



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

May 24, 2000

MEMORANDUM TO: John T. Greeves, Director  
Division of Waste Management  
Office of Nuclear Material 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. Our last status report was dated December 3, 1999. This memorandum is provided in accordance with Section 5 of Temporary Instruction 2800/026, Revision 1, "Followup Inspection of Formerly Licensed Sites Identified as Potentially Contaminated."

Attachment 1 summarizes the status of all licenses assigned to Region IV, including the former Region V files. Overall, 352 files have been referred to us for followup review. We have closed 198 (56.2 percent) of those files. We have transferred or attempted to transfer responsibility for 107 files (30.4 percent) to Agreement States. Therefore, 47 files (13.4 percent) currently remain open and under Region IV responsibility. Please note that all files reassigned to the Agreement States are listed as "open" in Attachment 1, pending NRC verification that the states have actually reviewed and closed these files. The overall number of open files assigned to the Region IV office has changed slightly since the last memorandum because several files were either dropped from the list, added to the list, or transferred to the Agreement State list. Further, one accounting error was identified and corrected. Also included in Attachment 1 is a list of all sites identified as contaminated.

Attachment 2 lists all files still 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.

Attachment 3 is an updated listing of problems or issues identified during the implementation of this project. Finally, the Region recommends the closure of 14 terminated site/sealed source license files. Details of these recommendations are provided in Attachments 4-17 to this Memorandum.

An audit was conducted during November 1999, and we identified 24 missing files. Most of the files were low score files that were subsequently found still in archives. Currently, 17 of the 24 files have been located, but 7 files remain missing. The files that are still missing are identified in Attachment 3. Region IV will continue to work with ORNL and NMSS to locate or recreate these 7 missing files.

The Region plans to continue to review the terminated license program during fiscal year 2000. While the Region has only been budgeted 0.1 FTE for fiscal year 2000 in this program area, we anticipate expending additional resources to complete our review of the remaining cases assigned to the Region. We have developed a strategy for assignment of the remaining casework that will take into account resource estimates, ORNL scores, and geographical locations. The strategy will attempt to balance available resources with competing priorities in other program areas.

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

Attachments: As Stated

cc w/attachments:

EMerschoff

LWCamper, NMSS/DWM/DCB (T 7 F 27)

LBell, NMSS/DWM/DCB (T 8 F37)

JTBuckley, NMSS/DWM/DCB (T 7 F27)

DMSollenberger, OSP (O 3 C10)

DDChamberlain

DBSpitzberg

LLHowell

MRShafter

RJEvans

FCDB

MIS System

RIV File (5th Floor)

DOCUMENT NAME: Draft: s:\dnms\fcdb\rje\termsite0500.rje Final: r:\\_dnms\termsite0500.rje

To receive copy of document, indicate in box: "C" = Copy without enclosures "E" = Copy with enclosures "N" = No copy

RIV:DNMS:FCDB	C:FCDB	D:DNMS
RJEvans:jak <i>/RA/</i>	DBSpitzberg <i>/RA/</i> JVEverett for	DDChamberlain <i>/RA/</i>
05/11/00	05/ /00	05/23/00

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**ATTACHMENT 1**

**INPUT FOR QUARTERLY INFORMATION STATUS REPORT (QISR)**

**STATUS OF SITES IDENTIFIED BY ORNL**

<b>ORNL Score</b>	<b>Total</b>	<b>Sites Eliminated</b>	<b>NRC Sites Pending</b>	<b>Agreement State Sites Pending</b>	<b>*Sites Found Contaminated</b>
> 300	46	41	2	3	6
>5-300	142	81	9	52	5
≤5	4	1	0	3	0
<b>Total</b>	<b>192</b>	<b>123</b>	<b>11</b>	<b>58</b>	<b>11</b>

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

**STATUS OF LICENSES WITH SEALED SOURCES NOT ACCOUNTED FOR**

<b>ORNL Score</b>	<b>Total</b>	<b>Files Eliminated</b>	<b>NRC Files Pending</b>	<b>Agreement State Files Pending</b>
> 300	2	0	1	1
>5-300	96	53	19	24
≤5	62	22	16	24
<b>Total</b>	<b>160</b>	<b>75</b>	<b>36</b>	<b>49</b>

List of Sites Identified With Contamination:

<b>License No.</b>	<b>ORNL Score</b>	<b>Name</b>	<b>Location</b>
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:**

