



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064**

May 17, 2001

MEMORANDUM TO: John T. Greeves, Director
Division of Waste Management
Office of Nuclear Materials Safety and Safeguards

FROM: Dwight D. Chamberlain, Director */RA/*
Division of Nuclear Materials Safety

SUBJECT: QUARTERLY STATUS REPORT FOR TERMINATED LICENSE
PROGRAM (TEMPORARY INSTRUCTION 2800/026)

The purpose of this memorandum is to provide you with a status report of our review of formerly licensed sites and sealed source files. Our last status report was dated February 16, 2001. This memorandum is provided to you in accordance with Section 5 of Temporary Instruction 2800/026, Revision 2, "Followup Inspection of Formerly Licensed Sites Identified as Potentially Contaminated."

Since the last quarterly Memorandum, Region IV conducted a thorough audit of the terminated license program documentation to ensure that all files assigned to Region IV since 1992, including the former Region V files, have been accounted for. This audit determined that 365 site and sealed source files have been referred to Region IV. Of that number, 115 files have been referred to Agreement States, 11 files were transferred to Region II, 1 file was transferred to Region I, and 238 files were reviewed by Region IV. Of the 238 files reviewed by Region IV, 224 files have been closed and 14 files remain open.

Attachment 1 summarizes the status of all licenses assigned to Region IV, including the former Region V files. Please note that all files reassigned to the Agreement States are listed as "open" in Attachment 1. Also included in Attachment 1 is a list of all sites identified as contaminated.

Attachment 2 lists all files currently open and under the jurisdiction of the NRC. The sites/sealed source files that are lined out in the Attachment 2 tables are being recommended for final closure by this Memorandum. Since the last Memorandum, two files were transferred to Agreement States, one file was transferred to Region I, and closure letters or Memorandums To File were issued for ten files. Therefore, 14 files remain open. Of this number, seven files were referred during September 2000 to the Department of Air Force Radioisotope Committee for review and followup. We expect a response from the Air Force in the near future.

During the review of the Agreement State files, the NRC has identified three sites/sealed source licenses that may involve use of radioactive material in areas of exclusive Federal jurisdiction. Accordingly, these three files may be added to the Region's list of open files in the near future.

Attachment 3 is an updated list of files that remain missing. Region IV continues to work with ORNL, NMSS, and the respective licensees to locate or recreate these missing files.

Finally, the Region recommends the final closure of 14 site and sealed source license files, including a file shared between the NRC and Utah and two files referred to Region IV for review and closure but were not provided on the final ORNL sealed source list. Details of these recommendations are provided in Attachments 4-17 to this Memorandum.

CONTACT: Robert Evans, RIV/DNMS/FCDB
(817) 860-8234

Attachments: As Stated

bcc w/attachments:

EW Merschoff

LW Camper, NMSS/DWM/DCB

LBell, NMSS/DWM/DCB

JTBuckley, NMSS/DWM/DCB

DMSollenberger, STP

DDChamberlain

DBSpitzberg

LLHowell

MRShaffer

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ATTACHMENT 1

INPUT FOR QUARTERLY INFORMATION STATUS REPORT (QISR)

STATUS OF SITES IDENTIFIED BY ORNL

ORNL Score	Total	Sites Eliminated	NRC Sites Pending	Agreement State Sites Pending	*Sites Found Contaminated
> 300	46	42	2	2	6
>5-300	142	89	4	49	5
≤5	4	1	0	3	0
Total	192	132	6	54	11

*Refer to Page 2 for the list of sites identified with contamination.

STATUS OF LICENSES WITH SEALED SOURCES NOT ACCOUNTED FOR

ORNL Score	Total	Files Eliminated	NRC Files Pending	Agreement State Files Pending
> 300	1	0	0	1
>5-300	97	66	5	26
≤5	63	31	3	29
Total	161	97	8	56

NOTE: The 12 files transferred to Regions I and II are not included in the above tables.

LIST OF SITES IDENTIFIED WITH CONTAMINATION

License No.	ORNL Score	Name	Location
SNM-00031	11902	Aerojet General Co.	San Ramon, CA
04-00580-07	7568	Isotope Specialty Products	Burbank, CA
04-00580-03	1493	Isotope Specialty Products	Burbank, CA
STB-00434	579	Marquardt	Hill AFB, UT
STB-00434	579	Marquardt	Ogden, UT
R-00183	313	Verdi Development Corp.	Los Angeles, CA
SUA-00208	281	International Mining Co.	Gas Hills, WY
SMB-00123	184	Dow Chemical	Freeport, TX
STB-00472	83	Standard Magnesium (Kaiser Aluminum Speciality Products)	Tulsa, OK
STB-00454	15	American Smelting & Refining Co.	Houston, TX
SMB-00268	13	Reynolds Metals	Bauxite, AR

ATTACHMENT 2

OPEN SITE FILES UNDER NRC JURISDICTION

State	ORNL Score	License No.	Name Location	Comments
CA	207	04-00650-07	Univ. of California-Berkeley Camp Parks, CA Oakland Supply Center, CA	Closure Memo issued 05/07/01
CA	115	04-07177-02	McClelland Air Force Base Sacramento, CA	Under review by USAF RIC
HI	37	53-12084-01	Hawaii Dept. Of Agriculture Honolulu, HI	Closure letter issued 03/30/01
ID	116	R-00230	Salmon River Uranium North Fork, ID	
MT	134	R-00229	Sawyer Petroleum Co. Glen, MT Salt Lake City, UT	Closure letter issued 03/09/01 for NRC portion; file transferred to Utah on 03/20/01
SD	16	R-00143	Mining Research Corp. Edgemont, SD	
TX	774	42-01864-01	Randolph AFB Austin, TX	Under review by USAF RIC
UT	13	43-01316-04	U.S. Army, Dugway Proving Ground, UT	Closure letter issued 03/26/01
WY	346	R-00207	Uranyl Research Co. Baggs, WY	
WY	281	P-04072	International Mining Co. Gas Hills, WY	

OPEN SEALED SOURCE FILES UNDER NRC JURISDICTION

State	ORNL Score	License No.	Name	Comments
CA	44	04-06042-01	GSA Depot Stockton, CA	

CA	31	SNM-01089	Lockheed Aircraft Sunnyvale, CA	Transferred to CA on 01/10/01
CA	14	04-08699-01	McClelland AFB Sacramento, CA	Under review by USAF RIC
CA	4	04-01964-06	Lockheed Aircraft Vandenberg AFB	Under review by USAF RIC
CA	2	08-07749-02	Dept. of Interior Point Loma, CA	
CO	2	05-01399-04	USGS Denver, CO	Closure letter issued 03/05/01
HI	1886	SNM-00095	Penn. State University Honolulu, HI	Transferred to Region I on 02/27/01
HI	3	53-02551-01 04-00616-04	X-Ray Engineering Honolulu, HI	Closure letter issued 05/15/01
MT	5	25-07596-02	City of Helena Helena, MT	Closure letter issued 03/05/01
NM	41	SNM-00595	Hughes Aircraft Sandia Labs, NM	
OR	2	36-15526-01	Dept. of Interior, BLM Salem, OR	Closure letter issued 04/11/01
WA	225	46-15183-01	McChord AFB	Under review by USAF RIC
WY	11	49-14030-01	Minerals Exploration Co. Casper, WY	Closure letter issued 04/23/01
WY	9	SNM-00530	Sundance AFB Sundance, WY	Under review by USAF RIC
WY	8	49-19334-01	Howard Donley Associates Casper, WY	Closure letter issued 03/28/01
WY	6	49-18219-01	AMOCO Pipeline Ft. Laramie, WY	Closure letter issued 03/05/01
WY	5	49-19015-01	CTL Thompson Casper, WY	Closure letter issued 02/28/01
WY	3	19-01398-26	Martin-Marietta Sundance, WY	Under review by USAF RIC

