Rocky Flats Environmental Technology Site

RECONNAISSANCE LEVEL CHARACTERIZATION REPORT (RLCR) SUPPLEMENT

771 ANNEX, STACK AND OUTBUILDINGS

BUILDING 771 CLOSURE PROJECT

REVISION 2

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ABBREVIATIONS/ACRONYMS

ACM	Asbestos containing material
Am	Americium
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CDPHE	Colorado Department of Public Health and the Environment
$DCGL_{EMC}$	Derived Concentration Guideline Level - elevated measurement comparison
$DCGL_W$	Derived Concentration Guideline Level - Wilcoxon Rank Sum Test
D&D	Decontamination and Decommissioning
DDCP	Decontamination and Decommissioning Characterization Protocol
DOE	U.S. Department of Energy
DPP	Decommissioning Program Plan
DQA	Data quality assessment
DQOs	Data quality objectives
EPA	U.S. Environmental Protection Agency
FDPM	Facility Disposition Program Manual
HF	Hydrogen fluoride
HVAC	Heating, ventilation, air conditioning
IHSS	Individual Hazardous Substance Site
IWCP	Integrated Work Control Package
K-H	Kaiser-Hill
LBP	Lead-based paint
LCS	Laboratory control samples
LSDW	Life safety disaster warning
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MDA	Minimum detectable activity
MDC	Minimum detectable concentration
NORM	Naturally occurring radioactive material
NRA	Non-Rad-Added Verification
OASIS	Oxford Alpha Spectroscopy Integrated System
OSHA	Occupational Safety and Health Administration
PARCC	Precision, accuracy, representativeness, comparability and completeness
PCBs	Polychlorinated biphenyls
PDS	Pre-demolition survey
PDSP	Pre-Demolition Survey Plan
Po	Polonium
Pu	Plutonium
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
RFCA	Rocky Flats Cleanup Agreement
RFETS	Rocky Flats Environmental Technology Site
RLC	Reconnaissance Level Characterization
RLCR	Reconnaissance Level Characterization Report

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RSP	Radiological Safety Practices
SVOCs	Semi-volatile organic compounds
TBD	Technical basis document
TSA	Total surface activity
UBC	Under Building Contamination
V&V	Verification and validation
VOCs	Volatile organic compounds

EXECUTIVE SUMMARY

A Reconnaissance Level Characterization (RLC) was performed to characterize 771 Closure Project facilities that were believed to be primarily Type 1 and Type 2 facilities (i.e., the 771 Annex, stack and outbuildings). These facilities had not been fully characterized in the original Building 771/774 Reconnaissance Level Characterization Report (RLCR), dated August 8, 1998. The original RLCR focused on B771 and B774. Based upon our results, Trailers T771A – C, E – H, J – L, M, Q, R, T, MB, DT and T773S; Buildings 714A, B715-717, B772, B772A, B773, S770, B771B and K771N, and exterior Tanks 21A, 173, 174, 179, 180, 185, 192, 193 and 197 are considered Type 1 Facilities. Buildings 714, 728, 770, 771C and 775, and exterior Tanks 176, 182-184, 185, 194, 195, 292, 293 and 774A & B are considered Type 2 Facilities. The 771 Exhaust Tunnel and Stack are considered Type 3 Facilities. Environmental media beneath and surrounding the facilities were not within the scope of this characterization.

Physical, chemical and radiological hazards were assessed based on historical reviews, process knowledge, and newly acquired RLC data. The RLC encompassed both radiological and chemical characterization to enable compliant disposition and waste management. Because some of the facilities were initially classified as Class 3 (RFCA Type 1) facilities, the RLC implemented a Pre-Demolition (Final Status) Survey design for all potential Class 3 facilities to determine whether the facilities can be released (off the site) without restrictions, pursuant to the D&D Characterization Protocol (MAN-077-DDCP).

The RLC confirmed that most of the facilities (inside and outside) do not contain radiological contamination above the release limits prescribed in DOE Order 5400.5 and the RFETS Radiological Control Manual. Radiological contamination was found in one area within B771C, on an exterior wall of B770, and in the B771 stack. Radiological spills also occurred in B770. In addition, there is potential for radiological contamination in both lift stations (i.e., B728 and B775), and on/in Tanks 182 – 184, 292 and 293, and 774A and 774B. Verification surveys will be conducted on concrete slabs after tanks and other structures (e.g., B716 and B771B) have been removed and before the slabs are removed. Pre-release evaluations also will be conducted on tanks and other equipment prior to their removal (e.g., the tank under B775). In addition, the bottom of the B772A pit will be surveyed after the standing water has been removed. The water and any sediment will also be characterized. Type 2 and 3 facilities will be investigated further during In-Process and Pre-Demolition Characterization.

Some chemical hazards are present. B714, and Tanks 176, 185, 194, 195, 292 and 293 may possess residual chemical contamination, and B770 could contain contamination from historical releases. Also, PCBs are present in some of the fluorescent light ballasts and could be present in paints. Paint samples from B771C and the exhaust tunnel are currently being analyzed for PCBs. All demolition debris and PCB light ballasts will be managed in compliance with regulations governing PCBs (40 CFR 761), in accordance with the Decommissioning Program Plan, Section 3.3.5, as applicable. In addition,

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facilities contain asbestos in both friable and non-friable forms. Furthermore, lead could be present in incandescent lamps, and mercury could be present in fluorescent lamps. Asbestos containing material, and any lead- or mercury-containing lamps will be removed and disposed of in compliance with Environmental Protection Agency (EPA) and Colorado Department of Public Health and Environment (CDPHE) regulations.

Sampling for lead in paint was not required. Environmental Waste Compliance Guidance #27, *Lead-Based Paint (LBP)* and *Lead-Based Paint Debris Disposal*, states that LBP debris generated outside of currently identified high contamination areas shall be managed as non-hazardous (solid) wastes, and additional analysis for characteristics of hazardous waste derived from LBP is not a requirement for disposal.

Some of the 52 facilities (e.g., foundations and the bottom of slabs below grade) could be impacted (contaminated) by Individual Hazardous Waste Sites (IHSSs) and Under Building Contamination (UBC). Impacts will be defined during future investigation of the UBC and IHSSs, in-process characterization and the Pre-Demolition Survey, and/or characterization of demolition debris when building slabs and trailer supports are removed.

Physical hazards associated with the facilities consist of those common to standard industrial environments, and include hazards associated with energized systems, utilities, compressed gas, diesel fuel, and trips and falls. There are no unique hazards associated with the different facilities. The buildings have been relatively well maintained and are in good physical condition, and therefore, do not present hazards associated with building deterioration.

Based upon this RLC, the facilities were classified pursuant to the Decommissioning Program Plan, subject to concurrence by the Colorado Department of Public Health and the Environment (refer to Table ES-1). Thirty five of the facilities are considered Type 1 facilities and can be disposed of as sanitary waste/construction debris (except for the PCB Bulk Product Waste, ACM, and lamps with lead and mercury). Sixteen of the facilities are considered Type 2 facilities, and the 771 Exhaust Tunnel and Stack are considered Type 3 facilities. Facility types, as defined in the Decommissioning Program Plan, are defined as follows:

Type 1 facilities are considered "free of contamination".

Type 2 facilities contain no significant contamination or hazards, but are in need of decontamination.

Type 3 facilities contain significant radiological contamination and/or hazards.

To ensure that the Type 1 facilities remain free of contamination and that Pre-Demolition Survey data remain valid, isolation controls will be established and implemented pursuant to PRO-475-RSP-16.01, and the Type 1 facilities will be posted accordingly. Surveys also will be conducted prior to removal.

Table ES-1 Facility Hazards and Classification, 771 Closure Project

Facility	Chemical Hazards	Location	Radiological Hazards	Location	Building Classification[1]
B771C	Asbestos	Rms 301 to 309	One elevated paint sample (~150 dpm/100 cm^2)	Room 303 floor	Type 2
771 Exhaust Tunnel & Stack	None	NA[2]	Low levels of elevated activity identified (ranging from 0.3 to 62.1 pCi/g). Additional sampling will be performed prior to D&D to define depth and height of elevated activity.	Interior stack surface below ~20 feet	Type 3
T771A – C, E – H, J - L, MB, Q, R, T & DT	Asbestos	T771 A & C	None	NA[2]	Type 1
T771M	None	NA[2]	None	NA[2]	Type 1
T773S	None	NA[2]	None	NA[2]	Type 1
B714	Asbestos Potential HF residues	Exterior walls & roof Interior	None	NA[2]	Type 2
714A	None	NA[2]	None	NA[2]	Type 1
B715 & 716	Asbestos Diesel (product)	B715 Both tanks	None	NA[2]	Type 1
B717	None	NA[2]	None	NA[2]	Type 1
B728	None	NA[2]	Potential contamination	Interior	Type 2
B770	Potential spill residues	NA[2]	Am-241	Exterior wall	Type 2
S770 & B771B	Asbestos	B771B wiring	None	NA[2]	Type 1
K771N	None	NA[2]	None	NA[2]	Type 1
B772	None	NA[2]	None	NA[2]	Type 1
B772A	None	NA[2]	None	NA[2]	Type 1
B773	Asbestos	Wiring and roof	None	NA[2]	Type 1
B775	None	NA[2]	Potential contamination	Interior & tank system	Type 2
TK173, 179 & 197	Propane (product) Asbestos	All tanks TK 197 manifold station	None	NA[2]	Type 1
TK174	None	NA[2]	None	NA[2]	Type 1
TK176	Potential NaOH residue	Interior	None	NA[2]	Type 2
TK180	Asbestos	Flanges	None	NA[2]	Type 1
TK182 - 184	None	NA[2]	Potential contamination	All 3 tanks	Type 2
TK185	Potential KOH residue	Interior	None	NA[2]	Type 2
TK192 & 193	None	NA[2]	None	NA[2]	Type 1
TK21a	Diesel (product)	Interior	None	NA[2]	Type 1
TK194 & 195	Potential HF residues	Interior	None	NA[2]	Type 2
TK 292 & 293	Potential contamination	Interior	Potential contamination	Both tanks	Type 2
TK774A & 774B	Asbestos	Piping, fittings, reductions & flanges	Potential contamination	Both tanks	Type 2

[1] Building classification does not include environmental media beneath or adjacent to the facility foundation/slab.

[2] Not Applicable

PCBs are present in some of the fluorescent light ballasts and may be present in paints. Also, lead could be present in incandescent lamps, and mercury could be present in fluorescent lamps. The presence of PCBs in light ballasts and paint, the presence of asbestos, and/or the presence lead and mercury in lamps do not make a facility a Type 2 as long as PCB bulk product waste, asbestos-containing material, and lead- and mercury-containing lamps are removed pursuant to Site asbestos abatement and waste management procedures.

1.0 INTRODUCTION

As part of the Rocky Flats Environmental Technology Site (RFETS) Closure Project, numerous facilities will be removed. Among these are the 771 Closure Project facilities addressed in this Reconnaissance Level Characterization Report (RLCR) Supplement, including B771C (the 771 Annex), the 771 exhaust tunnel and stack, all of the trailers (T771 A - C, E - H, J - M, Q, R, T & MB, T771-DT, and T773S), all of the outbuildings (B714, B714A, B715 - B717, B728, B770, B772, B772A, B773, B775, S770, B771B and K771N), and all of the exterior tanks (Tanks 21A, 173, 174, 176, 179, 180, 182 – 185, 192 – 195, 197, 292, 293, 774A and 774B) (i.e., 52 facilities and tanks in total). These facilities had not been fully characterized in the original Building 771/774 RLCR, dated August 8, 1998. They were believed to be primarily Type 1 and Type 2 facilities. They are listed in Table 1-1 and highlighted in Exhibit 1-1. These facilities no longer support the RFETS mission and need to be removed to reduce Site infrastructure, risks and/or operating costs.

Before the facilities can be removed, hazards must be identified. Hazards identified will be used to release some of the facilities and to dispose of others in a compliant manner. This document presents the existing physical, radiological and chemical hazards associated with the facilities, and classifies the facilities pursuant to the RFETS Decommissioning Program Plan (DPP; K-H, 1999). The hazards assessment is based on facility history and process knowledge, operating and spill records, and results of the reconnaissance level characterization (RLC). The RLC was conducted pursuant to the RFETS Decontamination and Decommissioning Characterization Protocol (DDCP; K-H 1999). The content and outline of this RLCR Supplement are consistent with the Kaiser-Hill (K-H) Facility Disposition Program Manual (FDPM; K-H, 1998).

Purpose

The purpose of this report is to communicate and document the results of the RLC effort. The purpose includes summarizing the data into a concise, usable format and interpreting the data for use in management decisions, primarily:

- Definition of individual hazards and overall risk associated with facility decontamination and decommissioning (D&D);
- Typing of facilities based on hazards identified;
- Ability to release facilities from the Site; and
- Waste classification to enable compliant disposal.

Scope

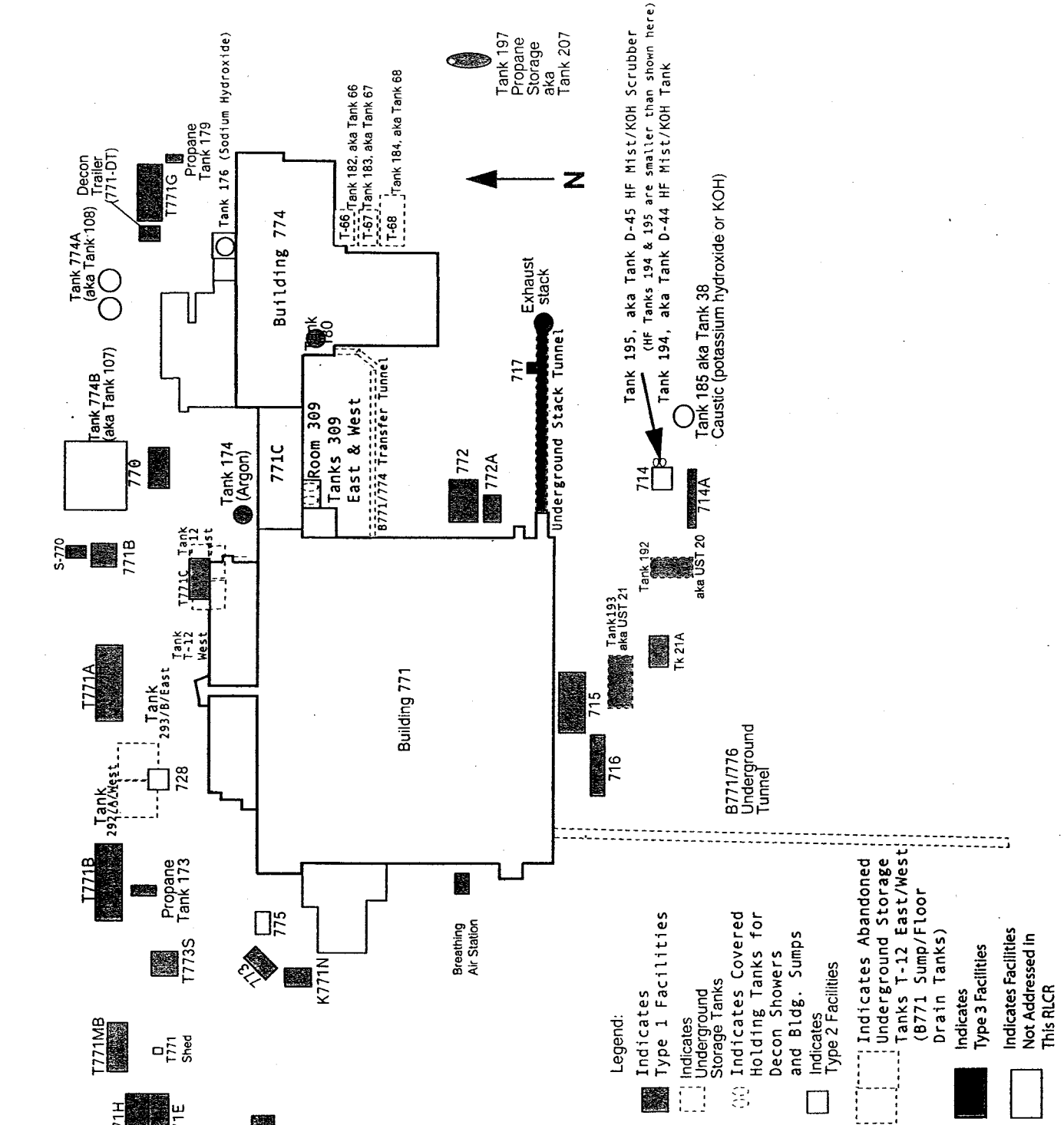
This report covers physical, radiological and chemical characterization of the 52 facilities listed in Table 1-1. Based on the hazards identified, the facilities were typed and assessed against unrestricted release and waste disposal criteria. Environmental media beneath and surrounding the facilities are not within the scope of this characterization. However,

Under Building Contamination (UBC) and Individual Hazardous Substance Sites (IHSSs) could have contaminated the below-grade portions of some facilities (e.g., foundations and slabs). Impacts will be defined during future investigation of the UBC and IHSSs, in-process characterization and the Pre-Demolition Survey, and/or characterization of demolition debris when building slabs and trailer supports are removed. Both facilities and environmental media will be dispositioned pursuant to the Rocky Flats Cleanup Agreement (RFCA).

