UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-4005

November 14, 2005

Albert I. Ossinger, Radiation Safety Officer
National Enforcement Investigations Center
U.S. Environmental Protection Agency
P.O. Box 25227, Building 25
Denver Federal Center
Denver, CO 80225-0227

SUBJECT: NRC INSPECTION REPORT 030-08219/05-001

Dear Mr. Ossinger:

This refers to the inspection conducted on October 17-19, 2005, at the Denver Federal Center in Denver, Colorado. This inspection was an examination of activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of selected examination of procedures and representative records, observations of activities, and interviews with personnel. The enclosed report presents the results of this inspection.

The inspection consisted of a confirmatory survey in Building 53, an area that had been vacated and final surveyed by the U.S. Environmental Protection Agency (EPA). The EPA has requested NRC approval to remove this building from its license as a location of use of radioactive materials such that it can be released for unrestricted use. The confirmatory survey included measurement of total surface contamination and ambient gamma exposure rates. No sample result exceeded the respective derived concentration guideline levels listed in the final status survey report which is still under review by the NRC. Details of the confirmatory survey are provided in the enclosed report. The NRC's conclusion of the final status survey report will be provided to you at a later date under separate correspondence.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html.

Should you have any questions concerning this inspection, please contact the undersigned at (817) 860-8191 or Mr. Robert J. Evans, Senior Health Physicist, at (817) 860-8234.

Sincerely,

/RA/

D. Blair Spitzberg, Ph.D., Chief
Fuel Cycle & Decommissioning Branch

Docket No.: 030-08219
License No.: 05-14892-01
Control No.: 470094

Enclosure:
NRC Inspection Report
030-08219/05-001

cc w/enclosure:
Colorado Radiation Control Program Director

bcc w/enclosure (via ADAMS e-mail distribution):
LDWert
DBSpitzberg
RSBrowder
RJEvans
BASchlapper
KEGardin
RIV Nuclear Materials File - 5th Floor

SISP Review Completed: RJE

ADAMS: : Yes 9 No Initials: RJE
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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket No:	030-08219
License No:	05-14892-01
Report No:	030-08219/05-001
Licensee:	U.S. Environmental Protection Agency
Facility:	Building 53
Location:	Denver Federal Center Denver, Colorado
Dates:	October 17-19, 2005
Inspector:	Robert J. Evans, P.E., C.H.P., Senior Health Physicist Fuel Cycle & Decommissioning Branch
Approved By:	D. Blair Spitzberg, Ph.D., Chief Fuel Cycle & Decommissioning Branch
Attachment:	Supplemental Inspection Information

EXECUTIVE SUMMARY

U.S. Environmental Protection Agency
NRC Inspection Report 030-08219/05-001

The purpose of this inspection was to review the U.S. Environmental Protection Agency's progress towards decommissioning of Building 53 at the Denver Federal Center in Denver, Colorado.

Decommissioning Inspection Procedure for Materials Licenses

- A confirmatory survey was conducted in Building 53. The confirmatory survey included ambient gamma exposure rate and fixed surface contamination measurements. None of the sample results exceeded the derived concentration guideline levels provided in the final status survey report which is still under NRC review and has not been approved (Section 2).

Report Details

Summary of Plant Status

Materials License No. 05-14892-01 authorizes the U.S. Environmental Protection Agency (EPA) to possess small quantities of radioactive material, in both sealed and unsealed form, for instrument calibration and sample analysis. By letter dated August 9, 2004, the U.S. Environmental Protection Agency (EPA) requested amendment of its NRC license to remove Building 53 as a location of use. Radioactive materials were used by EPA at Building 53 from about 1973-2003. The licensee conducted a historical review and concluded that the radionuclides of concern included americium-241, strontium-90, natural uranium, radium-226, and radium-228.

All radioactive materials were relocated to Building 25 by August 2003. A final status survey of the building was conducted during February-March 2004. A Final Status Survey Report (FSSR) was completed by the licensee, and a copy of the FSSR was attached to the licensee's August 9, 2004 letter.

At the time of this inspection, the EPA's former offices in Building 53 were vacant. Ventilation hoods, sinks and furniture had been previously radiologically surveyed and free-released by the licensee. A property custodian speculated that this wing of the building may be demolished in the near future.

