

Department of Energy

56471

CORRES CONTROL
INCOMING LTR NO

01721 RF 95

DUE
DATE



JUN 15 10 04 AM '95

ROCKY FLATS FIELD OFFICE
P O BOX 928
GOLDEN COLORADO 80402-0928

JUN 13 1995

95-DOE-08446

ACTION

EG&G
ROCKY FLATS PLANT
CORRESPONDENCE CONTROL

DIST	LTR	ENC
BURLINGAME A H		
CARNIVAL G J		
CORDOVA R C		
DAVIS J G		
FENN, T M		
FERRERA, D W		
FRAY, R E		
GEIS J A		
GILMARTIN, J T		
GINTHER, B		
GLOVER, W S		
GOLAN, P M		
HEALY, T J		
HEDAHL, T G		
HILBIG, J G		
HOLLOWELL L J	X	X
JACKSON, D T		
KELL, R E		
LEINWEBER, S A		
MARX, G E		
McCART, D		
McDONALD, M M		
McGOVERN, L J		
McKENNA, F G		
PAUKERT, J G		
PIZZUTO, V M		
SATTERWHITE, D G		
SCHRADER, D C		
SCHUBERT, A L		
STIGER, S G	X	
STROBEL, G L		
TURNER, K A		
VOORHEIS, G M		
SCHUBERT, D	X	X

Mr Martin Hestmark
U S Environmental Protection Agency, Region VIII
ATTN Rocky Flats Project Manager, 8HWM-RI
999 18th Street, Suite 500, 8WM-C
Denver, Colorado 80202-2405

Mr Joe Schieffelin, Unit Leader
Hazardous Waste Facilities
Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South
Denver, Colorado 80222-1530

Gentlemen

This letter transmits the "Comparison of Phase I RCRA Facility Investigation Remedial Investigation (RFI/RI) Results With Applicable or Relevant and Appropriate Requirements (ARARS) for Closure of Operable Unit (OU) 15 Individual Hazardous Substance Sites (IHSS) dated May 12, 1995, for your information. This document, prepared for the Department of Energy (DOE) by SAIC, is an objective third party evaluation of the sampling results contained in the Final OU 15 Phase I RFI/RI Report and the ARARS and TBC criteria identified in the Final OU 15 Phase I RFI/RI Work Plan

The purpose of having this evaluation performed was to independently determine if the OU 15 IHSSs could be RCRA clean closed for hazardous constituents and CERCLA closed for radionuclide contamination with "No Action"

The conclusions reached by SAIC very closely parallel the course of action, which the DOE, State and Environmental Protection Agency are presently following and add additional credibility to this decision

If you have any questions or require further information, please contact Dr. W N Fitch at 966-4013

Sincerely,

for - William N Fitch
Manager, Operable Unit 15
Environmental Restoration

CORRES CONTROL	X	X
ADMN RECORD/080	X	X
PATS/T130G		

Reviewed for Addressee
Corres Control RFP

6-15-95 RLF
DATE BY

Enclosure

Ref Ltr #

DOE ORDER # 5400.1

ADMIN RECORD

JUN 15 1995



Department of Energy

ROCKY FLATS FIELD OFFICE
P O BOX 928
GOLDEN COLORADO 80402 0928

JUN 15 10 04 AM '95

JUN 13 1995

95-DOE-08446

EG&G
ROCKY FLATS PLANT
CORRESPONDENCE UNIT

Mr Martin Hestmark
U S Environmental Protection Agency, Region VIII
ATTN Rocky Flats Project Manager, 8HWM-RI
999 18th Street, Suite 500, 8WM-C
Denver, Colorado 80202-2405

Mr Joe Schieffelin, Unit Leader
Hazardous Waste Facilities
Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South
Denver, Colorado 80222-1530

Gentlemen

This letter transmits the "Comparison of Phase I RCRA Facility Investigation Remedial Investigation (RFI/RI) Results With Applicable or Relevant and Appropriate Requirements (ARARS) for Closure of Operable Unit (OU) 15 Individual Hazardous Substance Sites (IHSS) dated May 12, 1995, for your information. This document, prepared for the Department of Energy (DOE) by SAIC, is an objective third party evaluation of the sampling results contained in the Final OU 15 Phase I RFI/RI Report and the ARARS and TBC criteria identified in the Final OU 15 Phase I RFI/RI Work Plan.

The purpose of having this evaluation performed was to independently determine if the OU 15 IHSSs could be RCRA clean closed for hazardous constituents and CERCLA closed for radionuclide contamination with "No Action."

The conclusions reached by SAIC very closely parallel the course of action, which the DOE, State and Environmental Protection Agency are presently following and add additional credibility to this decision.

If you have any questions or require further information, please contact Dr W N Fitch at 966-4013.

Sincerely,

for 
William N Fitch
Manager, Operable Unit 15
Environmental Restoration

Enclosure

M Hestmark & J Schieffelin
95-DOE-08446

2

JUN 13 1995

cc w/ Enclosure
W Fitch, ER, RFFO
D Schubbe, EG&G
Administrative Record (EG&G)
Public Information Repositories (5)

cc w/o Enclosure
C Gesalman, EM-453, HQ
J Roberson, AMER
C Spreng, CDPHE
M. Aguilar, EPA
D Evans, SAIC
S. Stuger, EG&G

* * *

**COMPARISON OF PHASE I RFI/RI RESULTS WITH
APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS
FOR CLOSURE OF OU 15 IHSSs**

1.0 INTRODUCTION

The U S Department of Energy Rocky Flats Field Office (DOE/RFFO) requested that Science Applications International Corporation (SAIC) provide an independent document comparison of the applicable or relevant and appropriate requirements (ARARs) and other criteria to be considered (TBC) for clean closure of the individual hazardous substance sites (IHSSs) at Operable Unit (OU) 15 with the sampling results from the OU 15 Final Phase I RFI/RI Report [1]. The purpose of this review was to determine whether each OU 15 IHSS meets the requirements for clean closure under the Resource Conservation and Recovery Act (RCRA), as administered by the Colorado Department of Public Health and the Environment (CDPHE) and for a "no action" Record of Decision (ROD) under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). This report is the result of that comparison. Of particular interest is the status of IHSS 204 (Original Uranium Chip Roaster), one of the major purposes of the present review was to confirm that current DOE administrative controls on radiation releases and exposure meet the ARARs for closure of this unit.