<b>State</b>	<b>ORNL Score</b>	<b>License. No.</b>	<b>Name</b>	<b>Location</b>
AR	9	03-02814-01	Naval Ammo Depot	Shumaker
CA	207	04-00650-07	Univ. of California-Berkeley	Camp Parks Oakland Supply Center
CA	115	04-07177-02	McClelland Air Force Base	Sacramento
HI	37	53-12084-01	Hawaii Dept. Of Agriculture	Honolulu
ID	254	R-00199	<del>Lucky Gem Mining &amp; Milling</del>	<del>Gem County</del>
ID	116	R-00230	Salmon River Uranium	North Fork
ID	410	R-00150	<del>Porter Bros.</del>	<del>Lowman, Idaho</del>
ID	46	D-00601	<del>Poston Mining &amp; Milling</del>	<del>Cascade Valley County</del>
MT	134	R-00229	Sawyer Petroleum Co.	Glen
NV	746	27-05861-01	U.S. EPA	Las Vegas
OK	3166	35-00502-02	Haliburton	Duncan
OK	450	35-00237-02	Oklahoma A&M (OSU)	Stillwater
SD	16	R-00143	Mining Research Corp.	South Dakota & Colorado
TX	774	42-01864-01	Randolph AFB	Austin
UT	13	43-01316-04	U.S. Army	Dugway Proving Ground
WY	346	R-00207	Uranyl Research Co.	Baggs
WY	281	P-04072	International Mining Co.	Gas Hills

OPEN SEALED SOURCE FILES UNDER NRC JURISDICTION:

State	ORNL Score	License. No.	Name	Location
AK	27	50-23392-01	Cold Regions Consulting	Anchorage
AR	6	SNM-00578	VAMC-Little Rock	Little Rock
CA	266	SNM-00911	General Atomics	La Jolla/San Diego
CA	44	04-06042-01	GSA Depot	Stockton
CA	31	SNM-01089	Lockheed Aircraft	Sunnyvale
CA	14	04-08699-01	McClelland AFB	Sacramento
CA	10	04-03141-01	Dept. of Navy	Concord
CA	4	04-01964-06	Lockheed Aircraft	Vandenberg AFB
CA	2	08-07749-02	Dept. of Interior	Point Loma
CA	2	04-01039-01	Naval Shipyard	San Francisco
CO	5	05-19046-01	Dept. of Interior	Canon City
CO	2	05-01399-04	USGS	Denver
CZ	28	51-05106-02	Gorgas Hospital	Balboa Heights, Canal Zone
HI	1886	SNM-00095	Penn. State University	Honolulu
HI	3	53-02551-01 04-00616-04	X-Ray Engineering	Honolulu
ID	1	11-01416-02	Eastern Idaho Const. Co.	Idaho Falls
MT	7	SNM-01598	GENEX	Laural
MT	5	25-07596-02	City of Helena	Helena
MT	3	25-17576-01	Empire Sand & Gravel	Billings
MT	3	25-18246-01	Dugdale Construction	Butte
MT	1	25-08686-01	Hoerner Waldorf Paper	Missoula
NM	41	SNM-00595	Hughes Aircraft	Sandia Labs
OK	42	35-15239-01	Dept. of Interior, BIA	Muskogee

OPEN SEALED SOURCE FILES UNDER NRC JURISDICTION (continued):

State	ORNL Score	License. No.	Name	Location
OK	40	35-21007-01	Phoenix Wireline	Henryetta
OK	38	35-08990-01	GO International	Oklahoma City
OK	25	SNM-00293	Wells Survey	Tulsa
OK	17	35-15486-01	Nurrie Construction	Muskogee
OK	15	SNM-00045	CONOCO	Ponca City
OK	13	35-01122-02	Thayer X-Ray	Tulsa
OK	11	35-12135-01	Booth Perforators (Crown)	Oklahoma City
OK	9	SNM-01117	In-Val-Co	Tulsa
OK	3	35-11581-01	Dept. of Interior	Ada
OK	2	35-02941-01	Pan American (AMOCO)	Tulsa
OK	2	35-02149-01	Elder & McNulty	Tulsa
OR	2	36-15526-01	Dept. of Interior, BLM	Salem
OR	2	36-14803-01	U.S. Army	Portland
TX	40	SNM-00701	NASA	Johnson Space Center
WA	225	46-15183-01	McChord AFB	
WY	11	49-14030-01	Minerals Exploration Co.	Casper
WY	9	SNM-00530	Sundance AFB	Sundance
WY	8	49-19334-01	Howard Donley Associates	Casper
WY	6	49-18219-01	AMOCO Pipeline	Ft. Laramie
WY	5	49-19015-01	CTL Thompson	Casper
WY	3	19-01398-26	Martin-Marietta	Sundance, Wyoming

**ATTACHMENT 3**

Site files that were assigned to Region IV but the files cannot be located in RIV:

<b>LICENSE NO. (ORNL Score)</b>	<b>NAME</b>	<b>COMMENTS</b>
SNM-00862 (3240)	General Atomics San Diego, CA	File was closed on 10/22/93
SUB-00143 (123)	Kerr McGee Oil Industries Golden, CO	File identified missing in 1993; previously assigned to RIII for followup review. Site review completed in April 1994.

