

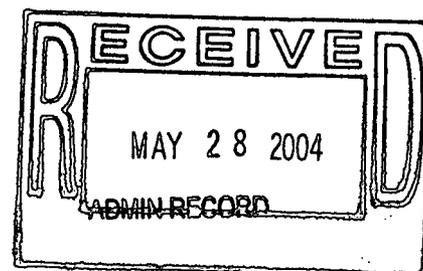
Final Project Closeout Report
For
Building 441

Revision: 0

April, 2004

Remediation, Industrial D&D, and Site Services
Kaiser Hill Company, LLC

Review for Classification/UCNF
Name: CJ FREIGHT
Date: 05/26/04



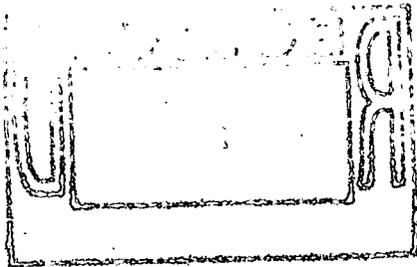
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I. Introduction

Building 441 Description

Building 441 was a 17,800-sq. ft. single story concrete structure built in 1953. Building 441 was located in the northwestern portion of the 400 Area and was placed into service in 1953. Building 441 was originally constructed as a laboratory to support the depleted uranium and beryllium operations, but was stripped out and converted to an administration building in 1966. An addition was added to the southern section of the structure. This addition was built in 1966 at the same time the building was converted to administrative use and never contained a laboratory. The building measured approximately 200-ft long by 96-ft. wide by 15-ft. high and has a dock area in the southeast corner of the building. The building was configured with a hard walled office and cubical layout. Building 441 had sprayed on insulation applied to the northern exterior of the building in about 1978.

Building 441 was serviced by the following utilities: water, sanitary, electric, process waste line (grouted in 1966), and steam heat. An overhead sprinkler system and wall-mounted fire extinguishers provided fire protection. The 1966 addition, which was primarily used for record storage had a non-hazardous inert gas extinguisher system instead of an overhead sprinkler system.

The northwest section of the original construction was primarily office space with the central and southern portion of the original structure housing laboratory equipment, vapor hoods and laboratory tables. The original Building 441 laboratory also had metal working machines to handle special needs of the laboratory. The original laboratory provided general analytical support of depleted uranium and beryllium analysis for the 400 and 800 areas. Process sinks were located throughout the laboratory area and were diverted to two interconnected underground concrete storage tanks, T2 and T3 (T-3 was connected to a temporary holding tank (Tank-076) that has been drained), located south of Building 441. These tanks, and the associated above-ground concrete vault were reclassified as the B429 waste pit, and were removed along with the building slab and associated piping as part of the Environmental Restoration (ER) phase of the project. B429 received waste from the Building 441 laboratories and Buildings 122 and 123. These tanks were isolated from Building 441 and partially closed during the construction of the 1966 addition, which was built over the northern 6-feet of the tanks. Tanks T2 and T3 continued to receive waste from Building 122 and 123 until the early 1980s. These tanks were foamed in place in 1996 in accordance with the "Proposed Action Memorandum For Contaminant Stabilization of underground Storage Tanks" dated April 1996. Tanks T2 and T3 were not part of this phase of B441 D&D but are mentioned because of their historical connection and close proximity to Building 441.

During the 1966 renovation the building went through an extensive strip-out. The strip-out included removal of the laboratory equipment, laboratory benches, and hoods, as well as most of the floor tile, suspended ceiling, and exhaust system. At this time, the process drains and trenches were either plugged or grouted. Internal walls and partitions were reconfigured to meet the needs of the new building mission. After the 1966 renovation the entire building was converted to administrative office and cubical space.

At the time of its closure, B441 housed the site classification office, which stored a large number of classified site records and microfilming equipment. B441 also housed several people from the site transportation and site security departments.

Based on the analysis of radiological, chemical and physical hazards contained in the RLCR/PDSR, Building 441 classified as a RFCA Type 2 facility pursuant to the RFETS Decommissioning Program Plan (DPP; K-H, 1999). The Type 2 classification was based on a review of historical and process knowledge, and acquired RLC/PDS data. Classification is also based on the relative complexity associated with decommissioning the facilities.

Closure of the facility was completed in accordance with the Rocky Flats Cleanup Agreement Standard Operating Protocol (RFCA RSOP) for Facility Disposition. Integrated Work Control Program (IWCP) procedures were followed during building decommissioning.

II. Action Description

Utility Disconnect

Gash Electric performed the electrical isolation of all original feeds to systems and equipment associated with B441. Isolation of electrical power was performed by taking down specific grids by Lock-Out/Tag-Out, then isolating the main power to the facility by cutting, removing or air-gapping electrical systems in the facility. This "cold and dark" process greatly reduces the potential for electric shock injuries to worker during interior dismantling and asbestos abatement activities. Use of light stands and external generators provided interior lighting for these activities.

Potable water feed to the facility was discontinued, and isolated five feet deep. All sanitary fixtures were disconnected, and sewer lines were flushed with a volume of high-pressure water equal to approximately 10 times the volume of the pipe. Sewer lines were then isolated at two manholes exterior to the facility. Piping that was higher than the level of the floor was cut to floor level and the sanitary lines and drains were grouted. Removal of piping and drain lines in and below the slab was deferred until remediation of the slab. This action is detailed in the Environmental Restoration RFCA Standard Operating Protocol for Routine Soil Remediation FY03 Notification #03-06 IHSS Group 400-8. All piping was remediated under this action.

Steam and condensate lines and natural gas lines were isolated exterior to the facility. Natural gas lines were air gapped at B123 purged to remove any residual gas that may have been present. Due to the placement of the gas line through the slab of the building, the gas line was removed in conjunction with the building slab during ER remediation of the slab. No gas lines remain on site. See article 3 of Appendix 1 for utility disconnects.

Contaminants of concern included asbestos, beryllium, CERCLA constituents, radiological, and PCBs.

Characterization was conducted in accordance with the RLCP and PDSP. CDPHE-certified asbestos inspectors conducted the asbestos inspections and sampling in accordance with the *Asbestos Characterization Protocol, PRO-563-ACPR, Revision 1*. Building materials suspected of containing asbestos were identified for sampling at the discretion of the inspectors. There was adequate historical and process knowledge to conclude that beryllium was used or stored in this building, therefore, random and biased beryllium sampling was performed in accordance with the RLCP and the *Beryllium Characterization Procedure, PRO-536-BCPR, Revision 0, September 9, 1999*. Random beryllium sample locations were computer generated, while biased sample locations corresponded with the most probable areas of dust accumulation (including beryllium dust), assuming airborne deposition.

RCRA/TSCA

Building 441 did not contain any RCRA or TSCA units requiring closure. For disposition of waste streams, please see Section VII.

Asbestos Abatement

Sitex Environmental, Inc. performed a comprehensive, invasive asbestos inspection in Building 441, the details of which are contained in its report dated October 10, 1996 (refer to RISS Characterization Project files). Sitex identified the following friable and non-friable asbestos containing building materials: 9" x 9" and 12" x 12" vinyl floor tiles; black mastic adhesive; 2' x 4' acoustical drop ceiling tiles; interior and exterior transite wall panels; and thermal systems insulation on pipe elbows and fittings. Sitex, however,

did not sample the cinderblock paint and window caulking. Therefore, as part of the RLC/PDS, a CDPHE-certified RISS asbestos inspector sampled the paint and caulking to determine asbestos content. The window caulking was positive for asbestos (> 1% by volume), and was removed prior to demolition. The cinderblock paint was negative for asbestos (< 1% by point count).

Kaiser-Hill Construction Company (KHC) performed asbestos abatement activities. Abatement activities commenced 9/9/02, and were completed 12/31/02, and included the removal of asbestos-containing ceiling tile, floor tile and glazing putty, as well as transite and sheet rock wall panels, and asbestos-containing "Thermal System Insulation" (TSI).

During asbestos removal operations, the building was posted as an asbestos control area. HEPA-filtered negative air machines were set up to provide air movement within the building. The area was pre-cleaned, and fire resistant plastic critical barriers were installed, in compliance with requirements of NFPA 701. Only qualified workers with current asbestos training, physicals, and respirator training/fit testing were utilized to perform abatement activities.

During abatement activities, Personal Protective Equipment (PPE) consisted of disposable coveralls, disposable booties, hoods, gloves and negative pressure, HEPA filtered respirators. A decontamination enclosure system consisting of an equipment room, showers and a clean room were established to support workers engaged in the operation. PPE was donned prior to entering the work area. Upon completion of work, all PPE, except respirators, was removed in the equipment room, and bagged as asbestos waste for disposal. The respirator was removed during showering, the filters were removed, collected, and disposed of as asbestos waste. Shower water was collected, passed through a 5 micron filter, and disposed of through the sanitary sewer.

Total quantities of asbestos containing material (ACM) waste removed from the facility are outlined in Section VII, Waste Stream Disposition.

III. Verification Action Goals Were Met

Four action objectives were established for Building 441 Cluster removal project prior to beginning demolition:

Decontamination of the facility (as necessary) to support release for decommissioning per site approved procedures.

The facilities primary structures were decontaminated to free-release standards and disposed of in an off-Site landfill. Steel plates were fastened to the slab over areas of known radiological contamination, to protect personnel and equipment during demolition activities. The steel remained in place until ER activities removed the slab.

Decommissioning of the Building 441 facility in accordance with RFCA and applicable or relevant and appropriate requirements.

RFCA and other relevant requirements were complied with throughout the project. Consultations with the LRA were conducted throughout the project.

Complete decontamination and decommissioning activities in a manner that is protective of Site workers, the public and the environment.

Decontamination and decommissioning activities were completed within regulatory requirements. Air sampling for beryllium and asbestos was conducted during demolition activities. Dust control measures

were implemented during demolition, using wet methods via fire hydrants and fire hoses. No injuries or releases to the environment occurred during the project.

Demolish the Building 441 facility structures, utilities, and process waste lines to 3' below final grade.

The facility superstructure was removed during demolition. The building concrete slab, process waste lines, and sanitary sewer lines were turned over to ER for remediation, as outlined in the RFCA RSOP for Facility Disposition-Notification Letter For Building 441-FEG-008-03.

IV. Verification of Treatment Process

This section is not applicable.

V. Radiological Analysis

Radiological characterization was performed to define the nature and extent of radioactive materials that may be present on the facility surfaces. Measurements were performed to evaluate the contaminants of concern. Based upon a review of historical and process knowledge, building walk-downs, and MARSSIM guidance, a Radiological Characterization Plan was developed during the planning phase that describes the minimum survey requirements (refer to the RLCR for the Building 441 Radiological Characterization Plan). Radiological survey area packages were developed for each survey area. Survey area identification numbers are as follows: 441-A-001 (Building 441 Prior Lab Area), 441-A-002 (Building 441 South Addition) and 441-B-003 (Building 441 Exterior). The survey areas included the interior and exterior surfaces of the facility. Individual radiological survey unit packages are maintained in the RISS Characterization Project files.

Building 441 survey unit packages were developed in accordance with Radiological Safety Practices (RSP) 16.01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation and Closure*. Total surface activity (TSA), removable surface activity (RSA), and scan measurements were collected in accordance with RSP 16.02 *Radiological Surveys of Surfaces and Structures*. Radiological survey data were verified, validated and evaluated in accordance with RSP 16.04, *Radiological Survey/Sample Data Analysis*. Quality control measures were implemented relative to the survey process in accordance with RSP 16.05, *Radiological Survey/Sample Quality Control*.

A total of 179 TSA measurements, 165 RSA measurements, and scan surveys were performed. A minimum of a 100% scan was performed on the floors, 50% scan on the lower walls, and a 10% scan on the upper walls and ceiling in the old lab areas of Building 441. A minimum of a 10% scan was performed in the Building 441 south addition and a 5% scan was performed on the building exterior. Elevated contamination was identified above the transuranic and uranium DCGLs in the south-west corner of the old lab area floor during performance of scan surveys. An AP-2 alpha spectroscopy measurement was obtained at the highest elevated location (#71) and identified only uranium isotopes. No transuranic or uranium contamination above the applicable DCGLs was detected on any other Building 441 surfaces. The uranium-contaminated portions of the floor was managed as radioactive waste during demolition.

VI. Demolition Survey Results

Ambient Monitoring for Beryllium

The ambient air around the B441 Demolition Project was monitored for beryllium during demolition. Concentrations were based on an 8 hour Time Weighted Average (TWA) and were compared to the Permissible Exposure Limit (PEL) for Be. All readings were less than 2% of the PEL.

Summary of Airborne Radioactivity Sampling

Building 441 was demolished in March 2003. Radiological Protection Air Samples were taken at various locations within the work area. All samples were < .3 DAC for Depleted Uranium.

VII. Waste Stream Disposition

Section C. Waste Data (complete categories as appropriate)	
<u>Sanitary Disposal</u>	
Disposal Site:	BFI Tower Road
Waste Volume (yd ³):	3480
Waste Weight (tons):	2082.42
Additional Information:	
<u>Hazardous Disposal</u>	
Disposal Site:	Kettleman Hills
Waste Volume (yd ³):	0.55
Additional Information:	Crushed Fluorescent Bulbs
<u>TSCA Waste Disposal</u>	
Disposal Site:	Kettleman Hills
Waste Volume (yd ³):	0.55
Additional Information:	PCB ballasts
<u>Asbestos Waste Disposal</u>	
Disposal Site:	BFI Tower Road
Waste Volume (yd ³):	420
Additional Information:	

VIII. Deviations From the Decision Document

Deviations from the RSOP involve the presence of remaining radiological and asbestos contamination in the facility. These deviations were requirements addressed in the RLCR/PDSR Approval letter from CDPHE, dated 2/13/2003.