Table 1-1 List of the 771 Closure Project Facilities (Excluding B771 and B774)

Facility Number	Facility Description
B771C	Drum Storage, Counting and Shipping Facility
771 Stack	Exhaust Tunnel & Stack
T771A – C, E – H, J, K , MB, Q, R & DT	Office, Locker, Shower and Break-Room Trailers
T771L	Rest Room Trailer
T771M	Modular Network Operations Center
T771T	Office Trailer; was T881A; characterized as part of Group B RLC
T773S	Skid Mounted Guard Post
B714 & B714A	Hydrofluoric (HF) Storage
B715 & B716	Emergency Generators
B717	B771 Sampling Shed
B728	Process Waste Pit
B770	Office and Supply Building
S770	Carpenter Storage Shed
B771B	Carpenter Shop
K771N	Food Bldg, SW of B773
B772	New Site Breathing Air Facility
B772A	HF Acid Pit S. of B772
B773	Old 771 Guard Post
B775	Sanitary Lift Station
Tanks 173,179 & 197 (aka 207)	Propane Storage E of T771B, SE of T771G and SE of 774
Tank 174	Liquid Argon Storage N of B771C
Tank 176	Sodium Hydroxide (NaOH) Storage N of B774
Tank 180	Cooling Water Storage On B774 near Cooling Tower
Tanks 182 – 184	Neutralized Waste Storage SE of B774
Tank 185	Potassium Hydroxide (KOH) Storage SE of B714
Tanks 192 & 193	Diesel Underground Storage Tanks S of 771 – empty
Tank 21a	Diesel Aboveground Storage Tank SE of B715
Tanks 194 & 195	Hydrofluoric Acid Storage E of B714
Tanks 292 & 293	Fire Water USTs adjacent to B728
Tanks 774A & 774B	Steam Condensate Storage NW of B774

Exhibit 1-1 771 Closure Project Map Showing Type 1, Type 2, and Type 3 Facilities



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2.0 OPERATING HISTORY AND PHYSICAL DESCRIPTION

2.1 B771C

Building 771C, the B771 Annex, was constructed in 1972 and occupies the space between B771 and B774. It is attached to and accessible to both buildings. It was used as a drum counting and shipping facility. Drums were transported into the building, counted, put in storage, and transferred to B664 for shipment to an off-site facility. There are two drum counter below the floor and one above the floor on a platform. Drums coming from Building 774 had to be lowered to the floor of the annex by a lift, as the floor of B774 is three feet higher. Presently there are no drums being stored in the facility.

2.1.1 General Construction and Foundation

B771C is a one-story building with two mezzanines. The foundation walls extend above ground level to the height of the B771 floor. The space between the walls was back filled, and a six-inch reinforced concrete floor was poured. The exterior framing consists of reinforced concrete columns and a poured reinforced concrete top outside wall beam on the north and south sides of the annex. The space between the floor, columns and the beam is filled in with concrete blocks that are reinforced at intervals. During security upgrades the area in front of the original dock door was extended, and a security cage was built on top of it to enclose the dock and the north emergency exit. Construction of the mezzanines consists of steel support columns and steel framework covered with steel decking.

2.1.2 Roof

The reinforced top concrete wall beam is built in the shape of an L to support the roof, which is a prestressed, reinforced concrete, twin-tee construction. Roof finishing consists of lightweight concrete, insulation, and asphalt and gravel on top.

2.1.3 Walls

Interior walls are of concrete block construction dividing the annex into five rooms. A sixth room is the airlock to the emergency exit on the north side of the building.

2.1.4 Ceilings

There is no suspended ceiling in the annex. The ceiling is the underside of the twin-tee roof, which has been painted for ease of decontamination in case of a contamination incident.

2.1.5 Heating, Ventilation, and Air Conditioning (HVAC)

The HVAC equipment is located on two mezzanines in the annex. One supports the supply system, and the other supports the exhaust filter plenum. The supply and exhaust fans are located on the roof. There are two fans on each system.

This facility was to be maintained as a contamination-free area, and as such the building was maintained at a higher pressure than B771 such that the air-flow was from the Annex to Corridor G, which has double airlocks leading into the production areas. All drums coming to the facility were monitored for contamination and decontaminated if necessary.

2.1.6 Utilities

Electric and emergency power come from the B771 systems. The Annex has its own fire protection system (System D), which taps off the domestic water ring that goes around B771 and B774. An Uninterruptible Power Supply is in the Annex to supply power to the HVAC controls during loss of power. The Life Safety/ Disaster Warning System is connected to the B771 system. Compressed air that is used to extend and retract the shielded lids on the under-the-floor counting systems comes from Building 771.

2.2 771 Exhaust Tunnel and Stack

The tunnel and stack provide the path for all air exhausted from B771 via the main building exhaust filter plenums. The tunnel consists of approximately 100 feet of horizontal steel reinforced concrete ductwork connecting the B771 Main Filter Plenum to the base of the 175-foot stack. The Main Filter Plenum connection to the tunnel is fabricated from sheet metal. The stack was constructed in place from steel reinforced concrete. It has an outside diameter of approximately 18 feet at the base and approximately 10 feet at the top. A small piece of concrete is missing from the top of the stack rim, possibly caused by over pressurization during the 1957 B771 Fire. The stack has two 3-inch holes on the east and west sides at approximately 6-feet elevation, probably for effluent sampling and inspection. The stack also has 8 pipe flanged/blanked ports, 4 at approximately 20-feet elevation and 4 at approximately 40-feet elevation. It is assumed that these 8 ports historically were used for sampling and/or inspection.

2.3 Trailer T771A, Offices

This modular office building was acquired and installed northeast of Building 771 in 1975. The trailer is approximately 24 feet wide x 60 feet long x 11 feet high with approximately 1440 square feet of office space. There are two doors leading into this office building, one on the east side and one on the west side. Both entry doors are covered with a wood structure approximately 4 feet wide x 8 feet long x 12 feet high with 4 feet wide x 20 feet long wood ramps leading to each door. The siding and the skirting around the bottom of the trailer, which is approximately 40" high, are constructed from corrugated aluminum. This facility has a metal roof over roof insulation. The tie-down

method for the trailer was unknown, because the trailer skirting covered the footing/foundation. Structurally the facility is sound both inside and outside.

The facility's interior outside walls are wood paneling over insulation. The interior partition walls are drywall on stud framing, and the floor is carpet on wood flooring. The trailer has two hard-wall rooms, one at each end of the unit. The ceiling is a drop-ceiling type with acoustical tile. The utilities for this trailer consist of an electric heat pump, which is used for both heating and air conditioning. The trailer is connected to the Site Smoke Detection and Alarm System and the Plant Public Address System.

T771A is currently in use and has always been used as an office facility. Radioactive materials and chemicals have never been used or stored in this office facility.

2.4 Trailer T771B, Offices

This trailer was acquired and installed northeast of Building 771 in 1975. The size of this trailer is approximately 24 feet wide x 60 feet long x 9 feet high with approximately 1440 square feet of office space. There are two doors leading into this trailer, both of them on the south side. Both entry doors are covered with a wood structure approximately 4 feet wide x 4 feet long x 8 feet high with wood ramps leading to the entry doors, approximately 4 feet wide x 6 feet long. The siding and the skirting around the bottom of the trailer, which is approximately 40 inches high, is enamel on aluminum. This facility has a metal roof over roof insulation. The tie-down method for the trailer is unknown, because the trailer skirting covered the footing/foundation. Structurally the facility is sound both inside and outside.

The facility's interior outside walls are wood paneling over insulation, the interior partition walls are wood paneling on stud framing, and the floor is carpet on wood flooring. The trailer has two hard wall rooms, which are constructed using drywall and metal stud walls, one at each end of the unit. The ceiling is drop-ceiling type with acoustical tile. The utilities for this trailer consist of a propane heat pump, which is used for both heating and air conditioning. The trailer is connected to the Site Smoke Detection and Alarm System and the Plant Public Address System.

T771B is currently in use and has always been used as an office facility. Radioactive materials and chemicals have never been used or stored in this office facility.

2.5 Trailer T771C, Locker and Shower Facility

This trailer was acquired and installed northeast corner of Building 771 in June of 1983. The size of this trailer is approximately 10 feet wide x 50 feet long x 8 feet high. The facility contains approximately 520 square feet of floor space. There are three doors leading into this trailer; one is on the east side, and two are on the north side. The east side entry has 5 wood steps with handrails. The north two entry doors are covered with a wood structure approximately 4 feet wide x 4 feet long x 12 feet high with 4-6 wood steps, and the west end has a wood dock area. The siding and the skirting around the bottom of the trailer, which is approximately 28 inches high, is enamel on aluminum.

IC1

This facility has a metal roof over insulation. The tie-down method for the trailer is unknown, because the trailer skirting covers the footing/foundation. The trailer's interior outside walls are wood paneling over insulation, the interior partition walls are wood paneling on stud framing, and the floor is carpet on wood flooring. The ceiling is drop-ceiling type with acoustical tile. Structurally the trailer is sound both inside and outside.

The trailer is currently in use and has always been used as a locker and shower room. The utilities for this trailer consist of electricity, an electric heater, domestic water, and an electric hot water heater. The facility is hooked up to the Building 771 sewer system to support the shower facilities, as well as the fire sprinkler system and the alarm system. Radioactive materials and chemicals have never been used or stored in this facility.

2.6 Trailer T771E, Offices

T771E was acquired and installed northwest of Building 773 in 1985. In 1993 T771H

was moved in and attached to the north side of T771E. The size of T771E is approximately 29 feet wide x 60 feet long x 11 feet 4 inches high with approximately 1440 square feet of office space. There are four doors leading into this trailer, three of them on the south side and one on the east side of the trailer. All of the entry doors are covered with a wood structure approximately 4 feet wide x long 4 feet x 8 feet high. The entry doors have wood steps leading up to them, which are approximately 4 feet wide x 6 long. The siding and the skirting around the bottom of the trailer, which is approximately 40 high, is enamel on aluminum. This office facility has a metal roof over roof insulation. Structurally the facility is sound both inside and outside. The tie-down method for the trailer is unknown, because the trailer skirting covered the footing/foundation.

The facility's interior outside walls are wood paneling over insulation, the interior partition walls are wood paneling on stud framing, and the floor is carpet on wood flooring. The trailer has six hard-wall office rooms. The ceiling is drop-ceiling type with acoustical tile. The utilities for this trailer consist of an electric heat pump, which was used for both heating and air conditioning.

T771E is currently in use and has always been used as an office facility. Radioactive materials and chemicals have never been used or stored in this office facility.

2.7 Trailer 771F, Offices

This trailer was constructed/assembled in 1985 at its present location, directly west of the Building 771 old Guard Post, Building 773. T-771F is approximately 28 feet wide x 70 feet long x 11 feet high for approximately 1960 square feet, and it is assembled from 2 trailer units of approximately 14 feet wide x 70 feet long feet in size. There are two doors leading into this trailer, which are located on the south side of the trailer. The entry doors are covered and are approximately 4 feet wide x 4 feet long x 10 feet high. The office trailer is covered with a corrugated metal siding. The skirting around the bottom of the trailer, which is approximately 28 inches high, is enameled metal. This office facility has a metal roof over roof insulation. Structurally the trailer is sound both inside and outside.

The facility's interior outside walls are wood paneling over insulation, the interior partition walls are wood paneling on stud framing, and the floor is carpet on wood flooring. The trailer has six hard-wall office rooms. The ceiling is drop-ceiling type with acoustical tile. The utilities for this trailer consist of an electric heat pump, which was used for both heating and air conditioning.

Trailer T771F is currently in use and has always been used as an office facility. Radioactive materials and chemicals have never been used or stored in this office facility.

2.8 Trailer T771G, Locker and Shower Facility

This trailer was placed in service in 1985 at its present location, which is approximately 100 feet north of Building 774. The facility has been a locker and shower facility since then, although its prior history is unknown. The size of the trailer is approximately 9 feet wide x 66 feet long x 11 feet high with approximately 1200 square feet of space, which includes the wood constructed dock and door entryways. There are two entry doors with wood steps, both on the south side. The unit siding is baked on painted sheet metal. Some of the skirting at the bottom of the north side the trailer has been removed. There are two windows in the south wall, one window in the east wall, and four windows in the north wall. This facility has a metal roof over roof insulation.

The facility is currently in use. It has a propane hot-water heater and a propane heating furnace. Other utilities for T771G include two exterior wall mounted swamp coolers for cooling the facility during the summer months. Propane Tank 179, which is located south east of T771G, supplies all of the propane gas needs to heat the facility and provide hot water for the showers. The facility has a fire sprinkler system and alarm system, and is connected to the Plant Public Address System.

2.9 Trailer T771H, Offices

This trailer was placed on site in 1993. T771H was installed directly north of T771E and it was attached to the north wall of T771E. Trailers T771H/E are located approximately 150 feet northwest of Building 773, the old Building 771 Guard Post. The size of this office trailer is approximately 28 feet wide x 60 feet long x 10 feet high. Office Trailer T771H has approximately 1848 square feet of office space. The entry doors are covered and are approximately 4 feet wide x 4 feet long x 10 feet high. The office trailer is covered with a corrugated metal siding. This office facility has metal roofing over insulation. This facility has corrugated plastic skirting all around the base. The facility's interior-outside walls are wood paneling over insulation, the interior partition walls are wood paneling on stud framing, and the floor is carpet on wood flooring. The trailer has six hard wall office rooms. The ceiling is drop-ceiling type with acoustical tile. Structurally the trailer is sound both inside and outside.

T771H is currently used as an office facility and has always been used as an office facility. The utilities for this trailer consist of electric heat pumps, which are used for both

heating and air conditioning. Radioactive materials and chemicals have never been used or stored in this office facility.

2.10 Trailer T771J, Offices

This trailer was constructed/assembled in 1984 at its present location, which is approximately 200 feet directly west of the Building 771 old Guard Post, Building 773. The size of this trailer is approximately 28 feet wide x 60 feet long x 11 feet high for 1960 square feet, and it is assembled from 2 trailer units of approximately 14 feet x 60 feet in size. There are two doors leading into this trailer, which are located on the north side of the trailer. The entry doors are covered and are approximately 4 feet wide x 4 feet long x 10 feet high. The office trailer is covered with a corrugated metal siding. The skirting around the bottom of the trailer, which is approximately 28 inches high, is enameled metal. Structurally the trailer is sound both inside and outside.

The facility's interior outside walls are wood paneling over insulation, the interior partition walls are wood paneling on stud framing, and the floor is carpet on wood flooring. On the inside of the unit there are two hard-wall offices. One is located in the south east corner and is approximately 12 feet wide x 15 feet long, and the other hard-wall office is located in the north east corner of the trailer and is approximately 8 feet wide x 10 feet long. The ceiling is drop-ceiling type with acoustical tile.

Trailer T771J is currently in use as an office facility and has always been used as an office facility. The utilities for this trailer consists of two electric heaters/air-conditioners located outside on the west wall. There are 12 surface-mounted two-tube fluorescent ceiling lights, and many duplex outlets in the perimeter walls. The trailer is connected to a smoke detection system, alarmed locally, and the Plant Public Address System. Radioactive materials and chemicals have never been used or stored in this office facility.

2.11 Trailer T771K, Offices

This trailer was constructed/assembled in 1984 at its present location, which is approximately 200 feet directly west of the Building 771 old Guard Post, Building 773. The size of this trailer is approximately 28 feet x 70 feet x 11 feet high for approximately 1960 square feet of floor space. This trailer is assembled from 2 trailer units of approximately 14 feet x 70 feet in size. There are two doors leading into this trailer, which are located on the north side of the trailer. The entry doors are covered and are approximately 4 feet x 4 feet x 10 feet high with wood steps up to the door entry. The office trailer is covered with a corrugated metal siding. The skirting around the bottom of the trailer, which is approximately 28 inches high, is enameled metal. Structurally the trailer is sound both inside and outside.

The facility's interior outside walls are wood paneling over insulation, and the interior partition walls are wood paneling on stud framing. There are two hard-wall offices. One is located in the south west corner and is approximately 12 feet wide x 15 feet long, and the other is located on the north wall, approximately in the center of the wall, and is

approximately 8 feet wide x 10 feet long. The interior perimeter walls consist of wood panel boards, ¼-inch thick, over insulation. The two office walls are constructed out of gypsum wallboard material. The ceiling is a drop ceiling with acoustical tile and boards that span the short width of the trailer, held in place with 1" wide wood strips. This unit has carpeted floor covering over plywood.

This trailer is currently in use as an office trailer facility and has always been used as an office trailer. The utilities for this trailer consists of two electric heaters/air-conditioner units located outside on the north wall. The trailer has a smoke detection system, alarmed locally, and is connected to the Plant Public Address System. There are 12 surface-mounted, two-tube fluorescent ceiling lights and many duplex outlets in the perimeter walls. Radioactive materials and chemicals have never been used or stored in this office facility.

2.12 Trailer T771L, Rest Room Facility

Trailer T771L was placed on site in 1987 as a rest room facility. It is located approximately 30 feet directly east of T771J. The facility is prefabricated and modular. The facility is approximately 10 feet wide x 32 feet long x 10 feet high, for approximately 320 square feet of space. The unit siding is baked on painted sheet metal. The facility has a 28-inch metal skirt around the foundation. T771L has a metal roof over roof insulation. There are two entries, both on the north side. There are steps up from grade.

The facility houses both men's and women's rest room facilities with hot and cold running water. The utilities for this trailer include electric heat, an electric hot water heater, and fluorescent lighting. The facility has a sewage lift-station associated with it. T771L has always been used as a rest room facility. Radioactive materials and chemicals have never been used or stored in this facility, however, rest room cleaning chemicals are routinely used to clean the facility.

2.13 T771M, Modular Network Operations Center Facility

T771M was placed on site in 2000. It is located directly west of T771K near the north end of the trailer. This facility is approximately 8 feet wide x 14 feet long x 9 feet high for approximately 112 square feet of floor space. The facility houses the Network Operations Center (NOC), which is a portable telecommunications unit. This facility was installed to provide additional network capability for the offices, computers and telephones that will be installed in the additional office trailers that have been installed in the Building 771 complex. There is one entry door on the north side of the facility. There are no steps up from grade. The unit's exterior siding is a pre-fabricated construction panel, which contain pea-sized gravel embedded into the surface of the construction panels. T771M has a slightly peaked metal-covered roof.