Sealed source files that were assigned to Region IV but files cannot be located:

<b>LICENSE NO. (ORNL Score)</b>	<b>NAME</b>	<b>COMMENTS</b>
04-03141-01 (10)	Dept. of Navy Concord, CA	Assigned to Region II in ORNL's electronic database
04-01039-01 (2)	Naval Shipyard San Francisco, CA	
05-01399-04 (2)	USGS Denver, CO	
53-02551-01 (1886)	Penn. State University Honolulu, HI	
51-05106-02	Gorgas Hospital Canal Zone	

Files transferred from other Regions to Region IV for followup review:

LICENSE NO. (ORNL Score)	NAME	COMMENTS
20-01382-15 (217-site)	Laboratory for Electronics Houston, Texas	From Region I; <b>file still open</b> and in RIV's possession; RIV will transfer file to TX in near future
SUB-755 (24-site)	Allied Chemical Baton Rouge, LA	From Region I; Sent to LA for closeout in March 98
05-16016-01 (5-ss)	Stearns-Rogers Denver, CO	From Region I; <b>file still open</b> and in RIV's possession
31-00246-02 (110-site) (24-ss)	W. M. Kellogg Co. Houston, TX	From Region I; file closed and transferred to ORNL in October 94
31-00246-04 (3-ss)	W. M. Kellogg Co. Houston, TX	The -03 file was transferred from Region I but the -04 file is on the ORNL list; file not sent to TX for review; <b>file still open</b> and in RIV's possession
04-03365-03 (3-ss)	Lefiell Manufacturing Santa Fe Springs, CA	From Region I; <b>file still open</b> and in RIV's possession
04-07326-02 (2-ss)	Aerospace Corp. El Segundo, CA	From Region II; file closed in Feb. 97 and transferred to HQ in July 97
12-00920-01 (107-site)	International Harvester Phoenix, AZ	From Region III; <b>file still open</b> and in RIV's possession
SNM-154 (6865-site)	Spencer Chemical Co. Kansas City, MO	From Region III; file closed and transferred to ORNL in Oct. 94
34-00472-04 (1754-site)	Wright-Patterson AFB Ohio	From Region III; file closed and transferred to ORNL in Oct. 94
SUB-1288 (17-site)	Gulf Chemical and Metallurgical Co. Texas City, TX	From Region III; file closed and transferred to ORNL in Oct. 94
SUB-0215 (120-site)	APEX Smelting Co. Long Beach, CA	From Region III; file closed and transferred to HQ in July 97

Files transferred to Region IV from ORNL for followup review but the files are not listed in the current ORNL database (files are in Region IV's possession unless otherwise noted):

LICENSE NO. (ORNL Score)	NAME	COMMENTS
SUB-888 (11)	Defense Atomic Support Agency Albuquerque, NM	Site file closed May 96
30-03110-02 (343-site) (30-ss)	Kirtland AFB Albuquerque, NM	File closed in June 93; transferred to ORNL in Oct. 94
SNM-701 (40-ss)	NASA Houston, TX	<b>File still open</b>
SNM-585 SNM-270 (108-ss)	Great Lakes Carbon Co.	File closed but not documented in quarterly memo
SNM-932 (73-ss)	Frontier Perforators Pampa, TX	File closed but not documented in quarterly memo
SNM-418 (74-ss)	Lane Wells (Dresser) Houston, TX	<b>File still open</b> and will be transferred to TX in near future
50-02430-09 (15-ss)	Univ. of Alaska-Fairbanks Fairbanks, AK	File closed in August 95; transferred to HQ in July 97
50-02197-01 (11-ss)	State of Alaska Eagle River, AK	File closed in May 94; transferred to HQ in July 97
04-05241-08 (85-ss)	U.S. Nuclear Corp. Burbank, CA	File closed in Oct. 93; transferred to HQ in July 97
SNM-0213 (31-ss)	Univ. of California-Berkeley Berkeley, CA	File closed in Feb. 97; transferred to HQ in July 97
53-00017-01 (37-site)	Univ. of Hawaii Honolulu, HI	File closed in Feb. 97; transferred to HQ in July 97

Files listed in ORNL's electronic database as assigned to Region IV but the files are not listed in ORNL's most current hard copy database (Region IV does not have these files):

<b>LICENSE NO. (ORNL Score)</b>	<b>NAME</b>	<b>COMMENTS</b>
20-03095-02	Hanscom AFB Bedford, MA	Listed in ORNL's "Excellent" Quality Table
C-04481 (8)	Aerojet General Sacramento, CA	Listed in ORNL's "Excellent" Quality Table; closed by RV in January 96 and transferred to HQ in July 97
SUB-00905 (17)	Dawn Mining Co. Elko, NV	Listed in ORNL's "Excellent" Quality Table; closed by RV in January 96 and transferred to HQ in July 97
SNM-00867	Department of Highways State of Nevada	Listed in ORNL's "Excellent" Quality Table

## ATTACHMENT 4

Final ORNL Score: 254

Docket No. 40-222

License No. R-00199

Licensee Name: **Lucky Gem Mining and Milling Company, Inc.**  
P.O. Box 245  
Emmett, Idaho

Site Name: NA

Site Address: State Lease No. 3445  
W1/2SW1/4 Sec. 4, Twp. 7N, Rge. 1 W.B.M.

Regional Contact: Danny L. Rice, CHP, Health Physicist  
Fuel Cycle and Decommissioning Branch  
Division of Nuclear Materials Safety  
Region IV

### Status Summary:

Source Material License R-00199 was issued by the AEC to Lucky Gem on March 5, 1957, authorizing possession and title to raw and refined source material for resale and processing.

The ORNL review indicated that no buildings had been identified with the site and that there was reasonable evidence that the licensee either did not possess or did not use licensed material at the site. The inspectors reviewed State of Idaho records to determine if the licensee had actually performed operations authorized by the license. The records contain no indication that Lucky Gem had actually possessed or processed licensed material during the period of the license.

The operational location for the Lucky Gem licensee was confirmed with the assistance of the State of Idaho, Department of Lands. The location was verified as associated with Lucky Gem by the survey description contained in their license and State of Idaho lease records. The Lucky Gem site was visited on 04/04/00. The site was surveyed with a Ludlum Model 19, micro-R meter, Serial #015546, calibrated 10/12/99. The site exposure-rate measurements ranged from 10 to 12 uR/hr. Background was determined to average 10 uR/hr. There were two areas on the site that appeared to represent man-made excavations. The largest of the two excavated areas was a trench approximately 8-feet deep, 25-feet long, and 10-feet wide at the top. Material removed to form the trench was deposited at each end of the trench. The highest exposure-rate in and around the trench was at the bottom, north end of the trench and was 12 uR/hr. A soil sample was taken from the area where the 12 uR/hr reading was taken.

The soil sample was analyzed by gamma spectroscopy and indicated the following radioactive components and concentrations:

RIV Soil Sampling Result  
(pCi/g)

Sample #	U <sub>T</sub> (234,235,238)	Th <sub>T</sub> (228,232)	Ra-226
LG-01	5.27±1.80	1.77±0.11	0.78±0.06

The second excavated area was located approximately 200 meters Northeast of the trench on the east side of a hilltop. The area was approximately 20-feet long and 10-feet wide, forming a small depressed area relative to the normal side-hill contour. The exposure-rate measurements in this area were not greater than background.

Exposure-rate measurements were taken at the drainage outlet points of a small creek that borders the east side of the site and the seasonal drainage path that borders the west side of the site. The exposure-rate measurements were approximately 10 uR/hr. No soil samples were taken at these locations because of the low exposure-rate readings.

There is no indication that the licensee possessed or processed licensed material. The close-out survey did not identify areas where exposure-rates were greater than 10 uR/hr above background or the presence of licensed radioactive material in concentrations that would require remediation.

**The Region recommends closure of the Lucky Gem Mining and Milling Company, Inc., docket file and removal from the previously terminated site list.**

## ATTACHMENT 5

Final ORNL Score: 110

Docket No. NA

License No. R-00150

Licensee Name: **Porter Brothers Corporation**  
P.O. Box 667  
Boise, Idaho

Site Name: NA

Site Address: 75 miles Northeast of Boise, Idaho

Regional Contact: Danny L. Rice, CHP, Health Physicist  
Fuel Cycle and Decommissioning Branch  
Division of Nuclear Materials Safety  
Region IV

### Status Summary:

Source Materials License R-00150 was issued by the U.S. Atomic Energy Commission (AEC) to the Porter Brothers Corporation on October 21, 1953, authorizing transfer, possession and delivery of raw source material. The licensee operated a milling operation using a mechanical process to concentrate columbite-euxenite and monazite from bulk ore.

Efforts to contact the licensee were not effective. In that the licensee was licensed to operate a uranium milling operations, the inspector contacted the U.S. Department of Energy, Grand Junction Project Office, UMTRCA Project Manager to determine if the Porter Brothers Corporation site was being managed by DOE under the UMTRCA program. The DOE Project Manager confirmed that the Porter Brothers Corporation site was being managed under the UMTRCA program and provided excerpts from an engineering assessment performed in 1981 (excerpts attached) referencing the licensee.

The assessment documented that the licensee processed approximately 200,000 tons of dredge product during the active life of the license. The assessment also indicated that at the time of the assessment, September 1981, the site included some concrete foundations, a few small sheds and some debris. Additionally, the assessment indicated that just over 90,000 tons of sand remained on the site in several piles. The sands and residues were scattered throughout the 37-acre site in 10 locations covering about 5 acres.

Review of the "1999 Annual Site Inspection and Monitoring Report for Uranium Mill Tailings Radiation Control Act Title I Disposal Sites," dated January 2000, from Russel Edge, U.S. DOE, Grand Junction Project Office, revealed that DOE is monitoring the site through annual site inspections (Lowman, Idaho).

In that the licensed site is being managed and controlled by DOE under the UMTRCA program, **the Region recommends closure of the Porter Brothers Corporation docket file.**

## ATTACHMENT 6

Final ORNL Score: 16

Docket No. 040-00969

License No. D-00601

Licensee Name: **Poston Mining and Milling Company**  
P.O. Box 510  
4<sup>th</sup> and Macon St.  
Canon City, CO

Site Name: N/A

Site Address: Cascade Valley, SE1/4SE1/4, Section 3, Twp. 13 N, Rge. 4 E

Regional Contact: Danny L. Rice, CHP, Health Physicist  
Fuel Cycle and Decommissioning Branch  
Division of Nuclear Materials Safety  
Region IV

### Status Summary:

Source Material License D-00601 was issued by the AEC to Poston on June 6, 1957, authorizing possession, title, and transfer of 100 tons of monazite sand source material for resale.

The ORNL review based the need for closure on the fact that there was the potential for loose material on site which provided the potential for contamination and that no final record of disposition of the monazite sand was on record.

The site associated with Poston Mining and Milling was located approximately 5 miles south of Cascade, Idaho. The site was associated with Poston by reference in the Poston license application of land leased from the Baumhoff-Marshall Corp. Mr. Oscar Baumhoff, son of Mr. Fred Baumhoff, the original owner of the referenced property, was contacted. Mr. Baumhoff confirmed during an interview that the property used by Poston was the site located at the Southwest Quarter of Section 3, T13N, R4E, of the Boise Meridian. The referenced site was visited on 04/04/00. The site consisted of approximately 25 acres of land. The site was being used as a sand and gravel quarry. Some quarry equipment was present and it appeared that the site was still active. Exposure-rate measurements were taken using a Ludlum Model 19 micro-R meter, Serial # 015546, calibrated 10/12/99, at several locations over approximately 15 acres of the site. Background exposure-rates averaged approximately 10 uR/hr and all measurements at the site were equal to or less than background except for one. One location was found where the exposure-rate was approximately 24 uR/hr. This area was approximately 1 m<sup>2</sup> in size. A surface soil sample (P-01) was taken for analysis. An additional soil sample (P-02) was taken from an area of the site where exposure-rates were equal to background to establish the natural background concentration for the site.

The soil samples were analyzed by gamma spectroscopy and the analysis provided the following results:

RIV Soil Sampling Result  
(pCi/g)

Sample #	U <sub>T</sub> (234,235,238)	Th <sub>T</sub> (228,232)	Ra-226
P-01	2.56±0.61	8.55±0.20	0.80±0.05
P-02	2.84±0.65	1.94±0.08	0.35±0.03

The sample analysis identified the presence of radioactive material in concentrations sufficiently low enough to meet the 10 CFR 20 Subpart E, 25 mrem/yr unrestricted release criteria, except for sample P-01 for total Thorium and Radium. The Thorium and Radium concentrations necessary to meet the Subpart E criteria are 5.86 pCi/gm Total Thorium and 0.694 pCi/gm Radium. Therefore, the concentrations in sample P-01 exceeded the release concentrations by 2.69 pCi/gm and 0.106 pCi/gm. The Thorium and Radium concentrations, while exceeding the unrestricted release criteria, were not considered unacceptable because of the very small area (1 m<sup>2</sup>) involved, that the 1 m<sup>2</sup> area was very well defined by exposure-rate reading changes (reduction in reading) as one moved away from the area, and that all other exposure-rate readings over the 15 acre area were equal to or less than 10 uR/hr (background). The readings, equal to or less than background, were substantiating evidence that no additional areas of increased concentration, were present at the site. Additionally, the second soil sample, P-02, which was taken approximately 30 feet away from sample P-01, was seen as more representative of the concentrations in the area of interest. Therefore, the exposure-rate reading associated with the P-02 sample location was representative of the average site exposure-rate. As such, the average soil concentrations would be below the concentrations necessary to meet the 10 CFR 20 Subpart E 25 mrem/yr unrestricted release criteria.

**The Region recommends closure of the Poston Mining and Milling Company docket file and removal from the previously terminated site list.**

## ATTACHMENT 7

Final ORNL Score: 746

Docket No. 30-05189

License No. 27-05861-01

Licensee Name: **U.S. Environmental Protection Agency**  
944 East Harmon Ave.  
Las Vegas, Nevada

Site Name: (1) Southwest Radiological Health Laboratory, Las Vegas, NV  
(2) Nevada Test Site, northwest of Las Vegas, NV  
(3) 104 East Charleston Blvd, Las Vegas, NV  
(4) 1223/1229 South Main Street, Las Vegas, NV  
(5) 2760 South Highland Drive, Las Vegas, NV  
(6) Desert National Wildlife Range, Corn Creek Station, NV  
(7) Desert Research Institute, University of Nevada, Boulder City, NV

Site Address: See Site Names.