POSSIBLE ADDITIONS TO NRC's TERMINATED LICENSE LISTS

State	ORNL Score	License No.	Name	Comments
CA	13	SUB-00590	Douglas Aircraft Co. Santa Monica, CA Eglin AFB, FL	Site file shared with CA; Eglin AFB was listed in the license as a second authorized location of use
CA	51	C-03931	Rheem Manufacturing Co. Downey, CA Camp Pendleton, CA	Site file shared with CA; Camp Pendleton was listed in the docket file as a site where DU munitions were being detonated
CO	8	05-07977-01	Ball Brothers Research Corp. Boulder, CO Cape Kennedy AFB, FL	Sealed source file shared with CO; a second authorized location of use was the Cape Kennedy Air Force Station

ATTACHMENT 3

FILES ASSIGNED TO REGION IV BUT CANNOT BE LOCATED

LICENSE NO. (ORNL Score)	NAME	COMMENTS
SNM-00862	General Atomics San Diego, CA	File was closed on 10/22/93; File was identified missing during 1993
SUB-00143	Kerr McGee Oil Industries Golden, CO	File was closed on 04/14/94; File was identified missing during 1993
05-01399-04	U.S. Geological Survey Denver, CO	File was closed on 02/28/01; file was recreated

ATTACHMENT 4

Site Status Report

Final ORNL Score: 207

Docket No. 030-00577

License No. 04-00650-07

Licensee Name: **University of California**
Office of the Vice Chancellor,
Business and Administrative Services
200 California Hall
Berkeley, California

Site Name: Same as above

Site Address: Building 305, Camp Parks, California
Buildings 841 and 844, Naval Supply Center, Oakland, California

Regional Contact: Jeffrey Cruz, Senior Health Physicist
Nuclear Materials Inspection Branch
Division of Nuclear Materials Safety

Status Summary:

Byproduct Materials License 4-650-1 was issued by the U.S. Atomic Energy Commission to the University of California-Berkeley in the early 1960's for the possession of hydrogen-3 and byproduct material between Atomic Nos. 3 and 83, inclusive, in any chemical and/or physical form to be used in research and development activities. The possession limits on the license specified that the licensee could possess no more than 10 curies of hydrogen-3 and 200 millicuries of each byproduct material between Atomic Nos. 3 and 83, inclusive. The authorization regarding activities conducted under this license was eventually transferred to the University of California Berkeley's NRC License 04-00650-07. The University's NRC license was terminated on June 7, 1988. At the time of termination, the license authorized activities to be conducted only at Buildings 841 and 844, Naval Biosciences Research Laboratory, Naval Supply Center, Oakland, California. The license had previously authorized activities to be conducted at Building 305, Camp Parks, California.

The ORNL review concluded that the documentation provided in the docket file was insufficient to determine the disposition of the licensed material possessed under this license. However, the file did provide information regarding final decommissioning surveys conducted at both the Naval Supply Center and Camp Parks. The survey results indicated that no significant contamination remained in the buildings and the radiologic conditions within the buildings were such that the facilities could be released for unrestricted use.

On April 24-25, 2001, an NRC inspector attempted to conduct supplementary surveys of the buildings at the Naval Supply Center and Camp Parks, but determined that all of the buildings had been demolished and only empty lots remained. The inspector was informed that

Building 305 at Camp Parks had been demolished in the early 1980's and Buildings 841 and 844 at the Naval Supply Center had been demolished in the late 1990's. Surveys of the lots identified no areas with radiation levels above that of background. No additional information could be obtained regarding this terminated license.

In conclusion, Region IV recommends the closure of this terminated license file.

ATTACHMENT 5

Site Status Report

Final ORNL Score: 37

Docket No. 030-07114

License No. 53-12084-01

Licensee Name: **Hawaii Department of Agriculture**

Site Name: Fort Armstrong

Site Address: 725 Ilalo Street
Honolulu, Hawaii 96813

Regional Contact: Robert Evans, PE, CHP, Health Physicist
Fuel Cycle & Decommissioning Branch
Division of Nuclear Materials Safety

Status Summary:

License No. 53-12084-01 was issued during January 1967. The license allowed the Hawaii Department of Agriculture to possess 60,000 curies of cobalt-60 in sealed source form for use in a pool irradiator. Although the sources were sealed, some of the sources leaked, resulting in contamination of the pool water as well as the building. Some outdoor contamination occurred while the licensee was removing a cask containing the sources through the roof during decommissioning.

Records in the docket file indicate that some of the remaining cobalt-60 sources were transferred to the University of Hawaii. The remainder of the cobalt-60 was transferred to Reynolds Electrical and Engineering Company of Mercury, Nevada. Contaminated items collected during cleanup were shipped to Hanford, Washington, for disposal.

Extensive sampling and remediation were performed to prepare the site for unrestricted release during 1979 and 1980. The licensee presented its initial site characterization survey to the NRC in a report dated August 21, 1979. The NRC performed a closeout inspection, but the inspection determined that further remediation was required. The licensee completed additional decommissioning and documented the information in a report dated March 7, 1980. The NRC then conducted a second confirmatory survey and concluded that the site had been adequately decommissioned. The NRC notified the licensee in a letter dated September 25, 1980, that the site could be released for unrestricted use. The license was subsequently terminated on November 6, 1980.

ORNL recently conducted a review of this docket file. The ORNL reviewer was concerned that the decommissioning may have been incomplete. In response to the ORNL review, the NRC recently conducted a second, independent review of this docket file. Information provided in the docket file indicates that the decommissioning records were complete and supported the initial

decision to release the site for unrestricted use. Included in this review were documents related to the final radiological surveys by the licensee and final inspections by the NRC.

As a precaution, an NRC inspector visited the site of the former pool irradiator during February 2001. The inspector noted that the former structures had been demolished and a 4-lane roadway was being constructed at that site. The inspector conducted a limited radiological survey but did not detect any radiation above background levels. The inspector also obtained a copy of a survey report from a contractor who conducted an independent radiological survey of the area of the former pool irradiator during August-September 2000. The contractor's survey identified only naturally occurring radioactive material.

In conclusion, the NRC recommends closure of this formerly licensed site file. A second review of the docket file was conducted, and this review concluded that the decommissioning records were complete and supported the NRC's 1980 decision to terminate the license. Also, a contractor for the former licensee conducted an independent radiological survey during 2000, and the NRC conducted a limited radiological survey during 2001. No licensed material was identified during these two independent surveys.