Fixed uranium contamination of the building slab was present in two locations. These areas were covered with stainless steel sheeting, which was attached to the floor and painted, to enhance visibility.

Non-friable mastic and floor tiles remained in two former bathroom locations in the facility. These areas were painted to enhance visibility.

These issues were addressed during ER removal of the slab.

IX. Description of Site Condition at End of Decommissioning

The B441 structure was removed to slab level. Removal of the slab, footing, and all associated drains and piping was deferred for removal during Environmental Restoration (ER) remediation of the area. B429 (waste pit), including concrete tanks T-2 and T-3, all associated process waste lines and piping, and any residual sludge will also be removed at this time.

X. Demarcation of Excavation

This section is not applicable.

XI. Demarcation of Wastes Left in Place

See Section IX.

XII. Dates and Duration of Specific Activities

<u>Activity</u>	<u>Responsible Contractor</u>	<u>Dates</u>
Interior Strip-out	Kaiser Hill	9/02-10/02
Asbestos Abatement	Kaiser Hill	9/02-12/02
Demolition	Kaiser Hill	3/03-4/03
Demobilization	Kaiser Hill	4/03

XIII. Final Disposition of Wastes

See Section VII.

XIV. Next Step for Area

The B441 slab, pits, under building utilities and lines, as well as characterization and removal of OPWL and soils was turned over to ER in the Facility Disposition RSOP Notification Letter.

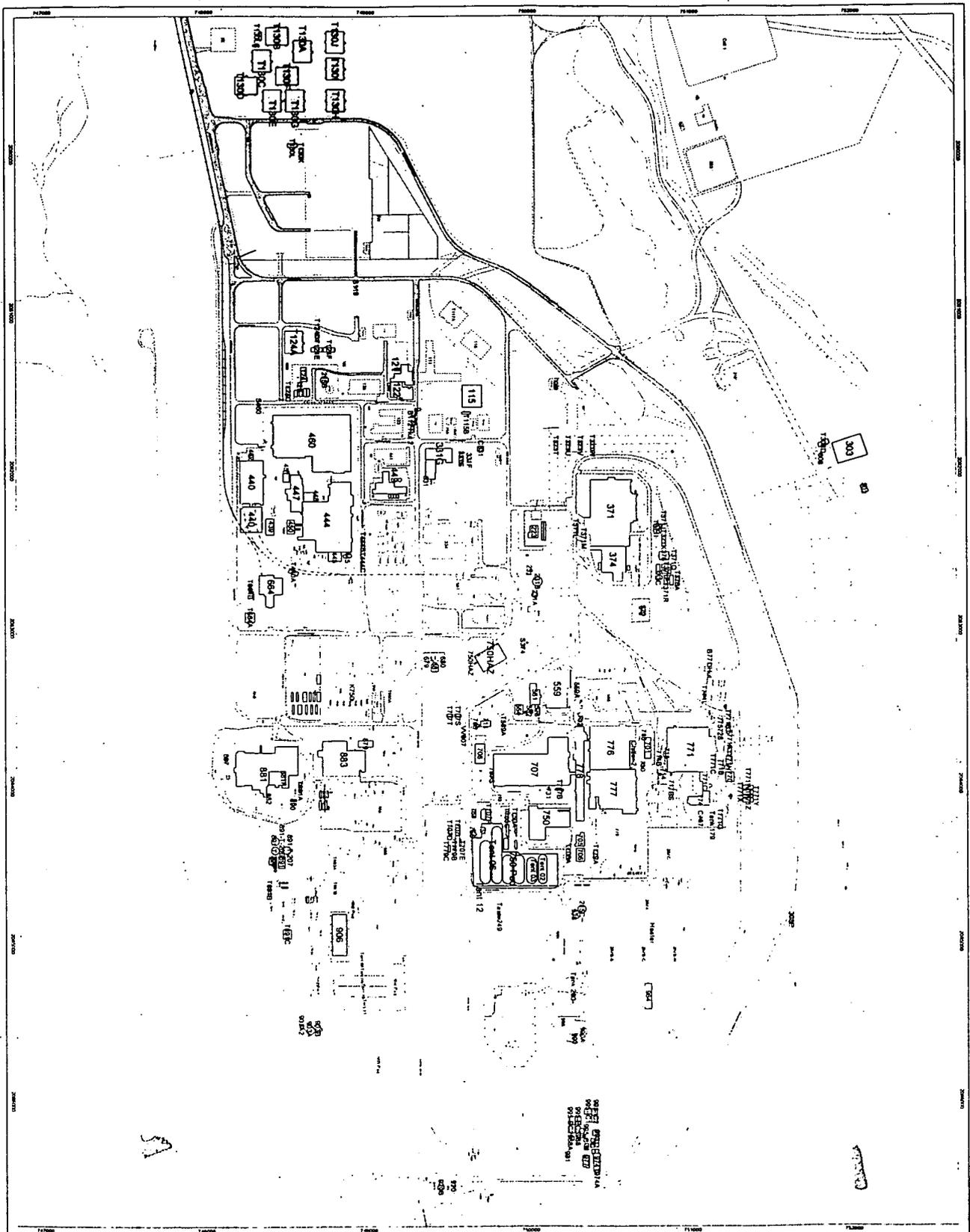
Appendix 1
Maps

Article 1 RFETS Area Plot Plan

Article 2 B441 Plot Plan

Article 3 Utilities Disconnects

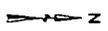
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Rocky Flats Environmental Technology Site
Base Map

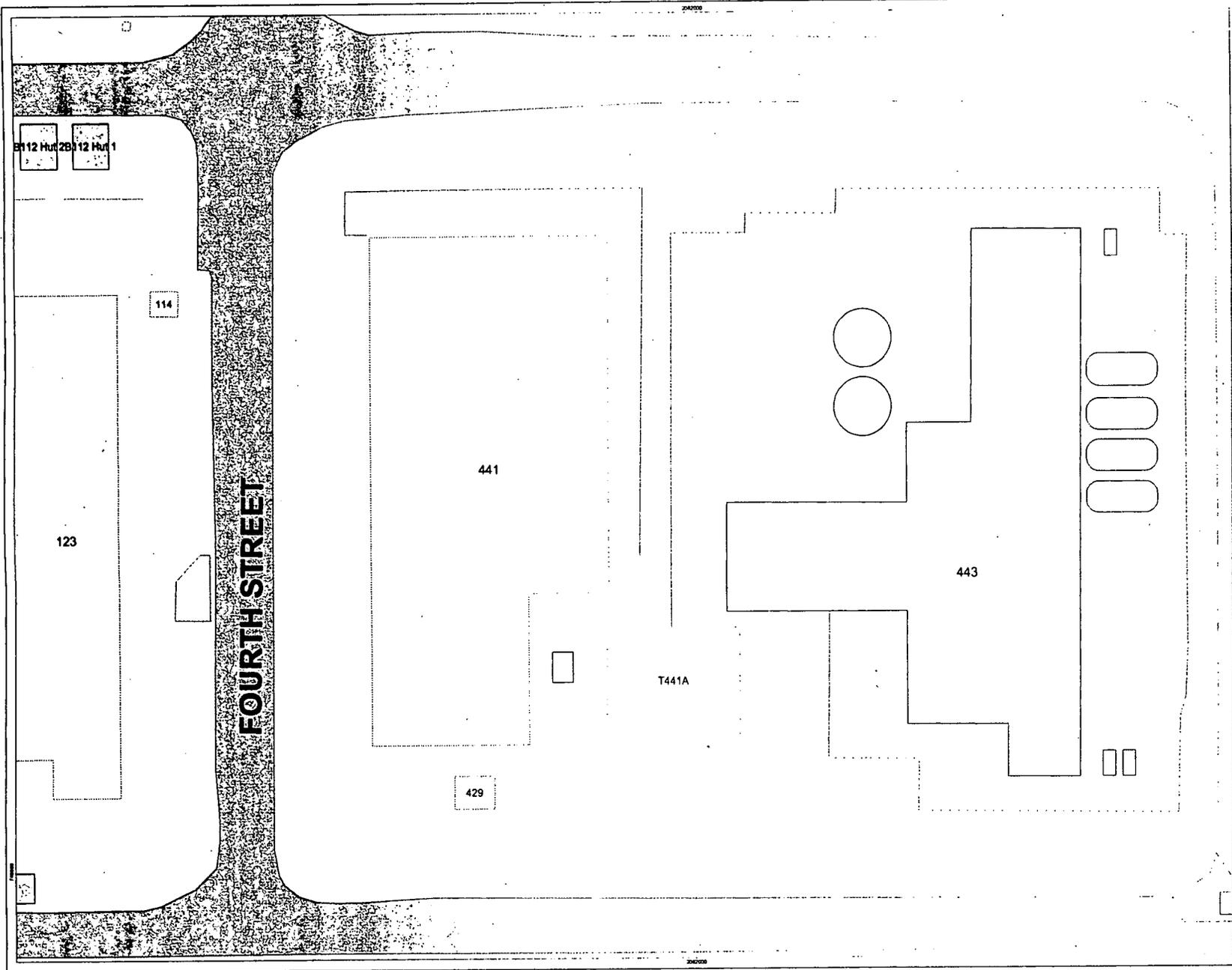
Map Features

- Buildings Remaining
- D&D Facility
- Paved Roads
- Dirt Roads
- Lakes
- Streams
- Railroad Removed
- Railroad Remaining
- Fence Removed
- Fence Remaining



1:250 Scale
 1 inch equals 250 feet
 State Plane Coordinate System
 Central Zone (NAD 83)
 Datum: NAD 83

U.S. Department of Energy
 Rocky Flats Environmental Technology Site
 CH2M HILL
 045 Dept. (202) 286-7707
 CH2M HILL



Rocky Flats Environmental Technology Site

441 Location Map

Map Features

-  Buildings Remaining
-  D&D Facility
-  Paved Roads
-  Dirt Roads
-  Lakes
-  Streams
-  Railroad Removed
-  Railroad Remaining
-  Fence Removed
-  Fence Remaining



1:202
1 inch equals 17 feet
State Plane Coordinate Projection
Colorado Central Zone (3478)
Datum: NAD27

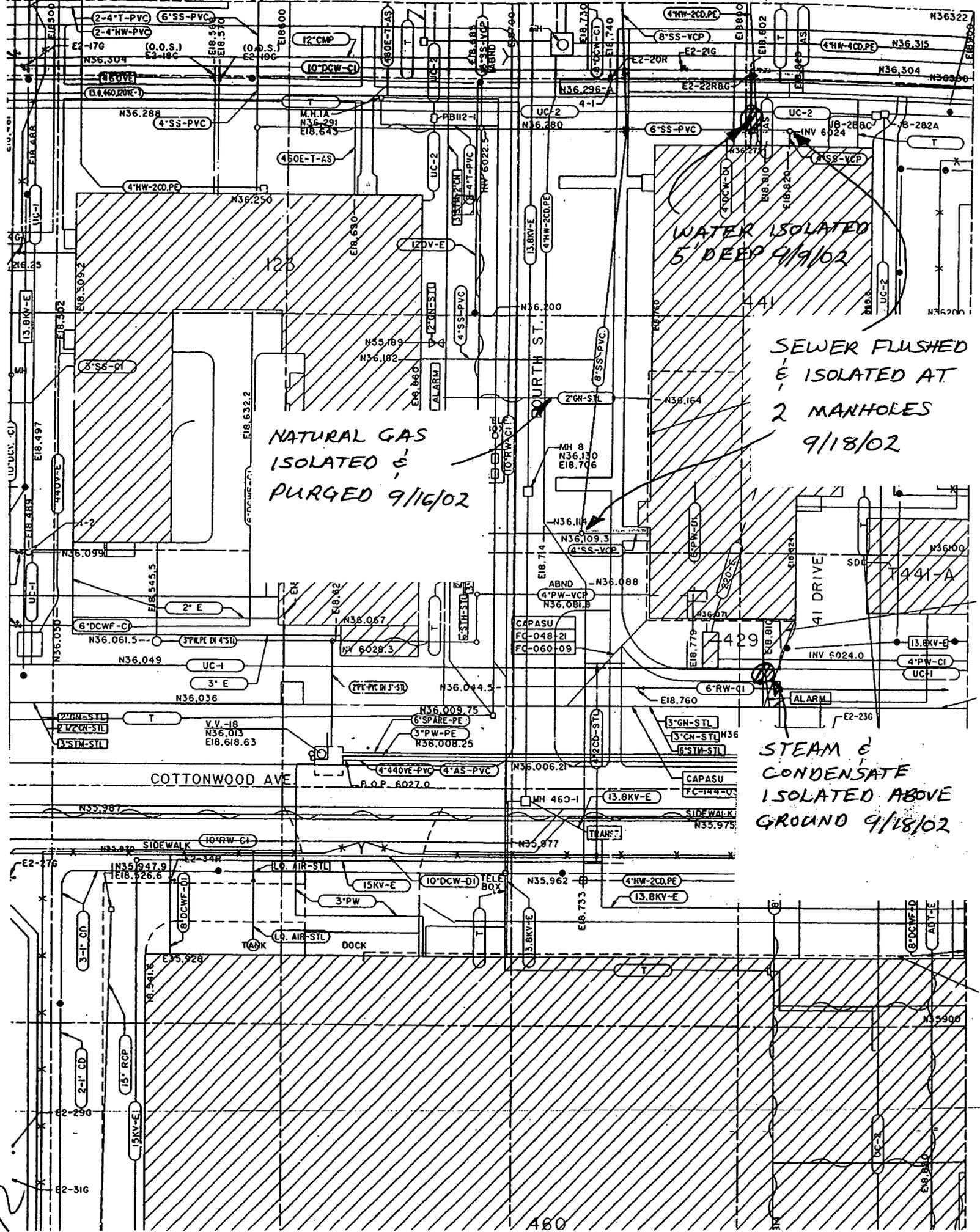
U.S. Department of Energy
Rocky Flats Environmental Technology Site