1.1 Background

The Statement of Work (SOW) for the Interagency Agreement (IAG) [2] specified the process to be followed for closure of the inactive RCRA interim status units in OU 15. The process included submission of a Phase I RFI/RI report documenting the nature and extent of contamination at each IHSS in OU 15. The OU 15 Phase I RFI/RI Work Plan [3], approved by the state and by EPA and in conformance with the IAG SOW, specified the activities necessary to characterize the nature and extent of contamination at or resulting from each IHSS in OU 15. According to the IAG SOW (Section I B 11 a), no further remedial action will be required if the units are closed under RCRA interim status and the Phase I RFI/RI report demonstrates that there is (1) no evidence of past releases and (2) no threat of future releases of hazardous constituents or hazardous substances to the environment external to the unit.

The Final Phase I RFI/RI Report was submitted to and approved by EPA and the state in January 1995. In their letter approving the Final Phase I RFI/RI Report, the regulators indicated the remaining tasks to be accomplished in order to achieve final closure of OU 15, these tasks included submission of certification of closure, submission of a proposed plan and permit modification, and submission of a proposed Record of Decision. Establishment of milestone dates for these tasks was deferred until the draft proposed plan (issued April 7, 1995) was approved by EG&G and DOE. The final proposed plan and draft permit modification [4] was issued on April 25, 1995, the certification of RCRA clean closure of the OU 15 IHSSs [5] was submitted to EG&G and DOE for approval on April 5, 1995 and has since been submitted to the state. The recommendation for no action has been accepted by the regulators for the three IHSSs in Building 881 (IHSSs 178, 211, and 217). Recommendations for further action

at the other three IHSSs have been deferred until decisions on the final disposition of the buildings are made

2.0 IDENTIFICATION OF ARARs

The ARARs and TBCs addressed in this report, listed in Tables 1 through 6, were compiled for each IHSS in OU 15 from the draft master ARARs list [6] and from the OU 15 RFI/RI Work Plan. It should be noted that the present report considers only those ARARs and TBCs that address substantive technical requirements pertaining to RCRA closure of the IHSSs in OU 15, or that need to be met to support a "no action" CERCLA ROD. Certain administrative requirements (e.g., whether deadlines specified in the IAG were met) are not considered here. The IAG states (paragraph 256) "All actions required to be taken pursuant to this Agreement shall be taken in accordance with the requirements of all applicable Federal and State laws and regulations." Thus, additional criteria besides those ARARs listed in the subsequent sections may need to be considered in order to meet the administrative requirements for RCRA closure and no action under CERCLA. In particular, the IAG SOW specifies a number of guidance documents with which all response activities must be consistent. According to DOE, all IAG milestones for OU 15 have been met and the OU 15 response activities were carried out in accordance with all relevant guidances [7].

3.0 PHASE I RFI/RI RESULTS AND CONFORMANCE TO ARARs

Relevant results from the Final Phase I RFI/RI Report are discussed in the following sections for each IHSS in OU 15, as the results relate to the attainment of ARARs. Tables 1 through 6 indicate the conformance of the OU 15 IHSSs with the ARARs and TBCs considered for each IHSS, along with the reasoning supporting the determination. Each IHSS is discussed below individually.

3.1 General

A visual inspection of each IHSS was conducted and historical records were consulted as part of the Phase I RFI/RI. It was determined that there was no visual evidence, historical record, or recollection by employees of a release from any of the OU 15 IHSSs. This conclusion was supported by the absence of detectable chemical contamination, not attributable to artifacts, within the IHSSs during the Phase I RFI/RI sampling. These results are considered sufficient demonstration that the first condition for no action (i.e., no evidence of past releases) had been met. Since there was no evidence of chemical contaminant migration from the IHSSs, no environmental sampling external to the buildings was performed during Phase I.

The second condition for a "no action" determination (no threat of future releases) could be met by showing that all primary and secondary contaminant sources have been removed from OU 15. The results of sampling for residual chemical contamination at each IHSS are discussed in the following sections.

To determine whether ARARs for radionuclides were met, a four-stage screening was conducted as described in the RFI/RI Report. Removable radionuclide concentrations in the hot water rinsate samples were converted to a "dust equivalent activity" by assuming a surface loading of 560 mg/m². Derived air concentration limits and annual limits on intake, expressed as activity per unit volume of air, were also converted to a dust equivalent activity by assuming a dust loading in the air of 100 µg/m³. It was also assumed that an employee would be exposed to radiation for 500 hr/quarter (2000 hr/year) for purposes of comparing measured dose rates to the regulatory limits.

Although all OU 15 IHSSs are to be closed under RCRA interim status, the Rocky Flats RCRA permit [8] was used to determine criteria for closure of permitted units that are relevant and appropriate to the IHSSs in OU 15.

3.2 IHSS 178 Building 881, Drum Storage Area (Room 165)

RCRA Appendix VIII Three Appendix VIII organics (phenol and two phthalates) were found in both the original and the verification hot water rinsate samples from this IHSS. None of these constituents were expected to be present as constituents of concern at this IHSS, based on records of historical use. Thus, the detects were attributed to laboratory contamination and/or to leaching from paints and flooring materials. Inorganics were not of regulatory concern and were not analyzed.

Radionuclides Dust equivalent activities both in the hot water rinsate and the post-rinsate smear samples were below regulatory limits for all radionuclides measured. Post-rinsate dose rate limits were not exceeded within the IHSS. The IHSS does not require posting as a radiation area. Access to Room 165 is not restricted, and the room is not posted.

3.3 IHSS 179 Building 865, Drum Storage Area (Room 145)

RCRA Appendix VIII Two Appendix VIII organics, phenol and bis(2-ethylhexyl)phthalate (abbreviated as DEHP in the Final Phase I RFI Report) were found in both the original and the verification hot water rinsate samples from this IHSS. Neither of these constituents was expected to be present as constituents of concern at this IHSS, based on records of historical use. Thus, the detects were attributed to laboratory contamination and/or to leaching from paints and flooring materials. Inorganics were not of regulatory concern and were not analyzed.

Radionuclides Dust equivalent activities both in the hot water rinsate and the post-rinsate smear samples were below regulatory limits for all radionuclides measured. Post-rinsate dose rate limits were not exceeded within the IHSS. The IHSS does not require posting as a radiation area. Room 145, in which IHSS 179 is located, is a restricted area (radiological control area, or RCA), and the room is posted as a Contamination Area and Beryllium Control Area. However, IHSS 179 is not contaminated by radionuclides. The area immediately surrounding IHSS 179 is not posted.