ATTACHMENT 6

Site Status Report

Final ORNL Score: 134

Docket Number: 040-002434

License Number: R-00229

Licensee Name: **Sawyer Petroleum Co.**

Mailing Address: 650 South Grand Avenue
Los Angeles 17, California

Site Addresses: 44 Wellborn Claims in Lemhi District, Beaverhead County, Montana
Plant of Combined Metals Reduction Co., Bauer, Utah
443 West 8th Street South, Salt Lake City, Utah

Regional Contact: Rachel S. Carr, Health Physicist
Division of Nuclear Materials Safety
Fuel Cycle and Decommissioning Branch

Status Summary:

On March 21, 1958, Sawyer Petroleum was issued License P-3869 to deliver, export and receive source material. The license dated March 21, 1958, indicated that Sawyer Petroleum had an inventory of 1800 tons of raw ore with thorium oxide content 0.75 percent. The license expired March 31, 1959. Sawyer Petroleum was issued License R-229 on February 12, 1959, to process ore at Glen, Montana, and to transfer ore to other licensees. On May 21, 1959, Sawyer Petroleum requested a revision to License R-229 to include experimental work at Combined Metals Company, Bauer, Utah. On October 22, 1959, Sawyer Petroleum requested revision to License R-229 to include experimental work at 443 West 8th St. South, Salt Lake City, Utah, and to suspend operations at Bauer, Utah. License R-229 was amended on October 28, 1959 to add Salt Lake City, Utah, and to remove Bauer, Utah, from the license. The license expired on February 29, 1960.

In October 1960, Techmanix Corporation took over Sawyer Petroleum operations and requested a license from the AEC. This prompted an AEC inspection which found that Sawyer Petroleum had improperly transferred ore to Techmanix and sold ore to Lindsey Chemical Division in November 1959 and April 1960. In April 1961, Sawyer requested to reactivate License R-229. On October 23, 1961, a formal request from Sawyer Petroleum to the AEC was submitted for a source material license. On December 5, 1961, the AEC informed Sawyer Petroleum that it did not require a source license unless it was processing, refining or concentrating thorium ore. There was no other correspondence in the docket file.

Techmanix Corporation was in possession of approximately 54 tons of thorium ore at their Salt Lake City, Utah, office which it had received from Sawyer Petroleum. Techmanix submitted an application for source material license to develop a process to recover thorium oxide from the Sawyer Petroleum ore. A license was issued in August 1961 to Techmanix as

License STB-329, at 443 West 8th St. South, Salt Lake City, Utah, and possibly at Plant of Combined Metals Reduction Company, Bauer, Utah.

ORNL recently reviewed the Sawyer Petroleum docket file and concluded the following information should be provided to disposition the file:

1. Current status of the Techmanix Corporation, 443 West Eighth South, Salt Lake City, Utah, (the licensee had assigned his mining claims and process rights to Techmanix Corporation for a period of time).

The location of the Techmanix/Sawyer facility in Salt Lake City, Utah, was renumbered to 543 W. 8th South in 1973. Techmanix Corporation was identified in Polk, Salt Lake City Directory up through 1974. There was no 1975 directory, nor was the company listed in the 1976 directory or beyond. There is currently no 543 W. 8th South address. The two addresses for the location are 575 West 8th South, Prime Machine Inc., and 531 West 8th South, Interpace Industries, which is a brick manufacturer. The area has not been sampled or surveyed. It is recommended that the docket file be turned over to the State of Utah for closure of Item 1.

2. Current status of the Lindsey Chemical Division of the American Potash and Chemical Corporation, (the licensee had sold thorium ore to Lindsey).

Lindsey Chemical Division purchased thorium ore from Sawyer Petroleum. Lindsey Chemical Division was identified by ORNL as having insufficient documentation to ensure confidence that proper site decommissioning was completed. Lindsey Chemical Division was located in West Chicago, Illinois, and assigned to Region III. Region III indicated that the facility was turned over to the State of Illinois for decommissioning and their file was subsequently closed. This information is contained in the Sawyer Petroleum docket file. It is recommended that Item 2 be closed, based on sufficient documentation in the Sawyer docket file.

3. Locate and review the original file since Techmanix and Sawyer Petroleum shared facilities.

Sawyer Petroleum docket file currently contains sufficient documentation for Techmanix Corporation. Historical surveys were documented in the docket file for the Bauer, Utah, Lemhi Pass and Glen, Montana, sites, which indicated they were found to be free of source material contamination. It is recommended that Item 3 be closed.

In conclusion, Region IV recommends the closure of ORNL items Number 2 and 3. It is recommended that the docket file be turned over to the State of Utah for closure of item Number 1. The docket file for License R-00229 was formally transferred to the State of Utah on March 20, 2001.

ATTACHMENT 7

Site Status Report

Final ORNL Score: 13

Docket No. 030-90032

License No. 43-01316-04

Licensee Name: **Department of the Army**

Site Name: Radioactive Test Facility (Able Area and Radiation Test Pad)
U.S. Army Chemical Corps Proving Ground

Site Address: Dugway Proving Ground
Dugway, Utah 84022-5000

Regional Contact: Robert Evans, PE, CHP, Health Physicist
Fuel Cycle & Decommissioning Branch
Division of Nuclear Materials Safety
Region IV

Status Summary:

Byproduct Materials License 43-01316-04 was issued by the Atomic Energy Commission (AEC) to the Army on April 22, 1960, authorizing the possession of 6500 curies of cobalt-60 for storage only. Subsequent amendments to the license added 6.5 curies of cobalt-60 for use by the Army in research and development activities for the development of corrosion resistant pellets. The licensee anticipated using these cobalt-60 pellets on an outdoor test pad to simulate a radiation field. In reviewing the docketed information, it appears that the project lost its funding, and the Army transferred the material to other licensees. The docket file indicates that the 6500 curies of cobalt-60 was shipped to Fort McClellan, Alabama, while the 6.5 curies was shipped as radioactive waste for disposal at Scoville, Idaho. AEC License 43-01316-04 was subsequently terminated at the licensee's request on December 26, 1962.

Oak Ridge National Laboratories' (ORNL) independent review of the docket file determined that decommissioning records were incomplete. ORNL indicated to the NRC that the docket file did not contain records of buildings, soil, equipment removal, decommissioning and/or decontamination activities. Also missing from the docket files were records relating to the final survey of the affected sites.

The Army currently has an active NRC Materials License 43-01316-09. With the assistance of the radiation safety officer (RSO), three NRC inspectors performed a limited radiological survey of the two areas where radioactive materials were reputed to have been used in licensed activities, the Able Area and the Rad Pad. Able Area consisted of a small complex of buildings located about 11 miles from the main gate. The Rad Pad was a circular concrete pad

200 yards in diameter that was located near Able Area. The site survey was conducted on September 25-26, 2000. The specific areas radiologically surveyed by the inspectors included (1950-1960's names of the areas):

- Building 1004 - Air Filter Building
- Building 1006 - Decontamination Building
- Building 1010 - Filling Cell
- Building 1016 - Heat Test Cell/Storage Igloo
- Building 1020 - Warehouse
- Building 1030 - Control Building
- Building 1034 - Fuse Loading Building
- Rad Pad

The inspectors used two Ludlum Model 19 microRoentgen meters and one Ludlum Model 14C survey meter to conduct these radiation surveys. Background levels (10 microRoentgens per hour) were measured by the inspectors in all areas with the exception of one area that contained a small quantity of depleted uranium possessed under an active Air Force permit. Radiological surveys conducted by the inspectors did not identify any radioactive material that had been previously possessed under AEC License 43-01316-04.