1 Decommissioning Inspection Procedure for Material Licenses (87104)

1.1 Inspection Scope

The objective of this portion of the inspection was to determine if decommissioning activities were being conducted in a manner that was protective of the health and safety of workers and the general public. The inspection included a confirmatory survey of the former EPA radioactive material use locations in Building 53.

1.2 Observations and Findings

By letter dated August 26, 2003, EPA notified the NRC that it had vacated Building 53. The NRC amended EPA's license on October 27, 2003, to remove a different building from the license. In the NRC's letter, EPA was informed that Building 53 would remain on the license until it submitted a FSSR to the NRC. The NRC also stated that EPA should use the guidance provided in the NRC's "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material" dated August 1987 and Appendix B of NUREG-1575, Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM), "Simplified Procedure for Certain Users of Sealed Sources, Short Half-Life Materials, and Small Quantities."

By letter dated August 9, 2004, EPA submitted a FSSR to the NRC for Building 53. The licensee elected to use the surface contamination limits provided in Table 1, "Acceptable Surface Contamination Levels," provided in the NRC's August 1987 guidance document

as the derived concentration guideline levels (DCGLs) for free-release of Building 53. Following completion of the final status survey and review of survey data, the EPA concluded in its FSSR that “Building 53 meets the criteria for radiological release established in ‘Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material,’ ... thus allowing the facility to be released for unrestricted use and to be removed from the EPA’s NRC Radioactive Material License.”

The NRC inspector conducted a confirmatory survey to independently assess the radiological conditions of Building 53. The FSSR historical review, as confirmed by the inspector through a review of the license docket file, determined that radioactive materials were used in eight rooms in Building 53. These eight rooms were surveyed as part of the confirmatory survey. The survey included measurement of ambient gamma exposure rates and fixed contamination levels. The ambient gamma exposure rate measurements were collected with a Ludlum Model 19 microRoentgen meter (NRC No. 015544, calibration due date of November 16, 2005). The surface contamination survey was conducted using an Eberline E600 survey meter (NRC No. 063472, calibration due date of September 2, 2006) with Eberline SHP380AB alpha-beta probe.

Prior to conducting the confirmatory survey, the inspector collected 24 background measurements in the same rooms used by the licensee to collect background information. These rooms were selected because they contained building materials similar to the types found in the eight laboratory rooms and were unimpacted by previous operations involving radioactive materials.

The background ambient gamma exposure rates were measured and ranged from 14 to 25 microRoentgens per hour (µR/hr) in these areas. Background surface measurements were collected on walls and floors. The background surface beta particle measurements ranged from 246 counts per minute (cpm) for wallboard to 561 cpm for concrete floor surface. The inspector collected 24 beta particle measurements that averaged 360 cpm. The background surface alpha particle measurements ranged from 0 cpm for floor tile to 34.2 cpm for carpet flooring. The average alpha particle measurement was 13.1 cpm for the 24 measurements.

The inspector calculated lower limits of detection for the Eberline E600 survey meter using Equation 3-7 from NUREG-1507, "Minimum Detectable Concentrations with Typical Radiation Survey Instruments for Various Contaminants and Field Conditions." The lower limits of detection were calculated to be 33 cpm for alpha particles and 451 cpm for beta particles. Field measurements above these values may be indicative of the presence of radioactive material.

The inspector conducted the confirmatory survey in the eight areas that had been previously used for handling or storage of radioactive materials. A minimum of ten 1-minute surface contamination measurements and one ambient gamma exposure rate measurement were collected in each room. The survey results were:

Room	Name of Room	Exposure Rate (μR/hr)	Beta Range (cpm)	Alpha Range (cpm)
A1209	Regulated Access Lab	22	252-384	4.6-31.6
A1505 A1507	Radiochemical Measurement Lab	17	251-330	4.6-19.7
A1902	Inorganic Prep Lab	17	228-340	0-28.5
A1908	Wet Chemistry Lab	17	260-351	4.5-22.5
B2109	Mass Spectrometry Lab	17	263-357	10.3-25.3
B2404	Gas Chromatography Lab	18	251-371	13.8-34
B2408	Mass Spectrometry Lab	17	234-379	10.4-28.4
D2205	Inorganic Prep Lab	14	287-339	7.6-22.5

Only one measurement exceeded the instrument lower limit of detection, an alpha particle measurement on the floor in Room B2404. This measurement (34 cpm) was slightly above the calculated lower limit of detection (33 cpm). The inspector determined that this measurement was not representative of licensed material contamination because it was comparable to the maximum floor background measurement (34.2 cpm) and, according to the historical review, only sealed sources were used in this room.