There are no occupants in the facility; it contains only telecommunications equipment. Utilities for this facility include electricity and a heat pump for heating and air

conditioning. Radioactive materials and chemicals were never used or stored in this office facility.

2.14 Trailer T771MB, Office and Break Room Facility

Trailer T771MB contains one office and one break room/conference room. This trailer was placed in the Building 771 complex in September 1999. The facility is located approximately 60 feet northwest of T773S, the temporary skid-mounted guard post for the Building 771 Cluster Facilities. The size of the trailer is approximately 12 feet wide x 24 feet long x 10 feet high with approximately 480 square feet of floor space. T771MB has only one entry door, which is located on the south side. There are four steps up from grade with wooden handrails, and the entry door has a 4 feet wide x 6 feet long x 8 feet high plywood cover. The unit siding is baked on painted sheet metal. All of the skirting at the bottom of the trailer has been removed. The trailer has corrugated metal siding over insulation. The roof is corrugated metal sloped for drainage.

T77MB is currently being used as an office and break room facility, and has always been used as such. The utilities for T-771MB consist of electricity and an electric heat pump, which is used for both heating and air conditioning. The trailer is hooked up to the Plant Smoke Detection System and the Plant Public Address System. Radioactive materials and chemicals were never used or stored in this office facility.

2.15 Trailer T771Q, Offices

This office trailer was moved to its current location during the spring of 2000. This facility was formerly T883C. The size of this trailer is approximately 28 feet wide x 70 feet long x 11 feet high for approximately 1960 square feet of floor space. The office trailer is assembled from 2 trailer units of approximately 14 feet wide x 70 feet long. There are two doors leading into this trailer, which are located on the north side of the trailer. The entry doors are covered and are approximately 4 feet x 4 feet x 10 feet high. The exterior of this office trailer facility has painted aluminum skin. The office presently does not have skirting around the bottom of the trailer. The tie-down method for the unit is metal bands down to steel rods driven into the asphalt pavement below. Structurally the trailer is sound both inside and outside. T771Q does not have any visible roof leaks.

The interior outside walls is wallpaper-clad dry wall over insulation, the interior partition wall is wallpaper-clad dry wall on stud framing, and the floor is carpet on wood flooring. The ceiling is drop type with acoustical tile 2 feet x 4 feet panels. The utilities for this trailer consists of two electric heaters/air-conditioner units located outside on the west wall. The trailer has a fire sprinkler and alarm system, but it is not operable.

T771 Q is and always has been an office facility. Radioactive materials and chemicals have never been used or stored in this office facility.

2.16 Trailer T771R, Offices

This office trailer was moved to its current location during the summer of 2000. This facility was formerly T119A. The size of this trailer is approximately 28 feet wide x 70 feet long x 14 feet high for approximately 1960 square feet of floor space. This trailer is assembled from 2 trailer units of approximately 14 feet wide x 70 feet long. There are two doors leading into this trailer; one is located on the east side of the trailer, and the other door is located on the west side of the trailer. The entry doors are covered and are approximately 4 feet wide x 8 feet long x 10 feet high. The exterior of this facility has painted aluminum skin. The office presently does not have skirting around the bottom of the trailer. The tie-down method for the unit is metal bands down to steel rods driven into the asphalt pavement below. Structurally the trailer is sound both inside and outside. T771R does not have any visible roof leaks.

The interior outside walls are wallpaper-clad dry wall over insulation, the interior partition wall is wallpaper-clad dry wall on stud framing, and the floor is carpet on wood flooring. The ceiling is a drop type with acoustical tile 2-foot x 4-foot panels. The utilities for this trailer consists of two electric heaters/air-conditioner units located outside on the west wall. The trailer has a fire sprinkler and alarm system, but it is not operable.

T771 R is and always has been an office facility. Radioactive materials and chemicals have never been used or stored in this office facility.

2.17 Trailer T771T, Break Room Facility

This trailer was moved to its current location during the spring of 2000. This facility was formerly T881A. The size of this trailer is approximately 14 feet wide x 70 feet long x 9 feet high. There are two doors leading into this trailer, both of them are on the north side. Both entry doors are covered with a wood structure approximately 4 feet wide x 4 feet long x 12 feet high with 4-6 wood steps. The office presently does not have skirting around the bottom of the trailer. The tie-down method for the unit is metal bands down to steel rods driven into the asphalt pavement below. The trailer has many signs of roof leaks, which show up in the acoustical ceiling tiles near the outside walls.

The trailer's interior-outside walls are wood paneling over insulation, the interior partition walls are wood paneling on stud framing, and the floor is carpet on wood flooring. The trailer has two hard-wall rooms, one at each end of the unit. The ceiling is drop-ceiling type with acoustical tile 4 feet wide x 14 feet long panels. The two doors have key locks on them. The utilities for this trailer consist of an electric heat pump, which is located on the west end of the trailer and used for both heating and air conditioning.

T771 T is and always has been an administrative facility. Radioactive materials and chemicals have never been used or stored in this office facility.

2.18 Trailer 771-DT, Decon Trailer

The 771-DT Decon Trailer is a shower and personnel decontamination facility mounted on a trailer. It is located north of Building 774 and directly west of the T771G Locker/Shower Facility. 771-DT is approximately 18 feet long x 8 feet wide x 8 feet high and contains approximately 96 feet of floor space. The Decon Trailer has two entrance doors, one on the north and one on the southwest corner of the trailer. The exterior walls of 771-DT are covered with enameled corrugated metal over wall insulation. The roof is a single piece of aluminum formed over insulation.

The facility is self-contained (i.e., it has it's own heat, hot water heaters, and air conditioning). The facility also has two propane gas bottles mounted on the front. Electrical power for 771-DT facility comes from a power pole shared with T-771G. Other 771-DT equipment is stored and covered on the ground directly east of the facility. The facility has never been used as either a shower or decontamination facility, and radioactive materials and chemicals were never used or stored in this facility.

2.19 Trailer T773S, Guard Post

T773S is a temporary skid-mounted guard post being used as the inside Guard Post for the "Building 771 Security Bubble". This guard post was placed in service in February 2000. It is located directly north of Building 773, the old Building 771 Guard Post. T771S is approximately 10 feet wide x 12 feet long x 10 feet high with approximately 130 square feet of floor space. There is only one entry, which is located on the south side. The unit's exterior siding is cedar-type wood siding.

T771S has always been used as a guard post. Utilities for this facility include electricity, electric heat, and air conditioning. Radioactive materials and chemicals have never been used or stored in this facility.

2.20 B714, Hydrogen Fluoride (HF) Storage

B714, built in 1964, was the storage and transfer building for anhydrous HF used in the B771 fluorination process. B714 is 14' long X 12' wide X 9' high with a floor foot print of 182 sq ft.

The facility consists of transite walls and roof attached to a black iron frame built on a concrete slab. There is a 4" gap between the top of the wall and the roofline. The roof slopes to the south. The north side has a rollup door 8' wide X 7' high. There are four partially buried angle iron channels in the concrete with the V pointing up to support the transfer cart to move the HF cylinder into position at the hookup point.

Utilities provided to this building include: (1) a communication system to the HF receiving room in B771 to ensure that the receiving tank was not over filled; (2) nitrogen to purge the transfer line to the Building 771 receiver after transfer operations were complete; (3) a squeeze bottle of ammonia to check for leaks after the tank transfer piping was attached to the HF cylinder and the valves were opened; and (4) a small caustic

scrubber system to neutralize the remaining HF in the transfer piping after the transfer was made and the system was purged. There is no HVAC in this building.

2.21 Building 714A, Storage Facility

Building 714A is located south of Building 714. Building 714A was constructed during the 1964-1965 Building 771 Modification time frame. Building 714A is 4 feet 8inches wide x 48 inches long x 4 feet 10 inches high covering 224 square feet. It is a metal frame and siding structure set on concrete piers. The structure has corrugated metal bolted to the structural steel framework on three sides. The fourth side is the opening to the storage shed. Six double-metal mesh doors that could be padlocked cover this opening. The roof is made of corrugated metal and slopes to the north.

When the Building 771's Pu Recovery fluorination process was changed from a batch to a continuous process, use of HF increased, and there was a need to have more HF cylinders on hand. Building 714A was built to store full and empty HF cylinders. There are no utilities to the facility. Building 714A is empty and out of service.

2.22 Building 715, Emergency Generator

Building 715 was built in 1975 to house Emergency Generator # 1 for Buildings 771 and 774. The building is constructed of concrete blocks and houses a diesel-powered generator and the necessary control equipment to operate the system. It is 33 feet 4 inches long x 22 feet 9 inches wide x 18 feet high covering 824 square feet. The building was built on an above-grade reinforced-concrete slab six inches thick tied to foundation walls. The walls are of concrete block construction with horizontal reinforcing at various intervals, and vertical steel reinforcing bar at the corners and at selected points in the walls. At the points where there is reinforcing bar, grout was poured into the void space in the blocks. The roof is a poured-steel reinforced-concrete slab six inches thick.

Building 715 is in service. There is no heating, ventilation and air conditioning in Building 715. There is battery power to start the diesel motor and a block heater to keep the diesel motor warm for instant starting. The facility also has a fire sprinkler and alarm system.

2.23 Building 716, Emergency Generator

Building 716 is the Emergency Generator # 2 for Buildings 771 and 774. It is a containerized unit containing a diesel-powered generator and a roof mounted muffler and exhaust stack. The generator is built into an 8 feet wide x 40 feet long x 9 feet 2 inches high cargo container for 286 square feet of floor space. The foundation consists of 18 spring-mounted vibration-dampening devices, which rest on a concrete slab slightly larger than the cargo container dimensions. The floor of the cargo container was reinforced to withstand the weight of the diesel motor and the generator. One wall has an entrance door and an air inlet with louvers. The roof is the metal top of the cargo

container, reinforced where the muffler and exhaust stack are positioned. The Building 716 walls are of ribbed-painted metal.

Building 716 is in service. It has no heating, ventilation or air conditioning. Utilities needed for this facility are battery power to start the diesel motor and a block heater to keep motor warm at all times for instant starting. The facility also has a fire sprinkler and alarm system.

2.24 Building 717, Sampling Shed

Building 717 was the magnehelic building/sampling shed for the Building 771 exhaust stack. It is 9 feet L x 7 feet W x 8 feet H covering 48 square feet of floor space. It has black-iron framed slopping roof and black-iron framed building structure with corrugated metal sides and roof. The facility has one glass-panel painted-steel access door. The facility was constructed to protect instruments from the weather when the Building 771 exhaust stack gases were sampled. The building is not in service. Radioactive materials and chemicals have never been used or stored in this facility.

2.25 Building 728

B728, aka the B728 Process Waste Pit, is the pump house and access point for two underground plenum deluge tanks for Building 771. B728 was constructed in 1953. The size of Building 728 is 9' long X 6'8" wide X 8'6" high. B728 has 101 square feet of floor space. Building 728 is currently inactive.

The facility is a reinforced concrete structure that sits partially below grade. The foundation for the building is the top of the plenum deluge catch tanks. The walls are 8-inch thick reinforced concrete with one opening in the south wall for the door. The walls are two feet below grade and three feet above grade and support a slab roof. The roof is a six-inch thick reinforced concrete slab. There are two pumps in the building to pump any plenum deluge water to B774, a sampling system, a level detection system, and manhole covers to gain access to the Tank 292 (on the west side) and Tank 293 (on the east side). The tops of the tanks are two feet below grade. There is no HVAC system in the building. The only utility supplied to the building is electricity from B771.

2.26 Building 770, Offices and Stockroom Facility

Building 770 is a 62 feet L x 50 feet W x 22 feet H metal pre-fabricated modular building that was built in 1965 to be used as a construction fabrication shop and pipe shop. It contains approximately 2,860 square feet and is built on a concrete slab that is tied into the building foundation walls. The walls are vertical-standing, corrugated 11-gage sheet metal panels over a Butler-type frame. On the west and south sides there are rollup truck doors and a man-door. The roof is made of corrugated 11-gage sheet metal slopping to the north and south.

Presently it is used as a Building 771 supplies storeroom, and for offices and a war room. The walls for the offices are gypsum board over steel studs. The ceilings in the offices are

gypsum board over steel studs. Electric heaters supply heating for the offices. Air conditioning is supplied by swamp coolers located in the west and east side of the building at the top of the gable. Electricity is the only utility supplied to the building. The facility is connected to the Smoke, Heat Detection and Fire Alarm System.

Historically the building was used to store radioactive wastes, and spills have occurred (refer to the 1992 Historical Release Report). In August 1972, a scrap box stored inside B770 was punctured and contaminated 3,600 square feet inside and 500 square feet outside the building. Levels of contamination ranged up to 200,000 dpm/cm^2. In September 1972, a drum containing spent ion exchange resin residue leaked inside B770 onto the concrete floor. Spills were cleaned up.

2.27 S770, Carpenter Storage Shed

S770 is the Carpenter Storage Shed and is located directly north of Building 771B. The facility was constructed and put into service at its present site in 1970. The storage shed is constructed from plywood, built on skids, and is approximately 6 feet wide x 16 feet long x 10 feet high. The storage shed has one set of double-plywood doors, which face east. The roof of the storage shed is covered with corrugated metal. All of the facility walls are painted plywood.

The facility is in service as an unheated storage facility. The storage shed does not have any heat or utilities. Radioactive materials and hazardous chemicals have never been used or stored in this facility.

2.28 Building 771B, Carpenter Shop

Building 771B is the Carpenter Shop for the Building 771/774 Cluster facilities. The facility is north of Building 771 and approximately 35 feet west of Building 770. Building 771B was built and placed into service in 1970. Building 771B is approximately 25 feet long x 18 feet wide x 9 feet high at the roof peak, and the facility has approximately 564 square feet of floor space, which includes add-on constructed storage space. The facility is constructed from wood on a poured concrete slab. The facility has two sets of double wooden doors and two single entry doors, all of which are on the east side of the building. The Building 771B roof is covered with corrugated metal over insulation. The exterior walls are covered with vinyl siding over insulation.

The Building 771B Carpenter Shop is in service. Utilities include electrical power to operate the various electrical carpenter tools and to provide electrical heat. Radioactive materials and hazardous chemicals have never been used or stored in this office facility. Product chemicals such as caulking, sealants, glues, etc. are used and stored in the Building 771B Carpenter Shop.

2.29 Building K771N (aka Building B771K)

Building K771N is a pre-fabricated modular facility that was moved as a newly constructed facility next to Building 773 in 1999 to serve as a hot-food building for the

Building 771/774 Cluster. It is located approximately 8 feet southwest of Building 773. The size of K771N is approximately 10 feet wide x 17 feet long x 10 feet high with 160 square feet of floor space. There are two entries, one on the north side and one on the east side, with one window on the west side. The unit siding is baked-on enamel corrugated sheet metal over insulation. The roof also is corrugated metal over insulation. The facility is skid-mounted.

The facility presently is not being used, and it is locked. Utilities are electric power for heating, cooling, and keeping food hot until served. K771N has always been a building to serve hot food. Radioactive materials and chemicals have never used or stored in this facility.

2.30 Building 772, New Breathing Air Facility

Building 772 is 37 feet 10inches long x 30 feet wide x 16 feet high with 1129 square feet of floor space. It was constructed in 1992 and equipped to supply HF to the process in Building 771. However, the HF supply facility never went operational (HF was never introduced to the equipment). When production at Rocky Flats was stopped, B772 was stripped out of its equipment in 1999 and converted to a supplied breathing air facility. There are two breathing air systems currently installed in the building. Two oil-free compressors are located at the east end of the building. The receiver tanks, conditioner equipment, and monitoring equipment and instrumentation for air quality are located in the west end.

B772 is constructed of cement blocks. The foundation walls are three feet below grade, which support an on-grade 6-inch thick reinforced, concrete slab. The roof is of a metal-pan construction and has a gutter on the east end of the building. The walls are cement block 15 feet high with horizontal reinforcement at intervals. There are two man-doors, one each in the east and west ends of the building and an outside wall-mounted rollup truck door on the east side. The building has no windows in it. There is no suspended ceiling in the building. The lights and the original overhead crane monorail are suspended from the I-beams, which are supported by the north and south walls. The overhead crane has been removed, but the monorail is still in place. There is no heating, ventilation and air conditioning. Electric and emergency power for the building comes from Building 771. Building 772 currently is not in operation supplying breathing air for Building 771. The facility is being SO tested and certified for breathing-air use and will be put into service later in FY 2001.

2.31 Building 772A, HF Pit

Building 772A is a 26 feet long x 13 feet wide x 6 feet 6 inches deep, poured reinforced concrete pit, covering 400 square foot. The concrete structure is an open scrubber pit. The facility was never completed due to the stoppage of production work at Rocky Flats. It was to be the support structure for the scrubber system for the HF building. The one-foot above and the five-foot below grade concrete structure supports 18-inch steel I-beams that were put into place. Building 772A was never used and will never be put into service.

2.32 Building 773, Old 771 Guard Post

Building 773 was the original guard post that personnel entered to gain access to Building 771. It was built in 1953. It is 14 feet long x 13 feet7 inches wide x 10 feet high covering 190 square feet of floor space. The facility is constructed from reinforced concrete that has windows on all sides and three doors. There is a low counter separating the security personnel from the Building 771 personnel entering and exiting the building through two of the doors.