At the request of the NRC inspectors, the RSO performed a documentation search but was unable to locate additional records at Dugway Proving Ground related to this license.

During the staff review of the terminated license file and corresponding documentation, the inspectors noted that the licensee had disposed of radioactive waste material in a below ground disposal pit during the 1960's. The below ground disposal pit is located about 30 miles from the main gate in an area previously referred to as the Granite Mountain Area Radioactive Waste Landfill. This landfill was reputed to have been used for disposal of both chemical and radioactive waste material. The inspectors toured this area but were unable to detect any radioactivity above background readings of 20-30 microRoentgens per hour on the surface of the landfill.

The Granite Mountain Area Radioactive Waste Landfill has been designated as Solid Waste Management Unit No. 11 by the licensee and is one of approximately 170 units at Dugway Proving Ground. A Phase I screen was conducted by the Army during the 1993-1994 time frame to determine if any hazardous waste material was present at this location. The Army noted slightly elevated beta radiation levels, however, the Army did not measure and record gamma radiation levels. It was assumed that gamma exposure rates were not measured because the landfill was located next to a granite mountain that had high levels of naturally occurring radioactivity.

Based on this preliminary screen, the Army concluded that a Phase II screen was necessary to further characterize the wastes in the landfill. When the Army conducts Phase II testing they plan to define the nature and extent of the contamination, including possible groundwater impacts. A work plan was created to document how the Army will implement Phase II testing. The licensee plans to conduct the Phase II testing of the landfill in the near future.

By letter dated June 5, 2000, and in accordance with the provisions of 10 CFR 20.304, the licensee formally notified the NRC about this former burial pit. Decommissioning activities for the radioactive waste disposal pit will be conducted under NRC License 43-01316-09 and in accordance with guidance provided in the NRC's letter to the licensee dated March 13, 2001.

In conclusion, Region IV recommends the closure of this terminated site docket file. Review of this file determined that materials previously possessed under this license were transferred offsite during 1962. Additional decommissioning records were not located by the Army, but the inspectors noted that the areas in question have been decommissioned and decontaminated in the past. In conducting a limited radiological survey, the inspectors determined that the former areas of use were free of cobalt-60 contamination. Finally, the decommissioning activities for the former waste burial pit will be conducted under the Army's current NRC license.

ATTACHMENT 8

Terminated License Status Report

Final ORNL Score: 2

Docket No. 030-90042

License No. 05-01399-04

Licensee Name: **U.S. Geological Survey**
Water Resources Division
General Hydrology Branch

Site Name: Denver Federal Center

Site Address: Denver Federal Center
Denver, Colorado 80225

Regional Contact: Robert Evans, PE, CHP, Health Physicist
Decommissioning & Inspection Branch
Division of Nuclear Materials Safety

Status Summary:

The U.S. Atomic Energy Commission (AEC) issued Byproduct Material License 05-01399-04 to the U.S. Geological Survey (USGS) of Denver, Colorado, on September 10, 1957. The license authorized USGS-Denver to possess 20 millicuries of actinium-227 for determination of moisture content in soil. The licensee possessed one sealed source, a U.S. Radium Corporation Model LAB-470-02 neutron source, Serial No. 25.

During September 1962, the actinium-227 neutron source was formally transferred to USGS-Tucson, AEC License 02-08779-01. AEC License 05-01399-04 was terminated on September 27, 1962. The source remained in the possession of USGS-Tucson until 1983.

On December 6, 1983, the actinium-227 sealed source was transferred to USGS-Sacramento, NRC License 04-21367-01. USGS-Sacramento disposed of the source on September 8, 1986. The source was sent to Nuclear Sources & Services, Inc., of Houston, Texas. This company was licensed by the State of Texas, No. 11-2991, to receive the source for disposal.

In conclusion, Region IV recommends the closure of this terminated sealed source file because the source was properly disposed by USGS-Sacramento during 1986.

ATTACHMENT 9

Terminated License Status Report

Final ORNL Score: 3

Docket No. 030-06841 (assigned to License 53-02551-02)

License No. 53-02551-01

Licensee Name: **X-Ray Engineering Company, Hawaii, Ltd.**

Site Name: Department of Inspection

Site Address: 789 Mapunapuna Street
Honolulu, Hawaii

Regional Contact: Robert Evans, PE, CHP, Health Physicist
Decommissioning & Inspection Branch
Division of Nuclear Materials Safety

Notes:

The NRC reviewer noted that Oak Ridge National Laboratory (ORNL) conducted two reviews of License 53-02551-01 because there were two docket file folders in two locations in NRC archives for this one license. One ORNL reviewer gave the docket file a final score of 3 (low radiological hazard), while the second reviewer eliminated the license from consideration because it was superseded by another license (53-02551-02). The NRC conducted a review of this docket file because the license was included on the ORNL terminated sealed source list with a final score of 3 (low risk category).

Status Summary:

The U.S. Atomic Energy Commission (AEC) issued Byproduct Material License 53-02551-01 to X-Ray Engineering Company, Hawaii, Ltd., on May 9, 1957, for possession of cesium-137 and cobalt-60 in sealed source form for use in industrial radiography. The licensee possessed two 5-curie cesium-137 sources and one 800-millicurie cobalt-60 source under this license. During June 1957, the license was amended to add one 40-microcurie strontium-90 source for use in a Jordan Radector self-calibrating survey meter. License 53-02551-01 expired on May 31, 1958.

ORNL recently reviewed the License 53-02551-01 file and noted that radioactive material disposition information was not provided in the file. As a result, this file was referred to NRC's Region IV office for an independent, followup review. The following information was identified during the NRC's review of this docket file.

On March 5, 1959, the AEC submitted a letter to X-Ray Engineering reminding the company that the license had expired. X-Ray Engineering submitted a license renewal application to the AEC on March 14, 1959. License 53-02551-02 was issued to X-Ray Engineering on May 6, 1959. All radioactive material that had been listed on the first license was included on the

second license. This second license was amended during April 1960 to include iridium-192 in sealed source form.

During 1960, wipe test results suggested that the cobalt-60 source may have leaked small amounts of radioactive material. The source was permanently removed from service and placed into storage during late-1960. According to information provided in the August 15, 1966, AEC inspection report, the cobalt-60 source was disposed by transfer to Picker X-Ray (a supplier of industrial radiography equipment) during March 1966. Although no formal material transfer records were provided in the docket files, the AEC inspector did not identify any issues or concerns with the transfer of the cobalt-60 during the August 1966 inspection.

By letter dated July 14, 1969, the AEC was informed of a change in X-Ray Engineering's corporate ownership. The licensee's new name was Pardee and Associates, Inc. This name change was incorporated by Amendment 15 dated August 1, 1969, into License 53-02551-02.

The owners of Pardee and Associates sold the business to Trans-Pacific Laboratories during late-1971, but the AEC retained the name of Pardee and Associates on the license for several more years because of lingering questions about the corporate ownership. Amendment 18 dated February 23, 1977, formally changed the licensee's name from Pardee and Associates to Trans-Pacific Laboratories.