Regional Contact: Danny L. Rice, CHP, Health Physicist  
Fuel Cycle and Decommissioning Branch  
Division of Nuclear Materials Safety  
Region IV

### Status Summary:

EPA License 27-05861-01 was terminated April 15, 1986, when combined at the EPA's request with EPA License 27-05861-02. However, the file was reopened and placed on the previously terminated sites list when ORNL determined that the file did not contain sufficient information concerning final disposition of a trailer used at one of the authorized use locations in Las Vegas, Nevada, and disposition of radioactive waste at the Nevada Test Site (NTS).

The ORNL evaluation indicated that no further review was required for all sites except the 2760 South Highland Drive site. The evaluation identified concerns as to whether the trailer referenced in AEC inspection report dated September 1966, was the only place where licensed material had been used and if the trailer had actually been moved offsite to the NTS. The score assigned to the South Highland Drive site was 125.8 based on material handling. However, there was no information in the file indicating what materials were actually handled at the site. Through discussions with the present EPA radiation safety officer for the Las Vegas operations, it was determined that the trailer was used to perform radio-chemistry. The radionuclides used in the trailer were I-131 and Sr-90 and the amounts used were tracer quantities. The trailer was surveyed prior to being transferred to the NTS; however, the RSO could not find a copy of the actual survey from 1966. The RSO did confirm that the trailer was transferred to the NTS in 1966 and that no radioactive material was used at the South Highland Drive site, other than in the trailer.

The ORNL evaluation indicated that the NTS did not require further review at the time of the evaluation, but might need to be reviewed should the licensee ever want to release the site. The ORNL evaluation assigned a score of 599 to the NTS based on material handled. The NTS was never owned or operated by the licensee. It was operated by the AEC at the time of radioactive waste disposal and is presently operated by the Department of Energy. Therefore, the radioactive waste was and continues to be in the possession and control of a properly authorized entity.

In that the operations of the NTS have nothing to do with the EPA license, there is no reason to keep the EPA license file open concerning final disposition of the radioactive waste. **The Region recommends closure of the Porter Brothers Corporation docket file.**

## ATTACHMENT 8

Final ORNL Score: 3166

Docket No. 030-03656

License No. 35-00502-02

Licensee Name: **Halliburton Corporation**

Site Name(s): (1) Velma, Oklahoma, Skelly Oil Company;  
(2) Hot Springs, Wyoming, Amoco Oil Company; and  
(3) Converse County, Wyoming

Site Address: Duncan, Oklahoma

Regional Contact: Louis C. Carson II, Health Physicist  
Fuel Cycle & Decommissioning Branch  
Division of Nuclear Materials Safety  
Region IV

### Status Summary:

Byproduct Materials License 35-00502-02 issued to Halliburton Company was terminated on September 30, 1992. The license authorized research for petroleum companies in field flood studies. The original U.S. Atomic Energy Commission (AEC) license authorized the use of the following radioisotopes as tracers during oil well field flood studies: hydrogen-3 (tritium), scandium-46, chromium-51, cobalt-58, zinc-65, rubidium-86, strontium-85, iodine-125, cerium-144, promethium-147, and iridium-192. Based upon the inspector's review of licensed isotopes, it was determined that tritium was the only isotope of sufficient half-life (12.3 years) to pose a potential concern today had any contamination been left at the surface of the sites from spills or improper handling. By the Year 2000, surface tritium contamination would have decayed since its time of use during the period 1970-1975 to approximately 20-25 percent of the original radioactivity.

License 35-00502-02 had three sites of concern for review with high priority ORNL scores: Velma, OK (574.9), Converse County, WY (908.8) and Hot Springs, WY (908.8).

- (1) The Velma, OK., site used tritium for field flood studies at Skelly Oil Company, Vess Unit near Velma, Oklahoma. The license limit for tritium was 200 curies (Ci). Based on the inspector's review of the licensee's laboratory report and radioisotope purchase records, it was determined that the licensee used 50 Ci of tritium at this site. The licensee used 25 Ci of tritium on August 28, 1973, and 25 Ci of tritium on September 24, 1973. Records showed that all of the material was injected into the well; however, no well site survey records were found.

- (2) The Converse County, Wyoming, site also used tritium for field flood studies. The allowed licensed limit for tritium was 6 Ci, and 5 Ci were used. The inspector verified that 6 Ci were purchased and delivered to the site, which is managed by the Casper, Wyoming, field camp. Records showed that all of the material was injected into the well; however, no well site survey records were found.
- (3) The Hot Springs, Wyoming, site had a license limit of 100 Ci. The inspector verified that the licensee received and utilized all 100 Ci with one injection procedure. This site was managed by the Worland, Wyoming, field camp. Records showed that all of the material was injected into the well; however, no well site survey records were found.