The foundation is a footing approximately two feet below grade that supports the walls. The walls are poured-in-place reinforced concrete that have columns between the window and door openings that go to the roof to support it. At the window openings there is a sloping-out poured-sill plate. The top of the sill plate is five feet above the floor. The windows are of the multi-paned steel sash type. The roof is a poured-in-place reinforced concrete slab that extends three feet from the walls. The floor is a poured-in-place, on-grade reinforced concrete slab. The doors are made of steel with two wire reinforced glass panes in the top half of the door. Heating for the building is provided by wall-mounted electric heating units. The original building was not air-conditioned.

When the PAC was completed, the facility was converted for use as an Incident Command Post. When the building was converted to the incident command center, a roof-mounted air conditioner was put in place to cool the electronics that were placed in the building. The duct for the air was brought into the building through a hole in the roof. Electricity, emergency power, and the Life, Safety/Disaster Warning System all comes from Building 771. Presently, Building 773 is unused. Radioactive materials and chemicals have never used or stored in this facility.

2.33 Building 775, Sanitary Sewage Lift Station

Building 775 is an active sewage lift station for the Building 771 Cluster sewage system. It was built in 1953. It is 16 feet long x 9 feet wide x 6 feet high structure. The 152 square foot building sits over the sewage receiver tank and covers the pumping system that lifts the sewage up the hill and into the gravity drain system to the sewage treatment facility (Building 995). The tank is concrete, has a 2,000 gallon capacity, and receives sanitary flows from Buildings 771/774, the sewage lift station for the restroom trailer (T771L), and Building 790, as well as flows from the B790 footings drainage system.

The foundation for the building is the top of the sewage tank. The building construction is of reinforced concrete. The walls start two feet below grade and extend four feet above grade, support the roof, and are 12 inches thick. There is one entrance into the building on the north side, which has a locked steel door. The roof is a poured reinforced-concrete six-inch thick slab that extends six inches from walls. A vent pipe goes through the roof to allow the sewer gases to escape from the sewage holding tank under the building. A manhole in the roof allows lowering of equipment to the bottom of the pump room during maintenance operations. The walls of the building inside and out are not painted, but the

steel door is painted. The ceiling of the building is the underside of the roof slab and is not painted.

There are electric heaters on one wall to supply heat to the building in the winter. Ventilation for the building is a weatherproof, manually operated louver in the south wall of the building and a fixed weatherproof louver in the door. Electric power is supplied from Building 771.

2.34 Building 771/774 Cluster Tanks

The following is a listing of Building 771/774 Cluster Tanks along with a brief description of each tank and current status:

- Tank 173, Propane Storage Tank, located southwest of T771B Office Trailer, supplies gas for heating and cooling in the office trailer. Tank 173 is in service.
- Tank 174, Liquid Argon Storage Tank, located north of B771C, is operationally empty and out of service.
- Tank 175, Liquid Nitrogen Storage Tank, was located north of B771C and has been removed.
- Tank 176, Sodium Hydroxide Tank, is located north of B774 near the entry door. Historically sodium hydroxide spills have occurred during filling and sampling operations. Tank 176 sits on IHSS/PAC 700-139.1 (N) land/soils. Tank 176 is operationally empty and out of service.
- Tank 179, Propane Storage Tank, located southeast of T771G, used for heating and hot water in the T-771G and 771-DT Locker and Shower Facilities. Tank 179 is in service.
- Tank 180, Cooling Water Storage Tank, located on the B774 roof near the B774 Cooling Tower. Tank 180 operationally empty and out of service.
- Tank 182, Neutralized Waste 2nd Stage Holding Tank, aka Tank 66, is an underground storage tank located southeast of B774. Tank 182 is part of IHSS/PAC 700-124.2 and IHSS/PAC 700-125. The tank was overfilled, and 500 gallons of process wastes were released to the environment. Tank 182 is out of service and has been filled with foam.
- Tank 183, Neutralized Waste 2nd Stage Holding Tank, aka Tank 67, is an underground storage tank located southeast of B774. Tank 183 is adjacent to Tank 182 and is part of IHSS/PAC 700-124.3. Tank 183 is out of service and has been filled with foam.
- Tank 184, Neutralized Waste 2nd Stage Holding Tank, aka Tank 68, is an underground storage tank located southeast of B774. Tank 184 is adjacent to Tank 182 and is part of IHSS/PAC 700-124.1. Tank 184 is out of service and has been filled with foam.
- Tank 185 (aka Tank 771-4204), Potassium Hydroxide Holding Tank, is located southeast of B714. Tank 185 sits on IHSS/PAC 700-139.2 (S) land/soils. Tank 185 is operationally empty and out of service.

- Tank 192, Underground Diesel Storage Tank (aka Diesel UST Tank 20), is located west of B714A. Tank 192 is out of service and has been filled with foam.
- Tank 193, Underground Diesel Storage Tank (aka Diesel UST Tank 21), is located southeast of B715. Tank 193 is out of service and has been filled with foam.
- TK-21A, Aboveground Diesel Storage Tank (aka TK-21), is located southeast of B715. TK-21A is in service.
- Tank 194, Hydrofluoric Acid Storage Tank (aka Tank D-44 HF Mist/KOH Tank), is located east of B714. Tank 194 sits on IHSS/PAC 700-139.2 (S) land/soils. Tank 194 is operationally empty and out of service.
- Tank 195, Hydrofluoric Acid Storage Tank (aka Tank D-45 HF/KOH Scrubber), is located northeast of B714. Tank 195 sits on IHSS/PAC 700-139.2 (S) land/soils. Tank 195 is operationally empty and out of service.
- Tank 197 (aka Tank 207), LP Gas Storage Tank 450-781, has a 18,377-gallon capacity, is located southeast of B771/774, and is out of service.
- Tank 292, Underground Plenum Firewater Collection Tank (aka UST Tank 38), is located west of B728. It was built in 1952. Between 1953 and the late 1950s, the tank held process wastewater. In approximately 1984, the tank was converted to contain fire suppression deluge overflow for the B771 plenums. Tank 292 is part of IHSS/PAC 126.1. Tank 292 has known leaks, and groundwater has periodically leaked into this tank. Tank 292 is in service.
- Tank 293 Underground Plenum Firewater Collection Tank (aka UST Tank 39), is located east of B728. It was built in 1952. Between 1953 and the late 1950s, the tank held process wastewater. In approximately 1984, the tank was converted to contain fire suppression deluge overflow for the B771 plenums. Tank 293 is part of IHSS/PAC 126.2. Tank 293 has known leaks; and groundwater has periodically leaked into this tank. Tank 293 is in service.
- Tank 774A, the east Steam Condensate Tank (aka Tank D-108), is located northwest of B774. Tank 774A is located within IHSS/PAC 700-1108 and IHSS/PAC 700-139.1 (N) land/soils. Tank 774A is located on a concrete slab, and the bottom is reportedly corroded. Tank 774A is operationally empty and out of service.
- Tank 774B, the west Steam Condensate Tank (aka Tank D-107), is located northwest of B774. Tank 774B is located within IHSS/PAC 700-1108 and IHSS/PAC 700-139.1 (N) land/soils. Tank 774B is located on a concrete slab, and the bottom is reportedly corroded. Tank 774B is operationally empty and out of service.

3.0 SUMMARY OF CHARACTERIZATION ACTIVITIES

An RLC was designed to demonstrate that DOE-added radioactive materials are not present or have been removed to the extent that residual levels of contamination are below the Derived Concentration Guideline Levels (DCGLs) and that the facilities can be released without restrictions and/or disposed of as sanitary waste/construction debris. This section of the RLCR Supplement presents data quality objectives (DQOs) used, historical and process knowledge, and additional characterization performed to release the 52 facilities. Section 3.0 also describes the survey units for characterizing the facilities, and defines the methods used to perform radiological surveys, scans and sampling. The RLC followed the guidance provided in the Site Reconnaissance Level Characterization Plan (RLCP) and Pre-Demolition Survey Plan (PDSP).

As indicated in Sections 1.0 and 2.0, T771Q and T771T were included in this RLC. However, these facilities were previously characterized under the Group B RLC and were not characterized as part of this RLC. T771Q was T883C, and T771T was T881A. Both were moved into the 771 complex and renamed. Refer to the Group B RLCR and project file for characterization data.

3.1 Data Quality Objectives

The following section revisits the original DQOs used in designing the RLC Characterization Package.

The Problem

The problem consists of the unknown volume of floors, walls, ceilings and roofing, and the unknown extent of radiological and chemical contamination on and in floors, walls (interior and exterior), ceilings and roofing (i.e., whether or not the facilities can be released).

The Decision

The decision is whether release criteria for radiological and chemical constituents are met (see Decision Rules below), based on types and quantities of any radiological and chemical contamination present.

Inputs to the Decision

The inputs to the decision include historical and process knowledge; data collected from this RLC; and release criteria and waste management regulations (see Decision Rules below).

Decision Boundaries

The decision boundaries are the spatial confines of the facilities, including slabs, floors, walls, ceilings, roofing and any fixed equipment associated with the 52 facilities listed in

Table 1-1. Interior and exterior surfaces are included, including those below grade. Environmental media were not considered within the project boundaries.

Decision Rules

This section presents the rules to support the characterization decisions, specific to each type of contamination. Decision rules are applied based on process knowledge, facility wallkdowns, and/or radiological surveys.

Radionuclides

- If all radiological survey and scan measurements are below the surface contamination guidelines provided in DOE Order 5400.5 (Radiation Protection of the Public and Environment), the related surface is considered not radiologically contaminated.
- If any radiological survey or scan measurement exceeds the surface contamination guidelines provided in DOE Order 5400.5, the related survey unit must be evaluated per the statistical tests described in Section 7.0 of the RFETS Pre-Demolition Survey Plan.
- If any radiological sample measurement exceeds the volume contamination thresholds provided in the NRA Verification Program (refer to Kaiser-Hill letter to DOE, RFFO, Application of Surface Contamination Guidelines from Department of Energy Order 5400.5 - WAH-064-98, March 10, 1998), the related volume is classified as radiologically contaminated.

Hazardous Waste

If decommissioning waste is mixed with or contains a listed hazardous waste, or if the waste exhibits a characteristic of a hazardous waste, then the waste is considered hazardous waste in accordance with 6 CCR 1007-3, Part 261 and 268.

Hazardous Substances

If material contains a listed hazardous substance above the CERCLA reportable quantity (40 CFR 302.4), the material is subject to CERCLA regulation (i.e., notification requirements).

Beryllium

If surface concentrations of beryllium are equal to or greater than 0.2 $\mu g/100\ cm^2$, the material is considered beryllium contaminated. However, this decision rule does not apply to this RLC. No sampling and analysis was conducted. . There is no record of beryllium operations ever having been conducted in any of these facilities.

Polychlorinated Biphenyls (PCBs)

- If material contains PCBs from the manufacturing process at concentrations ≥ 50 ppm, the material is considered PCB Bulk Product Waste and subject to the requirements of 40 CFR 761.

- If PCB contamination from a past spill/release is suspected, or if a PCB spill is discovered that has not been cleaned up, the associated material is considered PCB Remediation Waste and subject to the requirements of 40 CFR 761. PCB remediation waste includes: materials disposed of prior to April 18, 1978, that are currently at concentrations ≥50 ppm PCBs, regardless of the concentration of the original spill; materials which are currently at any volume or concentration where the original source was ≥500 ppm PCBs beginning on April 18, 1978, or ≥50 ppm PCBs beginning on July 2, 1979; and materials which are currently at any concentration if the PCBs are spilled or released from a source not authorized for use under 40 CFR 761.
- If a waste or item contains PCBs in regulated concentrations, the waste or item is considered PCB-regulated material and subject to the requirements of 40 CFR 761.

Asbestos

If any one sample of a sample set representing a homogeneous medium results in a positive detection for asbestos (i.e., >1% by volume), then material is considered asbestos containing material (ACM; 40 CFR 763 and 5 CCR 1001-10).

Tolerable Limits on Decision Error

Tolerable limits on decision error (95% confidence) are applied to the design of survey and sampling plans, as well as actual measurement data resulting from implementation of the plans. Survey area size limits are based upon the requirements of Table 1 of PRO-475-RSP-16.01. Survey areas were developed based on current radiological postings, the procedurally driven size limitations, function and use of area, and where possible, maintaining contiguous survey areas.

Decision error does not apply to asbestos sample sets per 40 CFR 763. Results are compared with the decision rule on a sample-by-sample basis.

Optimization of Plan Design

Radiological characterization was conducted on interior floors, walls and ceilings, and exterior walls and roofs as necessary. The following criteria were used to develop the radiological survey/sampling characterization package:

Radiological field measurement methods and instrumentation are described in Section 3.0 of the site PDSP (MAN-127-PDSP).

Radiological sampling and preparation for laboratory measurements are described in Section 3.0 of the site PDSP (MAN-127-PDSP).

If hazardous waste, hazardous substance, beryllium, PCB or asbestos surveys/samples are required, sampling and analysis are conducted in accordance with Section 6.0 of the D&D Characterization Protocol.

3.2 Radiological Characterization

Radiological characterization was performed to define the nature and extent of radioactive contamination that may be present on or in the 52 facilities. This section reviews the historical radiological information on these facilities, or lack thereof, and discusses the RLC conducted. Radiological hazards are discussed in Section 4.0, and RLC data are presented in Attachments A - AF of this report. The RLC radiological survey packages containing field data are maintained in the 771 Closure Project RLC file.

3.2.1 Summary of Historical Information

Historically, radiological surveys for B771C, the B771 exhaust tunnel and stack, outbuildings, trailers and tanks may have been performed, but the data are not readily available. There are no Plant Action Tracking System items outstanding on these facilities, which indicates no associated radiological program deficiencies.

3.2.2 Summary of RLC Data Collected

Although historical review indicates no use of DOE-added radioactive material in most of the B771 outbuildings, trailers and tanks, insufficient quantitative radiological data existed to designate these structures as non-impacted (Type 1) pursuant to the site PDSP. Also, insufficient data existed on potential Type 2 and 3 facilities. Therefore, radiological surveys were performed in and on all facilities. A summary of each survey unit and the data collected is provided in Table 3-1. Survey unit maps are provided in Attachment AA.

Table 3-1 Survey Units and Data Types for 771 Closure Project Facilities

Survey Area	Survey Unit [5 & 9]	Type	Class	Description	% Scan	# TSAs/ Smears	# Rad. Samples
AJ	771001	1	3	B772	10	15	0
	771002	1	3	T771A Interior	10	15	0
	771003	1	3	T771B Interior	10	15	0
	771004	1	3	T771C Interior	10	15	0
	771005	1	3	T771E Interior	10	15	0
	771006	1	3	T771G Interior	10	15	0
	771007	1	3	T771H Interior	10	15	0
	771008	1	3	T771J Interior	10	15	0
	771009	1	3	T771K Interior	10	15	0
	771010	1	3	Exterior of Trailers E, H, J, K	10	15	0
	771011	1	3	Exterior of Trailers A, B, C, G	10	15	1[1]
	771012	1	3	T771F	10	15	0
	771013	1	3	T771L	10	15	0
	771014	1	3	T771MB	10	15	0

	771015	1	3	T771M, S770 & K771N	10	15	0
	771016	2/1	3	714/714A	10	15	1[1]
	771017	1	3	715/716/717	10	15	1[1]
	771018	1	3	772A	10	12[6]	0
	771019	2/1	3	770/771B	10	15	1[1]
	771020	1	3	B773/T773S/B 775	10	15	1[3]
	771023	2	2	B728 Exterior	50	15	1[3]
	771024	1/2	3	Tank Exteriors T-774B, T-21A, T-182, T-183, T-194, T-195, & T-197 (cover only)	10	9[4]	0
	771025	1/2	3	Tank Exteriors T-774A, T-173, T-174, T-176, T-179, T-180, T-184 & T-185 (cover only)	10	6[4]	0
AI	771026	N/A	N/A	IDEC West End Interior	10	7[2]	0
	771027	N/A	N/A	IDEC East End Interior	10	7[2]	0
	771030	1	3	T771R T771-DT	10	15	0
AB	771035	2	2	771C, Rooms 302, 303, 305, 306, 308, &309	0[7]	15	15[10]
	771036	2	2	771C, Rooms 301 and 304	0[7]	15	15[10]
AG	771037	3	2	B771 Exhaust Stack	0[8]	15	37[10]

1. Coupon sample collected to verify the presence of Po-210 versus DOE-Added Radioactivity.
2. Survey could not be completed due to equipment interference. PDS will be completed following equipment removal.
3. Concrete samples collected to verify the presence or absence of DOE-Added Radioactivity.
4. Survey could not be completed due to the location of the tanks in a wetlands area. PDS will be completed at a later date.
5. Survey units include both facility interior and exterior unless otherwise specified.
6. Survey could not be completed due to standing water. PDS will be completed prior to removal.
7. Radiological conditions are expected to change in these areas (D&D activities are on-going). Therefore, surface scanning will be performed following the completion of D&D.
8. Surface scanning and surface contamination surveys have not been successful in detecting elevated activity. Sampling is more prudent due to the uneven surface.
9. Facility Type and Class were initially determined prior to surveys/sampling. Facility Type is revised based on RLC/PDS results (see Section 7.0).
10. Paint samples collected to verify the presence or absence of DOE-Added Radioactivity.

3.2.3 Sampling and Field Measurement Methods, Procedures and Equipment

Measurements were performed to evaluate the contaminants of concern in B771 (i.e., Pu-239 and Am-241 -- transuranic alpha-emitters). The TSA measurements were collected with a NE Electra using a DP-6 probe (90-second counts). Removable activity measurements were analyzed with an Eberline SAC-4 (two-minute counts). Surface scans were performed with the NE Electra at a scan rate of 1.5 inches per second. Refer to Attachment AC for *a priori* instrument MDC calculations.