GIS Dept. (303) 968-7707

Prepared by
 CH2MHILL



ARTICLE 3



12

Appendix 2
Rocky Flats Environmental Technology Site
Contact Records

 (1 of 11)

Number 691
Date and Time 4/17/2002 3:15:00 PM

Primary Site Contact	C.J. Freiboth, 2823	Primary Reg Contact	Dave Kruckek
Secondary Site Contact	D. Parsons	Secondary Reg Contact	
Unit	Building 441/443	Site Phone	Agency CDPHE

Purpose

Building 441 / 443 Scoping Meeting Minutes from Meeting held on April 17, 2002 from 1515 to 1545 in the Trailer 886B Conference Room

Discussion

Meeting Attendance C. J. Freiboth, KH PM D. Parsons, CGI M. A. Eeckhout, KH D. Kruckek, CDPHE J. Hindman, CDPHE S. Tower, DOE K. Myers, RISS Eva Bryson, DOE Discussion 1. Kaiser-Hill projected that Building 443 was an anticipated Type 1 facility and Building 441 was an anticipated Type 2. Pending characterization results, Building 441 may be a Type 1 if contamination is only found in the slab and will be handled like Building 442 was handled (i.e. Type 1 facility with a contaminated slab). 2. Trailer T441A was included as an anticipated Type 1. 3. Characterization plans for the facilities were presented. Projected characterization start dates are April 18, 2002 for Building 443 with a finish of May 18, 2002 and June 15, 2002 for Building 441/T441A with a finish of July 15, 2002. - Two Historical Site Assessments (HSAs) were distributed: (1) Building 441, Trailer T441A, and Tanks 079, 080, 081 and 278, Revision 1 and (2) Building 443, Steam Condensate Storage Tank 240, Tank 096, Tank 097, Tank 098, Tank 025, Tank 027, TK-13A (aka Tank 028), TK-9A (aka Tank 031), Tank 090, Tank 091, Tank 092, Tank 093, Tank 094 and Tank 095, Revision 0. - The following documents were distributed for review: - DRAFT "Reconnaissance Level Characterization Chemical Characterization Plan (Package) B443 Closure Project, Rev. 0" - DRAFT "Reconnaissance Level Characterization Type I Radiological Characterization Plan B443 Closure Project, Rev. 0" Comments included: - Characterization Plans for Building 441/T441A will be developed once the carpet in Building 441 is removed to gain access to floor drains located in the facility. This will occur once personnel and records are removed from the facility. 4. Anticipated facility decommissioning / demolition plans were presented as follows: - Building 443 - October 2002 through August 2003 - Building 441/T441A - December 2002 through August 2002

Follow-Up

Number	719		
Date and Time	7/10/2002 3:20:00 PM		
Primary Site Contact	C.J. Freiboth, 2823	Primary Reg Contact	James Hindman
SeconddaySite Contact		Seconday Reg Contact	
Unit	Building	Site Phone	Agency
	441		CDPHE

Purpose

State (CDPHE) concurrence on removal of office furniture partitions in Building 441

Discussion

Meeting Attendance C. J. Freiboth, KH PM J. Hindman, CDPHE Discussion On July 10, 2002, from 1520 to 1600, the State (Hindman) and Department of Energy (DOE) were toured through Building 441. During the tour, the State was asked whether they would concur with the removal of the remaining office wall partitions in the facility in support of carpet removal and asbestos abatement. The State (Hindman) looked at the partitions during the tour and asked if beryllium survey data was available for the building. The data was not present at the tour, but the State (Hindman) was told that it would be investigated and provided. On July 15, 2002, at 0912, the beryllium survey data was presented to the State (Hindman) over the phone. 23 samples from June 28, 1999, and 14 additional samples taken on May 1, 2002 were presented, all were <0.1000 ug/100 cm². The State (Hindman) needed to confer with another State Contact (Kruchek) regarding the results. On July 15, 2002, at 1127, the State (Hindman) concurred with the removal of the partitions in Building 441. This did not include carpet removal.

Number	735		
Date and Time	7/17/2002 3:50:00 PM		
Primary Site Contact	C.J. Freiboth, 2823	Primary Reg Contact	Dave Kruchek
SeconddaySite Contact		Seconday Reg Contact	
Unit	Building	Site Phone	Agency
	441		CDPHE

Purpose

State (CDPHE) concurrence on asbestos abatement of Building 441 prior to completion of facility characterization

Discussion

Meeting Attendance C. J. Freiboth, KH PM D. Kruchek, CDPHE Discussion On July 17, 2002, from 1515 to 1550, a tour of Building 441 was conducted with the State (Kruchek). The purpose of the tour was to discuss the proposed activity of conducting large-scale asbestos abatement in Building 441 (removal of all asbestos containing materials on the interior of the facility) prior to completing the Reconnaissance Level Characterization Report (RLCR). This approach (asbestos abatement prior to RLCR) is being proposed in order to expose the necessary areas to properly characterize the facility (allow access to areas where possible contaminants exist). The discussion also included how the appropriate and necessary controls will be implemented to ensure the contaminants of concern will not effect the workers performing the abatement, nor become an issue to the environment. Also discussed was the need to perform sufficient in-process characterization to identify contamination that may be generated during the remediation to properly safeguard the workers and characterize the waste. The State (Kruchek) concurred with the path forward and will be given the work documents and plans conducting the evolution for review and concurrence once they are finalized.



Number 756
 Date and Time 8/7/2002 2:00:00 PM

Primary Site Contact C.J. Freiboth, 2823 Primary Reg Contact Dave Kruckeck
 Secondary Site Contact Secondary Reg Contact

Unit Building Site Phone Agency
 441 CDPHE

Purpose
 State (CDPHE) concurrence on Building 441 Utility Disconnects

Discussion

Meeting Attendance C. J. Freiboth, KH PM D. Kruckeck, CDPHE Discussion On August 7, 2002, at 1400, the State (Kruckeck) requested copies of the Work Documents for the asbestos abatement in Building 441. This includes the work package for conducting utility disconnects. On August 14, 2002, at 1430, a conversation regarding utility disconnects in Building 441 was held with the State (Kruckeck). Covered in the discussion were: (1) The draft summary utility disconnect matrix was presented. An updated copy will be provided to the State. (2) The State was satisfied with the electrical and alarm/telecommunication information provided (notification accomplished). (3) A copy of the Building 441 Mechanical Utility Disconnect Work Package (T0110404) was provided to the State. (4) The State requested that sampling be performed in the two manholes that exit the facility before grouting the manholes. Specifics included sampling for gross ?+?, Beryllium, and Total Metals. On August 15, 2002, at 0602, the Building 441 Utility Disconnect matrix was emailed to the State (Kruckeck). On August 23, 2002, at 0714, the State (Kruckeck) sent the following email regarding Building 441 Utility Disconnect Matrix and the Work Package: This looks OK, except that the sewer samling & survey is not included as a step prior to plugging the sewer lines. Also, there are no specific steps included regarding how to deal with any liquids (containerize, sample, etc) that may be found when cutting and capping the water lines, or any lines. On August 26, 2002, at 1050, the State (Kruckeck) was contacted via the telephone regarding Building 441 utility disconnects. Specifically discussed were: (1) There were no sludges in the sewer lines to sample. Only smear samples can be conducted. The State was satisfied with this change. (2) The State requested a better understanding of the type of pipe in the manholes - PVC, plastic, clay. (3) A discussing was held related to sampling of water that may be encountered while cutting and capping utility lines from the facility. The State was particularly concerned only with lines that exit the building such as the steam condensate return lines. It was requested that any incidental liquid that may be encountered have gross ?+?, Beryllium, and Total Metals samples taken. On August 29, 2002, at 1015, after completing a tour of Building 335, the State (Kruckeck) was provided with drawings (27909-404 and 50413-003) which show that Building

441 is heated through a closed loop system interfacing with heat exchangers which tie to the steam supply and condensate return lines. The system in the facility is a closed loop system and therefore there is no concern over contamination migrating into the condensate return system. It was agreed that the heat exchanger water would be sampled. Based on this conversation and the previous concurrence was provided by the State (Kruczek) to conduct utility disconnects in Building 441.

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Search Contact Records

 (5 of 11)

Number 759
Date and Time 8/21/2002 2:25:00 PM

Primary Site Contact C.J. Freiboth, 2823 Primary Reg Contact Dave Kruchek
SeconddaySite Contact Secondday Reg Contact

Unit Building Site Phone Agency
441 CDPHE

Purpose

State (CDPHE) notification of performance of bulbs and ballast removals in Building 441

Discussion

Meeting Attendance C. J. Freiboth, KH PM David Kruchek, CDPHE Discussion On August 21, 2002, at 1425, the State (Kruchek) was notified that bulb and ballast removal would occur in Building 441.

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 (7 of 11)

Number 775
 Date and Time 9/25/2002 2:15:00 PM

Primary Site Contact C.J. Freiboth, 2823 Primary Reg Contact Dave Kruckek
 Secondary Site Contact Secondary Reg Contact

Unit Building 441 Site Phone Agency CDPHE

Purpose

State (CDPHE) concurrence on performing asbestos abatement in Building 441 to expose areas of potential concern in support of Reconnaissance Level Characterization Activities

Discussion

Meeting Attendance C. J. Freiboth, KH PM Davis Kruckek, CDPHE Discussion On July 17, 2002, at 1550, performance of asbestos abatement activities prior to the Reconnaissance Level Characterization (RLC) of the facility was proposed to the Department of Energy and the State in order to expose facility surfaces of concern such that an accurate RLC could be conducted. On September 10, 2002 at 1113, a copy of the work control document and health and safety plan were provided to the state for review and comment. On September 16, 2002, at 1340, comments on the documents were received from the State (Kruckek) and on September 18, 2002, at 1445, a roundtable discussion was held to resolve comments. On September 20, 2002, at 1154, written responses to the State comments were provided to the State (Kruckek). Included was a revised copy of the work document incorporating comments provide by the State. On September 24, 2002, at 1433, additional information was provided by the State (Kruckek). On September 25, 2002, at 1415, upon further discussions related to Building 441 Asbestos Abatement, State concurrence was provided to perform asbestos abatement in an effort to expose areas of potential concern in support of RLC activities.

12



(9 of 11)

Number 832
 Date and Time 1/9/2003 3:30:00 PM

Primary Site Contact	C.J. Freiboth	Primary Reg Contact	Dave Kruckeck
SeconddaySite Contact		Seconday Reg Contact	

Unit	Building	Site Phone	Agency
	B441		CDPHE

Purpose

State (CDPHE) concurrence on performing Building 441 beryllium decontamination discovered during Reconnaissance Level Characterization / Pre-Demolition Survey Activities

Discussion

Meeting Attendance C. J. Freiboth, KH PM Davis Kruckek, CDPHE Discussion On January 08, 2003, at 1445, information and data related to beryllium contamination on the floor (slab) of Building 441 discovered during Reconnaissance Level Characterization / Pre-Demolition Survey Activities was presented to the State (Kruckek). The desire to conduct decontamination of the beryllium area prior to the completion of radiation/contamination surveys was also presented. The State (Kruckek) provided concurrence on conducting the beryllium decontamination pending State (Kruckek) receipt and review of the Work Control Documents associated with the beryllium decontamination evolution. The State (Kruckek) also requested status as the evolution progresses and copies of the beryllium sample data once the decontamination evolution is completed. On January 09, 2003, at 1327, a copy of Work Package T0110784-9, BWF #B441-2003-001, and associated Job Hazards Analysis were faxed to the State (Kruckek). On January 09, 2003, at 1530, the State (Kruehek) concurred with conducting the decontamination of the beryllium contamination in Building 441 in accordance with Work Package T0110784-9.



Number 957
 Date and Time 4/22/2003 11:20:00 AM

Primary Site Contact	Tracey Spence, 4322	Primary Reg Contact	Dave Kruckeck
SeconddaySite Contact		Seconday Reg Contact	

Unit	Building	Site Phone	Agency
	441		CDPHE

Purpose
 441 waste line soil stockpile sampling

Discussion

The sampling specifications shown on Figure 5 (and listed in Table 5) of the IASAP FY03 Addendum #IA-03-01 were reviewed with Mr. Kruckeck. Mr. Kruckeck indicated that he concurred with using analytical results obtained from soil samples collected at the sampling locations shown on Figure 5 to characterize soil removed above the 441 process waste lines. Mr. Kruckeck agreed that no additional soil samples from the stockpiled soil would be required for characterization before making soil put-back decisions unless, during pipe excavation and removal, evidence of contamination is observed (i.e., soil staining, odor, organic vapor measurements above background). Informed Mr. Kruckeck that, due to the forecast heavy rain, we intend to return stockpiled soils removed to date from above the 441 waste lines into the 6-foot wide by 2- to 3-foot deep trenches prior to receiving soil sample analytical results. Mr. Kruckeck stated that this is acceptable; however, the soil would have to be re-excavated in any areas where the confirmation sample results are above the Site soil action levels. I also informed Mr. Kruckeck that mercury was observed inside several sections of process waste pipe removed at the southeast elbow of the eastern (north-south) line of pipe. Soil sample analyses will include mercury analysis. This information was discussed and agreed upon with Norma Castaneda (DOE/RFFO).