Radioactive Treatment Reports (RTR) forms were historically used by the licensee to provide pre and post-well job surveys to provide background information for later restorative processes. No RTR forms were located during the terminated license review. However formal write-ups were provided on laboratory field reports. Laboratory field report records did not indicate any tritium contamination or spills occurred above ground during well field flood studies at the three sites.

For the residual tritium evaluation, NRC used potential contamination scenarios found in NUREG/CR-3467 "Environmental Assessment of the Use of Radionuclides as Tracers in the Enhanced Recovery of Oil and Gas." The NRC evaluated the dose consequences of potential residual contamination remaining near the surface of these well sites using the residential scenario of the NRCs decommissioning dose modeling program D&D (attached). Although licensee records of use did not indicate any spills or contamination was left at the well sites. The accidental release assumption from NUREG/CR-3467 was used for modeling purposes of 10 percent of the maximum source activity used (Hot Springs, Wyoming). The modeling of this information showed that the dose in Year 2000 from the assumed potential contamination left during the period of use would be below the 25 millirem/yr radiological criteria for license termination specified in 10 CFR Part 20 Subpart E.

Based on review of licensee records and the dose modeling results discussed above, any potential residual contamination left at the site at the time of use would pose no present hazard to the environment or public. **Consequently, Region IV is recommending closure of this file with no further action.**

## ATTACHMENT 9

Final ORNL Score: 150

Docket Nos.: 030-90030 (terminated) and 030-00945

AEC/NRC License Nos.: 35-00237-02 (terminated) and 35-00237-03

Licensee Name: **Oklahoma State University**

Site Name: Oklahoma State University (formerly Oklahoma A&M)

Site Address: Oklahoma State University (OSU)  
Stillwater, Oklahoma 74078-0007

Regional Contact: Louis C. Carson II, Health Physicist  
Fuel Cycle & Decommissioning Branch  
Division of Nuclear Materials Safety  
Region IV

### Status Summary:

The U.S. Atomic Energy Commission (AEC) had authorized the use of 2,450 millicuries of byproduct material for research at then Oklahoma A&M under AEC License 35-00237-02 on September 11, 1956. In September 1959 this license was terminated and superseded by AEC License 35-00237-03 which is currently an active NRC license.

The inspector's review of radioactive waste disposal records from 1957-1980 indicated that at least 11 different radioisotopes had been buried onsite including the following: hydrogen-3, carbon-14, chlorine-36, nickel-63, krypton-85, strontium-90, cesium-137, bismuth-207, lead-210, actinium-227, and uranium-238. Additionally, OSU had seven groundwater monitoring wells installed around the burial site. The highest monitoring well measurements were alpha radioactivity at 149-picocuries/liter (pCi/l), beta radioactivity at 39-pCi/l, and uranium at 39-pCi/l.

By NRC letter dated November 21, 1997, the radioactive waste burial site was incorporated into OSU's active NRC License 35-00237-03. This places decommissioning of the site under the control of OSU's current licensed activities. OSU submitted a revised decommissioning plan on January 28, 1999, for NRC review and approval.

In conclusion, **Region IV recommends the closure of this terminated site file.** OSU has formally assumed responsibility for decommissioning the burial site in accordance with 10 CFR 30.36. Further, the AEC issued OSU a license for possession of the radioactive material in September 1959, and as of February 2000, OSU continues to possess radioactive material under an NRC license. Since decommissioning of the radioactive waste burial site will be conducted under the current OSU NRC license, the NRC has concluded that future decommissioning records for this burial site will be included in OSU's current docket file.

## ATTACHMENT 10

Final ORNL Score: 266

Docket No. 70-962

License No. SNM-00911

Licensee Name: **General Atomics**  
3550 General Atomics Court  
San Diego, CA 92121

Site Name: John Jay Hopkins Laboratory

Site Location: John Jay Hopkins Drive  
La Jolla, CA

Regional Contact: Danny L. Rice, CHP, Health Physicist  
Fuel Cycle and Decommissioning Branch  
Division of Nuclear Materials Safety  
Region IV

### Status Summary:

The U.S. Atomic Energy Commission (AEC) authorized General Atomics in 1965 to possess up to 70 kilograms of U-235 in the form of fuel elements. The license expired on June 30, 1967. A more recent Oak Ridge National Laboratory (ORNL) review identified that the docket file contained inadequate information concerning final disposition of the fuel elements to allow the NRC to properly close the docket file.