The licensee submitted a license renewal application to the AEC on July 25, 1974. This application included the two cesium-137 sources, but excluded the strontium-90 source without explanation. In part because of questions regarding ownership of the company, the AEC/NRC did not update the radioactive material possession limits portion of License 53-02551-02 until Amendment 19 was issued on May 25, 1977. This amendment included the two cesium-137 sources but omitted the strontium-90 sealed source.

Effective February 28, 1978, Trans-Pacific Laboratories went out of business. Pittsburgh Testing Laboratories purchased the equipment of Trans-Pacific Laboratories, including the two cesium-137 sealed sources as well as three iridium-192 sealed sources. However, Pittsburgh Testing Laboratories was not licensed to possess the cesium-137 sources and one of the iridium-192 sources resulting in a NRC Notice of Violation dated January 5, 1979.

Pittsburgh Testing Laboratories applied for a license amendment to possess the two cesium-137 sources. On January 24, 1979, the NRC issued Amendment 36 to License 37-00276-25 which allowed the company to possess the two cesium-137 sources. Trans-Pacific Laboratories' License 53-02551-02 was terminated on February 28, 1979, after Pittsburgh Testing Laboratories' license was amended.

During December 1978, Pittsburgh Testing Laboratories sold its assets to Finlay Testing Laboratories. Finlay Testing Laboratories obtained NRC License 53-17854-01 on March 1, 1978, for possession of two iridium-192 sources. Finlay Testing Laboratories had assumed that Trans-Pacific Laboratories would dispose of the two cesium-137 sealed sources and one expended iridium-192 sealed source; therefore, Finlay Testing Laboratories' license application did not include these three additional sources. However, Finlay Testing Laboratories took physical possession of the three additional sources on March 1, 1978.

An NRC inspection was conducted on April 27, 1979, and the inspector concluded that Finlay Testing Laboratories was not authorized to possess the two cesium-137 sources resulting in a Notice of Violation. At that time, the licensee as well as the State of Hawaii questioned whether Finlay Testing Laboratories or Pittsburgh Testing Laboratories "possessed" the two cesium-137 sources and one iridium-192 source. Regardless, the three sources were properly packaged and shipped to the Nuclear Engineering Company of Richland, Washington, for disposal during June 1979. Transfer records for the disposal of these three sources were included in the Finlay Testing Laboratories' license docket file.

AEC and NRC inspections were conducted at roughly annual intervals during the 1970's. The AEC inspection of September 25, 1972, documented that the licensee still possessed the strontium-90 check source. The 1973-1977 inspections did not specifically mention the strontium-90 check source. But, selected inspection reports mentioned that the licensee possessed three different Jordan Radectors, although there was no clear evidence provided in the docket files that more than one Radector contained an internal strontium-90 check source.

The NRC conducted an inspection of the Pittsburgh Testing Laboratory license on May 11, 1979. The inspection report identified that two strontium-90 sealed sources were considered lost. As noted above, the licensee owned at least three Jordan Radectors, but the docket file information identified only one strontium-90 sealed source in the licensee's possession. Final disposition records for the strontium-90 was not located by the NRC reviewer. Also, the NRC reviewer contacted two former employees, and neither could recall what happened to the Jordan Radectors. However, the sealed source(s) were only 40 microcuries or less in activity when procured, and the activity has decayed significantly since the early 1960's. The NRC reviewer noted that ORNL did not assign a score to the strontium-90 sealed source suggesting that the material constituted an insignificant radiological hazard.

In conclusion, Region IV recommends the closure of this terminated sealed source file. The cobalt-60 was disposed during 1966, and the cesium-137 was disposed during 1979. The final disposition of the strontium-90 was not determined, but this missing radioactive material is not a significant radiological hazard.

ATTACHMENT 10

Terminated License Status Report

Final ORNL Score: 5

Docket No. 030-12245

License No. 25-07596-02

Licensee Name: **City of Helena**

Site Name: City Hall Annex Building

Site Address: 38 South Last Chance Gulch
Helena, Montana 59601

Regional Contact: Robert Evans, PE, CHP, Health Physicist
Decommissioning & Inspection Branch
Division of Nuclear Materials Safety

Status Summary:

The NRC issued Materials License 25-07596-02 to the City of Helena on November 12, 1976. The license authorized the City to possess cesium-137 and americium-241 in sealed source form for use in portable moisture density gauges. The original application by the licensee dated July 26, 1976, requested authorization to possess two gauges, but information provided in the docket file suggested that the licensee possessed only one gauge, Troxler Model 3411, Serial No. 4358. The license expired on November 30, 1981.

By letter dated October 8, 1981, the licensee submitted a license renewal application to the NRC. The NRC issued Materials License 25-07596-03 to the City of Helena on December 29, 1981, which replaced the expired 25-07596-02 license. As of February 28, 2001, License 25-07596-02 was still an active NRC license.

Based on information provided by the City of Helena radiation safety officer (RSO) and the gauge manufacturer, Troxler has transferred two gauges to the City. The first gauge, Serial No. 4358 was transferred to the licensee during November 1976 and was returned to Troxler for disposal during December 1994. The second gauge, Troxler Model 3430, Serial No. 23916, was shipped to the licensee during November 1994 to replace the first gauge. As of February 28, 2001, the licensee still possessed the second gauge.

In conclusion, Region IV recommends the closure of this terminated sealed source file.

Records in the docket file and interviews with both the licensee and the gauge manufacturer indicate that the licensee possessed only one portable gauge under License 25-07596-02, and that gauge was returned to the manufacturer for disposal during December 1994.

ATTACHMENT 11

Terminated License Status Report

Final ORNL Score: 2

Docket No. 030-09277

License No. 36-15526-01

Licensee Name: **Department of the Interior**
Bureau of Land Management

Site Name: Salem District Office

Site Address: 3550 Liberty Road South
Salem, Oregon 97302

Regional Contact: Jeffrey Cruz, Senior Health Physicist
Nuclear Materials Inspection Branch
Division of Nuclear Materials Safety

Status Summary:

The NRC issued Materials License 36-15526-01 to the U.S. Department of the Interior, Bureau of Land Management, Salem District (BLM-SD) Office on March 13, 1973. The license authorized the possession and use of cesium-137 and americium-241 in sealed source form for use in portable moisture density gauges. The original application from the licensee dated February 15, 1973, requested authorization to possess one gauge and information provided in the docket file confirmed that the licensee possessed only one gauge. The license expired on March 13, 1978.

By letter dated April 19, 1978, the licensee submitted a license renewal application to the NRC. The NRC issued Materials License 36-15526-02 to BLM-SD on June 21, 1978, which replaced the expired 36-15526-01 license. On October 13, 1983, License 36-15526-02 expired.

Based on information provided in the NRC Materials License 36-15526-02 docket file, during November 1980, BLM-SD transferred the gauge to the Bureau of Land Management-Roseburg District (BLM-RD) Office. At the time of the transfer BLM-RD did not possess an NRC license. However, on January 28, 1981, BLM-RD was issued NRC Materials License 36-19555-01 which authorized the possession and use of cesium-137 and americium-241 in sealed source form for use in portable moisture density gauges.

In conclusion, Region IV recommends the closure of this terminated sealed source file.