As stated earlier, the licensee elected to use the values provided in Table 1, "Acceptable Surface Contamination Levels," of the NRC's guidance document dated August 1987 as its surface contamination DCGLs. The licensee conservatively chose to use strontium-90 as the surrogate beta emitting radionuclide and americium-241 as the surrogate alpha emitting radionuclide. The licensee chose to use the Table 1 values for strontium-90 and americium-241 as its surface contamination DCGLs. Accordingly, the licensee has proposed beta activity DCGLs of 1000 dpm/100 cm^2 average, 3000 dpm/100 cm^2 maximum, and 200 dpm/100 cm^2 removable surface contamination. Similarly, the alpha activity DCGLs were selected to be 100 dpm/100 cm^2 average, 300 dpm/100 cm^2 maximum, and 20 dpm/100 cm^2 removable surface contamination.

The inspector collected 82 fixed point measurements of beta and alpha particle activity on floor and wall surfaces in the eight rooms. The inspector compared his confirmatory measurements to the licensee's proposed DCGLs. The gross beta particle activity measurements ranged from 228-384 cpm with an average of 313 cpm. The average beta measurement was slightly below (-47 cpm, or -265 dpm/100 cm^2) the average background measurement of 360 cpm. The maximum beta activity measurement was 34 cpm, or 191 dpm/100 cm^2, above average background.

The gross alpha particle activity measurements ranged from 0-34 cpm with an average of 15.6 cpm. The average alpha measurement was 2.5 cpm (18.4 dpm/100 cm^2) above the average background measurement. The maximum alpha measurement was 21 cpm, or 155 dpm/100 cm^2, above average background. A review of the sample

results indicates that both the alpha and beta activity measurements were below the respective acceptable surface contamination levels.

The licensee did not propose a DCGL for ambient gamma exposure rate; although the inspector noted that the exposure rates in the eight laboratories were comparable to the background exposure rates. The inspector did not collect swipe samples for removable contamination because the fixed point sample results were indistinguishable from background values.

In summary, no confirmatory sample result exceeded the licensee's proposed DCGLs. NRC review and approval of the proposed DCGLs will be conducted as part of the review of the FSSR. The NRC's conclusion regarding the FSSR will be sent to the licensee at a later date under separate correspondence.

2.3 Conclusions

A confirmatory survey was conducted in Building 53. The confirmatory survey included ambient gamma exposure rate and fixed surface contamination measurements. None of the sample results exceeded the DCGLs provided in the FSSR which is still under NRC review and has not been approved.

3 Exit Meeting Summary

The inspector presented the inspection results to members of the licensee at the exit meeting on October 19, 2005. The licensee did not identify as proprietary any information provided to, or reviewed by, the inspector.

ATTACHMENT

PARTIAL LIST OF PERSONS CONTACTED

U.S. Environmental Protection Agency

B. Hughes, Quality Manager
B. Mishalanie, Deputy Laboratory Branch Chief
E. Nottingham, Laboratory Branch Chief
A. Ossinger, Radiation Safety Officer
R. Ross, Chemist

INSPECTION PROCEDURES USED

87104 Decommissioning Inspection Procedure for Materials Licenses

ITEMS OPENED AND CLOSED

Opened

None

Closed

None

Discussed

None

LIST OF ACRONYMS USED

cpm	counts per minute
DCGL	derived concentration guideline level
dpm/100 cm^2	disintegrations per minute per 100 square centimeters
EPA	U.S. Environmental Protection Agency
FSSR	Final Status Survey Report
µR/hr	microRoentgens per hour
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual