



Department of Energy

ROCKY FLATS PROJECT OFFICE
10808 HIGHWAY 93, UNIT A
GOLDEN, COLORADO 80403-8200

APR 22 2004

04-DOE-00316

Mr Steven H Gunderson
Rocky Flats Cleanup Agreement Project Coordinator
Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South
Denver, Colorado 80246-1530

Dear Mr Gunderson

Please find enclosed a completed Rocky Flats Cleanup Agreement Type 2 Building
Disposition Closeout Report provided for your information for Buildings 566/566A
Questions may be directed to Gary Morgan, RFFO HCPM, at (303) 966-6003

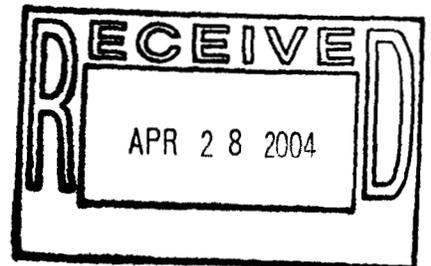
Sincerely,

Joseph A Legare, Director
RFPO Project Management Division

Enclosure

cc w/o Encl
G Morgan, HQPM, RFPO
S Nesta, K-H RISS Env
C Freiboth, K-H RISS D&D
K Wiemelt, K-H RISS D&D
M Aguilar, USEPA
D Abelson, RFCLOG

cc w/ Encl
F Lockhart, OOM, RFPO
Administrative Record



ADMIN RECORD

DOCUMENT CONTROL
REVISED
CLASSIFIED

1/44

IA-A-002063



April 15, 2004

04-RF-00426

Gary Morgan, Functional Lead
Cadre Project Management Division
DOE, RFPO

**TRANSMITTAL OF THE FINAL CLOSEOUT REPORT FOR BUILDING 566/566A
DWF-021-04**

Enclosed are four copies of the Final Closeout Report for the Type 2 Building 566/566A

The report is submitted to document completion of Deactivation and Decommissioning activities for Building 566/566A. Transmittal to the Colorado Department of Health and Environment (CDPHE) and the Environmental Protection Agency (EPA), in accordance with the Rocky Flats Clean-Up Agreement (RFCA), is requested.

If you have any questions, please contact Steve Nesta at extension 6386

Dennis W Ferrera
Vice President and Project Manager
Remediation, Industrial D&D, and Site Services

SMN pvt

Enclosure
As Stated

Ong and 1 cc – Gary Morgan

cc
Joe Legare

I. Introduction

The 566 Cluster was located on the north half of the Rocky Flats Environmental Technology Site (RFETS), just west of Building 776 (see RFETS Plot Plan, Appendix 1). The structures within the 566 Cluster consist of Building 566, Building 566A, and Tank 132. Building 566 consisted of 13,700 ft² for the main building, with an additional 4000 ft² utility area on the second floor that housed the heating and air cooling units for the facility. Building 566A housed the locker/shower rooms and administrative offices. Tank 132 was a diesel fuel oil tank located at the northwest corner of the facility.

The 566 Cluster Closure Project was completed in accordance with the Rocky Flats Cleanup Agreement (1996) and the Rocky Flats Cleanup Agreement Standard Operating Protocol (RSOP) for Facility Disposition. This document summarizes the actions taken and the final condition of the Building 566 Cluster.

566 Cluster Description

Building 566 and 566A was a single structure divided into a 13,700 ft² Site Alarm Maintenance and Respirator Repair Facility and the 4000 ft² filter plenum. Building 566A was basically the administrative portion of Building 566. Both facilities were constructed in 1991. The walls were reinforced concrete, the roof was constructed with metal sheeting, lightweight concrete, insulation and a synthetic membrane to seal the roof. The floor was pored concrete.

Building 566 was constructed to replace the existing laundry facility in Building 778. This laundry facility was designed to handle the large quantities of RFETS protective clothing, including white coveralls, skullcaps, tan and green coveralls, under garments, utility coveralls, visitor coveralls, shoe covers, and shower towels. In addition, Building 566 had facilities equipped to clean and condition half and full-face respiratory equipment. The laundering of personal protective clothing only lasted for two years and was no longer conducted in Building 566 after 1998. Additionally, the facility was never approved to handle highly contaminated laundry. Laundry process equipment including washing machines, dryers, laundry carts, and radiation monitoring equipment was stripped out and all drains were capped in 1998. The Respirator Cleaning and Repair operations were always housed in the facility. After this strip out was completed the Maintenance Alarms Organization was moved into Building 566. The alarm maintenance involved cleaning equipment, replacing faulty components, and testing and inspecting equipment.

Buildings 566 and 566A had the following utilities: electric, plant water, plant sanitary, process waste line (that was lock and tagged out at the time of the Reconnaissance Level Characterization Report), an overhead fire sprinkler system, and wall-mounted fire extinguishers for fire protection. Additionally, the facility had a waste pit below floor level in Room 116 (north end) containing two wastewater storage tanks. The wastewater drained into these tanks and then was pumped to the sanitary drain. The facility had two dock areas, both on the east side of the building.

II Action Description

Prior to deactivation activities both operating organizations (Alarms and Respirator Cleaning/Repair) were relocated from the 566 facility. This relocation included removal of all radioactive sources. This activity was completed by October 1, 2003.

Initially these facilities were anticipated Type 1 facilities, however during the RLC (which was conducted in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP) requirements, plutonium contamination was identified in the ventilation system and in the concrete slab trench. Therefore, the facilities were re-typed as Type 2 RFCA facilities.

The basic deactivation strategy was to remove all excess material left in the facility by the previous operational groups. The majority of this excess material was disposed of as Surface Contaminated Object (SCO) Low Level waste (LLW).

All hazardous materials were segregated and disposition per site programs. RCRA regulated items (including light bulbs, circuit boards, oils, and Freon) were removed and dispositioned in accordance with state, federal, and site requirements. Building 566 did not contain any asbestos material.

Based on operations that took place in the facility, certain facility systems and utilities were identified as needing characterization for radioactivity, beryllium, and RCRA materials. These systems and utilities included:

- Exhaust ducting from cloths dryers
- Plenum system of exhaust system
- Process waste piping
- Lint collection system
- Waste water trenches
- Waste water storage tanks
- Fume hoods used for respirator cleaning

Neither RCRA or beryllium contamination was identified in any of the systems using detailed surveys and analyses (see Addendix 3). Low level radioactive contamination was found in the two wastewater tanks, two wastewater trenches, and in one section of the dryer vent ducting. Additionally, it was determined that the process waste line could not be adequately surveyed. All of the systems that were identified as contaminated or could not be adequately surveyed were removed as SCO LLW prior to or during building demolition, as approved in the concurrence received from CDPHE (01104RF03, December 10, 2003). These systems included the lint collection system, the process waste piping, the wastewater tanks TK1 and TK2, one section of dryer vent ducting and two wastewater trenches. In order to prevent releases during demolition activities, the following actions were taken: 1) contaminated trenches were coated with a fixative, filled with gravel and covered with plywood, after removal of the building debris, the trench was saw cut out to segregate from the non-contaminated slab, 2) the remaining section of contaminated process waste line was filled with epoxy, and 3) the contaminated tanks, TK1 and TK2, were internally coated with a fixative and protected during demolition.

The diesel tank 132 was transferred to PU&D for sale. Facilities utilities were disconnected and air gapped (see Section IX)

III Verification Action Goals Were Met

Four action objectives were established for Building 566 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 placed in the off-site landfill. The wastewater trenches were fixed using CC FIX and disposed of as LLW in accordance with regulatory agreement and the consultative process with the Lead Regulatory Agency (LRA)

- ***Decommissioning of the Building 566 Cluster facilities 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. The wastewater trenches, the process waste piping, and the two tanks were sealed and fixative applied as necessary prior to demolition. No injuries or releases to the environment occurred during the project.

- ***Demolish the 566 Cluster facility structures, utilities, and process waste lines to 3' below grade***

The facility structure, concrete foundation and associated asphalt were removed during demolition. The contaminated trench, piping and tanks were removed during demolition and packaged as LLW. All foundations and utilities were removed to 4' below final grade.

IV Verification of Treatment Process

This section is not applicable to this project.

V Radiological Analysis

See Appendix 3 of this document containing the Reconnaissance Level Characterization Report (RLCR)/Pre-Demolition Survey Report (PDSR) for Building 566 & 566A.

VI. Demolition Survey Results

Rad surveys were taken as required by the Radiological Work Permit during the removal of the wastewater trenches. The wastewater trenches were surveyed (including the underside) once they were removed during demolition and prior to disposal as SCO LLW. No radiological contamination was detected.

VII. Waste Stream Disposition

Building 566 Closure Project generated the following waste types including sanitary, hazardous, low-level, low-level mixed, and recycled materials. Listed below is the quantity and disposal site for these waste types and material.

| | |
|---------------------------------------|---|
| <u>Sanitary Disposal</u> | Facility debris (12/15/03 through 12/23/03) |
| Disposal Site | BFI 93 Landfill, Golden CO |
| Waste Volume | 4340 cubic yards |
| Waste Weight (tons) | 1518.3 tons |
| Additional Information | 217 shipments |
| <u>Sanitary Disposal</u> | Pad (12/31/03 through 1/13/04) |
| Disposal Site | BFI 93 Landfill, Golden, CO |
| Waste Volume | 2220 cubic yards |
| Waste Weight (tons) | 1537.69 tons |
| Additional Information | 111 shipments |
| <u>Hazardous Disposal</u> | Two 55-gallon drums of smoke detectors, 117 individual containers of free-release chemicals, 1265 individual NiCd batteries |
| Disposal Site | Transferred to MS for disposal @ the appropriate disposal facility |
| Waste Volume | See above |
| Additional Information | 117 chemicals shipped to B460 to be repackaged with other chemicals |
| <u>TSCA Waste Disposal</u> | NA |
| Disposal Site | |
| Waste Volume (m³) | |
| Additional Information | |
| Asbestos Waste Disposal | NA |
| Disposal Site | |
| Waste Volume (m³) | |
| Additional Information | |
| Low-Level Waste Disposal | 18 IP2 crates – general alarms and respirator cleaning equipment |
| Disposal Site | Nevada Test Site, Nevada |
| Waste Volume | 1908 cubic feet |
| Additional Information | |
| Low-Level Mixed Waste Disposal | Five 55-gallon drums of LLM waste chemicals and 30 IP2 crates of LLM |
| Disposal Site | Envirocare, Utah |
| Waste Volume | 3180 cubic feet |
| Additional Information | |
| Recycled Material | Sealed rechargeable lead acid batteries |
| Recycle Facility | Transferred to MS for disposal @ appropriate disposal facility |
| Waste Volume | 482 batteries |

| | |
|--|----|
| Additional Information | |
| Property Disposition | NA |
| Receiver Locations (major items only) | |
| Volume (m³) | |
| Weight (tons) | |
| Additional Information | |

VIII Deviations From the Decision Document

There were no deviations to the decision documents

IX. Descriptions of Site Condition at End of Decommissioning

The 566 facility Cluster was demolished, removing all utilities and foundation to 4' below final grade. All utilities were disconnected and air gapped as follows

- The electrical power was air gapped in a pit approximately 35 feet to the north of the building,
- Domestic water and fire suppression was air gapped approximately 15 feet from the northwest corner of the building, lines were removed to four feet below final grade,
- Telephone wires were pulled to a box located under the steam lines 35 feet east of the building,
- Wiring for alarms were pulled to a box located on the east wall of Building 776, approximately 50 feet to the east,
- Sanitary sewer lines were flushed, air gapped, and plugged in manholes 10 feet east and 10 feet southeast of the building, lines were removed to four feet below final grade,
- The contaminated process waste line in the southeast corner of the building was filled with epoxy from the facility to 732 valve vault, the piping was removed from the facility including a 10 foot run of piping to the southeast, to a depth of four feet below grade,
- The supply and return steam lines were removed from the east side of the building to the main distribution steam lines 40 feet east of the building

Locations of all disconnects are annotated on map in Appendix 1

The site has been leveled and covered with road-base, for use by the 776/777 Project as a Waste Management Cell

X. Demarcation of Excavation

This section is not applicable

XI Demarcation of Wastes Left in Place

All waste materials were removed

XII. Dates and Duration of Specific Activities

| <u>Activity</u> | <u>Responsible Contractor</u> | <u>Dates</u> |
|-----------------------------------|-------------------------------|------------------------------|
| Personnel Relocation | RFCSS | August-October 2003 |
| Equipment Strip-out | Kaiser-Hill | October-November 2003 |
| LLW Strip-out prior to demolition | Kaiser-Hill | October-November 2003 |
| LLW Strip-out during Demolition | Kaiser-Hill | December 2003 - January 2004 |
| RLCR/PDS | Kaiser-Hill | August-November 2003 |
| Demolition Activities | Kaiser-Hill | December 2003 – January 2004 |
| Turnover to 776/777 | Kaiser-Hill | February 2004 |

XIII. Final Disposition of Wastes

See Section VII

XIV. Next Steps for the Area

Following demolition of the 566 Facility Cluster the site was turned over to the 776/777 Project to be used for staging waste and waste containers during demolition. Following the 776/777 demolition, the site will be turned over to ER for final grading and re-vegetation.

Appendix 1 – Maps

Appendix 2 – Contact Records

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**ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE
REGULATORY CONTACT RECORD**

Date/Time: 2/26/03 – 1430 p m

Site Contact(s): D A Parsons (D&D) – (DAP-009)
Phone: (303) 966-6458

Regulatory Contact: David Kruchek, CDPHE
Phone: (303) 692-3328

Agency CDPHE

Purpose of Contact: Anticipated Type 1 Scoping Meetings

Meeting Attendance

| | | |
|-----------------|------------------|---------------|
| D Parsons, D&D | D Kruchek, CDPHE | S Tower, RFFO |
| C Freiboth, K-H | K Wiemelt | |

Discussion

During the weekly RISS Area Status meeting held Wednesday afternoon 2/26/03, it was agreed upon that the Facility Disposition Program Manual (MAN-076-FDPM, Revision 3) requirement for Scoping Meetings would not be adhered to for the below listed RISS anticipated Type 1 facilities. The below listed facilities are non-production facilities, and based on process knowledge and historical use, these facilities have a very low potential for radiological or chemical contamination. Therefore, it was decided that there was little value added in conducting a Scoping Meeting for these facilities. The Type 1 facility-specific historical site assessment reports (HSAR's) and the reconnaissance level characterization reports (RLCR's) for these facilities will be reviewed at the time of submittal to RFFO and CDPHE.

Facility List:

952, T974A, 988, 990, 990A, 995,439, 460, 462, T664A, 119, T119B, 119H, 121, 122, 122S, T124A, 127, 128, T122A, 302, 303, T303D, 308, 372, 372A, 375, 750, T750A, T750B, T750C, T750D, T750F, T750G, 764, 765, 124, 129, 130 Admin, 130 Café, 130 Warehouse, 131, 303E, T891B, 903A1, 120, 120B, 920, 920A, 120A, 920B, 557, 869, T891C, K771, 520, 668, 126, 566B, T130A, T130B, T130C, T130D, T130E, T130F, T130G, T130H, T130I, T130J, 331 FD, C331, 331F, 331S, 706, T706A, T779A, 928 , 223A, T131A, 552, T115A, T115B, T115C, 115, 116, T117A, 519, 549, 554, 556, 681

Contact Record Prepared By: D A Parsons

Required Distribution

P Arnold, K-H
C Deck, K-H
R DiSalvo, RFFO
C Gilbreath, K-H
S Gunderson, CDPHE
T Hopkins, K-H
L Kilpatrick, K-H
J Legare, RFFO

R Leitner, K-H
J Mead, K-H
S Nesta, K-H
K North, K-H
W Prymak, DOE
T Rehder, USEPA
D Shelton, K-H

Additional Distribution

C J Freiboth, K-H
F Gibbs, K-H
D Kruchek, CDPHE
S Tower, RFFO
J Hindman, CDPHE
M Auble
K Wiemelt

56/56A, 56B/570, 70, 90, 100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 250, 260, 270, 280, 290, 300, 310, 320, 330, 340, 350, 360, 370, 380, 390, 400, 410, 420, 430, 440, 450, 460, 470, 480, 490, 500, 510, 520, 530, 540, 550, 560, 570, 580, 590, 600, 610, 620, 630, 640, 650, 660, 670, 680, 690, 700, 710, 720, 730, 740, 750, 760, 770, 780, 790, 800, 810, 820, 830, 840, 850, 860, 870, 880, 890, 900, 910, 920, 930, 940, 950, 960, 970, 980, 990, 1000

**ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE
REGULATORY CONTACT RECORD**

Date/Time: 3/26/03 – 1400 p m
Site Contact(s): D A Parsons (D&D) – (DAP-011) —
Phone: (303) 966-6458
Regulatory Contact: David Kruchek, CDPHE
Phone: (303) 692-3328
Agency: CDPHE

Purpose of Contact: Facility Anticipated Typing Reclassifications

Meeting Attendance

| | | |
|-----------------|------------------|------------------|
| D Parsons, RISS | D Kruchek, CDPHE | J Hindman, CDPHE |
| K Wiemelt, K-H | E Bryson, RFFO | S Tower, RFFO |

Discussion

During the weekly RISS Area Status meeting held on Wednesday afternoon, 3/26/03, Duane Parsons (RISS) discussed the attached proposed Facility Anticipated Typing Reclassification table. The attached table lists buildings that have not yet undergone a reconnaissance level characterization (RLC), and a justification for changing the anticipated facility Typing prior to the RLC. Based on a suggestion from Steve Tower (RFFO) several weeks ago, additional information was gathered on the buildings listed below, and the attached table was developed.

Based upon the additional information gathered, it was determined that some facilities should be changed from an anticipated Type 1 facility to an anticipated Type 2 facility, prior to the performance of the RLC. Likewise, based upon the additional information gathered, it was determined that some facilities should be changed from an anticipated Type 2 facility to an anticipated Type 1 facility, prior to the performance of the RLC.

Based on discussions of the attached table, it was determined that the following facilities should be changed from anticipated Type 1 facilities to anticipated Type 2 facilities prior to the performance of the RLC Buildings 122, T122A, 891, T900A, T900B, and the 331 Garage Refer to the attached table for the justifications for these re-typings It was also discussed and agreed upon that any floor coverings and potentially contaminated equipment and/or systems that are not an integral part of these buildings (i e , 122, T122A, 891, T900A, T900B, and the 331 Garage) will be removed from the buildings prior to the performance of the RLC For example process waste drains embedded within the slab will remain, but carpet, floor tiles, loose equipment, and above-slab tanks and piping with potential low-levels of contamination will be removed prior to the RLC In-process characterization will be performed prior to and during removal of the non-integral parts (e g , floor coverings, equipment, systems, etc) of these buildings, as necessary to characterize this waste and to identify possible contamination in the buildings Any elevated in-process characterization results will be provided to CDPHE and DOE Once the floor coverings and potentially contaminated equipment and/or systems are removed, a combination RLC/PDS Type 2 characterization will be performed.

Based on discussions of the attached table, it was determined that the following facilities should be changed from anticipated Type 2 facilities to anticipated Type 1 facilities prior to the performance of the RLC Buildings 664, 988A, 995-CCC-1, 995-CCC-2, 995-C-5, 995-EC1, 995-EC2, 995-EC3, 995-IC1, 995-IC2, 995-IC3, 790, 903A2, 906, 964, 569, and 570 Refer to the attached table for the justifications for these re-typings It was also discussed and agreed upon that the Type 1 RLC of these buildings would be a more robust RLC than normal (i e , more than the minimum amount of surveys and samples would be performed during the RLC of these buildings to ensure that adequate coverage is achieved in order to make appropriate final Typing and waste disposal decisions)

Based on discussions of the attached table, it was determined that Buildings 566 and 566A should be undergo additional in-process characterization surveys inside the ventilation ducting and remaining process waste piping Then, based upon the in-process characterization surveys, evaluate if the 566 and 566A buildings should be reclassified to anticipated Type 1 facilities prior to the performance of the RLC Once the Building 566 and 566A in-process characterization surveys are obtained, the results of the surveys will be presented to RFFO and CDPHE at a future date

Based on discussions of the attached table, it was determined that the RLC of the 750 Pad Tents (Tents 2, 3, 4, 5, 6, 12 and 15) would be performed as a combination Type 2 RLC/PDS once all of the waste and equipment was removed from inside the tents (including the removal of the Tent 5 permacon) The 750 Pad Tents will remain as Type 2 facilities at least until the combination Type 2 RLC/PDS is completed

Based on discussions of the attached table, it was determined that since T664B and T664C buildings are reusable, portable, modified semi-trailers, that they could be unconditionally released utilizing the Property Release Evaluation (PRE) process. Additionally, since S750 building was a small, skid-mounted portable shed, it could also be unconditionally released utilizing the PRE process. Therefore, an RLC is not required for buildings T664B, T664C or S750.

Contact Record Prepared By: D A Parsons

Required Distribution

P Arnold, K-H
C Deck, K-H
R DiSalvo, RFFO
C Gilbreath, K-H
S Gunderson, CDPHE
T Hopkins, K-H
L Kilpatrick, K-H
J Legare, RFFO

R Leitner, K-H
J Mead, K-H
S Nesta, K-H
K North, K-H
W Prymak, DOE
T Rehder, USEPA
D Shelton, K-H

Additional Distribution

C J Freiboth, K-H
F Gibbs, K-H
D Kruczek, CDPHE
S Tower, RFFO
J Hindman, CDPHE
M Auble, K-H
D Onyskiw, CDPHE
E Bryson, RFFO
K Wiemelt, K-H

The following two tables list buildings, and the justifications, for changing the "anticipated Typing" classification prior to the performance of the reconnaissance level characterization. Table 1 lists the facilities, and their justifications, for changing these buildings from "anticipated Type 1" to "anticipated Type 2" classifications. Table 2 lists the facilities, and their justifications, for changing these buildings from "anticipated Type 2" to "anticipated Type 1" classifications.

Table 1 – Change from Anticipated Type 1 to Type 2 classification

| Facility | Justification |
|----------|---|
| 122 | <p>During the fires in the 1950's and 1960's, contaminated personnel spread contamination throughout the original portions of B122. There are three (3) process waste drains in B122.</p> <p>Although B122 should be Type 2, the characterization of B122 should be handled similar to how B441 was characterized. Since the high potential areas are on the floor and are currently covered by floor tile and/or carpet, these coverings should be removed prior to characterization. The characterization could then be done as a combination RLC/PDS. The later additions to B122 (i.e., the south and north additions) are not expected to be contaminated.</p> |
| T122A | <p>This portable decontamination trailer next to B122. The trailer was installed in 1997, and has been used to decontaminate wounded personnel. Although the decontamination sink or shower is not contaminated, the drain piping and under-trailer process waste tanks are potentially contaminated.</p> <p>Since the only likely potentially contaminated areas of T122A are the sink and shower drain piping and under-trailer tank, this equipment should be disconnected and removed prior to characterization. Once this equipment is removed, a combination RLC/PDS should be performed.</p> |
| 891 | <p>B891 has piping and tanks that are posted as internally rad contaminated due to treating wastewater with low levels of rad contamination. The 891 sump is posted as a contamination area, however, the posting applies to a removable fiberglass liner in the sump that can be easily removed. RCRA and/or CERCLA hazardous constituents may also be present in low levels inside the B891 equipment.</p> |
| | <p>Since the levels of potential internal rad contamination in B891 are very low (pCi/gram range), this equipment should be disconnected and removed prior to characterization. Once this equipment is removed, a combination RLC/PDS should be performed.</p> |
| T900A | <p>T900A has piping and tanks that are posted as internally rad contaminated due to treating wastewater with low levels of rad contamination. RCRA and/or CERCLA hazardous constituents may also be present in low levels inside the T900A equipment.</p> <p>Since the levels of potential internal rad contamination in T900A are very low (pCi/gram range), this equipment should be disconnected and removed prior to characterization. Once this equipment is removed, a combination RLC/PDS should be performed.</p> |
| T900B | <p>T900B has piping and tanks that are posted as internally rad contaminated due to treating wastewater with low levels of rad contamination. RCRA and/or CERCLA hazardous constituents may also be present in low levels inside the T900B equipment.</p> <p>Since the levels of potential internal rad contamination in T900B are very low</p> |

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| | |
|------------|---|
| | (pCi/gram range), this equipment should be disconnected and removed prior to characterization. Once this equipment is removed, a combination RLC/PDS should be performed. |
| 331 Garage | <p>The garage portion of B331 used to be a metallurgical R&D laboratory during the 1950's and 1960's. Uranium and beryllium contamination were used and stored in B331 during this R&D period. There are three to four (3-4) process waste drains in B331.</p> <p>Although B331 should be Type 2, the characterization of B331 should be handled similar to how B441 was characterized. Since the high potential areas are on the floor and are currently covered by floor tile and/or carpet, these coverings should be removed prior to characterization. The characterization should then be done as a combination RLC/PDS. The later additions to B331 (i.e., Fire Department area) are not expected to be contaminated and will be treated as a separate facility.</p> |

Table 2 – Change from Anticipated Type 2 to Type 1 Classification

| Facility | Justification |
|-----------------|--|
| 664 | <p>B664 was built in 1972 and has been used as a waste storage, preparation, staging, and shipping facility. The facility was never utilized as a production facility, and never contained known un-encapsulated radioactive or hazardous materials. B664 is not listed as a "known beryllium area," nor is there any history of radioactive, RCRA/CERCLA, beryllium, or PCB spills. Routine rad surveys of the facility have shown no fixed or loose radioactive material. The only rad postings in the facility are radioactive material storage areas. There are no old or new process waste systems associated with B664.</p> <p>Once all of the radioactive waste containers are removed from the building, no residual radiological or non-radiological hazards should remain, except asbestos.</p> |
| T664B and T664C | <p>T664B and T664C are modified semi-trailers used to house real-time radiographic equipment for counting waste drums prior to shipment, and were brought onsite in 2001. The facilities were never utilized as production facilities, and never contained known un-encapsulated radioactive or hazardous materials. T664B and T664C are not listed as a "known beryllium area," nor is there any history of radioactive, RCRA/CERCLA, beryllium, or PCB spills. Routine rad surveys of the facilities have shown no fixed or loose radioactive material. The only rad postings in the facilities are radioactive material storage areas. There are no old or new process waste systems associated with T664B or T664C.</p> <p>Once all of the radioactive waste containers are removed from the trailers, no residual radiological or non-radiological hazards should remain.</p> |
| S750 | <p>Building S750 is a 48 square-foot skid mounted portable shed acquired in the early 1990's. The shed has aluminum siding and an aluminum roof, the floor is wood. This shed has been used as a storage shed for non-hazardous and non-radiological operation such as the site housekeeping services, food service organization and site maintenance organization. There is no history of any radiological or hazardous operations in the facility. Routine rad surveys of the facility have shown no fixed or loose radioactive material. There are no old or new process waste systems associated with S750.</p> |

| | |
|--|---|
| <p>Tents 2, 3, 4, 6, & 12</p> | <p>Tents 2, 3, 4, 6 and 12 were constructed in 1990 and have been used a waste storage, preparation, and staging facilities. The facilities were never utilized as a production facilities, and never contained known un-encapsulated radioactive or hazardous materials. Although the tents are on the "known beryllium area" list, routine surveys do not indicate the presence in the Tents. Minor spills have occurred on the Tent pad, but all spills were below reportable quantities and were cleaned up. Routine rad surveys of the facility have shown no fixed or loose radioactive material. The only rad postings in the facility are radioactive material storage areas. There are no old or new process waste systems associated with the Tents.</p> <p>Once all of the radioactive waste containers are removed from the building, no residual radiological or non-radiological hazards should remain.</p> <p>Note: Tent 5 contains a perma-con and will remain a Type 2.</p> |
| <p>988A, 995-CCC-1, 995-CCC-2, 995-C-5, 995-EC1, 995-EC2, 995-EC3, 995-IC1, 995-IC2, 995-IC3</p> | <p>Two waste streams are generated at the RFETS wastewater treatment plant, treated effluent and biosolids. For purposes of facility classification, those portions of the treatment process that have come into contact with the concentrated solids in the wastewater should be considered as anticipated Type 2 facilities (i.e., buildings 974 and 977, aeration basins 995-AB-1 and 995-AB-2, clarifier basins 995-C-1, 995-C-2, 995-C-3, 995-C-4, and digesters 995-D1 and 995-D2).</p> <p>Units that come into contact with raw sewage and effluent only should be considered as anticipated Type 1 facilities (i.e., building B988A, chlorine contact basins 995-CCC-1 and 995-CCC-2, clarifier basin 995-C-5, effluent cells 995-EC-1, 995-EC-2, and 995-EC-3, and influent cells 995-IC-1, 995-IC-2, and 995-IC-3). Raw sewage may carry contaminants, but the concentration of solids is extremely low, generally less than 0.5%. As solids are concentrated in the treatment process through the clarifiers and digesters, there is the potential for contaminants to be concentrated.</p> <p>All of these units should be reclassified as anticipated Type 1 facilities because they have only had contact with either raw sewage entering the treatment facility or treated wastewater just prior to release into the environment. Raw sewage is routinely</p> |
| | <p>analyzed for a number of operational parameters (pH, conductivity, suspended solids and others), and for a large suite of chemical parameters, including radionuclides, under various monitoring programs. There have been no recent incidents of contamination. The effluent is routinely monitored as well, and it routinely meets all requirements for release into the environment.</p> <p>B988A is the final disinfection step and monitoring point on the discharged effluent. CCC1 and 2 are the chlorine contact chambers, which have been out of service for several years (chlorination disinfection was replaced with UV disinfection), and have never had contact with any portion of the solids waste stream. C-5 is the tertiary clarifier, which receives only effluent from the secondary clarifiers and no solids. EC-1, 2, and 3 are the effluent storage cells, which have only had contact with treated effluent from the facility. Finally, the IC-1, 2, and 3 units are the influent storage cells, which come into contact with raw sewage only.</p> <p>The facilities were never utilized as production facilities. The facilities are not listed as a "known beryllium areas," nor is there any history of radioactive, RCRA/CERCLA, beryllium, or PCB spills. Routine rad surveys of the facilities have shown no fixed or loose radioactive material. There are no old or new process waste</p> |

| | |
|--------------|---|
| | <p>systems associated with these facilities</p> <p>Once sewage treatment operations cease, there should no residual radiological or non-radiological hazards remaining</p> |
| 790 | <p>Building 790 is a 6,768-sq ft single-story concrete building constructed in 1991. The building consists of three irradiation cells (A, B, and C) an instrument calibration support area, a control room, and an office area. Building 790 was designed and used as radiometric calibration facility. Specifically, it is used to expose thermoluminescent dosimeters (TLD) and calibrate site health physics instrumentation. This facility used and stored sealed sources and X-ray generating equipment.</p> <p>No hazardous chemicals are stored in Building 790, other than general cleaning supplies and small quantities (less than 1 pint) of alcohol and acetone to clean some instrument parts. The facility was never utilized as a production facility, and never contained known un-encapsulated radioactive or hazardous materials. B790 is not listed as a "known beryllium area," nor is there any history of radioactive, RCRA/CERCLA, beryllium, or PCB spills. Routine rad surveys of the facility have shown no fixed or loose radioactive material. The only rad postings in the facility are radioactive material storage areas. There are no old or new process waste systems associated with B790.</p> <p>Once all of the rad sources are removed from the building, no residual radiological or non-radiological hazards should remain. Sealed sources stored in Building 790 included, but are not limited to Pu, Am, Sr-90, Cf, Cs, Co-60, Ba, and Pm.</p> |
| 566 and 566A | <p>Building 566 is a single structure divided in to a 13,700 sq ft Site Alarm Maintenance and Respirator Repair Facility. Building 566 was originally constructed to be the site laundry facility (1991). The laundry was only operational for about 2 years, was never approved to handle the highly contaminated laundry, and only laundered two (2) loads of potentially contaminated low-level laundry and numerous loads of clean modesty clothing. Building 566 has always housed the Respirator Cleaning and Repair Group. In 1999, the Alarms Maintenance Servicing Center moved into the building.</p> <p>Alarm maintenance involves cleaning equipment, replacing faulty components, and testing and inspecting equipment. The Respirator Cleaning and Repair area contains a respirator washers, fume hoods, laundry carts, and radioactivity monitoring equipment. Detergent, bleach and water are used in the respirator washing process. Wastewater drains into two storage tanks located in the Building 566 pit and is then pumped to the sanitary drain system. Building 566 had above-slab process waste lines connected to the washing machines. These lines have since been removed along with the washing machines, and the only remaining line has been cut and capped near the NE outer wall of 566. Respirators and Alarm equipment are surveyed for radioactivity (and beryllium as necessary) prior to being transported to Building 566 to ensure no loose contamination exists. In the late 1990s, the B566 washers and dryers were removed and the waste trench under the washers was surveyed. Only very low levels of contamination were found in the trench and the areas were decontaminated (using power washer).</p> <p>Building 566A is the filter plenum for the laundry ventilation system in Building 566.</p> |

| | |
|-------|---|
| | <p>It is 4,000 sq ft and was constructed in 1991. In the late 1990s, the air filter plenum stages was surveyed and no radiological contamination was found and thus the radiological postings were removed from the plenum. Several pieces of ventilation equipment and ducting leading to the 566A plenums still have internal rad contamination labels, however it is believed that this labels are no longer valid.</p> <p>Based on the above information, and some additional in-process internal surveys of remaining ventilation equipment and process waste piping, it is very probable that 566 and 566A are not contaminated and could be reclassified to Type 1.</p> |
| 903A2 | <p>Building 903A2 is a 100 square-foot general storage shed acquired in 1993. This structure is a wood building with wood walls, wood floor and an asphalt shingle roof. This building sits on a concrete pad and is located west of the 903A Main Decontamination Facility (MDF). This building is used to store PPE and for general storage in support of the 903A MDF. There is no history of any radiological or hazardous operations in the facility. Routine rad surveys of the facility have shown no fixed or loose radioactive material. There are no old or new process waste systems associated with 903A2.</p> |
| 906 | <p>B906 was built in 1994 and has been used as a TRU waste storage facility. The facility was never utilized as a production facility, and never contained known un-encapsulated radioactive or hazardous materials. B906 is not listed as a "known beryllium area," nor is there any history of radioactive, RCRA/CERCLA, beryllium, or PCB spills. Routine rad surveys of the facility have shown no fixed or loose radioactive material. The only rad postings in the facility are radioactive material storage areas. There are no old or new process waste systems associated with B906.</p> <p>Once all of the radioactive waste containers are removed from the building, no residual radiological or non-radiological hazards should remain.</p> |
| 964 | <p>Building 964 is a 5,000 sq ft building and is currently identified as RCRA Unit 24. B964 was originally constructed in the mid-1960's and was used for general construction storage by a variety of site construction contractors. In 1986, the structure was modified for use as RCRA permitted Unit 24. These modifications include the installation of a spill containment system and the application of an epoxy concrete sealant. Ramps were installed to allow movement of containers in and out of the secondary containment system.</p> <p>The building currently stores solid wastes, but on occasions liquid waste has been stored in the building and was placed in metal secondary containment pans. Building 964 primarily stores solidified bypass sludge from Building 371. There have been no documented spills in B964.</p> <p>The facility was never utilized as a production facility, and never contained known un-encapsulated radioactive or hazardous materials. B964 is not listed as a "known beryllium area," nor is there any history of radioactive, RCRA/CERCLA, beryllium, or PCB spills. Routine rad surveys of the facility have shown no fixed or loose radioactive material. The only rad postings in the facility are radioactive material storage areas. There are no old or new process waste systems associated with B964.</p> <p>Once all of the radioactive waste containers are removed from the building, no residual radiological or non-radiological hazards should remain, except asbestos.</p> |

21

| | |
|-----|---|
| 569 | <p>Building 569, also known as the Crate Counting Facility, is a 7,620 sq ft single-story building constructed in 1987. B569 contains radioactivity assay equipment and temporary waste storage operations. B569 is also RCRA Unit 59. Containers of low-level, low-level mixed, transuranic and transuranic mixed waste are received from throughout the plant site and assayed using a passive-active counter. Containers are surveyed prior being accepted into B569. Containers whose contents meet the disposal site waste acceptance criteria are transported to Buildings 664, 440, or 906 for storage pending off-site shipment. Those containers not meeting the disposal site waste-acceptance criteria, or which exhibit physical damage or improper packing, are identified for repackaging and sent back to the originating building. No unpacking or repackaging is performed in B569.</p> <p>The facility was never utilized as a production facility, and never contained known un-encapsulated radioactive or hazardous materials. B569 is not listed as a "known beryllium area," nor is there any history of radioactive, RCRA/CERCLA, beryllium, or PCB spills. Routine rad surveys of the facility have shown no fixed or loose radioactive material. The only rad postings in the facility are radioactive material storage areas. There are no old or new process waste systems associated with B569.</p> <p>Once all of the radioactive waste containers are removed from the building, no residual radiological or non-radiological hazards should remain.</p> |
| 570 | <p>Building 570 is the filter plenum facility for the Crate Counting Facility (569) and is a 683 sq ft building constructed in 1987. B570 has never been activated and has never housed any radiological or hazardous operation. Ventilation ducting leading from B569 to B570 was never connected, and has always been blank-flanged off. Routine rad surveys of the facility have shown no fixed or loose radioactive material. There are no old or new process waste systems associated with B570.</p> |

ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE REGULATORY CONTACT RECORD

Date/Time: September 8, 2003/ 1300 hours

Site Contact(s): Steve Tower, Duane Hunter
Phone: 7597

Regulatory Contact: Denise Onyskiw, David Kruchek
Phone: 303-692-3371, 303-692-3328

Agency: CDPHE

Purpose of Contact: Area 4 CDPHE Status Meeting (standing monthly meeting)

Discussion

Started the RLCR for the 566/566A facility, we focused on two primary systems that had a possibility of radiological contamination from the time period the facility was used as a laundry operation. The two systems were the dryer vent ducting and lint collection system. The lint collection system survey is ongoing and has not been completed.

Dryer Vent Ducting

The dryer vents went through a ducting system that was designed to drop out the lint and then vent the dryer air through a HEPA filter plenum system to the atmosphere. When the laundry equipment was removed in 1998 the ducting was removed from the dryers to the ceiling level of Room 120. The plenum serving the dryer venting was shut down and all HEPA filters removed. Subsequently, the motors were removed from the fans for use in other facilities. The ducting from the Ceiling of room 120 over to the plenum was labeled "possible internal rad contamination" due to the fact that it was not rad surveyed at that time. On August 28, 2003 smears were taken from 18 points throughout the dryer vent ducting. Contamination was found at one location on the south end of the duct running in the attic area above room 120. On September 4, 2003 additional surveys were performed at this same location and two locations down stream from that point. Ten additional survey points were also taken in the plenum area.

The results of the additional surveys show 24 DPM contamination

We propose to remove the section of ducting identified as contaminated under section 1.1.5 Removal of Certain Fixed Equipment or Systems under the Decommissioning Program Plan. Which states: On a case-by-case basis, fixed equipment that is connected to building systems may be removed pursuant to this section of the DPP, with the agreement of the parties.

Our intent is to remove the section of ducting identified as contaminated as SCO waste. Assuming the remainder of the surveys conducted on the facility do not identify additional contamination, the facility could be reclassified as a Type 1 facility for decommissioning and Demolition. We believe that there will be no increase in the potential for release to the environment since we will be using accepted radiological practices to remove the contaminated section (i.e. fogging and cc Wet).

DOE and CDPHE agreed we can remove the duct under Section 1.1.5 of the DPP if we do not find additional contamination in the facility and that we cover this issue as part of the RLCR report.

Contact Record Prepared By: Duane Hunter

Required Distribution

P Arnold, K-H 371
C Deck, K-H
R DiSalvo
C Gilbreath, K-H 771
S Gunderson, CDPHE
T Hopkins, K-H 776
L Kilpatrick, RFFO

J Legare, DOE
R Leitner, K-H 371
J Mead, K-H ESS
S Nesta, K-H RISS
K North, K-H ESS/MS
B Prymak, DOE
T Rehder, USEPA
D Shelton, K-H

Additional Distribution

ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE REGULATORY CONTACT RECORD

Date/Time: November 05, 2002/14 30PM

Site Contact(s): Michael H Auble,
Phone: (303) 966-3391

Regulatory Contact: Denise Onyskiw , David Kruchek
Phone: 303-692-3371

Agency: CDPHE

Purpose of Contact: Approval to invoke DPP Section 1 1 5 for B519 and B566 removal of fixed equipment that will not result in a pathway for contaminants to reach the environment

Discussion

Denise Onyskiw (CDPHE), David Kruchek (CDPHE), and I toured B519 and B566 During the tour we discussed an approach for the removal of equipment and hazards within the buildings in preparation for reconnaissance level characterization followed by utility disconnection and D&D of the buildings It is agreed that all of the loose equipment and fixed equipment that is not attached to the building ventilation system can be removed using the consultative process

Contact Record Prepared By: Michael Auble, Area 4 D&D Manager, extension 3391

Required Distribution

R DiSalvo, RFFO
D Grosek, RFFO
J Legare, RFFO
J Schieffelin, CDPHE
S Gunderson, CDPHE
D Kruchek, CDPHE
N Newell, CDPHE
T Rehder, USEPA

K North, K-H ESS
S Nesta, K-H RISS
G Scott, K-H
C Deck, K-H
D Shelton, K-H
J Dischinger, RFCSS
J Spaanstra, Faegre & Benson LLP (jspaanstra@faegre.com)

Additional Distribution

Jan Robbins, Admn Record
Steve Tower, RFFO
Denise Onyskiw, CDPHE

ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE REGULATORY CONTACT RECORD

Date/Time: 11/20/03 – 0800 a m
Site Contact(s): D A Parsons (D&D) – (DAP-020)
Phone: (303) 966-6458
Regulatory Contact: David Kruchek, CDPHE
Phone: (303) 692-3328
Agency: CDPHE

Purpose of Contact: Building 566 Stripout and Demolition Issues

Meeting Attendance

D Parsons, RISS D Kruchek, CDPHE Denise Onyskiw, CDPHE
M Auble, RISS D Hunter, RISS

Discussion

During a walkdown of Building 566 on 11/19/03 with David Kruchek (CDPHE), Denise Onyskiw (CDPHE), Mike Auble (RISS), Duane Hunter (RISS), and Duane Parsons (RISS), various stripout and demolition issues were discussed. Topics of discussion were on the contaminated slab trenches, process piping and tank removal, RLC and PDS issues, RSOP notifications, and utility disconnects. Based on discussions and the walkdown, the following agreements were made with CDPHE:

- 1 The uranium and transuranic contaminated (fixed only) floor trenches will be sprayed with fixative, appropriately protected, painted with a bright colored paint for easy identification, and removed during building demolition and disposal. The trenches, and the concrete within, will be managed as LLW during demolition and disposal.
- 2 All process waste piping will be removed from within the building prior to demolition, except for a 20 foot leg (approximate length) in the southeast corner of the building. This leg of piping will be grouted or filled with epoxy and marked with a brightly colored paint to aid in removal during demolition. This leg of piping will be managed as LLW during demolition and disposal. To date, no loose or fixed contamination has been found in any of the process waste piping already removed.

- 3 Since no loose or fixed contamination has been found in the process waste piping, process waste piping removal will continue simultaneously with PDS activities. Upon completion of process waste pipe removal activities, PDS confirmatory surveys (smear surveys) will be performed in the process waste pipe removal areas. Both PDS and confirmatory survey data will be provided to CDPHE for review.
- 4 Sludge sample results from the two 566 process waste tanks are still pending. If the samples show elevated radioactivity, these tanks will be fixed in place similar to the tanks in B528 and managed as LLW during demolition and disposal.
- 5 Media sample results from the Lint Collection Tank are still pending. If the samples show elevated radioactivity, the tank will be fixed, size reduced if possible, removed from the building, and managed as LLW prior to demolition.
- 6 Due to contamination being found in several locations within the building (i.e., the Dryer Lint Collection Ventilation System and the slab trenches), the facility will be classified as a Type 2 RFCA facility. Therefore, a Component Removal RSOP notification letter and a Facility Disposition RSOP notification letter will be submitted to CDPHE prior to demolition.
- 7 Initially the building was an "anticipated" Type 1 facility, therefore a Type 1 RLC was started. Since radiological contamination was found during the RLC and thus the facility was now viewed as an "anticipated" Type 2 facility, the characterization report that will be submitted to DOE and CDPHE for concurrence will satisfy both the Type 2 RLCR and PDSR requirements.
- 8 Utility disconnects are ongoing in support of bringing the building to a Cold and Dark status.

Contact Record Prepared By: D A Parsons

Required Distribution

D Bell, RFFO
 C Deck, K-H
 R DiSalvo, RFFO
 C Gilbreath, K-H
 S Gunderson, CDPHE
 L Kilpatrick, K-H
 J Legare, RFFO
 D Maxwell, RFFO

R Leitner, K-H
 J Mead, K-H
 S Nesta, K-H
 K North, K-H
 T Rehder, USEPA
 D Shelton, K-H
 C Zahm, K-H

Additional Distribution

M Auble, K-H
 F Gibbs, K-H
 D Kruchek, CDPHE
 G Morgan, RFFO
 D Hunter, K-H
 B Richardella, K-H
 D Onyskiw, CDPHE

Appendix 3 – PDSR & RLCR

STATE OF COLORADO

Bill Owens, Governor
Douglas H Benevento Executive Director

Dedicated to protecting and improving the health and environment of the people of Colorado

4300 Cherry Creek Dr S Laboratory and Radiation Services Division
Denver, Colorado 80246-1530 8100 Lowry Blvd
Phone (303) 692-2000 Denver, Colorado 80230-6928
TDD Line (303) 691-7700 (303) 692-3090
Located in Glendale, Colorado
<http://www.cdphe.state.co.us>



Colorado Department
of Public Health
and Environment

December 10, 2003

Mr Joe Legare
Assistant Manager for Environment and Stewardship
U S Department of Energy, Rocky Flats Field Office
10808 Highway 93, Unit A
Golden, CO 80403-8200

RE. Reconnaissance Level Characterization Report (RLCR)/Pre-Demolition Survey Report (PDSR) for Buildings 566 & 566A and Facility Disposition RSOP Notification – Concurrence, Approval, and Agreement

Dear Mr Legare

The Colorado Department of Public Health and Environment, Hazardous Materials and Waste Management Division has reviewed the RLCR/PDSR for Buildings 566 and 566A, Version 0 dated December 3, 2003, and the Facility Disposition RSOP Notification letter dated December 9, 2003. Based on the information contained in this RLCR/PDSR, we hereby concur with the designation that Buildings 566 & 566A are Type 2 Facilities and approve the PDSR for Buildings 566 & 566A.

We also agree with the utilization of the Facility Disposition RSOP, with implementation of appropriate measures to protect the remaining contaminated material and equipment. It is our understanding that the contaminated trench will be coated with a fixative, filled with gravel and covered with plywood to prevent releases during demolition activities, and it will be saw cut out after removal of the building debris. It is also our understanding that the remaining section of potentially contaminated PWL in the SE corner of the Building will be filled with epoxy or grout prior to demolition of the building to prevent release of contamination. In addition, the contaminated Tanks located in the NW corner of the buildings will be internally coated with fixative and properly protected during demolition to prevent releases of contamination during demolition.

If you have any questions regarding this correspondence please contact me at (303) 692-3367, Denise Onyskiw at (303) 692-3371 or David Kruchek at (303) 692-3328

Sincerely,

Steven H Gunderson
RFCA Project Coordinator

cc Steve Tower, DOE
 Tim Rehder, EPA
 Duane Parsons, KH
 Administrative Records Building T130G

Mike Auble, KH
Dave Shelton, KH
Steve Nesta, KH

Appendix 4 – CDPHE RSOP Notification Concurrence

CORRES CONTROL

OUTGOING LTR NO

DOE ORDER # 47001

03-RF-01741

| DIST | LTR | ENC |
|---------------|-----|-----|
| DIETER, T | | |
| ERRERA, D W | | |
| F S | | |
| I) | | |
| YL | | |
| MARTINEZ, L A | | |
| PARKER A | | |
| POWERS K | | |
| SHELTON D C | | |
| SPEARS M S | | |
| TRICE, K D | | |
| TUOR, N R | | |



KAISER HILL
COMPANY

November 18, 2003

03-RF-01741

| | | |
|---------------|---|---|
| AGUILAR, P | | |
| ALBIN C | | |
| AUBLE, M | | |
| BEAN C | | |
| BUTLER J L | | |
| DECK, C | | |
| FRANCIS M | | |
| FREIBOTH C | | |
| GEIS A | | |
| GIBBS, F | X | |
| HUMISTON, T | | |
| KNAPP, S | | |
| LESINSKI, M | | |
| LINSNBIGLER H | | |
| MYERS, K | X | X |
| NESTA, S | X | X |
| OLIVER, R | | |
| OMAN, K | | |
| PLAZBERT R | | |
| P E, A | | |
| R ELLA, R | | |
| ROSENMAN A | | |
| SNYDER, D P | | |
| THOMPSON J | | |
| WIEMELT K | X | X |

Joseph A Legare
Assistant Manager for
Environment and Stewardship
DOE, RFFO

**RSOP FOR COMPONENT REMOVAL, SIZE REDUCTION, AND DECONTAMINATION
ACTIVITIES NOTIFICATION LETTER FOR BUILDING 566 COMPONENT REMOVAL, SIZE
REDUCTION, AND DECONTAMINATION – FEG-039-03**

Attached is a draft transmittal letter to the Colorado Department of Public Health and Environment for the RSOP notification for Building 566 component removal, size reduction and decontamination. The draft transmittal letter has been prepared from DOE RFCA coordinator to CDPHE RFCA coordinator.

Please contact Steve Nesta x6386 with questions or concerns

Frank E. Gibbs
Frank E Gibbs
Deputy Project Manager

| | | |
|-------------------|---|---|
| CORRES CONTROL | X | X |
| ADMIN RECRD/T130G | X | X |
| TRAFFIC | | |
| PATS/130 | | |

Remediation, Industrial D&D, and Site Services

| CLASSIFICATION | | |
|----------------|--|--|
| UCNI | | |
| UNCLASSIFIED | | |
| CONFIDENTIAL | | |
| SECRET | | |

Attachment
As Stated

KLM pvt

AUTHORIZED CLASSIFIER
SIGNATURE

Ong and 1 cc – Joseph A Legare

Date
IN REPLY TO RFP CC NO

cc Steve Tower

ACTION ITEM STATUS
 PARTIAL/OPEN
 CLOSED
LTR APPROVALS

ORIG & TYPIST INITIALS
KLM pvt

31

Steven H Gunderson
Colorado Department of Health and Environment
4300 Cherry Creek Drive South
Denver, CO 80222-1530

**RSOP FOR COMPONENT REMOVAL, SIZE REDUCTION, AND DECONTAMINATION
ACTIVITIES NOTIFICATION LETTER FOR BUILDING 566 COMPONENT REMOVAL, SIZE
REDUCTION, AND DECONTAMINATION**

Mr Gunderson

In accordance with the Rocky Flats Cleanup Agreement Standard Operating Protocol (RSOP) for Component Removal, Size Reduction and Decontamination Activities, this letter and its attachments is notification for RSOP implementation. This notification is for all activities required to bring Building 566 to the unrestricted release criteria. This will involve component removal, size reduction and decontamination activities utilizing the methods specified in the RSOP. However, it should be noted that two tanks covered under this RSOP Notification letter will not be removed until after the building is demolished, due to these tanks being below grade.

Once the pre-demolition survey is complete and the facility meets the unrestricted release criteria, an additional notification letter will be prepared to implement the RSOP for Facility Disposition.

Kaiser-Hill Construction or a decommissioning subcontractor will conduct this work. If Kaiser-Hill Construction or the subcontractor would like to use a method or process not included in the RSOP then they are required to notify Kaiser-Hill. If Kaiser-Hill Construction or the subcontractor proposes to use alternate methods, an additional notification will be made and, in consultation with DOE/LRA, the RFCA process for decision document modification will be used.

The appropriate checklists and information required by the RSOP are attached to this letter and should provide the necessary information. This work will be conducted in accordance with the work control documentation prepared by Kaiser-Hill Construction or the subcontractor. The exact methods and process selected by Kaiser-Hill construction or the subcontractor and progress of the activities will be communicated to DOE/LRA through the consultative process, particularly the monthly RISS production meetings. The facility will not be breached during the activity.

As indicated in the RSOP, the LRA has 14 days to review the RSOP notification letter and provide feedback, including a definitive reason for not proceeding with the project. If no feedback is received within 14 days, the project will proceed as planned.

If you have any questions regarding this, please contact me at (303) 966-2133.

Joseph A. Legare
U.S. Department of Energy

**FACILITY COMPONENT REMOVAL, SIZE REDUCTION, AND DECONTAMINATION
ACTIVITY CHECKLIST**

Building: 566 – Alarm and Respiratory Laundry Facility
Closure Project Manager: Mike Auble

COMPONENT REMOVAL/SIZE REDUCTION

| | |
|---|---|
| Gloveboxes | |
| Tanks and ancillary equipment (located both inside and outside the facility) | x |
| Fume hoods | |
| Ventilation/filtration systems (both inside and outside the facility) | x |
| Utilities and other equipment (both inside and outside the facility, including electrical, steam, and fire suppression systems) | x |
| Walls | x |
| Floors | |
| Ceilings | x |
| Roofs | |
| Other structural members | |
| Other* | |

| | |
|---|---|
| Small tools | x |
| Paving breaker, jackhammer and/or similar tools used to break up concrete | |
| Excavators, such as backhoes, to excavate underground components, such as tanks and ancillary equipment | |
| Hoists and cranes | |
| Plasma arc cutter | |
| Diamond wire saw | |
| Wachs cutter | |
| Laser cutter | |
| Oxy-torch cutter | |
| Hydraulic shears | |
| Shear baler | |
| Water cutter using abrasives | |
| Arc air slice | |
| Arbor press | |
| Non-explosive cracking agent | |
| Other * | |

* Describe "Other" Component Type(s) and/or Removal/Size Reduction Technique(s)
Stairs & Platform constructed of Metal

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**FACILITY COMPONENT REMOVAL, SIZE REDUCTION, AND DECONTAMINATION
ACTIVITY CHECKLIST**

DECONTAMINATION

| | |
|---|---|
| Gloveboxes | |
| Tanks and ancillary equipment (located both inside and outside the facility) | x |
| Fume hoods | |
| Ventilation/filtration systems (both inside and outside the facility) | x |
| Utilities and other equipment (both inside and outside the facility, including electrical, steam, and fire suppression systems) | x |
| Walls | |
| Floors | |
| Ceilings | |
| Roofs | |
| Other structural members | |
| Other* | |

| | |
|--|---|
| Wiping/scrubbing/washing with water or detergents | x |
| Vacuuming | x |
| Strippable Coating | |
| Grinding | |
| Scarifying | |
| Scabbling | |
| Paving breaker/chipping hammer | |
| Spalling | |
| Abrasive/grit blasting | |
| CO ₂ blasting | |
| Hydrolasing | |
| Strong mineral acids | |
| Organic or weak acids | |
| Additional oxidants, such as cerium and other similar metals | |
| Other * | |

* Describe "Other" Component(s) and/or Decontamination Technique(s)

1 Stairs & Platform, 2 Sump Pit

Note In the event a planned activity falls outside the scope of this RSOP, the closure project manager will consult with DOE and the LRA to determine whether this RSOP should be modified to include the activity, or whether a separate decision document should be written.

Prepared by: Kimberly L. Myers

Date: 11/17/03

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Administrative Record Requirements for this Activity

- Final Rocky Flats Cleanup Agreement (RFCA)
- RFETS Decommissioning Program Plan (DPP)
- RFCA Standard Operating Protocol for Component Removal, Size Reduction, and Decontamination Activities

| Activity ID | Activity Description | Orig Dur | Rim Dur | % Comp | Early Start | Early Finish | Total Float |
|---------------|--|----------|---------|--------|-------------|--------------|-------------|
| EG5663270 | Determine Contamination Level Plenum/Lint Collec | 1 | 1 | 91 | 25AUG03A | 20NOV03 | 38 |
| EG5663290 | Perform PDS | 1 | 1 | 41 | 13OCT03A | 01DEC03 | 61 |
| EG5663292 | Issue Report | | | | 02DEC03 | 09DEC03 | 61 |
| EG5663294 | Receive Approval | | | | 10DEC03 | 12DEC03 | 61 |
| EG5663300 | Approval of PDS | | | | 12DEC03 | 12DEC03 | 61 |
| EG5663300 | B566 Decommissioning Characterization | 12 | 11 | 41 | 24JUN02A | 12DEC03 | 61 |
| Dismantlement | | | | | | | |
| EG5663330 | Dismantle Ductwork | 11 | 1 | 91 | 03NOV03A | 18NOV03 | 61 |
| EG5663332 | Prep Work PDS Complete | | | | 24NOV03 | 24NOV03 | 61 |
| EG5663350 | Lint Collection Sys Remove Liquid Lines | 4 | 4 | 5 | 17NOV03A | 20NOV03 | 7 |
| EG5663351 | Lint Collection Sys Remove Auger | | | | 21NOV03 | 22NOV03 | 52 |
| EG5663352 | Lint Collection Sys Remove Shaker | 1 | 1 | | 24NOV03 | 24NOV03 | 52 |
| EG5663353 | Lint Collection Sys Obtain Sample Results | 4 | 4 | | 18NOV03 | 21NOV03 | 10 |
| EG5663354 | Lint Collection Sys Obtain WGI | | | | 24NOV03 | 28NOV03 | 7 |
| EG5663355 | Lint Collection Sys Remove Lint Sludge | 1 | 1 | | 01DEC03 | 01DEC03 | 7 |
| EG5663356 | Lint Collection Sys Spray Lint Tank | 1 | 1 | | 02DEC03 | 02DEC03 | 10 |
| EG5663357 | Lint Collection Sys Remove Lint Tank | | | | 03DEC03 | 05DEC03 | 10 |
| EG5663366 | Process Waste Sys Remove 2nd Floor Lines | | | | 17NOV03A | 18NOV03 | 61 |
| EG5663369 | Process Waste Sys Remove Men's Line | 2 | 2 | | 18NOV03 | 20NOV03 | 81 |
| EG5663370 | Tank 132 Verify Empty | 41 | 1 | 81 | 02SEP03A | 18NOV03 | 61 |
| EG5663371 | Remove Hood Drains | 1 | 1 | | 18NOV03 | 18NOV03 | 61 |
| EG5663373 | Remove HVAC Covers | 1 | 1 | | 17NOV03A | 19NOV03 | 61 |
| EG5663374 | Drain Air Dryers | 1 | 1 | | 19NOV03 | 19NOV03 | 71 |
| EG5663376 | Trench Spray Foam | 1 | 1 | | 24NOV03 | 24NOV03 | 71 |
| EG5663377 | Trench Fill with Gravel | 1 | 1 | | 25NOV03 | 25NOV03 | 10 |
| EG5663378 | Trench Cover | 1 | 1 | | 26NOV03 | 26NOV03 | 10 |
| EG5663379 | Trench Saw Cut | | | | 27NOV03 | 28NOV03 | 10 |
| EG5663380 | Sample OPW Liquid Take Sample | 1 | 1 | | 19NOV03 | 19NOV03 | 10 |
| EG5663381 | Sample OPW Liquid Analyze | 1 | 1 | | 20NOV03 | 02DEC03 | 10 |

Sheet 1 of 1

ISSA B569

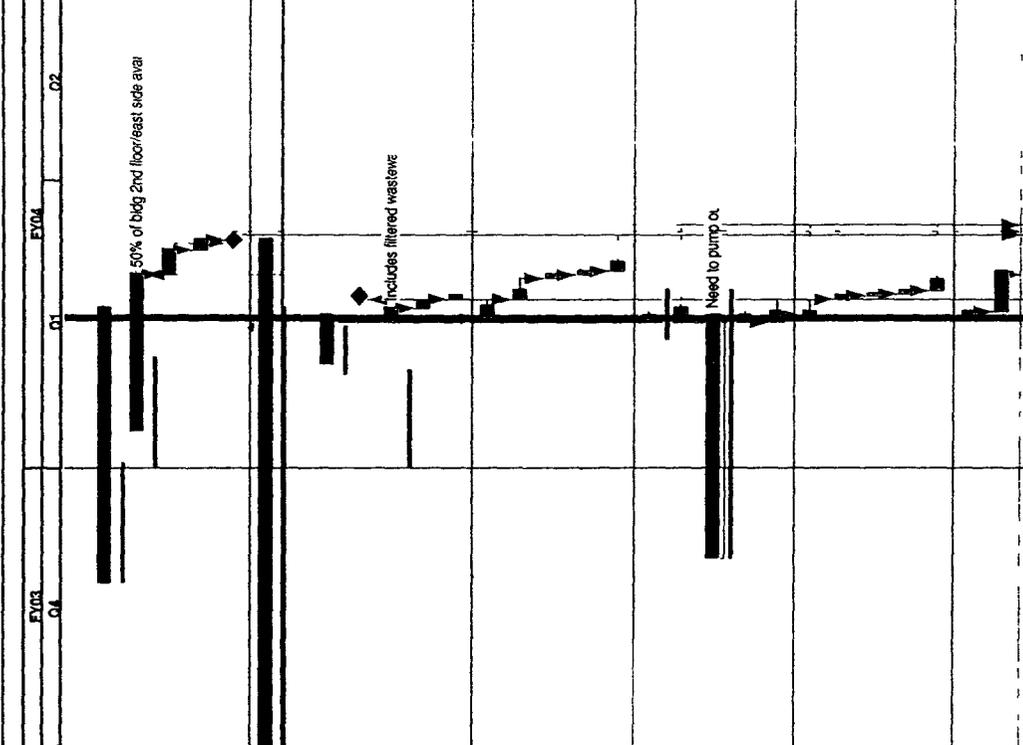
KAISER HILL COMPANY
Building 566 Demolition

Start Date: 01FEB98
 Finish Date: 01AUG06
 Data Date: 18NOV03
 Run Date: 18NOV03 10:30

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Legend:
 ■ Early Bar
 ■ target bar
 ■ Progress Bar
 ■ Critical Activity

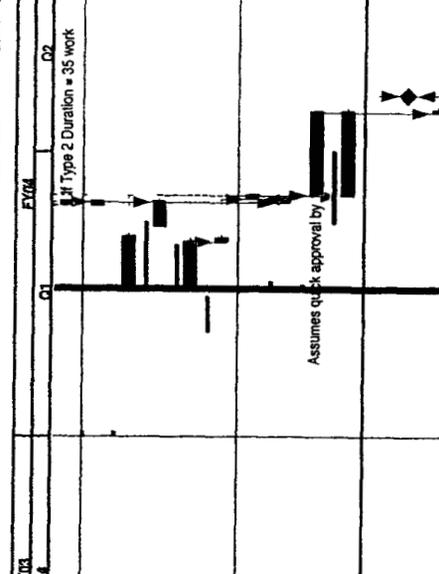
Revision Table:
 Date: _____
 Revision: _____
 Checked: _____
 Approved: _____



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| Activity ID | Activity Description | Orig Dur | Plan Dur | % Comp | Early Start | Early Finish | Total Float |
|----------------------------------|---|----------|----------|--------|-------------|--------------|-------------|
| EG5663382 | Sample OPW Liquid Prepare WGI | 1 | 1 | C | 02DEC03 | 04DEC03 | 10 |
| EG5663384 | Sample OPW Liquid Dispose Pipe & Liquid | 1 | 1 | C | 05DEC03 | 06DEC03 | 10 |
| EG5663386 | Remove Breathing Air Comp Room 120 | 1 | 1 | C | 31NOV03A | 28NOV03 | 38 |
| EG5663387 | Process Waste Sys Finish Mezz Scaffold | 1 | 1 | C | 18NOV03 | 18NOV03 | 7 |
| EG5663388 | Process Waste Sys Remove Mezz Lines | 1 | 1 | C | 19NOV03 | 20NOV03 | 7 |
| EG5663389 | Process Waste Sys Scaffold Plenum | 1 | 1 | C | 19NOV03 | 24NOV03 | 10 |
| EG5663391 | Process Waste Sys Remove Plenum Line | 1 | 1 | C | 25NOV03 | 28NOV03 | 10 |
| EG5663392 | Process Waste Sys Deliver Scaffolding | 1 | 1 | C | 17NOV03A | 24NOV03 | 6 |
| EG5663394 | Process Waste Sys Scaffold Store Room | 1 | 1 | C | 25NOV03 | 03DEC03 | 6 |
| EG5663395 | Process Waste Sys Remove Store Room Lines | 1 | 1 | C | 04DEC03 | 05DEC03 | 9 |
| EG5663397 | Remove Filters | 1 | 1 | C | 24NOV03 | 24NOV03 | 9 |
| EG5663399 | Epoxy Lines | 1 | 1 | C | 06DEC03 | 11DEC03 | 9 |
| EG5663400 | B566 Decommissioning Dismantlement | 7 | 7 | C | 09DEC03 | 09DEC03 | 8 |
| Process Waste Tank Dismantlement | | | | | | | |
| EG5663420 | Complete Red Surveys/Sample Inner Tanks | 1 | 1 | C | 11NOV03A | 01DEC03 | 6 |
| EG5663430 | Foam and Remove at time of Demo | 1 | 1 | C | 01DEC03 | 01DEC03 | 7 |
| EG5663440 | Disposition Any Sludge Found (If Req'd) | 1 | 1 | C | 02DEC03 | 15DEC03 | 6 |
| RCRA Removal | | | | | | | |
| EG5663530 | Removal of all Chemicals | 4 | 7 | C | 02SEP03A | 01DEC03 | 7 |
| EG5663538 | Supplies to Building 566 | 1 | 1 | C | 03NOV03A | 20NOV03 | 7 |
| EG5663539 | Pack Complete and Shipped out of Bldg | 7 | 7 | C | 03NOV03A | 28NOV03 | 7 |
| EG5663540 | Verify RCRA Clean | 1 | 1 | C | 28NOV03 | 01DEC03 | 7 |
| EG5663470 | B566 Decommissioning Decontamination | 4 | 7 | C | 01OCT03A | 01DEC03 | 7 |
| Utilities Disconnect | | | | | | | |
| EG5663625 | B566 Decommissioning Utility Disconnect | 2 | 5 | C | 25SEP03A | 25NOV03 | 7 |
| EG5663480 | Util Disconnect/Process Waste Lines VV9 Air Gap | 1 | 1 | C | 11NOV03A | 25NOV03 | 7 |
| EG5663482 | Remove All Bubs/Ballasts with PCB | 1 | 1 | C | 03NOV03A | 24NOV03 | 7 |
| EG5663600 | B566 Cold and Dark | 1 | 1 | C | | 25NOV03 | 7 |
| EG5663610 | Electrical Power Disconnect | 1 | 1 | C | 11NOV03A | 22NOV03 | 9 |
| EG5663614 | Util Disconnect/Drain Water Sewer Gas Lines | 1 | 1 | C | 15OCT03A | 29NOV03 | 7 |
| Demolition | | | | | | | |
| EG5663650 | Cold and Dark Walkdown | 1 | 1 | C | 28NOV03 | 28NOV03 | 7 |
| EG5663660 | Cold and Dark Board | 1 | 1 | C | 01DEC03 | 01DEC03 | 7 |
| EG5663662 | Complete Any Actions from Cold and Dark Board | 1 | 1 | C | 02DEC03 | 03DEC03 | 7 |
| EG5663664 | Obtain D. Ferrera Signature | 1 | 1 | C | 03DEC03 | 03DEC03 | 7 |

| Activity ID | Activity Description | Orig Dur | Rem Dur | % Comp | Early Start | Early Finish | Total Float |
|-------------|--|----------|---------|--------|-------------|--------------|-------------|
| EG5663700 | PDS with CDPHE | 1 | 1 | C | 15DEC03 | 15DEC03 | 0 |
| EG5663710 | Notify LRA Prior to Demolition | 1 | 1 | C | 15DEC03 | 15DEC03 | 6 |
| EG5663712 | Obtain Demolition Permit | 1 | 1 | C | 18NOV03* | 04DEC03 | 7 |
| EG5663714 | Obtain Air Permit | 1 | 1 | C | 08DEC03 | 15DEC03 | 6 |
| EG5663720 | Develop and Approve KH Demo Plan | 1 | 1 | C | 18NOV03 | 02DEC03 | 7 |
| EG5663730 | Verify Training Complete for KH and Subs | 1 | 1 | C | 03DEC03 | 03DEC03 | 7 |
| EG5663740 | KH 1st Pre-Ev | 1 | 1 | C | 17DEC03 | 17DEC03 | 6 |
| EG5663750 | KHC Authorization to Proceed | 1 | 1 | C | 16DEC03 | 16DEC03 | 6 |
| EG5663760 | Demolition/Disposal of 566366A | 1 | 1 | C | 18DEC03 | 13JAN04 | 6 |
| EG5663780 | 5666 Decommissioning Demolition | 1 | 1 | C | 18DEC03 | 13JAN04 | 6 |
| ER Turnover | | | | | | | |
| EG5663030 | 5666 Decommissioning Turnover to 776 | 1 | 1 | C | | 18JAN04 | 35 |
| EG5663780 | Turnover to 776 | 1 | 1 | C | 14JAN04 | 14JAN04 | 35 |



Internal Memorandum

Date: April 7, 2004
To: Building Notification File: Building 556 and 566A
From: Steve Nesta
Subject: CR RSOP Notification Concurrence

Building 556 and 566A (Type 2 facility)

In November 2003, a consultative meeting was held with the Project 556 Personnel and CDPHE in regards to the CR RSOP Notification. With these discussions, CDPHE and Project 566 Personnel verbally agreed to move forward on the current path outlined in the CR RSOP Notification. CDPHE never formally received a copy of the CR RSOP Notification from DOE. Therefore, Kaiser Hill never received a formal CR RSOP Notification Concurrence from CDPHE.



December 1, 2003

03-RF-01778

Joseph Legare
D&D Program Lead
DOE, RFFO

RSOP FOR FACILITY DISPOSITION NOTIFICATION LETTER FOR BUILDINGS 566 AND 566A – FEG-040-03

Attached is a draft transmittal letter to the Colorado Department of Public Health and Environment for the RSOP notification for Buildings 566 and 566A facility disposition. The draft transmittal letter has been prepared from DOE building point of contact to CDPHE building point of contact, however, it could also be addressed from DOE RFCA coordinator to CDPHE RFCA coordinator.

Please contact Steve Nesta X6386 with questions or concerns.

A handwritten signature in cursive script that reads 'Frank E. Gibbs'.

Frank E Gibbs
D&D Deputy Project Manager
Remediation, Industrial D&D, and Site Services

Attachment
As Stated

Orig and 1 cc – Joseph Legare

cc
Steve Tower

David Kruchek
Colorado Department of Health and Environment
4300 Cherry Creek Drive South
Denver, CO 80222-1530

RSOP FOR FACILITY DISPOSITION NOTIFICATION LETTER FOR BUILDINGS 566 AND 566A

Mr Kruchek

In accordance with the Rocky Flats Cleanup Agreement Standard Operating Protocol (RSOP) for Facility Disposition, this letter and its attachments is notification for RSOP implementation. This notification is for all activities required to demolish and disposition Buildings 566 and 566A.

The Reconnaissance Level Characterization Report for Buildings 566 and 566A was conducted to meet the PDS requirements, and has been submitted concurrently with this RSOP notification. Buildings 566 and 566A have been determined to be Type 2 facilities due to areas of contamination in the laundry system.

This work will be conducted by Kaiser-Hill Company, L L C (K-H). The requirements, methods, controls, and processes outlined in the RSOP will be followed. This work will be conducted in accordance with the work control documentation prepared by K-H and its subcontractor. The exact methods and process and progress of the activities will be communicated to DOE/LRA through the consultative process.

As indicated in the RSOP, the LRA has 14 days to review the RSOP notification letter and provide feedback, including a definitive reason for not proceeding with the project. If no feedback is received within 14 days, the project will proceed as planned.

If you have any questions regarding this, please contact me at (303) 966-2133.

Steve Tower
U S Department of Energy

DESCRIPTION OF PLANNED ACTIVITIES

Building 566 and 566A are a single structure comprised of a 13,700 sq ft Site Alarm Maintenance and Respirator Repair Facility and a 4000 sq ft filter plenum. Building 566A is the administrative portion of Building 566. Both facilities were constructed in 1991. The walls are reinforced concrete, and the roof is constructed with metal sheet, lightweight concrete, insulation, and a synthetic membrane. The floor is poured concrete.

During the RLC, surveys discovered up to 2300 dpm/100cm² of fixed plutonium contamination in the laundry trench, and lower concentrations of both fixed and removable contamination in the laundry lint-collection ventilation ducts. The contaminated ventilation ducts have been removed and managed as low level waste (LLW). The trench has been coated with a fixative, and will be removed during demolition. The trench debris will be managed as LLW. The RLC, performed to PDS requirements, identifies Buildings 566 and 566A as a Type 2 facility due to the contamination in the laundry system.

In order to protect the slab, and manage the structure as sanitary waste, the demolition of Buildings 566 and 566A will proceed in two phases. During Phase 1, demolition of the structure by heavy equipment, the trench will be covered with plywood to prevent spread of contamination from debris falling on the trench. All structural debris will be managed as non-routine sanitary waste (NRSW) and disposed at an RFETS approved landfill (Front Range or BFI – Commerce City). Phase 2 of the demolition will involve removal of the slab. During Phase 2, the slab around the trench will be saw-cut to isolate the trench from the non-contaminated portions of the slab. The slab will then be removed and managed as NRSW, and the trench will be removed and managed as LLW.

The principle point of contact for this project is Robert Richardella, (303) 966-6325

STATE OF COLORADO

Bill Owens, Governor
Douglas H Benevento, Executive Director

Dedicated to protecting and improving the health and environment of the people of Colorado

4300 Cherry Creek Dr S
Denver, Colorado 80246-1530
Phone (303) 692-2000
TDD Line (303) 691-7700
Located in Glendale, Colorado
<http://www.cdphe.state.co.us>

Laboratory and Radiation Services Division
8100 Lowry Blvd
Denver, Colorado 80230-6928
(303) 692-3090



Colorado Department
of Public Health
and Environment

December 10, 2003

Mr Joe Legare
Assistant Manager for Environment and Stewardship
U S Department of Energy, Rocky Flats Field Office
10808 Highway 93, Unit A
Golden, CO 80403-8200

RE: Reconnaissance Level Characterization Report (RLCR)/Pre-Demolition Survey Report (PDSR) for Buildings 566 & 566A and Facility Disposition RSOP Notification – Concurrence, Approval, and Agreement

Dear Mr Legare

The Colorado Department of Public Health and Environment, Hazardous Materials and Waste Management Division has reviewed the RLCR/PDSR for Buildings 566 and 566A, Version 0 dated December 3, 2003, and the Facility Disposition RSOP Notification letter dated December 9, 2003. Based on the information contained in this RLCR/PDSR, we hereby concur with the designation that Buildings 566 & 566A are Type 2 Facilities and approve the PDSR for Buildings 566 & 566A.

We also agree with the utilization of the Facility Disposition RSOP, with implementation of appropriate measures to protect the remaining contaminated material and equipment. It is our understanding that the contaminated trench will be coated with a fixative, filled with gravel and covered with plywood to prevent releases during demolition activities, and it will be saw cut out after removal of the building debris. It is also our understanding that the remaining section of potentially contaminated PWL in the SE corner of the Building will be filled with epoxy or grout prior to demolition of the building to prevent release of contamination. In addition, the contaminated Tanks located in the NW corner of the buildings will be internally coated with fixative and properly protected during demolition to prevent releases of contamination during demolition.

If you have any questions regarding this correspondence please contact me at (303) 692-3367, Denise Onyskiw at (303) 692-3371 or David Kruchek at (303) 692-3328.

Sincerely,

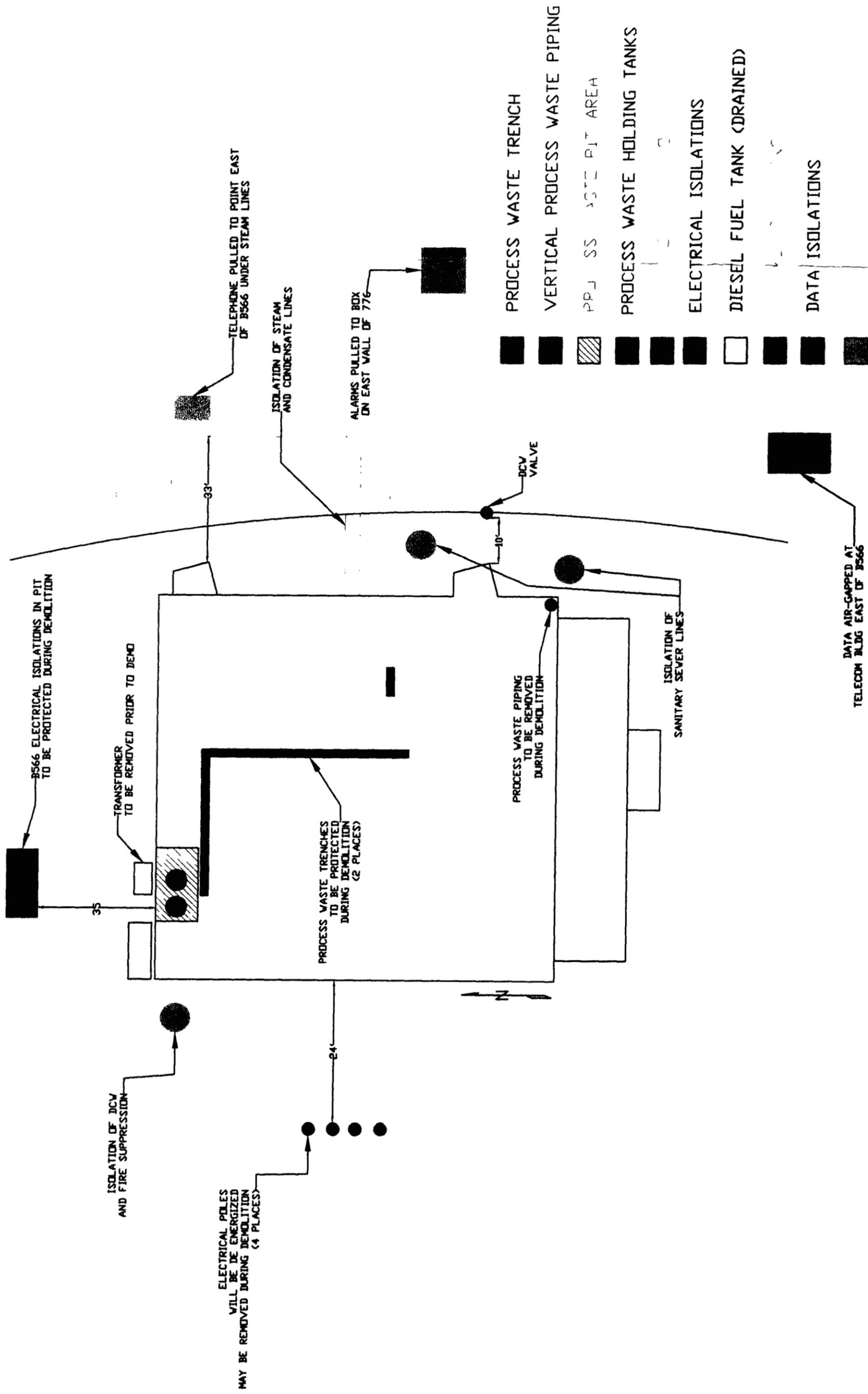
Steven H Gunderson
RFCA Project Coordinator

cc Steve Tower, DOE
Tim Rehder, EPA
Duane Parsons, KH
Administrative Records Building T130G

Mike Auble, KH
Dave Shelton, KH
Steve Nesta, KH

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BUILDING 566 DEMOLITION MAP



- PROCESS WASTE TRENCH
- VERTICAL PROCESS WASTE PIPING
- ▨ PPL SS WASTE PIT AREA
- PROCESS WASTE HOLDING TANKS
- ELECTRICAL ISOLATIONS
- DIESEL FUEL TANK (DRAINED)
- DATA ISOLATIONS
- 10 DOMESTIC COLD WATER