Records in the docket files indicated that the licensee possessed only one portable gauge under License 36-15526-01, and that the gauge was initially transferred to BLM-SD's NRC Materials License 36-15526-02 and eventually to BLM-RD during November 1980.

ATTACHMENT 12

Terminated License Status Report

Final ORNL Score: 11

Docket No. 030-07707

License No. 49-14030-01

Licensee Name: **Minerals Exploration Company**

Site Name: Field Service Department

Site Address: 220 North Nichols Street
Casper, Wyoming 82601

Regional Contact: Robert Evans, PE, CHP, Health Physicist
Decommissioning & Inspection Branch
Division of Nuclear Materials Safety

Status Summary:

The U.S. Atomic Energy Commission (AEC) issued Byproduct Materials License 49-14030-01 to Minerals Exploration Company on May 26, 1971, for possession of one 3-curie americium-241 sealed source. In response to the receipt of an annual fee invoice from the AEC, the licensee informed the AEC by letter dated June 20, 1972, that "we do not have in our possession any special nuclear material and byproduct material for use in well logging and well surveys. Therefore, we do not wish to renew the above license for the period 6/26/72 - 5/25/73..." License 49-14030-01 was subsequently terminated by the AEC on July 10, 1972. Oak Ridge National Laboratory (ORNL) recently reviewed this license file and noted that radioactive material disposition information was not provided in the file. Accordingly, the file was referred to NRC's Region IV office for an independent, followup review.

By letter dated April 26, 1974, Minerals Exploration Company reapplied for an AEC/NRC license for possession of radioactive material for use in well logging operations. The application letter stated in part, "We are planning on acquiring logging equipment requiring the use of special nuclear material and therefore have applied for either a new license or reinstatement of our original license." The license application listed a new street address; 195 Pronghorn Drive, Casper, Wyoming. The AEC issued License 49-14030-02 to Minerals Exploration Company on September 6, 1974. This license authorized the possession of cadmium-109, cesium-137, and americium-241. Records indicate that the licensee possessed several sealed sources under this second license from 1975-1982.

By letter dated October 25, 1982, Minerals Exploration Company, also known at that time as Union Minerals, Union Energy Mining Division, requested that the NRC terminate Byproduct Materials License 49-14030-02. At the licensee's request, the NRC terminated License 49-14030-02 on December 10, 1982. Since radioactive material disposition information was identified in this second license docket file, License 49-14020-02 was not identified by ORNL for a followup review by the NRC.

The last known mailing address for the licensee was the Sweetwater Uranium Project, located near Rawlins, Wyoming. As of March 1, 2001, this facility was known as the Sweetwater Uranium Facility, Kennecott Uranium Company, Kennecott Energy. The facility supervisor was contacted for any information related to Minerals Exploration Company and the two license files. The facility supervisor located records pertaining to the second license (49-14030-02), but no additional records were identified for the first license (49-14030-01), including material disposition records.

Minerals Exploration Company, a wholly owned subsidiary of Union Oil Company of California, was subsequently dissolved. Unocal Corporation was recently contacted for any information regarding the first Minerals Exploration Company license. The Unocal representative was unable to locate any records pertaining to the first license (49-14030-01). The Unocal representative learned that two key individuals (office manager and radiation protection officer) listed in the first license file records had died years ago. Two other individuals (the regional exploration manager and a technician) that were associated with the Casper office operations were located and were interviewed by the Unocal representative. The former regional exploration manager recalled that Minerals Exploration Company didn't have the ability to conduct well logging activities until around 1973, about the time the second license was issued. The former technician recalled that the licensee did not start conducting well logging activities until after a logging truck was obtained, also around 1973. Neither individual could specifically recall if the licensee possessed radioactive material under the first license which was active between 1971-1972.

The NRC reviewer concluded that Minerals Exploration Company most likely did not possess radioactive material under License 49-14030-01. There were no references to leak test, inventory, or transfer records in the docket file. (Similar records were identified in the second license docket file.) Supplemental information for the first license (49-14030-01) was not identified in the docket file for the second license (49-14030-02). The last known address for the licensee was the Sweetwater Uranium Facility. The facility supervisor at the Sweetwater Uranium Facility was contacted, but the facility supervisor did not have any records to supplement the first docket file. Finally, a representative for Unocal Corporation was contacted, and this individual contacted two former employees. Both former employees recalled that the licensee did not possess any radioactive material until the second license was issued by the AEC/NRC.

During April 2000, an NRC inspector conducted a limited radiological survey of the Minerals Exploration Company facility listed in the first license. The inspector conducted ambient gamma exposure rate surveys during the site visit. The inspector did not identify any radioactive material at that location. This survey was conducted as a precaution to ensure that radioactive material was not present at the facility.

In conclusion, Region IV recommends the closure of this terminated sealed source file. Based on information gathered during the records review and through interviews, the NRC reviewer concluded that the licensee most likely did not possess radioactive material under AEC License 49-14030-01. A limited scoping survey was conducted at the former facility, and no radioactive material was identified during this survey.

ATTACHMENT 13

Terminated License Status Report

Final ORNL Score: 8.4

Docket No. 030-17449

License No. 49-19334-01

Licensee Name: **Howard-Donley Associates, Inc.**

Site Name: Central Western Building

Site Address: 235 North Wolcott, Suite 4
Casper, Wyoming 82601

Regional Contact: Robert Evans, PE, CHP, Health Physicist
Decommissioning & Inspection Branch
Division of Nuclear Materials Safety

Status Summary:

The NRC issued Materials License 49-19334-01 to Howard-Donley on April 21, 1980, for possession of cesium-137 and americium-241 in sealed source form for use in Troxler portable gauges. Records in this docket file indicate that the licensee possessed one Troxler Model 3411B gauge and one Model 2401 gauge. The Model 2401 gauge contained a radium-beryllium source and was not subject to NRC licensing. The serial number of the Troxler Model 3411B gauge was not provided in this docket file. License 49-19334-01 expired on April 30, 1985.

By letter dated July 3, 1985, the NRC cited Howard-Donley for possession of radioactive material without an active NRC license. The licensee submitted a renewal application on July 15, 1985, but this application was determined by the NRC to be incomplete. The licensee submitted additional information during late August 1985. A new NRC license, License 49-19334-02 was issued to Howard-Donley on September 26, 1985. In addition, the company relocated to 240 South Wolcott, Suite 126, and this new address was reflected in the new license.

Records in the docket file for License 49-19334-02 indicate that the licensee possessed two Troxler gauges, Model 3411B/Serial No. 5232 (NRC licensed) and Model 2401/Serial No. 3208 (unlicensed).

License 49-19334-02 was revised twice to account for changes in company names and ownership. Amendment 1 incorporated the name of Mountain Plains Geotechnical, Inc., and the new address of 2190 Sunset Boulevard, Bar Nunn, Wyoming. Amendment 2 incorporated the name of Geocivil Engineers, P.C. and the new address of 505 East 11th Street in Casper, Wyoming.

On May 17, 1990, the licensee submitted an NRC Form 314, "Certificate of Disposition of Materials," to the NRC claiming that the radioactive material possessed under License 49-19334-02 had been transferred to Howard & Associates, Idaho License IDA-179. (The name "Howard & Associates" was in error. The correct name was Howard Consultants, Inc.) At the licensee's request, the NRC terminated License 49-19334-02 on May 31, 1990.

Records in the Idaho License IDA-179 docket file indicate that Howard Consultants, Inc., received the Troxler Model 3411B gauge on February 8, 1990. License IDA-179 was amended on March 1, 1990, to allow the licensee to possess this gauge. By correspondence to the NRC dated May 7, 1992, the licensee stated that the Troxler gauge had been assigned to its Coeur d'Alene office.

On June 9, 1992, the NRC issued Materials License 11-27303-01 to Howard Consultants which replaced Idaho License IDA-179. By letter dated January 23, 1996, the NRC was informed that Howard Consultants and Intermountain Materials Testing were planning a merger. On June 17, 1996, the licensee informed the NRC that the merger had been completed and requested that NRC License 11-27303-01 be terminated. The licensee stated that all gauges had been transferred to Strata, Inc. (formerly Intermountain Materials Testing), NRC License 11-27320-01. At the licensee's request, License 11-27303-01 was terminated on June 25, 1996.

The NRC amended License 11-27320-01 on March 5, 1996, to take into account the merger of Howard Consultants and Intermountain Materials Testing. An NRC inspection was conducted at Strata on July 8, 1996. The inspector confirmed that all gauges had been transferred from Howard Consultants to Intermountain Materials Testing prior to the merger, although the inspection field notes did not list each gauge individually.

During April 2000, an NRC inspector visited the initial location (235 North Wolcott, Suite 4, Casper, Wyoming) of Howard-Donley and conducted a limited radiological survey of the facility. No residual radioactive material was identified at this location.

On March 20, 2001, Region IV contacted the radiation safety officer for Strata, Inc. The radiation safety officer provided leak test and inventory records confirming that it still possessed Troxler Model 3411 gauge, Serial No. 5232. The gauge had been in storage in Strata's Coeur d'Alene, Idaho, office since 1997.

In conclusion, Region IV recommends the closure of this terminated sealed source file because the Troxler Model 3411B gauge, Serial No. 5232, previously possessed by Howard-Donley, is currently in the possession of Strata under NRC Materials License 11-27320-01.

ATTACHMENT 14

Terminated License Status Report

Final ORNL Score: 6

Docket Number: 30-14679

License Number: 49-18219-01

Licensee Name: **AMOCO Pipeline Company**

Mailing Address: BP Amoco Pipeline
801 Warrenville Road
Suite 700
Lisle, IL 60532

Site Address: AMOCO Pipeline Company
Casper Station, 301 Tank Farm Road
Casper, Wyoming

Regional Contact: Rachel S. Carr, Health Physicist
Fuel Cycle and Decommissioning Branch

Status Summary:

On September 7, 1978, a license was issued to Amoco Pipeline Company for possession of a 0.600 Curie Americium-241 sealed source to be used as a component in a Yokogawa Electric Works, Type 8820A sulfur analyzer, for the measurement of sulfur in hydrocarbons. The respective license expired on September 30, 1983. The licensee applied for renewal of the license in a letter dated December 5, 1983. There was no further correspondence in the docket file.

As of February 15, 2001, the licensed material for the sulfur-in-oil analyzer was still in the possession of BP Amoco Pipeline Company under NRC License 12-24689-02, which expires on December 31, 2010. The instrument analyzer serial number was 821HB402, the instrument sampling serial number was 822H7004, and the radioactive source serial number was 0622LA, as documented in Attachment 2. A service work order dated October 16, 1997, indicated the instrument analyzer serial number was 821HB402, which was identical to the instrument under the original license. In a telephone conversation on February 15, 2001, the licensee indicated that the instrument and source in question were located at Amoco's Big Horn Line, which is the Casper Station as indicated under Item 10.E of License 12-24689-02. The instrument is currently located at the licensee's facility as documented in their license under Section 10.E, Amoco Pipeline Company, Casper Station, 301 Tank Farm Road, Casper, Wyoming. The respective portion of the license is included as Attachment 3.

In conclusion, Region IV recommends this terminated sealed source file be closed. There is sufficient documentation that the licensee was and remains in possession of the sealed source material.

ATTACHMENT 15

Terminated License Status Report

Final ORNL Score: 5

Docket No. 030-15220

License No. 49-19015-01

Licensee Name: **CTL/Thompson, Inc.**

Site Name: Construction Department
Materials Testing Laboratory

Site Address: 30 Foster Road, Suite M
Casper, Wyoming 82602

Regional Contact: Robert Evans, PE, CHP, Health Physicist
Decommissioning & Inspection Branch
Division of Nuclear Materials Safety

Status Summary:

The NRC issued Materials License 49-19015-01 to CTL/Thompson on October 17, 1979. The license authorized the company to possess cesium-137 and americium-241 in sealed source form for use in portable Troxler moisture density gauges. The docket file did not specify how many gauges the licensee possessed under this license. At the request of the licensee, NRC License 49-19015-01 was terminated by the NRC on December 8, 1983.

By letter dated September 19, 1983, the licensee requested an amendment to NRC License 49-19015-01. The licensee informed the NRC that its Casper office had been closed and the new address was 1971 West 12th Avenue, Denver, Colorado. Instead of amending NRC License 49-19015-01, the NRC issued CTL/Thompson a new NRC license, 05-23114-01, for possession of radioactive material. The NRC issued this new license to administratively maintain the correct state number designation. This second license became effective on December 8, 1983, the date when the first license was terminated.

Records in the docket file for NRC License 05-23114-01 indicate that the licensee possessed 9 gauges during 1984 and 18 gauges during 1988-1989. The two NRC licenses allowed only possession of Troxler gauges, although the licensee also possessed Campbell Pacific Nuclear (CPN) gauges under Colorado License 180-01.

By letter dated August 16, 1990, the licensee requested that NRC License 05-23114-01 be terminated. At the licensee's request, the NRC terminated NRC License 05-23114-01 on August 31, 1990. All radioactive material previously possessed under the NRC license was transferred to CTL/Thompson's Colorado license at that time.

During April 2000, an NRC inspector attempted to conduct a radiological survey of the former materials testing laboratory in Casper, Wyoming. The NRC inspector observed that neither the

building nor the specific street address existed in Casper anymore. With the assistance of the City of Casper, the location of the former building was identified and was radiologically surveyed for possible residual contamination. The inspector confirmed that the location of the former materials testing laboratory was free of residual radioactive material.

On February 26, 2001, the Troxler radiation safety officer (RSO) was contacted. Based on Troxler's records, the manufacturer had sent 15 gauges to CTL/Thompson between 1974 and 1997, while 1 gauge was returned for disposal during 1997. These numbers do not take into account any gauges that the licensee may have exchanged with other licensees or any CPN gauges.

The current CTL/Thompson RSO was interviewed by telephone on February 27, 2001. The licensee continued to possess Troxler and CPN gauges under its Colorado license. The RSO suspected that the licensee did not routinely store radioactive material at its Casper office while the first NRC license was active. Most gauges were stored in Denver and were transported to Wyoming as needed during the 1979-1983 time frame. The RSO also stated that only one gauge was obtained from a source other than the manufacturer.