Radiological survey packages were developed for each survey unit in accordance with RFETS Radiological Safety Practices (RSP) 16.01, "Radiological Survey/Sampling Package Design, Preparation, Control, Implementation and Closure," RFETS RSP 16.02, "Radiological Surveys of Surfaces and Structures," and RFETS RSP 16.05, "Radiological Survey/Sample Quality Control."

Specific TSA and removable survey locations were selected using a random number generator for all facilities. Scan locations (for Type 1 facilities) were biased toward heavy foot-traffic areas and areas likely to collect airborne particulates. If a random location was inaccessible, the measurement was obtained as close as possible to the original location, and the new location was annotated on the survey map. Scan locations are indicated on some of the survey maps.

Measurement locations were clearly identified with labels or permanent markings to provide a method of referencing survey results to survey measurement locations. These measurement locations were incorporated into a grid map with a one-square meter reference coordinate system. Measurement results as well as statistical data analyses are presented in Attachments A – Z and AD – AF for each survey unit.

If elevated readings were observed on the metal roofs and walls of trailers, an investigation was performed to verify the presence of Po-210 versus DOE-added radioactivity. Po-210 is a radon progeny that selectively oxidizes to metal surfaces. This phenomenon has been observed on other structures at RFETS, and has been demonstrated at other nuclear facilities. The elevated roof activity was dispositioned per RFETS Technical Basis Document TBD-00156, Using Graphical Data Distribution Analysis to Distinguish between Background and DOE-Added Materials in Environmental Data Sets, which provides a method of statistically evaluating the data collected from the affected surfaces. Initially, the random locations on the roof were relocated to other surfaces of the building exterior (refer to the individual data summaries for a description of the locations that were moved). Next, twenty (20) total surface activity measurements were collected at random locations across the affected surfaces (roof surfaces). The data was then plotted, and a statistical test performed to verify that the activity represented a single log-normal distribution with 95% confidence. If the statistical evaluation did not conclude that the elevated activity was due to a single log-normal distribution, as would be expected for natural radioactivity, then a coupon sample (2 inch diameter) was collected and analyzed to verify the presence of Po-210 and the absence of DOE-added radioactivity (Pu-239 and Am-241) (refer to Attachment AB for the Po-210 investigation

RC

data and coupon sample results). Technical Basis Document TBD-00153, Use of the OASIS for Direct Differentiation between Po-210 and DOE-added Materials, provides a description of the OASIS system and supporting QA evaluations.

When elevated readings (i.e., ≥ 100 dpm/100 cm^2 were observed on a porous or painted surfaces (Survey Units 771020, 771023, 771035, 771036 and 771037), a concrete or paint sample was collected and submitted to the Building 559 laboratory for isotopic analysis (for Pu-239, Pu-239/240, and Am-241).

3.2.4 Laboratory Analysis

Radiological coupon samples collected from Survey Units 771011, 771016 and 771017 were analyzed using the Oxford Alpha Spectroscopy Integrated System (OASIS) (refer to Technical Basis Document TBD-00153, Use of the OASIS for Direct Differentiation between Po-210 and DOE-added Materials).

The coupon and concrete samples collected from Survey Units 771019, 771020, 771023, 771035, 771036 and 771037 were submitted to RFETS laboratories and/or approved contracted laboratories and were analyzed via a Site-approved method (see Section 6.2.3). The laboratories have an established quality assurance/quality control program that assures the validity of the analytical results. The laboratory analytical methods used are capable of measuring levels at or below 50% of the established release criteria. All results state the detection limit for the analysis. Results are detailed in the Data Summaries (Attachments A – Z and AD – AF) for each individual survey unit.

3.3 Chemical Characterization

Chemical characterization was performed to determine the nature and extent of chemical contamination that may be present on or in the 52 facilities. Characterization was based on a review of historical and process knowledge and visual inspections, and is presented in this section. Limited historical data are available on these facilities, and recent beryllium data on B770 were collected by Occupational Safety and Industrial Hygiene (OS&IH). The need for additional sampling and analysis, if any, is also discussed. Related hazards are discussed in Section 4.0.

3.3.1 Summary of Historical Information

Information on contaminants of concern (i.e., asbestos, beryllium, RCRA/CERCLA constituents, lead in paint, and PCBs) is presented below.

Asbestos: No historical asbestos inspection data exist for any of the 52 facilities. An asbestos inspection was required for RLC.

Beryllium: Beryllium operations were never conducted in any of the 52 facilities (refer to the D&D Facility Characterization Interview Checklist, the Type I Facility Checklist for the 771 Closure Project Facilities, and the Location of Known Beryllium Areas). In addition, Be contamination within B771 and B774 has been very limited and controlled,

and therefore, it is not likely that the outbuildings have been contaminated by Be. Furthermore, five beryllium wipes samples were taken from the walls of the 771 stack on June 13, 2000, and all samples were less than 0.1 μg/100 cm^2 (refer to Table 3-2 and Attachment AG). Also, 15 Be smear samples were taken from B770 in May 2001 as part of OS&IH's quarterly housekeeping program, and all samples were less than 0.1 μg/100 cm^2 (refer to Table 3-2 and Attachment AG). Therefore, consistent with the RLCP and the PDSP, beryllium sampling of Type 1 facilities is unnecessary and was not conducted. Additional Be sampling may need to be performed within Type 2 and 3 facilities during in-process characterization and the PDS.

The 771/774 Industrial Hygiene and Safety (IH&S) organization has performed an extensive characterization of 771 and 774 for Be contamination. To date, 2,547 Be smear samples have been taken from ceilings, walls, floors and equipment in the facility. With the exception of samples from the known Be gloveboxes, all but four of the samples (2,498) were found to be below 0.1 μg/100 cm^2 and the analytical limit of detection for Be. The four sample locations that were above the action level and detection limit were decontaminated and resurveyed to verify that no residual Be remained. Also other samples taken in the area did not reveal elevated Be levels. All fourteen smear samples from 771C were below the analytical limit of detection of 0.1 μg/100 cm^2 (refer to Table 3-2 and Attachment AG). Refer to Interoffice Memorandum, May 16, 2000, to Chris Gilbreath, 771 Closure Project Environmental Manager, from Mike Brooks, 771 Closure Project IH&S Manager, on Beryllium Characterization of the 771/774 Closure Project Area, JMB-004-01.

Table 3-2 Beryllium Surface Sampling Results

Building	Room #	Sample Date	# of Beryllium Smears	Concentration (μg/100cm^2)
770	General Area	05-17-2001	15	<0.1
771C	301	01-24-2001	6	<0.1
771C	303	01-24-2001	2	<0.1
771C	304	01-24-2001	3	<0.1
771C	305	01-24-2001	1	<0.1
771C	306	01-24-2001	1	<0.1
771C	308	01-24-2001	1	<0.1
771 Stack	Interior of stack	06-13-2000	5	<0.1

RCRA/CERCLA Constituents [including metals and volatile and semi-volatile organic compounds (VOCs & SVOCs)]: According to historical and process knowledge, most of the facilities were not used for operations involving hazardous chemicals (D&D Facility Characterization Interview Checklist and Type I Facility Checklist for the 771 Closure Project Facilities). B771C was used to store waste drums,

however, no releases/spills are known to have occurred in the building, and no evidence of spills was observed during facility inspection. No chemical contamination of the B771 exhaust tunnel and stack is suspected. The trailers were used for offices, lockers, showers, break rooms, rest rooms, and guard posts. T771M is a new portable structure holding telecommunication equipment. B772 and B772 have never been put into service. B773 was a guard post, and K771N was a food service facility. B775 is a sanitary lift station, and B728 is the pump house for fire system deluge water. B717 was never used to store chemical samples or hazardous chemicals. B770, S770 and B771B may have been used to store hazardous chemicals (e.g., paints and thinners), but no evidence of spills was observed during facility inspections. B714 stored anhydrous HF, and all systems have been drained/emptied. B714A is an open-air metal structure that was used to store HF cylinders and is now out of service. Tank 180 held water and is now empty, Tank 174 holds liquid argon, and Tanks 173, 179 and 197 hold propane. B715 and B716 contain emergency generators that hold diesel fuel. Tank 21A holds additional diesel for the generators. Tanks 192 and 193 held diesel, but they have been emptied and foamed (i.e., closed in accordance with RFCA Attachment 13). Tank 176 held sodium hydroxide, and Tank 185 held potassium hydroxide, and both tanks have been emptied.

Tanks 292 and 293 hold fire system deluge water, and chemical contamination is unlikely, although the tanks held process wastes in the 1950s. Tanks 182, 183 and 184 held neutralized process wastes, but these tanks have also been emptied and foamed. Tanks 774A and 774b held condensate, have been emptied, and most likely are not chemically contaminated. Therefore, sampling for chemical contaminants in these facilities was not conducted as part of this characterization effort.

Some sampling of Type 2 and 3 facilities will be conducted during in-process characterization to confirm that facility systems and tanks have been fully drained and that residual contamination is not present, and to ensure compliant waste management. For example, B770 was used to store radioactive waste, and waste spills are known to have occurred. Some of the spilled wastes could have contained RCRA/CERCLA constituents (refer to Section 2.28).

Lead in paint: No information exists on the lead content of paints on the 52 facilities. However, Environmental Waste Compliance Guidance #27, Lead-based Paint (LBP) and Lead-based Paint Debris Disposal, states that LBP debris generated outside of high contamination areas shall be managed as non-hazardous (solid) wastes and need not be sampled unless the potentially lead-containing component is to be scabbled or otherwise comprise a separate waste stream. Therefore, because paints on most of these facilities will not be removed, analysis for lead in paint was not conducted. If paints are removed from any of the facilities, the removed paint will be characterized for waste management purposes pursuant to 6 CCR 1007-3.

Polychlorinated Biphenyls (PCBs): Based on historical and process knowledge, none of the 52 facilities contained equipment that contained PCB oils, except potentially the drum counter lift in B771C. Therefore, no PCBs could have been released and contaminated any of the 51 facilities. The B771C lift does not currently contain PCBs. Also, no

releases/spills of oil are known to have occurred around the B771C lift, and no evidence of spills was observed during facility inspection. Therefore, sampling for PCBs in the floor was not necessary for RLC and was not conducted. Because the B771 lift could have contained PCB oils historically, if oil stains are observed on the floor after the lift is removed, concrete samples will be taken and analyzed for PCBs as part of in-process characterization.

Some paints on facility surfaces may contain PCBs at concentrations ≥ 50 ppm. However, it is expected that 50 out of the 52 facilities (i.e., all except B771C and the 771 exhaust tunnel) will be reused, returned to commerce, or disposed of off-site at a permitted facility. Therefore, based on Environmental Waste Compliance Guidance #25, Management of Polychlorinated Biphenyls (PCBs) in Paint and Other Bulk Product Waste During Facility Disposition, sampling of paints on the 50 facilities is not required and was not conducted. Paint samples from B771C and the exhaust tunnel are currently being analyzed for PCBs. Current plans are to decontaminate B771C, as necessary, and to recycle the concrete on site, and to decontaminate the exhaust tunnel, as necessary, and to leave it in place. Any paints in the B771 exhaust tunnel will be removed. All removed paints and demolition debris will be managed in compliance with regulations governing hazardous waste (6 CCR 1007-3) and PCB bulk product waste (i.e., 40 CFR 761).

Some fluorescent light ballasts containing PCBs exist in some of the facilities due to their age. All PCB ballasts will be removed and segregated as a separate waste stream prior to disposition of the facilities, and managed in compliance with Site procedures and applicable regulations (e.g., 40 CFR 761).

3.3.2 Summary of RLC Data Collected

Based on historical information presented in Section 2.0 and the inspections conducted, the only RLC chemical data collection required was sampling for asbestos-containing material. An asbestos inspection of the facilities was conducted by a CDPHE-certified asbestos inspector.

deterioration. Physical hazards are controlled by the Site Occupational Safety and Industrial Hygiene Program, which is based on OSHA regulations, DOE orders, and standard industry practices.

Table 4-1 Summary of Radiological and Chemical Hazards

Facilities	Radiological Hazard	Chemical Hazard	Asbestos Hazard
T771 A – C, E – H, J – M, MB, Q, R, T & DT	None	None	Yes (T771 A & C)
T773 S	None	None	None
B714	None	Potential HF (interior)	Yes
B714 A	None	None	None
B715	None	Diesel (product)	Yes
B716	None	Diesel (product)	None
B717	None	None	None
B728	Potential (interior)	None	None
B770	Am-241 on exterior	Potential	None
S770	None	None	None
B771 B	None	None	Yes
K771 N	None	None	None
B772	None	None	None
B772 A	None	None	None
B773	None	None	Yes
B775	Potential (interior)	None	None
Tanks 173 & 179	None	Propane (product)	None
Tank 174	None	None	None
Tank 176	None	Potential NaOH (interior)	None
Tank 180	None	None	Yes
Tanks 182 – 184	Potential	None	None
Tank 185	None	Potential KOH (interior)	None
Tanks 192 & 193	None	None	None
Tanks 194 & 195	None	Potential HF (interior)	None
Tank 197	None	Propane (product)	Yes
Tank 21A	None	Diesel (product)	None
Tanks 292 & 293	Potential	Potential (interior)	Yes
Tanks 774A & 774B	Potential	None	Yes
B771C (Annex)	Surface media contamination on floor of Room 303	None	Yes
B771 Exhaust Tunnel & Stack	Elevated activity to a height of ~20 feet	None	None

Some below-grade portions of the 52 facilities could be impacted (contaminated) by Individual Hazardous Waste Sites (IHSSs) and Under Building Contamination (UBC).

- The B771C foundation could be impacted by UBC 771, UBC 774 and IHSS 700-150.3. Impacts will be defined during future investigation of the UBC and IHSS, B771C in-process characterization and the Pre-Demolition Survey, and/or characterization of B771C demolition debris. (B771C is a Type 2 facility.)

4.0 HAZARDS

This section presents physical, radiological and chemical hazards by facility, including data from radiological field measurements and laboratory analysis. Radiological data are presented for each survey unit in Attachments A – Z and AD – AF.

The RLC confirmed that most of the facilities (inside and outside) do not contain radiological contamination above the release limits prescribed in DOE Order 5400.5 and the RFETS Radiological Control Manual. Radiological contamination was found in one area within B771C, on an exterior wall of B770, and in the B771 stack. Radiological spills also occurred in B770. In addition, there is potential for radiological contamination in both lift stations (i.e., B728 and B775), and on/in Tanks 182 – 184, 292 and 293, and 774A and 774B. Several exterior survey units contained numerous total surface activity measurements above the release limits prescribed in DOE Order 5400.5 and the RFETS Radiological Control Manual. These results were suspected to be elevated due to naturally occurring radioactive material (NORM), specifically Po-210, deposited on the roof surface. OASIS results validated the presence of Po-210 and the absence of DOE-added material in all exterior survey units, except the exterior of B770 where Am-241 contamination was identified. Radiological hazards are summarized by facility in Table 4-1.

For each facility, the potential for a chemical hazard due to each of the following contaminants was considered:

- asbestos;
- beryllium;
- lead and other metals;
- VOCS/SVOCS; and
- PCBS.

Each potential chemical hazard was evaluated primarily based upon historical and process knowledge coupled with visual inspections (refer to Section 3.3). Each facility also was inspected for asbestos-containing material (ACM) and chemical spills, including PCB leaks from PCB light ballasts. Some samples were taken and analyzed for ACM. Chemical hazards are summarized by facility in Table 4-1 and presented by chemical in Section 4.2. In addition, some facilities (i.e., tanks) still contain chemical product, and some (i.e., B714 and tanks) may contain chemical residues, as indicated in Table 4-1. B770 could contain contamination from historical releases.

Physical hazards associated with the facilities consist of those common to standard industrial environments and include hazards associated with energized systems, utilities, compressed gas, diesel fuel, and trips and falls. There are no unique hazards associated with the different facilities. The buildings have been relatively well maintained and are in good physical condition, and therefore, do not present hazards associated with building

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- The exterior of the 771 Exhaust Tunnel (surrounded by soil) could be impacted by UBC 771 and B771 IHSSs. Impacts will be defined during future investigation of the UBC and IHSSs, in-process characterization and the Pre-Demolition Survey, and/or characterization of demolition debris. (This tunnel is a Type 2 facility.)

- The bottom of the B770 slab (below grade) could be impacted by IHSSs north of B771 and B774. Impacts will be defined during IHSS investigation, in-process characterization and the Pre-Demolition Survey, and/or characterization of demolition debris. (B770 is a Type 2 facility.)

- The below-grade portion of B728 and Tanks 292 and 293, the below-grade portion of B775 and its tank, the below-grade portions of Tanks 182 – 184, and the bottom of the slabs for Tanks 774A and 774B could be impacted by IHSSs. Impacts will be defined during IHSS investigation, in-process characterization and the Pre-Demolition Survey, and/or characterization of demolition debris. (These facilities are Type 2 facilities.)

- The bottom of the B771B slab (below grade) and the below-grade portions of the supports for Trailers 771 A, C, G and DT could be impacted by IHSSs north of B771 and B774. These areas will be specifically characterized when they are removed as part of waste characterization activities. (The facilities are Type 1 facilities.)

- The bottom of the B773 slab (below grade) could be impacted by IHSS 700-150.2. The bottom of the slab will be specifically characterized when it is removed as part of waste characterization activities. (B773 is a Type 1 facility.)

- The bottom of the slabs for Tanks 174 and 176 (below grade) could be impacted by IHSSs north B774. The bottom of the slabs will be specifically characterized when the slabs are removed as part of waste characterization activities. (The facilities are Type 1 facilities.)