Beryllium One pre-rinsate smear sample exceeded the control limit of 25 µg/ft² established in Section 13.04 of the Rocky Flats Health and Safety Plan [9]. All post-rinsate smear samples were below this control level. Values above the control level from the perimeter of the IHSS

were attributed to contamination from other sources, based on historical use of the IHSS and the surrounding area

3.4 IHSS 180 Building 883, Drum Storage Area (Room 104)

RCRA Appendix VIII Two Appendix VIII organics (phenol and DEHP) were found in both the original and the verification hot water rinsate samples from this IHSS, methylene chloride also was found in the original sampling. None of these constituents were expected to be present as constituents of concern at this IHSS, based on records of historical use. Thus, the detects were attributed to source water contamination, laboratory contamination and/or to leaching from paints and flooring materials. Inorganics were not of regulatory concern and were not analyzed.

Radionuclides Dust equivalent activities both in the hot water rinsate and the post-rinsate smear samples were below regulatory limits for all radionuclides measured. Post-rinsate dose rate limits exceeded 2.5 mrem/hr at seven of the areas measured within the IHSS, so total effective dose equivalents (TEDEs) were calculated using GENII based on the highest measured beta activity from the post-rinsate smears. For all of the radionuclides considered, the total calculated TEDE did not exceed the regulatory level of 5 rem/yr.

Beta dose rates at two locations in Room 104, near the periphery of IHSS 180, exceeded 5 mrem/hr, beta and gamma dose rates were less than 5 mrem/hr at all sampling locations within the IHSS. Radiological contamination near the IHSS is attributed to other operations, unrelated to the drum storage at IHSS 180, that occurred in this room. Room 104 is a restricted area (RCA), and is posted as a Contamination Area. The area encompassing IHSS 180 is not posted.

Beryllium All pre- and post-rinsate smear samples were below the control limit of 25 $\mu\text{g}/\text{ft}^2$ [9]. Values above the control level from the perimeter of the IHSS were attributed to contamination from other sources, based on historical use of the IHSS and the surrounding area.

3.5 IHSS 204 Building 447, Original Uranium Chip Roaster

RCRA Appendix VIII Three Appendix VIII organics (phenol and two phthalates) were found in the original hot water rinsate samples from this IHSS. None of these constituents were expected to be present as constituents of concern at this IHSS, based on records of historical use. Thus, the detects were attributed to laboratory contamination and/or to leaching from paints and flooring materials, and verification sampling was not performed. Inorganics were not of regulatory concern and were not analyzed.

Radionuclides Dust equivalent activities both in the hot water rinsate samples were below regulatory limits for all radionuclides measured. However, pre-rinsate smear samples from the floors and the surface of the chip roaster demonstrated radiological contamination of the IHSS. The magnitude of the contamination was not determined during the Phase I RFI/RI, since post-rinsate smears were not collected and no dose rate survey was performed. Measured total (fixed and removable) surface radioactivity in the pre-rinsate alpha and beta smears exceeded the limits given at 10 CFR Part 835, Appendix D. Rooms 32 and 502 are part of a restricted area (RCA), and are posted as Contamination Areas, Room 32 is also posted as a Radiation Area and a hazardous waste treatment unit. Since the area is posted as a Radiation Area, it is assumed that

continuous occupational exposure (2000 hr/yr) at this IHSS would result in a TEDE exceeding 5 rem/yr (2.5 mrem/hr). Radiation surveys at IHSS 204 are performed at least weekly [10]

3.6 IHSS 211 Building 881, Drum Storage Area (Room 266B)

RCRA Appendix VIII Two Appendix VIII organics (phenol and butyl benzyl phthalate) and two Appendix VIII inorganics (cadmium and lead) were found in the original hot water rinsate samples from this IHSS, phenol and lead were also detected in the verification sampling. None of these organic constituents were expected to be present as constituents of concern at this IHSS, based on records of historical use. Cadmium and lead were found in some source water samples. Thus, the detects were attributed to source water contamination, laboratory contamination and/or to leaching from paints and flooring materials.

Radionuclides Dust equivalent activities both in the hot water rinsate and the post-rinsate smear samples were below regulatory limits for all radionuclides measured. Post-rinsate dose rate limits were not exceeded within the IHSS. The IHSS does not require posting as a radiation area. Access to Room 266B is restricted, the room is posted as a RCRA 90-day accumulation area, but not for radiological controls.

3.7 IHSS 217 Building 881, Cyanide Treatment (Room 131C)

RCRA Appendix VIII Four Appendix VIII organics (DEHP, butyl benzyl phthalate, phenol, chloroform) and seven Appendix VIII inorganics (beryllium, cadmium, chromium, mercury, nickel, silver, cyanide) were found in the original hot water rinsate samples from this IHSS. None of these analytes except cyanide were expected to be present as constituents of concern at this IHSS, based on records of historical use, and so were not evaluated further. Cyanide was not detected in the original samples from the IHSS perimeter, nor was it found in the verification samples from the IHSS.

Radionuclides Dust equivalent activities both in the hot water rinsate and the post-rinsate smear samples were below regulatory limits for all radionuclides measured. Post-rinsate dose rate limits were not exceeded within the IHSS. The IHSS does not require posting as a radiation area. Access to Room 131C is restricted, the room is not posted.

4.0 CONCLUSIONS

As a result of an independent evaluation of the IHSSs in OU 15, it is concluded that all six IHSSs meet the federal and state requirements for clean closure under RCRA. Each IHSS also meets most other ARARs and TBC criteria. IHSS 180 may not meet the requirements of 10 CFR § 20.1301(a)(2), limiting the dose rate to individual members of the public from external radiation sources in unrestricted areas. However, this dose rate limit is irrelevant as long as IHSS 180 remains part of a restricted area (RCA), or if the public is excluded from this area. Due to some measured beta dose rates exceeding 5 mrem/hr, IHSS 180 may need to be posted as a radiation area.

The results of the Phase I RFI/RI sampling support a CERCLA "no action" ROD for IHSSs 178, 179, 211, and 217, as long as controls remain in place to limit radiation exposure to the public from these areas. A similar conclusion can be reached for IHSS 180 if it can be shown that occupational dose rate limits will not be exceeded.

As long as the original uranium chip roaster and Rooms 32 and 502 remain part of a restricted area (RCA), contamination area, and/or radiation area, and controls on worker access are in place and adhered to, a CERCLA "no action" ROD also can be supported for IHSS 204. This line of reasoning has already been espoused in the Final Phase I RFI/RI Report (Section 8, page 3) [1]. "For IHSS 204, the radiation protection ARARs are met based on compliance with the procedures developed for operations and worker exposures at RFETS." The approved Phase I RFI/RI Work Plan [3] states (page 5-6) "If radionuclide contamination is detected at levels exceeding the radiation standards, a radiological risk assessment will be performed." The cited radiation standards, also shown below in Tables 1 through 6, will be met as long as worker access restrictions and personnel monitoring procedures are implemented to maintain occupational exposures below 5 rem/yr. Current DOE and EG&G administrative controls and procedures are at least as stringent as the regulatory standards. Since there is no evidence of migration of contaminants outside of Building 447 from this IHSS, these controls are protective of human health and the environment. Therefore, a radiological risk assessment should not be necessary.

The Phase I RFI/RI Work Plan also states (page 5-7) "remediation goals for the OU 15 IHSSs will be the Clean Closure Performance Standards cited in Tables 3.1 through 3.3." The cited standards include DOE Orders 5400.5 and 5480.11, concerning radiation protection for the public and for workers. These standards are based on exposure levels, not contaminant levels, and can be met by promulgation and implementation of administrative procedures to limit human exposure to ionizing radiation, as discussed above. As long as the administrative procedures to control radiation exposure remain in place and are adhered to, it is not necessary to implement further actions to reduce contaminant levels at the source. As stated in the final proposed plan [4]

IHSSs 179, 180, and 204 are subject to the radiological control program requirements. While the Rocky Flats radiological control program is in effect, these IHSSs require no further action under CERCLA. The radiological control program will remain in effect for these IHSSs until final disposition of their respective buildings.

No action under CERCLA is required at this time to meet the ARARs/TBCs for radiation protection at IHSS 204. When a decision on final disposition of Building 447 is made, ARARs and TBCs can be met either by continuation of existing administrative controls or by decontamination and removal of radioactively contaminated sources (including IHSS 204) within the building.

5.0 RECOMMENDATIONS

- (1) Beta dose rates around IHSS 180 should be confirmed. If it is found that dose rates do exceed 5 mrem/hr, the affected areas should be posted as radiation areas.
- (2) Records documenting adherence at IHSS 204 to the 29 CFR § 1910.96 and 10 CFR Part 835 occupational radiation exposure limits should be collected to facilitate demonstration of compliance with these ARARs. If necessary, the documentation could be included in a Technical Memorandum addendum to the final proposed plan in order to justify the recommendation of no action.
- (3) Public access to all OU 15 IHSSs should be minimized. IHSSs 180 and 204 should be off-limits to the general public and off-duty workers.
- (4) In order to designate IHSS 204 as an unrestricted (free access) area to workers, residual radioactive contamination must be reduced to a level that would result in less than 5 rem/yr TEDE. This can probably be accomplished only by dismantling and removing the equipment and, if necessary, replacement of contaminated structural materials in the building (e.g., flooring and walls) [11] (vs., Section 4.0).

6 0 REFERENCES

- 1 Final Phase I RFI/RI Report, Operable Unit No 15, Inside Building Closures DOE, January 1995
- 2 Rocky Flats Interagency Agreement DOE/EPA/CDPHE, January 22, 1991
- 3 Final Phase I RFI/RI Work Plan, Rocky Flats Plant Inside Building Closures (Operable Unit 15) DOE, October 1992 (revised March 23, 1993)
- 4 Final Proposed Plan and Draft Modification of the Colorado Hazardous Waste Permit for the Rocky Flats Environmental Technology Site Operable Unit 15 Inside Building Closures DOE, April 25, 1995
- 5 Certification of RCRA Closure for OU 15 IHSSs EG&G Rocky Flats, April 5, 1995
- 6 Draft Master List of Potential Federal and State ARARs for the Rocky Flats Environmental Technology Site DOE, February 1995
- 7 Dr William Fitch, DOE Rocky Flats OU 15 manager, personal communication
- 8 Rocky Flats Plant RCRA Permit and Compliance Document CDPHE, October 30, 1991 (Revision 21, September 1994)
- 9 Health and Safety Practices Manual PADC-92-00635, EG&G Rocky Flats, 1994
- 10 Jerry Anderson, EG&G Rocky Flats radiation control engineer, personal communication
- 11 Richard Ray, EG&G Rocky Flats OU 15 manager, personal communication

TABLE 1. ARARs COMPARISON FOR IISS 178: BUILDING 881, DRUM STORAGE AREA (ROOM 165)

ARAR/TBC	Met?	Rationale
6 CCR 1007-3 § 264 178 Closure of container storage areas	Yes	All containers have been removed and the floor of the unit has been decontaminated
6 CCR 1007-3 § 265 111 Closure performance standard	---	Removal of all RCRA hazardous wastes and waste residues to below detection limits for the Appendix VIII constituents of concern eliminates the need for further unit maintenance and the possibility of contaminant migration [§§ 265 111(a), (b)] This also fulfills the other applicable closure requirement cited in § 265 111(c), namely § 265 1102 (containment building closure)
§ 265 111(a) Minimize need for further maintenance	Yes	
§ 265 111(b) Control/minimize/eliminate escape of waste, waste constituents, leachate, etc	Yes	
§ 265 111(c) Comply with other Part 265 closure requirements	Yes	
6 CCR 1007-3 § 265 114 Decontamination of equipment, structures, soils	Yes	All containers have been removed and the floor of the unit has been decontaminated
State RCRA Permit, Part VIII Closure of permitted units	---	Floor of the unit was cleaned according to prescribed procedures Rinsates exhibited no hazardous waste characteristics and contained no RCRA metals above TCLP limits Except for phenol and two phthalate esters detected in both the original and the verification samples, no Appendix VIII organics were detected in the rinsates The detects of organics are attributable to leaching from paints, flooring materials, and sampling equipment and/or laboratory contamination of the samples, not residual contamination
Section VIII-A 5 b Closure performance standard for used rinsate from decontamination	Yes	
Section VIII-B Standard closure activities for container storage areas	Yes	
29 CFR § 1910 96 Ionizing radiation	---	The maximum measured beta dose rate was 0.4 mrem/hr, equivalent to 0.2 rem/quarter Residual dust equivalent activities were below the DACs and ALIs (10 CFR Part 20, Appendix B) for all radionuclides The required survey was performed as part of the Phase I RFI/RI
§ 1910 96(b)(1) Quarterly exposure limit of 1.25 rems (whole body dose) in restricted areas	Yes	
§ 1910 96(c)(1) Exposure limit for airborne radioactivity in restricted areas	Yes	
§ 1910 96(d)(1) Requirement for surveys	Yes	

TABLE 1. ARARs COMPARISON FOR IHSS 178: BUILDING 881, DRUM STORAGE AREA (ROOM 165)

ARAR/TBC	Met?	Rationale
10 CFR Part 20 Standards for protection against radiation	---	<p>The required survey was performed as part of the Phase 1 RFI/RI. The maximum measured beta dose rate was 0.4 mrem/hr, equivalent to 0.8 rem/yr. A radiation protection program (RPP) is in place to implement procedures to achieve ALARA goals. Exposure limits will not be exceeded as long as no member of the public (including off-duty workers) is exposed to radiation from this IHSS for more than 250 hr/yr. Building access restrictions will fulfill ALARA requirements and annual dose limits.</p>
§ 20 1101 Radiation protection programs	Yes	
§ 20 1201(a)(1) Annual occupational dose limit of 5 rems (total effective dose equivalent) for adults	Yes	
§ 20 1201(e) Soluble uranium intake limit of 10 mg/week	Yes	
§ 20 1301(a)(1) Total effective dose equivalent for individual members of the public not to exceed 100 mrem/yr	(See text)	
§ 20 1301(a)(2) Dose to public in unrestricted areas from external sources not to exceed 2 mrem/hr	Yes	
§ 20 1302 Conduct radiation survey, show compliance with § 20 1301 limits	Yes	
§ 20 1501 Requirements for surveys	Yes	
10 CFR Part 834 Radiation protection of the public and the environment [Will supersede DOE Order 5400.5]	---	
§ 834 101(a) Comply with ALARA requirements, total effective dose equivalent for individual members of the public not to exceed 100 mrem/yr	Yes	<p>Exposure limits will not be exceeded as long as no member of the public (including off-duty workers) is exposed to radiation from this IHSS for more than 250 hr/yr. Building access restrictions will fulfill ALARA requirements. Appropriate limits for residual activity in structures have been established.</p>
§ 834 304 Structures [containing residual radioactivity]	Yes	

TABLE 1. ARARs COMPARISON FOR IHSS 178: BUILDING 881, DRUM STORAGE AREA (ROOM 165)

ARAR/TBC	Met?	Rationale
10 CFR Part 835 Occupational radiation protection [Supersedes DOE Order 5480 11]	---	The maximum measured beta dose rate was 0.4 mrem/hr, equivalent to 0.8 rem/yr. A radiation protection program (RPP) is in place to implement procedures to achieve ALARA goals. Exposure limits for individual members of the public will not be exceeded as long as no one is exposed to radiation from this IHSS for more than 250 hr/yr. Residual dust equivalent activities were below the DACs for airborne radioactivity.
§ 835 101 Radiation protection programs	Yes	
§ 835 202(a)(1) Annual occupational dose limit of 5 rems (total effective dose equivalent)	Yes	
§ 835 208 Total effective dose equivalent for individual members of the public not to exceed 100 mrem/yr	Yes	
§ 835 209 DAC limits	Yes	
DOE Order 5400 5 Radiation protection of the public and the environment	Yes	Will be superseded by 10 CFR Part 834, requirements are the same
DOE Order 5480 11 Radiation protection for occupational workers	Yes	Superseded by 10 CFR Part 835, requirements are the same

TABLE 2. ARARs COMPARISON FOR IHSS 179- BUILDING 865, DRUM STORAGE AREA (ROOM 145)

ARAR/TBC	Met?	Rationale
6 CCR 1007-3 § 264 178 Closure of container storage areas	Yes	All containers have been removed and the floor of the unit has been decontaminated
6 CCR 1007-3 § 265 111 Closure performance standard	---	Removal of all RCRA hazardous wastes and waste residues to below detection limits for the Appendix VIII constituents of concern eliminates the need for further unit maintenance and the possibility of contaminant migration [§§ 265 111(a), (b)] This also fulfills the other applicable closure requirement cited in § 265 111(c), namely § 265 1102 (containment building closure)
§ 265 111(a) Minimize need for further maintenance	Yes	
§ 265 111(b) Control/minimize/eliminate escape of waste, waste constituents, leachate, etc	Yes	
§ 265 111(c) Comply with other Part 265 closure requirements	Yes	
6 CCR 1007-3 § 265 114 Decontamination of equipment, structures, soils	Yes	All containers have been removed and the floor of the unit has been decontaminated
State RCRA Permit, Part VIII Closure of permitted units	---	Floor of the unit was cleaned according to prescribed procedures Rinsates exhibited no hazardous waste characteristics and contained no RCRA metals above TCLP limits Except for phenol and DEHP detected in both the original and the verification samples, no Appendix VIII organics were detected in the rinsates The detects of organics are attributable to leaching from paints, flooring materials, and sampling equipment and/or laboratory contamination of the samples, not residual contamination
Section VIII-A 5 b Closure performance standard for used rinsate from decontamination	Yes	
Section VIII-B Standard closure activities for container storage areas	Yes	
29 CFR § 1910 96 Ionizing radiation	---	The maximum measured beta dose rate was 1 6 mrem/hr, equivalent to 0 8 rem/quarter Residual dust equivalent activities were below the DACs and ALIs (10 CFR Part 20, Appendix B) for all radionuclides The required survey was performed as part of the Phase I RFI/RI
§ 1910 96(b)(1) Quarterly exposure limit of 1 25 rems (whole body dose) in restricted areas	Yes	
§ 1910 96(c)(1) Exposure limit for airborne radioactivity in restricted areas	Yes	
§ 1910 96(d)(1) Requirement for surveys	Yes	

TABLE 2. ARARs COMPARISON FOR IHSS 179: BUILDING 865, DRUM STORAGE AREA (ROOM 145)

ARAR/TBC	Met?	Rationale
10 CFR Part 20 Standards for protection against radiation	---	<p>The required survey was performed as part of the Phase I RFI/RJ. The maximum measured beta dose rate was 1.6 mrem/hr, equivalent to 3.2 rem/yr. A radiation protection program (RPP) is in place to implement procedures to achieve ALARA goals. Exposure limits will not be exceeded as long as no member of the public (including off-duty workers) is exposed to radiation from this IHSS for more than 62.5 hr/yr. Building access restrictions will fulfill ALARA requirements and annual dose limits.</p>
§ 20 1101 Radiation protection programs	Yes	
§ 20 1201(a)(1) Annual occupational dose limit of 5 rems (total effective dose equivalent) for adults	Yes	
§ 20 1201(e) Soluble uranium intake limit of 10 mg/week	Yes	
§ 20 1301(a)(1) Total effective dose equivalent for individual members of the public not to exceed 100 mrem/yr	(See text)	
§ 20 1301(a)(2) Dose to public in unrestricted areas from external sources not to exceed 2 mrem/hr	Yes	
§ 20 1302 Conduct radiation survey, show compliance with § 20 1301 limits	Yes	
§ 20 1501 Requirements for surveys	Yes	
10 CFR Part 834 Radiation protection of the public and the environment [Will supersede DOE Order 5400.5]	---	<p>Exposure limits will not be exceeded as long as no member of the public (including off-duty workers) is exposed to radiation from this IHSS for more than 62.5 hr/yr. Building access restrictions will fulfill ALARA requirements. Appropriate limits for residual activity in structures have been established.</p>
§ 834 101(a) Comply with ALARA requirements, total effective dose equivalent for individual members of the public not to exceed 100 mrem/yr	Yes	
§ 834 304 Structures [containing residual radioactivity]	Yes	

