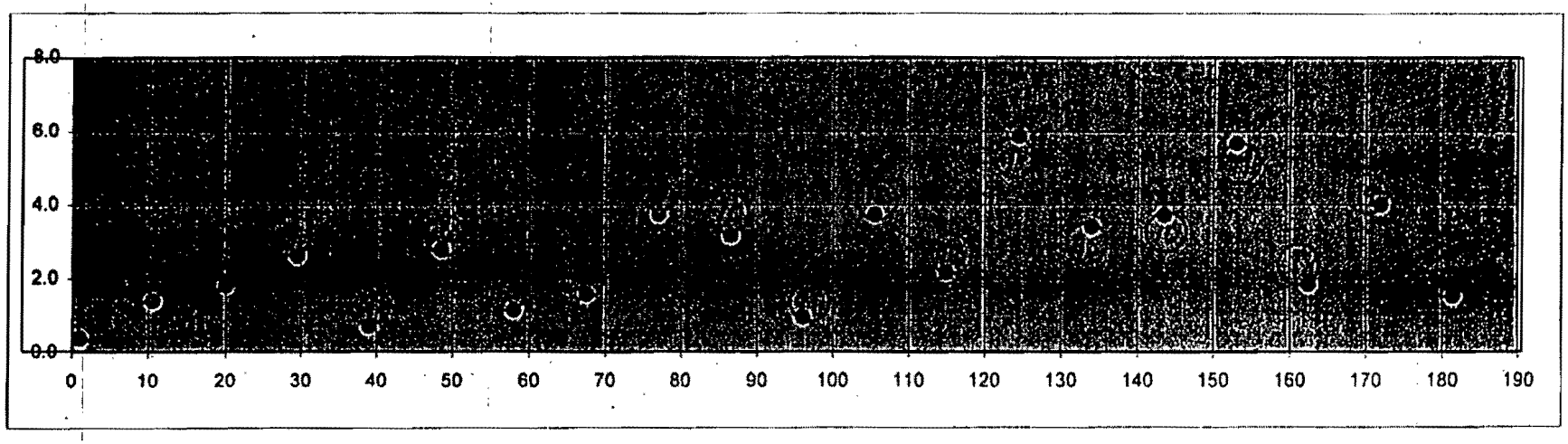


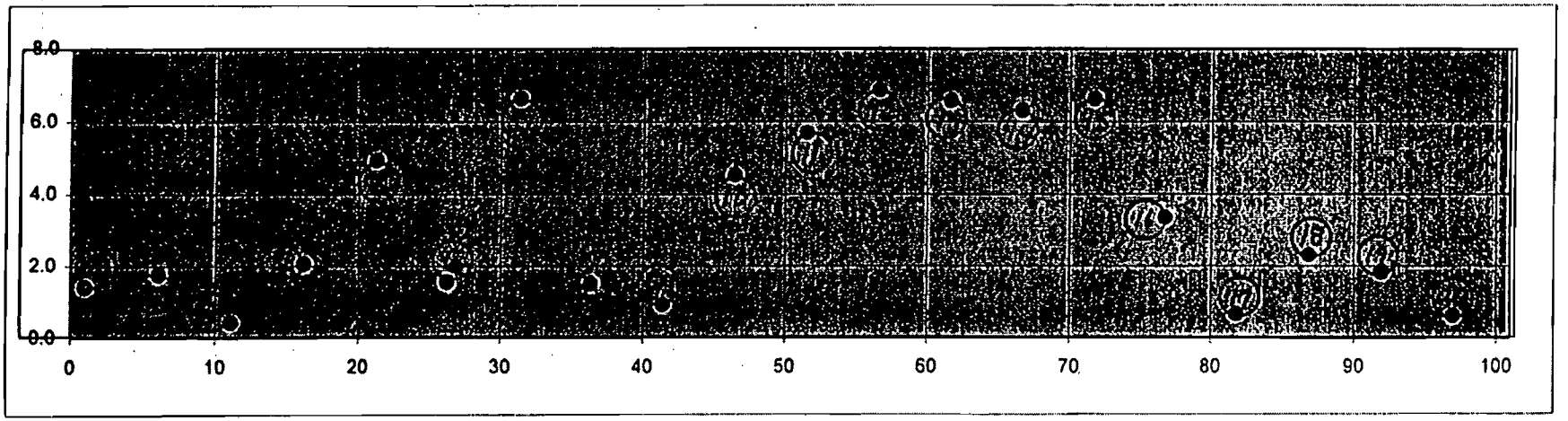
G-257 of 313

L = 190ft
W = 8ft

	Room 201 Walls	
	SU 31 Coordinates	
	X	Y
1	1	0.4
2	10.5	1.4
3	20	1.8
4	29.5	2.6
5	39	0.7
6	48.5	2.8
7	58	1.1
8	67.5	1.6
9	77	3.7
10	86.5	3.1
11	96	0.9
12	105.5	3.7
13	115	2.2
14	124.5	5.9
15	134	3.4
16	143.5	3.7
17	153	5.7
18	162.5	1.9
19	172	4.0
20	181.5	1.5

03-TF-0294

SPF 50-01
Attachment 3



L = 101ft
W = 8ft

	Room 202 Walls	
	SU 32 Coordinates	
	X	Y
1	1	1.4
2	6.05	1.8
3	11.1	0.4
4	16.15	2.1
5	21.2	4.9
6	26.25	1.6
7	31.3	6.6
8	36.35	1.5
9	41.4	0.9
10	46.45	4.5
11	51.5	5.7
12	56.55	6.9
13	61.6	6.6
14	66.65	6.3
15	71.7	6.6
16	76.75	3.4
17	81.8	0.7
18	86.85	2.3
19	91.9	1.8
20	96.95	0.6

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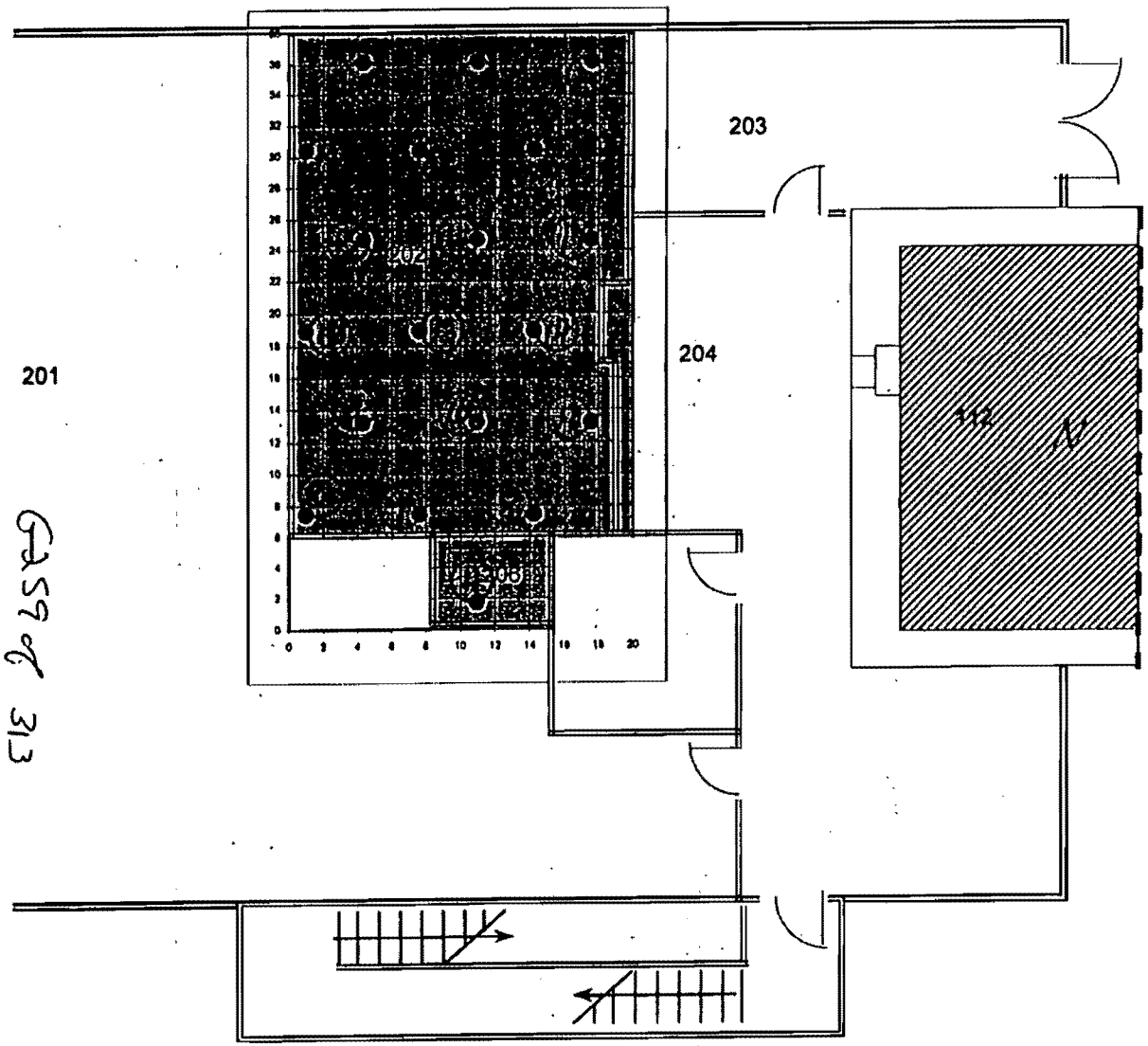

	Room 202/206	
	SU 28 Coordinates	
	X	Y
	20.0	38.0
1	4.3	36.2
2	14.2	30.4
3	10.9	36.2
4	10.9	1.7
5	17.6	36.2
6	1.0	7.5
7	7.6	7.5
8	14.2	7.5
9	4.3	13.2
10	10.9	13.2
11	17.6	13.2
12	1.0	18.9
13	7.6	18.9
14	14.2	18.9
15	4.3	24.7
16	10.9	24.7
17	17.6	24.7
18	1.0	30.4
19	7.6	30.4

A	L	L'
640	6.078775	5.264219

Start	X	Y
Rand X:Y	4.692991	0.437317

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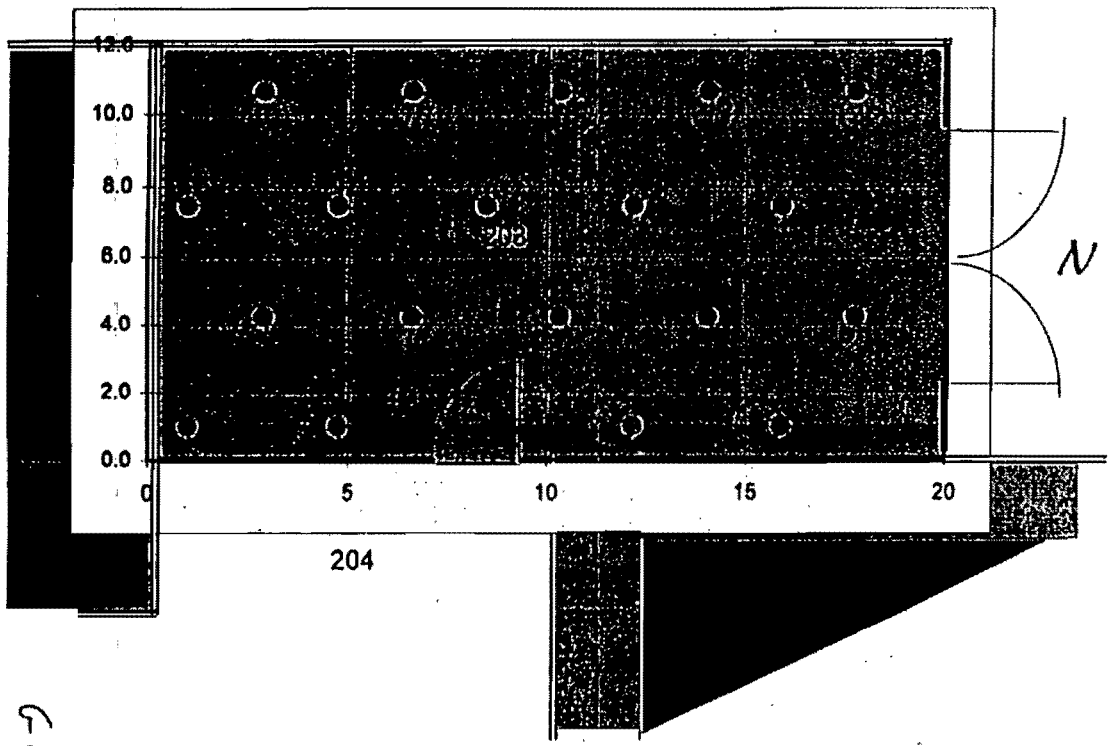
SPF 50-01
Attachment 3



	Room 203	
	SU 29 Coordinates	
	X	Y
	24.0	10.0
1	1.0	1.0
2	4.7	1.0
3	8.4	1.0
4	12.2	1.0
5	15.9	1.0
6	2.9	4.2
7	6.6	4.2
8	10.3	4.2
9	14.0	4.2
10	17.8	4.2
11	1.0	7.4
12	4.7	7.4
13	8.4	7.4
14	12.2	7.4
15	15.9	7.4
16	2.9	10.7
17	6.6	10.7
18	10.3	10.7
19	14.0	10.7
20	17.8	10.7

A	L	L'
240	3.722474	3.223663
Start	X	Y
Rand X:Y	9.639722	7.045301

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03-TF-0294

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) BUILDING 50	SURVEY NO. 03-TF-0295
PURPOSE: MARSSIM SURVEY PLAN 50-01 VENTILATION	RWP NO. N/A
	DATE: 11-6-03
	TIME: 0800

MAP/DRAWING

SEE ATTACHED MAPS AND RESULTS

COPY

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

INSTRUMENTS USED

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

[redacted] Date: 11-6-03

Counted by: (Signature) HP # Date:

Counted by: (Print Name) SEE ATTACHED

[redacted] HP # 6178 Date: 11-6-03

Reviewed [redacted]

ML-9620 (2-98) G261of 313

Survey No.
RSDS 03-TF-0295

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-32	SEE	ATTA	CHED	VENTILATION
		N/A		

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

COMMENTS:

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

ML-9620A (4-98)

Alpha/Beta Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR014
Batch Ended: 11/5/2003 17:25
Recalibration Date: 3/24/2005
Serial Number: 64575

Batch ID: REYNOLDS 03-TF-0295 [32] JC

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	s	flags	DPM	s	flags
A1	1	0.0	1.9		2.0	2.1	
A2	2	0.0	1.9		0.9	2.1	
A3	3	0.0	1.9		0.0	1.7	
A4	4	3.6	2.6		0.6	1.6	
B1	5	1.8	2.0		2.7	3.2	
B2	6	4.0	3.0		0.2	1.8	
B3	7	0.0	2.0		2.5	2.8	
B4	8	0.0	1.9		0.0	1.3	
C1	9	0.0	2.0		2.8	2.4	
C2	10	1.8	1.9		0.0	1.2	
C3	11	3.5	2.7		7.4	3.4	
C4	12	1.6	1.8		2.6	2.3	
D1	13	0.0	2.0		0.0	1.3	
D2	14	0.0	2.1		0.0	1.2	
D3	15	0.0	2.0		1.1	1.7	
D4	16	3.4	2.8		1.7	2.1	
A1	17	3.6	2.7		2.9	2.5	
A2	18	0.0	1.9		0.0	1.2	
A3	19	0.0	1.8		0.0	1.2	
A4	20	0.0	1.9		0.0	1.2	
B1	21	0.0	2.0		4.2	3.4	
B2	22	0.0	2.1		0.5	1.8	
B3	23	1.7	2.0		0.0	1.8	
B4	24	1.6	2.0		2.5	2.5	
C1	25	0.0	2.0		2.8	2.4	
C2	26	0.0	2.0		0.5	1.7	
C3	27	0.0	1.9		0.6	1.7	
C4	28	1.6	1.8		0.3	1.6	
D1	29	0.0	2.1		4.5	2.8	
D2	30	0.0	2.1		1.1	1.7	
D3	31	0.0	2.0		0.0	1.2	

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Alpha/Beta Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR014
Batch Ended: 11/5/2003 17:25
Recalibration Date: 3/24/2005
Serial Number: 64575

Batch ID: REYNOLDS 03-TF-0295 [32] JC

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	s	flags	DPM	s	flags
D4	32	0.0	2.0		0.8	1.7	

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rotocol #: 2 Name:PW H3 #401388 06-Nov-2003 08:37
egion A: LL-UL= 0.5-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
egion B: LL-UL= 2.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
egion C: LL-UL=40.0-2000 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
ime = 2.00 QIP = tSIE/AEC ES Terminator = Count
EYNOLDS 03-TF-0295 1-32 JC
onventional DPM
uclide 1 = 207149
uminescence Correction On
ata/Application Drive & Path = c:\data

AMP	TIME	CPMA	CPMB	CPMC	FLAG	LUM	tSIE	DPM1	A:2S%
-1	10.00	7.43	7.35	5.40	B	12	582.		23.21
0	2.00	438.88	428.90	0.00		1	439.	1082.52	6.92
1	2.00	0.00	0.00	0.00		0	577.	0.00	0.00
2	2.00	0.00	0.00	0.00		27	555.	0.00	0.00
3	2.00	0.00	0.00	0.00		0	509.	0.00	0.00
4	2.00	0.00	0.00	2.60		0	508.	0.00	0.00
5	2.00	0.00	0.00	4.10		16	411.	0.00	0.00
6	2.00	0.00	0.00	2.10		10	499.	0.00	0.00
7	2.00	0.00	0.00	1.57		20	501.	0.00	0.00
8	2.00	0.00	0.00	3.10		24	513.	0.00	0.00
9	2.00	0.00	0.00	2.10		19	571.	0.00	0.00
10	2.00	0.00	0.00	1.67		36	498.	0.00	0.00
11	2.00	0.00	0.00	6.10		13	442.	0.00	0.00
12	2.00	0.00	0.00	0.60		68	531.	0.00	0.00
13	2.00	0.00	0.00	0.60		0	525.	0.00	0.00
14	2.00	0.00	0.00	0.00		10	599.	0.00	0.00
15	2.00	0.00	0.00	0.00		31	631.	0.00	0.00
16	2.00	0.00	0.00	0.68		17	544.	0.00	0.00
17	2.00	0.00	0.00	8.10		12	419.	0.00	0.00
18	2.00	0.00	0.00	0.60		8	513.	0.00	0.00
19	2.00	1.24	0.44	0.00		6	559.	2.64	380.6
20	2.00	0.00	0.00	2.60		27	524.	0.00	0.00
21	2.00	0.00	0.00	1.10		0	482.	0.00	0.00
22	2.00	0.00	0.00	0.00		20	495.	0.00	0.00
23	2.00	0.00	0.00	3.60		22	587.	0.00	0.00
24	2.00	1.54	1.45	3.10		6	608.	3.11	310.9
25	2.00	0.00	0.00	1.10		33	552.	0.00	0.00
26	2.00	0.00	0.00	0.10		47	554.	0.00	0.00
27	2.00	0.00	0.00	2.10		20	449.	0.00	0.00
28	2.00	0.00	0.00	1.60		9	495.	0.00	0.00
29	2.00	0.00	0.00	0.00		36	493.	0.00	0.00
30	2.00	0.00	0.00	1.10		30	507.	0.00	0.00
31	2.00	0.00	0.00	3.10		41	610.	0.00	0.00
32	2.00	0.00	0.00	3.60		60	516.	0.00	0.00

J. Collins

50-BLDG CHARACTERIZATION ALPHA/BETA SURVEY VENTILATION

RSDS#03-TF-0295

RCT: HR RCT:_____

						BETA			ALPHA		
LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2	gross count	CT TIME	dpm/100cm2
1	5833	5760	5847	1	11/5/03	152	60	200	6	60	40
2	5833	5760	5847	2	11/5/03	124	60	60	6	60	40
3	5833	5760	5847	3	11/5/03	171	60	295	8	60	56
4	5833	5760	5847	4	11/5/03	153	60	205	3	60	16
5	5833	5760	5847	5	11/5/03	162	60	250	9	60	64
6	5833	5760	5847	6	11/5/03	131	60	95	6	60	40
7	5833	5760	5847	7	11/5/03	131	60	95	1	60	0
8	5833	5760	5847	8	11/5/03	132	60	100	6	60	40
9	5833	5760	5847	9	11/5/03	137	60	125	1	60	0
10	5833	5760	5847	10	11/5/03	138	60	130	1	60	0
11	5833	5760	5847	11	11/5/03	104	60	-40	1	60	0
12	5833	5760	5847	12	11/5/03	130	60	90	1	60	0
13	5833	5760	5847	13	11/5/03	119	60	35	3	60	16
14	5833	5760	5847	14	11/5/03	320	60	1040	2	60	8
15	5833	5760	5847	15	11/5/03	140	60	140	1	60	0
16	5833	5760	5847	16	11/5/03	269	60	785	4	60	24
17	5833	5760	5847	17	11/5/03	221	60	545	8	60	56
18	5833	5760	5847	18	11/5/03	134	60	110	6	60	40
19	5833	5760	5847	19	11/5/03	148	60	180	5	60	32
20	5833	5760	5847	20	11/5/03	120	60	40	3	60	16
21	5833	5760	5847	21	11/5/03	131	60	95	5	60	32
22	5833	5760	5847	22	11/5/03	174	60	310	6	60	40
23	5833	5760	5847	23	11/5/03	247	60	675	1	60	0
24	5833	5760	5847	24	11/5/03	258	60	730	4	60	24
25	5833	5760	5847	25	11/5/03	141	60	145	6	60	40

50-BLDG CHARACTERIZATION ALPHA/BETA SURVEY VENTILATION

RSDS# 03-TF-0295

RCT: HR RCT: _____

LOCATION	2360	RCT ID	PROBE	ITEM #	DATE	gross count	CT TIME	dpm/100cm2	gross count	CT TIME	dpm/100cm2
26	5833	5760	5847	26	11/5/03	117	60	25	1	60	0
27	5833	5760	5847	27	11/5/03	97	60	-75	2	60	8
28	5833	5760	5847	28	11/5/03	192	60	400	4	60	24
29	5833	5760	5847	29	11/5/03	119	60	35	1	60	0
30	5833	5760	5847	30	11/5/03	108	60	-20	3	60	16
31	5833	5760	5847	31	11/5/03	105	60	-35	8	60	56
32	5833	5760	5847	32	11/5/03	95	60	-85	4	60	24
BETA BACKGROUND FOR 11-05-2003 WAS---------->								112			
ALPHA BACKGROUND FOR 11-05-2003 WAS---------->								1			

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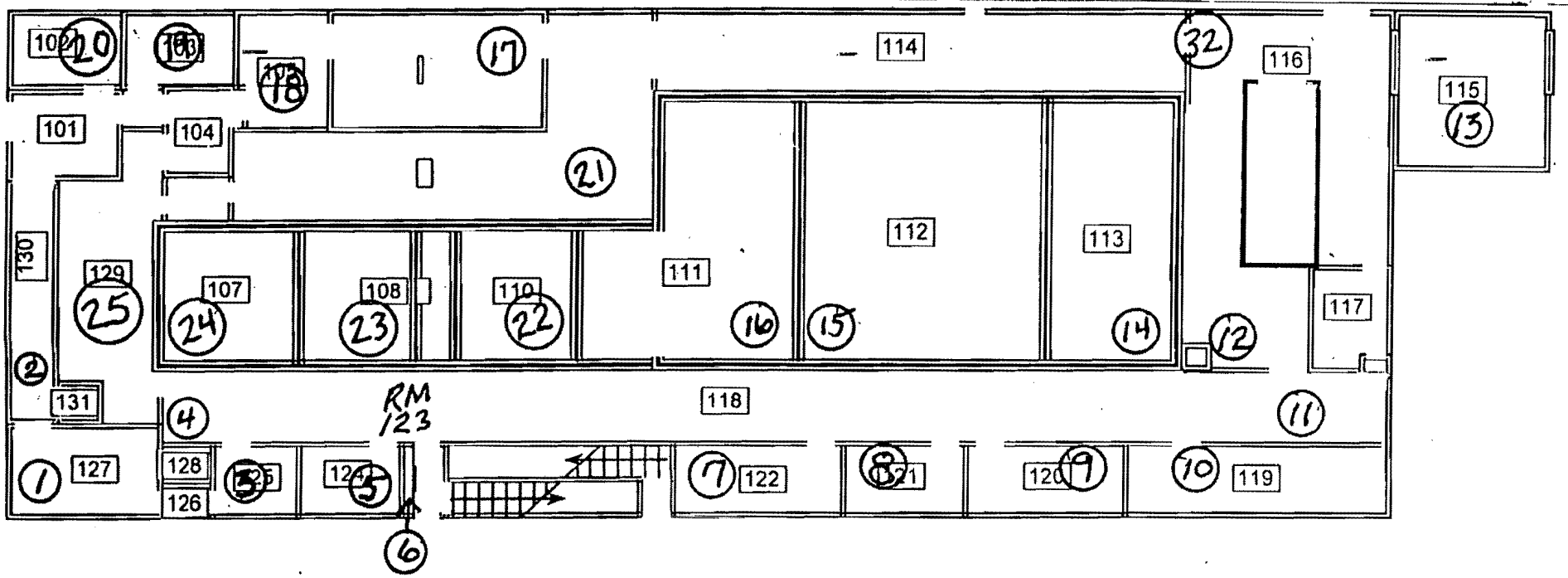

VENTILATION 03-TF-0295

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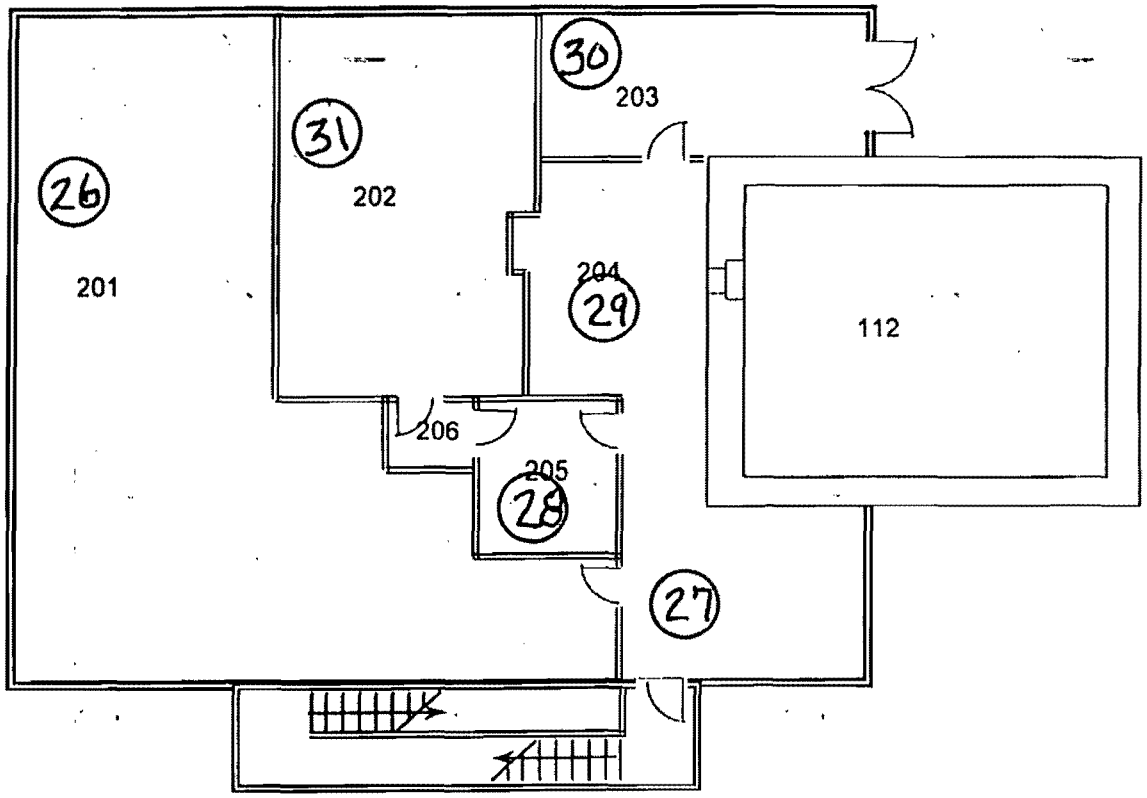

VENTILATION Q3-TF-0295

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RADIOLOGICAL SURVEY DATA SHEET

1 of 5

LOCATION: (BLDG/AREA/ROOM) 29H-H 50	SURVEY NO. 03-TF-0296
PURPOSE: 11-7-03 MARSSIM SURVEY PLAN 50-01 FLOOR SCAN UNITS 1-7, 9, 12 and 27-30	RWP NO. N/A
	DATE: 11-6-03
	TIME: 1630

MAP/DRAWING

SEE ATTACHED

COPY

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350	5857/5675	9-9-04
	N/A	

[redacted] HP # 6178 Date: 11-7-03

[redacted]

Counted by: (Signature) N/A HP # Date:

Counted by: (Print Name) [redacted]

Revie[redacted] HP # 5214 Date: 11-08-03

Revie[redacted]

ML-9620 (2-98)

Survey No. 03-TF-0296

RADIOLOGICAL SURVEY DATA SHEET (cont.)

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

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

COMMENTS: N/A

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

ML-9620A (4-98)

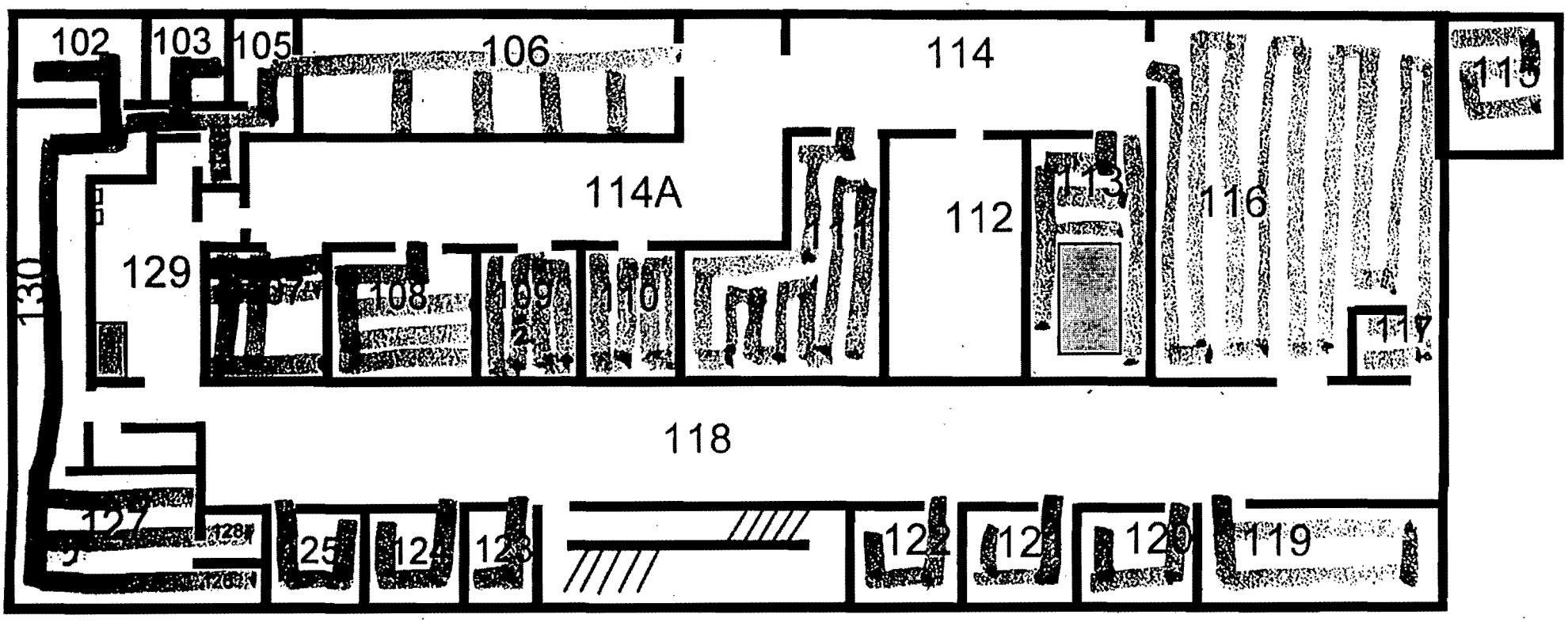
G2720 of 313

50-Building Characterization Survey Floor Scan for Units 1-7, 9, 12 and 27-30

RSDS# 03-TF-0296 RCT: [illegible] RCT: N/A

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
SCAN	SRC BKG	5857	5214	5675	3		11/6/03	7:15	15	300	5
SCAN	SRC CHECK	5857	5214	5675	3		11/6/03	7:26	1938	60	3407
SCAN	SRC CHECK	5857	5214	5675	3		11/6/03	7:27	1961	60	3448
SCAN	SRC CHECK	5857	5214	5675	3		11/6/03	7:29	2086	60	3667
SCAN	SRC CHECK	5857	5214	5675	3		11/6/03	7:30	1978	60	3477
SCAN	SRC CHECK	5857	5214	5675	3		11/6/03	7:32	1849	60	3251
SCAN	SRC CHECK	5857	5214	5675	3		11/6/03	7:33	2016	60	3544
SCAN	U-4 01	5857	5214	5675	3	1	11/6/03	8:04	3	30	11
SCAN	U-6 01	5857	5214	5675	3	2	11/6/03	8:48	3	30	11
SCAN	U-2 01	5857	5214	5675	3	3	11/6/03	13:17	14	30	49

Building 50



G2748 313

03-TF-0290

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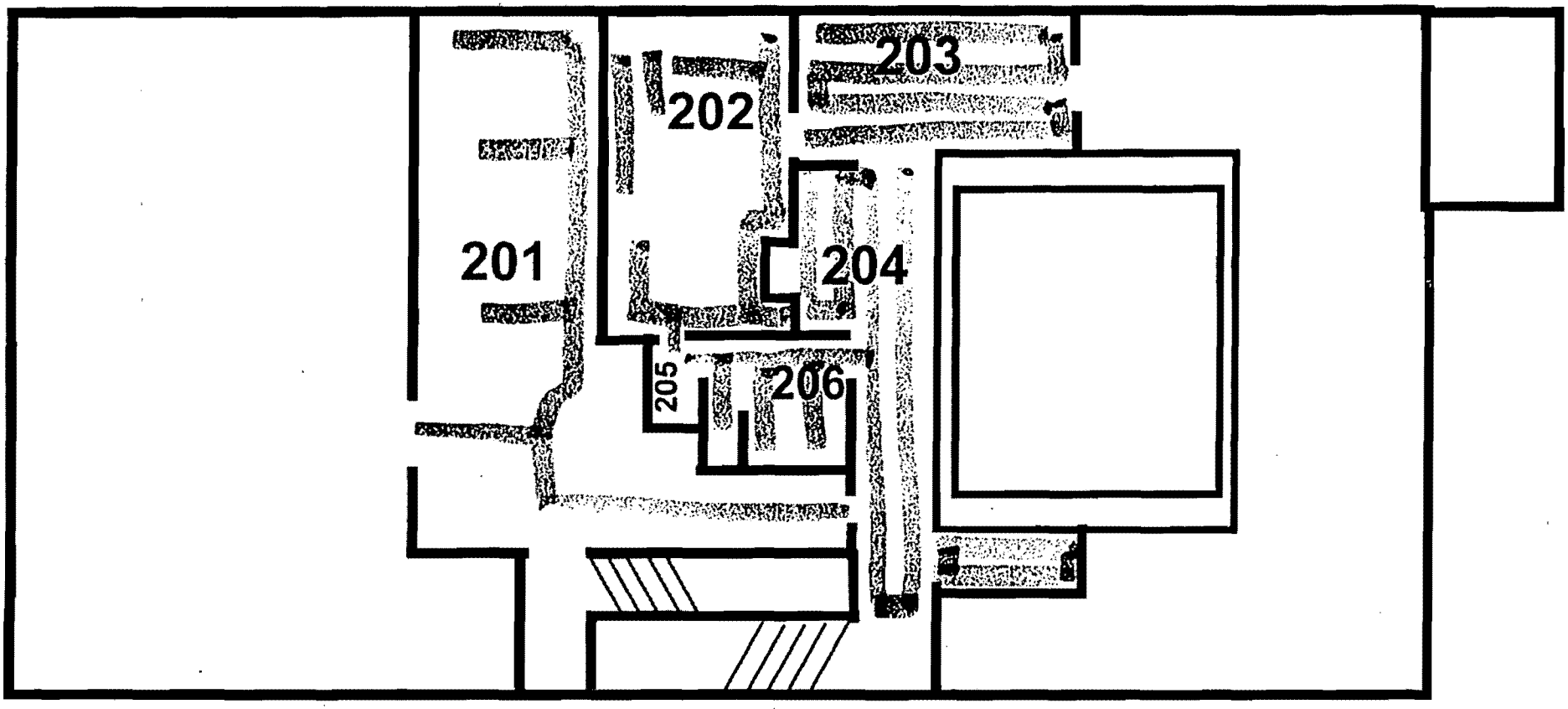
DA

Building 50 Penthouse



29A
5 of 5
03-TF-0296
G2 25 of 33

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) BUILDING 50	SURVEY NO. 03-TF-0297
PURPOSE: MARSSIM SURVEY PLAN 50-01 QC CHECKS. RESCAN AND JUDGEMENTALS	RWP NO. N/A
	DATE: 11-06-03
	TIME: 1600

MAP/DRAWING

SEE ATTACHED DRAWING (JUDGEMENTALS) AND RESULTS

RESCAN:
LL-2 #12
LL-2 #14
LL-15 #14

SMEAR RESULTS FOR JUDGEMENTALS ONLY.