In conclusion, Region IV recommends the closure of this terminated sealed source file because the radioactive material possessed under License 49-19015-01 was transferred to a second NRC license during December 1983. The radioactive material possessed under the second NRC license was subsequently transferred to a Colorado license. The licensee continues to possess radioactive material under its Colorado license.

Although the first NRC license docket file did not clearly specify how many gauges the licensee possessed, the licensee remained under the regulatory and inspection oversight of both the NRC and the State of Colorado since 1979. Any missing gauge, improper transfer, or leaking source would have been identified and documented during these routine inspections.

ATTACHMENT 16

Terminated License Status Report

Final ORNL Score: 73

Docket No. 070-00981

License No. SNM-00932

Licensee Name: **Frontier Perforators, Inc.**

Mailing Address: Combs Worley Building, P.O. Box 1701, Pampa, Texas

Site Addresses: 3236 Kermit Highway, Odessa, Texas
202 Virginia, Liberal, Kansas
Price Road, Pampa, Texas
2020 West Maryland, Hobbs, New Mexico

Regional Contact: Robert Evans, PE, CHP, Health Physicist
Decommissioning & Inspection Branch
Division of Nuclear Materials Safety

Status Summary:

NOTE: This docket file was reviewed twice by ORNL. One reviewer determined that the disposition information was complete, while the second reviewer determined that the disposition information was incomplete. This docket file was referred to Region IV for review and closure, but was not included on the final ORNL terminated sealed source license list.

The U.S. Atomic Energy Commission (AEC) issued Special Nuclear Materials License SNM-00932 to Frontier Perforators on October 22, 1965, for possession of 400 grams of plutonium encapsulated as plutonium-beryllium (Pu-Be) sources for use in well logging activities. The license allowed the licensee to possess five 80-gram Pu-Be sources although the docket file only refers to one source, a Monsanto Research Corporation MRC-PuBe-342 sealed source. The source was an 80-gram, 5-curie source being rented by Frontier Perforators from Monsanto Research Corporation.

Records in the AEC docket file indicate that Frontier Perforators filed for bankruptcy during October 1966. The single Pu-Be source was transferred to Deltron, Inc. of Liberal, Kansas, during September 1966. Deltron was authorized to possess the material under its State of Kansas License 27-C004-01. An official representative of Frontier Perforators certified on November 1, 1966, that the Pu-Be source was transferred to Deltron on September 1, 1966. (The State of Texas questioned the validity of the certification date, but the State of Kansas later confirmed that Deltron had received the source during September 1966.) AEC License SNM-00932 expired on October 31, 1968.

The State of Texas also issued Frontier Perforators two licenses, License 1-569 for possession of the Pu-Be source and License 1-488 for possession of other radioactive material. The Texas

records suggest that Frontier Perforators obtained an AEC license because the State of Texas could only authorize the licensee to possess 200 grams or less of plutonium. Frontier Perforators thought it might possess up to 400 grams of plutonium; therefore, it applied for and received an AEC license.

Texas License 1-569 was active from October 29, 1963, until March 20, 1967. The records indicate that the licensee received the Pu-Be source on February 11, 1965. The Texas records also indicate that the licensee possessed only one Pu-Be source.

Limited State of Kansas records were reviewed. The records indicate that Kansas License 27-C004-01 was revised on September 30, 1966, to allow Deltron to possess the 5-curie Pu-Be source. The Kansas records also indicate that the source was improperly transferred to Rosel, Inc. (a different well logging company located in Liberal, KS) during late 1971 or early 1972 because Deltron was going out-of-business. The transfer was improper because Rosel, Inc., was not licensed to possess Pu-Be sources at that time. An undated Kansas investigation report noted that "the source was stored in the Rosel facility until January 10, 1972, when it was shipped via Graves Freight Lines, vehicle Number 35-52, to Monsanto Chemical Corporation."

In conclusion, Region IV recommends the closure of this terminated sealed source file because the licensee possessed only one Pu-Be source, and the source was properly transferred to a State of Kansas Licensee during September 1966. The source was subsequently transferred back to the source manufacturer during January 1972.

ATTACHMENT 17

Terminated License Status Report

Final ORNL Score: 5

Docket No. 030-03600

License No. 04-00616-04

Licensee Name: **X-Ray Engineering Co.**
(Later known as GEO Construction Testing)

Site Name: Radiographic Department

Site Address: 858 Burlway Road
Burlingame, California

145 North Bayshore Blvd.
San Mateo, California 94401

1118 Chess Drive
Foster City, CA 94404

Regional Contact: Robert Evans, PE, CHP, Health Physicist
Fuel Cycle & Decommissioning Branch
Division of Nuclear Materials Safety

Notes:

This license consisted of three docket file folders that were located in two separate boxes in NRC's archives. Two folders were reviewed by Oak Ridge National Laboratory (ORNL) during 1993, and the third folder was reviewed during 1997. The first reviewer gave the file a sealed source score of five because the radioactive disposition information was incomplete, while the second reviewer eliminated the file from the sealed source list because disposition information was identified in the third folder.

The first two docket file folders were referred to the former Region V office for a followup review during 1993. This attachment documents Region IV's review and closure of the two X-Ray Engineering Company file folders that were submitted to Region V during 1993.

Status Summary:

Byproduct Materials License 04-00616-04 was issued by the U.S. Atomic Energy Commission (AEC) to X-Ray Engineering Company on February 1, 1961, for possession of cobalt-60, strontium-90, and iridium-192 for use in industrial radiography operations.

Amendment 28 dated April 23, 1981, changed the name of the licensee to GEO Construction Testing. By letter dated November 27, 1985, the licensee informed the NRC that GEO

Construction Testing was acquired by SGS North America, Inc., and the company name had been changed to United States Testing Company, Inc., Unitech Services Group.

Instead of issuing a revision to License 04-00616-04, the NRC issued a new license to United States Testing Company of Hoboken, New Jersey. License 04-23240-01 was issued on February 13, 1986, to United States Testing Company. License 04-00616-04 was terminated by the NRC on the same date. All radioactive material possessed at that time under License 04-00616-04 was transferred to License 04-23240-01. License 04-23240-01 was subsequently terminated by the NRC on September 25, 1992.

The strontium-90 was used as check sources for self-calibrating survey meters. Records indicate that the licensee apparently possessed 10 of these 10-microcurie check sources during the 1960's. Amendment 6 dated July 9, 1965, dropped the strontium-90 check sources from License 04-00616-04 without explanation. The NRC reviewer speculated that the strontium-90 may have been transferred to the licensee's State of California License 0106-59 during the 1962-1965 time frame. Also, the NRC reviewer noted that the ORNL reviewer had excluded the strontium-90 and iridium-192 from the final sealed source score.

In conclusion, Region IV recommends the closure of this terminated sealed source license file. The radioactive material possessed by the licensee at license termination was transferred to a second NRC license during 1986. Although final disposition records for every cobalt-60 source were not provided in the docket file, the AEC/NRC and State of California conducted routine inspections of the licensee. Any leaking source or improper source transfer would have been identified by the proper regulatory agency at that time. The strontium-90 and iridium-192 sources were eliminated from consideration because of the low activity level (10 microcuries or less) of the strontium-90 check sources and the short half-life (74 days) of iridium-192.