TABLE 2. ARARs COMPARISON FOR IHSS 179: BUILDING 865, DRUM STORAGE AREA (ROOM 145)

ARAR/TBC	Met?	Rationale
10 CFR Part 835 Occupational radiation protection [Supersedes DOE Order 5480 11]	---	The maximum measured beta dose rate was 1.6 mrem/hr, equivalent to 3.2 rem/yr. A radiation protection program (RPP) is in place to implement procedures to achieve ALARA goals. Exposure limits for individual members of the public will not be exceeded as long as no one is exposed to radiation from this IHSS for more than 62.5 hr/yr. Residual dust equivalent activities were below the DACs for airborne radioactivity.
§ 835 101 Radiation protection programs	Yes	
§ 835 202(a)(1) Annual occupational dose limit of 5 rems (total effective dose equivalent)	Yes	
§ 835 208 Total effective dose equivalent for individual members of the public not to exceed 100 mrem/yr	Yes	
§ 835 209 DAC limits	Yes	
DOE Order 5400 5 Radiation protection of the public and the environment	Yes	
DOE Order 5480 11 Radiation protection for occupational workers	Yes	Will be superseded by 10 CFR Part 834, requirements are the same.
Rocky Flats Health and Safety Practices Manual, Section 13.04 Beryllium surface contamination control level	Yes	Superseded by 10 CFR Part 835, requirements are the same.
	Yes	One pre-rinsate smear sample exceeded the 25 µg/ft² control level. All post-rinsate smear samples from within the IHSS were below the control level.

TABLE 3. ARARs COMPARISON FOR IHSS 180: BUILDING 883, DRUM STORAGE AREA (ROOM 104)

ARAR/TBC	Met?	Rationale
6 CCR 1007-3 § 264 178 Closure of container storage areas	Yes	All containers have been removed and the floor of the unit has been decontaminated
6 CCR 1007-3 § 265 111 Closure performance standard	---	Removal of all RCRA hazardous wastes and waste residues to below detection limits for the Appendix VIII constituents of concern eliminates the need for further unit maintenance and the possibility of contaminant migration [§§ 265 111(a), (b)] This also fulfills the other applicable closure requirement cited in § 265 111(c), namely § 265 1102 (containment building closure)
§ 265 111(a) Minimize need for further maintenance	Yes	
§ 265 111(b) Control/minimize/eliminate escape of waste, waste constituents, leachate, etc	Yes	
§ 265 111(c) Comply with other Part 265 closure requirements	Yes	
6 CCR 1007-3 § 265 114 Decontamination of equipment, structures, soils	Yes	All containers have been removed and the floor of the unit has been decontaminated
State RCRA Permit, Part VIII Closure of permitted units	---	Floor of the unit was cleaned according to prescribed procedures Rinsates exhibited no hazardous waste characteristics and contained no RCRA metals above TCLP limits Except for phenol and DEHP detected in both the original and the verification samples, no Appendix VIII organics were detected in the rinsates The detects of organics are attributable to leaching from paints, flooring materials, and sampling equipment and/or laboratory contamination of the samples, not residual contamination Methylene chloride detected in the original sampling was also attributed to sample cross-contamination
Section VIII-A 5 b Closure performance standard for used rinsate from decontamination	Yes	
Section VIII-B Standard closure activities for container storage areas	Yes	

TABLE 3. ARARs COMPARISON FOR IHSS 180: BUILDING 883, DRUM STORAGE AREA (ROOM 104)

ARAR/TBC	Met?	Rationale
29 CFR § 1910.96 Ionizing radiation	---	The maximum measured beta dose rate was 11.2 mrem/hr, equivalent to 5.6 rem/quarter. However, GENII modeling indicated the maximum expected TEDE to be 3.7 rem/yr (0.925 rem/quarter). Residual dust equivalent activities were below the DACs and ALIs (10 CFR Part 20, Appendix B) for all radionuclides. The required survey was performed as part of the Phase I RFI/RI. The IHSS is not a radiation area and is not posted as such, however, some of the surrounding areas may need to be posted due to measured beta dose rates that exceeded 5 mrem/hr.
§ 1910.96(b)(1) Quarterly exposure limit of 1.25 rems (whole body dose) in restricted areas	Yes	
§ 1910.96(c)(1) Exposure limit for airborne radioactivity in restricted areas	Yes	
§ 1910.96(d)(1) Requirement for surveys	Yes	
§ 1910.96(e)(2) Posting of radiation areas	Yes	

TABLE 3. ARARs COMPARISON FOR IHSS 180: BUILDING 883, DRUM STORAGE AREA (ROOM 104)

ARAR/TBC	Met?	Rationale
10 CFR Part 20 Standards for protection against radiation	---	<p>The required survey was performed as part of the Phase I RFI/RI. The maximum measured beta dose rate was 11.2 mrem/hr, equivalent to 5.6 rem/yr. However, GENII modeling indicated the maximum expected TEDE to be 3.7 rem/yr (0.925 rem/quarter). A radiation protection program (RPP) is in place to implement procedures to achieve ALARA goals. Exposure limits will not be exceeded as long as no member of the public (including off-duty workers) is exposed to radiation from this IHSS for more than 9 hr/yr. However, some areas exceeded the maximum permissible dose rate of 2 mrem/hr, therefore, this area should be kept off limits to the public. Building access restrictions will fulfill ALARA requirements and annual dose limits. The IHSS is not a radiation area and is not posted as such, however, some of the surrounding areas may need to be posted due to measured beta dose rates that exceeded 5 mrem/hr.</p>
§ 20 1101 Radiation protection programs	Yes	
§ 20 1201(a)(1) Annual occupational dose limit of 5 rems (total effective dose equivalent) for adults	Yes	
§ 20 1201(e) Soluble uranium intake limit of 10 mg/week	Yes	
§ 20 1301(a)(1) Total effective dose equivalent for individual members of the public not to exceed 100 mrem/yr	(See text)	
§ 20 1301(a)(2) Dose to public in unrestricted areas from external sources not to exceed 2 mrem/hr	No (*)	
§ 20 1302 Conduct radiation survey, show compliance with § 20 1301 limits	(See text)	
§ 20 1501 Requirements for surveys	Yes	
§ 20 1902(a) Posting of radiation areas	Yes	
10 CFR Part 834 Radiation protection of the public and the environment [Will supersede DOE Order 5400.5]	---	
§ 834 101(a) Comply with ALARA requirements, total effective dose equivalent for individual members of the public not to exceed 100 mrem/yr	(See text)	
§ 834 304 Structures [containing residual radioactivity]	Yes	

(*) This requirement will not be relevant if the area around IHSS 180 remains restricted or if the public is not allowed access to the area

TABLE 3. ARARs COMPARISON FOR IHSS 180: BUILDING 883, DRUM STORAGE AREA (ROOM 104)

ARAR/TBC	Met?	Rationale
10 CFR Part 835 Occupational radiation protection [Supersedes DOE Order 5480 11]	---	The maximum measured beta dose rate was 11.2 mrem/hr, equivalent to 5.6 rem/yr. However, GENII modeling indicated the maximum expected TEDE to be 3.7 rem/yr (0.925 rem/quarter). A radiation protection program (RPP) is in place to implement procedures to achieve ALARA goals. Exposure limits for individual members of the public will not be exceeded as long as no one is exposed to radiation from this IHSS for more than 9 hr/yr. However, some areas exceeded the maximum permissible dose rate of 2 mrem/hr, therefore, this area should be kept off limits to the public. Residual dust equivalent activities were below the DACs for airborne radioactivity. The IHSS is not a radiation area and is not posted as such, access to it is not restricted. However, some of the surrounding areas may need to be posted due to measured beta dose rates that exceeded 5 mrem/hr.
§ 835 101 Radiation protection programs	Yes	
§ 835 202(a)(1) Annual occupational dose limit of 5 rems (total effective dose equivalent)	Yes	
§ 835 208 Total effective dose equivalent for individual members of the public not to exceed 100 mrem/yr	(See text)	
§ 835 209 DAC limits	Yes	
§ 835 501 Control entry to radiological areas	Yes	
§ 835 603(a) Posting of radiation areas	Yes	
DOE Order 5400 5 Radiation protection of the public and the environment	Yes	Will be superseded by 10 CFR Part 834, requirements are the same
DOE Order 5480 11 Radiation protection for occupational workers	Yes	Superseded by 10 CFR Part 835, requirements are the same
Rocky Flats Health and Safety Practices Manual, Section 13 04 Beryllium surface contamination control level	Yes	All smear samples from within the IHSS were below the 25 µg/ft ² control level

TABLE 4. ARARs COMPARISON FOR IHSS 204: BUILDING 447, ORIGINAL UNRANIUM CHIP ROASTER

ARAR/TBC	Met?	Rationale
10 CFR Part 20 Standards for protection against radiation	---	<p>A radiation protection program (RPP) is in place to implement procedures to achieve ALARA goals. The room containing the outlet to the chip roaster is posted as a radiation area. It is assumed that dose rates for continuous occupational exposure (2000 hr/yr) exceed 5 rem/yr (2.5 mrem/hr) (v s, Section 3.5), therefore, this area should be kept off limits to the public. Access restrictions and personnel monitoring procedures are used to maintain TEDEs below 5 rem/yr. The required surveys are performed at least weekly.</p>
§ 20 1101 Radiation protection programs	Yes	
§ 20 1201(a)(1) Annual occupational dose limit of 5 rems (total effective dose equivalent) for adults	Yes	
§ 20 1201(e) Soluble uranium intake limit of 10 mg/week	Yes	
§ 20 1301(a)(1) Total effective dose equivalent for individual members of the public not to exceed 100 mrem/yr	(See text)	
§ 20 1301(a)(2) Dose to public in unrestricted areas from external sources not to exceed 2 mrem/hr	No (*)	
§ 20 1302 Conduct radiation survey, show compliance with § 20 1301 limits	No (*)	
§ 20 1501 Requirements for surveys	Yes	
§ 20 1902(a) Posting of radiation areas	Yes	
10 CFR Part 834 Radiation protection of the public and the environment [Will supersede DOE Order 5400.5]	---	
§ 834 101(a) Comply with ALARA requirements, total effective dose equivalent for individual members of the public not to exceed 100 mrem/yr	(See text)	
§ 834 304 Structures [containing residual radioactivity]	Yes	

(*) This requirement will not be relevant if the area around IHSS 204 remains restricted or if the public is not allowed access to the area.

TABLE 4. ARARs COMPARISON FOR IHSS 204: BUILDING 447, ORIGINAL URANIUM CHIP ROASTER

ARAR/TBC	Met?	Rationale	
10 CFR Part 835 Occupational radiation protection [Supersedes DOE Order 5480 11]	---	A radiation protection program (RPP) is in place to implement procedures to achieve ALARA goals. Residual dust equivalent activities were below the DACs and ALIs (10 CFR Part 20, Appendix B) for all radionuclides. The room containing the outlet to the chip roaster is posted as a radiation area [§ 835 404(c)(1)] Entry is controlled by a locked door [§ 835 404(c)(2)] It is assumed that dose rates for continuous occupational exposure (2000 hr/yr) exceed 5 rem/yr (2.5 mrem/hr) (vs, Section 3.5), therefore, this area should be kept off limits to the public. Access restrictions and personnel monitoring procedures are used to maintain TEDEs below 5 rem/yr	
§ 835 101 Radiation protection programs	Yes		
§ 835 202(a)(1) Annual occupational dose limit of 5 rems (total effective dose equivalent)	Yes		
§ 835 208 Total effective dose equivalent for individual members of the public not to exceed 100 mrem/yr	(See text)		
§ 835 209 DAC limits	Yes		
§ 835 404 Radioactive contamination control and monitoring	Yes		
§ 835 501 Control entry to radiological areas	Yes		
§ 835 603 Posting of radiation areas	Yes		
DOE Order 5400 5 Radiation protection of the public and the environment	Yes		Will be superseded by 10 CFR Part 834, requirements are the same
DOE Order 5480 11 Radiation protection for occupational workers	Yes		Superseded by 10 CFR Part 835, requirements are the same

TABLE 5. ARARs COMPARISON FOR IISS 211: BUILDING 881, DRUM STORAGE AREA (ROOM 266B)