COPY

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350	5855	06-18-04
2360	5833/5847	03-13-04
	N/A	

Co[redacted]	HP # 5214	Date: 11-11-03
Completed by: (Print Na[redacted]		
Counted by: (Signature)	HP #	Date:
Counted by: (Print Name) [redacted] ATTACHED		
[redacted]	HP # 6128	Date: 11-13-03
Rev[redacted]		

ML-9620 (2-98) G-277 of 313

Survey No. 03-TF-0297

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1				CONDUIT TRAY
2				CEILING
3				DUCT
4				WALL
5				DUCT
6				CEILING
7				'I' BEAM
8				CEILING
9				DUCT
10				PIPING
11				WALL
12				TOP OF DOOR
13				DUCT
14				WALL LEDGE
15				TOP FILTERBANK
16				TOP FILTERBANK
17				PIPING
18				LEDGE
19				ELEC. BOX CONTROL
20				FIRE LINE

DECON'D

SEE ATTACHED

N/A

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

N/A

COMMENTS:

NOTES:

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

ML-9620A (4-98)

G27807 313

Alpha/Beta Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR003
Batch Ended: 11/10/2003 8:04
Recalibration Date: 3/24/2005
Serial Number: 64575

Batch ID: REYNOLDS 03-TF-0297 [20] JC

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	s	flags	DPM	s	flags
A1	1	0.0	1.9		2.0	2.1	
A2	2	0.0	1.9		0.9	2.1	
A3	3	0.0	1.8		0.0	1.2	
A4	4	0.0	1.9		0.0	1.2	
B1	5	0.0	2.1		8.1	4.1	
B2	6	0.0	2.2		3.1	2.6	
B3	7	0.0	2.0		2.5	2.8	
B4	8	0.0	2.0		0.2	1.8	
C1	9	0.0	2.0		1.6	2.1	
C2	10	0.0	2.0		4.1	2.6	
C3	11	0.0	1.9		0.0	1.2	
C4	12	0.0	1.8		0.0	1.2	
D1	13	0.0	2.1		4.5	2.8	
D2	14	1.8	2.1		2.2	2.1	
D3	15	0.0	2.0		0.0	1.2	
D4	16	1.5	2.0		0.7	1.7	
A1	17	0.0	1.9		2.0	2.1	
A2	18	0.0	1.9		2.1	2.4	
A3	19	1.6	1.8		0.0	1.2	
A4	20	0.0	1.9		2.0	2.0	

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RDS 03-TF-0293
B369

11-11-03

Protocol #: 1 Name:PW H3 #401388 10-Nov-2003 09:56
Region A: LL-UL= 0.5-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region B: LL-UL= 2.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region C: LL-UL=40.0-2000 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Time = 2.00 QIP = tSIE/AEC ES Terminator = Count
03-TF-0297 REYNOLDS (W1-W20) AG
Conventional DPM
Nuclide 1 = 207149
Luminescence Correction On
Data/Application Drive & Path = c:\data

SAMP	TIME	CPMA	CPMB	CPMC	FLAG	LUM	tSIE	DPM1	A:2S%
-1	10.00	5.04	5.54	4.40	B	37	663.		28.18
0	2.00	610.60	589.94	1.10		1	490.	1400.34	5.81
1	2.00	0.00	0.00	0.60		18	543.	0.00	0.00
2	2.00	0.00	0.00	0.00		36	598.	0.00	0.00
3	2.00	0.00	0.00	1.10		18	549.	0.00	0.00
4	2.00	0.00	0.00	0.00		82	594.	0.00	0.00
5	2.00	0.00	0.00	2.60		33	549.	0.00	0.00
6	2.00	0.00	0.00	1.10		18	614.	0.00	0.00
7	2.00	0.00	0.00	2.10		36	571.	0.00	0.00
8	2.00	0.00	0.00	2.10		20	633.	0.00	0.00
9	2.00	0.00	0.00	0.00		24	586.	0.00	0.00
10	2.00	0.00	0.00	0.00		36	520.	0.00	0.00
11	2.00	0.00	0.00	0.00		16	616.	0.00	0.00
12	2.00	0.65	0.32	3.10		9	466.	1.54	607.5
13	2.00	1.40	0.78	1.60		14	612.	2.81	312.2
14	2.00	0.00	0.00	0.60		65	576.	0.00	0.00
15	2.00	0.00	0.00	4.10		54	611.	0.00	0.00
16	2.00	0.00	0.00	4.10		27	588.	0.00	0.00
17	2.00	0.00	0.00	2.10		43	544.	0.00	0.00
18	2.00	0.43	0.00	3.10		9	561.	0.91	899.5
19	2.00	0.00	0.00	0.10		36	542.	0.00	0.00
20	2.00	0.00	0.00	0.00		12	509.	0.00	0.00

RSDS 03-TF-0297

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B 4.69

50-Building Characterization Survey Recounts, QC's and Judgementals

RSDS# 03-TF-0297 RCT: DR RCT: N/A

Alpha	43-68 BKG:	0	EFF:	0.2091	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1793	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.2075	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5855	5214	5864	1		11/6/03	7:26	15	300	23
ALPHA	SRC CHECK	5855	5214	5864	1		11/6/03	7:34	2022	60	15349
ALPHA	SRC CHECK	5855	5214	5864	1		11/6/03	7:35	2101	60	15949
ALPHA	SRC CHECK	5855	5214	5864	1		11/6/03	7:36	1880	60	14271
ALPHA	SRC CHECK	5855	5214	5864	1		11/6/03	7:39	1936	60	14696
ALPHA	QCU-2 02	5855	5214	5864	1		11/6/03	8:12	6	120	23
ALPHA	QCU-5 04	5855	5214	5864	1		11/6/03	8:35	10	120	38
ALPHA	QCU-5 09	5855	5214	5864	1		11/6/03	8:41	10	120	38
ALPHA	QCU-5 12	5855	5214	5864	1		11/6/03	8:45	6	120	23
ALPHA	QCU19 02	5855	5214	5864	1		11/6/03	8:53	11	120	42
ALPHA	QCU19 14	5855	5214	5864	1		11/6/03	8:58	10	120	38
ALPHA	QCU-7 17	5855	5214	5864	1		11/6/03	9:05	15	120	57
ALPHA	QCU20 01	5855	5214	5864	1		11/6/03	9:18	5	120	19
ALPHA	QCU23 09	5855	5214	5864	1		11/6/03	9:24	13	120	49
ALPHA	QCU26 14	5855	5214	5864	1		11/6/03	9:30	8	120	30
ALPHA	QCU14 11	5855	5214	5864	1		11/6/03	9:35	7	120	27
ALPHA	QCU27 13	5855	5214	5864	1		11/6/03	9:44	11	120	42
ALPHA	QCU33 10	5855	5214	5864	1		11/6/03	9:50	11	120	42
ALPHA	QCU34 06	5855	5214	5864	1		11/6/03	9:57	12	120	46
ALPHA	QCU34 12	5855	5214	5864	1		11/6/03	10:05	6	120	23
ALPHA	QCU35 18	5855	5214	5864	1		11/6/03	10:11	9	120	34
ALPHA	U-2R 12	5855	5214	5864	1		11/6/03	10:20	6	120	23
ALPHA	U-2R 14	5855	5214	5864	1		11/6/03	10:25	9	120	34
ALPHA	U-15R 14	5855	5214	5864	1		11/6/03	10:33	39	120	148
ALPHA	J-SCN 01	5855	5214	5864	1	1	11/6/03	13:08	2	120	8
ALPHA	J-SCN 02	5855	5214	5864	1	2	11/6/03	13:17	7	120	27
ALPHA	J-SCN 03	5855	5214	5864	1	3	11/6/03	13:37	6	120	23
ALPHA	J-SCN 04	5855	5214	5864	1	4	11/6/03	13:44	11	120	42
ALPHA	J-SCN 05	5855	5214	5864	1	5	11/6/03	13:53	13	120	49
ALPHA	J-SCN 06	5855	5214	5864	1	6	11/6/03	13:58	6	120	23
ALPHA	J-SCN 07	5855	5214	5864	1	7	11/6/03	14:03	7	120	27
ALPHA	J-SCN 08	5855	5214	5864	1	8	11/6/03	14:09	13	120	49
ALPHA	J-SCN 09	5855	5214	5864	1	9	11/6/03	14:34	3	120	11
ALPHA	J-SCN 10	5855	5214	5864	1	10	11/6/03	14:34	13	120	49
ALPHA	J-SCN 11	5855	5214	5864	1	11	11/6/03	14:42	9	120	34
ALPHA	J-SCN 12	5855	5214	5864	1	12	11/6/03	14:47	24	120	91
ALPHA	J-SCN 13	5855	5214	5864	1	13	11/6/03	14:55	16	120	61
ALPHA	J-SCN 14	5855	5214	5864	1	14	11/6/03	14:59	10	120	38

50-Building Characterization Survey Recounts, QC's and Judgementals

RSDS# 03-TF-0297 RCT: [illegible] RCT: N/A

Alpha	43-68 BKG:	0	EFF:	0.2091	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Beta	43-68 BKG:	0	EFF:	0.1793	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Scan	43-37 BKG:	0	EFF:	0.2075	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # :
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	J-SCN 15	5855	5214	5864	1	15	11/6/03	15:03	6	120	23
ALPHA	J-SCN 16	5855	5214	5864	1	16	11/6/03	15:07	11	120	42
ALPHA	J-SCN 17	5855	5214	5864	1	17	11/6/03	15:11	7	120	27
ALPHA	J-SCN 18	5855	5214	5864	1	18	11/6/03	15:15	13	120	49
ALPHA	J-SCN 19	5855	5214	5864	1	19	11/6/03	15:19	12	120	46
ALPHA	J-SCN 20	5855	5214	5864	1	20	11/6/03	15:23	14	120	53
BETA	SRC BKG	5855	5214	5864	2		11/6/03	7:45	680	300	1204
BETA	SRC CHECK	5855	5214	5864	2		11/6/03	7:46	2616	60	23159
BETA	SRC CHECK	5855	5214	5864	2		11/6/03	7:47	2674	60	23672
BETA	SRC CHECK	5855	5214	5864	2		11/6/03	7:49	2347	60	20777
BETA	SRC CHECK	5855	5214	5864	2		11/6/03	7:51	2287	60	20246
BETA	QCU-2 02	5855	5214	5864	2		11/6/03	8:13	134	60	1186
BETA	QCU-5 04	5855	5214	5864	2		11/6/03	8:36	116	60	1027
BETA	QCU-5 09	5855	5214	5864	2		11/6/03	8:42	107	60	947
BETA	QCU-5 12	5855	5214	5864	2		11/6/03	8:46	134	60	1186
BETA	QCU19 02	5855	5214	5864	2		11/6/03	8:54	167	60	1478
BETA	QCU19 14	5855	5214	5864	2		11/6/03	8:59	142	60	1257
BETA	QCU-7 17	5855	5214	5864	2		11/6/03	9:06	173	60	1532
BETA	QCU20 01	5855	5214	5864	2		11/6/03	9:19	169	60	1496
BETA	QCU23 09	5855	5214	5864	2		11/6/03	9:25	131	60	1160
BETA	QCU26 14	5855	5214	5864	2		11/6/03	9:31	151	60	1337
BETA	QCU14 11	5855	5214	5864	2		11/6/03	9:36	163	60	1443
BETA	QCU27 13	5855	5214	5864	2		11/6/03	9:45	180	60	1593
BETA	QCU33 10	5855	5214	5864	2		11/6/03	9:51	161	60	1425
BETA	QCU34 06	5855	5214	5864	2		11/6/03	9:58	148	60	1310
BETA	QCU34 12	5855	5214	5864	2		11/6/03	10:06	138	60	1222
BETA	QCU35 18	5855	5214	5864	2		11/6/03	10:12	152	60	1346
BETA	U-2R 12	5855	5214	5864	2		11/6/03	10:21	142	60	1257
BETA	U-2R 14	5855	5214	5864	2		11/6/03	10:26	147	60	1301
BETA	U-15R 14	5855	5214	5864	2		11/6/03	10:34	280	60	2479
BETA	J-SCN 01	5855	5214	5864	2	1	11/6/03	13:09	131	60	1160
BETA	J-SCN 02	5855	5214	5864	2	2	11/6/03	13:18	199	60	1762
BETA	J-SCN 03	5855	5214	5864	2	3	11/6/03	13:39	121	60	1071
BETA	J-SCN 04	5855	5214	5864	2	4	11/6/03	13:45	161	60	1425
BETA	J-SCN 05	5855	5214	5864	2	5	11/6/03	13:54	158	60	1399
BETA	J-SCN 06	5855	5214	5864	2	6	11/6/03	13:59	193	60	1709
BETA	J-SCN 07	5855	5214	5864	2	7	11/6/03	14:04	103	60	912
BETA	J-SCN 08	5855	5214	5864	2	8	11/6/03	14:10	149	60	1319

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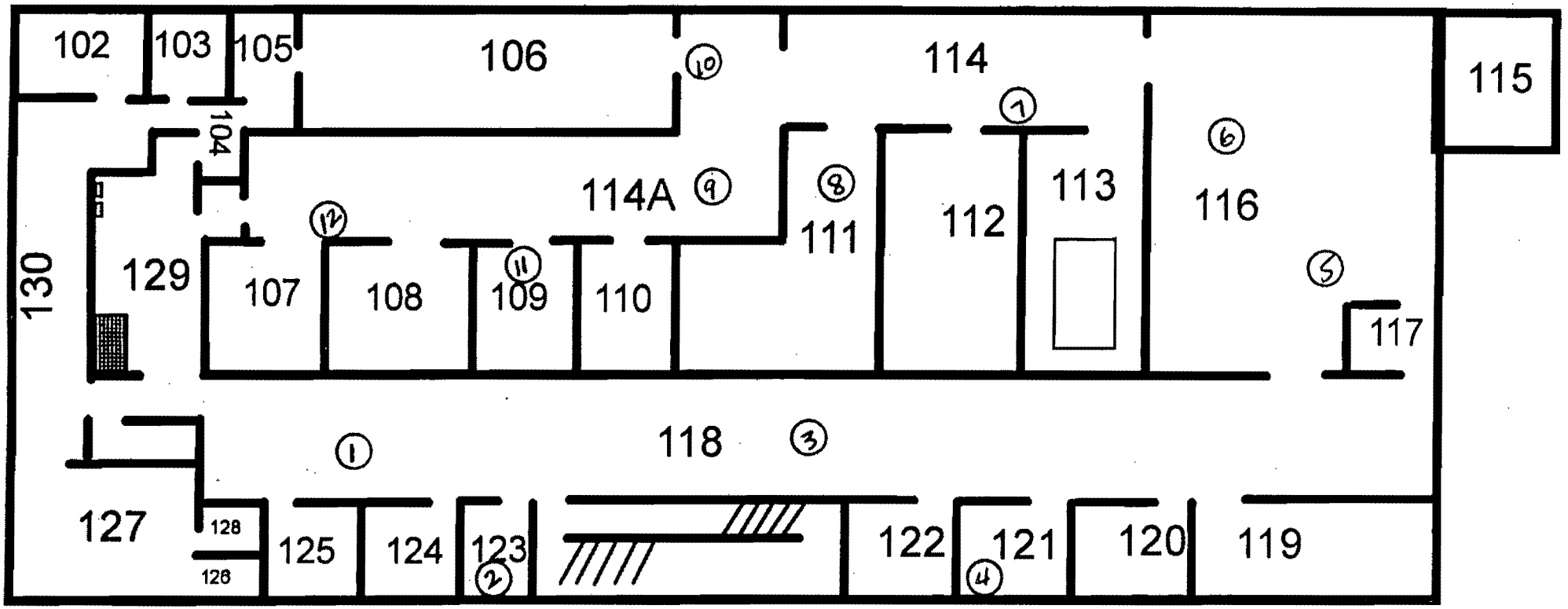
50-Building Characterization Survey Recounts, QC's and Judgementals

RSDS# 03-TF-0297 RCT: [illegible] RCT: N/A

Alpha	43-68 BKG:	0	EFF:	0.2091	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1793	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.2075	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
BETA	J-SCN 09	5855	5214	5864	2	9	11/6/03	14:35	109	60	965
BETA	J-SCN 09	5855	5214	5864	2	10	11/6/03	14:35	169	60	1496
BETA	J-SCN 11	5855	5214	5864	2	11	11/6/03	14:43	160	60	1416
BETA	J-SCN 12	5855	5214	5864	2	12	11/6/03	14:48	202	60	1788
BETA	J-SCN 13	5855	5214	5864	2	13	11/6/03	14:57	178	60	1576
BETA	J-SCN 14	5855	5214	5864	2	14	11/6/03	15:00	181	60	1602
BETA	J-SCN 15	5855	5214	5864	2	15	11/6/03	15:04	136	60	1204
BETA	J-SCN 16	5855	5214	5864	2	16	11/6/03	15:08	140	60	1239
BETA	J-SCN 17	5855	5214	5864	2	17	11/6/03	15:12	135	60	1195
BETA	J-SCN 18	5855	5214	5864	2	18	11/6/03	15:16	179	60	1585
BETA	J-SCN 19	5855	5214	5864	2	19	11/6/03	15:20	135	60	1195
BETA	J-SCN 20	5855	5214	5864	2	20	11/6/03	15:24	127	60	1124

Building 50



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03-TF-029

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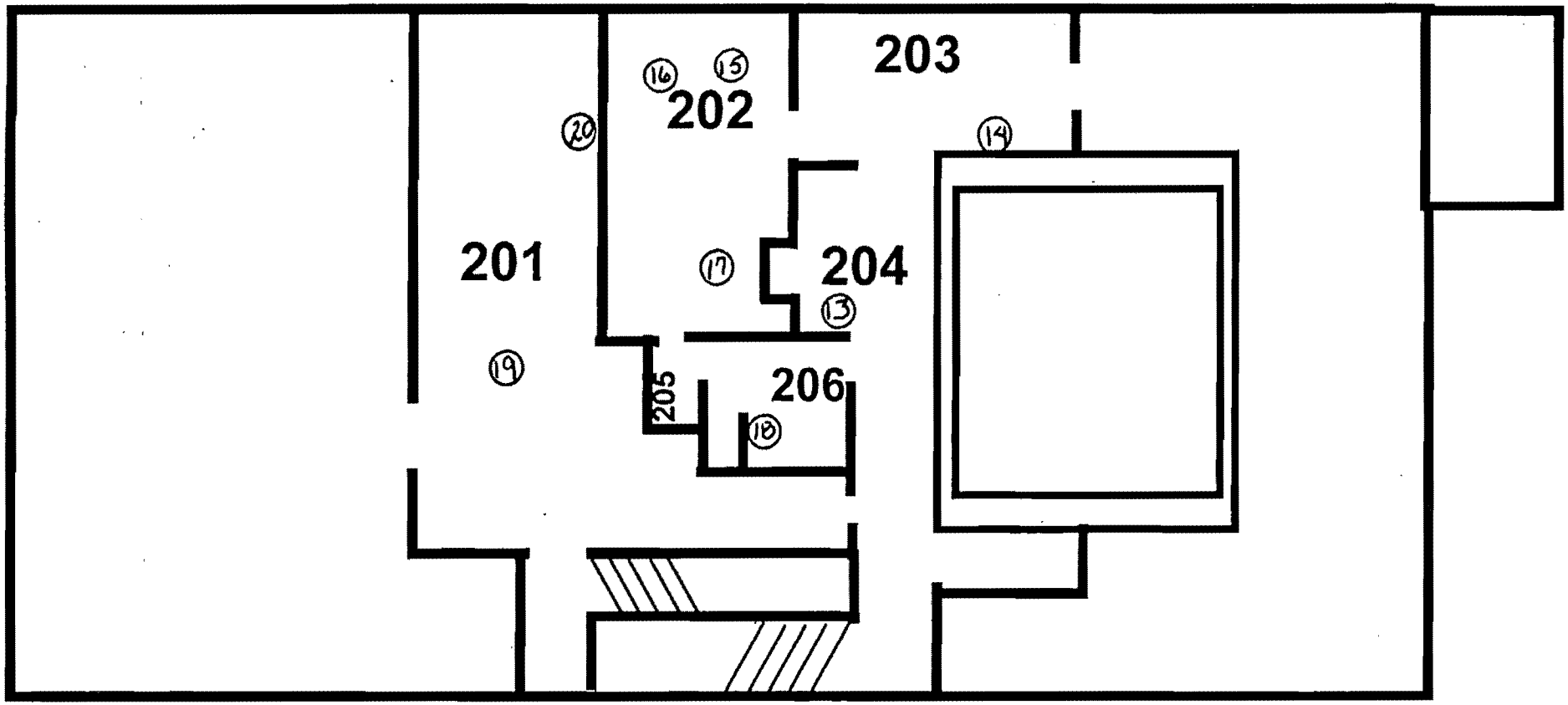
Building 50 Penthouse



RSDS 03-TF-0297

G085d 313

P 9969

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RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 50	SURVEY NO. 03-TF-0298
PURPOSE: MARSSIM SURVEY PLAN 50-01 WALL SCANS UNITS 16-26 AND 31-35	RWP NO. N/A
	DATE: 11-7-03
	TIME: 1630

MAP/DRAWING

COPY

SEE ATTACHED

NOTE: AT LEAST 10% SCANNED IN ALL UNITS.
NO AUDIBLE ALPHA DETECTED OR ALARMS
NO INTEGRATED COUNTS TAKEN.

RESULTS <100/α> <25K/β->

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2350	5857/5859	9-9-04
2350	5855/5864	6-18-04
	N/A	

[redacted]

HP # 6178 5214	Date: 11-10-03	
Counted by: (Signature) N/A	HP #	Date:
Counted by: (Print Name) [redacted]		
Review[redacted]	HP # 7492	Date: 11-11-03
Reviewed/Approved by: (Print [redacted]		

ML-9620 (2-88)

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Survey No. 03-TF-0298

RADIOLOGICAL SURVEY DATA SHEET (cont.)

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

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

COMMENTS: N/A

NOTES:

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

ML-9620A (4-98)

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50-Building Characterization Survey Wall Scan Unit 16-19

RSDS# 03-TF-0298 RCT: DSH RCT: JR

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5857	5214	5859	1		11/7/03	7:23	5	300	7
ALPHA	SRC CHECK	5857	5214	5859	1		11/7/03	7:27	2093	60	14463
ALPHA	SRC CHECK	5857	5214	5859	1		11/7/03	7:29	2142	60	14802
ALPHA	SRC CHECK	5857	5214	5859	1		11/7/03	7:30	2087	60	14422
ALPHA	SRC CHECK	5857	5214	5859	1		11/7/03	7:32	2078	60	14360

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B-Building Characterization SurveyWall Scan Unit 23-26

RSDS# 03-TF-0298 RCT: [illegible] RCT: [illegible]

Alpha	43-68 BKG:	0	EFF:	0.2091	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Beta	43-68 BKG:	0	EFF:	0.1793	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Scan	43-37 BKG:	0	EFF:	0.2075	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # :
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5855	6178	5864	1		11/7/03	7:43	10	300	15
ALPHA	SRC CHECK	5855	6178	5864	1		11/7/03	7:48	2070	60	15714
ALPHA	SRC CHECK	5855	6178	5864	1		11/7/03	7:49	2020	60	15334
ALPHA	SRC CHECK	5855	6178	5864	1		11/7/03	7:51	2009	60	15251
ALPHA	SRC CHECK	5855	6178	5864	1		11/7/03	7:52	2058	60	15623

50-Building Characterization Survey Wall Scan Unit 31-34

RSDS# 03-TF-0298 RCT: DgH RCT: [illegible]

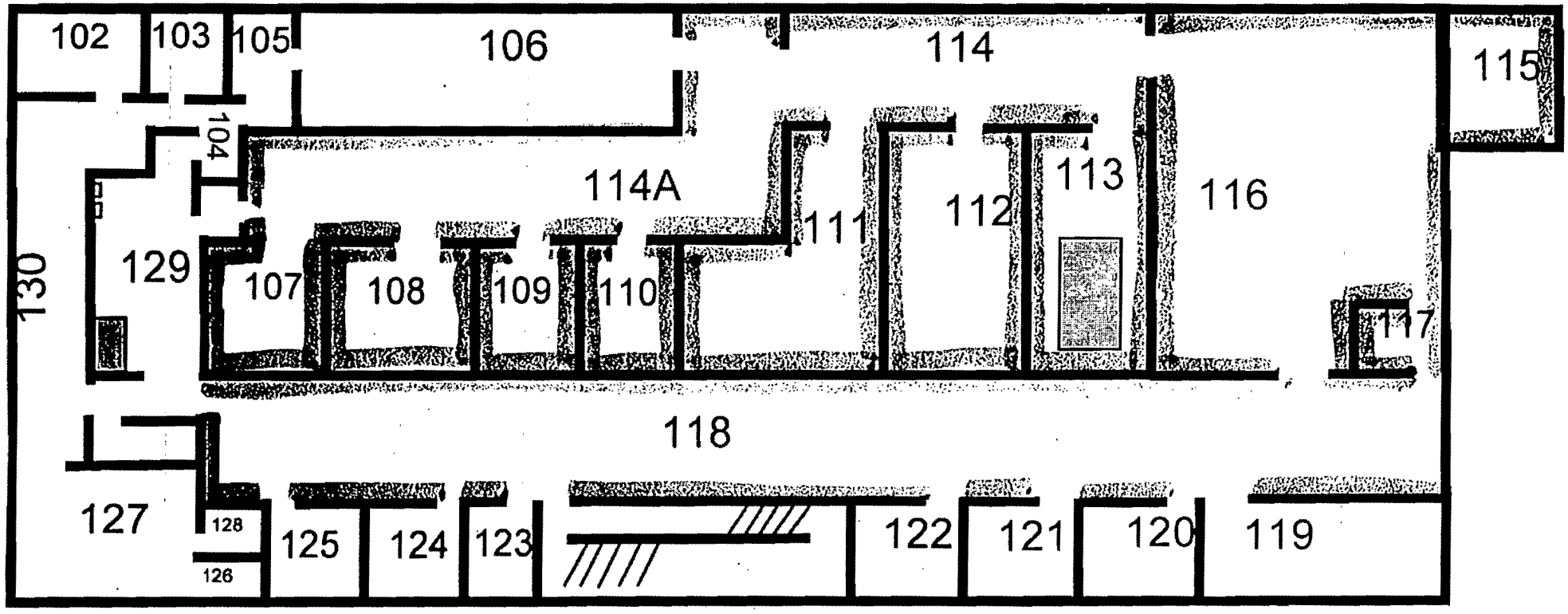
Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :	1
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :	2
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # :	3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2	
ALPHA	SRC BKG	5857	5214	5859	1		11/8/03	6:51	8	300	11	
ALPHA	SRC CHECK	5857	5214	5859	1		11/8/03	6:59	2102	60	14526	
ALPHA	SRC CHECK	5857	5214	5859	1		11/8/03	7:00	2004	60	13848	
ALPHA	SRC CHECK	5857	5214	5859	1		11/8/03	7:01	1973	60	13634	
ALPHA	SRC CHECK	5857	5214	5859	1		11/8/03	7:03	2073	60	14325	

50-Building Characterization Survey Wall Scan Unit 20-22 and 35

RSDS# 03-TF-0298 RCT: 2971 RCT: [illegible]

Alpha	43-68 BKG:	0	EFF:	0.2091	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1793	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.2075	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5855	6178	5864	1		11/8/03	6:51	9	300	14
ALPHA	SRC CHECK	5855	6178	5864	1		11/8/03	7:04	2000	60	15182
ALPHA	SRC CHECK	5855	6178	5864	1		11/8/03	7:06	1987	60	15084
ALPHA	SRC CHECK	5855	6178	5864	1		11/8/03	7:08	2066	60	15683
ALPHA	SRC CHECK	5855	6178	5864	1		11/8/03	7:09	2003	60	15205

Building 50



03-TF-0298

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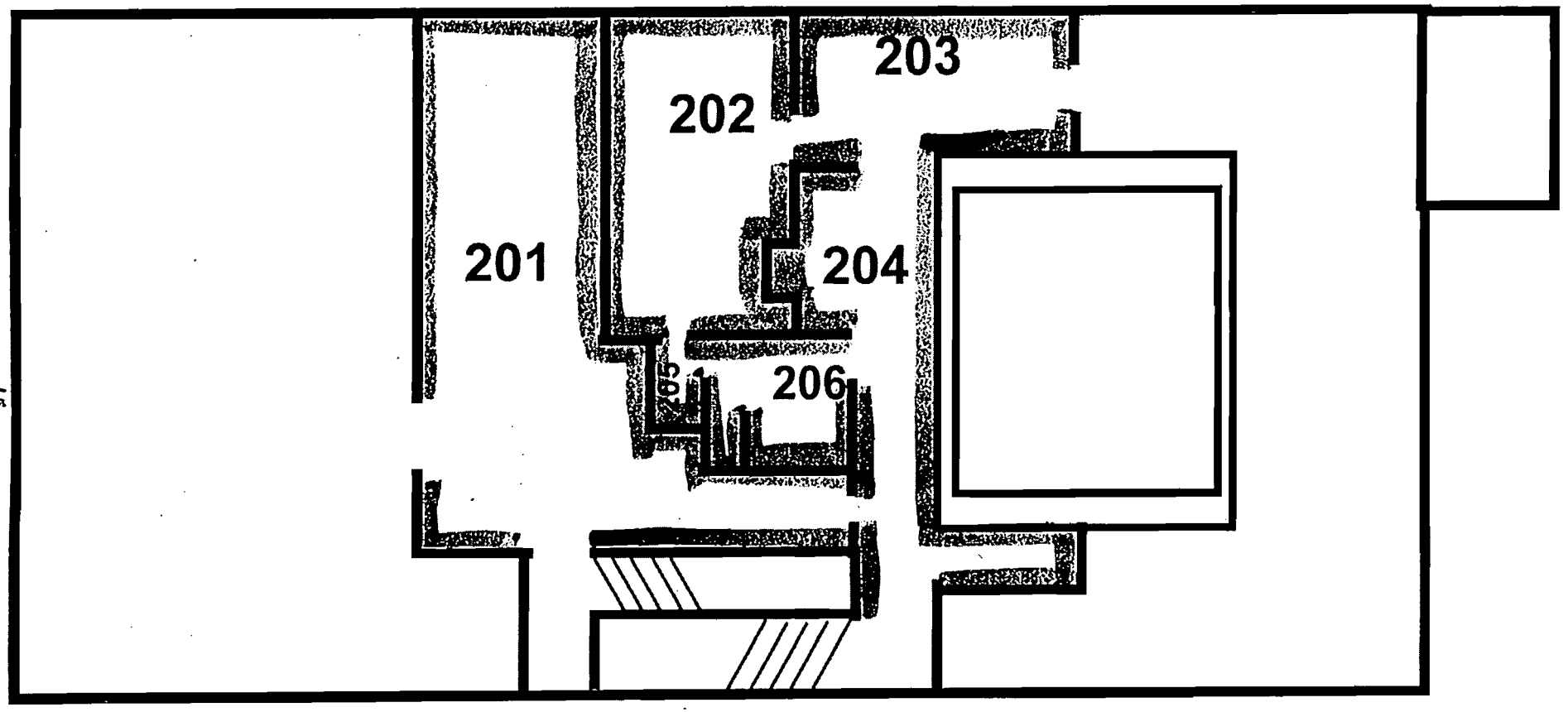
DSH

Building 50 Penthouse



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Pg #
03-TF-020
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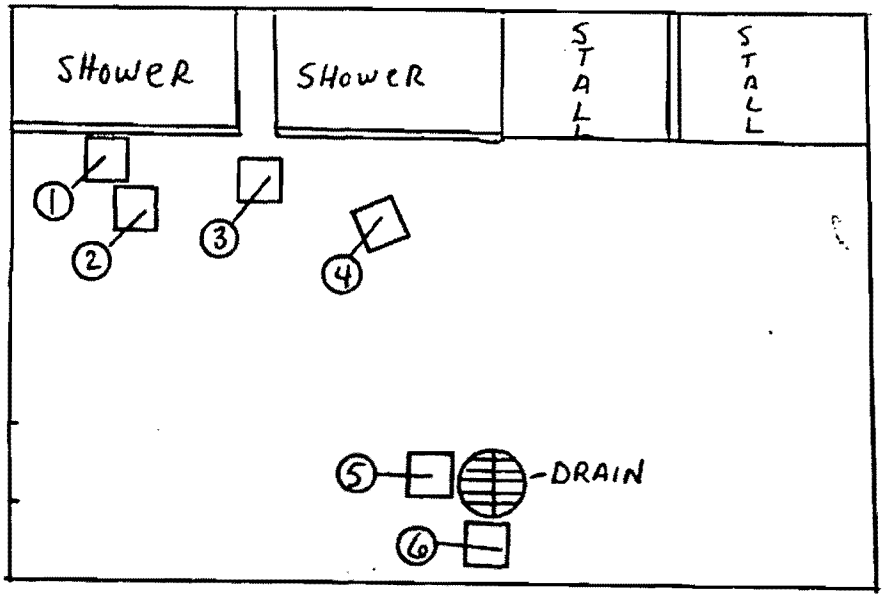
RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG./AREA/ROOM) 50 129	SURVEY NO. 03-TF-0303
PURPOSE: Scoping Survey	RWP NO. NA
	DATE: 11-12-03
	TIME: 1310

MAP/DRAWING

COPY



1. 340 dpm α
2. 320 dpm α
3. 210 dpm α
4. 160 dpm α
5. 160 dpm α
6. 200 dpm α

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
2360	5833/5847	3-13-04
2360	5695/5844	4-17-04
	NA	

[redacted]	HP # 7474 5760	Date: 11-12-03
Counted by: (Signature) See	HP #	Date:
Counted by: (Print Name) [redacted] ATAched		
Reviewed [redacted]	HP # 5214	Date: 11-20-03
Review [redacted]		

ML-9620 (2-98) G295 06 313

Survey No. 03-TF-0303

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1	See	ATTAche	d	Floor
2	↓	↓	↓	↓
3	↓	↓	↓	↓
4	↓	↓	↓	↓
5	↓	↓	↓	↓
6	See	ATTAche	d	Floor
		N	A	

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

COMMENTS: DrAIN SAmple TAKeN AlSo

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

ML-9620A (4-98)

G-2960 313

Alpha/Beta Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR009
Batch Ended: 11/12/2003 16:13
Recalibration Date: 3/24/2005
Serial Number: 64575

Batch ID: REYNOLDS 03-TP-0303 [6] JC

Detector ID	Sample ID	Alpha Activity DPM	Alpha Activity s	Alpha Activity flags	Beta Activity DPM	Beta Activity s	Beta Activity flags
A1	1	0.0	1.9		0.8	1.7	
A2	2	1.7	1.9		2.0	2.4	
A3	3	0.0	1.9		3.2	2.6	
A4	4	1.7	1.9		0.0	1.2	
B1	5	0.0	2.0		0.0	2.3	
B2	6	0.0	2.1		0.5	1.8	

DR DR

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Page 1 of 1 DR 11-20-03

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Protocol #: 1 Name:pW h3 10106B 12-Nov-2003 16:35
Region A: LL-UL= 0.5-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region B: LL-UL= 2.0-18.6 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region C: LL-UL=40.0-2000 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Time = 2.00 QIP = tSIE/AEC ES Terminator = Count
REYNOLDS 03-TF-0303 1-6 JC
Conventional DPM
Nuclide 1 = 206704
Luminescence Correction On

S#	TIME	LUM	FLAG	CPMA	CPMB	CPMC	tSIE	DPM1	2Sigma
-1	10.00	11	B	5.70	5.00	6.70	627.		0.00
0	2.00	0		218.80	205.00	3.30	474.	455.99	56.27
1	2.00	8		0.30	0.00	0.00	589.	0.55	8.73
2	2.00	0		2.80	3.00	0.30	499.	5.67	8.90
3	2.00	0		1.30	1.00	0.00	558.	2.48	7.69
4	2.00	8		0.00	0.00	0.00	507.	0.00	0.00
5	2.00	0		0.80	1.00	1.30	496.	1.63	7.95
6	2.00	6		0.30	0.50	0.00	545.	0.58	10.26

Albert Hobson

RSDS - 03-TF-0303

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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
50-01- 003	11-12-03	1500		FLOOR DRAIN SEDIMENT	HARVEY	11-13-03	7:50	Hop	Hop
50-01-									
50-01-									
50-01-									
50-01-									
50-01-									
50-01-									
50-01-									
50-01-									
50-01-									
50-01-									
50-01-									
50-01-									
50-01-									

NO FURTHER ENTRIES THIS PAGE

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RSDS 03-TF-0303 R 5 of 6

BWXT of Ohio, Inc.

ANALYTICAL SERVICES REQUEST FOR ANALYSIS

DATE SUBMITTED:	SAMPLE TYPE:	COLLECTED BY:	NUMBER OF SAMPLES
11-13-03	SEDIMENT	HARVEY	1
PROJECT/FUNCTION:	**PRIMARY CONTACT/PHONE NO.:**		**MAIL STOP:**
BOSS	DAN HARVEY X 3320		
CHARGE NUMBER:	**DATE(S) COLLECTED:**	**RSDS# (if applicable):**	**ATTACHMENTS (list):**
	11-12-03	03-TF-0303.	

ANALYSES REQUESTED (check):

- ☐ ^3H
- ☐ Characterize/Approve for Sanitary or Storm Discharge. Estimate of Total Volume for Release_____ Approved_____
- ☐ Gross Alpha
- ☐ Air Filter – Isotopic Analysis
- ☒ Characterization per MD-60036, Operation #10015
- ☐ Isotopic Analysis: Pu____ U____ Th____ Am____ Other____
- ☐ Other _____

ADDITIONAL INFORMATION:

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

LAB IDENTIFICATION	SAMPLE LOCATION	SAMPLE NUMBER	RESULTS
0310225	50 FLOOR DRAIN	1	Th^{228} / Th^{232} / Pa^{23}
	ROOM 129		32.00 dpm/gram / 31.00 dpm/gram / 36.00 dpm

COMMENTS:

ANALYZED BY: L. C. Hol[illegible]

DATE: 11-19-03

ML-6222 (1-01)

Pg 60/60

RADIOLOGICAL SURVEY DATA SHEET

LOCATION: (BLDG/AREA/ROOM) 50-129	SURVEY NO. 03-TF-D331
PURPOSE: MARSSIM SURVEY PLAN 50-01 UNIT 15 RESURVEY. 100% FLOOR SCAN AND FIXED POINT	RWP NO. N/A
	DATE: 12-04-03
	TIME: 1600

MAP/DRAWING

SEE ATTACHED DRAWINGS AND RESULTS

COPY

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

INSTRUMENTS USED

Instrument	Serial Number	Cal. Due Date
M2350	5857	09-09-04
	N/A	

Co[redacted]	HP # 5214	Date: 12-04-03
Completed by: (Pri[redacted]		
Counted by: (Signature)	HP #	Date:
Counted by: (Print Name) [redacted]ACHED		
[redacted]	HP # 6178	Date: 12-4-03
Revie[redacted]		

ML-9620 (2-98)

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Survey No. 03-TF-0331

RADIOLOGICAL SURVEY DATA SHEET (cont.)

Removable Contamination				
Swipes (dpm/100cm²)				
Sample #	β/γ	Alpha	Tritium	Comments
1-17	SEE ATTACHED RESULTS			FLOOR

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

COMMENTS:

NOTES:

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

ML-9620A (4-98)

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Smear Analysis

Unit Type: LB4100/W
Counting Unit ID: Green
Data file name: SMEAR015
Batch Ended: 12/4/03 10:41
Cal. Due Date: 5/1/05
Serial Number: 26966-3

Batch ID: RILEY 03-TF-0331 (17) CYR

Detector ID	Sample ID	Alpha Activity			Beta Activity		
		DPM	σ	flags	DPM	σ	flags
A1	1	0.00	2.00		0.00	1.30	
A2	2	0.00	1.95		0.00	1.15	
A3	3	0.00	2.17		0.49	1.77	
A4	4	0.00	1.99		0.00	1.17	
B1	5	0.66	1.93		0.00	1.26	
B2	6	0.00	1.96		1.56	2.00	
B3	7	1.73	2.05		0.00	1.28	
B4	8	1.16	1.99		2.56	2.29	
C1	9	0.00	1.98		0.00	1.24	
C2	10	0.00	1.80		0.00	1.14	
C3	11	0.00	2.12		3.14	2.51	
C4	12	0.00	2.01		2.52	2.31	
D1	13	0.00	2.07		0.00	1.32	
D2	14	0.00	2.18		0.00	1.24	
D3	15	0.00	2.25		0.00	1.32	
D4	16	0.00	2.21		0.00	1.25	
A1	17	0.00	2.00		0.00	1.30	

SR SR

Carol G. Robinson

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R 368

~~Page 1 of 1~~ SR 12-04-03

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

	LL	UL	LCR	2S%	BKG
Region A:	0.5 -	18.6	0	0.0	14.06
Region B:	2.0 -	18.6	0	0.0	13.54
Region C:	40.0 -	2000	0	0.0	11.20

Quench Indicator: tSIE/AEC
Ext Std Terminator: Count
RILEY 03-TF-0331 1-17 JC
Luminescence Correction On
Coincidence Time(ns): 18
Delay Before Burst(ns): Normal
Protocol Data Filename: C:\DATA\PROT2.dat
Count Data Filename: C:\DATA\SDATA2.DAT
Spectrum Data Drive & Path: C:\DATA

S#	TIME	CPMA	CPMB	LUM	FLAG	tSIE	DPM1	2SIGMA	CPMC
-1	10.00	14.06	13.54	3	B	606.72		0.000	11.20
0	2.00	870.96	801.22	0		515.09	1759.44	125.034	0.00
1	2.00	0.00	0.00	0		472.59	0.00	0.000	0.00
2	2.00	0.00	0.00	9		455.44	0.00	0.000	0.04
3	2.00	0.00	0.00	0		514.46	0.00	0.000	0.00
4	2.00	0.00	0.00	0		495.20	0.00	0.000	0.00
5	2.00	0.00	0.00	0		531.03	0.00	0.000	0.00
6	2.00	0.00	0.00	7		539.70	0.00	0.000	2.80
7	2.00	0.00	0.00	0		544.52	0.00	0.000	0.00
8	2.00	0.00	0.00	0		531.46	0.00	0.000	0.79
9	2.00	0.00	0.00	7		599.47	0.00	0.000	0.00
10	2.00	0.00	0.00	7		537.94	0.00	0.000	0.00
11	2.00	0.00	0.00	0		535.99	0.00	0.000	0.00
12	2.00	0.00	0.00	0		592.08	0.00	0.000	0.00
13	2.00	0.00	0.00	0		645.09	0.00	0.000	1.30
14	2.00	0.00	0.00	0		624.04	0.00	0.000	0.00
15	2.00	0.00	0.00	0		622.56	0.00	0.000	0.00
16	2.00	0.00	0.00	0		521.39	0.00	0.000	0.00
17	2.00	0.00	0.00	0		624.83	0.00	0.000	0.00

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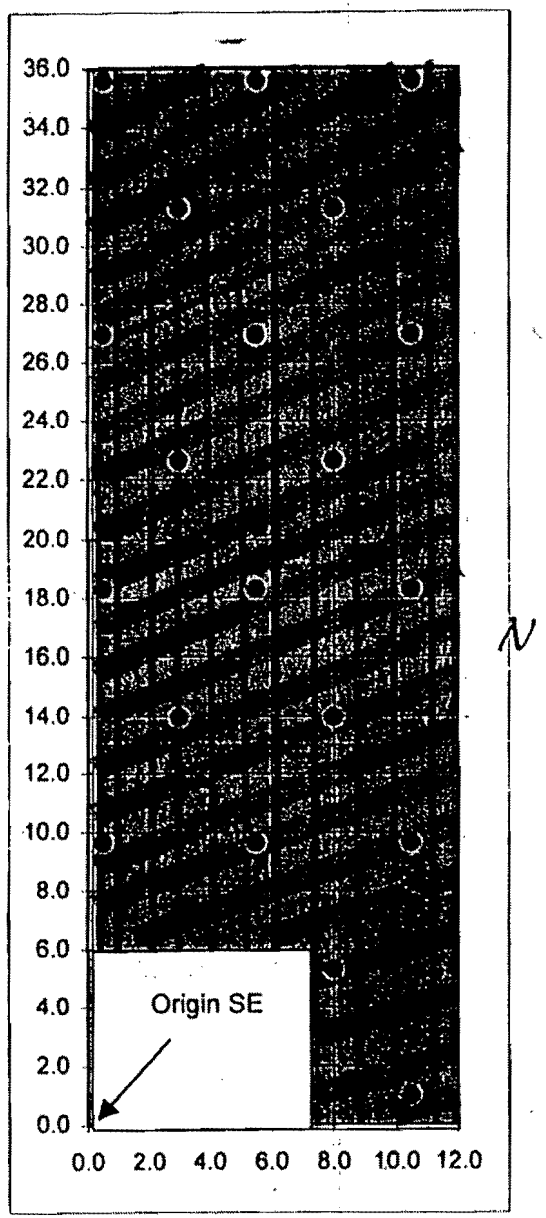
B4468



	Room 129	
	SU 15 Coordinates	
	X"	Y'
	24	12
1	6.5	35.6
2	10.5	1.0
3	8.0	5.3
4	10.5	27.0
5	0.5	9.6
6	5.5	9.6
7	10.5	9.6
8	3.0	14.0
9	8.0	14.0
10	3.0	31.3
11	0.5	18.3
12	5.5	18.3
13	10.5	18.3
14	3.0	22.6
15	8.0	22.6
16	8.0	31.3
17	0.5	26.9
18	5.5	26.9
19	0.5	35.6
20	10.5	35.6