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 (11 of 11)

Number 963
Date and Time 6/4/2003 3:00:00 PM

Primary Site Contact Tracey Spence Primary Reg Contact Dave Kruckeck
SeconddaySite Contact Secondday Reg Contact

Unit Building Site Phone Agency
B441 CDPHE

Purpose
Suspension of B441 T2/T3 Tank removal activities

Discussion

I met with David Kruckeck and James Hindman to discuss the current B441 remediation project status. I informed David and James that the B441 T2/T3 Tank removal work will be postponed until the 1st quarter of fiscal year 2004 due to Site budget adjustments. Other work activities may be performed sooner at the B441 site when resources become available. These activities include removal and loadout of concrete and asphalt located on the west and south sides of the former foundation footprint. This information was provided to Norma Castaneda and Russell McCallister (DOE/RFFO).

Appendix 3
B441 Characterization Reports

**SURVEY UNIT 441-A-001
RADIOLOGICAL DATA SUMMARY - PDS**

Survey Unit Description: B441 (Lab Area)

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441-A-001
PDS Data Summary

Total Surface Activity Measurements

	70	74
	Number Required	Number Obtained

MIN	-14.3	dpm/100 cm ²
MAX	524.1	dpm/100 cm ²
MEAN	26.6	dpm/100 cm ²
STD DEV	92.4	dpm/100 cm ²

TRANSURANIC DCGL _w	100	dpm/100 cm ²
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Removable Activity Measurements

	70	74
	Number Required	Number Obtained

MIN	-0.9	dpm/100 cm ²
MAX	8.5	dpm/100 cm ²
MEAN	0.6	dpm/100 cm ²
STD DEV	1.9	dpm/100 cm ²

TRANSURANIC DCGL _w	20	dpm/100 cm ²
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**SURVEY UNIT 441-A-001
TSA - DATA SUMMARY**

Manufacturer:	NE Tech	NE Tech				
Model:	DP-6	DP-6	DP-6	DP-6	DP-6	DP-6
Instrument ID#:	6	7	8	13	14	19
Serial #:	2344	3104	3106	3125	2344	1425
Cal Due Date:	1/17/03	5/11/03	4/4/03	4/21/03	1/17/03	6/13/03
Analysis Date:	12/19/02	12/19/02	12/19/02	12/23/02	12/23/02	1/14/03
Alpha Eff. (c/d):	0.222	0.213	0.230	0.206	0.222	0.210
Alpha Bkgd (cpm)	1.3	2.0	2.0	2.0	1.3	2.0
Sample Time (min)	1.5	1.5	1.5	1.5	1.5	1.5
LAB Time (min)	1.5	1.5	1.5	1.5	1.5	1.5
MDC (dpm/100cm²)	48.0	48.0	48.0	48.0	48.0	48.0

Manufacturer:	NE Tech					
Model:	DP-6	DP-6	DP-6	DP-6	DP-6	DP-6
Instrument ID#:	20	21	22	33	45	45(Beta)
Serial #:	1379	1366	3125	1366	3125	3125
Cal Due Date:	6/3/03	6/26/03	4/21/03	6/26/03	4/21/03	4/21/03
Analysis Date:	1/14/03	1/14/03	1/14/03	1/21/03	1/21/03	1/21/03
Alpha Eff. (c/d):	0.229	0.219	0.216	0.216	0.216	0.289 (Beta)
Alpha Bkgd (cpm)	6.0	3.3	3.3	1.0	1.0	371 (Beta)
Sample Time (min)	1.5	1.5	1.5	1.5	1.5	1.5
LAB Time (min)	1.5	1.5	1.5	1.5	1.5	1.5
MDC (dpm/100cm²)	48.0	48.0	48.0	48.0	48.0	48.0

Sample Location Number	Instrument ID#:	Sample Gross Counts (cpm)	Sample Gross Activity (dpm/100cm ²)	LAB Gross Counts (cpm)	LAB Gross Activity (dpm/100cm ²)	Sample Net Activity (dpm/100cm ²) ^{1,2}
1	7	7.3	34.3	2.7	12.7	16.7
2	7	6.7	31.5	3.3	15.5	13.9
3	8	4.7	20.4	2.0	8.7	2.9
4	8	5.3	23.0	2.0	8.7	5.5
5	6	6.7	30.2	2.0	9.0	12.6
6	6	5.3	23.9	5.3	23.9	6.3
7	7	8.0	37.6	2.0	9.4	20.0
8	7	4.7	22.1	0.0	0.0	4.5
9	7	2.0	9.4	2.0	9.4	-8.2
10	6	4.0	18.0	1.3	5.9	0.4
11	6	1.3	5.9	0.0	0.0	-11.7
12	6	4.0	18.0	4.0	18.0	0.4
13	7	6.0	28.2	3.3	15.5	10.6
14	7	5.3	24.9	0.7	3.3	7.3
15	7	0.7	3.3	2.7	12.7	-14.3
16	7	2.7	12.7	4.0	18.8	-4.9
17	13	5.3	25.7	3.3	16.0	8.1
18	13	4.0	19.4	4.7	22.8	1.8
19	13	9.3	45.1	4.0	19.4	27.6
20	7	0.7	3.3	3.3	15.5	-14.3

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**SURVEY UNIT 441-A-001
TSA - DATA SUMMARY**

Sample Location Number	Instrument ID#:	Sample Gross Counts (cpm)	Sample Gross Activity (dpm/100cm ²)	LAB Gross Counts (cpm)	LAB Gross Activity (dpm/100cm ²)	Sample Net Activity (dpm/100cm ²) ^{1,2}
21	7	0.7	3.3	2.7	12.7	-14.3
22	7	4.0	18.8	5.3	24.9	1.2
23	19	10.0	47.6	6.0	28.6	30.0
24	19	14.7	70.0	4.0	19.0	52.4
25	13	4.0	19.4	2.7	13.1	1.8
26	13	5.3	25.7	4.7	22.8	8.1
27	13	6.7	32.5	4.0	19.4	14.9
28	13	4.7	22.8	4.0	19.4	5.2
29	6	2.7	12.2	1.3	5.9	-5.4
30	19	12.7	60.5	8.0	38.1	42.9
31	14	5.3	23.9	2.0	9.0	6.3
32	14	3.3	14.9	2.0	9.0	-2.7
33	14	7.3	32.9	1.3	5.9	15.3
34	13	8.0	38.8	2.0	9.7	21.3
35	14	2.7	12.2	6.2	27.9	-5.4
36	13	7.3	35.4	2.0	9.7	17.9
37	14	4.7	21.2	3.3	14.9	3.6
38	13	6.0	29.1	2.7	13.1	11.5
39	14	2.7	12.2	2.0	9.0	-5.4
40	13	2.0	9.7	4.7	22.8	-7.9
41	19	6.7	31.9	4.7	22.4	14.3
42	19	4.7	22.4	8.0	38.1	4.8
43	20	5.3	23.1	8.0	34.9	5.6
44	20	16.0	69.9	8.0	34.9	52.3
45	19	7.3	34.8	5.3	25.2	17.2
46	19	5.3	25.2	8.0	38.1	7.7
47	19	4.7	22.4	6.7	31.9	4.8
48	20	8.7	38.0	4.7	20.5	20.4
49	19	4.0	19.0	7.3	34.8	1.5
50	21	4.0	18.3	5.3	24.2	0.7
51	19	4.7	22.4	5.3	25.2	4.8
52	19	4.0	19.0	0.7	3.3	1.5
53	21	7.3	33.3	7.3	33.3	15.8
54	19	7.3	34.8	2.0	9.5	17.2
55	21	3.3	15.1	7.3	33.3	-2.5
56	19	5.3	25.2	7.3	34.8	7.7
57	19	4.0	19.0	2.7	12.9	1.5
58	21	5.3	24.2	6.7	30.6	6.6
59	19	6.0	28.6	0.0	0.0	11.0
60	21	8.0	36.5	5.3	24.2	18.9

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**SURVEY UNIT 441-A-001
TSA - DATA SUMMARY**

Sample Location Number	Instrument ID#:	Sample Gross Counts (cpm)	Sample Gross Activity (dpm/100cm2)	LAB Gross Counts (cpm)	LAB Gross Activity (dpm/100cm2)	Sample Net Activity (dpm/100cm2) ^{1,2}
61	19	2.7	12.9	2.0	9.5	-4.7
62	22	2.0	9.3	2.7	12.5	-8.3
63	19	3.3	15.7	1.3	6.2	-1.9
64	21	4.7	21.5	7.3	33.3	3.9
65	19	3.3	15.7	2.7	12.9	-1.9
66	22	2.0	9.3	2.7	12.5	-8.3
67	19	8.7	41.4	2.7	12.9	23.8
68	21	8.7	39.7	5.3	24.2	22.1
69	22	6.7	31.0	6.3	29.2	13.4
70	22	4.0	18.5	3.3	15.3	0.9
71*	45	117.0	541.7	1.3	6.0	524.1
72*	45	90.0	416.7	2.7	12.5	399.1
73*	45	106.0	490.7	4.0	18.5	473.2
74*	45	12.7	58.8	0.7	3.2	41.2

1 - Average LAB used to subtract from Gross Sample Activity

17.6	Sample LAB Average
MIN	-14.3
MAX	524.1
MEAN	26.6
SD	92.4
Transuranic DCGL _w	100
Uranium DCGL _w	5,000

QC Measurements

14 QC	22	1.3	6.0	0.0	0.0	-7.9
2 QC	22	2.7	12.5	5.3	24.5	-1.4
59 QC	22	4.0	18.5	0.0	0.0	4.6
1 QC	33	8.7	40.3	6.7	31.0	26.4

1 - Average QC LAB used to subtract from Gross Sample Activity

13.9	QC LAB Average
MIN	-7.9
MAX	26.4
MEAN	5.4
Transuranic DCGL _w	100

* - Elevated activity was detected during alpha scan surveys of the southwest floor area of this survey unit.

The areas of elevated activity were marked as radioactive fixed contamination. Measurement locations 71-74 were collected from inside these areas as indicated on the survey map.

Beta scans and measurements were performed, the beta TSA results are indicated below, and the alpha TSA results are indicated above.

An AP-2 alpha spectroscopy measurement was performed at location 71. The spectrum indicated uranium isotopes.

No transuranic isotopes were identified, therefore all of the alpha and beta elevated activity is attributed to uranium.

Beta Measurements at Elevated Scan Locations

71	45 Beta	6,931	23,983	824	2,851	21,131
72	46 Beta	5,691	19,692	832	2,879	16,813
73	47 Beta	5,808	20,097	874	3,024	17,073
74	48 Beta	2,135	7,388	887	3,069	4,318

MIN	4,318
MAX	21,131
MEAN	14,834
Transuranic DCGL _w	5,000

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**SURVEY UNIT 441-A-001
RSC - DATA SUMMARY**

Manufacturer:	Eberline	Eberline	Eberline	Eberline	Eberline	Eberline
Model:	SAC-4	SAC-4	SAC-4	SAC-4	SAC-4	SAC-4
Instrument ID#:	9	10	11	12	15	16
Serial #:	959	833	963	952	959	833
Cal Due Date:	1/18/03	2/28/03	1/3/03	1/31/03	1/18/03	2/28/03
Analysis Date:	12/19/02	12/19/02	12/19/02	12/19/02	12/23/02	12/23/02
Alpha Eff. (c/d):	0.33	0.33	0.33	0.33	0.33	0.33
Alpha Bkgd (cpm)	0.2	0.3	0.0	0.1	0.0	0.0
Sample Time (min)	2	2	2	2	2	2
Bkgd Time (min)	10	10	10	10	10	10
MDC (dpm/100cm²)	9.0	9.0	9.0	9.0	9.0	9.0

Manufacturer:	Eberline	Eberline	Eberline	Eberline
Model:	SAC-4	SAC-4	SAC-4	SAC-4
Instrument ID#:	17	18	23	24
Serial #:	963	952	767	1164
Cal Due Date:	1/3/03	1/31/03	5/13/03	6/17/03
Analysis Date:	12/23/02	12/23/02	1/14/03	1/14/03
Alpha Eff. (c/d):	0.33	0.33	0.33	0.33
Alpha Bkgd (cpm)	0.1	0.0	0.2	0.1
Sample Time (min)	2	2	2	2
Bkgd Time (min)	10	10	10	10
MDC (dpm/100cm²)	9.0	9.0	9.0	9.0

Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm ²)
1	9	0	-0.6
2	10	0	-0.9
3	11	0	0.0
4	12	0	-0.3
5	9	2	2.4
6	10	0	-0.9
7	11	0	0.0
8	12	0	-0.3
9	9	0	-0.6
10	10	0	-0.9
11	11	0	0.0
12	12	0	-0.3
13	9	0	-0.6
14	10	0	-0.9
15	11	1	1.5
16	23	1	1.5
17	15	0	0.0
18	16	0	0.0
19	16	0	0.0
20	12	0	-0.3
21	9	0	-0.6
22	10	0	-0.9
23	23	0	-0.6
24	24	3	4.2
25	15	0	0.0
26	16	0	0.0
27	15	1	1.5

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**SURVEY UNIT 441-A-001
RSC - DATA SUMMARY**

Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm ²)
28	17	0	-0.3
29	11	0	0.0
30	23	0	-0.6
31	18	0	0.0
32	17	1	1.2
33	18	1	1.5
34	15	0	0.0
35	16	0	0.0
36	17	1	1.2
37	18	0	0.0
38	18	0	0.0
39	15	3	4.5
40	17	1	1.5
41	24	3	4.2
42	23	0	-0.6
43	24	0	-0.3
44	24	0	-0.3
45	23	0	-0.6
46	23	0	-0.6
47	24	0	-0.3
48	23	0	-0.6
49	24	0	-0.3
50	24	3	4.2
51	23	3	3.9
52	23	0	-0.6
53	24	3	4.2
54	23	0	-0.6
55	24	0	-0.3
56	23	3	3.9
57	24	0	-0.3
58	23	3	3.9
59	24	0	-0.3
60	23	0	-0.6
61	24	0	-0.3
62	23	0	-0.6
63	24	0	-0.3
64	23	6	8.5
65	24	0	-0.3
66	23	0	-0.6
67	24	0	-0.3
68	23	0	-0.6
69	24	0	-0.3
70	23	3	3.9
		MIN	-0.9
		MAX	8.5
		MEAN	0.6
		SD	1.9
		Transuranic DCGL_w	20

SURVEY UNIT 441-A-002
RADIOLOGICAL DATA SUMMARY - PDS

Survey Unit Description: B441 (South Addition-Interior)

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441-A-002
PDS Data Summary

<u>Total Surface Activity Measurements</u>			<u>Removable Activity Measurements</u>		
	65	65		65	65
	Number Required	Number Obtained		Number Required	Number Obtained
MIN	-8.1	dpm/100 cm ²	MIN	-0.9	dpm/100 cm ²
MAX	46.1	dpm/100 cm ²	MAX	8.5	dpm/100 cm ²
MEAN	7.5	dpm/100 cm ²	MEAN	0.2	dpm/100 cm ²
STD DEV	11.5	dpm/100 cm ²	STD DEV	1.6	dpm/100 cm ²
TRANSURANIC DCGL _w	100	dpm/100 cm ²	TRANSURANIC DCGL _w	20	dpm/100 cm ²

**SURVEY UNIT 441-A-002
TSA - DATA SUMMARY**

Manufacturer:	NE Tech					
Model:	DP-6	DP-6	DP-6	DP-6	DP-6	DP-6
Instrument ID#:	1	2	3	4	5	6
Serial #:	3104	3106	394	1241	3104	1241
Cal Due Date:	5/11/03	4/4/03	1/12/03	5/11/03	5/11/03	5/11/03
Analysis Date:	12/11/02	12/11/02	12/11/02	12/11/02	12/12/02	12/12/02
Alpha Eff. (c/d):	0.214	0.230	0.228	0.213	0.214	0.213
Alpha Bkgd (cpm)	2.0	1.3	4.0	1.3	1.3	1.3
Sample Time (min)	1.5	1.5	1.5	1.5	1.5	1.5
LAB Time (min)	1.5	1.5	1.5	1.5	1.5	1.5
MDC (dpm/100cm²)	48.0	48.0	48.0	48.0	48.0	48.0

Manufacturer:	NE Tech	NE Tech	NE Tech	NE Tech	NE Tech
Model:	DP-6	DP-6	DP-6	DP-6	DP-6
Instrument ID#:	16	17	20	21	24
Serial #:	3105	394	3125	1445	1366
Cal Due Date:	1/17/03	1/12/03	4/21/03	6/30/03	6/26/03
Analysis Date:	12/23/02	12/23/02	1/14/03	1/14/03	1/15/03
Alpha Eff. (c/d):	0.212	0.228	0.216	0.224	0.219
Alpha Bkgd (cpm)	1.3	3.3	0.0	1.3	6.0
Sample Time (min)	1.5	1.5	1.5	1.5	1.5
LAB Time (min)	1.5	1.5	1.5	1.5	1.5
MDC (dpm/100cm²)	48.0	48.0	48.0	48.0	48.0

Sample Location Number	Instrument ID#:	Sample Gross Counts (cpm)	Sample Gross Activity (dpm/100cm ²)	LAB Gross Counts (cpm)	LAB Gross Activity (dpm/100cm ²)	Sample Net Activity (dpm/100cm ²) ^{1,2}
1	3	9.3	40.8	2.0	8.8	27.0
2	3	8.0	35.1	4.7	20.6	21.3
3	1	2.0	9.3	1.3	6.1	-4.4
4	5	8.0	37.4	4.7	22.1	23.6
5	2	2.7	11.7	1.3	5.7	-2.0
6	1	4.7	22.0	2.0	9.3	8.2
7	4	1.3	6.1	2.7	12.7	-7.7
8	5	2.7	12.6	0.7	3.3	-1.2
9	2	4.0	17.4	2.0	8.7	3.6
10	16	7.3	34.4	6.0	28.3	20.7
11	2	4.7	20.4	2.7	11.7	6.7
12	17	8.0	35.1	6.7	29.4	21.3
13	4	2.0	9.4	2.7	12.7	-4.4
14	6	4.7	22.1	4.0	18.7	8.3
15	17	12.7	55.7	6.7	29.4	41.9
16	16	12.7	59.9	3.3	15.6	46.1
17	16	5.3	25.0	1.3	6.1	11.2
18	5	4.0	18.7	6.0	28.2	4.9
19	6	6.0	28.2	2.0	9.3	14.4
20	6	2.7	12.7	0.0	0.0	-1.1
21	5	2.7	12.6	6.7	31.5	-1.2
22	5	2.0	9.3	2.0	9.4	-4.4
23	5	4.7	22.0	2.7	12.7	8.2
24	3	7.3	32.0	2.7	11.8	18.2
25	2	1.3	5.7	3.3	14.3	-8.1
26	2	5.3	23.0	0.7	3.0	9.3
27	2	1.3	5.7	2.7	11.7	-8.1

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**SURVEY UNIT 441-A-002
TSA - DATA SUMMARY**

Sample Location Number	Instrument ID#:	Sample Gross Counts (cpm)	Sample Gross Activity (dpm/100cm2)	LAB Gross Counts (cpm)	LAB Gross Activity (dpm/100cm2)	Sample Net Activity (dpm/100cm2) ^{1,2}
28	6	4.0	18.8	2.0	9.3	5.0
29	3	9.3	40.8	4.0	17.5	27.0
30	4	1.3	6.1	0.7	3.3	-7.7
31	4	2.7	12.7	1.3	6.1	-1.1
32	4	2.7	12.7	4.7	22.1	-1.1
33	3	7.3	32.0	3.3	14.5	18.2
34	20	7.3	33.8	4.0	18.5	20.0
35	20	6.0	27.8	0.7	3.2	14.0
36	5	6.0	28.0	0.7	3.3	14.3
37	6	2.7	12.7	1.3	6.1	-1.1
38	6	3.3	15.5	2.0	9.3	1.7
39	6	3.3	15.5	4.0	18.7	1.7
40	6	2.7	12.7	2.7	12.6	-1.1
41	5	4.0	18.7	4.7	22.1	4.9
42	6	4.7	22.1	2.7	12.6	8.3
43	6	3.3	15.5	3.3	15.4	1.7
44	5	5.3	24.8	2.7	12.7	11.0
45	6	4.7	22.1	3.3	15.4	8.3
46	20	1.3	6.0	1.3	6.0	-7.8
47	17	3.3	14.5	5.3	23.2	0.7
48	17	3.3	14.5	5.3	23.2	0.7
49	17	5.3	23.2	4.7	20.6	9.5
50	20	5.3	24.5	2.0	9.3	10.8
51	20	2.7	12.5	4.0	18.5	-1.3
52	20	2.7	12.5	1.3	6.0	-1.3
53	20	3.3	15.3	2.0	9.3	1.5
54	20	4.0	18.5	3.3	15.3	4.7
55	21	6.0	26.8	5.0	22.3	13.0
56	20	4.0	18.5	2.7	12.5	4.7
57	20	3.3	15.3	1.3	6.0	1.5
58	20	4.0	18.5	2.7	12.5	4.7
59	20	5.3	24.5	2.7	12.5	10.8
60	21	9.3	41.5	4.7	21.0	27.7
61	21	5.0	22.3	3.7	16.5	8.5
62	21	2.2	9.8	2.1	9.4	-4.0
63	21	6.0	26.8	6.0	26.8	13.0
64	21	7.3	32.6	3.3	14.7	18.8
65	21	2.1	9.4	1.3	5.8	-4.4

1 - Average LAB used to subtract from Gross Sample Activity

13.8	Sample LAB Average
MIN	-8.1
MAX	46.1
MEAN	7.5
SD	11.5
Transuranic DCGL _w	100

QC Measurements

QC	21	6.0	26.8	2.7	12.1	15.4
QC	21	6.7	29.9	2.7	12.1	18.5
QC	20	1.3	6.0	2.7	12.5	-5.4
QC	24	6.0	27.4	2.0	8.9	16.0

1 - Average QC LAB used to subtract from Gross Sample Activity

11.4	QC LAB Average
MIN	-5.4
MAX	18.5
MEAN	11.1
Transuranic DCGL _w	100

**SURVEY UNIT 441-A-002
RSC - DATA SUMMARY**

Manufacturer:	Eberline	Eberline	Eberline	Eberline
Model:	SAC-4	SAC-4	SAC-4	SAC-4
Instrument ID#:	12	13	14	15
Serial #:	959	833	963	952
Cal Due Date:	1/18/03	2/28/03	1/3/03	1/31/03
Analysis Date:	12/19/02	12/19/02	12/19/02	12/19/02
Alpha Eff. (c/d):	0.33	0.33	0.33	0.33
Alpha Bkgd (cpm)	0.2	0.3	0.0	0.1
Sample Time (min)	2	2	2	2
Bkgd Time (min)	10	10	10	10
MDC (dpm/100cm²)	9.0	9.0	9.0	9.0

Manufacturer:	Eberline	Eberline	Eberline	Eberline
Model:	SAC-4	SAC-4	SAC-4	SAC-4
Instrument ID#:	18	19	22	23
Serial #:	959	833	767	1164
Cal Due Date:	1/18/03	2/28/03	5/13/03	6/17/03
Analysis Date:	12/23/02	12/23/02	1/14/03	1/14/03
Alpha Eff. (c/d):	0.33	0.33	0.33	0.33
Alpha Bkgd (cpm)	0.1	0.0	0.2	0.1
Sample Time (min)	2	2	2	2
Bkgd Time (min)	10	10	10	10
MDC (dpm/100cm²)	9.0	9.0	9.0	9.0

Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm ²)
1	12	1	0.9
2	12	0	-0.6
3	13	2	2.1
4	14	1	1.5
5	15	0	-0.3
6	12	1	0.9
7	13	0	-0.9
8	14	1	1.5
9	15	0	-0.3
10	18	0	-0.3
11	12	0	-0.6
12	19	0	0.0
13	13	0	-0.9
14	14	0	0.0
15	19	0	0.0
16	18	1	1.2
17	18	0	-0.3
18	15	0	-0.3
19	12	1	0.9
20	13	0	-0.9
21	14	0	0.0
22	15	0	-0.3

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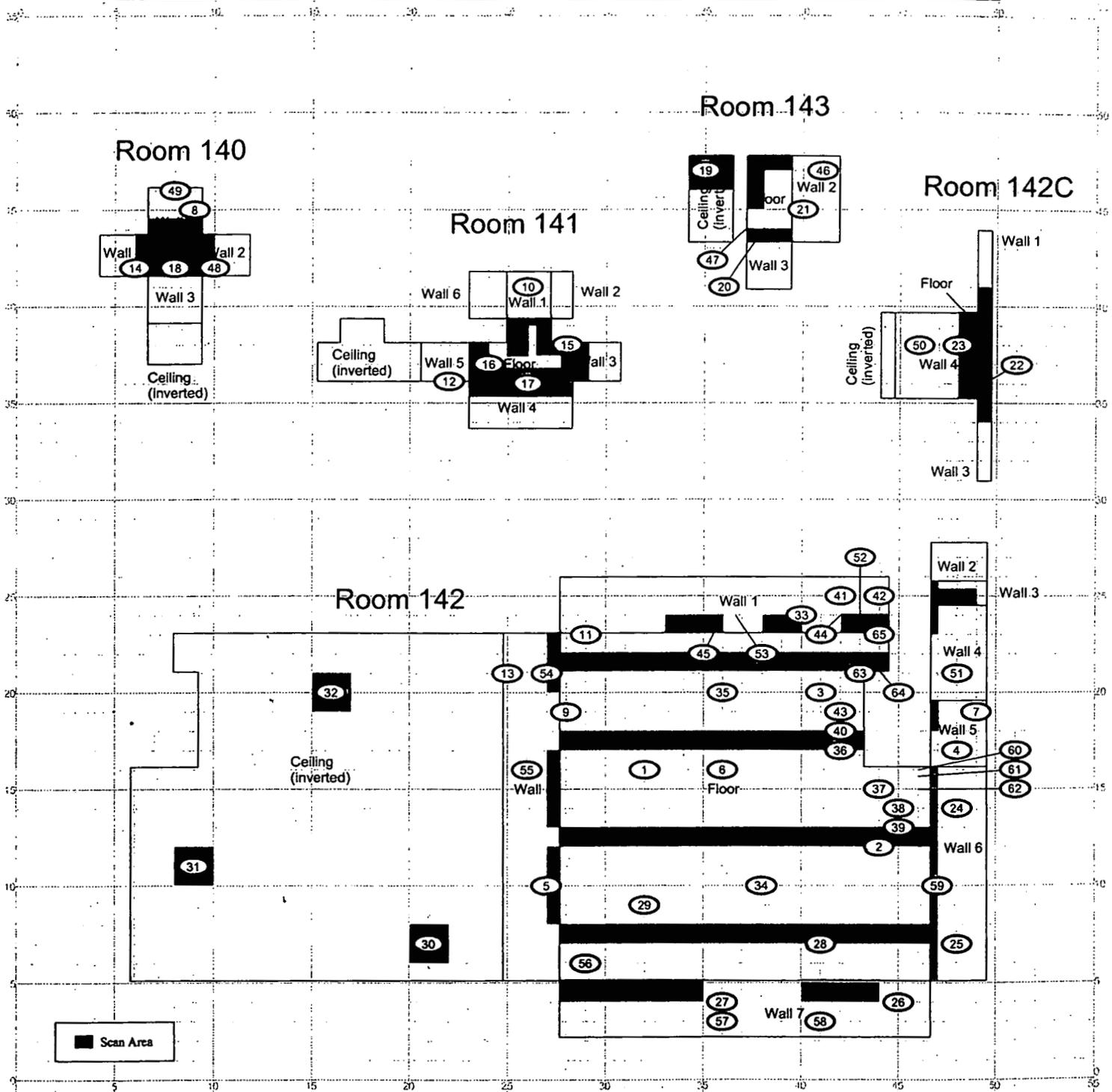
**SURVEY UNIT 441-A-002
RSC - DATA SUMMARY**

Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm ²)
26	15	0	-0.3
27	12	0	-0.6
28	13	0	-0.9
29	14	0	0.0
30	15	0	-0.3
31	12	0	-0.6
32	13	0	-0.9
33	14	0	0.0
34	22	0	-0.6
35	23	0	-0.3
36	12	0	-0.6
37	15	0	-0.3
38	13	0	-0.9
39	14	0	0.0
40	15	0	-0.3
41	12	0	-0.6
42	13	0	-0.9
43	14	0	0.0
44	15	0	-0.3
45	12	0	-0.6
46	22	0	-0.6
47	22	0	-0.6
48	22	0	-0.6
49	22	0	-0.6
50	23	0	-0.3
51	22	3	3.9
52	23	0	-0.3
53	22	0	-0.6
54	23	0	-0.3
55	22	0	-0.6
56	23	0	-0.3
57	22	0	-0.6
58	23	3	4.2
59	22	0	-0.6
60	23	0	-0.3
61	22	0	-0.6
62	23	3	4.2
63	22	6	8.5
64	23	0	-0.3
65	22	3	3.9
		MIN	-0.9
		MAX	8.5
		MEAN	0.2
		SD	1.6
		Transuranic DCGL_w	20

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PRE-DEMOLITION SURVEY FOR B441

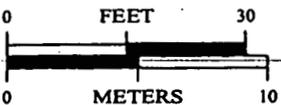
Survey Area: 3 Survey Unit: 441-A-002 Classification: 3
 Building: 441
 Survey Unit Description: Building 441 (South Addition - Interior)
 Total Area: 1152 sq. m. Total Floor Area: 351 sq. m.



SURVEY MAP LEGEND

- Smear & TSA Location
- Smear, TSA & Sample Location
- Open/Inaccessible Area
- Area in Another Survey Unit

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Scan Survey Information
 Survey Instrument ID #(s): 7,8,9,10,11
 RCT ID #(s): 7,8,9,10,11

1 inch = 24 feet 1 grid sq. = 1 sq. m.

U.S. Department of Energy
 Rocky Flats Environmental Technology Site
 Prepared by: GIS Dept. 303-966-7707 Prepared for:

 THE ART OF TECHNOLOGY
 MAP ID: 02-0320/441-A January 21, 2003

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SURVEY UNIT 441-B-003
RADIOLOGICAL DATA SUMMARY - PDS

Survey Unit Description: B441 (Exterior)

441-B-003
PDS Data Summary

Total Surface Activity Measurements

30	30
Number Required	Number Obtained

MIN	-5.0	dpm/100 cm ²
MAX	82.4	dpm/100 cm ²
MEAN	25.5	dpm/100 cm ²
STD DEV	22.6	dpm/100 cm ²

TRANSURANIC DCGL _w	100	dpm/100 cm ²
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Removable Activity Measurements

30	30
Number Required	Number Obtained

MIN	-1.2	dpm/100 cm ²
MAX	3.3	dpm/100 cm ²
MEAN	0.1	dpm/100 cm ²
STD DEV	1.2	dpm/100 cm ²

TRANSURANIC DCGL _w	20	dpm/100 cm ²
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**SURVEY UNIT 441-B-003
TSA - DATA SUMMARY**

Manufacturer:	NE Tech					
Model:	DP-6	DP-6	DP-6	DP-6	DP-6	DP-6
Instrument ID#:	1	2	5	6	7	16
Serial #:	3109	2344	1261	3104	3109	1997
Cal Due Date:	3/18/03	1/17/03	4/5/03	2/10/03	3/18/03	3/19/03
Analysis Date:	10/16/02	10/16/02	10/17/02	10/17/02	10/17/02	10/28/02
Alpha Eff. (c/d):	0.221	0.223	0.206	0.216	0.221	0.201
Alpha Bkgd (cpm)	2.0	0.0	5.3	0.0	0.0	1.3
Sample Time (min)	1.5	1.5	1.5	1.5	1.5	1.5
LAB Time (min)	1.5	1.5	1.5	1.5	1.5	1.5
MDC (dpm/100cm ²)	48.0	48.0	48.0	48.0	48.0	48.0

Sample Location Number	Instrument ID#:	Sample Gross Counts (cpm)	Sample Gross Activity (dpm/100cm ²)	LAB Gross Counts (cpm)	LAB Gross Activity (dpm/100cm ²)	Sample Net Activity (dpm/100cm ²)
1	1	4.7	21.3	6	27.1	-2.3
2	6	16	74.1	8	37.0	50.5
3*	16	21.3	106.0	8	39.8	82.4
4	6	16.7	77.3	2.7	12.5	53.8
5	1	8	36.2	5.3	24.0	12.7
6	1	11.3	51.1	7.3	33.0	27.6
7	1	8	36.2	7.3	33.0	12.7
8	1	10.7	48.4	4.7	21.3	24.9
9	6	6.7	31.0	4.3	19.9	7.5
10	1	8	36.2	4	18.1	12.7
11	6	11.3	52.3	4	18.5	28.8
12	1	5.3	24.0	4	18.1	0.4
13	1	10.7	48.4	5.3	24.0	24.9
14	2	11.3	50.7	2.7	12.1	27.1
15	5	8.7	42.2	6.7	32.5	18.7
16	1	7.3	33.0	4	18.1	9.5
17	2	6	26.9	2	9.0	3.4
18	6	4	18.5	2	9.3	-5.0
19	1	7.3	33.0	4	18.1	9.5
20	1	14	63.3	4	18.1	39.8
21	2	6.7	30.0	4.7	21.1	6.5
22	6	12.7	58.8	1.3	6.0	35.3
23	1	8	36.2	6	27.1	12.7
24	5	19.3	93.7	6.7	32.5	70.2
25	5	18.7	90.8	8	38.8	67.2
26	1	10.7	48.4	4.7	21.3	24.9
27	5	14.7	71.4	8	38.8	47.8
28	5	12.7	61.7	5.3	25.7	38.1
29	5	9.3	45.1	6.7	32.5	21.6
30**	6	6.7	31.0	4	18.5	0.0

1 - Average LAB used to subtract from Gross Sample Activity

23.5	Sample LAB Average
MIN	-5.0
MAX	82.4
MEAN	25.5
SD	22.6
Transuranic DCGL _{av}	100

QC Measurements

30 QC	5	63	30.6	6.7	32.5	-0.8
27 QC	7	14	63.3	6.7	30.3	31.9

1 - Average QC LAB used to subtract from Gross Sample Activity

31.4	QC LAB Average
MIN	-0.8
MAX	31.9
MEAN	15.5
Transuranic DCGL _{av}	100

* - The Initial Sample Net Activity for location 3 was 115.9 dpm/100cm². This location was re-surveyed after a decay period. Re-survey result was less than the transuranic DCGL, and is the value reported.

** - The Initial Sample Net Activity for location 30 was 133.1 dpm/100cm²

A coupon sample was collected from location 30 and analyzed using the Canberra ISOCSS system. No transuranic isotopes were detected. Exposed metal sample activity was determined to be from uranium and naturally occurring isotopes. The Sample Net Activity for this location is below the uranium DCGL_{av} limits (5000 dpm/100cm²). All survey results are less than the applicable DCGLs, therefore, no further investigation is required. (On this basis, the transuranic value for location 30 is reported as zero (0) net activity in the TSA Data Summary)

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**SURVEY UNIT 441-B-003
RSC - DATA SUMMARY**

Manufacturer:	Eberline	Eberline	Eberline
Model:	SAC-4	SAC-4	SAC-4
Instrument ID#:	10	11	12
Serial #:	959	966	963
Cal Due Date:	1/18/03	11/6/02	1/3/03
Analysis Date:	10/18/02	10/18/02	10/18/02
Alpha Eff. (c/d):	0.33	0.33	0.33
Alpha Bkgd (cpm)	0.0	0.2	0.4
Sample Time (min)	2	2	2
Bkgd Time (min)	10	10	10
MDC (dpm/100cm²)	9.0	9.0	9.0

Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm ²)
1	10	0	0.0
2	11	1	0.9
3	12	1	0.3
4	13	0	-0.6
5	10	1	1.5
6	11	0	-0.6
7	12	1	0.3
8	13	0	-0.6
9	10	0	0.0
10	11	0	-0.6
11	12	0	-1.2
12	13	0	-0.6
13	10	0	0.0
14	11	0	-0.6
15	12	0	-1.2
16	13	0	-0.6
17	10	1	1.5
18	11	0	-0.6
19	12	3	3.3
20	13	0	-0.6
21	10	0	0.0
22	11	2	2.4
23	12	0	-1.2
24	13	0	-0.6
25	10	0	0.0
26	11	0	-0.6
27	12	0	-1.2
28	13	1	0.9
29	10	0	0.0
30	11	2	2.4
		MIN	-1.2
		MAX	3.3
		MEAN	0.1
		SD	1.2
		Transuranic DCGL_w	20

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Asbestos Data Summary

Sample Number	Room	Survey Map Location Point	Material Sampled & Location	Analytical Results
Building 441				
441-07172002-315-201	114	201	White paint on concrete mortar unit (CMU), east wall	None Detected
441-07172002-315-202	141	202	Beige paint on CMU, entry wall, east wall	None Detected
441-07172002-315-203	111	203	White paint on CMU, west wall	None Detected
441-07172002-315-204	127	204	White paint on CMU, north wall of middle room	None Detected
441-07172002-315-205	127	205	White paint on CMU, north wall of far east room	Trace Chrysotile; <0.25 % Point Count
441-07172002-315-206	126	206	Women's, white paint on CMU, south wall first room	3 % Chrysotile; 0.75% Point Count
441-07172002-315-207	Pipe Chase	207	Green paint on CMU inside pipe chase, north hallway	None Detected
441-07172002-315-208	116	208	Exterior white window caulking with tan paint, west wall	3 % Chrysotile; 1.25 % Point Count
441-07172002-315-209	118D	209	Exterior white window caulking with tan paint, west wall	3 % Chrysotile; 1.5 % Point Count
441-07172002-315-210	121C	210	Exterior white window caulking with tan paint, west wall	3 % Chrysotile; 2 % Point Count
441-01082003-315-201	126	211	Brown, white and tan sheet vinyl	10 % Chrysotile
441-01082003-315-202	126A	212	Brown, white and tan sheet vinyl	None Detected
441-01082003-315-203	123	213	Beige and brown sheet vinyl	None Detected
441-01082003-315-204	123	214	Beige and brown sheet vinyl	None Detected
441-01082003-315-205	143	215	Tan sheet vinyl	None Detected
441-01082003-315-206	143	216	Tan sheet vinyl	10 % Chrysotile [black mastic]

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Beryllium Data Summary

Sample Number	Room	Survey Map Location Point	Sample Location	Result (ug/100 cm ²)
August 26, 2002 – Ceiling [RIN 02D1484] – Map 1				
441-08262002-315-101	142	101	Bottom side of 2' x 4' acoustical drop ceiling tile	< 0.1
441-08262002-315-102	142	102	Bottom side of 2' x 4' acoustical drop ceiling tile	< 0.1
441-08262002-315-103	114	103	Bottom side of 2' x 4' acoustical drop ceiling tile	< 0.1
441-08262002-315-104	114	104	Bottom side of 2' x 4' acoustical drop ceiling tile	< 0.1
441-08262002-315-105	114A	105	Bottom side of 2' x 4' acoustical drop ceiling tile	< 0.1
441-08262002-315-106	116A	106	Bottom side of 2' x 4' acoustical drop ceiling tile	< 0.1
441-08262002-315-107	117	107	Bottom side of 2' x 4' acoustical drop ceiling tile	< 0.1
441-08262002-315-108	118C	108	Bottom side of 2' x 4' acoustical drop ceiling tile	< 0.1
441-08262002-315-109	106D	109	Bottom side of 2' x 4' acoustical drop ceiling tile	< 0.1
441-08262002-315-110	106D	110	Bottom side of 2' x 4' acoustical drop ceiling tile	< 0.1
441-08262002-315-111	130	111	Bottom side of 2' x 4' acoustical drop ceiling tile	< 0.1
441-08262002-315-112	128	112	Bottom side of 2' x 4' acoustical drop ceiling tile	< 0.1
441-08262002-315-113	106D	113	Bottom side of 2' x 4' acoustical drop ceiling tile	< 0.1
441-08262002-315-114	106D	114	Bottom side of 2' x 4' acoustical drop ceiling tile	< 0.1
441-08262002-315-115	110E	115	Bottom side of 2' x 4' acoustical drop ceiling tile	< 0.1
441-08262002-315-116	110	116	Bottom side of 2' x 4' acoustical drop ceiling tile	< 0.1
441-08262002-315-117	110	117	Bottom side of 2' x 4' acoustical drop ceiling tile	< 0.1
441-08262002-315-118	110D	118	Bottom side of plastic light cover	< 0.1
441-08262002-315-119	134	119	Bottom side of 2' x 4' acoustical drop ceiling tile	< 0.1
441-08262002-315-120	128	120	Bottom side of 2' x 4' acoustical drop ceiling tile	< 0.1
441-08262002-315-121	123	121	Bottom side of 2' x 4' acoustical drop ceiling tile	< 0.1
441-08262002-315-122	121B	122	Bottom side of 2' x 4' acoustical drop ceiling tile	< 0.1
441-08262002-315-123	101	123	Bottom side of 2' x 4' acoustical drop ceiling tile	< 0.1
441-08262002-315-124	100	124	Bottom side of 2' x 4' acoustical drop ceiling tile	< 0.1
441-08262002-315-125	127	125	Bottom side of 2' x 4' acoustical drop ceiling tile	< 0.1
August, 27 2002 – Carpet (See map legend) [RIN02D1484] - Map 2				
441-08272002-315-101	142	101	Top of carpet	< 0.1
441-08272002-315-102	142	102	Top of carpet	< 0.1
441-08272002-315-103	114	103	Top of carpet	< 0.1
441-08272002-315-104	114	104	Top of carpet	< 0.1
441-08272002-315-105	114A	105	Top of carpet	< 0.1
441-08272002-315-106	116A	106	Top of carpet	< 0.1
441-08272002-315-107	117	107	Top of carpet	< 0.1
441-08272002-315-108	118C	108	Top of carpet	< 0.1
441-08272002-315-109	106D	109	Top of carpet	< 0.1
441-08272002-315-110	106D	110	Top of carpet	< 0.1
441-08272002-315-111	130	111	Top of carpet	< 0.1
441-08272002-315-112	128	112	Top of carpet	< 0.1
441-08272002-315-113	106D	113	Top of carpet	< 0.1
441-08272002-315-114	106D	114	Top of carpet	< 0.1
441-08272002-315-115	110E	115	Top of carpet	< 0.1