4.1 Radiological Hazards

The RLC (serving also as the PDS for the Type 1 facilities) confirmed that most of the B771 Cluster facilities addressed in this RLCR Supplement (inside and outside) do not contain radiological contamination above the release limits prescribed in DOE Order 5400.5 and the RFETS Radiological Control Manual. Radiological contamination was found in one area within B771C, on an exterior wall of B770, and in the B771 stack. Radiological spills associated with waste storage also occurred in B770. In addition, there is potential for radiological contamination in both lift stations (i.e., B728 and B775), and on/in Tanks 182 – 184, 292 and 293, and 774A and 774B. Exceptions are presented in Table 4-2:

As indicated in Section 3.0, T771Q and T771T were not characterized as part of this RLC. They were characterized as part of the Group B RLC pursuant to PDS requirements. Characterization results, based on historical knowledge and survey

measurements, indicate that both trailers are free of interior and exterior contamination. Refer to the Group B RLCR and project file for characterization data.

Table 4-2 Summary of Observed Elevated Activity, 771 Facilities (Excluding B771 and B774)

Survey Unit	Facility Description	Findings	Disposition (per Section 3.2.3)	Method	Type
771010	Exterior of Trailers E, H, J, K	Elevated activity on surface (> 100 dpm/100 cm^2). Elevated activity was initially identified from the survey of random locations on the roof (refer to Attachments A to Z for a description of locations that were moved.	Verified to be due to natural radioactivity Po-210 (refer to Attachment B)	Lognormal distribution	1
771011	Exterior of Trailers A, B, C, G			Sample	1
771012	T771F (Roof)			Lognormal distribution	1
771013	T771L (Roof)			Lognormal distribution	1
771014	T771MB (Roof			Lognormal distribution	1
771016	714 (Roof)			Two (2) samples -- wall and roof	1
771017	715, 716, 717 (Roof)			Sample	1
771030	T771R, T771-DT (Roof)			Lognormal distribution	
771019	B770	Elevated activity on exterior wall and roof (> 100 dpm/100 cm^2)	Wall measurement confirmed Am-241. Roof verified to be Po-210.	Coupon Sample	2
771035	771C, Rooms 302, 303, 305, 306, 308, &309	Elevated paint sample (~150 dpm/100 cm^2) on floor of Room 303	Confirmed Pu-239/240 and Am-241	Paint Sample	2
771037	B771 Exhaust Stack	Low levels of elevated activity identified in concrete matrix (ranging from 0.3 to 62.1 pCi/g). Additional sampling will be performed prior to demolition to define depth and height of elevated activity.	Confirmed Pu-239/240 and Am-241	Concrete Samples	2
771020	B773	Elevated activity on concrete roof (< 100 dpm/100 cm^2)	Low-levels (4 and 19.2 dpm/100 cm^2, respectively of Pu-239 detected). Suitable for unrestricted release (levels << transuranic limit of 100 dpm/100 cm^2).	Concrete Sample	1
771023	B728 Exterior			Concrete Sample	2

Refer to Attachment AB for the Po-210 investigation data.

Verification surveys will be conducted on concrete slabs after tanks and other structures (e.g., B716 and B771B) have been removed and before the slabs are removed. Pre-release evaluations also will be conducted on tanks and other equipment prior to their removal (e.g., the tank under B775). In addition, the bottom of the B772A pit will be surveyed after the standing water has been removed. The water and any sediment will also be characterized. Type 2 and 3 facilities will be investigated further during In-Process and Pre-Demolition Characterization.

4.2 Chemical Hazards

4.2.1 Asbestos

Eleven of the 52 facilities contain asbestos. Facilities containing asbestos, the location of the asbestos, the type of asbestos, and the hazard are presented in Table 4-3.

Table 4-3 Asbestos Hazards in 771 Closure Project Facilities (Excluding B771 and B774)

Facility	Location	Type of Asbestos	Abatement of Hazard[1]
B771C	Drywall, tape & joint compound (Rm 301& 303)	Non-friable	Potential for damage
	Pipe fittings & hanger saddles (Rm 301& 303)	Friable	Potential for damage
	Cementitious board (Rm 306)	Non-friable	Potential for damage
B714	Cementitious board (exterior walls and roof)	Non-friable	Potential for damage
B715	Vibration damper cloth	Non-friable (assumed)	Potential for damage
	Electrical arc chutes	Non-friable (assumed)	Potential for damage
	Roofing material and paint	Non-friable	Potential for damage
	Drywall, tape and joint compound	Non-friable	Potential for damage
	Exhaust flue insulation	Friable	Potential for significant damage
B773	Tar paper and fiberglass on ductwork on roof HVAC	Non-friable	Potential for damage
	Electrical wiring	Non-friable	Potential for damage
B771 B	Electrical wiring	Non-friable	Potential for damage
T771 A	Window putty	Non-friable	Potential for damage
	Black tar and green shingles	Non-friable	Potential for damage
T771 C	Vinyl flooring	Non-friable	Potential for damage
	Black tar and gray shingles	Non-friable	Potential for damage
Tank 180	Sealer/mastic on tank and valve flanges	Non-friable	Potential for damage
Tank 197	Cementitious board around the manifold station	Non-friable	Potential for damage
Tanks 774A & 774B	Insulation on piping, fittings, reductions and flanges	Friable	Potential for significant damage

[1]Denotes the potential for ACM being damaged during abatement. If there is damage, there is an exposure potential. The greater the damage, the greater the exposure potential.

The asbestos data are contained in Asbestos Characterization Report For The Building 771/774 Out Buildings, October 2000, which is maintained in the 771 Closure Project RLC file.

4.2.2 Metals (including beryllium and lead in paint)

According to historical and process knowledge, metals, including beryllium and lead, were not used or stored in 50 of the 52 facilities. B771C was used to store waste drums that may have contained metals, however, no releases/spills are known to have occurred in the building, and no evidence of spills was observed during facility inspection. B770 was used to store radioactive waste, and waste spills are known to have occurred. Some of the spilled wastes could have contained metals, and therefore, potential contamination will be further investigated during in-process and pre-demolition characterization.

Based on historical and process knowledge and analytical results, Be contamination is not present in any of the 52 facilities. Results from samples taken from 771C, B770 and the exhaust stack were all below the analytical limit of detection of 0.1 $\mu g/100\ cm^2$. Refer to Section 3.3.1, Table 3-2 and Attachment AG. However, additional Be sampling may need to be performed within Type 2 and 3 facilities during in-process characterization and the PDS.

Some paints may contain lead and other metals, however, Environmental Waste Compliance Guidance #27, Lead-based Paint (LBP) and Lead-based Paint Debris Disposal, states that LBP debris generated outside of high contamination areas shall be managed as non-hazardous (solid) wastes and need not be sampled unless the potentially lead-containing component is to be scabbled or otherwise comprise a separate waste stream.

In addition, lead could be present in incandescent lamps, and mercury could be present in fluorescent lamps. Any removed paint will be characterized for waste management purposes pursuant to 6 CCR 1007-3, and all hazardous waste (e.g., scabbled LBP, and lead- and mercury-containing lamps) will be managed pursuant to 6 CCR 1007-3.

4.1.3 VOCs/SVOCs

According to historical and process knowledge, chemical processes were not performed in the facilities. Some chemicals were stored in some of the facilities, however, no chemical spills are known to have occurred, and no evidence of spills was observed during facility walkdowns. Also, B771C was used to store waste drums that may have contained VOCs/SVOCs, however, no releases/spills are known to have occurred in the building, and no evidence of spills was observed during facility inspection. Therefore, no chemical contamination and related hazards are suspected. B770 was used to store radioactive waste, and waste spills are known to have occurred. Some of the spilled wastes could have contained VOCs/SVOCs, and therefore, potential contamination will be further investigated during in-process and pre-demolition characterization.

4.1.4 PCBs

Based on historical and process knowledge, none of the 52 facilities contained equipment that contained PCB oils, except maybe the drum lift in B771C. Therefore, no PCBs could have been released and contaminated any of the 51 facilities. The B771C lift does

not currently contain PCB oils. Also, no releases/spills of oil are known to have occurred around the B771C lift, and no evidence of spills was observed during facility inspection. Because the B771 lift could have contained PCB oils historically, if oil stains are observed on the floor after the lift is removed, concrete samples will be taken and analyzed for PCBs as part of in-process characterization.

Some paints on facility surfaces may contain PCBs at concentrations ≥ 50 ppm. However, it is expected that 50 out of the 52 facilities (i.e., all except B771C and the 771 exhaust tunnel) will be reused, returned to commerce, or disposed off-site at a permitted facility. Therefore, based on Environmental Waste Compliance Guidance #25, Management of Polychlorinated Biphenyls (PCBs) in Paint and Other Bulk Product Waste During Facility Disposition, sampling of paints on the 50 facilities was not conducted. Paint samples from B771C and the exhaust tunnel are currently being analyzed for PCBs. Current plans are to decontaminate B771C, as necessary, and to recycle the concrete on site, and to decontaminate the exhaust tunnel, as necessary, and to leave it in place. Any paints in the B771 exhaust tunnel with PCB concentrations ≥ 50 ppm will be removed. All removed paints and demolition debris will be managed in compliance with regulations governing hazardous waste (6 CCR 1007-3) and PCB bulk product waste (i.e., 40 CFR 761).

Some fluorescent light ballasts containing PCBs exist in some of the facilities due to their age. All PCB ballasts will be removed and segregated as a separate waste stream prior to disposition of the facilities, and managed in compliance .with Site procedures and applicable regulations (e.g., 40 CFR 761).

5.0 DECOMMISSIONING WASTE TYPES AND VOLUME ESTIMATES

The disposition of the facilities not reused will generate a variety of wastes. Table 5-1 presents the estimated volumes of potential wastes by facility and waste type. Most of the waste can be disposed of as sanitary waste, except radioactive materials, asbestos containing material, PCB bulk product waste, and lead- and mercury-containing lamps. Radiologically contaminated materials will be disposed of as low level radioactive, unless it is decontaminated to below release limits. No hazardous or beryllium wastes are anticipated, except maybe some incandescent lamps containing lead and fluorescent lamps containing mercury. However, some sampling of Type 2 and Type 3 facilities will be conducted during in-process characterization to confirm that facility systems and tanks have been fully drained and that residual contamination is not present, and to ensure compliant waste management. Any hazardous wastes will be managed pursuant to Site procedures and State regulations (i.e., 6 CCR 1007-3). Asbestos and PCB Bulk Product Waste, including fluorescent light ballasts and demolition debris containing PCB paints, will be managed pursuant to Site asbestos abatement and waste management procedures, including notification requirements.

Table 5-1 Estimated Waste Volumes by Waste Type and Facility

Facility	Concrete	Wood	Metal	Corrugate/ Sheet Metal	Wall Board	ACM	Other Waste
B771C	12,730 ft^3	None	100 ft^3	None	Unknown	2,000 ft^2 of drywall, tape & joint compound 32 ft^2 of cementitious board 330 pipe fittings & hanger saddles	Unknown
771 Exhaust Stack	4,700 ft^3	None	None	None	None	None	None
771-DT	None	40 ft^3	40 ft^3	25 ft^3	300 ft^3	None	300 ft^3 insulation
T771A	None	200 ft^3	1,000 ft^3	500 ft^3	200 ft^3	10 ft^2 window putty 40 ft^2 tar & shingles	500 ft^3 insulation
T771B	None	200 ft^3	200 ft^3	100 ft^3	200 ft^3	None	500 ft^3 insulation
T771C	None	50 ft^3	100 ft^3	50 ft^3	75 ft^3	800 ft^2 vinyl flooring 120 ft^2 tar & shingles	250 ft^3 insulation
T771E	None	300 ft^3	200 ft^3	50 ft^3	200 ft^3	None	500 ft^3 insulation
T771F	None	100 ft^3	200 ft^3	100 ft^3	200 ft^3	None	500 ft^3 insulation
T771G	None	50 ft^3	100 ft^3	50 ft^3	80 ft^3	None	250 ft^3 insulation
T771H	None	300 ft^3	200 ft^3	50 ft^3	200 ft^3	None	500 ft^3 insulation
T771J	None	200 ft^3	200 ft^3	100 ft^3	200 ft^3	None	500 ft^3 insulation
T771K	None	200 ft^3	200 ft^3	100 ft^3	200 ft^3	None	500 ft^3 insulation
T771L	None	100 ft^3	50 ft^3	50 ft^3	100 ft^3	None	150 ft^3 insulation
T771M	7 cu ft	10 ft^3	10 ft^3	2 ft^3	150 ft^3	None	None
T771MB	None	150 ft^3	50 ft^3	100 ft^3	200 ft^3	None	200 ft^3 insulation
T771Q	None	200 ft^3	200 ft^3	100 ft^3	200 ft^3	None	500 ft^3 insulation
T771R	None	200 ft^3	200 ft^3	100 ft^3	200 ft^3	None	500 ft^3 insulation
T771T	None	75 ft^3	100 ft^3	50 ft^3	100 ft^3	None	150 ft^3 insulation
T773S	None	300 ft^3	None	25 ft^3	50 ft^3	None	None

Facility	Concrete	Wood	Metal	Corrugate/ Sheet Metal	Wall Board	ACM	Other Waste
B714	100 ft^3	None	20 ft^3	None	None	300 ft^2 of cementitious board	None
B714A	50 ft^3	None	50 ft^3	25 ft^3	None	None	100 ft^3 insulation
B715	2,100 ft^3	None	100 ft^3	50 ft^3	None	Vibration damper cloth Arc chutes 900 ft^2 roofing material 120 ft^2 flue insulation	None
B716	350 ft^3	None	160 ft^3	180 ft^3	None	None	None
B717	None	None	2 ft^3	10 ft^3	None	None	None
B728	288 ft^3	None	5 ft^3	None	None	None	None
B770	1,900 ft^3	None	1,000 ft^3	2,000 ft^3	None	None	500 ft^3 insulation
B772	2,100 ft^3	None	250	None	None	None	None
B772A	2,000 ft^3	None	150 ft^3	None	None	None	None
B773	700 ft^3	None	None	None	None	250 ft^2 tar paper & fiberglass insulation Electrical wiring	None
B775	150 ft^3	None	None	None	None	None	None
S770	4 ft^3	50 ft^3	None	5 ft^3	None	None	None
B771B	300 ft^3	200 ft^3	None	10 ft^3	None	Electrical wiring	None
K771N	None	100 ft^3	50	25 ft^3	None	None	150 ft^3 insulation
Tank 173	None	None	N/A	None	None	None	None
Tank 179	None	None	N/A	None	None	None	None
Tank 197	None	None	N/A	None	None	150 ft^2 cementitious board	None
Tank 174	50 ft^3	None	N/A	None	None	None	None
Tank 176	200 ft^3	None	33 ft^3	None	None	None	None
Tank 180	None	None	5 ft^3	None	None	4 ft^2 sealer/mastic	10 ft^3 insulation
Tank 182	944 ft^3	None	10 ft^3	None	None	None above ground	None
Tank 183	944 ft^3	None	10 ft^3	None	None	None above ground	None
Tank 184	1,873 ft^3	None	10 ft^3	None	None	None above ground	None
Tank 185	144 ft^3	None	25 ft^3	None	None	None	None
Tank 192	None	None	60 ft^3	None	None	None above ground	None
Tank 193	None	None	60 ft^3	None	None	None above ground	None
Tanks 21a	50 ft^3	None	N/A	None	None	None	None
Tank 194	1 ft^3	None	2 ft^3	None	None	None	None
Tank 195	1 ft^3	None	1 ft^3	None	None	None	2 ft^3 Kynar
Tank 292	1,660 ft^3	None	10 ft^3	None	None	None above ground	None
Tank 293	1,660 ft^3	None	10 ft^3	None	None	None above ground	None
Tank 774A	576 ft^3	None	53 ft^3	None	None	Insulation on piping, fittings, reductions and flanges – unknown quantities	None
Tank 774B	576 ft^3	None	53 ft^3	None	None	Insulation on piping, fittings, reductions and flanges – unknown quantities	None

N/A - not applicable; tanks will be returned to product vendor.

6.0 DATA QUALITY ASSESSMENT (DQA)

6.1 Introduction

Data used in making management decisions for decommissioning and waste management must be of adequate quality to support the decisions. Adequate data quality for decision-making is required by applicable K-H corporate policies (K-H, 1997, §7.1.4 and 7.2.2), as well as by the customer (DOE, RFFO; Order O 414.1, Quality Assurance, §4.b.(2)(b)). Regulators and the public also expect decisions and data that are technically and legally defensible. Verification and validation of the data ensure that data used in decisions resulting from the Pre-Demolition Survey (PDS) are usable and defensible.

Verification and validation (V&V) of this RLCR are the primary components of the DQA. V&V constitutes the cornerstone of the DQA, because statistical tests and material background determinations relative to decision-making for radiological survey units were not implemented nor required. Instead, measurement results were compared, on a one-to-one basis, with release criteria given in DOE Order 5400.5. The PDS results could, theoretically, be used to conduct Sign Tests for decisions, but because all individual measurements were less than the $DCGL_W$ (excluding confirmed NORM values), the survey units meet release criteria without further data reduction. This DQA supports conclusions in the report through implementation of the guidelines taken from the following MARSSIM sections:

- §4.9, Quality Control
- §8.2, Data Quality Assessment
- §9.0, Quality Assurance & Quality Control
- Appendix E, Assessment Phase of the Data Life Cycle
- Appendix N, Data Validation using Data Descriptors

DQA was performed on measurement and sample results obtained from the Survey Units listed Table 3-1. These Survey Units are traceable to specific building locations.

6.2 Verification of Results

Verification ensures that data produced and used by the project are documented and traceable per quality requirements. Verification consisted of reviewing the project's data relative to three subsets:

- Radiological scans;
- Static surveys for removable and total contamination; and
- Radiochemical data resulting from samples taken and subsequently analyzed via alpha spectrometry.