A	L	L'
288	4.077766	3.531345

Start	X	Y
Rand X:Y	0.493022	1.024102

100% FLOOR SCAN
3 INTEGRATED COUNTS TAKEN

RSDS 03-TF-0331

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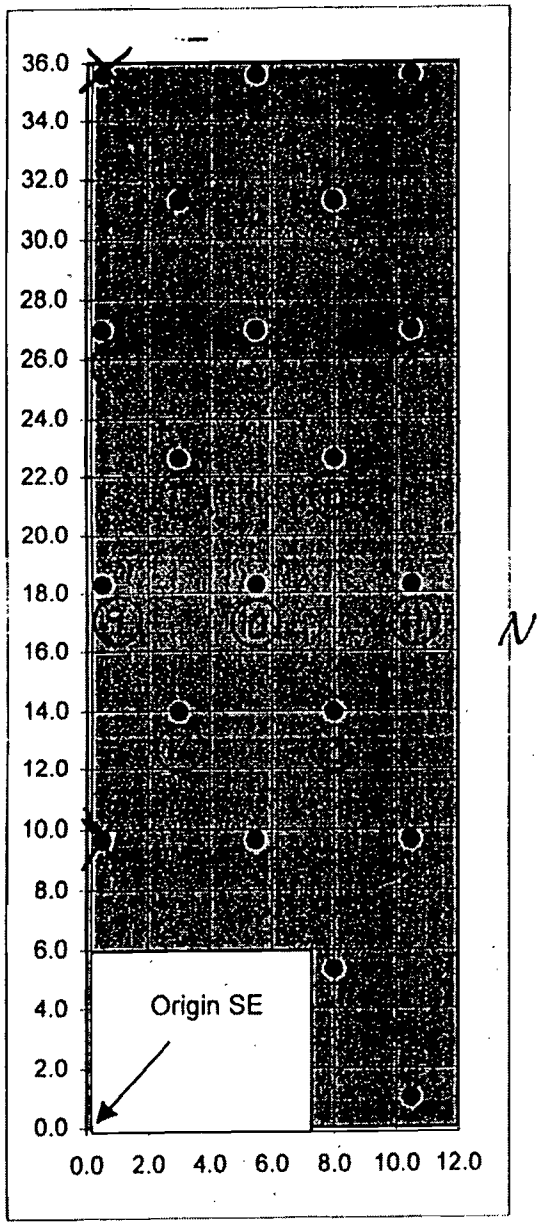
PS 5 of 8



	Room 129	
	SU 15 Coordinates	
	X"	Y'
	24	12
2 ~~4~~	5.5	35.6
17 ~~2~~	10.5	1.0
16 ~~3~~	8.0	5.3
4 ~~4~~	10.5	27.0
~~X~~	~~0.5~~	~~9.6~~
14 ~~6~~	5.5	9.6
15 ~~7~~	10.5	9.6
12 ~~8~~	3.0	14.0
13 ~~9~~	8.0	14.0
~~X~~	~~3.0~~	~~31.3~~
9 ~~11~~	0.5	18.3
10 ~~12~~	5.5	18.3
11 ~~13~~	10.5	18.3
7 ~~14~~	3.0	22.6
8 ~~15~~	8.0	22.6
3 ~~16~~	8.0	31.3
6 ~~17~~	0.5	26.9
5 ~~18~~	5.5	26.9
~~X~~	~~0.5~~	~~35.6~~
1 ~~20~~	10.5	35.6

A	L	L'
288	4.077766	3.531345
Start	X	Y
Rand X:Y	0.493022	1.024102

X= NOT ACCESSIBLE

RSDS 03-TF-0331

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50-Building Characterization Survey Unit 15

RSDS# 03-TF-0331 RCT: SKR RCT: N/A

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 1
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # : 2
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # : 3
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
ALPHA	SRC BKG	5857	5214	5859	1		12/4/03	7:38	9	300	12
ALPHA	SRC CHECK	5857	5214	5859	1		12/4/03	7:41	2035	60	14063
ALPHA	SRC CHECK	5857	5214	5859	1		12/4/03	7:42	2127	60	14698
ALPHA	SRC CHECK	5857	5214	5859	1		12/4/03	7:43	2115	60	14615
ALPHA	SRC CHECK	5857	5214	5859	1		12/4/03	7:45	2074	60	14332
ALPHA	U-15R 01	5857	5214	5859	1	1	12/4/03	12:48	15	120	52
ALPHA	U-15R 02	5857	5214	5859	1	2	12/4/03	12:55	6	120	21
ALPHA	U-15R 03	5857	5214	5859	1	3	12/4/03	12:59	13	120	45
ALPHA	U-15R 04	5857	5214	5859	1	4	12/4/03	13:02	16	120	55
ALPHA	U-15R 05	5857	5214	5859	1	5	12/4/03	13:06	23	120	79
ALPHA	U-15R 06	5857	5214	5859	1	6	12/4/03	13:09	15	120	52
ALPHA	U-15R 07	5857	5214	5859	1	7	12/4/03	13:13	13	120	45
ALPHA	U-15R 08	5857	5214	5859	1	8	12/4/03	13:17	16	120	55
ALPHA	U-15R 09	5857	5214	5859	1	9	12/4/03	13:21	10	120	35
ALPHA	U-15R 10	5857	5214	5859	1	10	12/4/03	13:25	22	120	76
ALPHA	U-15R 11	5857	5214	5859	1	11	12/4/03	13:29	13	120	45
ALPHA	U-15R 12	5857	5214	5859	1	12	12/4/03	13:33	5	120	17
ALPHA	U-15R 13	5857	5214	5859	1	13	12/4/03	13:36	2	120	7
ALPHA	U-15R 14	5857	5214	5859	1	14	12/4/03	13:40	12	120	41
ALPHA	U-15R 15	5857	5214	5859	1	15	12/4/03	13:44	7	120	24
ALPHA	U-15R 16	5857	5214	5859	1	16	12/4/03	13:47	17	120	59
ALPHA	U-15R 17	5857	5214	5859	1	17	12/4/03	13:51	9	120	31
BETA	SRC BKG	5857	5214	5859	2		12/4/03	7:51	692	300	1179
BETA	SRC CHECK	5857	5214	5859	2		12/4/03	7:53	2371	60	20201
BETA	SRC CHECK	5857	5214	5859	2		12/4/03	7:55	2519	60	21462
BETA	SRC CHECK	5857	5214	5859	2		12/4/03	7:56	2378	60	20261
BETA	SRC CHECK	5857	5214	5859	2		12/4/03	7:58	2330	60	19852
BETA	U-15R 01	5857	5214	5859	2	1	12/4/03	12:49	188	60	1602
BETA	U-15R 02	5857	5214	5859	2	2	12/4/03	12:56	166	60	1414
BETA	U-15R 03	5857	5214	5859	2	3	12/4/03	13:00	162	60	1380
BETA	U-15R 04	5857	5214	5859	2	4	12/4/03	13:03	176	60	1500
BETA	U-15R 05	5857	5214	5859	2	5	12/4/03	13:07	182	60	1551
BETA	U-15R 06	5857	5214	5859	2	6	12/4/03	13:10	182	60	1551
BETA	U-15R 07	5857	5214	5859	2	7	12/4/03	13:14	162	60	1380
BETA	U-15R 08	5857	5214	5859	2	8	12/4/03	13:18	174	60	1483
BETA	U-15R 09	5857	5214	5859	2	9	12/4/03	13:22	179	60	1525
BETA	U-15R 10	5857	5214	5859	2	10	12/4/03	13:26	209	60	1781
BETA	U-15R 11	5857	5214	5859	2	11	12/4/03	13:30	185	60	1576

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50-Building Characterization Survey Unit 15

RSDS# 03-TF-0331 RCT: SK RCT: N/A

Alpha	43-68 BKG:	0	EFF:	0.2297	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Beta	43-68 BKG:	0	EFF:	0.1863	PROBE AREA:	126	cm^2	Surface Eff:		0.5	Detector # :
Scan	43-37 BKG:	0	EFF:	0.1948	PROBE AREA:	584	cm^2	Surface Eff:		0.5	Detector # :
TYPE	LOCATION	2350#	RCT ID	PROBE	DET #	ITEM #	DATE	TIME	CNTS	CT TIME	dpm/100cm2
BETA	U-15R 12	5857	5214	5859	2	12	12/4/03	13:34	163	60	1389
BETA	U-15R 13	5857	5214	5859	2	13	12/4/03	13:37	119	60	1014
BETA	U-15R 14	5857	5214	5859	2	14	12/4/03	13:41	147	60	1252
BETA	U-15R 15	5857	5214	5859	2	15	12/4/03	13:45	105	60	895
BETA	U-15R 16	5857	5214	5859	2	16	12/4/03	13:48	188	60	1602
BETA	U-15R 17	5857	5214	5859	2	17	12/4/03	13:52	102	60	869
SCAN	SRC BKG	5857	5214	5675	3		12/4/03	7:19	24	300	8
SCAN	SRC CHECK	5857	5214	5675	3		12/4/03	7:24	1647	60	2895
SCAN	SRC CHECK	5857	5214	5675	3		12/4/03	7:25	1878	60	3302
SCAN	SRC CHECK	5857	5214	5675	3		12/4/03	7:27	1913	60	3363
SCAN	SRC CHECK	5857	5214	5675	3		12/4/03	7:28	1985	60	3490
SCAN	SRC CHECK	5857	5214	5675	3		12/4/03	7:30	1902	60	3344
SCAN	SRC CHECK	5857	5214	5675	3		12/4/03	7:32	1824	60	3207
SCAN	U-15RFSC01	5857	5214	5675	3	1	12/4/03	9:40	8	30	28
SCAN	U-15RFSC02	5857	5214	5675	3	2	12/4/03	9:50	4	30	14
SCAN	U-15RFSC03	5857	5214	5675	3	3	12/4/03	9:58	1	30	4

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RADIOLOGICAL SURVEY DATA SHEET

1 of 5

LOCATION: (BLDG/AREA/ROOM) 50	SURVEY NO. 03-TF-0334
PURPOSE: MARSSIM SURVEY PLAN 50-01 SEDIMENT SAMPLES	RWP NO. N/A
	DATE: 11-26-03
	TIME: 1400

MAP/DRAWING

SEE

ATTACHED

COPY

LEGEND: # = mrem/hr (γ) whole body
#E = mrem/hr (β+η+γ) extremity on contact

△# = mrem/hr neutron

[#] = air sample number

(#) = swipe number

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

INSTRUMENTS USED

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

[redacted] HP # 6178 Date: 12-8-03

C[redacted]

Counted by: (Signature) N/ HP # Date:

Counted b[redacted]

Reviewed [redacted] HP # 2214 Date: 12-08-03

Reviewed/Approved b[redacted]

ML-9620 (2-98)

Survey No. 03-TF-0334

RADIOLOGICAL SURVEY DATA SHEET (cont.)

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

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

N/A

COMMENTS: N/A

NOTES:

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

ML-9620A (4-98)

BWXT of Ohio, Inc.

ANALYTICAL SERVICES REQUEST FOR ANALYSIS

DATE SUBMITTED:	SAMPLE TYPE:	COLLECTED BY:	NUMBER OF SAMPLES
11-26-03	WATER/SEDIMENT	HARLEY/RILEY	2

PROJECT/FUNCTION:	PRIMARY CONTACT/PHONE NO.:	MAIL STOP:
BOSS	DAN HARLEY/DAN RILEY 3320	

CHARGE NUMBER:	DATE(S) COLLECTED:	RSDS# (if applicable):	ATTACHMENTS (list):
	11-26-03	03-TF-0334	

ANALYSES REQUESTED (check):

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

ADDITIONAL INFORMATION:

I NEED SAMPLE OF WATER AND SEDIMENT FOR BOTH SAMPLES

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

LAB IDENTIFICATION	SAMPLE LOCATION	SAMPLE NUMBER	RESULTS
0316617	50-TANK	1	
6618	50-129	2	

COPY 12-24-03

COMMENTS:

3 of 5

DGH

ANALYZED BY: L.C. Hoyt

DATE: 12-4-03

ML-5222 (1-04)

Laboratory ID#:	0316617 - 0316618
Project/function:	BOSS
Submitted:	Nov 26, 2003
Submitted by:	Harvey / Riley
Point of Contact:	Harvey / Riley x3320
RSDS#:	N/A 03-TF-0334
Date:	Dec 4, 2003

Lab ID 0316617
Sample Location 50-Tank #1 (Sediment) SD #1

Isotope	dpm/g	Uncertainty +/-	LDL
Pu-238	31.60	2.59	0.10
Pu-239/240	<LDL	<LDL	0.10
Th-232	30.72	7.97	0.41
Th-230	3.05	1.06	1.30
Th-228	26.99	7.05	1.30
Th-227	2.56	0.89	0.41

Lab ID 0316617
Sample Location 50-Tank #1 (Liquid) SD #1

Isotope	dpm/mL	Uncertainty +/-	LDL
Pu-238	<LDL	<LDL	0.01
Pu-239/240	<LDL	<LDL	0.01
Th-232	<LDL	<LDL	0.01
Th-230	<LDL	<LDL	0.01
Th-228	<LDL	<LDL	0.01
Th-227	<LDL	<LDL	0.01
U-238	<LDL	<LDL	0.01
U-235	<LDL	<LDL	0.01
U-233/234	0.03	0.01	0.01

Lab ID 0316618
Sample Location 50-129 #2 (Sediment) SD #2

Isotope	dpm/g	Uncertainty +/-	LDL
Pu-238	2.14	0.23	0.09
Pu-239/240	<LDL	<LDL	0.03
Th-232	2.13	0.20	0.04
Th-230	0.98	0.11	0.02
Th-228	2.31	0.21	0.02
Th-227	0.03	0.01	0.02

Lab ID 0316618
Sample Location 50-129 #2 (Liquid) SD #2

Isotope	dpm/mL	Uncertainty +/-	LDL
Pu-238	<LDL	<LDL	0.06
Pu-239/240	<LDL	<LDL	0.07
Th-232	<LDL	<LDL	0.04
Th-230	<LDL	<LDL	0.04
Th-228	<LDL	<LDL	0.04
Th-227	<LDL	<LDL	0.04
U-238	<LDL	<LDL	0.07
[redacted]	[redacted]	<LDL	0.07
[redacted]	[redacted]	0.18	0.04

[redacted]

1585 12-4-03
HP # Date

5791 12-4-03
HP # Date

Pg 4 of 5

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
50-01- SD-1	11-26-03	1400		50-TANK WATER + SEDIMENT	[illegible]	11-26-03	1500	[illegible]	[illegible]
50-01- SD-2	11-26-03	1400		129-DRAIN ~~50-TANK~~ WATER + SEDIMENT 12-8-03	[illegible]	11-26-03	1500	[illegible]	[illegible]
50-01-									
50-01-									
50-01-									
50-01-									
50-01-									
50-01-									
50-01-									
50-01-									
50-01-									
50-01-									
50-01-									

N A

03-TF-0334

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Appendix H

Radon Information

Radon level is not applicable for open air demolitions.

Appendix I

Asbestos Information

From: Christopher Ahlquist
To: Darnell, Val; Kramer, Donald
Date: 10/13/03 5:48PM
Subject: Building 50

Don/Val -

For Building 50 asbestos and lead paint concerns, the following is provided for your use:

Asbestos

Previous asbestos surveys for Building 50 were completed in 1989 and 1993. These surveys were intended to identify all reasonably accessible asbestos-containing materials within the building for the purposes of identifying damaged material and managing asbestos in place. Asbestos pipe insulation, transite cement pipes, tank insulation, and floor tiles were previously identified.

During September of 2003, Mr. Christopher Ahlquist, an Industrial Hygienist with CH2M Hill Mound, Inc., performed a comprehensive walk-through survey of all areas of Building 50 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. 420 linear feet of pipe insulation and 20 square feet of associated debris, 15 square feet of transite cement board table top, 22 fire rated doors, 19 application points of fire-stop putty, 460 square feet of sheet vinyl flooring, 95 linear feet of transite cement pipe, and 30 square feet of tank insulation were identified as requiring removal prior to demolition. These materials will be removed by a licensed asbestos hazard abatement contractor under contract to CH2M Hill Mound in accordance with NESHAP requirements prior to commencement of demolition activities.

The asphalt roofing is assumed to contain asbestos, but as a Nonfriable Category I material in accordance with NESHAP it will remain in place during demolition and be disposed of as construction waste. One variety of floor tile within the building was found to be asbestos-containing, but it is also classified as a Category I Nonfriable and need not be removed.

Lead

Previous lead surveys or sampling data for Buildings 50 indicated that selective tested surfaces of process equipment contained lead paint. Lead bricks (approximately 10) were noted and the Mound Waste Management Project will be contacted for proper safe disposition of these items prior to demolition. 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.

Although untested paint coatings must be assumed to contain lead, the observed condition of the untested paint indicates that there are currently no lead paint hazards within the buildings. No further action would be necessary to protect 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. Since the building is scheduled for demolition, these restrictions have been 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

Date: September 26, 2003

From: Christopher Ahlquist
BOSS Project Team, Safety & Health

To: Steve Davis
BOSS Project Team, Engineering

Re: Building 50: Asbestos-Containing Materials

During September of 2003, Mr. Christopher Ahlquist, an Industrial Hygienist with CH2M Hill Mound, Inc. (CH2M), completed a survey of Building 50 at the Mound site in Miamisburg, Ohio for purpose of identifying asbestos-containing materials contained therein. Mr. Ahlquist is an Ohio Department of Health Certified Asbestos Hazard Evaluation Specialist as required by Ohio Department of Health regulations. During the course of the survey, Mr. Ahlquist reviewed previous survey reports and sampling data and collected additional bulk samples of materials found within Building 50 as necessary in order to determine the asbestos content of said materials. A room-by-room inspection of all accessible spaces was then conducted in order to prepare an inventory of the location and approximate quantities of identified asbestos-containing materials. Eight (8) distinct types of materials were found to contain greater than one percent (>1%) asbestos content which defines a material as asbestos-containing by EPA and OSHA regulations. Additionally, fire rated doors were assumed to contain asbestos. No asphalt roofing materials were sampled during the course of this survey, and all such materials should be assumed to contain asbestos until analysis indicates otherwise.

Sample Method

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

Analysis of Samples

The samples were submitted to DataChem Laboratories of Cincinnati, Ohio and analyzed for asbestos content by PLM and dispersion staining (Method Reference: 40 CFR Part 763, Volume 47, No. 103, May 27, 1982 pg. 23376). This analytical method, which the EPA currently recommends for the determination of asbestos in bulk samples of suspect materials, can be used for qualitative identification of six morphologically different types

of asbestos fibers: chrysotile, amosite, crocidolite, anthophyllite, tremolite, and actinolite asbestos. The method specifies that the asbestos content in a bulk sample shall be estimated and reported as a finite percentage (rounded to the nearest percentage) within the range of 0 to 100. The result of the bulk sample analysis is reported in a standard written laboratory report. This report includes the client name, the project number, the laboratory identification number, the sample number assigned to the bulk sample upon receipt at the laboratory, and the field number assigned to the bulk sample upon collection at the site. If the bulk sample contains more than one distinct layer of material, each layer is analyzed separately. The composition of the bulk sample is reported in percentages of asbestos (i.e., cellulose, fiberglass, or other) components. The results of the sample analyses can be found on the laboratory reports.

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

Conclusions

The locations of asbestos-containing materials identified, material descriptions, quantities, and other pertinent information can be found on *Table: Inventory of Asbestos-Containing Materials* attached with this report. Nine (9) different materials (each represented by a unique assigned homogeneous area number) were identified through analysis or assumption to be asbestos-containing (>1%) per EPA and OSHA definition. Since the building is scheduled for demolition, the EPA regulates activities related to asbestos-containing materials identified within or on the structure. The EPA will have to be notified in writing on the proper forms and all asbestos-containing materials (with the possible exception of Category I nonfriable roofing) removed before demolition can occur. Removal activities must be accomplished by properly trained individuals employing appropriate work methods and engineering controls.

Please call with any questions or concerns.

Respectfully,

Christopher Ahlquist
Industrial Hygienist

TABLE: INVENTORY OF ASBESTOS-CONTAINING MATERIALS
BUILDING 50
SEPTEMBER 26, 2003

Location of ACM	Material Description	Homo-geneous Area No.	Type ACM	Material Quantity (approx.)
Room 127, pipe fittings	Cementitious fitting insulation between sections of fiberglass pipe insulation	1	TSI	2 ftgs
Room 127, table	Transite panel table top, gray	3	Misc.	15 sf
Room 127 Pipe Chase, pipe fittings	Cementitious fitting insulation between sections of fiberglass pipe insulation	1	TSI	10 ftgs*
Room 127 Pipe Chase, floor	Pipe insulation debris	1	TSI	10 sf*
Room 129, pipe fittings	Cementitious fitting insulation between sections of fiberglass pipe insulation	1	TSI	27 ftgs
Room 129, doors	Fire-rated door lining	4	Misc.	2 count
Room 129 Pipe Chase, pipe fittings	Cementitious fitting insulation between sections of fiberglass pipe insulation	1	TSI	25 ftgs*
Room 129 Pipe Chase, floor	Pipe insulation debris	1	TSI	5 sf*
Room 125 Pipe Chase, pipe fittings	Cementitious fitting insulation between sections of fiberglass pipe insulation	1	TSI	10 ftgs*
Room 125 Pipe Chase, floor	Pipe insulation debris	1	TSI	5 sf*
Corridor 118, pipe fittings	Cementitious fitting insulation between sections of fiberglass pipe insulation	1	TSI	70 ftgs
Corridor 118, pipe	No drip tape	2	TSI	40 lf**
Corridor 118, doors	Fire-rated door lining	4	Misc.	3 count
Corridor 118, wall penetrations	Fire stop putty, taupe	5	Misc.	5 count
Room 122 Pipe Chase, pipe fittings	Cementitious fitting insulation between sections of fiberglass pipe insulation	1	TSI	2 ftgs*
Room 120, pipe	No drip tape	2	TSI	5 lf
Room 120, loose material	Fire stop putty, taupe	5	Misc.	1 count
Room 119, pipe	No drip tape	2	TSI	2 lf
Room 119, doors	Fire-rated door lining	4	Misc.	2 count

TABLE: INVENTORY OF ASBESTOS-CONTAINING MATERIALS
BUILDING 50
SEPTEMBER 26, 2003

Location of ACM	Material Description	Homo-geneous Area No.	Type ACM	Material Quantity (approx.)
East Stairwell, doors	Fire-rated door lining	4	Misc.	2 count
Room 117, pipe fittings	Cementitious fitting insulation between sections of fiberglass pipe insulation	1	TSI	2 ftgs
Room 117, pipe	No drip tape	2	TSI	4 lf
Room 117 Pipe Chase, pipe fittings	Cementitious fitting insulation between sections of fiberglass pipe insulation	1	TSI	6 ftgs*
Room 116, pipe fittings	Cementitious fitting insulation between sections of fiberglass pipe insulation	1	TSI	20 ftgs
Room 116, pipe	No drip tape	2	TSI	5 lf
Room 116, floor	Vinyl flooring, brown	6	Misc.	290 sf
Room 115, pipe fittings	Cementitious fitting insulation between sections of fiberglass pipe insulation	1	TSI	7 ftgs
Room 115, floor	Vinyl flooring, brown	6	Misc.	12 sf
Corridor 114, pipe fittings	Cementitious fitting insulation between sections of fiberglass pipe insulation	1	TSI	25 ftgs
Corridor 114, doors	Fire-rated door lining	4	Misc.	4 count
Corridor 114, pipe	Transite pipe, 8" diameter	7	Misc.	55 lf
Room 113, pipe	No drip tape	2	TSI	7 lf
Room 112, pipe fitting	Cementitious fitting insulation between sections of fiberglass pipe insulation	1	TSI	1 ftg
Room 112, pipe	No drip tape	2	TSI	10 lf
Room 112, pipe ends	Fire stop putty, taupe	5	Misc.	2 count
Room 111, pipe	No drip tape	2	TSI	12 lf
Room 111, penetrations	Fire stop putty, taupe	5	Misc.	9 count
Corridor 114A, pipe fittings	Cementitious fitting insulation between sections of fiberglass pipe insulation	1	TSI	30 ftgs

TABLE: INVENTORY OF ASBESTOS-CONTAINING MATERIALS
BUILDING 50
SEPTEMBER 26, 2003

Location of ACM	Material Description	Homo-geneous Area No.	Type ACM	Material Quantity (approx.)
Corridor 114A, pipe	Transite pipe, 8" diameter	7	Misc.	40 lf
Room 108, pipe	No drip tape	2	TSI	12 lf
Room 108, floor	Vinyl flooring, brown	6	Misc.	160 sf
Room 107, penetrations	Fire stop putty, taupe	5	Misc.	2 count
Room 106, pipe fittings	Cementitious fitting insulation between sections of fiberglass pipe insulation	1	TSI	23 ftgs
Room 106, pipe	No drip tape	2	TSI	10 lf
Room 106, tank	Tank insulation	8	TSI	30 sf
Room 105 East Pipe Chase, pipe fittings	Cementitious fitting insulation between sections of fiberglass pipe insulation	1	TSI	3 ftgs*
Room 105 West Pipe Chase, pipe fittings	Cementitious fitting insulation between sections of fiberglass pipe insulation	1	TSI	11 ftgs*
Room 103, pipe fittings	Cementitious fitting insulation between sections of fiberglass pipe insulation	1	TSI	3 ftgs
Room 101, pipe fittings	Cementitious fitting insulation between sections of fiberglass pipe insulation	1	TSI	5 ftgs
Outdoors on Ground, doors	Fire-rated door lining	4	Misc.	4 count
Penthouse Room 201, pipe fitting	Cementitious fitting insulation between sections of fiberglass pipe insulation	1	TSI	1 ftg
Penthouse Room 201, doors	Fire-rated door lining	4	Misc.	2 count
Penthouse Room 201, loose stock	Flange gaskets, grey	9	Misc.	1 pile
Penthouse Room 202, pipe fittings	Cementitious fitting insulation between sections of fiberglass pipe insulation	1	TSI	17 ftgs
Penthouse Room 202, pipe	"Danger: Asbestos" stickers	---	---	5 count
Penthouse Room 203, doors	Fire-rated door lining	4	Misc.	2 count
Penthouse Room 204, door	Fire-rated door lining	4	Misc.	1 count

 I 7 of 8

TABLE: INVENTORY OF ASBESTOS-CONTAINING MATERIALS
BUILDING 50
SEPTEMBER 26, 2003

Location of ACM	Material Description	Homo-geneous Area No.	Type ACM	Material Quantity (approx.)
Penthouse Room 205, pipe fitting	Cementitious fitting insulation between sections of fiberglass pipe insulation	1	TSI	1 ftg
Penthouse Room 205 Pipe Chase, pipe fittings	Cementitious fitting insulation between sections of fiberglass pipe insulation	1	TSI	9 ftgs***

Notes:

TSI = Thermal Systems Insulation
Misc. = Miscellaneous Material
lf = Linear feet
sf = Square feet
ftg = Fitting

*Material not currently accessible to remove - access must be made by contractor.
**Some of this material may be concealed beneath rubber, tape, or fiberglass.
***This space was inaccessible at time of inspection - contractor must access space and verify.

Appendix J

Lead Information

From: Christopher Ahlquist
To: Darnell, Val; Kramer, Donald
Date: 10/13/03 5:48PM
Subject: Building 50

Don/Val -

For Building 50 asbestos and lead paint concerns, the following is provided for your use:

Asbestos

Previous asbestos surveys for Building 50 were completed in 1989 and 1993. These surveys were intended to identify all reasonably accessible asbestos-containing materials within the building for the purposes of identifying damaged material and managing asbestos in place. Asbestos pipe insulation, transite cement pipes, tank insulation, and floor tiles were previously identified.

During September of 2003, Mr. Christopher Ahlquist, an Industrial Hygienist with CH2M Hill Mound, Inc., performed a comprehensive walk-through survey of all areas of Building 50 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. 420 linear feet of pipe insulation and 20 square feet of associated debris, 15 square feet of transite cement board table top, 22 fire rated doors, 19 application points of fire-stop putty, 460 square feet of sheet vinyl flooring, 95 linear feet of transite cement pipe, and 30 square feet of tank insulation were identified as requiring removal prior to demolition. These materials will be removed by a licensed asbestos hazard abatement contractor under contract to CH2M Hill Mound in accordance with NESHAP requirements prior to commencement of demolition activities.

The asphalt roofing is assumed to contain asbestos, but as a Nonfriable Category I material in accordance with NESHAP it will remain in place during demolition and be disposed of as construction waste. One variety of floor tile within the building was found to be asbestos-containing, but it is also classified as a Category I Nonfriable and need not be removed.

Lead

Previous lead surveys or sampling data for Buildings 50 indicated that selective tested surfaces of process equipment contained lead paint. Lead bricks (approximately 10) were noted and the Mound Waste Management Project will be contacted for proper safe disposition of these items prior to demolition. 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.

Although untested paint coatings must be assumed to contain lead, the observed condition of the untested paint indicates that there are currently no lead paint hazards within the buildings. No further action would be necessary to protect 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. Since the building is scheduled for demolition, these restrictions have been 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

Appendix K

Chemical Information

A list of chemicals known to have been in Building 50 is provided.

Applicable pages of CY2001 Emergency and Hazardous Chemical Inventory Report (dated March 2002) are also provided.

Chemicals and Products Previously Used or Stored in Building 50

15-50W motor oil
3 in 1 Oil
704 Diff. Oil
901 A. Hardner
960 Hardner
Above Floor Finish
acetone
acetylene gas
AIR COM OIL
Ajax cleaner
alcohol
Ancocide 4020
Ancocide 4070
Ancool 3310
argon
argon (UHP)
argon ultra pure
argon, liquid
argon/helium
argon/hydrogen
argon/nitrogen
argon/oxygen
butane fuel
Calibrating gas
CHEM GLAZE
Chem Glaze Wash Primer
chlorodifluoromethane
COMPRES OIL
Compressed Air
Contact adhesive
Cove base adhesive
Degreaser
Dessiate
dichlorodifluoromethane
Dowtherm SR-1, Coolant
Duo Seal Pump Oil
Durapot 801
Duropot 801 Act
EDTA Disodium
EPLO LUX SOLVENT
ethanol
ethyl alcohol
Floor cleaner
Freon Genetron 22
Glass cleaner
Grease (Apiezon) H
Grease (Apiezon) L
HE 200 VAC OIL
helium
helium (UHP)
helium/nitrogen
Iron Stone Acrylic Seal
Ivory soap
laquer thinner
Liquid Wrench
Liquid Wrench, perchlorethylene
Lube oil
Lubricant sealant
Magic Cutting Fluid
Met-All Alum. Polish
mineral spirits
NABC
nitrogen
nitrogen, liquid
nitrogen/oxygen
Noxon (Metal Polish)
Nuto H 68
oil
oil 15W-40 motor
oil refrigeration
oil, pump
oil, vacuum pump
oxygen
oxygen/helium
Paint
Paint silathane
paint thinner
PCB capacitors > 500 ppm
PCB oil > 500 ppm
PCB transformer > 500 ppm
Pipe joint lube
PMQ cleaner
Polish Met-All Alum.
Polish, furniture
pump oil
pump oil 704
Rescor 780 activator
Rescor 780 base
RTV *102
Silicone sealant
Sodium bicarbonate
Stokes V-Lube

Stripper Professional #237
Sure Bet Plus
Tap Magic Cutting Fluid
tetrafluoroethane
TFE spray
Tracit-600 A
Tracit-600 Hardening Cement
Varian TA-Oil
VCI-238
Wax stripper
WD-40
Window Shine Cleaner
Wire rope lube
zink bromide, water waste
zink bromide, water, absorbed in Fluorco

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

K 3 of 7

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
[redacted]																									
[redacted]																									
[redacted]																									
4	7440-37-1	argon	X						X		X				X	B-50	115	1	L	2,4		02	01	C	365
5	7440-37-1	argon	X						X		X				X	B-50	116	1	L	2,4		01	01	C	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 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

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Columbus, OH 43215-1049

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Emergency and Hazardous Chemical Inventory Form

4.1 Facility Name: U. S. DOE - MOUND PLANT
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County: MONTGOMERY
Exact Street Location (no Box #'s): 1 MOUND ROAD
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4.4 [ ] Check if Revision
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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-50	116	1	L	2,4		01	01	C	365
2	7440-37-1	argon		X					X		X				X	B-50	204	2	L	2,4		02	02	C	365
3	7440-37-1	argon	X						X		X				X	B-50	dock	1	L	2,4		02	02	C	365
4	7440-37-1	argon		X					X		X				X	B-50	dock	1	L	2,4		02	02	C	365
5																									

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5.0

	CAS REGISTRY NO.	SPECIFIC CHEMICAL NAME	PURE	MIXTURE	COMPONENTS	EHS CHEMICAL	SOLID	LIQUID	GAS	TRADE SECRET	Hazard Class: ACUTE	CHRONIC	FIRE	REACTIVE	RELEASE OF PRESSURE	Location of Chemicals: B, T, OR A BUILDING, TANK OR AREA NO.	DIVISION OR ROOM LETTER	FLOOR	STORAGE TYPE CODE	PRESSURE & TEMPERATURE CONDITIONS	LOCATION CONFIDENTIAL	Amount: MAXIMUM	AVERAGE	UNITS	NO. OF DAYS ON SITE
~~1~~	~~7782-37-9~~	~~nitrogen~~	~~x~~						~~x~~		~~x~~				~~x~~	~~B-40~~	~~[illegible]~~	~~1~~	~~L~~	~~2,4~~		~~01~~	~~01~~	~~C~~	~~365~~
2	7782-37-9	nitrogen		x					x		x				x	B-50	115	1	L	2,4		01	01	C	365
3	7782-37-9	nitrogen		x					x		x				x	B-50	116	1	L	2,4		01	01	C	365
4	7782-37-9	nitrogen		x					x		x				x	B-50	204	2	L	2,4		01	01	C	365
~~5~~	~~7782-37-9~~	~~nitrogen~~	~~x~~						~~x~~		~~x~~				~~x~~	~~B-124~~		~~1~~	~~L~~	~~2,4~~		~~01~~	~~01~~	~~C~~	~~365~~

CERTIFICATION *(READ AND SIGN AFTER COMPLETING ALL SECTIONS)*

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EPA 0317 Revised 5/3/89

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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
	[illegible]	argon	[illegible]					[illegible]	[illegible]		[illegible]				[illegible]	T18			A	2,7		04	04	C	365
	[illegible]																								
	[illegible]	argon	[illegible]					[illegible]	[illegible]		[illegible]				[illegible]	T18			A	2,7		04	04	C	365
	[illegible]																								
3	7440-37-1	argon	x					x	x		x				x	T18			A	2,7		04	04	C	365
	[illegible]																								
4																									
	[illegible]																								
5																									
	[illegible]																								

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[redacted]																									
[redacted]																									
[redacted]																									
3	7782-37-9	nitrogen	X					X	X		X				X	T04			A	2,7		04	04	C	365
[redacted]																									
[redacted]																									
[redacted]																									

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NAME AND OFFICIAL TITLE OF OWNER OR OWNERS AUTHORIZED REPRESENTATIVE

SIGNATURE

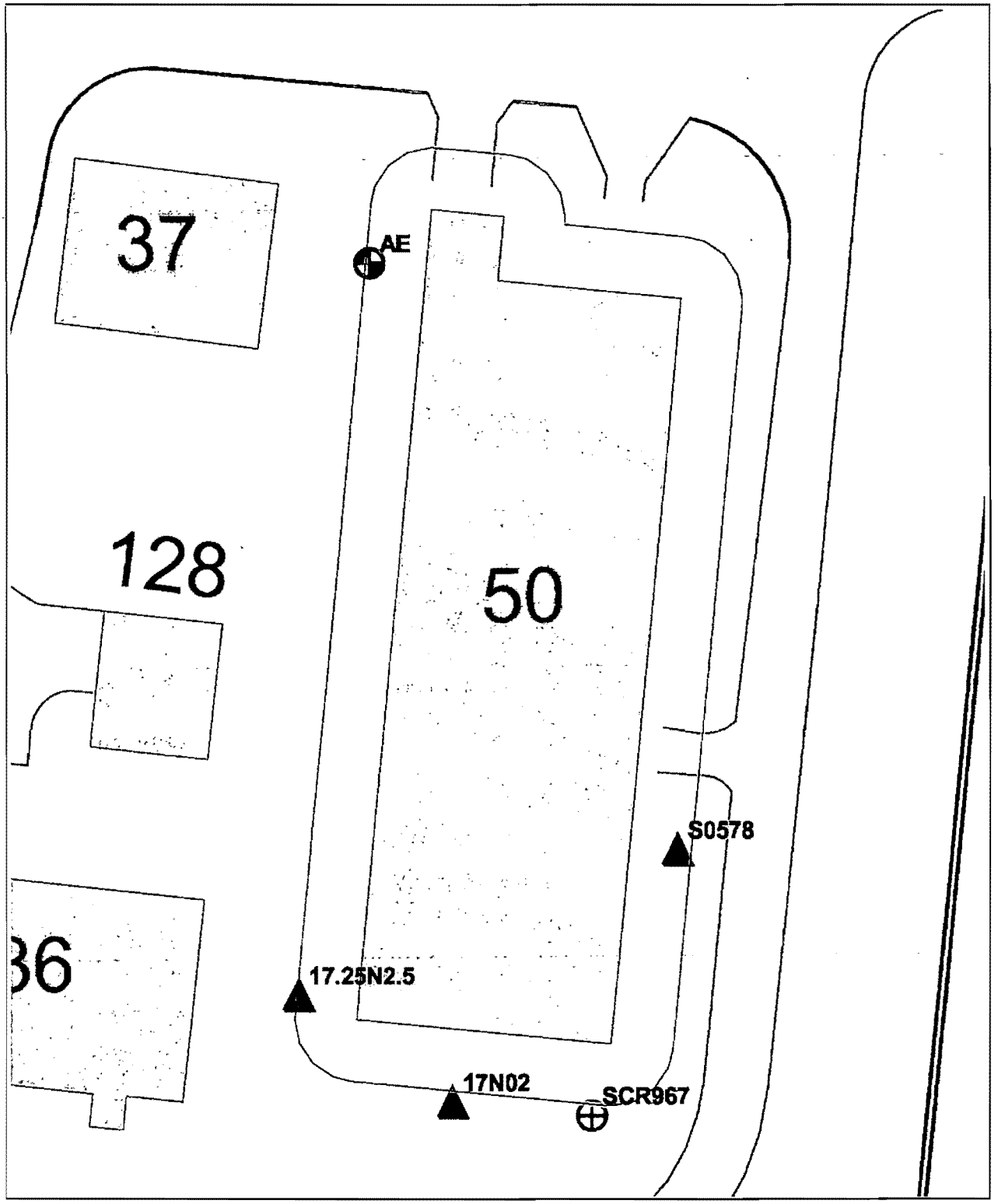
2/27/02
DATE SIGNED

EPA 0317 Revised 5/3/99

Appendix L

Soil Sampling, Vicinity

Historic Sample Locations within 15 feet of Building 50



■ Sample Detect
— Sample Nondetect

25 0 25 50 75 100 Feet

△ surface sample
⊕ borehole

N
W E
S

MOUND
Environmental Restoration Geographic Information System

e:\cad_proj\bldg_50\earlybldg50_1ft_050183.apr

05/01/03

L 1 of 25

Building 50 Detects

Location_n	Sample_i	Collection_	Value_name	Measured_value	Value_un	Detecti	Chem	Start	End_	Lab	Data	Project_	Comments
AE	RAE306	19940413	1,1,2-Trichloro-1,2,2-Trifluoroet	3.0000	UG/KG		ORV	18.0	24.0	J	J	04-2768	
AE	RAE306	19940413	Aluminum	15400.0000	MG/KG		INOR	18.0	24.0			04-2768	
AE	RAE305	19940413	Aluminum	12300.0000	MG/KG		INOR	0.0	6.0			04-2768	
AE	RAE305	19940413	Arsenic	14.6000	MG/KG		INOR	0.0	6.0			04-2768	2
AE	RAE306	19940413	Arsenic	10.7000	MG/KG		INOR	18.0	24.0			04-2768	2
AE	RAE306	19940413	Barium	109.0000	MG/KG		INOR	18.0	24.0			04-2768	
AE	RAE305	19940413	Barium	82.5000	MG/KG		INOR	0.0	6.0			04-2768	
AE	RAE305	19940413	Benzo(a)anthracene	350.0000	UG/KG		ORSV	0.0	6.0	J	J	04-2768	
AE	RAE305	19940413	Benzo(a)pyrene	430.0000	UG/KG		ORSV	0.0	6.0		J	04-2768	3 1
AE	RAE305	19940413	Benzo(b)fluoranthene	430.0000	UG/KG		ORSV	0.0	6.0		J	04-2768	
AE	RAE305	19940413	Benzo(g,h,i)perylene	260.0000	UG/KG		ORSV	0.0	6.0	J	J	04-2768	
AE	RAE305	19940413	Benzo(k)fluoranthene	490.0000	UG/KG		ORSV	0.0	6.0		J	04-2768	
AE	RAE305	19940413	Benzoic Acid	120.0000	UG/KG		ORSV	0.0	6.0	J	J	04-2768	
AE	RAE306	19940413	Benzoic Acid	70.0000	UG/KG		ORSV	18.0	24.0	J	J	04-2768	
AE	RAE306	19940413	Beryllium	0.7100	MG/KG		INOR	18.0	24.0			04-2768	1
AE	RAE305	19940413	Beryllium	0.6900	MG/KG		INOR	0.0	6.0			04-2768	
AE	RAE305	19940413	Bis(2-ethylhexyl)phthalate	46.0000	UG/KG		ORSV	0.0	6.0	J	J	04-2768	
AE	RAE306	19940413	Calcium	34000.0000	MG/KG		INOR	18.0	24.0	*		04-2768	
AE	RAE305	19940413	Calcium	13800.0000	MG/KG		INOR	0.0	6.0	*		04-2768	
AE	RAE305	19940413	Cesium-137	0.6810	PCI/G		RAD	0.0	6.0		J	04-2768	12
AE	RAE305	19940413	Chloride	203.0000	MG/KG		ANIO	0.0	6.0		J	04-2768	
AE	RAE306	19940413	Chloride	86.8000	MG/KG		ANIO	18.0	24.0		J	04-2768	
AE	RAE305	19940413	Chromium	22.3000	MG/KG		INOR	0.0	6.0			04-2768	2
AE	RAE306	19940413	Chromium	20.3000	MG/KG		INOR	18.0	24.0			04-2768	2
AE	RAE305	19940413	Chrysene	610.0000	UG/KG		ORSV	0.0	6.0		J	04-2768	
AE	RAE305	19940413	Cobalt	11.1000	MG/KG		INOR	0.0	6.0	B		04-2768	
AE	RAE306	19940413	Cobalt	9.2000	MG/KG		INOR	18.0	24.0	B		04-2768	
AE	RAE306	19940413	Copper	21.8000	MG/KG		INOR	18.0	24.0			04-2768	
AE	RAE305	19940413	Copper	18.2000	MG/KG		INOR	0.0	6.0			04-2768	
AE	RAE306	19940413	Dichloromethane (Methylene C	8.0000	UG/KG		ORV	18.0	24.0		J	04-2768	
AE	RAE305	19940413	Dichloromethane (Methylene C	4.0000	UG/KG		ORV	0.0	6.0	J	J	04-2768	
AE	RAE305	19940413	Fluoranthene	810.0000	UG/KG		ORSV	0.0	6.0		J	04-2768	

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Location_n	Sample_i	Collection_	Value_name	Measured_value	Value_un	Detecti	Chem	Start	End_	Lab	Data	Project_	Comments
AE	RAE306	19940413	Fluoride	1.9000	MG/KG		ANIO	18.0	24.0			04-2768	
AE	RAE305	19940413	Fluoride	1.9000	MG/KG		ANIO	0.0	6.0			04-2768	
AE	RAE305	19940413	Indeno(1,2,3-cd)pyrene	270.0000	UG/KG		ORSV	0.0	6.0	J	J	04-2768	
AE	RAE306	19940413	Iron	27000.0000	MG/KG		INOR	18.0	24.0			04-2768	
AE	RAE305	19940413	Iron	21300.0000	MG/KG		INOR	0.0	6.0			04-2768	
AE	RAE305	19940413	Lead	88.3000	MG/KG		INOR	0.0	6.0			04-2768	2
AE	RAE306	19940413	Lead	17.6000	MG/KG		INOR	18.0	24.0			04-2768	
AE	RAE306	19940413	Magnesium	23400.0000	MG/KG		INOR	18.0	24.0	*		04-2768	
AE	RAE305	19940413	Magnesium	7020.0000	MG/KG		INOR	0.0	6.0	*		04-2768	
AE	RAE306	19940413	Manganese	505.0000	MG/KG		INOR	18.0	24.0			04-2768	
AE	RAE305	19940413	Manganese	444.0000	MG/KG		INOR	0.0	6.0			04-2768	
AE	RAE306	19940413	Nickel	25.5000	MG/KG		INOR	18.0	24.0			04-2768	
AE	RAE305	19940413	Nickel	18.4000	MG/KG		INOR	0.0	6.0			04-2768	
AE	RAE305	19940413	Nitrate/Nitrite	11.1000	MG/KG		ANIO	0.0	6.0			04-2768	
AE	RAE306	19940413	Nitrate/Nitrite	6.7000	MG/KG		ANIO	18.0	24.0			04-2768	
AE	RAE305	19940413	Phenanthrene	250.0000	UG/KG		ORSV	0.0	6.0	J	J	04-2768	
AE	RAE305	19940413	Plutonium-238	34.0000	PCI/G		RAD	0.0	6.0			04-2768	12
AE	RAE303	19940413	Plutonium-238	8.1700	PCI/G		RAD	0.0	2.0			04-2768	12
AE	RAE304	19940413	Plutonium-238	5.3300	PCI/G		RAD	2.0	12.0		J	04-2768	2
S0578	2879	19831001	Plutonium-238	1.0500	PCI/G	0.0100	RAD	0.0	0.0			RSS	2
AE	RAE303	19940413	Plutonium-239/240	0.0361	PCI/G		RAD	0.0	2.0			04-2768	
AE	RAE304	19940413	Plutonium-239/240	0.0293	PCI/G		RAD	2.0	12.0		J	04-2768	
AE	RAE303	19940413	Plutonium-242	0.0085	PCI/G		RAD	0.0	2.0			04-2768	
AE	RAE306	19940413	Potassium	1260.0000	MG/KG		INOR	18.0	24.0			04-2768	
AE	RAE305	19940413	Potassium	1160.0000	MG/KG		INOR	0.0	6.0	B		04-2768	
AE	RAE305	19940413	Potassium-40	16.3000	PCI/G		RAD	0.0	6.0		J	04-2768	1
AE	RAE306	19940413	Potassium-40	14.6000	PCI/G		RAD	18.0	24.0		J	04-2768	1
AE	RAE305	19940413	Pyrene	700.0000	UG/KG		ORSV	0.0	6.0		J	04-2768	
AE	RAE305	19940413	Radium-226	2.5300	PCI/G		RAD	0.0	6.0			04-2768	123
AE	RAE306	19940413	Radium-226	2.3000	PCI/G		RAD	18.0	24.0			04-2768	123
AE	RAE305	19940413	Sodium	811.0000	MG/KG		INOR	0.0	6.0	B	J	04-2768	2
AE	RAE303	19940413	Thorium-228	1.3200	PCI/G		RAD	0.0	2.0		J	04-2768	1
AE	RAE303	19940413	Thorium-230	1.4700	PCI/G		RAD	0.0	2.0	CJ	J	04-2768	1
AE	RAE303	19940413	Thorium-232	1.3700	PCI/G		RAD	0.0	2.0		J	04-2768	1

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Location_n	Sample_i	Collection_	Value_name	Measured_value	Value_un	Detecti	Chem	Start	End_	Lab	Data	Project_	Comments
17N02	17N02	19940922	Total Aromatic Hydrocarbons	1185029.0000	IC		GENE	0.0	1.5			2680	
17.25N2.5	17.25N2.5	19941011	Total Aromatic Hydrocarbons	20990.0000	IC		GENE	0.0	1.5			2680	
17N02	17N02	19940922	Total C5 TO C11 Petroleum Hy	2268265.0000	IC		GENE	0.0	1.5			2680	
17.25N2.5	17.25N2.5	19941011	Total C5 TO C11 Petroleum Hy	27830.0000	IC		GENE	0.0	1.5			2680	
17N02	17N02	19940922	Total Halogenated Hydrocarbo	9752.0000	IC		GENE	0.0	1.5			2680	
17N02	17N02	19940922	Total Semivolatile Hydrocarbon	5925.0000	IC		GENE	0.0	1.5			2680	
AE	RAE303	19940413	Uranium-234	0.7730	PCI/G		RAD	0.0	2.0			04-2768	
AE	RAE303	19940413	Uranium-235	0.0689	PCI/G		RAD	0.0	2.0			04-2768	
AE	RAE303	19940413	Uranium-238	0.8510	PCI/G		RAD	0.0	2.0			04-2768	1
AE	RAE306	19940413	Vanadium	29.8000	MG/KG		INOR	18.0	24.0			04-2768	2
AE	RAE305	19940413	Vanadium	26.6000	MG/KG		INOR	0.0	6.0			04-2768	2
AE	RAE305	19940413	Zinc	328.0000	MG/KG		INOR	0.0	6.0	*		04-2768	2
AE	RAE306	19940413	Zinc	80.1000	MG/KG		INOR	18.0	24.0	*		04-2768	

*Comments

1 Exceeds the 10-6 Risk-Based Guide Value
2 Exceeds the OU9 Soil Background Value
3 Exceeds screening level
5 Exceeds MCL
6 Exceeds the Guide Value based on the hazard index

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 "Comparisons for Soil Analytical Results" table at the end of this appendix.

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Building 50 Non-Detects

Location_n	Sample_id	Collection_	Value_name	Measured_v	Value_	Detection_l	Chem_	Start	End_	Lab	Data	Project_c	Media
AE	RAE306	19940413	1,1,1-Trichloroethane	6.0000	UG/KG	6.0000	ORVO	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	1,1,1-Trichloroethane	6.0000	UG/KG	6.0000	ORVO	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	1,1,2,2-Tetrachloroethane	6.0000	UG/KG	6.0000	ORVO	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	1,1,2,2-Tetrachloroethane	6.0000	UG/KG	6.0000	ORVO	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	1,1,2-Trichloro-1,2,2-Trifluoroet	13.0000	UG/KG	13.0000	ORVO	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	1,1,2-Trichloroethane	6.0000	UG/KG	6.0000	ORVO	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	1,1,2-Trichloroethane	6.0000	UG/KG	6.0000	ORVO	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	1,1-Dichloroethane	6.0000	UG/KG	6.0000	ORVO	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	1,1-Dichloroethane	6.0000	UG/KG	6.0000	ORVO	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	1,1-Dichloroethene	6.0000	UG/KG	6.0000	ORVO	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	1,1-Dichloroethene	6.0000	UG/KG	6.0000	ORVO	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	1,2,4-Trichlorobenzene	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	1,2,4-Trichlorobenzene	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	1,2-Dichlorobenzene	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	1,2-Dichlorobenzene	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	1,2-Dichloroethane	6.0000	UG/KG	6.0000	ORVO	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	1,2-Dichloroethane	6.0000	UG/KG	6.0000	ORVO	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	1,2-Dichloroethene	6.0000	UG/KG	6.0000	ORVO	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	1,2-Dichloroethene	6.0000	UG/KG	6.0000	ORVO	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	1,2-Dichloropropane	6.0000	UG/KG	6.0000	ORVO	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	1,2-Dichloropropane	6.0000	UG/KG	6.0000	ORVO	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	1,2-Diethylbenzene	25.0000	UG/KG	25.0000	ORVO	18.0	24.0	U	U	04-2768	Soil
AE	RAE305	19940413	1,2-Diethylbenzene	26.0000	UG/KG	26.0000	ORVO	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	1,3-cis-Dichloropropene	6.0000	UG/KG	6.0000	ORVO	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	1,3-cis-Dichloropropene	6.0000	UG/KG	6.0000	ORVO	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	1,3-Dichlorobenzene	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	1,3-Dichlorobenzene	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	1,3-trans-Dichloropropene	6.0000	UG/KG	6.0000	ORVO	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	1,3-trans-Dichloropropene	6.0000	UG/KG	6.0000	ORVO	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	1,4-Dichlorobenzene	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	1,4-Dichlorobenzene	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	1-chloro-4-phenoxybenzene	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil

Location_n	Sample_id	Collection_	Value_name	Measured_v	Value_	Detection_l	Chem_	Start	End_	Lab	Data	Project_c	Media
AE	RAE305	19940413	1-chloro-4-phenoxybenzene	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	2,2'-oxybis(1-chloropropane)	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	2,2'-oxybis(1-chloropropane)	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	2,4,5-Trichlorophenol	1000.0000	UG/KG	1000.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	2,4,5-Trichlorophenol	1100.0000	UG/KG	1100.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	2,4,6-Trichlorophenol	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	2,4,6-Trichlorophenol	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	2,4-Dichlorophenol	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	2,4-Dichlorophenol	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	2,4-Dimethylphenol	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	2,4-Dimethylphenol	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	2,4-Dinitrophenol	1000.0000	UG/KG	1000.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	2,4-Dinitrophenol	1100.0000	UG/KG	1100.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	2,4-Dinitrotoluene	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	2,4-Dinitrotoluene	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	2,6-Dinitrotoluene	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	2,6-Dinitrotoluene	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	2-Benzyl-4-Chlorophenol	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	2-Benzyl-4-Chlorophenol	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	2-Butanone	12.0000	UG/KG	12.0000	ORVO	18.0	24.0	U	U	04-2768	Soil
AE	RAE305	19940413	2-Butanone	13.0000	UG/KG	13.0000	ORVO	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	2-Chloronaphthalene	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	2-Chloronaphthalene	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	2-Chlorophenol	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	2-Chlorophenol	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	2-Hexanone	12.0000	UG/KG	12.0000	ORVO	18.0	24.0	U	U	04-2768	Soil
AE	RAE305	19940413	2-Hexanone	13.0000	UG/KG	13.0000	ORVO	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	2-Methylnaphthalene	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	2-Methylnaphthalene	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	2-Methylphenol	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	2-Methylphenol	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	2-Nitroaniline	1000.0000	UG/KG	1000.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	2-Nitroaniline	1100.0000	UG/KG	1100.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	2-Nitrophenol	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil

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Location_n	Sample_id	Collection_	Value_name	Measured_v	Value_	Detection_l	Chem_	Start	End_	Lab	Data	Project_c	Media
AE	RAE305	19940413	2-Nitrophenol	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	3,3'-Dichlorobenzidine	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	3,3'-Dichlorobenzidine	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	3-Nitroaniline	1000.0000	UG/KG	1000.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	3-Nitroaniline	1100.0000	UG/KG	1100.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	4,4'-DDD	0.8100	UG/KG	0.8100	ORPP	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	4,4'-DDD	3.3000	UG/KG	3.3000	ORPP	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	4,4'-DDE	0.8100	UG/KG	0.8100	ORPP	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	4,4'-DDE	3.3000	UG/KG	3.3000	ORPP	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	4,4'-DDT	0.8100	UG/KG	0.8100	ORPP	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	4,4'-DDT	3.3000	UG/KG	3.3000	ORPP	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	4,6-Dinitro-o-Cresol	1000.0000	UG/KG	1000.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	4,6-Dinitro-o-Cresol	1100.0000	UG/KG	1100.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	4-Bromophenyl-phenyl Ether	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	4-Bromophenyl-phenyl Ether	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	4-Chloro-3-methylphenol	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	4-Chloro-3-methylphenol	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	4-Chloroaniline	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	4-Chloroaniline	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	4-Methyl-2-pentanone	12.0000	UG/KG	12.0000	ORVO	18.0	24.0	U	U	04-2768	Soil
AE	RAE305	19940413	4-Methyl-2-pentanone	13.0000	UG/KG	13.0000	ORVO	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	4-Methylphenol	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	4-Methylphenol	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	4-Nitroaniline	1000.0000	UG/KG	1000.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	4-Nitroaniline	1100.0000	UG/KG	1100.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	4-Nitrophenol	1000.0000	UG/KG	1000.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	4-Nitrophenol	1100.0000	UG/KG	1100.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Acenaphthene	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Acenaphthene	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Acenaphthylene	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Acenaphthylene	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Acetone	12.0000	UG/KG	12.0000	ORVO	18.0	24.0	U	U	04-2768	Soil
AE	RAE305	19940413	Acetone	13.0000	UG/KG	13.0000	ORVO	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	Acetonitrile	125.0000	UG/KG	125.0000	ORVO	18.0	24.0	U	U	04-2768	Soil

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Location_n	Sample_id	Collection_	Value_name	Measured_v	Value_	Detection_l	Chem_	Start	End_	Lab	Data	Project_c	Media
AE	RAE305	19940413	Acetonitrile	128.0000	UG/KG	128.0000	ORVO	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	Acrylonitrile	125.0000	UG/KG	125.0000	ORVO	18.0	24.0	U	U	04-2768	Soil
AE	RAE305	19940413	Acrylonitrile	128.0000	UG/KG	128.0000	ORVO	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	Aldrin	0.4200	UG/KG	0.4200	ORPP	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Aldrin	1.7000	UG/KG	1.7000	ORPP	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	Alpha Chlordane	0.4200	UG/KG	0.4200	ORPP	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Alpha Chlordane	1.7000	UG/KG	1.7000	ORPP	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	Alpha-BHC	0.4200	UG/KG	0.4200	ORPP	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Alpha-BHC	1.7000	UG/KG	1.7000	ORPP	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	Americium-241	0.0862	PCI/G	0.0862	RAD	18.0	24.0	ND	U	04-2768	Soil
AE	RAE305	19940413	Americium-241	0.1130	PCI/G	0.1130	RAD	0.0	6.0	ND	U	04-2768	Soil
AE	RAE306	19940413	Anthracene	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Anthracene	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Antimony	0.7700	MG/KG	0.7700	INORG	18.0	24.0	UN	UJ	04-2768	Soil
AE	RAE305	19940413	Antimony	0.7900	MG/KG	0.7900	INORG	0.0	6.0	UN	UJ	04-2768	Soil
AE	RAE306	19940413	Aroclor-1016	8.1000	UG/KG	8.1000	ORPP	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Aroclor-1016	33.0000	UG/KG	33.0000	ORPP	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	Aroclor-1221	16.0000	UG/KG	16.0000	ORPP	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Aroclor-1221	66.0000	UG/KG	66.0000	ORPP	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	Aroclor-1232	8.1000	UG/KG	8.1000	ORPP	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Aroclor-1232	33.0000	UG/KG	33.0000	ORPP	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	Aroclor-1242	8.1000	UG/KG	8.1000	ORPP	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Aroclor-1242	33.0000	UG/KG	33.0000	ORPP	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	Aroclor-1248	8.1000	UG/KG	8.1000	ORPP	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Aroclor-1248	33.0000	UG/KG	33.0000	ORPP	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	Aroclor-1254	8.1000	UG/KG	8.1000	ORPP	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Aroclor-1254	33.0000	UG/KG	33.0000	ORPP	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	Aroclor-1260	8.1000	UG/KG	8.1000	ORPP	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Aroclor-1260	33.0000	UG/KG	33.0000	ORPP	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	Benzene	6.0000	UG/KG	6.0000	ORVO	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Benzene	6.0000	UG/KG	6.0000	ORVO	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Benzo(a)anthracene	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Benzo(a)pyrene	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Benzo(b)fluoranthene	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil

Location_n	Sample_id	Collection_	Value_name	Measured_v	Value_	Detection_l	Chem_	Start	End_	Lab	Data	Project_c	Media
AE	RAE306	19940413	Benzo(g,h,i)perylene	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Benzo(k)fluoranthene	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Benzyl Alcohol	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Benzyl Alcohol	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Beta-BHC	0.4200	UG/KG	0.4200	ORPP	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Beta-BHC	1.7000	UG/KG	1.7000	ORPP	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	Bis(2-chloroethoxy)methane	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Bis(2-chloroethoxy)methane	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Bis(2-chloroethyl)ether	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Bis(2-chloroethyl)ether	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Bis(2-ethylhexyl)phthalate	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Bismuth	6.4000	MG/KG	6.4000	INORG	18.0	24.0	U	U	04-2768	Soil
AE	RAE305	19940413	Bismuth	6.5000	MG/KG	6.5000	INORG	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	Bismuth-207	0.0258	PCI/G	0.0258	RAD	18.0	24.0	ND	U	04-2768	Soil
AE	RAE305	19940413	Bismuth-207	0.0267	PCI/G	0.0267	RAD	0.0	6.0	ND	U	04-2768	Soil
AE	RAE306	19940413	Bismuth-210	0.0285	PCI/G	0.0285	RAD	18.0	24.0	ND	U	04-2768	Soil
AE	RAE305	19940413	Bismuth-210	0.0326	PCI/G	0.0326	RAD	0.0	6.0	ND	U	04-2768	Soil
AE	RAE306	19940413	Bromodichloromethane	6.0000	UG/KG	6.0000	ORVO	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Bromodichloromethane	6.0000	UG/KG	6.0000	ORVO	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Bromoform	6.0000	UG/KG	6.0000	ORVO	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Bromoform	6.0000	UG/KG	6.0000	ORVO	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Bromomethane	12.0000	UG/KG	12.0000	ORVO	18.0	24.0	U	U	04-2768	Soil
AE	RAE305	19940413	Bromomethane	13.0000	UG/KG	13.0000	ORVO	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	Butyl Benzyl Phthalate	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Butyl Benzyl Phthalate	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Cadmium	0.5700	MG/KG	0.5700	INORG	18.0	24.0	U	U	04-2768	Soil
AE	RAE305	19940413	Cadmium	0.5900	MG/KG	0.5900	INORG	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	Carbazole	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Carbazole	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Carbon Disulfide	6.0000	UG/KG	6.0000	ORVO	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Carbon Disulfide	6.0000	UG/KG	6.0000	ORVO	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Carbon Tetrachloride	6.0000	UG/KG	6.0000	ORVO	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Carbon Tetrachloride	6.0000	UG/KG	6.0000	ORVO	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Cesium-137	0.0297	PCI/G	0.0297	RAD	18.0	24.0	ND	U	04-2768	Soil

Location_n	Sample_id	Collection_	Value_name	Measured_v	Value_	Detection_l	Chem_	Start	End_	Lab	Data	Project_c	Media
AE	RAE306	19940413	Chlorobenzene	6.0000	UG/KG	6.0000	ORVO	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Chlorobenzene	6.0000	UG/KG	6.0000	ORVO	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Chloroethane	12.0000	UG/KG	12.0000	ORVO	18.0	24.0	U	U	04-2768	Soil
AE	RAE305	19940413	Chloroethane	13.0000	UG/KG	13.0000	ORVO	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	Chloroform	6.0000	UG/KG	6.0000	ORVO	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Chloroform	6.0000	UG/KG	6.0000	ORVO	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Chloromethane	12.0000	UG/KG	12.0000	ORVO	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Chloromethane	13.0000	UG/KG	13.0000	ORVO	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Chrysene	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Cobalt-60	0.0311	PCI/G	0.0311	RAD	18.0	24.0	ND	U	04-2768	Soil
AE	RAE305	19940413	Cobalt-60	0.0339	PCI/G	0.0339	RAD	0.0	6.0	ND	U	04-2768	Soil
AE	RAE306	19940413	Cyanide	0.6200	MG/KG	0.6200	INORG	18.0	24.0	U	U	04-2768	Soil
AE	RAE305	19940413	Cyanide	0.6400	MG/KG	0.6400	INORG	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	Delta-BHC	0.4200	UG/KG	0.4200	ORPP	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Delta-BHC	1.7000	UG/KG	1.7000	ORPP	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	Dibenz(a,h)anthracene	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Dibenz(a,h)anthracene	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Dibenzofuran	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Dibenzofuran	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Dibromochloromethane	6.0000	UG/KG	6.0000	ORVO	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Dibromochloromethane	6.0000	UG/KG	6.0000	ORVO	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Dieldrin	0.8100	UG/KG	0.8100	ORPP	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Dieldrin	3.3000	UG/KG	3.3000	ORPP	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	Diethyl Phthalate	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Diethyl Phthalate	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Dimethyl Phthalate	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Dimethyl Phthalate	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Di-n-butyl Phthalate	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Di-n-butyl Phthalate	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Di-n-octyl Phthalate	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Di-n-octyl Phthalate	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Endosulfan I	0.4200	UG/KG	0.4200	ORPP	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Endosulfan I	1.7000	UG/KG	1.7000	ORPP	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	Endosulfan II	0.8100	UG/KG	0.8100	ORPP	18.0	24.0	U	UJ	04-2768	Soil

Location_n	Sample_id	Collection_	Value_name	Measured_v	Value_	Detection_l	Chem_	Start	End_	Lab	Data	Project_c	Media
AE	RAE305	19940413	Endosulfan II	3.3000	UG/KG	3.3000	ORPP	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	Endosulfan Sulfate	0.8100	UG/KG	0.8100	ORPP	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Endosulfan Sulfate	3.3000	UG/KG	3.3000	ORPP	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	Endrin	0.8100	UG/KG	0.8100	ORPP	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Endrin	3.3000	UG/KG	3.3000	ORPP	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	Endrin Aldehyde	0.8100	UG/KG	0.8100	ORPP	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Endrin Aldehyde	3.3000	UG/KG	3.3000	ORPP	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	Endrin Ketone	0.8100	UG/KG	0.8100	ORPP	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Endrin Ketone	3.3000	UG/KG	3.3000	ORPP	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	Ethylbenzene	6.0000	UG/KG	6.0000	ORVO	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Ethylbenzene	6.0000	UG/KG	6.0000	ORVO	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Fluoranthene	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Fluorene	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Fluorene	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Gamma Chlordane	0.4200	UG/KG	0.4200	ORPP	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Gamma Chlordane	1.7000	UG/KG	1.7000	ORPP	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	Gamma-BHC (Lindane)	0.4200	UG/KG	0.4200	ORPP	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Gamma-BHC (Lindane)	1.7000	UG/KG	1.7000	ORPP	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	Heptachlor	0.4200	UG/KG	0.4200	ORPP	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Heptachlor	1.7000	UG/KG	1.7000	ORPP	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	Heptachlor Epoxide	0.4200	UG/KG	0.4200	ORPP	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Heptachlor Epoxide	1.7000	UG/KG	1.7000	ORPP	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	Hexachlorobenzene	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Hexachlorobenzene	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Hexachlorobutadiene	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Hexachlorobutadiene	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Hexachlorocyclopentadiene	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Hexachlorocyclopentadiene	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Hexachloroethane	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Hexachloroethane	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Hexane	12.0000	UG/KG	12.0000	ORVO	18.0	24.0	U	U	04-2768	Soil
AE	RAE305	19940413	Hexane	13.0000	UG/KG	13.0000	ORVO	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	Indeno(1,2,3-cd)pyrene	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Iodomethane	12.0000	UG/KG	12.0000	ORVO	18.0	24.0	U	U	04-2768	Soil

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Location_n	Sample_id	Collection_	Value_name	Measured_v	Value_	Detection_l	Chem_	Start	End_	Lab	Data	Project_c	Media
AE	RAE305	19940413	Iodomethane	13.0000	UG/KG	13.0000	ORVO	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	Isophorone	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Isophorone	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Mercury	0.1200	MG/KG	0.1200	INORG	18.0	24.0	U	U	04-2768	Soil
AE	RAE305	19940413	Mercury	0.1300	MG/KG	0.1300	INORG	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	Methoxychlor	4.2000	UG/KG	4.2000	ORPP	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Methoxychlor	17.0000	UG/KG	17.0000	ORPP	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	Naphthalene	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Naphthalene	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Nitrobenzene	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Nitrobenzene	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	N-Nitroso-di-n-propylamine	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	N-Nitroso-di-n-propylamine	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	N-Nitrosodiphenylamine	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	N-Nitrosodiphenylamine	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Pentachlorophenol	1000.0000	UG/KG	1000.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Pentachlorophenol	1100.0000	UG/KG	1100.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Phenanthrene	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Phenol	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Phenol	430.0000	UG/KG	430.0000	ORSV	0.0	6.0	U	UJ	04-2768	Soil
SCR967	9311043	19931103	Plutonium-238	3.0000	PCI/G		RAD	0.0	0.0	U		SCRDAT	Soil
SCR967	9311083	19931105	Plutonium-238	11.0000	PCI/G		RAD	0.0	0.0	U		SCRDAT	Soil
SCR967	9311036	19931102	Plutonium-238	14.0000	PCI/G		RAD	0.0	0.0	U		SCRDAT	Soil
SCR967	9311045	19931103	Plutonium-238	19.0000	PCI/G		RAD	0.0	0.0	U		SCRDAT	Soil
17.25N2.5	17.25N2.5	19941011	Plutonium-238	20.0000	PCI/G	20.0000	RAD	0.0	1.5		U	2680	Soil
AE	RAE306	19940413	Plutonium-238	21.0000	PCI/G		RAD	18.0	24.0	U		04-2768	Soil
AE	RAE304	19940413	Plutonium-242	0.0038	PCI/G	0.0038	RAD	2.0	12.0	ND	UJ	04-2768	Soil
AE	RAE306	19940413	Pyrene	420.0000	UG/KG	420.0000	ORSV	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Selenium	1.1000	MG/KG	1.1000	INORG	18.0	24.0	U	U	04-2768	Soil
AE	RAE305	19940413	Selenium	1.2000	MG/KG	1.2000	INORG	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	Silver	1.2000	MG/KG	1.2000	INORG	18.0	24.0	U	U	04-2768	Soil
AE	RAE305	19940413	Silver	1.2000	MG/KG	1.2000	INORG	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	Sodium	471.0000	MG/KG	471.0000	INORG	18.0	24.0	U	U	04-2768	Soil
AE	RAE305	19940413	Strontium-90	0.8590	PCI/G	0.8590	RAD	0.0	6.0	ND/	U	04-2768	Soil

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Location_n	Sample_id	Collection_	Value_name	Measured_v	Value_	Detection_l	Chem_	Start	End_	Lab	Data	Project_c	Media
AE	RAE306	19940413	Strontium-90	1.1200	PCI/G	1.1200	RAD	18.0	24.0	ND/	U	04-2768	Soil
AE	RAE306	19940413	Styrene	6.0000	UG/KG	6.0000	ORVO	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Styrene	6.0000	UG/KG	6.0000	ORVO	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Sulfate	31.2000	MG/KG	31.2000	ANION	18.0	24.0	U	U	04-2768	Soil
AE	RAE305	19940413	Sulfate	31.9000	MG/KG	31.9000	ANION	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	Tetrachloroethene	6.0000	UG/KG	6.0000	ORVO	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Tetrachloroethene	6.0000	UG/KG	6.0000	ORVO	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Thallium	0.9000	MG/KG	0.9000	INORG	18.0	24.0	U	U	04-2768	Soil
AE	RAE305	19940413	Thallium	0.9200	MG/KG	0.9200	INORG	0.0	6.0	U	U	04-2768	Soil
SCR967	9311083	19931105	Thorium-232	0.4000	PCI/G		RAD	0.0	0.0	U		SCRDAT	Soil
SCR967	9311036	19931102	Thorium-232	0.5000	PCI/G		RAD	0.0	0.0	U		SCRDAT	Soil
SCR967	9311043	19931103	Thorium-232	0.7000	PCI/G		RAD	0.0	0.0	U		SCRDAT	Soil
SCR967	9311045	19931103	Thorium-232	0.9000	PCI/G		RAD	0.0	0.0	U		SCRDAT	Soil
17.25N2.5	17.25N2.5	19941011	Thorium-232	1.0000	PCI/G	1.0000	RAD	0.0	1.5		U	2680	Soil
AE	RAE306	19940413	Thorium-232	1.7000	PCI/G		RAD	18.0	24.0	U		04-2768	Soil
AE	RAE305	19940413	Thorium-232	1.7000	PCI/G		RAD	0.0	6.0	U		04-2768	Soil
S0578	2879	19831001	Thorium-232	2.0000	PCI/G	2.0000	RAD	0.0	0.0	U		RSS	Soil
AE	RAE306	19940413	Toluene	6.0000	UG/KG	6.0000	ORVO	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Toluene	6.0000	UG/KG	6.0000	ORVO	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE306	19940413	Toxaphene	42.0000	UG/KG	42.0000	ORPP	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Toxaphene	170.0000	UG/KG	170.0000	ORPP	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	Trichloroethylene (TCE)	6.0000	UG/KG	6.0000	ORVO	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Trichloroethylene (TCE)	6.0000	UG/KG	6.0000	ORVO	0.0	6.0	U	UJ	04-2768	Soil
AE	RAE301	19940413	Tritium	0.1360	PCI/G	0.1360	RAD	0.0	12.0	ND	U	04-2768	Soil
AE	RAE302	19940413	Tritium	0.1590	PCI/G	0.1590	RAD	12.0	24.0	ND	U	04-2768	Soil
AE	RAE306	19940413	Vinyl Acetate	12.0000	UG/KG	12.0000	ORVO	18.0	24.0	U	U	04-2768	Soil
AE	RAE305	19940413	Vinyl Acetate	13.0000	UG/KG	13.0000	ORVO	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	Vinyl Chloride	12.0000	UG/KG	12.0000	ORVO	18.0	24.0	U	U	04-2768	Soil
AE	RAE305	19940413	Vinyl Chloride	13.0000	UG/KG	13.0000	ORVO	0.0	6.0	U	U	04-2768	Soil
AE	RAE306	19940413	Xylenes, Total	6.0000	UG/KG	6.0000	ORVO	18.0	24.0	U	UJ	04-2768	Soil
AE	RAE305	19940413	Xylenes, Total	6.0000	UG/KG	6.0000	ORVO	0.0	6.0	U	UJ	04-2768	Soil

Lab and data qualifiers are defined on the pages immediately following the non-detects table in this appendix.

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LABORATORY DATA QUALIFIERS (LABQUAL)

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

ORGANICS

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

INORGANICS

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

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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.

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Comparisons for Soil Analytical Results

10^{-6} Risk-Based Guideline Values			
79-00-5	1,1,2-Trichloroethane	1.90E+00	MG/KG
79-34-5	1,1,2,2-Tetrachloroethane	8.90E-01	MG/KG
75-35-4	1,1-Dichloroethene	1.20E-01	MG/KG
107-06-2	1,2-Dichloroethane	7.60E-01	MG/KG
78-87-5	1,2-Dichloropropane	4.38E+01	MG/KG
118-96-7	2,4,6-Trinitrotoluene	1.91E+02	MG/KG
72-55-9	4,4'-DDE	9.00E+00	MG/KG
50-29-3	4,4'-DDT	9.00E+00	MG/KG
309-00-2	Aldrin	1.80E-01	MG/KG
5103-71-9	Alpha Chlordane	8.50E+00	MG/KG
12672-29-6	Aroclor-1248	3.85E-01	MG/KG
11096-82-5	Aroclor-1260	3.85E-01	MG/KG
7440-38-2	Arsenic	1.20E+03	MG/KG
71-43-2	Benzene	1.45E+00	MG/KG
56-55-3	Benzo(a)anthracene	4.10E+00	MG/KG
50-32-8	Benzo(a)pyrene	4.10E-01	MG/KG
205-99-2	Benzo(b)fluoranthene	4.10E+00	MG/KG
207-08-9	Benzo(k)fluoranthene	4.10E+01	MG/KG
7440-41-7	Beryllium	7.00E-01	MG/KG
319-85-7	Beta-BHC	1.65E+00	MG/KG
117-81-7	Bis(2-ethylhexyl)phthalate	2.15E+02	MG/KG
75-27-4	Bromodichloromethane	4.80E+01	MG/KG
75-25-2	Bromoform	3.75E+02	MG/KG
7440-43-9	Cadmium	1.00E+04	MG/KG
56-23-5	Carbon Tetrachloride	5.38E-01	MG/KG
67-66-3	Chloroform	5.20E-01	MG/KG
74-87-3	Chloromethane	2.71E+00	MG/KG
7440-47-3	Chromium	1.50E+03	MG/KG
218-01-9	Chrysene	4.10E+02	MG/KG
53-70-3	Dibenz(a,h)anthracene	4.10E-01	MG/KG
124-48-1	Dibromochloromethane	3.55E+01	MG/KG
75-09-2	Dichloromethane	2.03E+01	MG/KG
60-57-1	Dieldrin	1.85E-01	MG/KG
5103-74-2	Gamma Chlordane	8.50E+00	MG/KG
58-89-9	Gamma-BHC (Lindane)	2.30E+00	MG/KG
76-44-8	Heptachlor	0.66	MG/KG
1024-57-3	Heptachlor Epoxide	0.33	MG/KG
193-39-5	Indeno(1,2,3-cd)pyrene	4.10E+00	MG/KG
78-59-1	Isophorone	3.15E+03	MG/KG
86-30-6	N-Nitrosodiphenylamine	6.00E+02	MG/KG
87-86-5	Pentachlorophenol	2.50E+01	MG/KG
121-82-4	RDX	2.70E+01	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	4.10E-01	MG/KG
7440-41-7	1,1,1,2-Tetrachloroethane	1.10E-02	MG/L
7440-38-2	1,1,2,2-Tetrachloroethane	1.40E-03	MG/L

14952-40-0	Actinium-227	4.50E-01	PCI/G
14596-10-2	Americium-241	6.30E+00	PCI/G
13982-38-2	Bismuth-207	1.60E-01	PCI/G
10045-97-3	Cesium-137	3.40E-01	PCI/G
10198-40-0	Cobalt-60	7.00E-02	PCI/G
14255-04-0	Lead-210	6.20E-01	PCI/G
13981-16-3	Plutonium-238	6.10E+00	PCI/G
15117-48-3	Plutonium-239	6.00E+00	PCI/G
PU239/240	Plutonium-240	6.00E+00	PCI/G
13982-10-0	Plutonium-242	6.33E+00	PCI/G
13966-00-2	Potassium-40	1.42E+00	PCI/G
14331-85-2	Protactinium-231	3.90E-01	PCI/G
13982-63-3	Radium-226	9.00E-02	PCI/G
10098-97-2	Strontium-90	9.40E+00	PCI/G
14274-82-9	Thorium-228	1.10E-01	PCI/G
14269-63-7	Thorium-230	9.00E-02	PCI/G
7440-29-1	Thorium-232	7.00E-02	PCI/G
10028-17-8	Tritium	2.35E+04	PCI/G
13968-55-3	Uranium-233	9.68E-01	PCI/G
13966-29-5	Uranium-234	1.05E+01	PCI/G
15117-96-1	Uranium-235	1.60E+00	PCI/G
7440-61-1	Uranium-238+D	1.00E-01	PCI/G
14596-10-2	Americium-241	4.90E-01	PCI/L
14331-79-4	Bismuth-210	2.20E+01	PCI/L
15262-20-1	Radium-228	3.30E-01	PCI/L
13967-73-2	Strontium-85	1.10E+02	PCI/L
10098-97-2	Strontium-90	3.90E+00	PCI/L
15623-47-9	Thorium-227	4.00E+00	PCI/L
14274-82-9	Thorium-228	6.90E-01	PCI/L
14269-63-7	Thorium-230	1.20E-01	PCI/L
7440-29-1	Thorium-232	3.10E-01	PCI/L
7440-61-1	Uranium-238	1.10E-01	PCI/L
OU9 Soil Background Value			
72-54-8	4,4'-DDD	4.2	MG/KG
72-55-9	4,4'-DDE	4.3	MG/KG
50-29-3	4,4'-DDT	13	MG/KG
309-00-2	Aldrin	ND	MG/KG
5103-71-9	Alpha Chlordane	ND	MG/KG
319-84-6	Alpha-BHC	ND	MG/KG
7429-90-5	Aluminum	19000	MG/KG
14596-10-2	Americium-241	ND	MG/KG
12672-29-6	Aroclor-1248	ND	MG/KG
11097-69-1	Aroclor-1254	58	MG/KG
11096-82-5	Aroclor-1260	ND	MG/KG
7440-38-2	Arsenic	8.6	MG/KG
7440-39-3	Barium	180	MG/KG
7440-41-7	Beryllium	1.3	MG/KG
319-85-7	Beta-BHC	ND	MG/KG
7440-69-9	Bismuth	ND	MG/KG

13982-38-2	Bismuth-207	ND	MG/KG
14331-79-4	Bismuth-210m	ND	MG/KG
7440-43-9	Cadmium	2.1	MG/KG
7440-70-2	Calcium	310000	MG/KG
7440-47-3	Chromium	20	MG/KG
7440-48-4	Cobalt	19	MG/KG
7440-50-8	Copper	26	MG/KG
57-12-5	Cyanide	ND	MG/KG
60-57-1	Dieldrin	ND	MG/KG
959-98-8	Endosulfan I	ND	MG/KG
1031-07-8	Endosulfan Sulfate	ND	MG/KG
72-20-8	Endrin	ND	MG/KG
7421-93-4	Endrin Aldehyde	ND	MG/KG
53494-70-5	Endrin Ketone	ND	MG/KG
5103-74-2	Gamma Chlordane	ND	MG/KG
58-89-9	Gamma-BHC (Lindane)	ND	MG/KG
76-44-8	Heptachlor	ND	MG/KG
1024-57-3	Heptachlor Epoxide	ND	MG/KG
77-47-4	Hexachlorocyclopentadiene	ND	MG/KG
7439-89-6	Iron	35000	MG/KG
7439-92-1	Lead	48	MG/KG
7439-93-2	Lithium	26	MG/KG
7439-95-4	Magnesium	40000	MG/KG
7439-96-5	Manganese	1400	MG/KG
7439-97-6	Mercury	ND	MG/KG
72-43-5	Methoxychlor	30	MG/KG
7439-98-7	Molybdenum	27	MG/KG
7440-02-0	Nickel	32	MG/KG
7440-09-7	Potassium	1900	MG/KG
7782-49-2	Selenium	ND	MG/KG
7440-22-4	Silver	1.7	MG/KG
7440-23-5	Sodium	240	MG/KG
7440-28-0	Thallium	0.46	MG/KG
7440-31-5	Tin	20	MG/KG
7440-62-2	Vanadium	25	MG/KG
7440-66-6	Zinc	140	MG/KG
14952-40-0	Actinium-227	1.10E-01	PCI/G
10045-97-3	Cesium-137	0.42	PCI/G
14255-04-0	Lead-210	1.20E+00	PCI/G
13981-16-3	Plutonium-238	0.13	PCI/G
15117-48-3	Plutonium-239	1.80E-01	PCI/G
PU239/240	Plutonium-240	1.80E-01	PCI/G
13966-00-2	Potassium-40	37	PCI/G
14331-85-2	Protactinium-231	1.10E-01	PCI/G
13982-63-3	Radium-226	2	PCI/G
10098-97-2	Strontium-90	0.72	PCI/G
14274-82-9	Thorium-228	1.5	PCI/G
14269-63-7	Thorium-230	1.9	PCI/G
7440-29-1	Thorium-232	1.4	PCI/G
10028-17-8	Tritium	1.6	PCI/G

13966-29-5	Uranium-234	1.1	PCI/G
15117-96-1	Uranium-235	0.11	PCI/G
7440-61-1	Uranium-238	1.2	PCI/G
Core Team Determined Screening Level			
7439-92-1	Lead	4.00E+02	MG/KG
14952-40-0	Actinium-227	5.60E-01	PCI/G
14596-10-2	Americium-241	6.30E+00	PCI/G
13982-38-2	Bismuth-207	1.75E-01	PCI/G
10045-97-3	Cesium-137	7.60E-01	PCI/G
10198-40-0	Cobalt-60	7.00E-02	PCI/G
14255-04-0	Lead-210	1.80E+00	PCI/G
13981-16-3	Plutonium-238	5.50E+01	PCI/G
14331-85-2	Protactinium-231	4.00E+00	PCI/G
13982-63-3	Radium-226	2.10E+00	PCI/G
14274-82-9	Thorium-228	1.61E+00	PCI/G
14269-63-7	Thorium-230	2.00E+00	PCI/G
7440-29-1	Thorium-232	1.47E+00	PCI/G
15117-96-1	Uranium-235	1.70E+00	PCI/G
7440-61-1	Uranium-238+D	1.30E+00	PCI/G
Maximum Contaminant Level for Drinking Water			
71-55-6	1,1,1-Trichloroethane	0.2	MG/L
79-00-5	1,1,2-Trichloroethane	0.005	MG/L
75-35-4	1,1-Dichloroethene	0.007	MG/L
120-82-1	1,2,4-Trichlorobenzene	0.07	MG/L
156-59-2	1,2-cis-Dichloroethene	0.07	MG/L
106-93-4	1,2-Dibromoethane	0.00005	MG/L
95-50-1	1,2-Dichlorobenzene	0.6	MG/L
107-06-2	1,2-Dichloroethane	0.005	MG/L
78-87-5	1,2-Dichloropropane	0.005	MG/L
156-60-5	1,2-trans-Dichloroethene	0.01	MG/L
106-46-7	1,4-Dichlorobenzene	0.075	MG/L
95-95-4	2,4,5-Trichlorophenol	0.05	MG/L
94-75-7	2,4-D	0.07	MG/L
7440-36-0	Antimony	0.0006	MG/L
7440-38-2	Arsenic	0.05	MG/L
7440-39-3	Barium	2	MG/L
71-43-2	Benzene	0.005	MG/L
50-32-8	Benzo(a)pyrene	0.002	MG/L
7440-41-7	Beryllium	0.004	MG/L
117-81-7	bis(2-ethylhexyl)phthalate	0.006	MG/L
75-27-4	Bromodichloromethane	0.008	MG/L
75-25-2	Bromoform	0.008	MG/L
7440-43-9	Cadmium	0.005	MG/L
56-23-5	Carbon Tetrachloride	0.005	MG/L
57-74-9	Chlordane	0.002	MG/L
108-90-7	Chlorobenzene	0.1	MG/L
67-66-3	Chloroform	0.008	MG/L
7440-47-3	Chromium	0.1	MG/L

7440-50-8	Copper	1.3	MG/L
57-12-5	Cyanide	0.2	MG/L
96-12-8	Dibromochloropropane	0.0002	MG/L
75-09-2	Dichloromethane (Methylene Chloride)	0.005	MG/L
88-85-7	Dinoseb	0.007	MG/L
1746-01-6	Dioxin	0.00000003	MG/L
72-20-8	Endrin	0.002	MG/L
100-41-4	Ethylbenzene	0.07	MG/L
16984-48-8	Flouride	4	MG/L
58-89-9	Gamma-BHC (Lindane)	0.0002	MG/L
76-44-8	Heptachlor	0.0004	MG/L
1024-57-3	Heptachlor Epoxide	0.0002	MG/L
118-74-1	Hexachlorobenzene	0.001	MG/L
77-47-4	Hexachlorocyclopentadiene	0.05	MG/L
7439-92-1	Lead	0.015	MG/L
7439-97-6	Mercury	0.002	MG/L
72-43-5	Methoxychlor	0.04	MG/L
7440-02-0	Nickel	0.1	MG/L
NO3	Nitrate	10	MG/L
14797-65-0	Nitrite	1	MG/L
87-86-5	Pentachlorophenol	0.001	MG/L
7782-49-2	Selenium	0.05	MG/L
100-42-5	Styrene	0.1	MG/L
127-18-4	Tetrachloroethene	0.005	MG/L
7440-28-0	Thallium	0.002	MG/L
108-88-3	Toluene	1	MG/L
8001-35-2	Toxaphene	0.003	MG/L
79-01-6	Trichloroethene	0.005	MG/L
75-01-4	Vinyl Chloride	0.002	MG/L
1330-20-7	Xylenes, Total	10	MG/L
14952-40-0	Actinium-227	0.4	PCI/L
14596-10-2	Americium-241	1.2	PCI/L
13982-38-2	Bismuth-207	1200	PCI/L
10045-97-3	Cesium-137	120	PCI/L
10198-40-0	Cobalt-60	400	PCI/L
13981-16-3	Plutonium-238	1.6	PCI/L
13982-63-3	Radium-226	4	PCI/L
10098-97-2	Strontium-90	40	PCI/L
14274-82-9	Thorium-228	16	PCI/L
14269-63-7	Thorium-230	12	PCI/L
7440-29-1	Thorium-232	2	PCI/L
10028-17-8	Tritium	20000	PCI/L
13968-55-3	Uranium-233	20	PCI/L
13966-29-5	Uranium-234	20	PCI/L
15117-96-1	Uranium-235	24	PCI/L
7440-61-1	Uranium-238	24	PCI/L
Guideline Values Based on the Hazard Index			
71-55-6	1,1,1-Trichloroethane	3.31E+03	MG/KG
79-00-5	1,1,2-Tricloroethane	8.52E+02	MG/KG

76-13-1	1,1,2-Trichloro-1,2,2triflouroethane	7.00E+04	MG/KG
75-34-3	1,1-Dichloroethane	2.13E+04	MG/KG
75-35-4	1,1-Dichloroethene	1.92E+03	MG/KG
120-82-1	1,2,4-Trichlorobenzene	2.04E+04	MG/KG
156-59-2	1,2-cis-Dichloroethene	2.13E+03	MG/KG
78-87-5	1,2-Dichloropropane	2.16E+01	MG/KG
156-60-5	1,2-trans-Dichloroethene	4.30E+03	MG/KG
99-65-0	1,3-Dinitrobenzene	2.00E+02	MG/KG
118-96-7	2,4,6-Trinitrotoluene	1.00E+03	MG/KG
78-93-3	2-Butanone	9.30E+03	MG/KG
95-57-8	2-Chlorophenol	1.06E+03	MG/KG
108-10-1	2-Methyl-4-pentanone	7.00E+02	MG/KG
50-29-3	4,4'-DDT	1.10E+02	MG/KG
106-44-5	4-Methylphenol	1.10E+03	MG/KG
67-64-1	Acetone	2.10E+04	MG/KG
309-00-2	Aldrin	6.4	MG/KG
5103-71-9	Alpha Chlordane	110	MG/KG
7429-90-5	Aluminum	210000	MG/KG
120-12-7	Anthracene	6.40E+04	MG/KG
7440-36-0	Antimony	8.50E+01	MG/KG
11097-69-1	Aroclor-1254	4.30E+00	MG/KG
7440-38-2	Arsenic	6.40E+01	MG/KG
7440-39-3	Barium	1.50E+04	MG/KG
71-43-2	Benzene	2.36E+01	MG/KG
65-85-0	Benzoic Acid	8.50E+05	MG/KG
7440-41-7	Beryllium	1.10E+03	MG/KG
117-81-7	Bis(2-ethylhexyl)phthalate	4.30E+03	MG/KG
75-27-4	Bromodichloromethane	4.26E+03	MG/KG
75-25-2	Bromoform	4.30E+03	MG/KG
74-83-9	Bromomethane	1.26E+01	MG/KG
85-68-7	Butyl Benzyl Phthalate	4.30E+04	MG/KG
7440-43-9	Cadmium	2.10E+02	MG/KG
75-15-0	Carbon Disulfide	1.16E+03	MG/KG
56-23-5	Carbon Tetrachloride	5.62E+00	MG/KG
108-90-7	Chlorobenzene	4.89E+02	MG/KG
75-00-3	Chloroethane	1.60E+02	MG/KG
67-66-3	Chloroform	1.50E+03	MG/KG
74-87-3	Chloromethane	1.58E+02	MG/KG
7440-47-3	Chromium	1.10E+03	MG/KG
18540-29-9	Chromium-VI	6.39E+02	MG/KG
7440-48-4	Cobalt	1.28E+04	MG/KG
7440-50-8	Copper	7.90E+03	MG/KG
57-12-5	Cyanide	4.30E+03	MG/KG
124-48-1	Dibromochloromethane	4.26E+03	MG/KG
75-09-2	Dichloromethane	1.00E+03	MG/KG
60-57-1	Dieldrin	1.10E+01	MG/KG
84-74-2	Di-n-butyl Phthalate	2.10E+04	MG/KG
117-84-0	Di-n-octyl Phthalate	4.30E+03	MG/KG
959-98-8	Endosulfan I	1300	MG/KG
33213-65-9	Endosulfan II	1300	MG/KG

100-41-4	Ethylbenzene	4.80E-01	MG/KG
86-73-7	Flourene	8.50E+03	MG/KG
206-44-0	Fluoranthene	8.50E+03	MG/KG
5103-74-2	Gamma Chlordane	110	MG/KG
58-89-9	Gamma-BHC (Lindane)	64	MG/KG
76-44-8	Heptachlor	110	MG/KG
1024-57-3	Heptachlor Epoxide	2.8	MG/KG
110-54-3	Hexane	9.10E+01	MG/KG
78-59-1	Isophorone	4.30E+04	MG/KG
7439-96-5	Manganese	2.70E+04	MG/KG
7439-97-6	Mercury	6.40E+01	MG/KG
72-43-5	Methoxychlor	1100	MG/KG
7440-02-0	Nickel	4.30E+03	MG/KG
87-86-5	Pentachlorophenol	6.40E+03	MG/KG
108-95-2	Phenol	1.30E+05	MG/KG
129-00-0	Pyrene	6.40E+03	MG/KG
7782-49-2	Selenium	1100	MG/KG
7440-22-4	Silver	1.10E+03	MG/KG
100-42-5	Styrene	1.45E+04	MG/KG
127-18-4	Tetrachloroethene	2.13E+03	MG/KG
79-01-6	Trichloroethene	6.39E+01	MG/KG
7440-28-0	Thallium	17	MG/KG
7440-31-5	Tin	130000	MG/KG
108-88-3	Toluene	2.50E+02	MG/KG
75-69-4	Trichlorofluoromethane	7.30E+02	MG/KG
7440-62-2	Vanadium	1.50E+03	MG/KG
75-01-4	Vinyl Chloride	1.19E+02	MG/KG
1330-20-7	Xylenes, Total	4.26E+05	MG/KG
7440-66-6	Zinc	6.40E+04	MG/KG
7440-41-7	1,1,1,2-Tetrachloroethane	2.90E-01	MG/L
7440-38-2	1,1,2,2-Tetrachloroethane	2.50E-01	MG/L
71-55-6	1,1,1-Trichloroethane	1.80E+00	MG/L
76-13-1	1,1,2-Trichloro-1,2,2triflouroethane	2.50E+03	MG/L
7429-90-5	Aluminum	100	MG/L
7440-42-8	Boron	9.00E+00	MG/L
18540-29-9	Chromium-VI	3.00E-01	MG/L
7440-48-4	Cobalt	6	MG/L
7440-50-8	Copper	4.00E+00	MG/L
7439-98-7	Molybdenum	0.5	MG/L
7782-49-2	Selenium	0.5	MG/L
7440-28-0	Thallium	0.008	MG/L
7440-31-5	Tin	60	MG/L
2691-41-0	HMX	1.10E+04	UG/KG
121-82-4	RDX	6.40E+04	UG/KG

Appendix M

Occurrence Reports

A search of the occurrence reporting system revealed twenty-nine reports, all of which were minor and without environmental impact:

- rupture of water shielded window (copy provided),
- continuous air monitor (CAM) false alarm or equipment failure (9),
- fire alarm system false alarm or equipment failure (6),
- air handling system failure (4),
- communication (security alarm) system failure,
- standby generator battery failure (dead or weak battery),
- withdrawal of sealed source acceptance,
- filter bank deluge system test not performed,
- standby generator fails full load test,
- excavator breaks street light line,
- high winds cause damage across Mound Plant Site,
- electrical short circuit, and
- low oxygen in test cell.

ALO-DA-EGGM-EGGMAT02-1994-0007 Final Report

Occurrence Report

Nuclear Energy Facilities
(Name of Facility)

Plutonium Processing and Handling
(Facility Function)

Mound Plant EG&G Mound Applied Technologies
(Laboratory, Site, or Organization)

Name: BUXTON, TERRY L
Title: MANAGER NUCLEAR TECHNOLOGY **Telephone No.:** (513) 865-3424
(Facility Manager/Designee)

Name: Terry L. Buxton
Title: Manager, Nuclear Technology **Telephone No.:** (513) 865-3424
(Originator/Transmitter)

Name: T. L. Buxton **Date:** 06/09/1994
(Authorized Classifier (AC))

1. Occurrence Report Number: ALO-DA-EGGM-EGGMAT02-1994-0007

Rupture of Water Shielded Window

2. Report Type and Date: Final

	Date	Time
Notification:	04/27/1994	14:34 (MTZ)
Initial Update:	05/11/1994	11:47 (MTZ)
Latest Update:	05/11/1994	11:47 (MTZ)
Final:	06/14/1994	13:05 (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: Building 50 - Cell 107 - Shielding Window

8. UCNI?: No

9. Plant Area: SM/PP

10. Date and Time Discovered: 04/27/1994 05:30 (ETZ)

After reading this report I would say that NO spill or Release took place to the environment. 05/15/03

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11. Date and Time Categorized: 04/27/1994 07:30 (ETZ)

12. DOE Notification:

Date	Time	Person Notified	Organization
04/27/1994	10:15 (ETZ)	D. V. Eckman	DOE/DAO

13. Other Notifications:

14. Subject or Title of Occurrence:

Rupture of Water Shielded Window

15. Nature of Occurrence:

01) Facility Condition
E. Safety Structure/System/Component Degradation

16. Description of Occurrence:

At 0530 hours (ETZ) on April 27, 1994, three operations employees were making their morning rounds in Building 50, which houses assembly and testing operations for the General Purpose Heat Source Program, when they discovered a pool of water on the floor of corridor 113. They also noticed an acrid odor. They observed that the observation window on cell 107 had broken. They were aware that a bromine compound was used as an algae inhibitor and thus called the Fire Department hazardous material clean-up team. They posted individuals to keep others out of the area and were taken to medical as a precaution. Medical found that no chemical exposures had occurred. The Fire Department sampled the air for bromine and found none. A sample of the spill was taken for analysis. The spill was contained and clean-up began. Approximately 33 gallons of water were spilled.

Although there was no evidence that the spill had entered the sanitary sewage lines, the close proximity of a drain in the change room led to precautions being taken to assure that no material was treated or released until confirmation of the antioxidant compounds were determined. Personnel familiar with these windows stated that potassium bromide was used to prevent algae growth. Upon analysis it was determined that no potassium bromide was present in the window. Instead analysis showed zinc bromide present. The liquid was counted for radioactivity as a precaution and no significant counts were observed.

The major concern became the failure of a designed safety feature. The shielding is not required in Cell 107 because it is an instrument and pump room that contains no radioactive material. Since all radioactive material in Building 50 is in sealed sources, no material could be inadvertently pumped into this room.

This Occurrence Report was reviewed by an Authorized Derivative Classifier (T. L. Buxton, Manager, Nuclear Technology) at 0800 hours (ETZ) on June 9, 1994 and contains

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no Classified or UCNI Information.

17. Operating Conditions of Facility at Time of Occurrence:

Normal Start of the Day Operations

18. Activity Category:

03 - Normal Operations

19. Immediate Actions Taken and Results:

The spill was contained and clean-up began. The fill parts on all similar windows were checked for pressure to assure that no pressure was inadvertently building up in the windows. Plans were made to inspect all available windows for cracks or flaws (all corridor windows are covered with security barriers and are only partly visible).

20. Direct Cause:

1) Equipment/Material Problem
B. Defective or Failed Material

21. Contributing Cause(s):

4) Design Problem
B. Inadequate or Defective Design

22. Root Cause:

4) Design Problem
C. Error in Equipment or Material Selection

23. Description of Cause:

A failure analysis was performed on the broken window. While the direct cause was a failed glass plate, there was considerable difficulty in pinpointing the exact root cause. Some force had to be applied that allowed the sustained crack growth to proceed. This force could have been gas pressure buildup due to a modification about ten years ago removing expansion bladders, thermal stresses, or the mass of the zinc bromide water solution. The root cause was most likely the addition of the security plates about eight years ago. These plates were installed using a drill hammer which introduced microcracks around the bolt holes fastening the window to the wall. This design error in equipment selection (use of drill hammer) caused the flaws that grew into the broken window. A contributing cause was the selection of unannealed glass twenty to thirty years ago when the windows were installed. A polarized light source revealed stress patterns that indicate unannealed glass. This allows the microcracks to expand to a failure at lower stresses. Since this building was designed and modified, DOE Orders and industry practice have been modified/improved requiring a better selection of materials and tools.

In order to solve the problem of water spilling out of these windows in the case of cracking and thus loosing shielding,

M 306 S

the windows containing stagnant water-Zinc Bromide Solution will all be drained and replaced with polyethylene beads which will adsorb the neutron radiation, but if a glass window cracks will not cause a cleanup problem. In this way, shielding will not be lost since the glass would crack only and the beads will not come out.

24. Evaluation (by Facility Manager/Designee):

An investigation into the cause of failure was immediately begun. All other windows were examined for cracks and one was located. The water was drained from the broken and cracked window. All other similar windows were checked to see if a positive pressure existed. Although no quantitative measurement could be made, all had a slight positive pressure that quickly dissipated. The window design is not built to be gas tight, so this pressure could not have been too excessive. The failure analysis investigated strength of this glass, points of origin, and fracture surfaces which determined the cause of failure.

The inability to identify the source of the stress which initiated failure is not uncommon with these sorts of failures, but the use of a drill hammer was undoubtedly the source of the initial microcracks in the window. The need to rapidly proceed on security barriers was a concern at that time and inadequate attention was paid to collateral damage.

25. Is Further Evaluation Required?: No

26. Corrective Actions

(* = Date added/revised since final report was approved.)

1.	All windows reviewed for cracks.	
	Target Completion Date: 04/28/1994	**Completion Date:** 04/28/1994
2.	Drain the failed and cracked window.	
	Target Completion Date: 04/29/1994	**Completion Date:** 04/29/1994
3.	Relieve any pressure on stagnant windows.	
	Target Completion Date: 04/27/1994	**Completion Date:** 04/27/1994
4.	Fill windows with polyethylene beads.	
	***Target Completion Date:** 05/15/1995	***Completion Date:** 04/25/1995

27. Impact on Environment, Safety and Health:

None

28. Programmatic Impact:

None

29. Impact on Codes and Standards:

None

30. Lessons Learned:

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The modification of facilities, even when done for good reasons, must be carefully and thoughtfully undertaken. The collateral damage caused by the wrong tool can be significant. It is also important to keep thorough records because events occurring between ten and thirty years ago can be the cause of events today.

31. Similar Occurrence Report Numbers:

1. None

32. User-defined Field #1:

33. User-defined Field #2:

34. DOE Facility Representative Input:

35. DOE Program Manager Input:

36. Approvals:

Approved by: BUXTON, TERRY L, Facility Manager/Designee
Date: 06/09/1994
Telephone No.: (513) 865-3424

Approved by: HOLBROOK, FRED B., Facility Representative/Designee
Date: 06/10/1994
Telephone No.:

Approved by: KUMAR, RAMENDRA, Program Manager/Designee
Date: 06/14/1994
Telephone No.: (301) 903-2865

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Appendix N

PRS Information

Recommendation pages are not generated for PRSs that require Further Assessment (FA) or that are unbinned. Accordingly, there are no recommendation pages for PRSs 271 and 336 included herein.

MIAMISBURG CLOSURE PROJECT
PRS 269

RECOMMENDATION:

Potential Release Site (PRS) 269 is an area of land where two underground fuel storage tanks were shown to be located in support of original plant construction in a 1948 construction drawing that indicated a fueling facility existed near the northwest corner of Building 50. No documentation of the tanks having been removed has been found, although it is believed that they were removed as part of construction demobilization. PRS 269 was binned Further Assessment (FA) by the Core Team in December 1996 based on the suspected presence of the tanks. FA included an assessment to locate the tanks, and if the tanks were found to be present, sampling should be conducted. If the tanks were determined to be no longer present, PRS 269 would be re-binned.

FA has been successfully completed by means of a ground penetrating radar (GPR) survey that did not identify any underground tanks at PRS 269.

Therefore, the Core Team recommends **No Further Assessment** for PRS 269.

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

CONCURRENCE:

DOE/MCP: _____ 3/19/03
Robert S. Rothman, Remedial Project Manager (date)

USEPA: _____ 3/26/03
David P. Seely, Remedial Project Manager (date)

OEPA: _____ 3/19/03
Brian K. Nickel, Project Manager (date)

RECOMMENDATION

PRS 31-36, 125, & 270 Package

Potential Release Sites (PRSs) 31-36, 125, and 270 were identified as PRSs as a result of breaks and/or separations in Mound's sanitary sewer lines, identified during a 1982 video survey of the lines. Radionuclides were not considered contaminants of concern. The concern was the potential release of non-radioactive contaminants into the environment from the identified breaks in the lines. A subsequent project repaired these lines by replacing them or by extruding a liner at the point of the breaks. Soil sampling was performed and results for all non-radioactive analytes were below 10^{-5} Risk-Based Guideline Values.

Therefore, the Core Team recommends **No Further Assessment** for PRSs 31-36, 125, and 270.

11-27-02

Rob Rothman, OSC
U.S. Department of Energy
Miamisburg, Ohio

11/26/02

Tim Fischer, RPM
USEPA
Chicago, Illinois

11/27/02

Brian Nickel
OEPA
Dayton, Ohio

MOUND PLANT
PRS 391
SOIL CONTAMINATION

RECOMMENDATION:

This area was identified as a potential release site in June 1994 due to qualitative PETREX soil gas results obtained during the Operable Unit 5, Operational Area Phase I Investigation. A subsequent quantitative *Soil Gas Confirmation Investigation* within 25 feet of PRS 391 showed that all concentrations of volatile, semivolatile, PCBs, pesticides, metals, radionuclides, and explosives in the soils were below their respective ALARA, regulatory or 10^{-6} Risk Based Guideline Criteria. Therefore, NO FURTHER ASSESSMENT is recommended for PRS 391.

CONCURRENCE:

DOE/MEMP: Arthur Kleinrath 2/19/97
Arthur W. Kleinrath, Remedial Project Manager (date)

USEPA: Timothy J. Fischer 2/19/97
Timothy J. Fischer, Remedial Project Manager (date)

OEPA: Brian K. Nickel 2/19/97
Brian K. Nickel, Project Manager (date)

SUMMARY OF COMMENTS AND RESPONSES:

Comment period from 4/3/97 to 5/8/97

☒ No comments were received during the comment period.

☐ Comment responses can be found on page _____ of this package.

Appendix O

Work Plan

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: **Building 50 Demolition**

2. WORK PACKAGE NUMBER: BOSS-36965-02 | **REQUESTOR: Steve Davis**

3. WORK PACKAGE SCOPE:

The purpose of this effort is to demolish Building 50. Using heavy equipment to demolish the facilities (including concrete block structure, slab, foundation, exterior stairwells, sidewalks, stanchions to Bldg. 128, and the above ground gas service line riser southeast of building), remove and dispose of the debris, provide site restoration, grading, and erosion mitigation with seeding and mulching.

Rad surveys found fixed radiological contamination in Room 129 (women's change room) of the building. Contaminated floor tile was removed during safe shutdown activities. An RWP (#1536) is required for the removal of the Red Drain system piping (from Room 129 to the Red Drain waste tank) and the Red Drain waste tank as contaminated waste, during slab demolition activities. Removal of the contaminated piping and tank will be in accordance with the Contingent Action Memorandum, Addendum 1. Also, transite piping under slab will be removed as part of slab demolition. Safe shutdown and utility isolation activities will have already been completed prior to demolition.

4. WORK LOCATION: **Building 50, PST 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

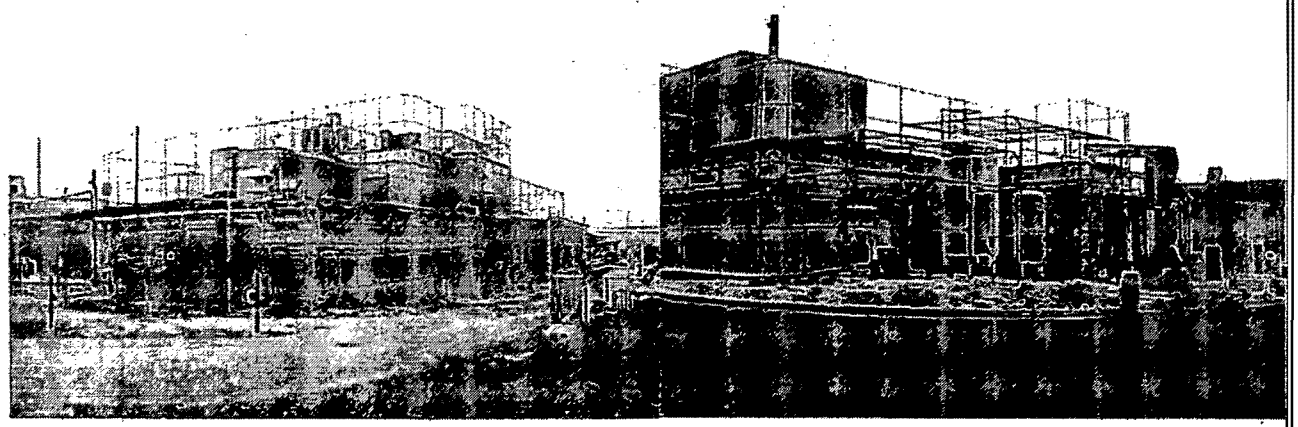
Note: Insert the Work Package phases for the job. A phase is a separately definable portion or evolution of the project.

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.

BUILDING 50, VIEWED FROM SOUTHEAST **BUILDING 50, VIEWED FROM NORTHEAST**



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05/06/04

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7. DETAILED WORK STEPS:

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

7.1 SITE INFORMATION

7.1.1 Building 50 Construction

Building 50 was constructed in approximately 1970 as the Alpha Fuels Environmental Test Facility. Based upon construction drawings, the total building area is approximately 15,275-ft^2 (the Penthouse has approximately 353 ft^2, with the first floor having 14,921 ft^2). Reference AYC 305000 Alpha Fuels Environmental Testing Facility construction drawing (as built).

The east, south, and north ground floor exterior walls of the building (up through the second floor/penthouse) are constructed of solid filled 8" concrete block; reinforced with #5 vertical rebar @ 24" O.C., with horizontal wall reinforcement (extra-heavy Durawall) every 2nd block course.. The west exterior wall is in 3 sections. The outer two sections (north and south) are constructed of solid filled 8" concrete block; reinforced with #5 vertical rebar @ 24" O.C., with horizontal wall reinforcement (extra-heavy Durawall) every 2nd block course. The middle section is constructed of 12" concrete blocks reinforced with #5 vertical rebar @ 24" O.C., with horizontal wall reinforcement (extra-heavy Durawall) every 2nd block course. The 12" reinforced block construction parallels the west side of the test cells and thus there is an interior wall section (along the southern half of test cells) that is of 12" reinforced concrete block construction. The interior walls of the rooms along the east, west, and south exterior walls (not the test cells), and in the penthouse, are constructed in the same manner as the exterior walls except they rest on the first floor and penthouse slabs. At approximately 7-1/3' intervals (measured from slab surface) there is a bond beam with up to 6 - #5 horizontal reinforcing rods in the exterior and interior room block walls (both 8" and 12" block walls).

The ground floor exterior and interior room walls (interior rooms along the exterior sections of the building) rest on poured reinforced concrete foundation sections and footers. The foundation sections are the same width as the concrete block walls they support. The foundation walls are reinforced with vertical #4 rods the height of the foundation section, spaced every 12". There are also 2 - #6 rebar, continuous, every 12", horizontally. In addition, at the base of the foundation wall sections, there are 2 - #4 rebar 90°-elbow dowels, place every 12", which join the foundation sections to the footer sections. Securing the concrete block walls to the foundation sections are #5 rebar dowels, every 24", to match with the concrete block reinforcing. The foundation sections set on, and are keylocked with, reinforced, poured concrete footers. The footers are 1 ½ foot thick, typically and are 12" wider than the foundation sections they support. The footers are reinforced with 2 - #5 horizontal rebar, continuous, attached to the #4 rebar 90°-elbow dowels which join the foundation sections to the footer sections (identified previously). The elevations of the bottom of the wall foundation sections are dependent on the elevation that rock strata were found; thus the depth of the footer sections (and consequently, the height of the foundation wall sections) may vary around the structure.

The first floor slab for the floor area from the exterior walls to the test cell walls are 6" thick poured concrete reinforced with a layer of 6 X 6 – 6/6 W.W.M. There is 6" of crushed stone and a vapor barrier beneath the slab. The first and second floor ceilings/roofs are 5 ½" poured concrete reinforced with crossing #4 or #5 rebar @ ~12". The exterior roof surface has a 4 ply built-up membrane over a lightweight concrete core and insulating layer.

Interior to the building are seven test cells. The walls of the seven test cells are poured-in-place, reinforced concrete. The eastern wall bounding the seven test cells (running in a north-south direction) is 36 in. thick, reinforced with #6 rebar every 8", horizontally and vertically, inside each wall face. The north wall of the northernmost cell and the south wall of the southernmost cell are also 36 in. thick, with like reinforcement. The western wall of the test cells, as well as the walls in-between the test cells are 27 in. thick, reinforced with #5 rebar every 8", horizontally and vertically, inside each wall face. In the 27 in thick walls, there are an additional 4 - # 5 reinforcing rebar (2 each wall face) just below floor or ceiling slab intersections. The cell walls are keylocked to footer and ceiling slabs and are also attached/stabilized by #4 or #6 rebar 90°-elbow dowels. Cell 112 is a high bay room which extends above the second floor height. At approximately 26' above floor level, the cell walls narrow to a thickness of ~19", reinforced with #4 rebar @ 8", running horizontally and vertically inside each wall face. This wall section extends another 11', for a high bay, floor to ceiling height of 37'.

Under most cell walls are 2'(H) X 6'(W) poured concrete continuous footers. These footers are reinforced with 5 - #5 @ 12" rebar (running parallel with the length of the footers) welded to 48" - #4 rods @10" (normal to the #5 rebar) at the base of the footers. Under the north and south walls of test cell #112, are larger footers, measuring 3' (H) X 11' 9" (W). These footers are reinforced with 11 - #5 @ 12" rebar (running parallel with the length of the footers) welded to 10' - #8 rods @7" (normal to the #5 rebar) at the base of the footers. The elevations of the test cell footer sections are dependent on the elevation that rock strata were found; thus the depth of the footer sections may vary around the structure.

The floor slab for the test cells are 8" thick poured concrete reinforced with #4 @ 12" E.F.E.W rebar, except for a 16' X 16' area in the southwest corner of cell 112, which is 12" thick. There is 6" of crushed stone and a vapor barrier beneath the slab.

The ceilings of the test cells, except for a small area in cell 111 and the ceiling in cell 112, are 27" thick poured concrete, reinforced with #5 @ 8" crossing #5 @ 12", E.F. An 11' wide ceiling area, adjacent to cell 112 is 3' thick, reinforced the same. The ceiling thickness in the cell 112 (high bay area) is 18", reinforced with crossing (T & B) #4 @ 9' rebar. The high bay ceiling area also has a 15' X 15' removable roof section.

Each test cell has a concrete door, suspended on a 12 X 40.8 (63' long) I-beam trolley system. The concrete doors for the four south cells are 27" (T) X ~9' (H) X 7'-8" (W) and each door weighs approx. 28,000 pounds. Each concrete door for the three north cells are 27" (T) X ~9' (H) X 11'-2" (W) and weighs approx. 35,00 pounds. The concrete is reinforced with three equally spaced rebar lattices of #6 @ 8" rebar.

7.1.2 Additional Building 50 information

Building 50 later (late 1970s) became the Radioisotope Thermoelectric Generator (RTG) assembly and testing facility. It is bordered by Buildings 36, 128, and 37 to the west, the site perimeter fence to the east, and Building 126 to the north. There is an electrical substation (AF Sub) to the south side of the building. See aerial map in Appendix C.

Located near the center of the western side of the building, an underground, 1100-gallon, steel waste holding tank, mounted on tank supports, is set in a concrete pit. The pit is designated as the "Red Drain Disposal Pit." Drain water from all potentially radioactive areas (showers, risk area floor drains, service sinks, test cells, and the filter bank) is collected in the 1,100-gallon holding tank. After sampling, uncontaminated water is pumped into the gravity flow 8-in. sanitary sewer. Rad data indicates that the tank never held contaminated wastewater.

Abutting the south side of the Red Drain Disposal Pit was a concrete sanitary waste pit housing a sanitary lift station (two pumps). During the Building 126 construction activities, the concrete sanitary pit was demolished and the lift station pumps removed. The building sanitary line was subsequently tied into the new sanitary sewer line, north of Buildings 50 and 37.

Building ventilation, both for the buffer and the controlled area, was routed through high efficiency particulate air (HEPA) filters, then exhausted. Ducts conveying air to the filters and subsequently to discharge points were not labeled by content. However, from past Rad surveys, no radiological contamination was ever found in the HEPA filter bank system or ducting and no remediation of the filter bank/ventilation systems needs to be performed prior to demolition of the facility.

Heating and air conditioning systems are central hot water (supplied from Building 128) and chilled water (roof-mounted chiller system). The building has a fire sprinkler system, except for cells 108, 109, 110, 111, and 113.

As part of a facility upgrade for Building 50 (late 1990s), asbestos abatement of piping insulation was performed in the penthouse area. Any asbestos material remaining in the building will be removed by a certified asbestos abatement contractor as part of pre-demolition safe shutdown activities.

7.2 NATIONAL HISTORIC PRESERVATION ACT (NHPA)

Building 50 is not listed as a historic structure with the Ohio of Historic Preservation Office (OHPO). No mitigative documentation package is required.

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

7.3 SITE PREPARATION & MOBILIZATION

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 Building 126 occupants shall be maintained, if personnel are still occupying Building126.

IMPORTANT NOTE: During demolition activities, when Building 50 structures are being collapsed, access to Building 126 from the south entryways will be restricted.

7.3.2 Sediment/Storm Water Control

7.3.2.1 Cover field grates with covers/sheeting for silt protection ewer 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 contaminant 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) and/or construct barriers to protect utility equipment, as needed:

- Fire line PIVs south of building.
- Fire hydrant east of building.
- Three security/communications junction boxes (green) east side of building
- Hot water piping/utility stanchions (north-south stanchion line) from Bldg. 128 to Bldg. 37.

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 Building Safe Shutdown Activities have been completed per workpackage BOSS-36963.

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

7.4.2 Verify all Building Mechanical and Electrical Utility Isolation Activities have been completed per workpackages FTS-36966 and FTS-37641, 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.

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

verified by_____ date _____
Rad PoC or email

verified by_____ date _____
Bill Wahler or designee/email

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

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

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

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

7.4.6 Notify Gary Weidenbach, Bldg. Mgr., X3241 (608-8207) of demolition schedule, potential traffic pattern delays, and building access/egress coordination.

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

7.5 BUILDING DEMOLITION SEQUENCE OF WORK

IMPORTANT

NOTE: **VSAP:** Procedures used to guide the extent of excavation are provided in the Verification Sampling and Analysis Plan (VSAP). Excavation will continue pursuant to the procedures described in this work plan until the requirements of the action memorandum and the VSAP are met.

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

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

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

7.5.1 Structural Demolition

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

HOLD POINT: RAPCA Notification verification

Environmental Compliance PoC_____ Date to Proceed with Demo_____

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

Project Manager:_____ Date and Time:_____

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

IMPORTANT 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 as needed, demolish and remove the fencing from around the perimeter of the building.

7.5.1.2 Using heavy equipment as needed, demolish and remove the jib crane and concrete support, located at the north end of the building. Use the excavator with the grapple attachment to hold the elevated parts to be demolished steady while the concrete base is fractured to bring down the crane support pedestal. The concrete pier footings for the crane will be removed during demolition of the foundation and dock pad.

7.5.1.3 If not previously removed by the vendor, contact vendor to disconnect and remove the Argon and Nitrogen gas bulk tanks from the south side of the building. Transport tanks to a temporary storage location.

7.5.1.4 Using heavy equipment as needed, demolish and remove the AF electrical substation located at the south end of the building.

7.5.1.5 Using heavy equipment, working from the south and north ends of the structure, demolish the block exterior walls of the structure, leaving debris in-place as part of the ramp to allow equipment to reach the penthouse section of Building 50.

7.5.1.6 Using heavy equipment, working from the south and north ends of the structure, using the concrete pulverizer (or like equipment) demolish the poured concrete test cell structures. Use debris, as necessary, as ramp material to allow equipment to reach the upper sections of the high bay cell (cell 112).

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

7.5.1.8 If not removed during Safe Shutdown/Utility Disconnect activities, demolish/remove the hot water/steam piping and utility stanchions (east-west piping line, at southwest corner of Building 50; see sketch/photo), which ran from Bldg. 50 to Bldg. 37 and/or from Bldg. 50 to Bldg. 128. 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.

7.5.1.9 Using heavy equipment as needed, demolish and remove the fencing from around the perimeter of above ground gas service line riser.

7.5.1.10 Demolish and remove above ground gas service line riser piping and any concrete support. Any concrete support footings for the piping will be removed during demolition of the foundation of the building.

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 Dept. (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: 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 pit (along corridor floor on western side of building) or falling into open pit (cells 112 and 113 may have open pit areas). Identify and mark 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

CAUTION HAZARD: Terrain surrounding Bldg. 50 is covered with rip-rap/rock. Slipping, and tripping hazards may exist due to poor footing from loose rock. Use caution traversing the area.

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 foundation/slab of Building 50.

- Sanitary System Line running along the west side of Building 50.
- Storm Sewer System lines running along the perimeter of the foundation of Building 50.
- Fire Protection System lines and Domestic Water System lines running along the west side of Building 50's foundation.
- Power Supply lines on the west and east sides of Building 50's foundation.

HOLD POINT: Regulatory documentation requirements met

Verified by _____ Date _____
Bob Ransbottom or designee/email

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: The following activities to remove the contaminated drain lines and waste tank are authorized per the Contingent Action Memo.

NOTE: During activities of Steps 7.5.2.1 through 7.5.2.9, follow directives of RWP #1536 for engineering controls and PPE. Due to Rad contamination of Red Drain System floor drains, piping, and waste tank, MD-80043 Operations 400 and 500 requirements apply.

NOTE: Reference Dwg. 305000, Sht 6005 for details/location of Red Drain System drains and piping.

7.5.2.1 Stage appropriate Rad Waste containers/drums, pumps, tools, monitoring equipment, and supplies as needed to facilitate removal and disposal of Rad contaminated Red Drain floor drains, piping and Rad waste tank.

7.5.2.2 Pump any remaining liquid from the Red Drain Rad waste tank into appropriate containers per Rad PoC/Waste Mgmt PoC direction. Pour absorbent/gelling material into tank as necessary, per Rad Con/Waste Mgmt PoC direction, to stabilize/solidify any residual liquid/sludge left in the tank. Rad survey/analyze liquid/sludge as necessary. Coordinate disposal per direction of Waste Management PoC and follow procedures denoted in the **Material Disposition** note of Section 7.5, above.

7.5.2.3 Saw cut and remove the concrete flooring around the floor drain (Room 129 location) and along the path of the Red-Drain piping (in Room 129, in Corridor 114A, and juncture of Corridors 114/114A) to the waste tank.

7.5.2.4 Using caution to not spread possible Rad contamination (wrap piping with duct tape and/or drill & fill piping with foam) saw cut and remove sections Red Drain System piping. Rad survey/monitor piping as piping is removed. Pending survey results, continue saw cutting concrete and removing additional Red Drain System piping branches into test cells and at piping junctions (piping from lavatory in east corridor and piping in Corridor 114), as needed. Size/reduce piping as needed for disposal. Soil sampling will be conducted in accordance with a Core Team approved VSAP. Coordinate disposal of piping/debris as directed by Waste Management PoC and follow procedures denoted in the **Material Disposition** note of Section 7.5, above.

7.5.2.5 Using heavy equipment, remove/demolish the Red Drain (RAD) storage tank. The tank and concrete pit surfaces will be surveyed/ scanned by Rad. Control technicians. Survey/sample the interior of the tank, as possible.

7.5.2.6 Demolish and completely remove both the Red Drain concrete pit and the sanitary waste concrete pit (if any of the sanitary pit remains). Use torch to cut rebar as necessary to support downsizing/demolition (Hot Work Permit Required) Dispose of tank/pit material per direction of Waste Management PoC and follow procedures denoted in the **Material Disposition** note of Section 7.5, above. The VSAP will include pre-verification sampling procedures such as walkover and other sampling procedures. This is necessary to determine if additional soil sampling is required prior to verification sampling. See **VSAP** note of Section 7.5, above.

NOTE: Verification sampling will be per VSAP developed under the contingent removal action.

NOTE: No soil backfill is to be done until results of soil sample analysis have been evaluated and regulatory approvals obtained. See Hold Point in Section 7.6.

NOTE: If soil staining or unusual fumes/odors are noted during tank/pit excavation, contact IH (Chris Ahlquist X3737 or 608-8203) or Safety (Doug Hanson X3769 or 608-8008); Environmental Compliance (Ron Paulick X4080), and OEPA (Brian Nickel X285-6468). The tanks are located at the approximate midpoint of the exterior western wall of Building 50.