ARAR/TBC	Met?	Rationale
6 CCR 1007-3 § 264 178 Closure of container storage areas	Yes	All containers have been removed and the floor of the unit has been decontaminated
6 CCR 1007-3 § 265 111 Closure performance standard	---	Removal of all RCRA hazardous wastes and waste residues to below detection limits for the Appendix VIII constituents of concern eliminates the need for further unit maintenance and the possibility of contaminant migration [§§ 265 111(a), (b)] This also fulfills the other applicable closure requirement cited in § 265 111(c), namely § 265 1102 (containment building closure)
§ 265 111(a) Minimize need for further maintenance	Yes	
§ 265 111(b) Control/minimize/eliminate escape of waste, waste constituents, leachate, etc	Yes	
§ 265 111(c) Comply with other Part 265 closure requirements	Yes	
6 CCR 1007-3 § 265 114 Decontamination of equipment, structures, soils	Yes	All containers have been removed and the floor of the unit has been decontaminated
State RCRA Permit, Part VIII Closure of permitted units	---	Floor of the unit was cleaned according to prescribed procedures Rinsates exhibited no hazardous waste characteristics and contained no RCRA metals above TCLP limits Except for phenol, butyl benzyl phthalate, cadmium and lead found in the original samples, and phenol and lead in the verification samples, no Appendix VIII constituents were detected in the rinsates The detects are attributable to leaching from paints, flooring materials, and sampling equipment and/or laboratory contamination of the samples, not residual contamination
Section VIII-A 5 b Closure performance standard for used rinsate from decontamination	Yes	
Section VIII-B Standard closure activities for container storage areas	Yes	
29 CFR § 1910 96 Ionizing radiation	---	The maximum measured beta dose rate was 0.4 mrem/hr, equivalent to 0.2 rem/quarter Residual dust equivalent activities were below the DACs and ALIs (10 CFR Part 20, Appendix B) for all radionuclides The required survey was performed as part of the Phase I RFI/RI
§ 1910 96(b)(1) Quarterly exposure limit of 1.25 rems (whole body dose) in restricted areas	Yes	
§ 1910 96(c)(1) Exposure limit for airborne radioactivity in restricted areas	Yes	
§ 1910 96(d)(1) Requirement for surveys	Yes	

TABLE 5. ARARs COMPARISON FOR IHSS 211: BUILDING 881, DRUM STORAGE AREA (ROOM 266B)

ARAR/TBC	Met?	Rationale
10 CFR Part 20 Standards for protection against radiation	---	<p>The required survey was performed as part of the Phase I RFI/RI. The maximum measured beta dose rate was 0.4 mrem/hr, equivalent to 0.8 rem/yr. A radiation protection program (RPP) is in place to implement procedures to achieve ALARA goals. Exposure limits will not be exceeded as long as no member of the public (including off-duty workers) is exposed to radiation from this IHSS for more than 250 hr/yr. Building access restrictions will fulfill ALARA requirements and annual dose limits.</p>
§ 20 1101 Radiation protection programs	Yes	
§ 20 1201(a)(1) Annual occupational dose limit of 5 rems (total effective dose equivalent) for adults	Yes	
§ 20 1201(e) Soluble uranium intake limit of 10 mg/week	Yes	
§ 20 1301(a)(1) Total effective dose equivalent for individual members of the public not to exceed 100 mrem/yr	(See text)	
§ 20 1301(a)(2) Dose to public in unrestricted areas from external sources not to exceed 2 mrem/hr	Yes	
§ 20 1302 Conduct radiation survey, show compliance with § 20 1301 limits	Yes	
§ 20 1501 Requirements for surveys	Yes	
10 CFR Part 834 Radiation protection of the public and the environment [Will supersede DOE Order 5400.5]	---	<p>Exposure limits will not be exceeded as long as no member of the public (including off-duty workers) is exposed to radiation from this IHSS for more than 250 hr/yr. Building access restrictions will fulfill ALARA requirements. Appropriate limits for residual activity in structures have been established.</p>
§ 834 101(a) Comply with ALARA requirements, total effective dose equivalent for individual members of the public not to exceed 100 mrem/yr	Yes	
§ 834 304 Structures [containing residual radioactivity]	Yes	

TABLE 5 ARARs COMPARISON FOR IHSS 211: BUILDING 881, DRUM STORAGE AREA (ROOM 266B)

ARAR/TBC	Met?	Rationale
10 CFR Part 835 Occupational radiation protection [Supersedes DOE Order 5480 11]	---	The maximum measured beta dose rate was 0.4 mrem/hr, equivalent to 0.8 rem/yr. A radiation protection program (RPP) is in place to implement procedures to achieve ALARA goals. Exposure limits for individual members of the public will not be exceeded as long as no one is exposed to radiation from this IHSS for more than 250 hr/yr. Residual dust equivalent activities were below the DACs for airborne radioactivity.
§ 835 101 Radiation protection programs	Yes	
§ 835 202(a)(1) Annual occupational dose limit of 5 rems (total effective dose equivalent)	Yes	
§ 835 208 Total effective dose equivalent for individual members of the public not to exceed 100 mrem/yr	Yes	
§ 835 209 DAC limits	Yes	
DOE Order 5400 5 Radiation protection of the public and the environment	Yes	Will be superseded by 10 CFR Part 834, requirements are the same.
DOE Order 5480 11 Radiation protection for occupational workers	Yes	Superseded by 10 CFR Part 835, requirements are the same.

TABLE 6. ARARs COMPARISON FOR IHSS 217: BUILDING 881, CYANIDE TREATMENT (ROOM 131C)

ARAR/TBC	Met?	Rationale
10 CFR Part 834 Radiation protection of the public and the environment [Will supersede DOE Order 5400 5]	---	Exposure limits will not be exceeded as long as no member of the public (including off-duty workers) is exposed to radiation from this IHSS for more than 250 hr/yr Building access restrictions will fulfill ALARA requirements Appropriate limits for residual activity in structures have been established
§ 834 101(a) Comply with ALARA requirements, total effective dose equivalent for individual members of the public not to exceed 100 mrem/yr	Yes	
§ 834 304 Structures [containing residual radioactivity]	Yes	
10 CFR Part 835 Occupational radiation protection [Supersedes DOE Order 5480 11]	---	The maximum measured beta dose rate was 0.4 mrem/hr, equivalent to 0.8 rem/yr A radiation protection program (RPP) is in place to implement procedures to achieve ALARA goals Exposure limits for individual members of the public will not be exceeded as long as no one is exposed to radiation from this IHSS for more than 250 hr/yr Residual dust equivalent activities were below the DACs for airborne radioactivity
§ 835 101 Radiation protection programs	Yes	
§ 835 202(a)(1) Annual occupational dose limit of 5 rems (total effective dose equivalent)	Yes	
§ 835 208 Total effective dose equivalent for individual members of the public not to exceed 100 mrem/yr	Yes	
§ 835 209 DAC limits	Yes	
DOE Order 5400 5 Radiation protection of the public and the environment	Yes	Will be superseded by 10 CFR Part 834, requirements are the same
DOE Order 5480 11 Radiation protection for occupational workers	Yes	Superseded by 10 CFR Part 835, requirements are the same