Consistent with similar PDS reports at the RFETS, verification will confirm the following:

- Chain-of-Custody was intact from initial sampling though transport and final analysis;
- Preservation and hold-times were within tolerance; and
- Format and content of the data are clearly presented relative to goals of the project (i.e., to determine, with at least 95% confidence, that the survey units of interest are adequate for unrestricted radiological release).

Verification of the PDS data will also address quality records representing implementation of the following quality controls:

- Calibrations (radiochemistry & surveys), for accuracy;
- Laboratory control samples (LCS -- radiochemistry), for accuracy;
- Blanks (radiochemistry), for accuracy;
- Duplicate measurements (radiochemistry & surveys), for precision;
- Chemical yield (radiochemistry), for accuracy;
- Count times (radiochemistry & surveys), for sensitivity; and
- Sample preparations (radiochemistry), for accuracy, representativeness.

All radiological data are organized into Survey Packages, which correlate to unique (MARSSIM) Survey Units. Each Survey Package is systematically reviewed by the responsible Radiological Engineer, a peer reviewer, and finally, Radiological Engineering Management.

All relevant Quality records associated with the PDS decisions will be submitted to the CERCLA Administrative Record for permanent storage within 30 days of the completion of this RLC.

6.3 Validation Of Results

Validation consists of a technical review of all data that directly support the PDS decisions, so that any limitations of the data relative to project goals are delineated, and the associated data are qualified (caveated) accordingly. Data were validated relative to the following:

- The DQOs of the project as defined in Section 3.1 (i.e., did the final data achieve the initial DQOs of the project?); and
- Quality criteria discussed throughout various sections in the MARSSIM (sections noted previously).

MARSSIM criteria for the broad topic of "data quality assessment" used in final status surveys generally falls within the generic categories of quality assurance, quality control, data validation, and data assessment (including verification and validation). Table 6-1 provides a "crosswalk" that lists the primary MARSSIM sections and generic data quality criteria (at top) and their corresponding implementation via the RLCR and project files.

All of the significant MARSSIM criteria listed in Table 6-1 are summarily addressed within the "PARCC Parameters" discussion presented below. PARCC parameters are congruent with "data descriptors" in the MARSSIM parlance and address characteristics of the data that must be defined for scientific integrity and defensibility. Recall that at least one "X" in each column of the table constitutes achievement of the MARSSIM quality objective (vs. one "X" in each row). The following discussion of the PARCC parameters -- Precision, Accuracy, Representativeness, Comparability, and Completeness, also include discussion of bias and sensitivity, two more data descriptors emphasized in MARSSIM.

PARCC PARAMETERS

Precision

1) Radiological Surveys

Duplicate measurements were periodically acquired (5% frequency of real surveys) on the MARSSIM survey grids. All duplicate measurements were within tolerance based on the acceptance criterion that both results be below $DCGL_W$. The only exception occurred where punctures of the mylar sheets (within the probe face) were noted for limited QC measurements. Given the descriptive statistics of the Survey Unit, which exhibit maximum and mean values well below the DCGLw, as well as a relatively low standard deviation, repeatability of measurements within the unit is well defined, and missing QC measurements do not suggest a compromise in measurement repeatability within the unit.

2) Radiochemistry

Results from laboratory duplicates, analyzed via standard alpha spectroscopy, indicate adequate reproducibility based on duplicate results within statistical tolerance values (>90% confidence of equivalency between the original sample and the duplicate).

Accuracy (And Bias)

1) Radiological Surveys

Accuracy of radiological surveys is satisfactory based on RFETS-programmatic annual calibrations that establish instrument efficiencies and sensitivities for all instrumentation used on this project. Daily source checks also provided periodic checks to ensure that all sensors are within tolerance during daily operations. Calibration and calibration check results were within the RFETS and industry-standard requirement of 20% of the applicable reference standard values. Full-scale multi-point calibrations provided

accuracies of ± 10% prior to implementation of survey instruments in the field, consistent with guidelines put forth in ANSI-N323.d

Distance measurements recorded on maps are within 3% of actual distances based on the laser technology used for distance measurements associated with the surveys.

Key work-controlling procedures that contributed to accuracy (and representativeness) of the radiological surveys consisted of the following:

- Kaiser-Hill, LLC., 1999. Radiological Safety Practices. RFETS, Golden, CO
- Kaiser-Hill, LLC., 2000. Use of the OASIS for Direct Differentiation between Po-210 and DOE-Added Materials, Technical Basis Document (TBD) - 00153.

Biases were not evaluated for specific instrumentation, as instruments were not dedicated to the project, but were rather acquired from a general pool of instruments available to the B771 complex as a whole. Limited tolerance charting of a number of instruments used on the project exhibited no bias over time. However, for all survey measurements acquired, pre-measurement and post-measurement performance checks were performed, and all readings were in tolerance.

2) Radiochemistry

Accuracies of the OASIS alpha spectroscopy results were acceptable based on establishing a batch-specific efficiency for the system and measurement of reference standards within control limits (237Np, as established by ±3 sigma bounds about the arithmetic mean).

Use of the on-site OASIS consisted of two parts: 1) establishing presence/absence of DOE-added radionuclides at the sensitivities specified for the OASIS (i.e., 50% DCGLw), and 2) quantification of Po-210 concentrations relative to levels measured in the field with hand-held instruments.

Background values were approximately 1.2 dpm/100 cm2 for the sample batches, which is typical for the OASIS. Background values approaching 2 dpm/100 cm^2 require corrective actions to the OASIS protocol, but this upper limit was not approached during analysis of the samples.

Because no radiochemical results exceeded action levels, evaluation of preparation blank data was not required.

Verification and validation of sample result accuracies from the on-site B559 laboratory were adequate based on satisfactory percent (tracer) yields and LCS recoveries between 75% and 125%. Random (counting) error was quantified as 2 sigma; total error was not quantified. Preparation blanks also confirmed that no significant cross-contamination occurred in the analysis process. These results, from two samples, confirmed that no transuranics were present at the locations where elevated survey readings were acquired.

All QC results from off-site alpha spectroscopy laboratories were within tolerance, specifically for blanks and spikes. All tracer yields were also within tolerance, even though two results from the 771035 Survey Unit had relatively lower yields at about 36% for Am-241.

Representativeness

Samples and surveys are representative based on the following criteria:

- Familiarity with facilities -- multiple walk-downs and collaborations by management and technical staff;
- Implementation of industry-standard Chain-of-Custody protocols;
- Compliance with sample preservation and hold times; and
- Documented and (site) approved methods.

All survey measurements in excess of the $DCGL_w$ – for Type 1 areas – resulted from random TSA measurements from exterior roofing surfaces (all sheet metal with the exception of one concrete surface). These elevated readings represent a consistent phenomena across the RFETS, where Po-210 (NORM) has effectively deposited as a fixed radioactive material. All graphical representations of the sheet metal data, as well as radiochemical analysis of suspect samples, have further corroborated this phenomena for the Type 1 facilities within the 771 Complex. The elevated alpha activity associated with the concrete sample was verified as not being DOE-added material.

Several elevated results (i.e., above unrestricted release limits for TSA measurements) from the paints in Survey Unit 771037 ("the Stack") are not considered representative due to the high sample masses used in the conversion of measurement units – from pCi/g to dpm/100 cm^2. Most of the radiochemical results were at or near the minimum detectable activity (MDA) of the alpha spectroscopy method, yet because the samples had a significant depth component relative to the area sampled, the sample masses used in the conversion were unrealistically high, and consequently, dpm/100 cm^2 values were also unrealistically high.

Completeness

Building Survey Units are complete with respect to the required content and appropriate reviews/approvals (management, technical, and QA). All radiological Survey Packages for Type 1 facilities in the 771 Complex are complete, with the exception of those listed below.

- 771026 - ceiling areas inaccessible until equipment strip-out (IDEC West End Interior)
- 771027 - ceiling areas inaccessible until equipment strip-out (IDEC East End Interior)
- 771018 - standing water on the floor prevents alpha surveys (B772A, Type 1 facility)

- 771024 - access problems due to wetlands restrictions (Tank Exteriors, variety, Type 2 facility)
- 771025 - access problems due to wetlands restrictions (Tank Exteriors, variety, Type 2 facility)
- 771035 – decontamination is required in limited areas; survey package remains open to support final surveys at a later date (Type 2 facility)
- 771036 – survey unit is "clean", but configuration control of area has not yet been affected (i.e., work continues in the area); survey package remains open to support final surveys at a later date (Type 2 facility)
- 771037 ("Stack") - decontamination is required; survey package remains open to support final surveys at a later date (Type 3 facility)

Although the data are incomplete for the Survey Units listed above relative to unrestricted release of the survey units, these partial data sets are adequate for typing of the facilities. Nature and extent of contamination in Survey Units 771024, 771025, 771035 and 771037 is consistent with a Type 2 or Type 3 classification; Type 1 classification is appropriate for the remaining facilities itemized above. These Survey Units will be completed prior to decisions regarding unrestricted release (of the facilities that contain the said survey units).

Consistent with EPA's G-4 DQO process, the radiological survey design was optimized by checking actual measurement results (acquired during final status survey) against model output with original estimates. Use of actual sample/survey (result) variances in MARSSIM's DQO model confirms that an adequate number of samples/surveys were acquired. All radiological results are valid without qualification, and form data sets with adequate quantities and quality of data for release decisions.

No beta/gamma survey designs were implemented for the 771 facilities based on the conservatism of the transuranic limits used as DCGLs in the unrestricted release decision process. Stated differently, based on the well-established suite of actinides historically used at the RFETS, all of these actinides would emit alpha radiation in exceedance of the applicable transuranic DCGLs before other DCGLs would be exceeded for their respective uranium species - the Building 371 Technical Position Paper, Basis for Performing Solely Alpha Contamination Surveys for Building 371/374, corroborates the use of this conservative approach.

Comparability

All results presented are comparable with radiological survey and radiochemistry data on a site- and DOE-complex wide basis. This comparability is based on:

- Use of standardized engineering units in the reporting of measurement results;
- Consistent sensitivities of measurements at (50% $DCGL_W$ (50% $DCGL_{EMC}$ for scans);

- Use of site-approved procedures (RSPs and TBDs);
- Systematic quality controls; and
- Thorough documentation of the planning, sampling/analysis process, and data reduction into formats designed for making decisions posed from the project's original data quality objectives.

One aspect of comparability recently added to the PDS repertoire is a graphical method and screening tool to differentiate NORM (specifically Po-210) from DOE-added radionuclides. This technique relies on a graphical comparison of point-clustering as depicted on a log-normal frequency distribution. The graphical technique was used in several instances for this project; details of the methodology are given in the RFETS Technical Basis Document (TBD) - 00156, Using Graphical Data Distribution Analysis to Distinguish between Background and DOE-Added Materials in Environmental Data Sets. Generally stated, if the said graphical displays of data (typically at least 30 data points representing TSA values) suggest more than one population of radionuclides present (e.g., NORM vs. transuranics), additional samples must be taken to positively identify and quantify the unknown radionuclides. Attachment AB presents the results of these graphical results for the 771 facilities of interest.

Sensitivity

Adequate sensitivities, in units of dpm/100 cm^2, were attained for all surveys and radiochemical methods implemented based on MDAs at 50% of the transuranic $DCGL_W$ (50% $DCGL_{EMC}$ for scans). Derivations of MDAs are given in Attachment AC for the Electras and the OASIS; MDAs for removable contamination measurements are derived from 3-PRO-112-RSP-02.01, Radiological Instrumentation. The nominal MDAs for each survey and radiochemical method are summarized as follows:

- Surveys (Eberline SAC-4) - removable contamination: 10 dpm/100 cm^2
- Surveys (NE Electra) - total surface contamination (TSA): 50 dpm/100 cm^2
- Surveys (NE Electra) - scans: <225 dpm/100 cm^2
- Radiochemistry (standard alpha spec) - transuranic contamination: <10 dpm/100 cm^2
- Radiochemistry (OASIS) - transuranic contamination: <50 dpm/100 cm^2

6.4 Summary

In summary, the data presented in this report have been verified and are qualified as valid and complete for typing facilities and/or comparison with release criteria (action levels) as stated in the original DQOs. All media sampled and surveyed within Type 1 facilities, relative to both total and removable alpha activities, yielded results less than action levels for the associated contaminants of concern. Therefore, the Survey Units for Type 1 facilities in question meet the free-release criteria with the confidences stated in this section and throughout the report.

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Building 771 Complex, RLCR Supplement, Type 1, 2 & 3 Facilities[A]

	MARSSIM sec 4.9	QAPP	SOPs	Training & Quals (personnel)	calibrations	QC Samples	sample quantities (adequacy of)	precision	MARSSIM sec 8.2	Reviews - DQOs & Sampling Design	"prelim" data review	graphical data review	conclusions	MARSSIM sec 9.0	Reports (to decision makers)	site description	analytical methods & MDA/MDC	background radiation	measurement results	Chain-of-Custody	SOPs	Quality records	results by geographic location	defined level of data review	data quality indicators (PARCCS)	QC measurements	MARSSIM Appdx E (DQA)	review DQOs & survey design	draw conclusions	MARSSIM Appdx N	raw data; original data forms	QA assessments/NCRs/CARs	data reduction/calculations	method validation	historical data
nventory of Report & Data Package	X	X	X	X	X	X	X		X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X		X	X		X	X	X	X	X
Reconnaissance-Level Characterization Rpt														X	X						X							X							
[redacted]												X		X				X							X		X	X							
[redacted]									X																										
[redacted]																												X							
[redacted]						X	X		X		X	X					X							X			X	X			X		X		
Project File (Surveys, Maps, Raw Data)																		X			X	X													
Data Package	X		X																																X
CHAR SURVEY PACKAGES		X			X	X			X					X						X	X													X	
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[redacted]						X				X									X		X	X													
QA/QC																X					X														
Cal & Reference [redacted]				X												X					X														
[redacted]																X				X	X														
Periodic Performance Checks (Bldg 771)				X												X		X		X	X				X			X						

[A]Survey Units 771018, -024, -025, -026, -027 (Type 1) and 771035, -036, and -037 (Type 2) are not completed for Pre-Demolition purposes.

Table 6-1 771 Complex, Type 1, 2 and 3 Facilities, PDS Compliance with MARSSIM Data Quality Guidelines.

7.0 FACILITY CLASSIFICATION

Based on the analysis of radiological, chemical and physical hazards, the 52 facilities were classified pursuant to the RFETS Decommissioning Program Plan (DPP, K-H, 1999). Classification was based on a review of historical and process knowledge, and newly acquired RLC data, and will be subject to concurrence by the Colorado Department of Public Health and the Environment. DPP classification criteria are defined as follows:

Type 1 facilities are considered "free of contamination".

Type 2 facilities contain no significant or contamination or hazards, but are in need of decontamination. The extent of contamination is such that routine methods of decontamination should suffice and only a moderate potential exists for environmental releases during decommissioning.

Type 3 facilities contain significant contamination and/or hazards.

Thirty five of the 52 facilities are classified as Type 1 facilities. Refer to Table 7-1. These facilities are not contaminated, and present no radiological or physical hazards. PCBs are present in some of the fluorescent light ballasts and may be present in paints. Also, lead could be present in incandescent lamps, and mercury could be present in fluorescent lamps. The presence of PCBs in light ballasts and paint, the presence of lead and mercury in lamps, and/or the presence of asbestos do not make a facility a Type 2 as long as PCB-, lead-, mercury- and asbestos-containing items are removed pursuant to Site asbestos abatement and waste management procedures.

Sixteen of the facilities are classified as Type 2 facilities, and the exhaust tunnel and stack are classified as Type 3 facilities. Type 2 and 3 facilities will be decommissioned in accordance with the 771 Closure Project Decommissioning Operations Plan, and will be further characterized during in-process characterization and PDS.

To ensure that the Type 1 facilities remain free of contamination and that Pre-Demolition Survey data remain valid, isolation controls will be established, and the facilities will be posted accordingly. Surveys also will be conducted prior to removal. In addition, all demolition debris from Individual Hazardous Substance Sites (IHSSs) will be characterized.

Table 7-1 Facility Hazards and Classification, 771 Closure Project

Facility	Chemical Hazards	Location	Radiological Hazards	Location	Building Classification[1]
B771C	Asbestos	Rms 301 to 309	One elevated paint sample (~150 dpm/100 cm^2)	Room 303 floor	Type 2
771 Exhaust Tunnel & Stack	None	NA[2]	Low levels of elevated activity identified (ranging from 0.3 to 62.1 pCi/g). Additional sampling will be performed prior to D&D to define depth and height of elevated activity.	Interior stack surface below ~20 feet	Type 3
T771A – C, E – H, J - L, MB, Q, R, T & DT	Asbestos	T771 A & C	None	NA[2]	Type 1
T771M	None	NA[2]	None	NA[2]	Type 1
T773S	None	NA[2]	None	NA[2]	Type 1
B714	Asbestos Potential HF residues	Exterior walls & roof Interior	None	NA[2]	Type 2
714A	None	NA[2]	None	NA[2]	Type 1
B715 & 716	Asbestos Diesel (product)	B715 Both tanks	None	NA[2]	Type 1
B717	None	NA[2]	None	NA[2]	Type 1
B728	None	NA[2]	Potential contamination	Interior	Type 2
B770	Potential spill residues	NA[2]	Am-241	Exterior wall	Type 2
S770 & B771B	Asbestos	B771B wiring	None	NA[2]	Type 1
K771N	None	NA[2]	None	NA[2]	Type 1
B772	None	NA[2]	None	NA[2]	Type 1
B772A	None	NA[2]	None	NA[2]	Type 1
B773	Asbestos	Wiring and roof	None	NA[2]	Type 1
B775	None	NA[2]	Potential contamination	Interior & tank system	Type 2
TK173, 179 & 197	Propane (product) Asbestos	All tanks TK 197 manifold station	None	NA[2]	Type 1
TK174	None	NA[2]	None	NA[2]	Type 1
TK176	Potential NaOH residue	Interior	None	NA[2]	Type 2
TK180	Asbestos	Flanges	None	NA[2]	Type 1
TK182 – 184	None	NA[2]	Potential contamination	All 3 tanks	Type 2
TK185	Potential KOH residue	Interior	None	NA[2]	Type 2
TK192 & 193	None	NA[2]	None	NA[2]	Type 1
TK21a	Diesel (product)	Interior	None	NA[2]	Type 1
TK194 & 195	Potential HF residues	Interior	None	NA[2]	Type 2
TK 292 & 293	Potential contamination	Interior	Potential contamination	Both tanks	Type 2
TK774A & 774B	Asbestos	Piping, fittings, reductions & flanges	Potential contamination	Both tanks	Type 2

[1] Building classification does not include environmental media beneath or adjacent to the facility foundation/slab.
[2] Not Applicable

PCBs are present in some of the fluorescent light ballasts and may be present in paints. Also, lead could be present in incandescent lamps, and mercury could be present in fluorescent lamps. The presence of PCBs in light ballasts and paint, the presence of asbestos, and/or the presence lead and mercury in lamps do not make a facility a Type 2 as long as PCB bulk product waste, asbestos-containing material, and lead- and mercury-containing lamps are removed pursuant to Site asbestos abatement and waste management procedures.