7.5.2.8 All equipment used in the removal of the drains, piping, tank, and pits must be surveyed prior to release from the area. Clean/decontaminate equipment as necessary. Rad survey area and the exterior of Rad Waste containers. Cognizant RCT to determine if additional Rad surveys are necessary.

7.5.2.9 Based on radiological screening results, transport liquid, piping, and waste tank to designated disposal area and

dispose of as directed by Waste Management PoC.

NOTE: During activities of Steps 7.5.2.10 through 7.5.2.11, follow directives of Safety/IH PoCs for engineering controls and PPE. Use properly trained/certified workers for asbestos abatement/removal. Due to the asbestos hazard, MD-10286, Op D5 and MD-10391 requirements apply.

7.5.2.10 In all the test cells and in hallway 114/114A, saw cut and remove the concrete flooring around the floor vents containing transite piping. Also saw cut and remove the concrete along the paths of the transite piping that runs between the floor vent piping, from hallway 114/114A, to the air ducts/filter housings in each of the test cells (cell 112 has two runs of transite piping. See drawing AYE305000, sheet 4019 for a depiction of the transite pipe paths).

7.5.2.11 Remove transite piping, size reducing as necessary for disposal. Coordinate with site Safety and IH for PPE/work controls due asbestos hazard. Coordinate with site Safety and IH for PPE/work controls during asbestos/transite removal. Coordinate disposal of transite piping as directed by Waste Management PoC.

NOTE: Concrete with encased transite pipe can not be sent to concrete crusher.

7.5.2.12 Using heavy equipment, break apart the building concrete slab, foundation, dock pad, sidewalks, gas riser support footings, and building footers to 3 feet below grade, torch cut the rebar if required (Hot Work Permit is required) to support demolition and downsizing.

7.5.2.13 Using heavy equipment, remove and demolish the concrete pier footings for the stanchions and jib crane. 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.

7.5.2.14 Using heavy equipment, remove and demolish the security detector posts and any 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.

7.5.2.15 Replace any site boundary fencing, as needed, that was removed to facilitate demolition activities (i.e., at gas riser).

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

WARNING HAZARD: Personnel entry into excavation/trench 4' or greater in depth. Obtain Excavation permit and follow its requirements per MD-10286, Operations O5, M10, and M11. Erect soil barricade and use Personnel Retrieval Equipment, as necessary.

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

WARNING 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: Coordinate cutting/removal of transite piping with site Safety and IH for PPE/work controls before cutting due to asbestos hazard. Use properly trained/certified workers for asbestos abatement/removal.

CAUTION HAZARD: Coordinate cutting/removal of Red Drain System piping with Rad Con, Safety, and IH PoCs for PPE/work controls due to possible Rad hazard.

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

CAUTION HAZARD: Terrain surrounding Bldg. 50 is covered with rip-rap/rock. Slipping and tripping hazards may exist due to poor footing from loose rock. Use caution traversing the area.

7.6 Site Remediation & demobilization

7.6.1 Grading, Seeding, & Mulching

HOLD POINT: Results of soil sample analysis have been evaluated and regulatory approvals obtained

Verified by _____ Date _____
Bob Ransbottom or designee/email

7.6.1.1 Remove rip-rap/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 to maintain erosion control/protection in accordance with Environmental Compliance PoC instructions.

7.6.1.3 Remove any temporary protection/structures used to protect utility equipment/PIVs, Sanitary /Storm Sewer grates and 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

CAUTION HAZARD: Terrain surrounding Bldg. 50 is covered with rip-rap/rock. Slipping and tripping hazards may exist due to poor footing from loose rock. Use caution traversing the area.

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.

Work Package /Preliminary Hazard Analysis

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: Stephen Davis	Date: 10/07/03	Phone: 4436
Superintendent: [signature]	Date: 10/28/03	Phone: 3866
Foreman: [signature] Stanberry or deg designee	Date: 10/28/03	Phone: 3866
Project Eng. Mgr: [signature]	Date: 10/29/03	Phone: 4220
Industrial Hygiene: [signature]	Date: 10/15/03	Phone: 3737
Safety/Health: [signature]	Date: 10/15/03	Phone: 3769
Rad. Controls: [signature]	Date: 10/28/03	Phone: 4522
ES&C: [signature]	Date: 10/29/03	Phone: 4080
Waste Mgmt: [signature]	Date: 10/17/03	Phone: 4617
Bldg. Mgmt: [signature]	Date: 12/11/03	Phone: 608-8207
Classification: See attached classification cover sheet.	Date: 10/09/03	Phone: —
Other: N/A	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: [signature] Date: 12/11/03 Phone: 608-8207

11. AUTHORIZATION SIGNATURE:

Project Manager: [signature] Date: 12/15/03 Phone: 608-8236

12. WORK PACKAGE CLOSURE:

Job Supervisor: Date: / / Phone:

Project Manager: Date: / / Phone:

RETURN PHA TO IS&H AT JOB COMPLETION.

CLASSIFICATION OFFICE INFORMATION REVIEW REQUEST

TITLE: DEMOLITION OF Bldg 50.

~~Stephen Davis~~

AUTHORS		APPROX. PG. COUNT:
Stephen Davis		60

PRINCIPAL CONTACT FOR QUESTIONS:	EXTENSION:	BLDG.:	CC:
Stephen Davis	865-4436	102	B055 - SMPP/TFV

SCHEDULE DATA:

DATE SUBMITTED TO CLASSIFICATION OFFICE: MM/DD/YY 10 06 03

DESIRED RETURN DATE: MM/DD/YY 10 09 03

LATEST ACCEPTABLE RETURN DATE: MM/DD/YY 10 13 03

IS THE LATEST ACCEPTABLE RETURN DATE MANDATED BY A COMMITMENT FROM BWXT of Ohio, Inc. TO THE DOE AND/OR TO ANOTHER LOCAL, STATE, OR FEDERAL AGENCY? ☐ YES ☐ NO If Yes, explain: _____

ADDITIONAL DOCUMENT DETAILS:

- Is the SCHEDULE DATA section above completed? ☐ YES ☐ NO
- Is the document as submitted, complete and in its final (or near final) form? ☐ YES ☐ NO
- Is the expected distribution for this document clearly indicated? ☐ YES ☐ NO
- Has this document been reviewed by an authorized derivative classifier? (If so, they should sign below where indicated) ☐ YES ☐ NO

If the answer to any of the questions is "NO", the Classification Office may not accept the document for review.

COMMENTS: _____

Authorized Derivative Classifier	Date

☐ UNCLASSIFIED ☐ UCNI ☐ OUO ☐ ECI

☐ CLASSIFIED _____ (Level/Category)

CLASSIFICATION OFFICE USE ONLY

Export Control Coordinator Review Needed	Date
☐ YES ☐ NO	
Public Release: ☐ YES ☐ NO	

Classification Officer/Analyst	Date
[signature]	10-9-03

☑ UNCLASSIFIED - UNLIMITED DISTRIBUTION

☑ UNCLASSIFIED - LIMITED DISTRIBUTION - TYPE _____

☐ CONFIRMED CLASSIFIED _____ (Level/Category)

Estimated Hrs.: ___ ___ ___ . ___

Comments:

ML-9352 (3-03)

013/85

Work Package /Preliminary Hazard Analysis

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 305000 – (Bldg. 50) Alpha Fuels Environmental Test Facility	1		

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 126 south side access restricted during demolition/collapse of building.
Blockages/obstructions (Identify)	YES	2, 3, 4	Roadway around Bldg. 50 & plant-site access to Bldg. 126
Confined space entry (permit)	N/A	N/A	[CONFINE]
Emergency alarms or evacuation plans required	YES	2, 3, 4	[EMERG] Plant Public Address system will be used to announce any plant emergency over the plant radio channel, cell phones will be used also, no specific added hazards exist in the demolition of this building.
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 Department 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] Building 126 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 & electricity 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	[UTIL] 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] Rad waste tank & sanitary pits to be removed. Excavation Permit required

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.
Mercury	Yes	3	Switches & barometer; Contact IH & Waste Mgmt for handling & disposal guidance.
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 soils and concrete (soil contact side) following slab removal. Excavation Permit required. Flip slab sections to survey before release.
	• URMA	N/A	N/A	
	Welding, burning, grinding, hammering, chipping, or scraping of contaminated materials	N/A	N/A	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] RWP #1536
	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 50
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 4000 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	~10 Cu. yd.	During Utilities Disc. Pkg.			
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 **911** for all emergency services onsite. This is the first response for any emergency, spill, or release. If using a cell phone, dial **865-4040**. This number will ring into the plant 911 system. Any injury, no matter how minor, shall be reported immediately to the Medical Department for evaluation and treatment. The injured employee shall report any injury to the supervisor in charge or designee.
  Employees will be notified of emergency or abnormal conditions by the project two-way radios. Additionally, unique sheltering and evacuation signals are available should site-wide protective actions be necessary.
- **Evacuation Route/Assembly Areas**
  Assembly area is northeast of Buildings 50 in the parking lot southeast of Building 126. See map in Appendix C.
- **Take Shelter Area** (Be aware of threatening weather and take shelter when life-threatening storms are imminent)
  The take shelter area is Building 126, corridors 119 and 127. 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

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Project/Activity: **DEMOLITION OF BUILDING 50.**

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 – 50- 36965

DATE: 10/06/03	_X_ NEW __ REV	BUILDING: 50	JOB: Demolish Building 50
DEPARTMENT/COMPANY: BOSS Project/CH2M Hill Mound, Inc.			SECTION: 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 IH
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. Poor footing/slipping/trip hazard.	-Demolition preparation is defined by 29CFR1926.850; workers, unfamiliar with construction standards must notify the project supervision and/or project health and safety personnel. -Terrain surrounding Bldg. 50 is covered with rip-rap/rock. Use caution traversing the area due to poor footing from loose rock.
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. Bldg. 126 emergency egress will be maintained for occupants, if still occupied.

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Rev. 0
10/06/03

JOB SAFETY AND HEALTH ANALYSIS FORM

JSHA MASTER DOCUMENT CONTROL NO:
BOSS – 50- 36965-02

DATE:	___ NEW / X REV	BUILDING: 50	JOB: Demolish Building 50
10/06/03			

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 IH
REVIEW/REV: Foreman
REVIEW/REV: Bldg Mgr
APPROVED: Project Manager

REQUIRED PERSONAL PROTECTIVE EQUIPMENT:	MSDS(s)/CHEMICALS ASSOCIATED WITH THE JOB:
Hard Hat, Safety Glasses with side shields, safety shoes, safety vest	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 - Comacted 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. Poor footing/slipping/trip hazard.	-Demolition preparation is defined by 29CFR1926.850; workers, unfamiliar with construction standards must notify the project supervision and/or project health and safety personnel. -Terrain surrounding Bldg. 50 is covered with rip-rap/rock. Use caution traversing the area due to poor footing from loose rock.
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. Bldg. 126 emergency egress will be maintained for occupants, if still occupied.

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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 PIV west of bldg. 50, 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	-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.
	Possible asbestos in roofing material and floor tiles.	-Demolish roof &b floor tiles by normal remote means only (using Heavy Duty). Floor tiles may be removed by certified contractor.
	Noise Hazard	-Wear hearing protection while running heavy duty equipment. Follow the requirements of MD-10286 D9
	Breaking through into sub-floor pit (along corridor floor on western side of building) or falling into open pit (cells 112 and 113 may have open pit areas).	-Identify and mark hazard areas during walkdown of area with work crew. . Use spotter if vision is obstructed.
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.

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Rev. 2
05/06/04

JOB SAFETY AND HEALTH ANALYSIS FORM
(CONTINUATION SHEET)

BASIC JOB STEPS	POTENTIAL ACCIDENT/ILLNESSES OR KNOWN HAZARDS	SAFE JOB PROCEDURES
2e.. Slab removal/Rad contaminated piping and tank removal.	Strike underground utilities Radiological Contamination	-Obtain Excavation permit and follow its requirements per MD-10286 O5. - Follow directives of RWP #1536 and coordinate with Rad, Safety, and IH PoCs for engineering controls and PPE. Coordinate in-process Rad Surveys with Rad Techs. MD-80043 Operations 400 and 500 requirements apply
2f. Pit soil surveys - Personnel entry into excavation/trench 4' or greater in depth	Trench collapse/entrapment of personnel (asphyxiation, cuts, abrasions)	-Obtain Excavation permit and follow its requirements per MD-10286, Operations O5, M10, and M11. Operators must be trained to OSHA requirements of 29 CFR 1926, Subpart P. Erect soil barricade and use Personnel Retrieval Equipment, as necessary
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 Bldg. 50 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.
5. Removal of transite piping	Asbestos hazard	-Coordinate cutting/removal of transite piping with site Safety and IH for PPE/work controls before cutting due to asbestos hazard. . Due to the asbestos hazard, MD-10286, Op D5 and MD-10391 requirements apply.

030/85

SIGN-OFF SHEET

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

Signature	Date	Department
[illegible]	12/10/03	LD
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	HD

031/85

SIGN-OFF SHEET

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

Signature	Date	Department

632/85

WORK PLAN REVISION SHEET

1. WORK PACKAGE TITLE: **Building 50 Demolition**
2. WORK PACKAGE NUMBER: BOSS-36965-02

[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) Revise Work Package Scope in Section 3. Add steps in Section 7.5.2 for the removal of Rad contaminated drains, piping, and waste tank and to remove the transite air-duct piping running from corridors 114/114A into the test cells. Also add associated hazard warnings/cautions to Section 7.5.2 and to JSHA.

Revision 2. – Change/add wording to Section 3, Steps 7.5.2.2, 7.5.2.4, 7.5.2.6 Note, Appendix C sketch of Bldg. 50/Red Drain Line, and Appendix D RWP reference per OEPA/USEPA comments.

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

033/85

WORK PLAN REVISION SHEET

1. WORK PACKAGE TITLE: **Building 50 Demolition**
2. WORK PACKAGE NUMBER: BOSS-36965-01

[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) Revise Work Package Scope in Section 3. Add steps in Section 7.5.2 for the removal of Rad contaminated drains, piping, and waste tank and to remove the transite air-duct piping running from corridors 114/114A into the test cells. Also add associated hazard warnings/cautions to Section 7.5.2 and to JSHA.

Reviewed by:	Name	Signature	Date
Project Engineering:	S.B. DAVIS	S.B. Davis	2/2/04
Project Superintendent/Foreman:	M.M. Stromberg	M.M. Stromberg	2-4-04
Radiological Operations:	R. Case	[illegible]	2-4-04
Industrial Safety & Hygiene:	DOUG HANSON C. AHLQUIST	[illegible]	2-3-~~4~~ 2-2-04
Waste Management:	DAN KAPSCH	[illegible]	02/09/04
Environmental Safeguards & Compliance:	Ron Paulick	Ronald C. Paulick	2-5-04
Building Manager:	G. Wedenbach	Gary J. Wedenbach	02-10-04
Other:	R.C. VANDALLOM	R.C. Vandallom	2/2/04

Approved by:

CH2M HILL Project Manager	Kurt Kehler	[illegible]	2/10/04
	Name	Signature	Date

034/85

FILE COPY

WORK PLAN REVISION SHEET

. WORK PACKAGE TITLE: **Building 50 Demolition**

. WORK PACKAGE NUMBER: BOSS-36965-02

[Note: Mark this section in color]

(Office Master Copy ~ Field Working Copy ~ Review Copy ~ Other Copy
(Original Approval Signatures) (Original Field Sign -Offs)

Revision Description: (attach page revisions to form) Revise Work Package Scope in Section 3. Add steps in Section 7.5.2 for the removal of Rad contaminated drains, piping, and waste tank and to remove the transite air-duct piping running from corridors 114/114A into the test cells. Also add associated hazard warnings/cautions to Section 7.5.2 and to JSHA.

Revision 2. – Change/add wording to Section 3, Steps 7.5.2.2, 7.5.2.4, 7.5.2.6 Note, Appendix C sketch of Bldg. 50/Red Drain Line, and Appendix D RWP reference per OEPA/USEPA comments.

Reviewed by:	Name	Signature	Date
Project Engineering:	R.C. Hansbottom	R.C. Hansbottom	5/17/04
Project Superintendent/Foreman:	M.M. Stromberg	M.M. Stromberg	5/17/04
Radiological Operations:	R. Case	[illegible]	5/17/04
Industrial Safety & Hygiene:	N/A	N/A	N/A
Waste Management:	DAN KAPSCH	Dan Kapsch	5/17/04
Environmental Safeguards & Compliance:	N/A	N/A	N/A
Building Manager:	Gary Weidenbach	Gary L Weidenbach	5.19.04
Other:			

Approved by:

CH2M HILL Project Manager Christopher Watson [illegible] 5/12/04
Name Signature Date

035/85

REVISION LOG

1. WORK PACKAGE TITLE: **Building 50 Demolition**

2. WORK PACKAGE NUMBER: BOSS-36965-02

Revision	Reason	By	Date
1	Revise Work Package Scope in Section 3. Add steps in Section 7.5.2 for the removal of Rad contaminated drains, piping, and waste tank and to remove the transite air-duct piping running from corridors 114/114A into the test cells. Also add associated hazard warnings/cautions to Section 7.5.2 and to JSHA.	Steve Davis	12/30/03
2	Change/add wording to Section 3, Steps 7.5.2.2, 7.5.2.4, 7.5.2.6 Note, Appendix C sketch of Bldg. 50/Red Drain Line, and Appendix D RWP reference per OEPA/USEPA comments.	Steve Davis	5/06/04

Appendix B

JOB STATUS LOG

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JOB STATUS LOG

1. WORK PACKAGE TITLE: **Building 50 Demolition**

2. WORK PACKAGE NUMBER: BOSS-36965-02

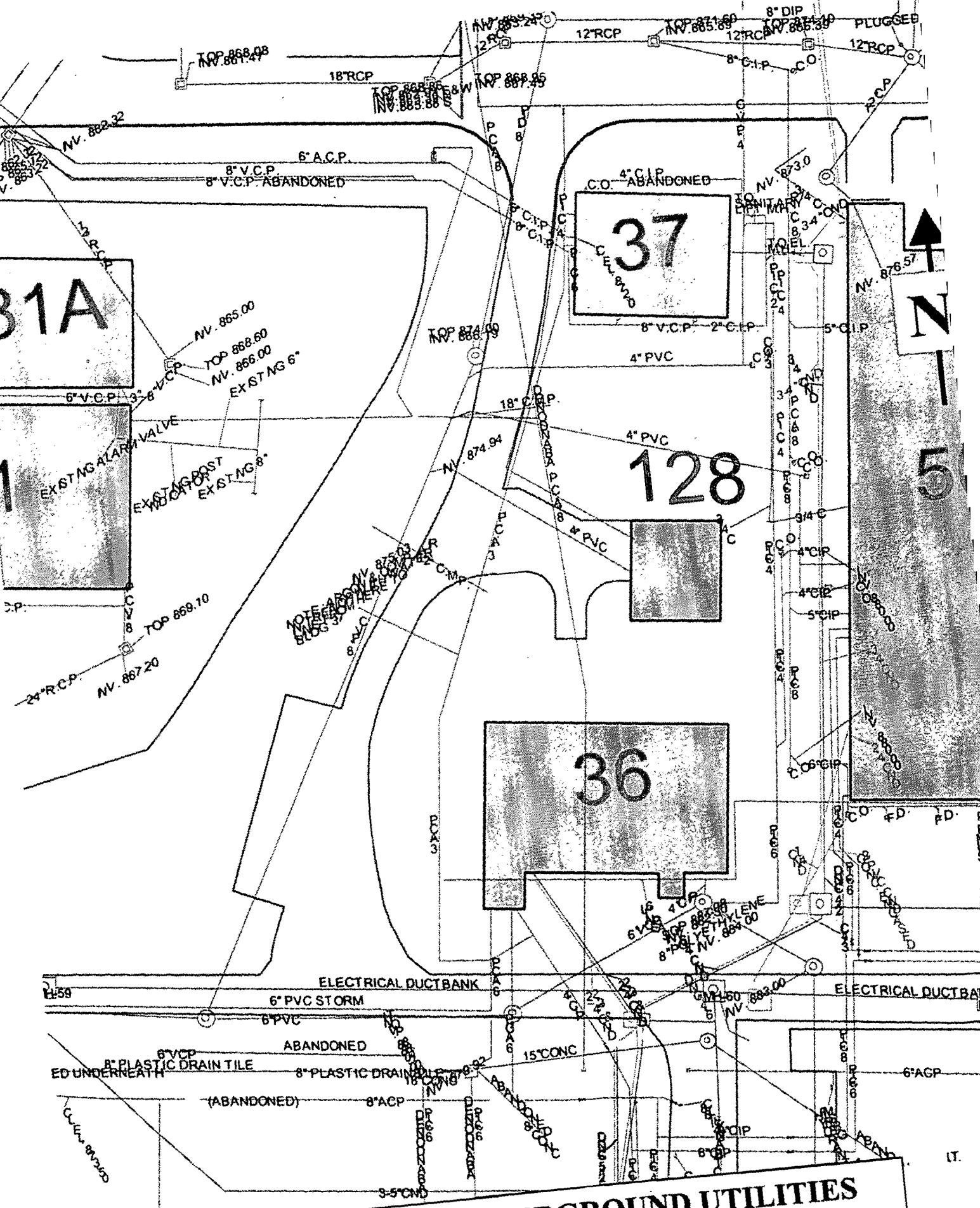
DATE	TIME	WORK PKG. SECTION	% Complete	BY	STATUS

058/85

Appendix C

DRAWINGS/SKETCHES

- Structural and Mechanical Drawings -Foundation Plan, Wall Sections, Floor Plans, and Mechanical Details
    - AYC 305000 – (Bldg. 50) Alpha Fuels Environmental Test Facility Construction Drawing
- Building 50 Surrounding Underground Utilities Vista Map
- Evacuation Assembly Area/Take Shelter Area Sketch
- Other Vista Maps
    - Building 50 Floor Plan
    - Building 50 Sketch showing Approximate Red Drain Path
    - Sanitary Sewer System Lines/Manholes
    - Storm Sewer System Lines/Manholes
    - Domestic Water Lines
    - Underground Fire Protection Lines
    - Underground Power Supply Lines
    - Underground Gas Supply Lines
    - Stanchions/Aboveground Pipes
    - Underground Signal Lines
    - Underground Comm. Lines
    - Underground Tanks
    - PRS Point Sites
    - URMAs/Monitoring Wells
    - Aerial View

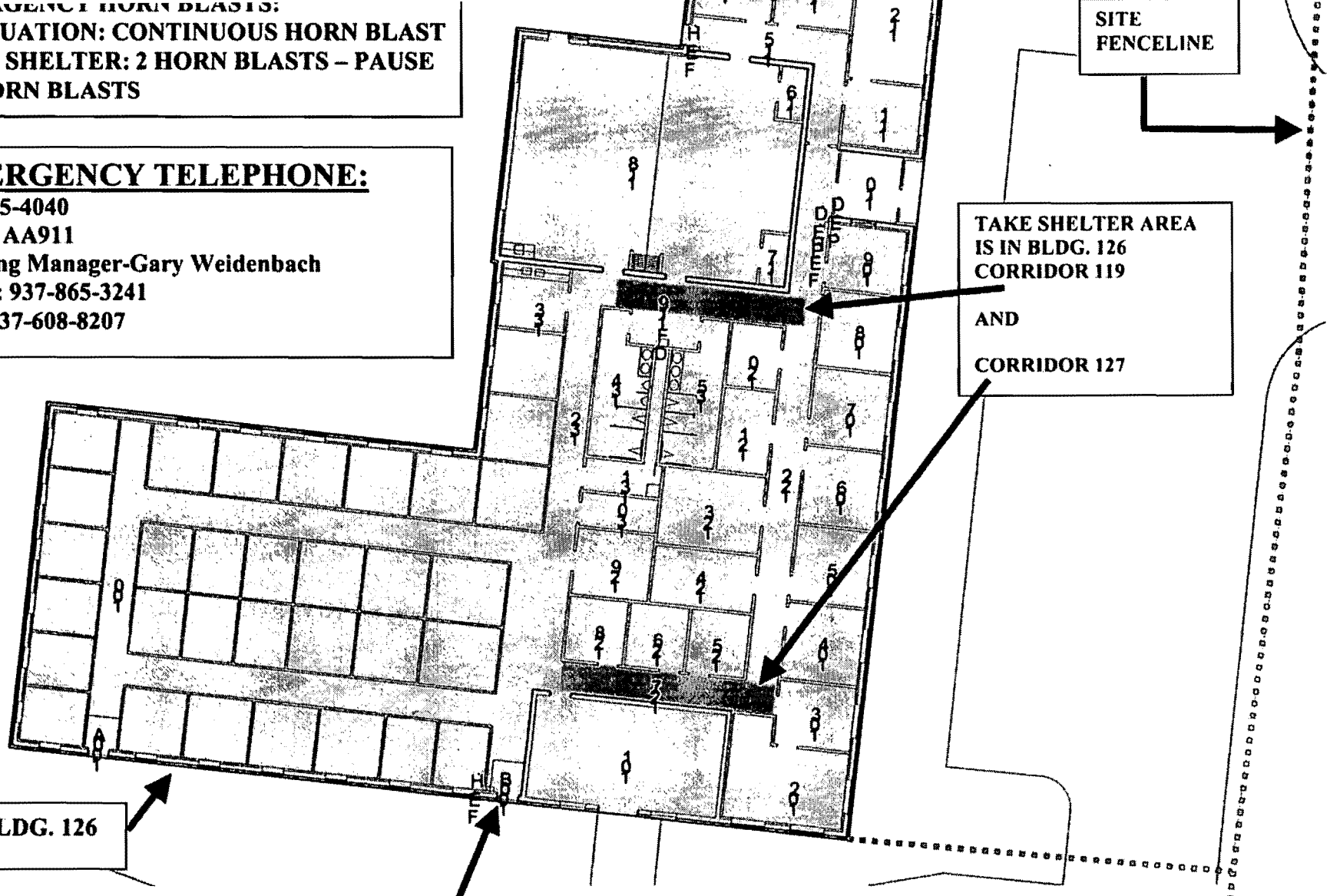


BLDG. 50 - UNDERGROUND UTILITIES

040/85

EMERGENCY HORN BLASTS:
EVACUATION: CONTINUOUS HORN BLAST
TAKE SHELTER: 2 HORN BLASTS – PAUSE – 2 HORN BLASTS

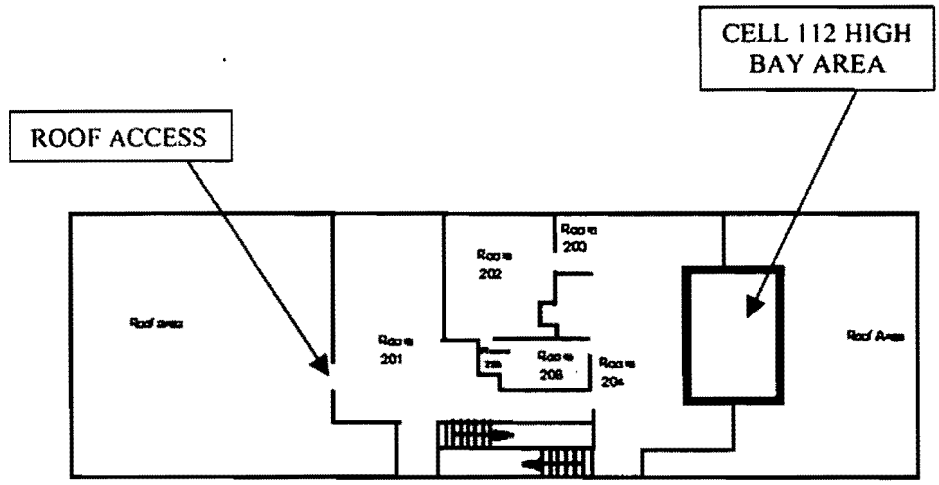
EMERGENCY TELEPHONE:
937-865-4040
Nextel AA911
Building Manager-Gary Weidenbach
Phone: 937-865-3241
Cell: 937-608-8207



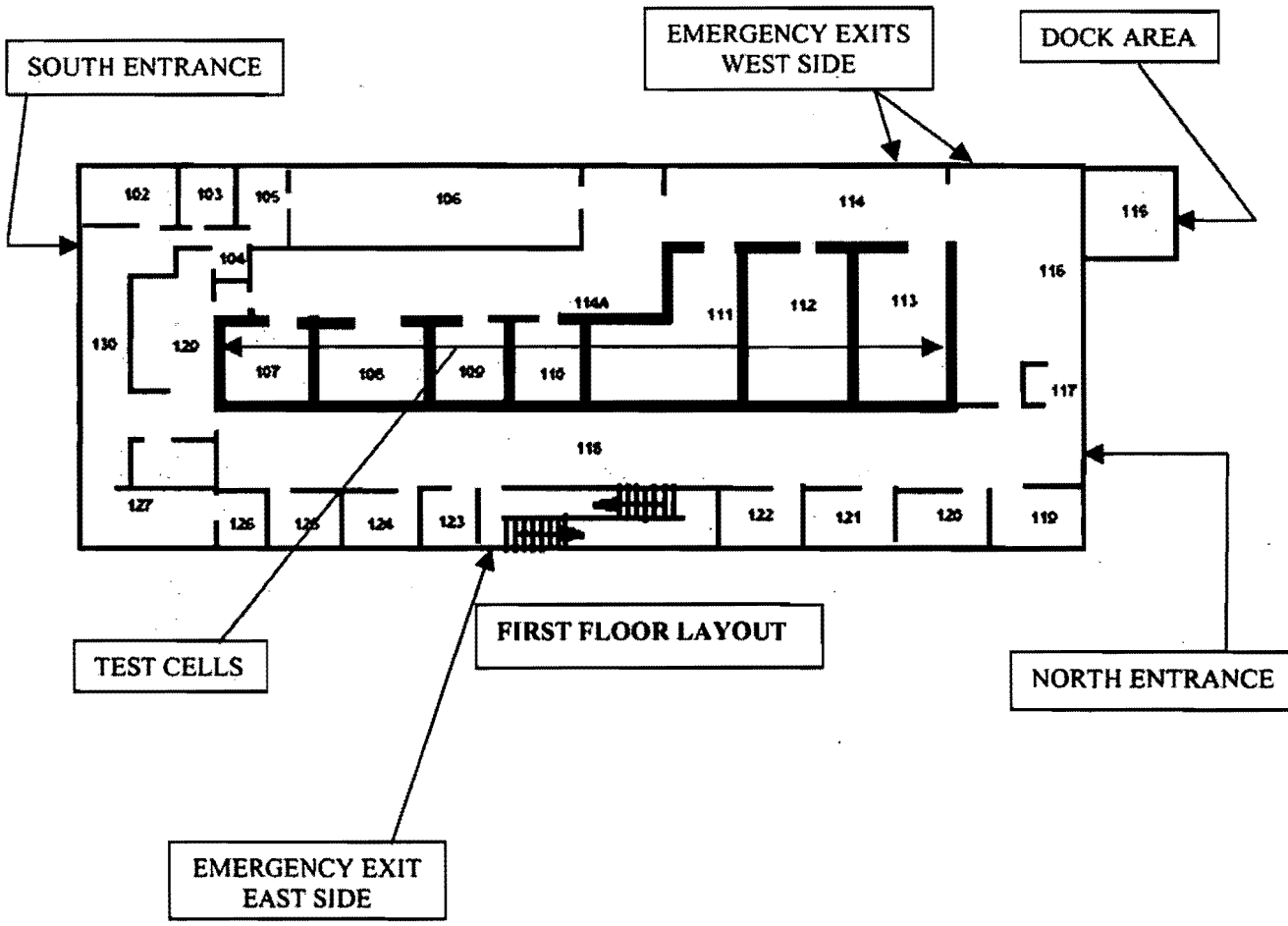
ASSEMBLY/EVACUATION AREA

ASSEMBLY AND TAKE SHELTER AREA WHILE WORKING ON BLDG. 50

041/85

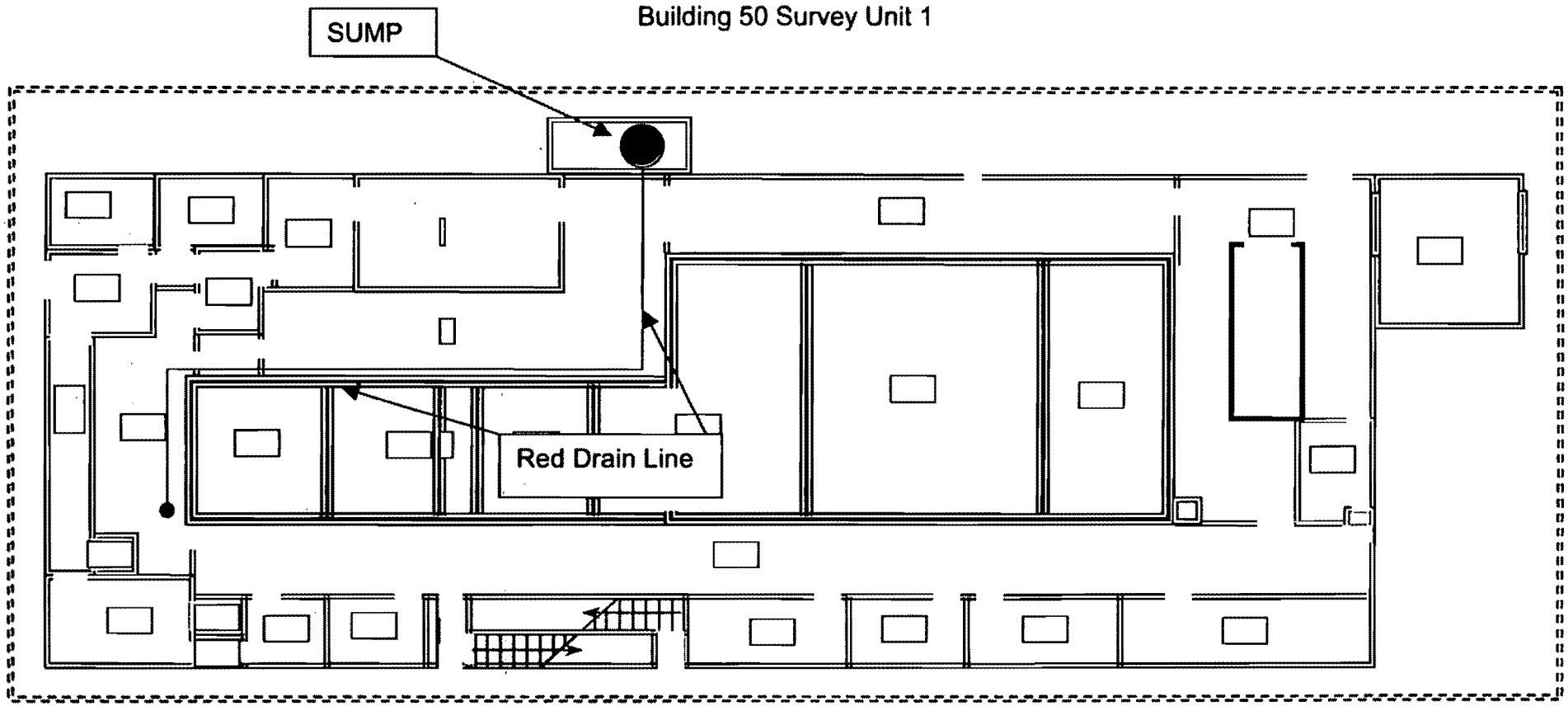


SECOND FLOOR/PENTOUSE LAYOUT



BUILDING 50 FLOORPLAN/LAYOUT

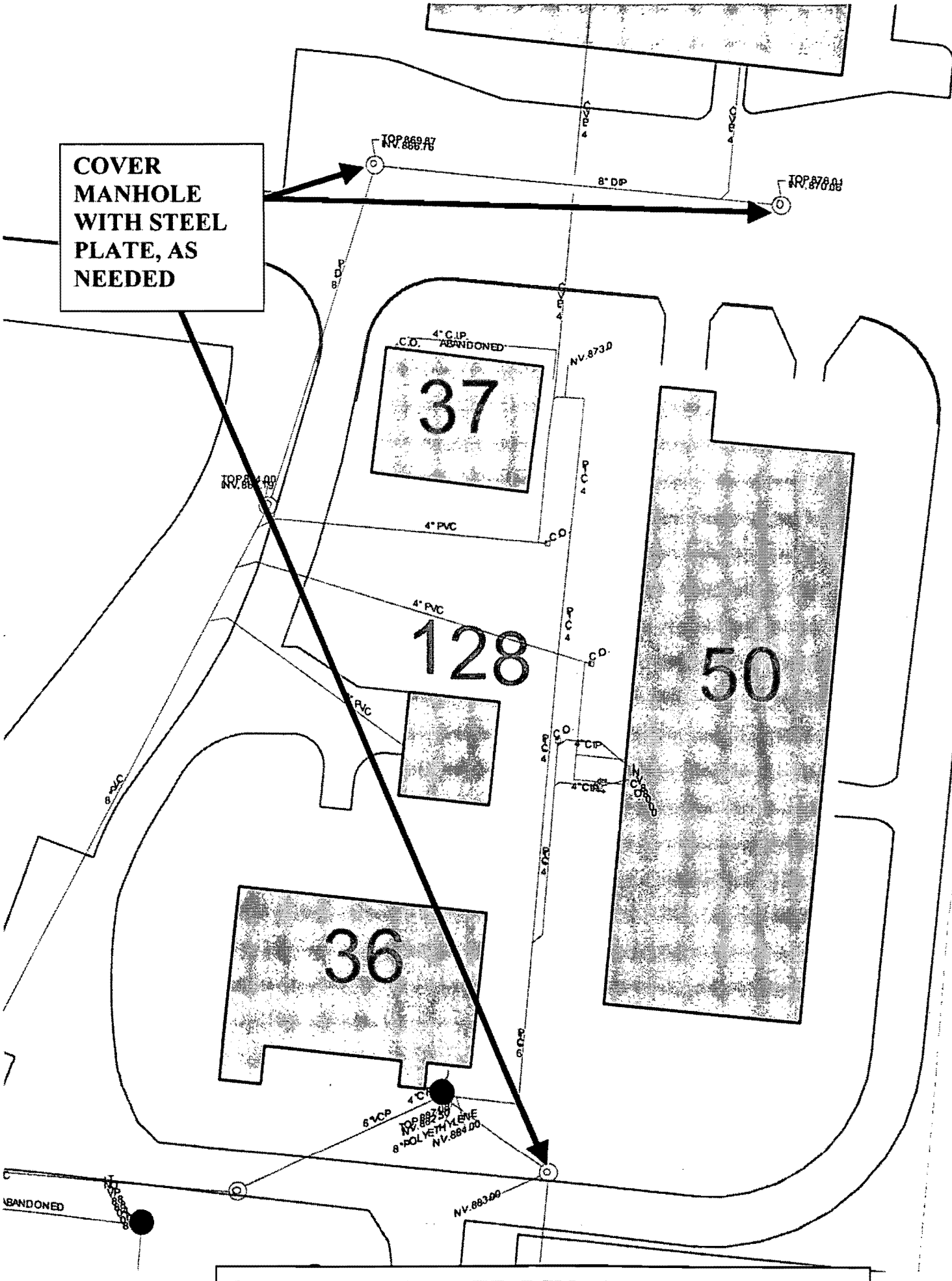
042/85



SKETCH OF BUILDING 50 DEPICTING APPROXIMATE PATH OF RED DRAIN LINE SECTION OF CONCERN

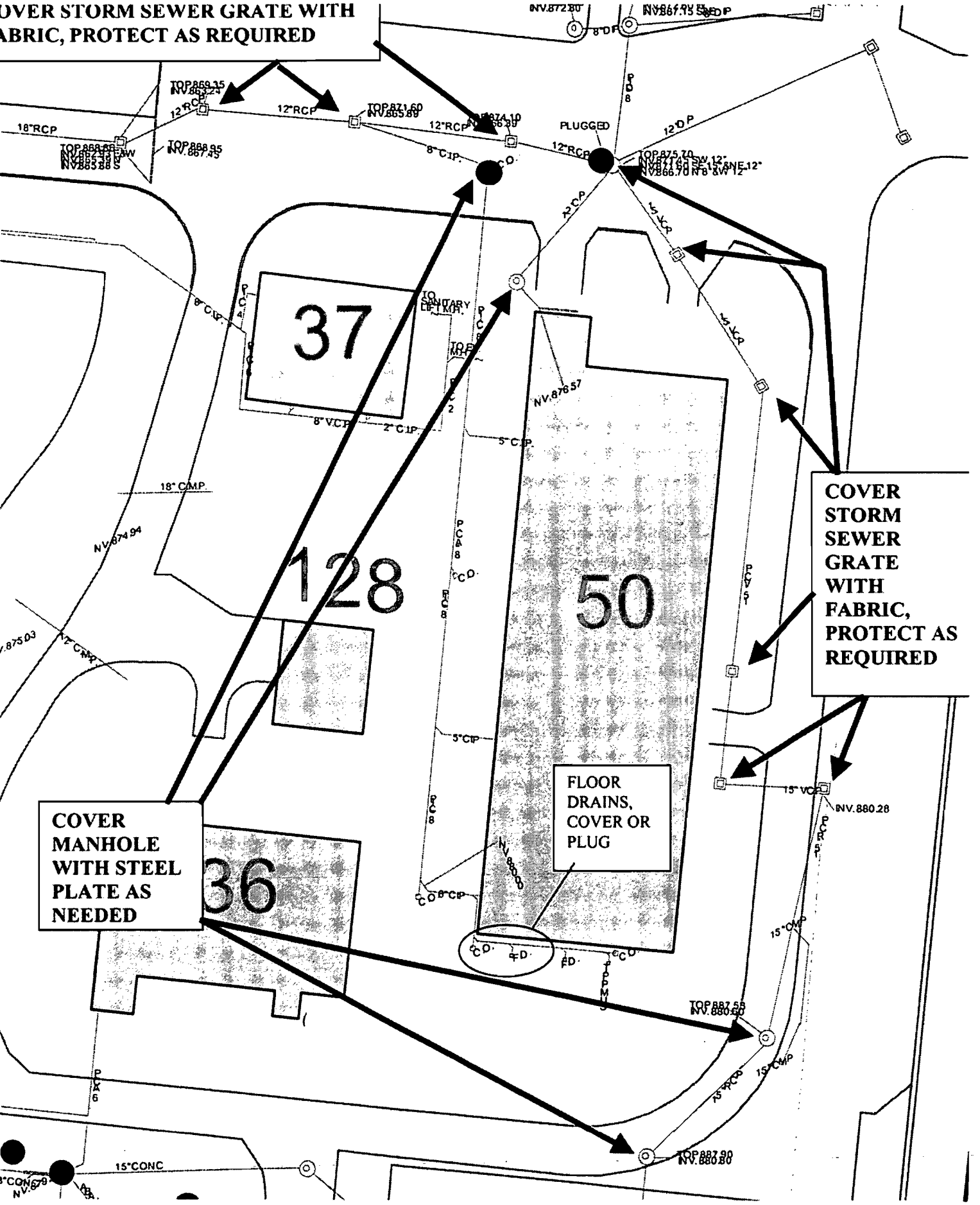
NOTE: SKETCH NOT TO SCALE

58/540



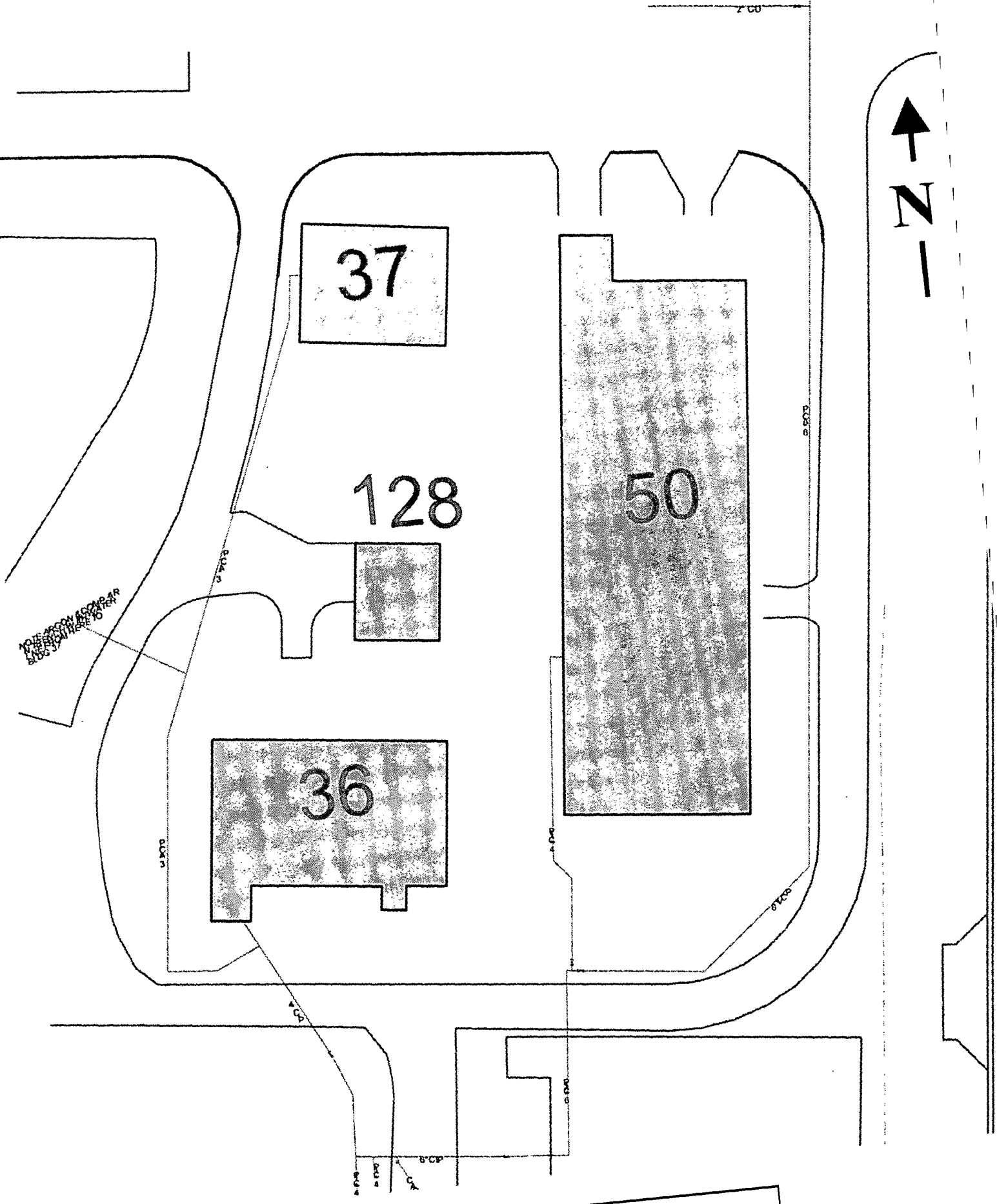
SANITARY SEWER LINES & MANHOLES

044/85



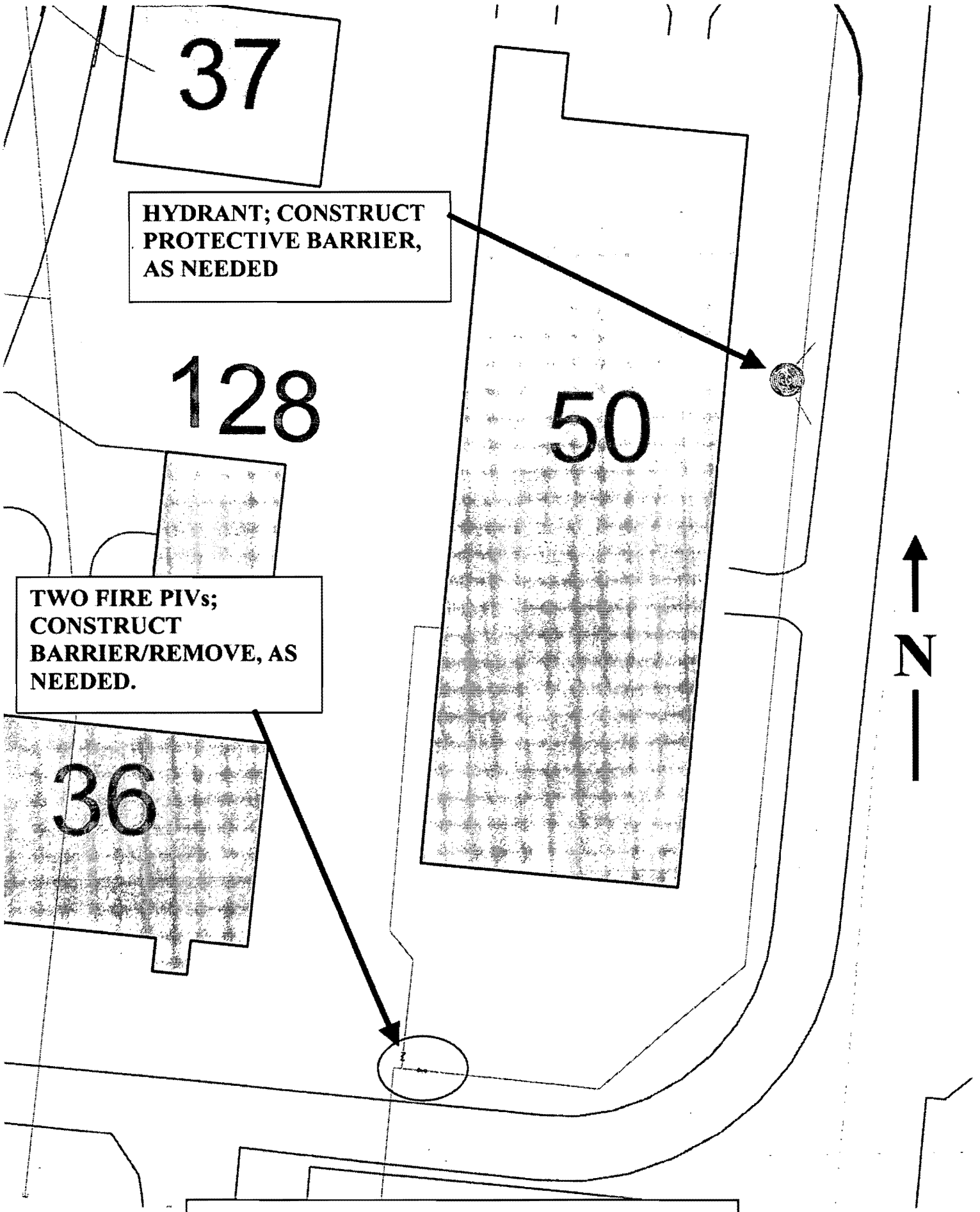
STORM SEWER LINES & MANHOLES

045/85



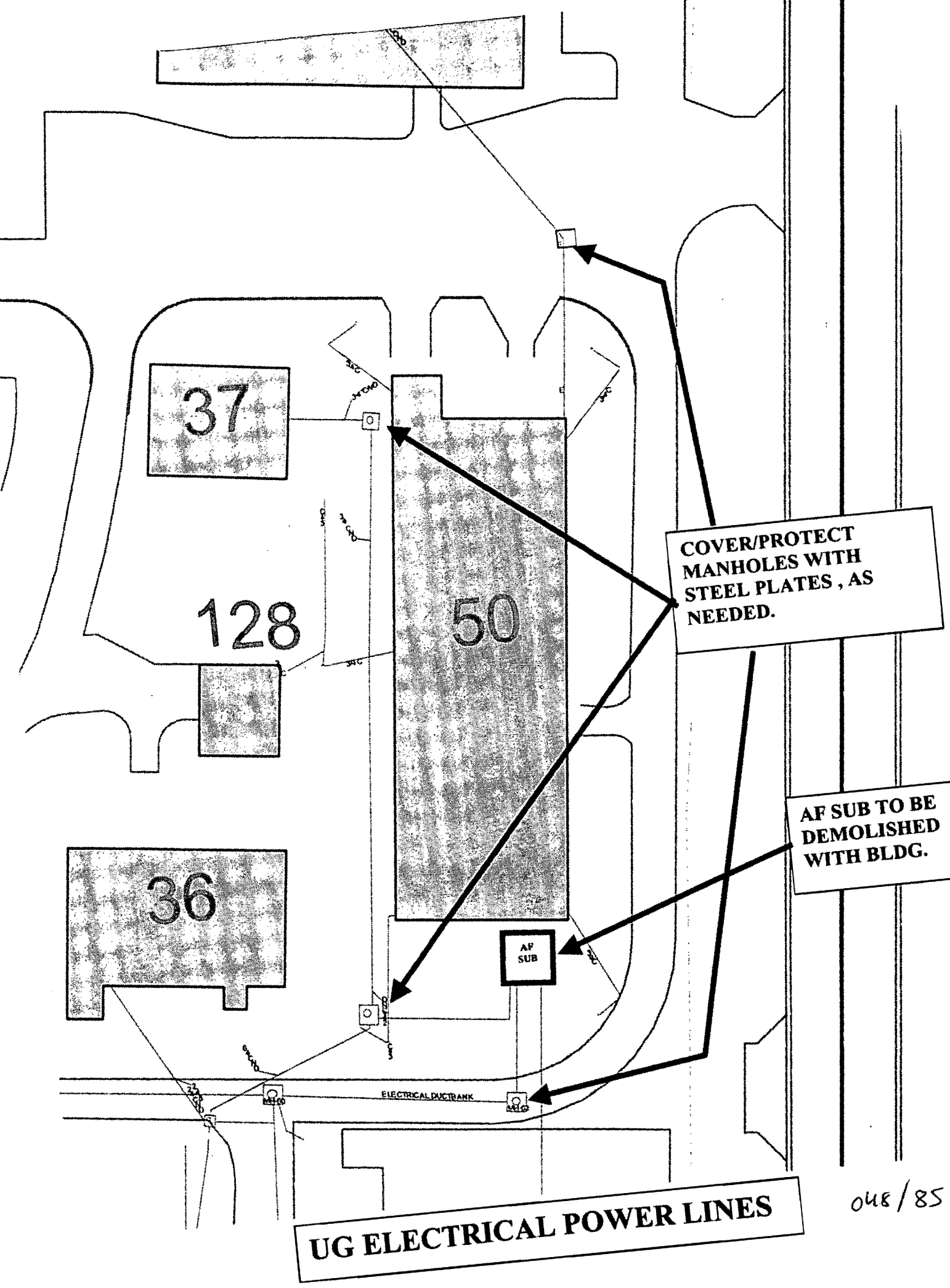
DOMESTIC WATER LINES

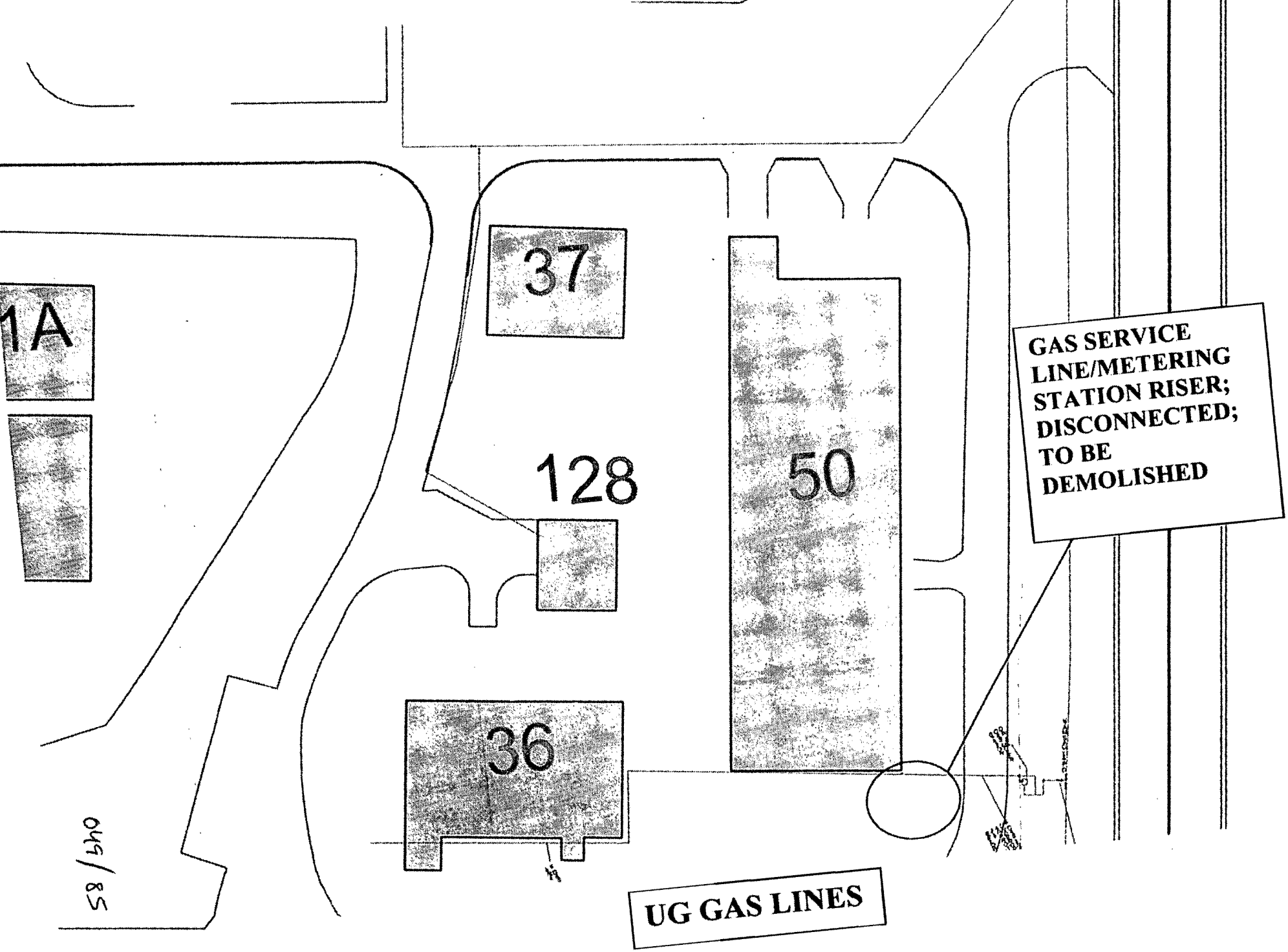
046/85

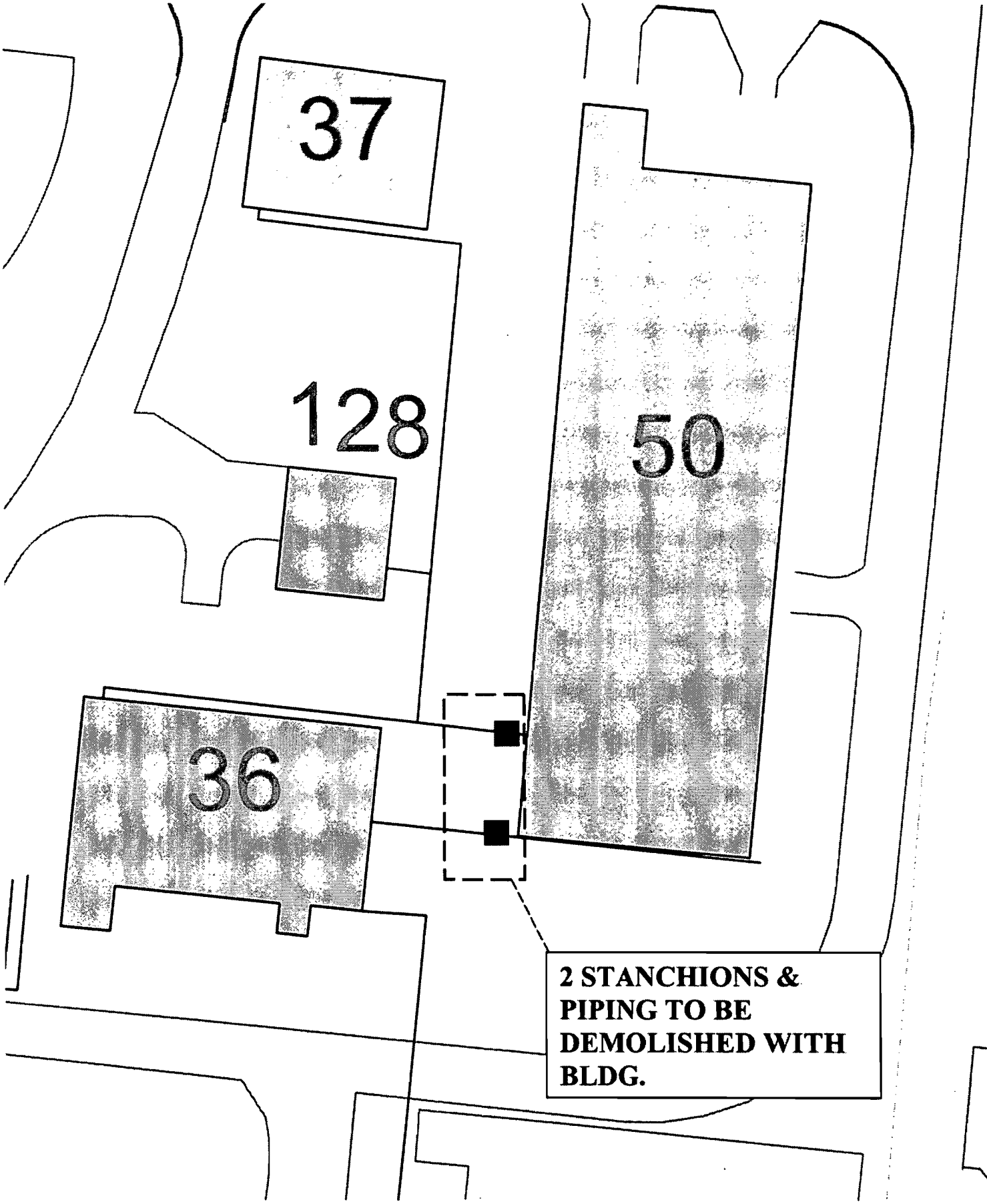


FIRE PROTECTION SYSTEM LINES + HYDRANT & PIV LOCATIONS

047/85

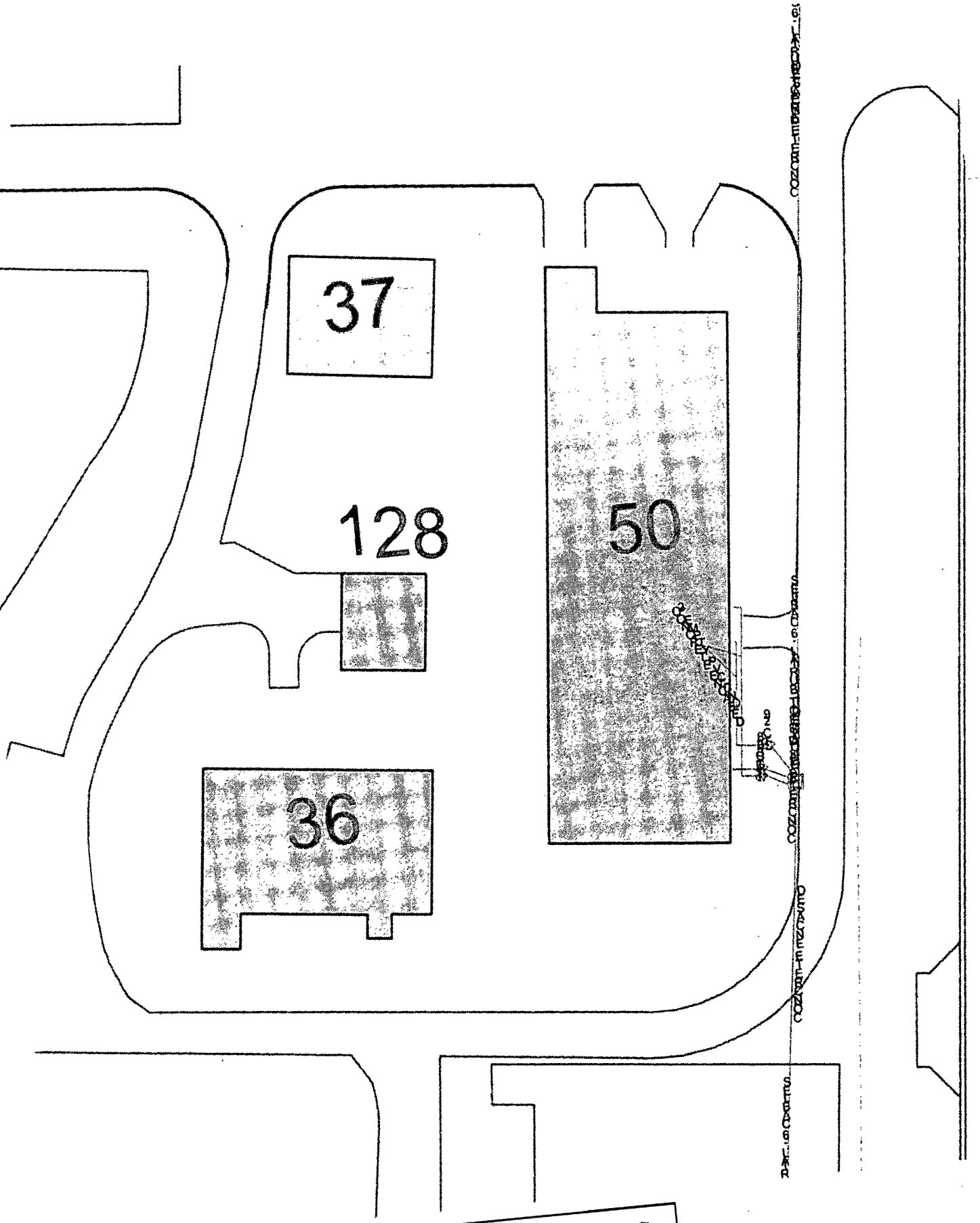

37
128
50
36
AF SUB
ELECTRICAL DUCTBANK
COVER/PROTECT MANHOLES WITH STEEL PLATES , AS NEEDED.
AF SUB TO BE DEMOLISHED WITH BLDG.
UG ELECTRICAL POWER LINES
048/85


1A
37
128
50
36
GAS SERVICE LINE/METERING STATION RISER; DISCONNECTED; TO BE DEMOLISHED
UG GAS LINES
049/85



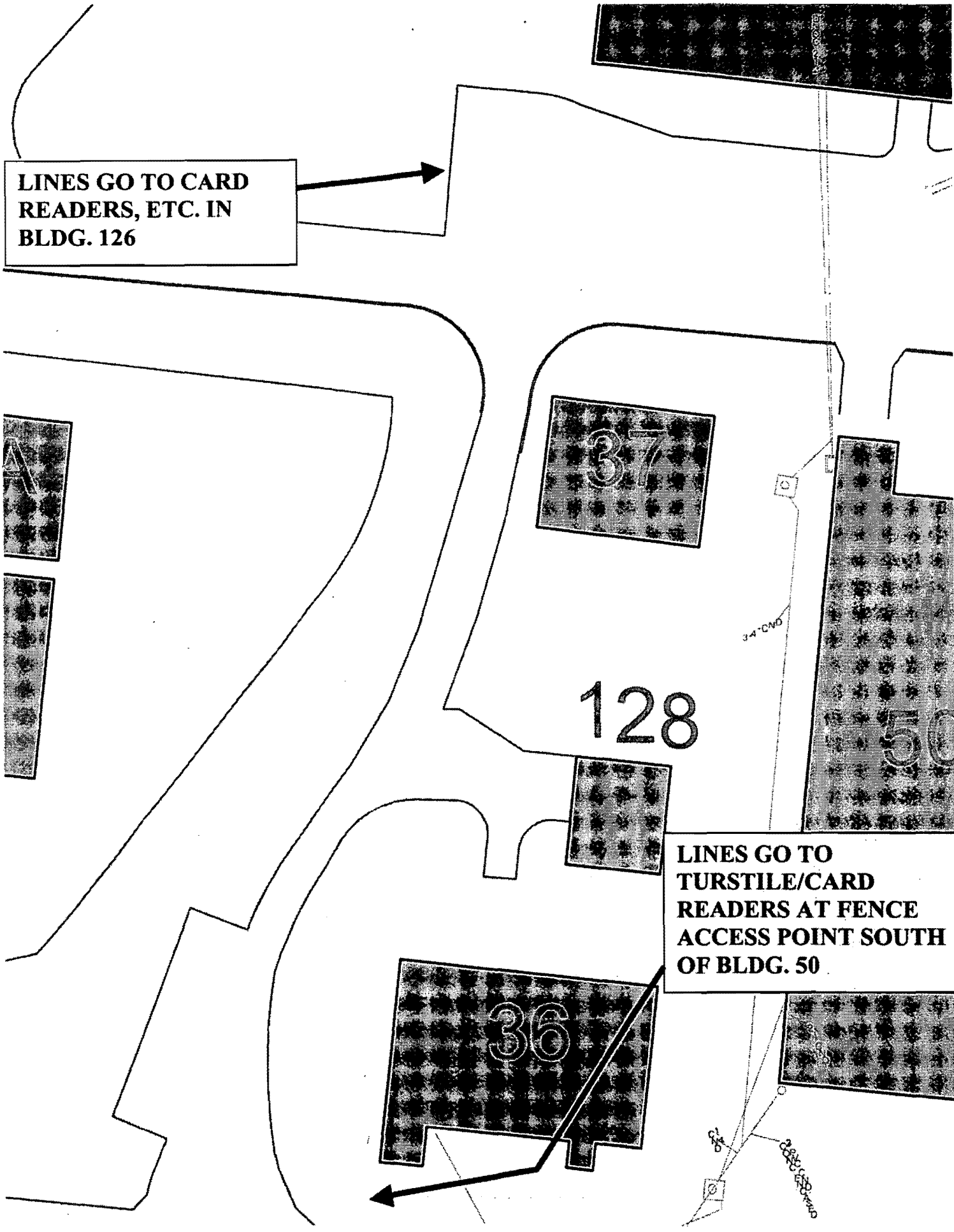
ABOVE GROUND PIPES/STANCHIONS IN VICINITY OF BLDG. 50

050/85



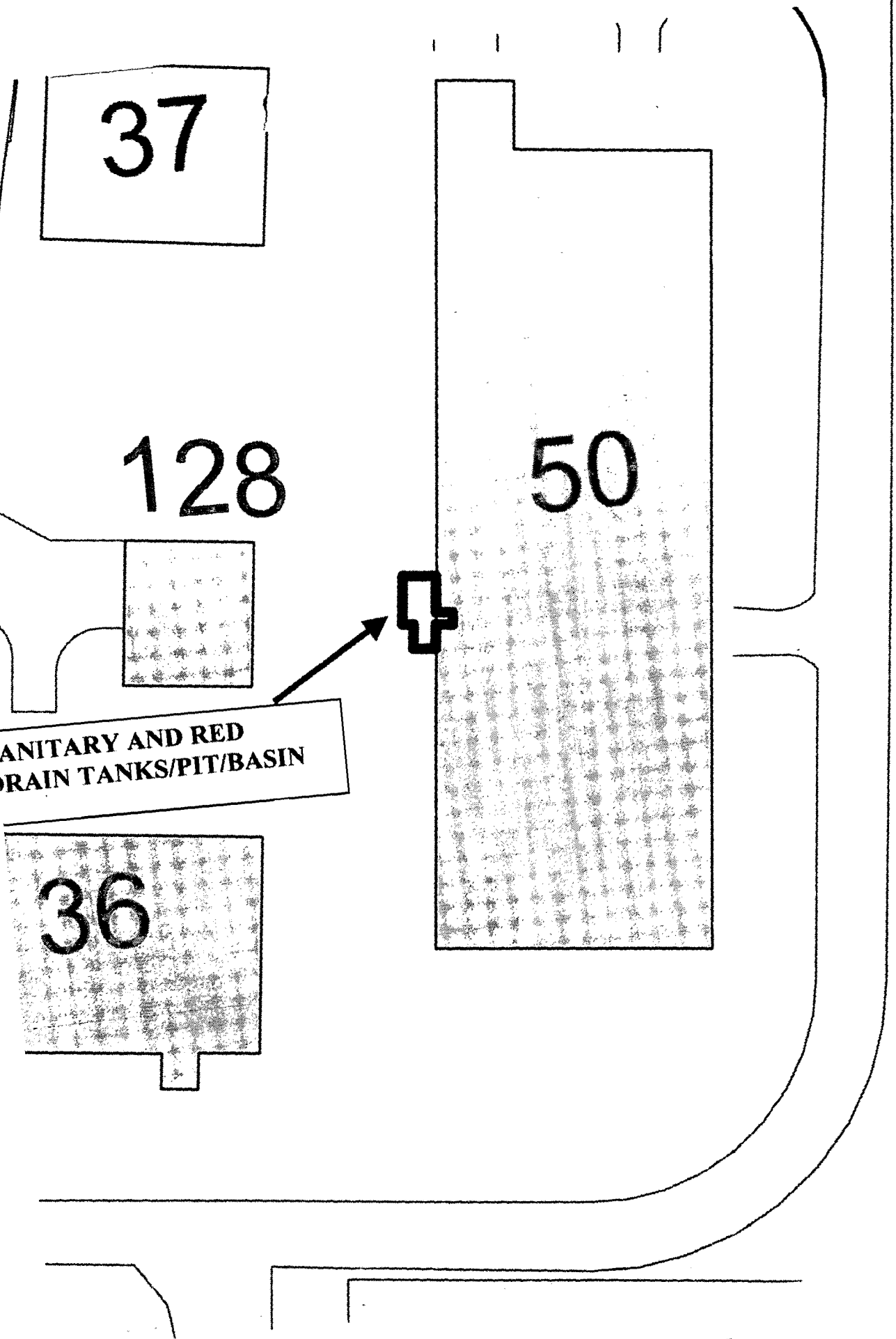
UG SIGNAL LINES

051/85



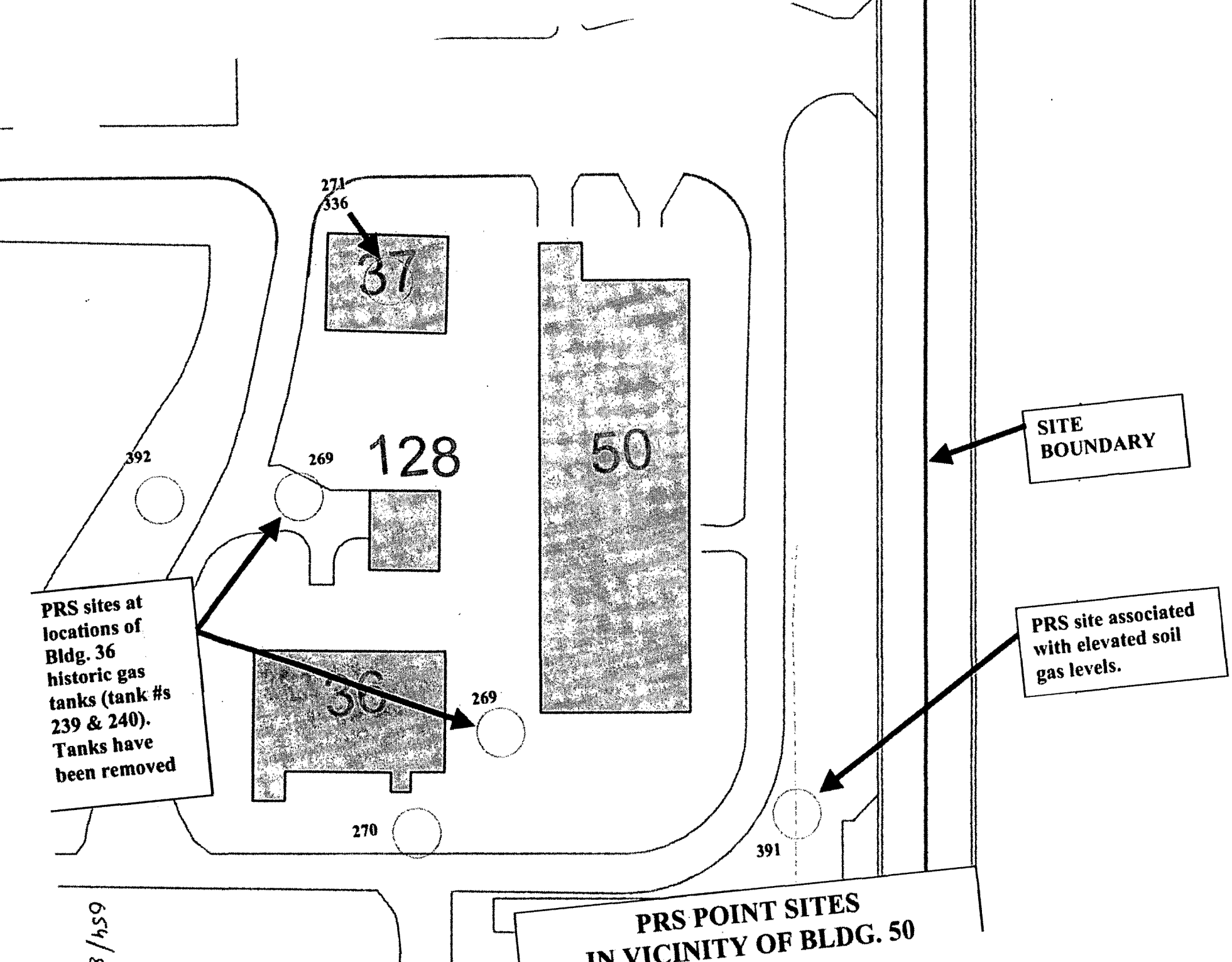
UG COMMUNICATIONS LINES

052/85



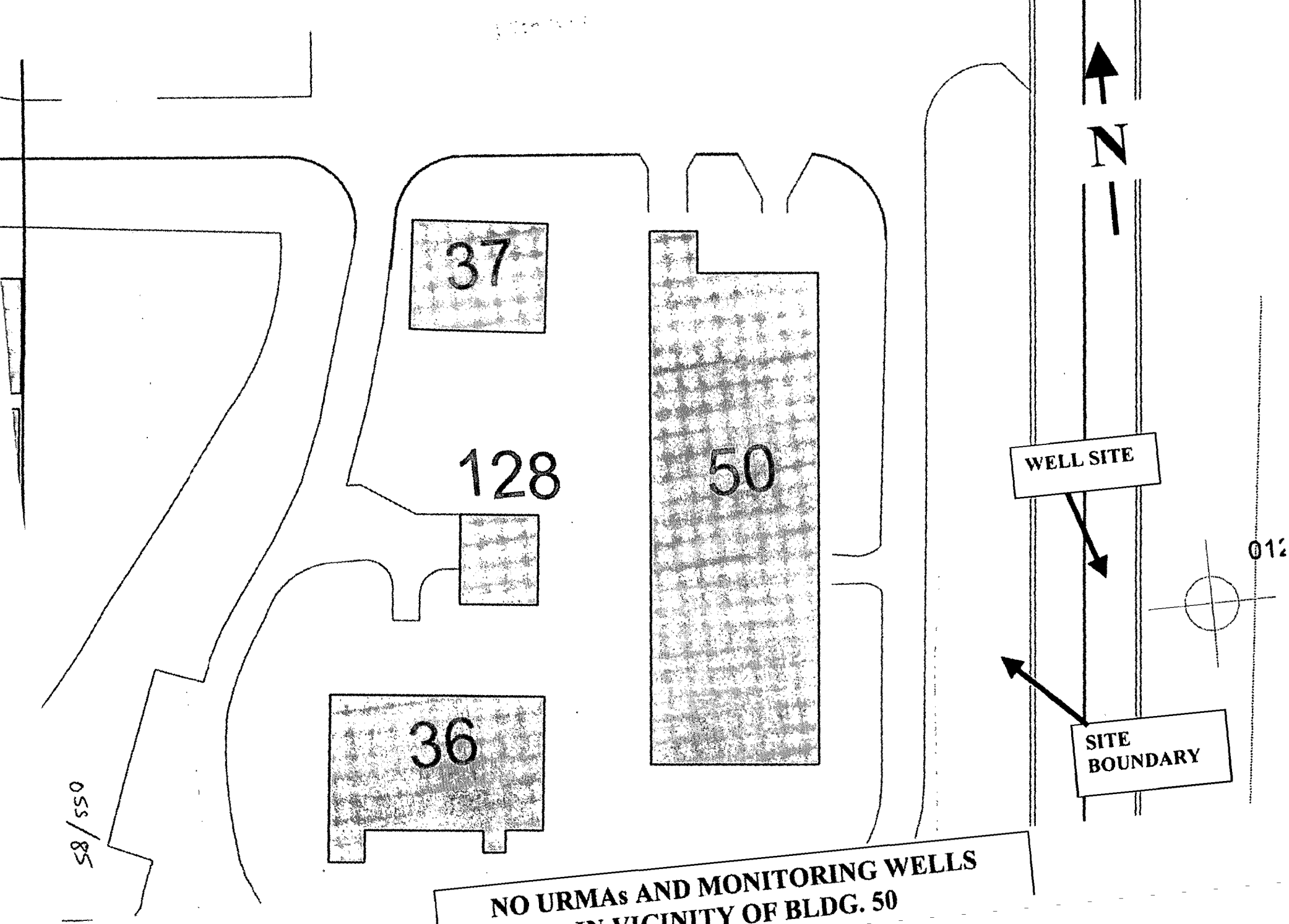
BLDG. 50 UG TANKS

053/85



PRS POINT SITES IN VICINITY OF BLDG. 50

3/459

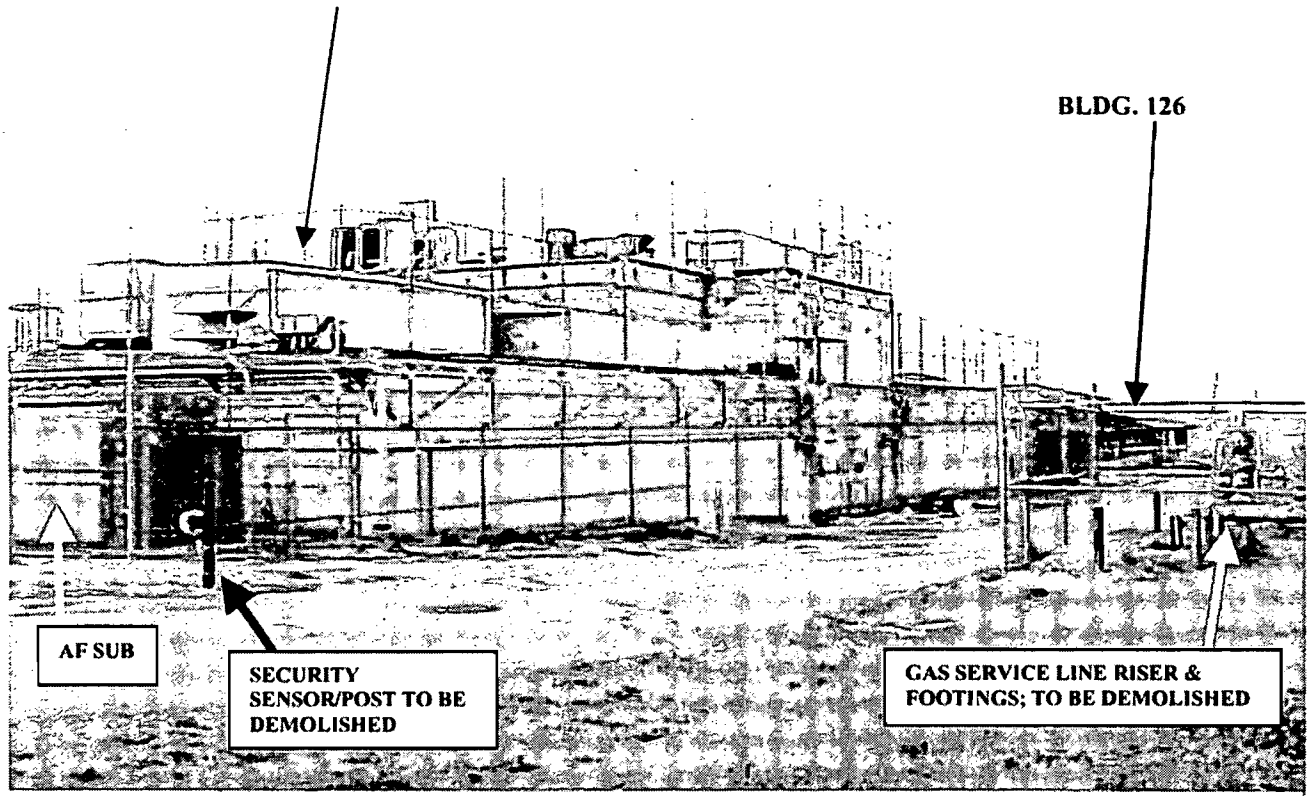


NO URMAs AND MONITORING WELLS IN VICINITY OF BLDG. 50

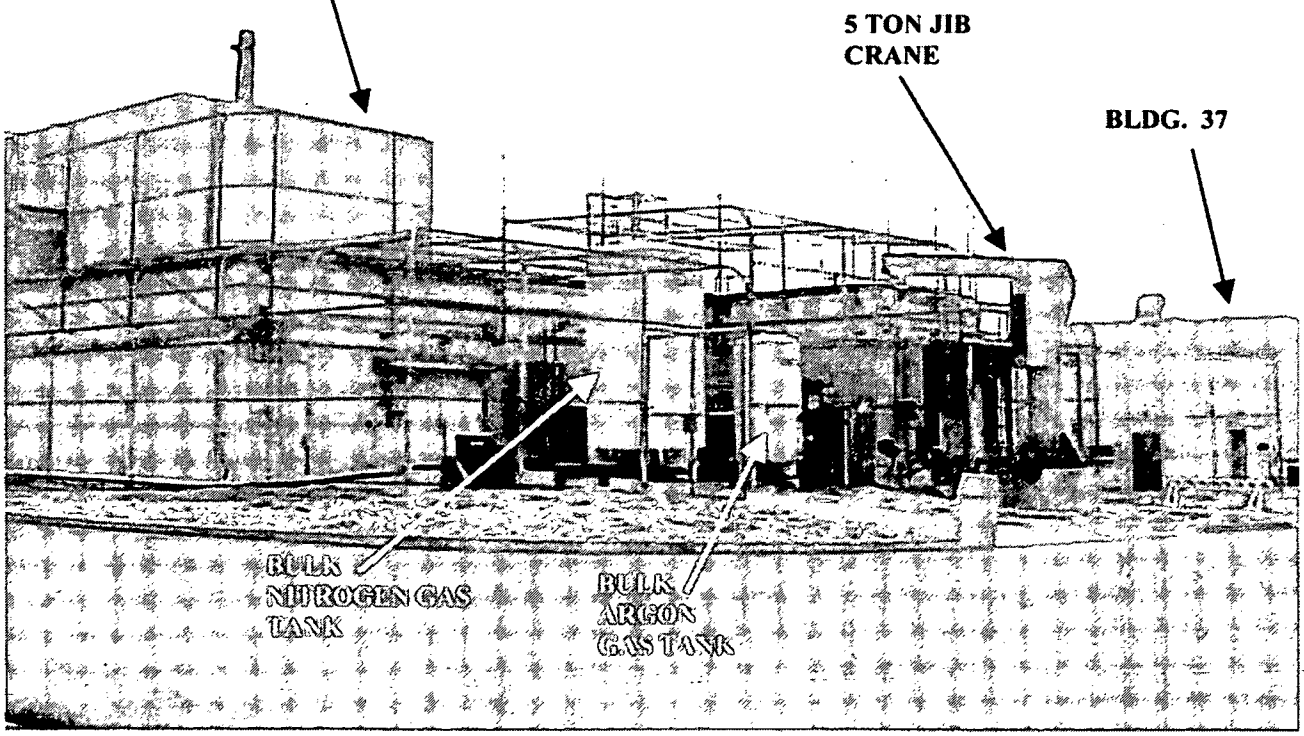
AERIAL MAP SHOWING BLDG. 50

659

BLDG. 50
VIEW OF EAST SIDE OF BUILDING

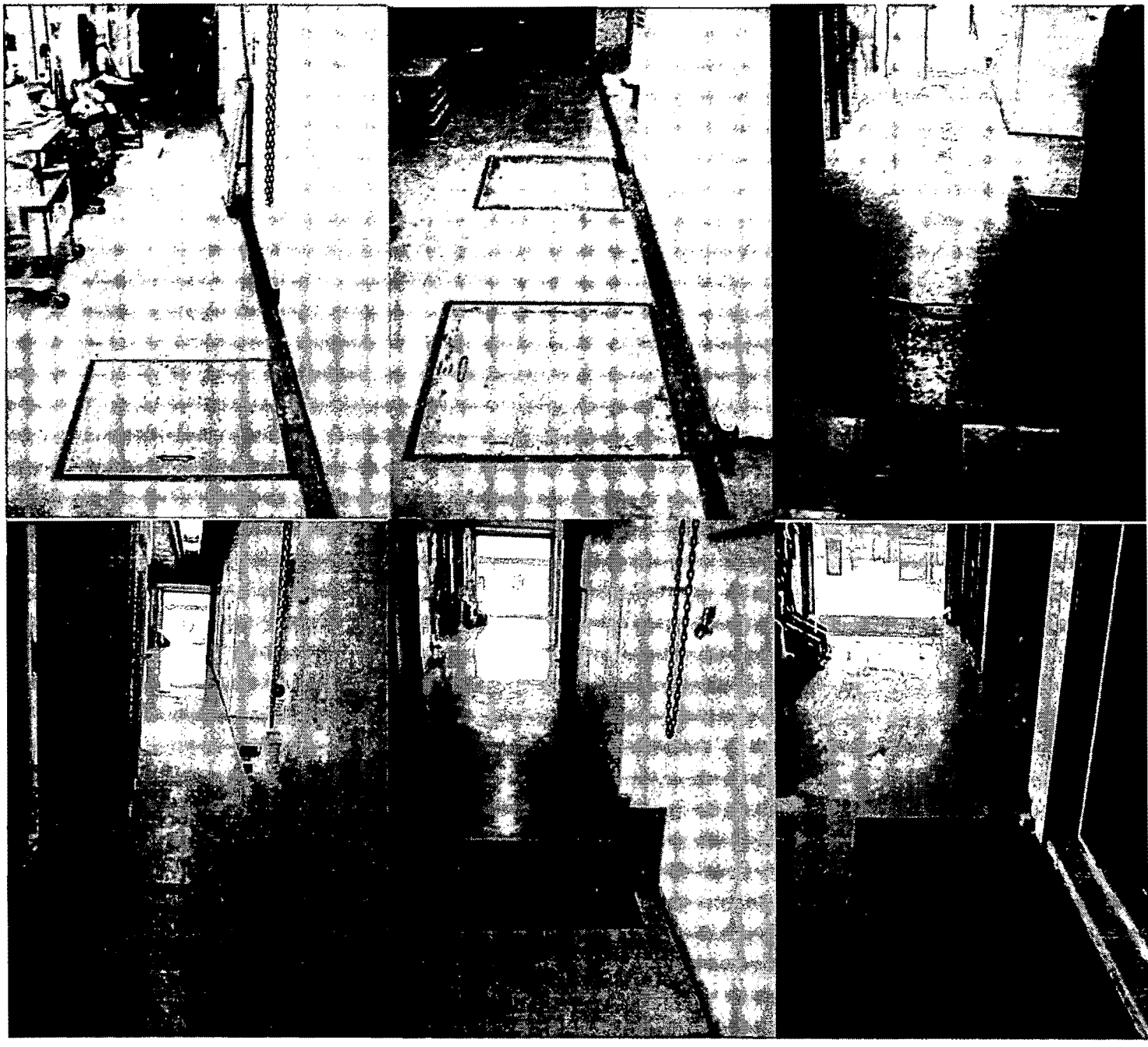


BLDG. 50
VIEW OF NORTH SIDE OF BUILDING



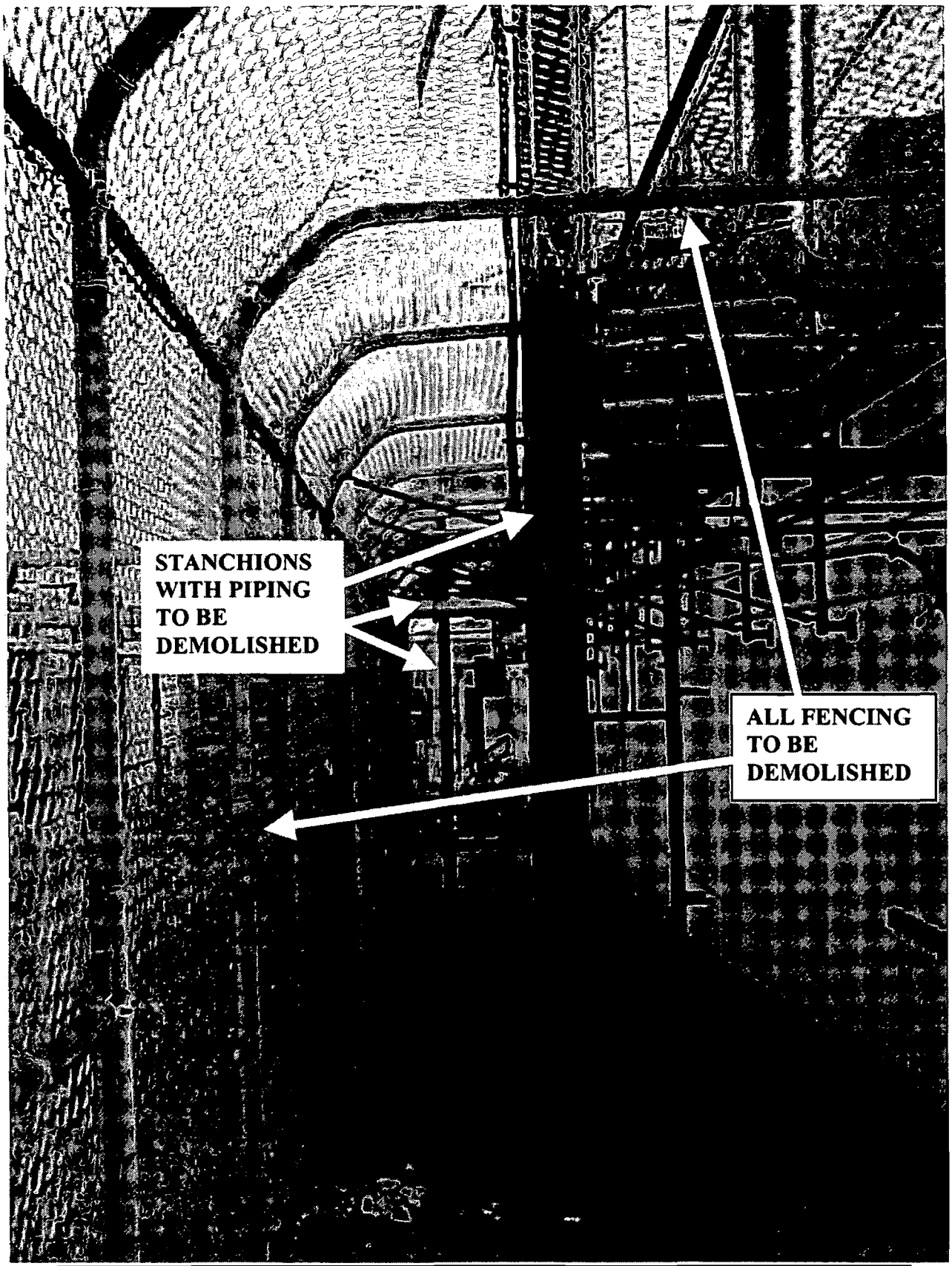
BUILDING 50 EQUIPMENT/SERVICES

057/85



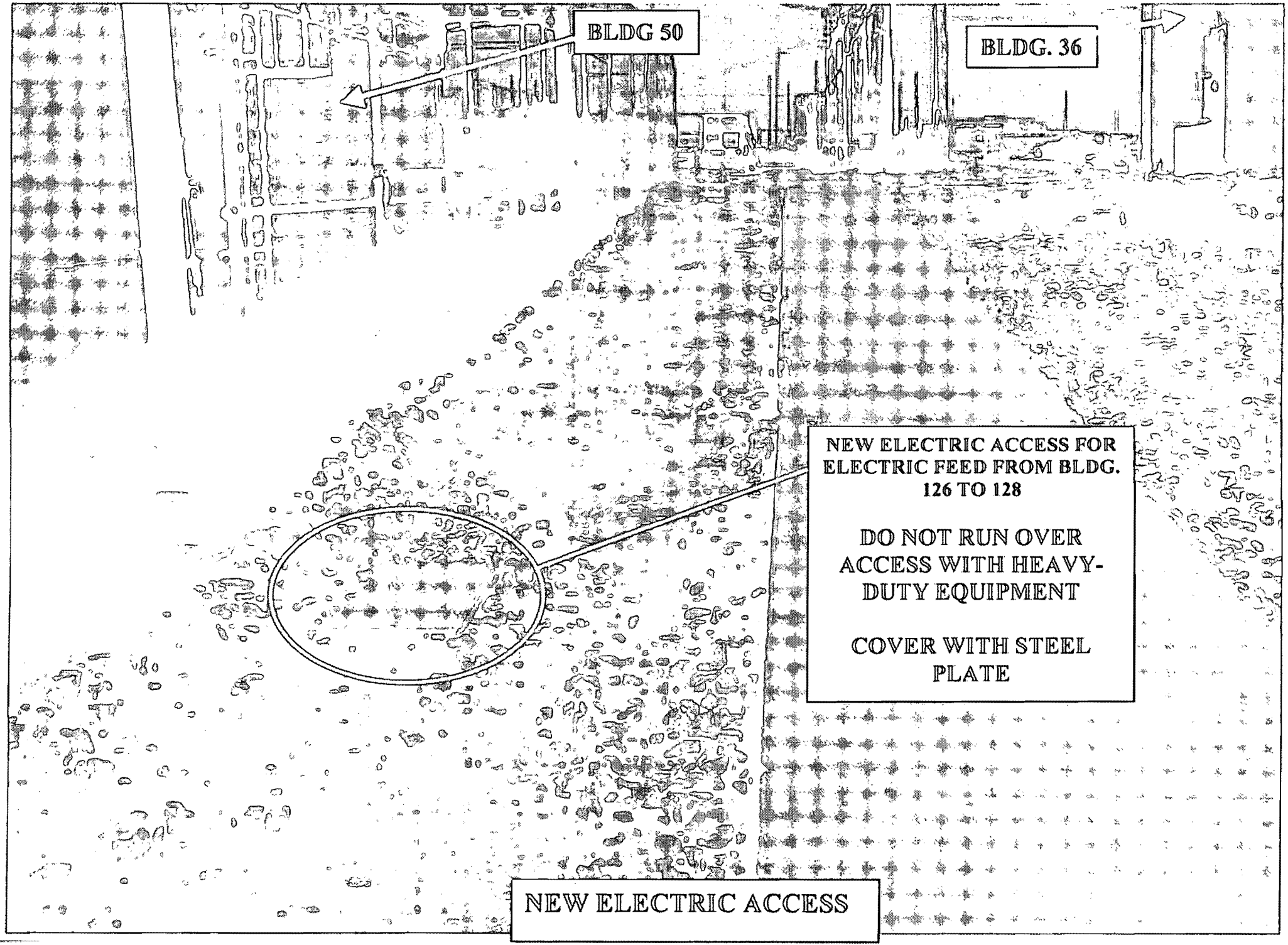
FLOOR ACCESS PITS IN CORR. 114
(WEST SIDE CORRIDOR)

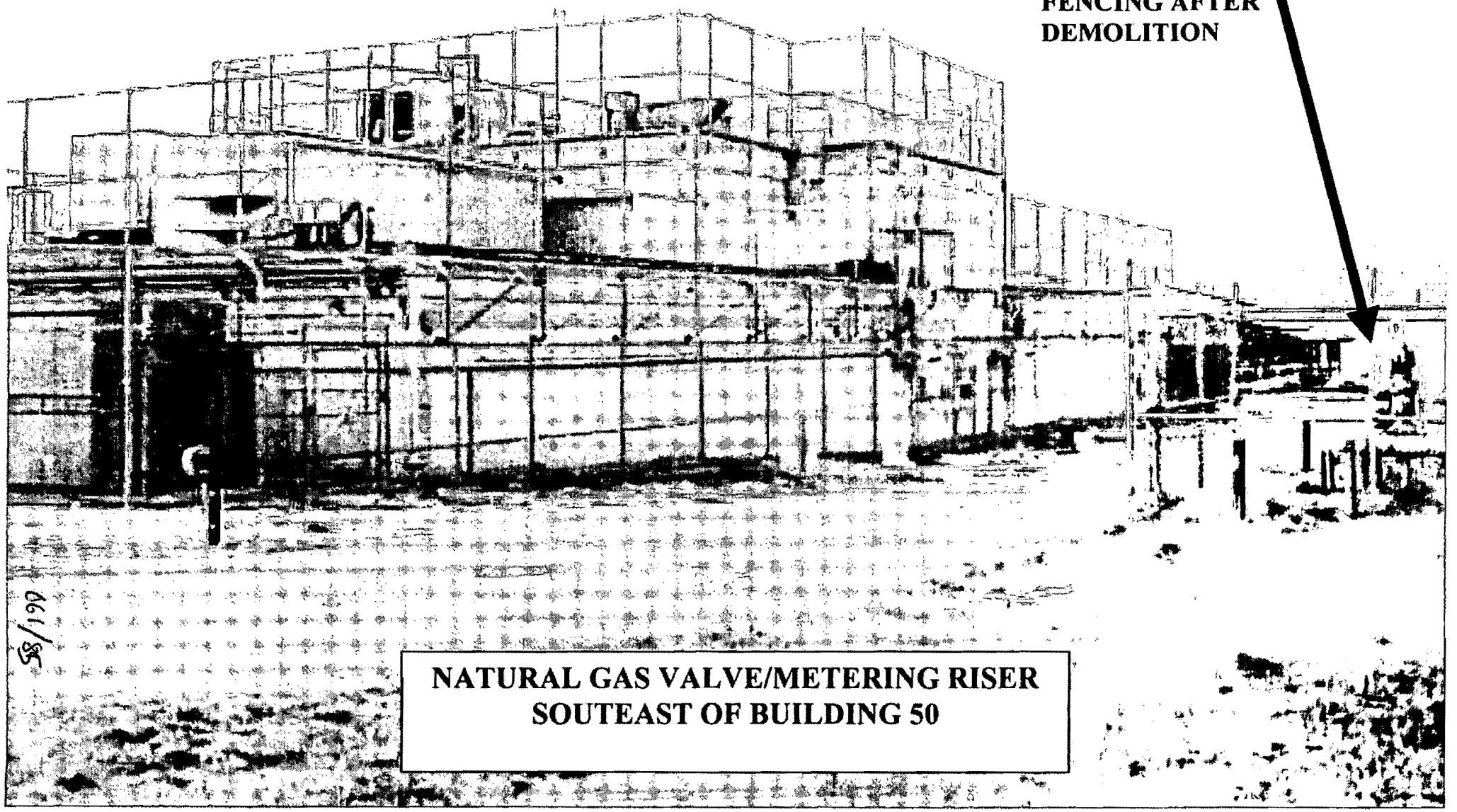
058/85



STANCHIONS/PIPING/FENCING TO BE DEMOLISHED

059/85


BLDG 50
BLDG. 36
NEW ELECTRIC ACCESS FOR ELECTRIC FEED FROM BLDG. 126 TO 128
DO NOT RUN OVER ACCESS WITH HEAVY-DUTY EQUIPMENT
COVER WITH STEEL PLATE
NEW ELECTRIC ACCESS



NATURAL GAS VALVE/METERING RISER
SOUTEAST OF BUILDING 50

58/199

Appendix D
MISCELLANEOUS
(USQ, RWP, etc.)

- No USQ required for this Work Package
- RWP #1536 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: October 16, 2003 cc. S. Davis

From: W. L. Johanan – 61 rm 220

Subject: Structural Survey of Building 50, 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

MOUND RADIOLOGICAL WORK PERMIT

GENERAL INFORMATION

RWP NUMBER	1536	GENERAL		EFFECTIVE DATE	1/5/2004	Rad Ops Contact Name	RILEY,DANNY K
REVISION NUMBER	0	JOB-SPECIFIC	x	EXPIRATION DATE	12/31/2004	Rad Ops Contact Phone	865-4235

JOB INFORMATION

Requestor Name	[redacted]	Requestor HP Number	6167	Requestor Phone	865-38	Project	BOSS
Technical / Work Documents	Document Number: SMPP/TFV-35227	Title: Boss Project Building Demolition					

Work Location (Bldg., room, pad, area, etc.)

BOSS Project Buildings

Detailed Description of Work

Demolition of contaminated/potentially contaminated portions of the building using Heavy Duty equipment.
Debris loading for transport to Waste Management.
Radiological surveys.
Support work.

RADIOLOGICAL LIMITATIONS

Assay	Stop Work Level	Units	Specific Isotope
Removable Alpha	500.00	dpm/100 cm2	Plutonium

RADIOLOGICAL PROTECTION REQUIREMENTS

Radiological Protective Clothing

- [ ] None Required
- [ ] Labcoat
- [x] Coveralls
- [ ] Hood
- [x] Rubber Gloves
- [x] Cotton Liners
- [ ] Outer Heavy Work Gloves
- [x] Plastic Shoe Booties
- [ ] Rubber Shoe Cover
- [x] Plastic Shoe Cover
- [x] Taped Openings
- [ ] Surgeons Gloves
- [x] Other: See Protective Clothing amplifying instructions

Respiratory Protection for Radiological Purposes

- [x] None Required
- [ ] Full Face HEPA
- [ ] Bubble Hood
- [ ] Full Face Supplied Air
- [ ] Bubblesuit
- [ ] Half-Mask Respirator
- [ ] Powered Air Purifying

FOR INFORMATION ONLY

MOUND RADIOLOGICAL WORK PERMIT

External Dosimetry

- [x] None Required
- [ ] Self Reading Dosimeter
- [ ] Extremity TLD
- [ ] Whole Body TLD
- [ ] Neutron Dosimeter
- [ ] Other:

Internal Dosimetry (Bioassay)

- [ ] None Required
- [x] Plutonium
- [x] Thorium
- [ ] Tritium
- [ ] Tritium sOBT
- [ ] Actinium
- [ ] Plutonium HFO
- [x] Uranium
- [ ] Tritium HTO
- [x] Americium
- [ ] Protactinium
- [ ] To Be Determined
- Tritium Freq:
- [ ] Strontium
- [x] Intake Monitoring Alpha
- [ ] Intake Monitoring Tritium (STP)
- [ ] Other:

Special Instructions: none

Training

- [x] Rad Worker II
- [ ] Visitor Orientation
- [ ] Mound Bubblesuit
- [x] General Employee (GERT)
- [ ] General Respirator
- [ ] Other:

Radiological Control Technician (RCT) Coverage

- [ ] None Required
- [x] Intermittent
- [ ] Start, Finish & Breaks
- [ ] Continuous
- [ ] Notify RCT before start each day
- [ ] Other:

Personnel Contamination Monitoring

- [ ] None Required
- [x] Whole Body Frisk (Alpha)
- [ ] PCM Frisk
- [ ] Minimum Hand & Foot Frisk
- [x] Whole Body Frisk (Beta)
- [ ] Tritium Wipe
- [ ] Nose Wipe on Exit
- [ ] PCM Frisk Prior to Exiting Building or Eating
- [ ] Other:

Airborne Concentration Evaluation

- [ ] None Required
- [x] Evaluation Performed

Results
0.113 DAC (see amplifying instructions)

Air Monitoring Requirements

- [ ] None Required
- [ ] CAM Alpha
- [ ] CAM Tritium
- [ ] Lapel
- [ ] Low Volume
- [ ] Portable Tritium
- [ ] Fixed Sampling Head
- [ ] High Volume
- [x] Other: See Air Monitoring amplifying instructions

FOR INFORMATION ONLY

065/85

MOUND RADIOLOGICAL WORK PERMIT

Special ALARA Controls

[x] None Required [ ] ALARA Review Performed Control Number:

Radiation Area Type

[ ] Not Applicable
[x] Radiological Buffer Area

Airborne Radioactivity Area

[ ] Alpha
[ ] Tritium (HT,HTO)
[ ] Tritium (sOBT)
[ ] Tritium (STP)

Radiation Area

[ ] Radiation
[ ] High
[ ] Very High

Contamination Area

[x] Alpha
[ ] Fixed
[ ] Soil
[ ] Tritium(HT,HTO,STP)
[ ] Tritium(sOBT)

High Contamination Area

[ ] Alpha
[ ] Tritium (HT,HTO,STP)
[ ] Tritium (sOBT)

[ ] Other:

Work Area Restrictions

[ ] None [ ] No Other Work Allowed in Area While RWP in Use

Restrictions: No entry into RA, HRA, HCA, or ARA

Amplifying Instructions

PROTECTIVE CLOTHING
1) Heavy equipment operator to wear gloves and shoe covers to and from the equipment cab. Operator shall don new gloves and shoecovers prior to exiting the cab to exit the work area. No other activities allowed without full PPE (minus the hood). Hood not required due to work being performed outdoors and workers required to wear hard-hats.
2) Surgeon gloves may worn under heavy work gloves as a substitut for rubber gloves.

AIR MONITORING
1) Lapel sampler to be used for maximally exposed equipment operator (as determined by Supervisor and RCT)
2) G/A air samples to be taken upwind and downwind of the work area

ALARA CONSIDERATIONS
1) Wind direction to be monitored at start of shift and periodically thereafter. Move air sampling equipment if wind direction changes.
2) Control dust generation by water spray, tarping, etc.
3) Airborne estimate in the work area is 0.113 DAC with aggressive dust controls and max contamination level of 500 dpm/100cm2. (Resuspension factor with aggressive dust controls: 1E-5; effective DAC value: 2.0 E-12 uCi/ml)
4) Stop work if wind speed renders dust control methods ineffective.
5) Debris with known encapsulated contamination to be handled with special precaution (i.e., concentrated dust control, boxing, etc.)

FOR INFORMATION ONLY

066/85

MOUND RADIOLOGICAL WORK PERMIT

1536- 0

RWP Approval

	Printed Name	Signature	HP Number	Date
ALARA Program Coordinator	N/A			
Job Sponsor/Leader	[redacted]		6167	12/18/03
Project RC Point-of-Contact	[redacted]		5214	12-18-03

RWP Closure

	Printed Name	Signature	HP Number	Date
Master RCT				

FOR
INFORMATION
ONLY

067/85

MOUND RADIOLOGICAL WORK PERMIT

1536-

GENERAL INFORMATION

RWP NUMBER	1536	GENERAL		EFFECTIVE DATE	5/19/2004	Rad Ops Contact Name	COBLENTZ,ROBERT M
REVISION NUMBER	1	JOB-SPECIFIC	x	EXPIRATION DATE	12/31/2004	Rad Ops Contact Phone	~~4324~~ 608-8206 RMC 5-18-04

JOB INFORMATION

Requestor Name	[redacted]	Requestor HP Number	6167	Requestor Phone	3866	Project	BOSS

Technical / Work Documents	Document Number MSR 36965 MSR 36371	Title 50 Building Demo A Building Demo

FOR INFORMATION ONLY

Work Location (Bldg., room, pad, area, etc.)

BOSS Project Buildings

Detailed Description of Work

Demolition of contaminated/potentially contaminated portions of the building using Heavy Duty equipment.
Debris loading for transport to Waste Management.
Building drain line removals.
Radiological surveys.
Support work.

RADIOLOGICAL LIMITATIONS

Assay	Stop Work Level	Units	Specific Isotope
Removable Alpha	500.00	dpm/100 cm2	Plutonium

RADIOLOGICAL PROTECTION REQUIREMENTS

Radiological Protective Clothing

- [ ] None Required
- [ ] Labcoat
- [x] Coveralls
- [ ] Hood
- [x] Rubber Gloves
- [x] Cotton Liners
- [ ] Outer Heavy Work Gloves
- [x] Plastic Shoe Booties
- [ ] Rubber Shoe Cover
- [x] Plastic Shoe Cover
- [x] Taped Openings
- [ ] Surgeons Gloves
- [x] Other: See Protective Clothing amplifying instructions

Respiratory Protection for Radiological Purposes

- [x] None Required
- [ ] Full Face HEPA
- [ ] Bubble Hood
- [ ] Full Face Supplied Air
- [ ] Bubblesuit
- [ ] Half-Mask Respirator
- [ ] Powered Air Purifying

068/85

MOUND RADIOLOGICAL WORK PERMIT

External Dosimetry

- [x] None Required
- [ ] Self Reading Dosimeter
- [ ] Extremity TLD
- [ ] Whole Body TLD
- [ ] Neutron Dosimeter
- [ ] Other:

Internal Dosimetry (Bioassay)

- [ ] None Required
- [x] Plutonium
- [x] Thorium
- [ ] Tritium
- [ ] Tritium sOBT
- [ ] Actinium
- [ ] Plutonium HFO
- [x] Uranium
- [ ] Tritium HTO
- [x] Americium
- [ ] Protactinium
- [ ] To Be Determined
- Tritium Freq:
- [ ] Strontium
- [x] Intake Monitoring Alpha
- [ ] Intake Monitoring Tritium (STP)
- [ ] Other:

Special Instructions: none

FOR INFORMATION ONLY

Training

- [x] Rad Worker II
- [ ] Visitor Orientation
- [ ] Mound Bubblesuit
- [x] General Employee (GERT)
- [ ] General Respirator
- [ ] Other:

Radiological Control Technician (RCT) Coverage

- [ ] None Required
- [x] Intermittent
- [ ] Start, Finish & Breaks
- [ ] Continuous
- [ ] Notify RCT before start each day
- [ ] Other:

Personnel Contamination Monitoring

- [ ] None Required
- [x] Whole Body Frisk (Alpha)
- [ ] PCM Frisk
- [ ] Minimum Hand & Foot Frisk
- [x] Whole Body Frisk (Beta)
- [ ] Tritium Wipe
- [ ] Nose Wipe on Exit
- [ ] PCM Frisk Prior to Exiting Building or Eating
- [ ] Other:

Airborne Concentration Evaluation

- [ ] None Required
- [x] Evaluation Performed

Results
0.113 DAC (see amplifying instructions)

Air Monitoring Requirements

- [ ] None Required
- [ ] CAM Alpha
- [ ] CAM Tritium
- [ ] Lapel
- [ ] Low Volume
- [ ] Portable Tritium
- [ ] Fixed Sampling Head
- [ ] High Volume
- [x] Other: See Air Monitoring amplifying instructions

Special ALARA Controls

- [x] None Required
- [ ] ALARA Review Performed

Control Number: 069/85

MOUND RADIOLOGICAL WORK PERMIT

153(

Radiation Area Type

- [ ] Not Applicable
- [x] Radiological Buffer Area

Contamination Area

- [x] Alpha
- [ ] Fixed
- [ ] Soil
- [ ] Tritium(HT,HTO,STP)
- [ ] Tritium(sOBT)
- [ ] Other:

Airborne Radioactivity Area

- [ ] Alpha
- [ ] Tritium (HT,HTO)
- [ ] Tritium (sOBT)
- [ ] Tritium (STP)

Radiation Area

- [ ] Radiation
- [ ] High
- [ ] Very High

High Contamination Area

- [ ] Alpha
- [ ] Tritium (HT,HTO,STP)
- [ ] Tritium (sOBT)

FOR INFORMATION ONLY

Work Area Restrictions

- [ ] None
- [ ] No Other Work Allowed in Area While RWP in Use

Restrictions: No entry into RA, HRA, HCA, or ARA

Amplifying Instructions

PROTECTIVE CLOTHING
1) Heavy equipment operator to wear gloves and shoe covers to and from the equipment cab. Operatc shall don new gloves and shoecovers prior to exiting the cab to exit the work area.
No other activities allowed without full PPE (minus the hood). Hood not required due to work bein performed outdoors and workers required to wear hard-hats.
2) Surgeon gloves may worn under heavy work gloves as a substitute for rubber gloves.

AIR MONITORING
1) Lapel sampler to be used for maximally exposed equipment operator (as determined by Supervisor RCT)
2) Lapel sampler to be worn by maximally exposed worker performing other activities in the area.
3) G/A air samples to be taken upwind and downwind of the work area

ALARA CONSIDERATIONS
1) Perform work in accordance with the approved work package
2) Wind direction to be monitored at start of shift and periodically thereafter. Move air sampling equipment if wind direction changes.
3) Control dust generation by water spray, tarping, etc.
4) Airborne estimate in the work area is 0.113 DAC with aggressive dust controls and max contamination level of 500 dpm/100cm2. (Resuspension factor with aggressive dust controls: 1E-5; effective DAC value: 2.0 E-12 uCi/ml)
5) Stop work if wind speed renders dust control methods ineffective.
6) Debris with known encapsulated contamination to be handled with special precaution (i.e., concentrated dust control, boxing, etc.)

ML-812 (08/02)

070/85

MOUND RADIOLOGICAL WORK PERMIT

RWP Approval

	Printed Name	Signature	HP Number	Date
ALARA Program Coordinator	N/A			
Job Sponsor/Leader	[redacted]		6167	5/19/04
Project RC Point-of-Contact	[redacted]		7707	05/18/04

RWP Closure

	Printed Name	Signature	HP Number	Date
Master RCT				

FOR
INFORMATION
ONLY

Environmental Compliance Profile

Project:	Building 50 Demolition	**Distribution:**	
			Steve Davis, *Project Engineer*
EC POC:	Ronald Paulick		File
Date:	01-05-04		

Scope: This profile documents the environmental concerns related to the dismantling and demolition of Building 50 structure, slab, and foundation. There are no PRSs that are associated with Building 50; there are three general PRSs associated with the area. Building 50 was constructed at Mound in 1970 and it encompassed 14,849 square feet. The building was designed and constructed for the purpose of conducting safe, nondestructive tests on sealed heat sources fueled with alpha-emitting isotopes.

A. Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) [40 CFR]

Building 50 structure will be demolished as a non-CERCLA project. There are no PRSs directly associated with Building 50. PRSs 269, 270 and 391 are general PRSs associated with the area that have been binned NFA.

B. National Environmental Policy Act (NEPA) [10 CFR 1021]

The demolition project is covered under the March 23, 1998, NEPA "Blanket" Deconstruction Checklist.

C. Permits to Install (PTIs) and Permit to Operate (PTOs) [OAC 3745-31 and -35]

Water source permitting requirements do not apply as there is no new or increased discharge related to this project. No air permit is required for the building demolition as demolitions do not equate to new source installation (4-21-99 RAPCA Letter).

D. Fugitive Dust Emissions [OAC 3745-17-08]

Visible particulate emission from the demolition will not exceed 20 percent opacity as a three minute average. Site-wide control measures to mitigate fugitive dust are established in environmental practice 2.11 of the Environmental Practice Manual and will include the following:

- Water misting or fogging will be used to control fugitive dust from demolition activities and grading of the lot after demolition. The goal is no visible fugitive dust emissions.
- Periodic application of water to roadways and parking lots will be used to prevent dust from becoming airborne.

J. Safe Drinking Water Act (SDWA) [OAC 3745-81, -82, -83, -85, and -95]

The potable water supply to Building 50 was disconnected and capped to protect the integrity of the water supply. Although the potable water system will be used to provide a source of water for misting or fogging, a backflow preventer will be installed to protect the potable water system.

K. Protection of Historic and Cultural Properties [36 CFR 800]

Building 50 is not one of Mound Facility's original structures built to support the polonium processing and research mission. This project will have no adverse impact upon Mound's historic or cultural resources nor will its demolition affect any of Mound's defined National Register eligible structures.

If any archeological artifacts are discovered as this project progresses, the Cultural Resource Representative will be notified at extension 3691. Work will be suspended until which time the items or artifacts have been recovered.

L. Demolition Notification [OAC 3745-20-03]

A notification for demolition was filed with RAPCA as part of a group notification including Buildings 36 and 37. The notification was submitted on October 15, 2003, for asbestos removal. A revised noticed was submitted on November 24 to include demolition dates. Building 50 is scheduled for January 6. This meets the ten business day notification requirement before demolition.

M. Soil Verification

Based on historical data and project work scope, soil assessment is planned for areas underneath the tanks and underground piping to the tanks. Any contaminated soil will be handled in accordance with the Contingent Action Memorandum. In addition, routine screening of slab and foundation material will be conducted.

Reviewed by:

SSGupta 1/5/2004

Environmental Compliance Date

Attachment 1 – Request To Stage Clean Hard Fill Debris at Construction Spoils Area

Work Location/ Bldg. 50 Approximate Volume ~4000 cu. Yds.
Source of material
Requestor Project Group BOSS Project Point of Contact Steve Davis

Name/Phone Ext Steve Davis ext. 4436

MSR # BOSS-36965 Charge # EE050J

Process Knowledge (attach documentation, if more space needed):
BUILDING 50 WAS A TEST FACILITY FOR THE HEAT SOURCE PROGRAM BUT ACCORDING TO HISTORICAL DOCUMENTATION, NO UNENCAPSULATED RADIONUCLIDES RESIDED IN BUILDING 50.

PRS # N/A PRS Binning Status: NFA RA FA UB NFA Pending Stakeholder Review

Binning remarks
Clean up criteria for soils

Identify how point of origination /area is posted: (e.g. non-RMMA, URMA, SCA, CA, HCA, RMA, RMMA, FCA, etc.)
Note: NON-RMMA

Radionuclides of Concern for verification sampling: N/A

Radiological Surface Contamination Not Applicable – never exposed to radionuclides circle if applicable

Survey Results: _____ <PP-1059F, Table 2-2 criteria _____ > PP-1059F, Table 2-2 criteria

In Process monitoring
of excavating equipment: _____ <PP-1059F, Table 2-2 criteria _____ > PP-1059F, Table 2-2 criteria

Activation Concerns: No Yes If yes, explain

Material is released for recycle /reuse Yes No

Sending Rad POC Signature	**Date**
Sending Project Manager Signature	**Date**

Work Location/ Source of material

Final material use:
On-site Unrestricted Removed as LLW to disposal

Waste Management Rad POC Signature	**Date**
Spoils Area Foreman Signature	**Date**

074/85

Attachment 2 — ML-9987 – D & D Solid Waste Free Release Declaration

The SMPP/TFV - BOSS Project has determined that all solid waste streams resulting from safe shutdown, decontamination, and/or demolition of Building(s) 50 have been free released in accordance with DOE Order 5400.5, MCP procedural manual MD-80043, and direction from the DOE Miamisburg Environmental Management Project (MEMP) office (letter from Provencher to Baker, MB 423-99, dated April 27, 1999). Data supporting this free release determination may be found by contacting STEVE DAVIS, Project Manager, at X4436. This data may include radiological surveys and data sheets and/or process knowledge utilized according to the above procedures.

_____ _____

Waste Coordinator Date

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).

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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

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WORK PACKAGE MATERIAL LIST

Work Package # BOSS-36965 Page ____ of ____

Work Package Description Demolition of Building 50

Item #	Qty.	Units	Material Description	Used For	Suggested Supplier
1		Ea.	Check Spill Kits	Spills	

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Appendix E

POST-JOB CONFERENCE/ LESSONS LEARNED

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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 include 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 contribute 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 b

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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.

Lessons Learned-Miscommunications Leads to Severed Gas Line

Project Type: *Facility* Disposition
Date: August 13, *2001*
Document Type: *Lessons Learned*
Functional Area: *Decontamination* & Decommissioning
Operations Office: *Rocky* Flats

Lesson Learned Statement

Making sure the scope of work is clearly understood by everyone involved in a job is a key factor in successfully completing any D&D job.

Discussion of Activities

A ***KH Construction*** crew was using a backhoe to remove foundations from the PACs 3 building when the backhoe severed a one-inch gas line. The line had been removed from service and purged prior to the start of excavation.

The work crew did coordinate with excavation specialists prior to digging, as required in the work package. Excavation specialists perform drawing searches and various surveys prior to approving scheduled excavation activity. But the two groups had a different understanding of the scope of work allowed under the soil disturbance approval.

The crew thought the excavation specialists had approved demolishing all of the foundations in the building, as described in the "work to be performed" section on the first page of the excavation permit. But the excavation specialists had only surveyed and approved demolition of the center median wall, which was noted on the second page of the permit form.

Recommended Actions

One way to ensure everyone is on the same page is to thoroughly review permits to ensure that all conditions, requirements and limitations are understood before starting the job. In order to avoid future misunderstandings, the RISS Project has briefed KHC personnel to make sure they review the second page of the excavation inspection and entry approval log to determine any special requirements and remarks. The excavation specialists will also meet daily with the work crews and review that day's planned scope of work and make sure all applicable surveys have been completed.

Contact Information

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POST JOB CONFERENCE

1. WORK PACKAGE TITLE:	Building 50 Demolition
2. WORK PACKAGE NUMBER:	BOSS-36965-02

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)
Building 50 Demolition

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

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