Sample Number	Room	Survey Map Location	Sample Location	Result (ug/100-cm ³)
441-08272002-315-116	110		Top of carpet	< 0.1
441-08272002-315-117	110		Top of carpet	< 0.1
441-08272002-315-118	110D		Top of carpet	< 0.1
441-08272002-315-119	134		On concrete	< 0.1
441-08272002-315-120	128		Top of carpet	< 0.1
441-08272002-315-121	123		Top of carpet	< 0.1
441-08272002-315-122	121B		Top of carpet	< 0.1
441-08272002-315-123	101		Top of carpet	< 0.1
441-08272002-315-124	100		Top of carpet	< 0.1
441-08272002-315-125	127		On floor tile	< 0.1
August 28, 2002 - Sub Floor (See map legend) [RIN02D1481] - Map 2				
441-08282002-315-201	142	201	Under carpet on yellow adhesive	< 0.1
441-08282002-315-202	142	202	Under carpet on yellow adhesive	< 0.1
441-08282002-315-203	114	203	Under carpet on yellow adhesive	< 0.1
441-08282002-315-204	114	204	Under carpet on yellow adhesive	< 0.1
441-08282002-315-205	114A	205	Under carpet on yellow adhesive	< 0.1
441-08282002-315-206	116A	206	Under carpet on yellow adhesive	< 0.1
441-08282002-315-207	117	207	Under carpet on yellow adhesive	< 0.1
441-08282002-315-208	118C	208	Under carpet on yellow adhesive	< 0.1
441-08282002-315-209	106D	209	Under carpet on yellow adhesive	< 0.1
441-08282002-315-210	106D	210	Under carpet on yellow adhesive	< 0.1
441-08282002-315-211	130	211	Under carpet on yellow adhesive	< 0.1
441-08282002-315-212	128	212	Under carpet on yellow adhesive	< 0.1
441-08282002-315-213	106D	213	Under carpet on yellow adhesive	< 0.1
441-08282002-315-214	106D	214	Under carpet on yellow adhesive	< 0.1
441-08282002-315-215	110E	215	Under carpet on yellow adhesive	< 0.1
441-08282002-315-216	110	216	Under carpet on yellow adhesive	< 0.1
441-08282002-315-217	110	217	Under carpet on yellow adhesive	< 0.1
441-08282002-315-218	110D	218	Under carpet on yellow adhesive	< 0.1
441-08282002-315-219	134	219	On concrete	< 0.1
441-08282002-315-220	128	220	Under carpet on yellow adhesive	< 0.1
441-08282002-315-221	123	221	On floor tile	< 0.1
441-08282002-315-222	121B	222	Under carpet on yellow adhesive	< 0.1
441-08282002-315-223	101	223	Under carpet on yellow adhesive	< 0.1
441-08282002-315-224	100	224	Under carpet on yellow adhesive	< 0.1
441-08282002-315-225	127	225	On floor tile	< 0.1
August 28, 2002 - Walls (See map legend) [RIN02D1484] - Map 2				
441-08282002-315-101	110	101	On interior wall surface	< 0.1
441-08282002-315-102	110E	102	On interior wall surface	< 0.1
441-08282002-315-103	106	103	On interior wall surface	< 0.1
441-08282002-315-104	106	104	On interior wall surface	< 0.1
441-08282002-315-105	106	105	On interior wall surface	< 0.1
441-08282002-315-106	106A	106	On interior wall surface	< 0.1
441-08282002-315-107	104	107	On interior wall surface	< 0.1

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HR

Sample Number	Room	Survey Map Location Point	Sample Location	Result (ug/100 cm ³)
441-08282002-315-108	103	108	On interior wall surface	< 0.1
441-08282002-315-109	101	109	On interior wall surface	< 0.1
441-08282002-315-110	121A	110	On interior wall surface	< 0.1
441-08282002-315-111	121C	111	On interior wall surface	< 0.1
441-08282002-315-112	118A	112	On interior wall surface	< 0.1
441-08282002-315-113	118B	113	On interior wall surface	< 0.1
441-08282002-315-114	117A	114	On interior wall surface	< 0.1
441-08282002-315-115	117	115	On interior wall surface	< 0.1
441-08282002-315-116	116	116	On interior wall surface	< 0.1
441-08282002-315-117	114E	117	On interior wall surface	< 0.1
441-08282002-315-118	114	118	On interior wall surface	< 0.1
441-08282002-315-119	114	119	On interior wall surface	< 0.1
441-08282002-315-120	100	120	On interior wall surface	< 0.1
441-08282002-315-121	135	121	On interior wall surface	< 0.1
441-08282002-315-122	135	122	On interior wall surface	< 0.1
441-08282002-315-123	134	123	On interior wall surface	< 0.1
441-08282002-315-124	133	124	On interior wall surface	< 0.1
441-08282002-315-125	128	125	On interior wall surface	< 0.1
441-08282002-315-126	127	126	On interior wall surface	< 0.1
441-08282002-315-127	124	127	On interior wall surface	< 0.1
441-08282002-315-128	100	128	On interior wall surface	< 0.1
441-08282002-315-129	100	129	On interior wall surface	< 0.1
441-08282002-315-130	100	130	On interior wall surface	< 0.1
October 10, 2002 - Top of 2' x 4' Acoustical Drop Ceiling Tiles [RIN 03Z0104] - Map 3				
441-10102002-315-101	142	101	Top of 2' x 4' acoustical drop ceiling tile	< 0.1
441-10102002-315-102	142	102	Top of 2' x 4' acoustical drop ceiling tile	< 0.1
441-10102002-315-103	114	103	Top of 2' x 4' acoustical drop ceiling tile	< 0.1
441-10102002-315-104	114	104	Top of 2' x 4' acoustical drop ceiling tile	< 0.1
441-10102002-315-105	114A	105	Top of 2' x 4' acoustical drop ceiling tile	< 0.1
441-10102002-315-106	116A	106	Top of 2' x 4' acoustical drop ceiling tile	< 0.1
441-10102002-315-107	117	107	Top of 2' x 4' acoustical drop ceiling tile	< 0.1
441-10102002-315-108	118C	108	Top of 2' x 4' acoustical drop ceiling tile	< 0.1
441-10102002-315-109	106D	109	Top of 2' x 4' acoustical drop ceiling tile	< 0.1
441-10102002-315-110	106D	110	Top of 2' x 4' acoustical drop ceiling tile	< 0.1
441-10102002-315-111	130	111	Top of 2' x 4' acoustical drop ceiling tile	< 0.1
441-10102002-315-112	128	112	Top of 2' x 4' acoustical drop ceiling tile	< 0.1
441-10102002-315-113	103D	113	Top of 2' x 4' acoustical drop ceiling tile	< 0.1
441-10102002-315-114	106	114	Top of 2' x 4' acoustical drop ceiling tile	< 0.1
441-10102002-315-115	110E	115	Top of 2' x 4' acoustical drop ceiling tile	< 0.1
441-10102002-315-116	110	116	Top of 2' x 4' acoustical drop ceiling tile	< 0.1
441-10102002-315-117	110	117	Top of 2' x 4' acoustical drop ceiling tile	< 0.1
441-10102002-315-118	110D	118	Top of 2' x 4' acoustical drop ceiling tile	< 0.1
441-10102002-315-119	134	119	On concrete deck	< 0.1
441-10102002-315-120	128	120	Top of lath and plaster ceiling	< 0.1

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Sample Number	Room	Survey Map Location	Sample Location	Result (p/g/100 cm ²)
441-10102002-315-121	123	Point	Top of 2' x 4' acoustical drop ceiling tile	< 0.1
441-10102002-315-122	121B		Top of 2' x 4' acoustical drop ceiling tile	< 0.1
441-10102002-315-123	101		Top of 2' x 4' acoustical drop ceiling tile	< 0.1
441-10102002-315-124	100		Top of 2' x 4' acoustical drop ceiling tile	< 0.1
441-10102002-315-125	127		Top of 2' x 4' acoustical drop ceiling tile	< 0.1
441-10102002-315-126	142		Top of cable track in space between drop ceiling and deck	< 0.1
441-10102002-315-127	142		Top of fluorescent light fixture	< 0.1
441-10102002-315-128	114		Top of electrical conduit	< 0.1
441-10102002-315-129	114		Top of cable track	< 0.1
441-10102002-315-130	114A		Top of fluorescent light fixture	< 0.1
441-10102002-315-131	116A		On horizontal edge of angle iron	< 0.1
441-10102002-315-132	117		Top of piping insulation	< 0.1
441-10102002-315-133	118C		Top of fluorescent light fixture	< 0.1
441-10102002-315-134	106D		Top of fire suppression pipe	< 0.1
441-10102002-315-135	106D		Top of fluorescent light fixture	< 0.1
441-10212002-315-101	142		On adhesive under floor tile	< 0.1
441-10212002-315-102	142		On adhesive under floor tile	< 0.1
441-10212002-315-103	114		On adhesive under floor tile	< 0.1
441-10212002-315-104	114		On adhesive under floor tile	< 0.1
441-10212002-315-105	114B		On adhesive under floor tile	< 0.1
441-10212002-315-106	116A		On adhesive under floor tile	< 0.1
441-10212002-315-107	117		On adhesive under floor tile	< 0.1
441-10212002-315-108	118C		On adhesive under floor tile	< 0.1
441-10212002-315-109	106D		On adhesive under floor tile	< 0.1
441-10212002-315-110	106D		On adhesive under floor tile	< 0.1
441-10212002-315-111	130		On adhesive under floor tile	< 0.1
441-10212002-315-112	128		On adhesive under floor tile	< 0.1
441-10212002-315-113	103D		On adhesive under floor tile	< 0.1
441-10212002-315-114	106		On adhesive under floor tile	< 0.1
441-10212002-315-115	110E		On adhesive under floor tile	< 0.1
441-10212002-315-116	110		On adhesive under floor tile	< 0.1
441-10212002-315-117	110		On adhesive under floor tile	< 0.1
441-10212002-315-118	110D		On adhesive under floor tile	< 0.1
441-10212002-315-119	134		On concrete floor	< 0.1
441-10212002-315-120	128		On adhesive under floor tile	< 0.1
441-10212002-315-121	123		On adhesive under floor tile	< 0.1
441-10212002-315-122	121B		On adhesive under floor tile	< 0.1
441-10212002-315-123	101		On adhesive under floor tile	< 0.1
441-10212002-315-124	100		On adhesive under floor tile	< 0.1
441-10212002-315-125	127		On adhesive under floor tile	< 0.1
441-10292002-23-001	118C		Original flooring underneath tile	< 0.1
441-10292002-23-002	118C		Original flooring underneath tile	< 0.1

October 29, 2002 - Post Decontamination Beryllium Smears [RIN 03Z0205] - Map 5

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RLCR/PDSR, Building 441

Rocky Flats Environmental Technology Site

Revision 1, 02/11/03

Sample Number	Room	Survey Map Location	Sample Location	Result (ug/100 cm ²)
441-10292002-23-003	118C	3	Original flooring underneath tile	< 0.1
441-10292002-23-004	100	4	Original flooring underneath tile	< 0.1
441-10292002-23-005	100	5	Original flooring underneath tile	< 0.1
441-10292002-23-006	100	6	Original flooring underneath tile	< 0.1
441-10292002-23-007	118C	7	Original flooring underneath tile	< 0.1
441-10292002-23-008	118C	8	Original flooring underneath tile	< 0.1
441-10292002-23-009	100	9	Original flooring underneath tile	< 0.1
441-10292002-23-010	106D	10	Original flooring underneath tile	< 0.1
November 11, 2002 - Concrete Vertical Wall Surfaces (RIN 03D0151) -- Map 6				
441-11072002-315-101	100	101	On concrete wall, west hallway	< 0.1
441-11072002-315-102	123	102	On bathroom wall, south wall	< 0.1
441-11072002-315-103	122	103	On concrete wall	< 0.1
441-11072002-315-104	100	104	On concrete wall, east hallway	< 0.1
441-11072002-315-105	126	105	On bathroom wall, north wall	< 0.1
441-11072002-315-106	133	106	On concrete wall, exterior of north wall	< 0.1
441-11072002-315-107	100	107	On concrete wall, east hallway	< 0.1
441-11072002-315-108	100	108	On concrete pillar, east hallway to deck	< 0.1
441-11072002-315-109	133	109	On concrete wall, exterior of south wall	< 0.1
441-11072002-315-110	100	110	On concrete wall, west hallway	< 0.1
December 12, 2002 - RLC Random and Biased Sampling on Concrete Floor (RIN 03Z0596) -- Map 7				
441-12122002-315-101	North	1	On concrete floor	< 0.1
441-12122002-315-102	North	2	On cinderblock wall	< 0.1
441-12122002-315-104	North	4	On concrete floor	< 0.1
441-12122002-315-105	North	5	On concrete floor	< 0.1
441-12122002-315-106	North	6	On concrete floor	< 0.1
441-12122002-315-107	North	7	On concrete floor	< 0.1
441-12122002-315-108	North	8	On concrete floor	< 0.1
441-12122002-315-109	North	9	On concrete floor	< 0.1
441-12122002-315-110	North	10	On concrete floor	0.440
441-12122002-315-111	North	11	On concrete floor	0.445
441-12122002-315-112	North	12	On concrete floor	< 0.1
441-12122002-315-113	North	13	On concrete floor	< 0.1
441-12122002-315-114	North	14	On concrete floor	< 0.1
441-12122002-315-115	South	15	On concrete floor	< 0.1
441-12122002-315-116	South	16	On concrete floor	< 0.1
441-12122002-315-117	North	17	On concrete floor	< 0.1
441-12122002-315-118	North	18	On concrete floor	< 0.1
441-12122002-315-119	126A	19	On linoleum	< 0.1
441-12122002-315-120	South	20	On concrete floor	< 0.1
441-12122002-315-121	North	21	On concrete floor	< 0.1
441-12122002-315-122	North	22	On concrete floor	< 0.1
441-12122002-315-123	North	23	On concrete floor	< 0.1
441-12122002-315-124	South	24	On concrete floor	< 0.1

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Sample Number	Room	Survey Map Location Point	Sample Location	Result (ug/100 cm ²)
441-12122002-315-125	North	25	On concrete floor	< 0.1
441-12122002-315-126	South	26	On concrete floor	< 0.1
441-12122002-315-127	South	27	On concrete floor	< 0.1
441-12122002-315-128	South	28	On concrete floor	< 0.1
441-12122002-315-129	North	29	On concrete floor	< 0.1
441-12122002-315-130	North	30	On concrete floor	< 0.1
441-12122002-315-131	South	31	On concrete floor	< 0.1
441-12122002-315-132	North	32	On concrete floor	< 0.1
441-12122002-315-133	North	33	On concrete floor	< 0.1
441-12122002-315-134	North	34	On concrete floor	< 0.1
441-12122002-315-135	North	35	On concrete floor	< 0.1
441-12122002-315-136	North	36	On concrete floor	< 0.1
441-12122002-315-137	North	37	On concrete floor	< 0.1
441-12122002-315-138	North	38	On concrete floor	0.172
441-12122002-315-139	North	39	On concrete floor	< 0.1
441-12122002-315-140	North	40	On concrete floor	< 0.1
441-12122002-315-141	North	41	On concrete floor	< 0.1
441-12122002-315-142	South	42	On concrete floor	< 0.1
441-12122002-315-143	South	43	On concrete floor	< 0.1
441-12122002-315-144	North	44	On concrete floor	< 0.1
441-12122002-315-145	North	45	On concrete floor	< 0.1
441-12122002-315-146	North	46	On concrete floor	< 0.1
441-12122002-315-147	North	47	On concrete floor	< 0.1
441-12122002-315-148	North	48	On concrete floor	< 0.1
441-12122002-315-149	South	49	On concrete floor	< 0.1
441-12122002-315-150	140	50	On concrete floor	< 0.1
441-12122002-315-151	South	51	On concrete floor	< 0.1
441-12122002-315-152	North	52	On concrete floor	< 0.1
441-12122002-315-153	North	53	On concrete floor	< 0.1
441-12122002-315-154	North	54	On concrete floor	< 0.1
441-12122002-315-155	North	55	On concrete floor	< 0.1
441-12122002-315-156	North	56	On concrete floor	< 0.1
441-12122002-315-157	North	57	At grouded floor drain	< 0.1
441-12122002-315-158	North	58	At grouded floor drain	< 0.1
441-12122002-315-159	North	59	At grouded floor drain	< 0.1
441-12122002-315-160	North	60	At grouded floor drain	< 0.1
441-12122002-315-161	North	61	At grouded floor drain	< 0.1
441-12122002-315-162	North	62	Top of electrical panel	< 0.1
441-12122002-315-163	North	63	At grouded floor drain	< 0.1
441-12122002-315-164	North	64	At grouded floor drain	< 0.1
441-12122002-315-165	North	65	At grouded floor drain	< 0.1
441-12122002-315-166	North	66	At grouded floor drain	< 0.1
441-12122002-315-167	North	67	At metal-capped floor drain	< 0.1
441-12122002-315-168	North	68	On concrete floor	< 0.1

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Sample Number	Room	Survey Map Location Point	Sample Location	Result ($\mu\text{g}/100\text{ cm}^2$)
441-12122002-315-169	North	69	At grouted floor drain	< 0.1
441-12122002-315-170	North	70	At grouted floor drain	< 0.1
441-12122002-315-171	North	71	At grouted floor drain	1.43
441-12122002-315-172	North	72	At grouted floor drain	< 0.1
441-12122002-315-173	North	73	At metal cap of "corrosive floor drain"	< 0.1
441-12122002-315-174	North	74	At grouted floor drain	< 0.1
441-12122002-315-175	North	75	At grouted floor drain	0.231
441-12122002-315-176	North	76	At grouted floor drain	< 0.1
December 23, 2002 -- Follow-up Beryllium Smears [RIN 03Z0640] -- Map 7				
441-12232002-315-101	Main	77	On concrete floor, NW entrance	< 0.1
441-12232002-315-102	Main	78	On concrete floor, NW entrance	< 0.1
441-12232002-315-103	Main	79	Outside landing, NW entrance	< 0.1
441-12232002-315-104	Main	80	Outside landing, NW entrance	< 0.1
441-12232002-315-105	Main	81	On concrete floor	< 0.1
441-12232002-315-106	Main	82	On concrete floor	< 0.1
441-12232002-315-107	Main	83	On concrete floor	< 0.1
441-12232002-315-108	Main	84	On concrete floor	< 0.1
441-12232002-315-109	Main	85	On concrete floor	< 0.1
441-12232002-315-110	Main	86	On concrete floor	< 0.1
441-12232002-315-111	Main	87	On concrete floor	< 0.1
441-12232002-315-112	Main	88	On concrete floor	< 0.1
441-12232002-315-113	Main	89	On concrete floor	< 0.1
441-12232002-315-114	Main	90	On concrete floor	< 0.1
441-12232002-315-115	Main	91	On concrete floor	< 0.1
441-12232002-315-116	Main	92	On concrete floor	< 0.1
441-12232002-315-117	Main	93	On concrete floor	< 0.1
441-12232002-315-118	Main	94	On concrete floor	< 0.1
441-12232002-315-119	Main	95	On concrete floor	< 0.1
441-12232002-315-120	Main	96	On concrete floor	< 0.1
441-12232002-315-121	Main	97	On concrete floor	< 0.1
441-12232002-315-122	Main	98	On concrete floor	< 0.1
441-12232002-315-123	Main	99	On concrete floor	< 0.1
441-12232002-315-124	Main	100	On concrete floor	< 0.1
441-12232002-315-125	Main	101	On concrete floor	< 0.1
441-12232002-315-126	Main	102	On concrete floor	< 0.1
441-12232002-315-127	Main	103	On concrete floor	< 0.1
441-12232002-315-128	Main	104	On concrete floor	< 0.1
441-12232002-315-129	Main	105	On concrete floor	< 0.1
441-12232002-315-130	Main	106	On concrete floor	< 0.1
January 10 and 13, 2003 -- Post Decontamination Beryllium Smears [RIN 03Z0749] -- Map 7				
441-01102003-315-101	Main	107	At metal cap of "corrosive" floor drain	< 0.1
441-01102003-315-102	Main	108	At grouted floor drain	< 0.1
441-01102003-315-103	Main	109	At grouted floor drain	< 0.1
441-01102003-315-104	Main	110	At grouted floor drain	< 0.1

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Sample Number	Room	Survey Map Location	Sample Location	Result (ug/100 cm ²)
441-01102003-315-105	Main	Point	At grouted floor drain	< 0.1
441-01102003-315-106	Main		On concrete floor	< 0.1
441-01102003-315-107	Main		On concrete floor	< 0.1
441-01102003-315-108	Main		On concrete floor	< 0.1
441-01102003-315-109	Main		On concrete floor	< 0.1
441-01102003-315-110	Main		On concrete floor	< 0.1
441-01102003-315-111	Main		On concrete floor	< 0.1
441-01102003-315-112	Main		On concrete floor	< 0.1
441-01102003-315-113	Main		On concrete floor	< 0.1
441-01102003-315-114	Main		On concrete floor	< 0.1
441-01102003-315-115	Main		On concrete floor	0.124
441-01102003-315-116	Main		On concrete floor	< 0.1
441-01102003-315-117	Main		On concrete floor	< 0.1
441-01102003-315-118	Main		On concrete floor	< 0.1
441-01102003-315-119	133		On concrete floor	< 0.1
441-01102003-315-120	133		On concrete floor	< 0.1
441-01132003-315-121	Main		On concrete floor	< 0.1
441-01132003-315-122	Main		On concrete floor	< 0.1
441-01132003-315-123	Main		On concrete floor	< 0.1
441-01132003-315-124	Main		On concrete floor	< 0.1
441-01132003-315-125	Main		On concrete floor	< 0.1
441-01132003-315-126	Main		On concrete floor	< 0.1
441-01132003-315-127	Main		On concrete floor	0.114
441-01132003-315-128	Main		On concrete floor	< 0.1
441-01132003-315-129	Main		On concrete floor	< 0.1
441-01132003-315-130	Main		On concrete floor	< 0.1
441-01132003-315-131	Main		On concrete floor	< 0.1
441-01132003-315-132	Main		On concrete floor	< 0.1
441-01132003-315-133	Main		On concrete floor	< 0.1
441-01132003-315-134	Main		On concrete floor	< 0.1
441-01132003-315-135	Main		On concrete floor	< 0.1
441-01132003-315-136	Main		On concrete floor	< 0.1
441-01132003-315-137	Main		On concrete floor	< 0.1
441-01132003-315-138	Main		On concrete floor	< 0.1
441-01132003-315-139	Main		On concrete floor	< 0.1
441-01132003-315-140	Main		On concrete floor	< 0.1
441-01132003-315-141	Main		On concrete floor	< 0.1
441-01132003-315-142	Main		On concrete floor	< 0.1
441-01132003-315-143	Main		On concrete floor	< 0.1
441-01132003-315-144	Main		On concrete floor	< 0.1
441-01132003-315-145	Main		On concrete floor	< 0.1
441-01132003-315-146	Main		On concrete floor	< 0.1

RCRA/CERCLA Constituents Data Summary

Sample Location / Media	Sample Number: Analysis	Result (ug/L)
Bldg 441 Slab, as indicated on map, Locations # 1-9	03S0073-001.001 thru 03S0073-009.001	RCRA Toxicity Characteristic substances less than regulatory limits, RCRA Listed substances not applicable.

RCRA Toxicity Characteristic Limits

Analyte	Regulatory limit (mg/L)
Arsenic (D004)	5.0
Barium (D005)	100.0
Benzene (D018)	0.5
Cadmium (D006)	1.0
Carbon tetrachloride (D019)	0.5
Chlordane (D020)	0.03
Chlorobenzene (D021)	100.0
Chloroform (D022)	6.0
Chromium (D007)	5.0
o-Cresol (D023)	200.0 (a)
m-Cresol (D024)	200.0 (a)
p-Cresol (D025)	200.0 (a)
Cresol (D026)	200.0 (a)
2,4 -D (D016)	10.0
1,4 Dichlorobenzene (D027)	7.5
1,2 Dichloroethane (D028)	0.5
1,1 Dichlorethylene (D029)	0.7
2,4 Dinitrotoluene (D030)	0.13 (b)
Endrin (D012)	0.02
Heptachlor - and its epoxide (D031)	0.008
Hexachlorobenzene (D032)	0.13 (b)
Hexachlorobutadiene (D033)	0.5
Hexachloroethane (D034)	3.0
Lead (D008)	5.0
Lindane (D013)	0.4
Mercury (D009)	0.2
Methoxychlor (D014)	10.0
MEK (D035)	200.0
Nitrobenzene (D036)	2.0
Pentachlorophenol (D037)	100.0
Pyridine (DD038)	5.0 (b)
Selenium (D010)	1.0
Silver (D011)	5.0
Tetrachloroethylene (D039)	0.7
Toxaphene (D015)	0.5
Trichloroethylene (D040)	0.5
2,4,5-Trichlorophenol (D041)	400.0
2,4,6-Trichlorophenol (D042)	2.0
2,4,5-TP (Silvex) (D017)	1.0
Vinyl Chloride (D043)	0.2

(a) Quantitation Limit is greater than the calculated regulatory level. The quantitation limit therefore becomes the regulatory level
(b) If o-, m-, and p-Cresol concentrations cannot be differentiated, the total Cresol (D026) concentration (200mg/l) is used.

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