8.0 REFERENCES

ANSI-N323A-1997, Radiation Protection Instrumentation Test and Calibration.

DOE/RFFO, CDPHE, EPA, 1996. Rocky Flats Cleanup Agreement (RFCA), July 19, 1996.

DOE Order 5400.5, "Radiation Protection of the Public and the Environment."

DOE Order 414.1A, "Quality Assurance."

EPA, 1994. "The Data Quality Objective Process," EPA QA/G-4.

K-H, 1997. "Kaiser-Hill Team Quality Assurance Program", Rev. 5, December, 1997.

K-H, 1998. Facility Disposition Program Manual, MAN-076-FDPM, Rev. 1, September 1999.

K-H, 1999. Decontamination and Decommissioning Characterization Protocol, MAN-077-DDCP, Rev. 1, June 19, 2000.

K-H, 1999. Decommissioning Program Plan, June 21, 1999.

K-H, 2000. Pre-Demolition Survey Plan, MAN-127-PDSP, Rev. 0, October 3, 2000.

MARSSIM - Multi-Agency Radiation Survey and Site Investigation Manual, December 1997 (NUREG-1575, EPA 402-R-97-016).

RFETS, Environmental Waste Compliance Guidance #25, Management of Polychlorinated Biphenyls (PCBs) in Paint and Other Bulk Product Waste During Facility Disposition.

RFETS, Environmental Waste Compliance Guidance #27, Lead-Based Paint (LBP) and Lead-Based Paint Debris Disposal.

ATTACHMENT AG

BERYLLIUM SURFACE SAMPLE RESULTS
B770, B771C & B771 STACK

10

R_Ad_Hoc_Report2
: 06/12/2001

Industrial Hygiene Information System
Ad Hoc Sample Report
SURFACE

yte Name ole Number 'LLIUM AND B	Sample Work Pkg	Comp Building	Room Location	Analyte Name	Concentration
05172001-76-001	WIPE	KH 770	TOOL ON TOP OF EXIT DOOR EAST SIDE	BERYLLIUM AND B	< 0.1000 _ UG/100CM
05172001-76-002	WIPE	KH 770	TOOL GRAY SHELVES EAST SIDE 2ND SHELF	BERYLLIUM AND B	< 0.1000 _ UG/100CM
05172001-76-003	WIPE	KH 770	TOOL FLOOR BY SHELVES EAST SIDE	BERYLLIUM AND B	< 0.1000 _ UG/100CM
05172001-76-004	WIPE	KH 770	TOOL ELECTRICAL OUTLET LP770-1-CKT-2	BERYLLIUM AND B	< 0.1000 _ UG/100CM
05172001-76-005	WIPE	KH 770	OLD OFFICE 1A WOOD CABINET ON TOP	BERYLLIUM AND B	< 0.1000 _ UG/100CM
05172001-76-006	WIPE	KH 770	OLD SUITE 1B DOOR LEDGE	BERYLLIUM AND B	< 0.1000 _ UG/100CM
05172001-76-007	WIPE	KH 770	OLD FLOOR UNDER EXIT BY WEST SIDE	BERYLLIUM AND B	< 0.1000 _ UG/100CM
05172001-76-008	WIPE	KH 770	OLD GREY SHELVES OUTSIDE DOOR 1A	BERYLLIUM AND B	< 0.1000 _ UG/100CM
05172001-76-009	WIPE	KH 770	OLD LEDGE ABOVE FIRE EXT. WEST SIDE	BERYLLIUM AND B	< 0.1000 _ UG/100CM
05172001-76-010	BLANK	KH 770		BERYLLIUM AND B	< 0.1000 _ UG
05172001-76-011	BLANK	KH 770		BERYLLIUM AND B	< 0.1000 _ UG
05172001-76-012	WIPE	KH 770	TOOL LIGHTING JUNCTION BOX 120	BERYLLIUM AND B	< 0.1000 _ UG/100CM
05172001-76-013	WIPE	KH 770			

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R_Ad_Hoc_Report2
: 06/12/2001

Industrial Hygiene Information System
Ad Hoc Sample Report
SURFACE

lyte Name ple Number YLLIUM AND B	Sample	Work Pkg	Comp	Building	Room Location	Analyte Name	Concentration
-05172001-76-013	WIPE	KH 770			TOOL FLOOR IN FRONT OF PANEL PD7701	BERYLLIUM AND B	< 0.1000 _ UG/100CM
-05172001-76-014	WIPE	KH 770			TOOL FIRE EXT 771-94	BERYLLIUM AND B	< 0.1000 _ UG/100CM
-05172001-76-015	WIPE	KH 770			TOOL TSI PIPING IN FRONT OF BAY DOORS	BERYLLIUM AND B	< 0.1000 _ UG/100CM

TOTAL SAMPLES: 15

Industrial Hygiene Information System
Surface Sample Report

IHISR_SURFACE_SAMPLE
Date: 06/14/2001

RIN: 01N0122

Sample Number/Type: 771-01242001-76-133 WIPE Hygienist: TONYA BEAN
Location Info: INSIDE DOORWAY ON TOP OF DOOR CLOSER
Room No: 308
Analyte: BERYLLIUM AND BE COMPOUNDS (AS BE)
Concentration: < 0.1000 _ UG/100CM2

Sample Number/Type: 771-01242001-76-134 WIPE Hygienist: TONYA BEAN
Location Info: SOUTH WALL WEST OF EMERG. LIGHT BOX 7FT HIGH
Room No: 306
Analyte: BERYLLIUM AND BE COMPOUNDS (AS BE)
Concentration: < 0.1000 _ UG/100CM2

Sample Number/Type: 771-01242001-76-135 WIPE Hygienist: TONYA BEAN
Location Info: FLOOR NEXT TO NORTH WALL-3FT FROM NORTHWEST CORNER
Room No: 305
Analyte: BERYLLIUM AND BE COMPOUNDS (AS BE)
Concentration: < 0.1000 _ UG/100CM2

Sample Number/Type: 771-01242001-76-136 WIPE Hygienist: TONYA BEAN
Location Info: EASTSIDE OF RM TOP OF EXHAUST DUCT 7FT HIGH
Room No: 303
Analyte: BERYLLIUM AND BE COMPOUNDS (AS BE)
Concentration: < 0.1000 _ UG/100CM2

Sample Number/Type: 771-01242001-76-137 WIPE Hygienist: TONYA BEAN
Location Info: SOUTH WALL ON TOP OF GUARD CALL BOX
Room No: 303
Analyte: BERYLLIUM AND BE COMPOUNDS (AS BE)
Concentration: < 0.1000 _ UG/100CM2

Sample Number/Type: 771-01242001-76-138 WIPE Hygienist: TONYA BEAN
Location Info: WEST WALL 1FT UNDERCRIT. DETECTOR 6FT HIGH
Room No: 301
Analyte: BERYLLIUM AND BE COMPOUNDS (AS BE)
Concentration: < 0.1000 _ UG/100CM2

Sample Number/Type: 771-01242001-76-139 WIPE Hygienist: TONYA BEAN
Location Info: NORTHEAST CORNER ON TOP OF RED FIRE PIPE FLANGE
Room No: 301
Analyte: BERYLLIUM AND BE COMPOUNDS (AS BE)
Concentration: < 0.1000 _ UG/100CM2

Sample Number/Type: 771-01242001-76-140 WIPE Hygienist: TONYA BEAN
Location Info: TOP OF SUMP PUMP COVER YELLOW AND BLACK
Room No: 301
Analyte: BERYLLIUM AND BE COMPOUNDS (AS BE)
Concentration: < 0.1000 _ UG/100CM2

Sample Number/Type: 771-01242001-76-141 WIPE Hygienist: TONYA BEAN
Location Info: NORTH WALL DOCK DOOR FRAME EASTSIDE 5FT HIGH
Room No: 301
Analyte: BERYLLIUM AND BE COMPOUNDS (AS BE)
Concentration: < 0.1000 _ UG/100CM2

Sample Number/Type: 771-01242001-76-142 WIPE Hygienist: TONYA BEAN
Location Info: TOP OF DRUM COUNTER CONTROL 7FT HIGH
Room No: 301
Analyte: BERYLLIUM AND BE COMPOUNDS (AS BE)
Concentration: < 0.1000 _ UG/100CM2

Sample Number/Type: 771-01242001-76-143 WIPE Hygienist: TONYA BEAN
Location Info: SOUTH YELLOW LIP OF NORTH DRUM COUNTER
Room No: 301
Analyte: BERYLLIUM AND BE COMPOUNDS (AS BE)
Concentration: < 0.1000 _ UG/100CM2

Sample Number/Type: 771-01242001-76-144 WIPE Hygienist: TONYA BEAN

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Industrial Hygiene Information System
Surface Sample Report

IHISR_SURFACE_SAMPLE
Date: 06/14/2001

RIN: 01N0122

Sample Number/Type: 771-01242001-76-144 WIPE Hygienist: TONYA BEAN
Location Info: UPPER DECK EAST SIDE-PLENUM WALL LIP BOTTOM
Room No: 304
Analyte: BERYLLIUM AND BE COMPOUNDS (AS BE)
Concentration: < 0.1000 _ UG/100CM2

Sample Number/Type: 771-01242001-76-145 WIPE Hygienist: TONYA BEAN
Location Info: FLOOR DIRECTLY UNDER SECOND STEP
Room No: 304
Analyte: BERYLLIUM AND BE COMPOUNDS (AS BE)
Concentration: < 0.1000 _ UG/100CM2

Sample Number/Type: 771-01242001-76-146 WIPE Hygienist: TONYA BEAN
Location Info: FLOOR DIRECTLY UNDER SECOND STEP
Room No: 304
Analyte: BERYLLIUM AND BE COMPOUNDS (AS BE)
Concentration: < 0.1000 _ UG/100CM2

Sample Number/Type: 771-01242001-76-147 WIPE Hygienist: TONYA BEAN
Location Info: EAST SIDE OF EXHAUST DUCT
Room No: 158
Analyte: BERYLLIUM AND BE COMPOUNDS (AS BE)
Concentration: < 0.1000 _ UG/100CM2

Sample Number/Type: 771-01242001-76-148 WIPE Hygienist: TONYA BEAN
Location Info: SOUTH EAST CORNER FLOOR
Room No: 159
Analyte: BERYLLIUM AND BE COMPOUNDS (AS BE)
Concentration: < 0.1000 _ UG/100CM2

Sample Number/Type: 771-01242001-76-149 WIPE Hygienist: TONYA BEAN
Location Info: NORTHWEST CORNER BASEBOARD NORTH WALL
Room No: 160
Analyte: BERYLLIUM AND BE COMPOUNDS (AS BE)
Concentration: < 0.1000 _ UG/100CM2

Sample Number/Type: 771-01242001-76-150 WIPE Hygienist: TONYA BEAN
Location Info: SOUTHSIDE OF EXHAUST DUCT BACKSIDE EAST EDGE
Room No: 160
Analyte: BERYLLIUM AND BE COMPOUNDS (AS BE)
Concentration: < 0.1000 _ UG/100CM2

Sample Number/Type: 771-01242001-76-151 WIPE Hygienist: TONYA BEAN
Location Info: WEST WALL AIR DUCT 5FT HIGH
Room No: 166A
Analyte: BERYLLIUM AND BE COMPOUNDS (AS BE)
Concentration: < 0.1000 _ UG/100CM2

Sample Number/Type: 771-01242001-76-152 WIPE Hygienist: TONYA BEAN
Location Info: SOUTHEAST CORNER EAST WALL 1FT FROM SOUTHWALL
Room No: 166A
Analyte: BERYLLIUM AND BE COMPOUNDS (AS BE)
Concentration: < 0.1000 _ UG/100CM2

(f1)

Industrial Hygiene Information System
Surface Sample Report

IHISR_SURFACE_SAMPLE
Date: 06/14/2001

RIN: 00N0023

Sample Number/Type: 770-06072000-84-001 BULK Hygienist: RUTH MCCAFFERTY
Location Info: BLUE WALL PAINT IN BREAKROOM
Room No: 710
Analyte: LEAD INORGANIC (AS PB)
Concentration: < 0.0050 _ % ANALYTE

Sample Number/Type: 771-06132000-84-002 BULK Hygienist: RUTH MCCAFFERTY
Location Info: AT ENTRANCE 4 INCHES ABOVE FLOOR
Room No: STACK
Analyte: SILICA - CRYSTALLINE, CRISTOBALITE (AS QUARTZ) (RESPIRABLE)
Concentration: < 1.0000 _ % ANALYTE
SILICA - CRYSTALLINE, QUARTZ (AS QUARTZ) (RESPIRABLE)
24.3000 _ % ANALYTE
SILICA - CRYSTALLINE, TRIDYMITE (AS QUARTZ) (RESPIRABLE)
< 1.0000 _ % ANALYTE

Sample Number/Type: 771-06132000-84-004 BULK Hygienist: RUTH MCCAFFERTY
Location Info: 44 INCHES ABOVE FLOOR
Room No: STACK
Analyte: SILICA - CRYSTALLINE, CRISTOBALITE (AS QUARTZ) (RESPIRABLE)
Concentration: < 1.0000 _ % ANALYTE
SILICA - CRYSTALLINE, QUARTZ (AS QUARTZ) (RESPIRABLE)
34.0000 _ % ANALYTE
SILICA - CRYSTALLINE, TRIDYMITE (AS QUARTZ) (RESPIRABLE)
< 1.0000 _ % ANALYTE

Sample Number/Type: 771-06132000-84-006 BULK Hygienist: RUTH MCCAFFERTY
Location Info: FLOOR MATERIAL
Room No: STACK
Analyte: SILICA - CRYSTALLINE, CRISTOBALITE (AS QUARTZ) (RESPIRABLE)
Concentration: < 1.0000 _ % ANALYTE
SILICA - CRYSTALLINE, QUARTZ (AS QUARTZ) (RESPIRABLE)
23.9000 _ % ANALYTE
SILICA - CRYSTALLINE, TRIDYMITE (AS QUARTZ) (RESPIRABLE)
< 1.0000 _ % ANALYTE

Sample Number/Type: 771-06132000-84-007 BULK Hygienist: RUTH MCCAFFERTY
Location Info: ORANGE PAINT FRON HALLWAY
Room No: STACK
Analyte: LEAD INORGANIC (AS PB)
Concentration: 25.7000 _ % ANALYTE

Sample Number/Type: 771-06132000-84-008 WIPE Hygienist: RUTH MCCAFFERTY
Location Info: 16 "HIGH , 70 DEGREES CLOCKWISE FROM ENTRANCE
Room No: STACK
Analyte: BERYLLIUM AND BE COMPOUNDS (AS BE)
Concentration: < 0.1000 _ UG/100CM2

Sample Number/Type: 771-06132000-84-009 WIPE Hygienist: RUTH MCCAFFERTY
Location Info: 26 " HIGH, 180 DEGREES FROM ENTRANCE
Room No: STACK
Analyte: BERYLLIUM AND BE COMPOUNDS (AS BE)
Concentration: < 0.1000 _ UG/100CM2

Sample Number/Type: 771-06132000-84-010 WIPE Hygienist: RUTH MCCAFFERTY
Location Info: 62 " HIGH, 20 DEGREE COUNTER CLOCKWISE FROM ENTRAN
Room No: STACK
Analyte: BERYLLIUM AND BE COMPOUNDS (AS BE)
Concentration: < 0.1000 _ UG/100CM2

Sample Number/Type: 771-06132000-84-011 WIPE Hygienist: RUTH MCCAFFERTY
Location Info: 46 INCHES HIGH 8 FT FROM ENTRANCE NORTH SIDE

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Industrial Hygiene Information System
Surface Sample Report

IHISR_SURFACE_SAMPLE
Date: 06/14/2001

RIN: 00N0023

Sample Number/Type: 771-06132000-84-011 WIPE Hygienist: RUTH MCCAFFERTY
Location Info: 46 INCHES HIGH 8 FT FROM ENTRANCE NORTH SIDE
Room No: STACK
Analyte: BERYLLIUM AND BE COMPOUNDS (AS BE)
Concentration: < 0.1000 _ UG/100CM2

Sample Number/Type: 771-06132000-84-012 WIPE Hygienist: RUTH MCCAFFERTY
Location Info: CORRIDOR 57 INCHES HIGH SOUTH SIDE
Room No: STACK
Analyte: BERYLLIUM AND BE COMPOUNDS (AS BE)
Concentration: < 0.1000 _ UG/100CM2

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