The NRC contacted General Atomics and requested that they search their records for documentation of the final disposition of the fuel elements in question. General Atomics produced copies of documentation showing the fuel elements were transferred to Union Carbide Corporation, Y-12 Plant, Oak Ridge, Tennessee, in 1973. The facilities where the fuel elements were examined and stored are controlled under the active License SNM-696 or have been decommissioned in accordance with the General Atomics decommissioning plan. Based on the information contained in the referenced documentation, **Region IV recommends closure of the General Atomics SNM-00911 docket file.**

## ATTACHMENT 11

Final ORNL Score: 7

Docket No. 070-02180

License No. SNM-01598

Licensee Name: **Cenex, Inc.**  
Refinery Department  
P.O. Box 909  
Laurel, Montana 59044

Site Name: Refinery Department

Site Address: 803 Highway 212 South, Laurel, Montana

Regional Contact: Emilio M. Garcia, Radiation Specialist  
Nuclear Materials Inspection Branch  
Division of Nuclear Materials Safety  
Region IV

### Status Summary:

The NRC issued License SNM-01598 on February 9, 1976, to Cenex, Inc. This license authorized Cenex, Inc., to possess and use 30 millicuries of plutonium-238 as a sealed source (Texas Nuclear Model 570-5724B), and 0.5 microcuries of americium-241 as a sealed source (Amersham/Searle Model AMH.4). Both sources were to be used in a Texas Nuclear Corporation Model 9256 source housing for x-ray fluorescence analysis. These sources were to be used only at the Cenex, Inc., facility in Laurel, Montana.

On January 19, 1981, NRC received a license application for the use of sealed sources and foils at the licensee's Refinery Department facilities located 1-mile south of Laurel, Montana, on Highway 212/310. The licensee requested authority to use and possess one source of 30 millicuries of plutonium-238 as a sealed source (Texas Nuclear Model 570-57242B), to be used in a Texas Nuclear Corporation Model 9256 source holder for x-ray fluorescence analysis. The licensee also requested authority to possess and use foils (Amersham Model AMH.4), not to exceed 0.5 microcuries per foil. These foils were to be used in Texas Nuclear Model 9200 series analyzers for internal stabilization of electronic batteries. The NRC Form 785 prepared for the review of this application references License SNM 1598. On April 11, 1981, NRC issued License 25-14757-01 to Cenex, Inc., License SNM 1558 was terminated on May 1, 1981.

The inspector contacted the current radiation safety officer for License 25-14757-01, and confirmed that the licensee had not changed sources and was in possession of the original sources licensed under SNM 1598. Also, during this telephone conversation, it was noted that the current amendment to License 25-14757-01, Amendment 5, contained a typographical error that listed the model number of the plutonium source as

570-47242B. This error was brought to the attention of the NRC Region IV Nuclear Materials Licensing Branch, and will be corrected.

Other than the minor difference in model number and the more specific description of the intended use of the americium source, it appears that License 25-14757-01 superceded License SNM 1598 and the materials possessed under the old license were then possessed under the new license. The difference in model number for the plutonium-238 source appears to be a typographical error on the original license.

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

## ATTACHMENT 12

Final ORNL Score: 3

Docket No. 030-14726

License No. 25-18246-01

Licensee Name: **Dugdale Construction Company, Inc.**  
P.O. Box 3687  
4 ½ Mile Vue  
Butte, Montana

Site Name: Same as above

Site Address: Same as above

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

### Status Summary:

Byproduct Materials License 25-18246-01 was issued by the U.S. Nuclear Regulatory Commission (NRC) to Dugdale Construction Company (DCC) on August 30, 1978, for possession of cesium-137 and americium-241. The licensee used these radioactive materials in a Campbell Pacific International (CPN) Model MC-2 moisture density gauge. The license subsequently expired on September 30, 1983.

According to records obtained from Docket File 030-20900, DCC submitted a license renewal application to the NRC Region IV office on October 10, 1983, with follow-up information submitted on February 15, 1984. The NRC issued Materials License 25-18246-02 to DCC on March 27, 1984. This second license subsequently expired on March 31, 1989.

The licensee submitted NRC Form 314 "Certificate of Disposition of Materials" on November 1, 1989, informing the NRC that it had transferred the CPN MC-2 gauge to Butte Silver Bow (BSB) - Public Works Department on August 28, 1989. The docket review indicated that DCC had only possessed one gauge under the license.

Records provided by BSB and CPN indicated the sources contained within the gauge had not leaked. Subsequently it was determined that a site survey was not required.

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

### ATTACHMENT 13

Final ORNL Score: 42

Docket No. 030-08789

License No. 35-15239-01

Licensee Name: **U.S. Department of the Interior**  
Bureau of Indian Affairs  
Branch of Roads  
101 North 5th Street  
Muskogee, Oklahoma 74401-6206

Site Name: Muskogee Area Office

Site Address: 921 Georgetown, Muskogee, OK

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

#### Status Summary:

Byproduct Materials License 35-15239-01 was issued by the U.S. Atomic Energy Commission (AEC) to U.S. Department of Interior (DOI) on July 27, 1972, for possession of cesium-137 and americium-241 in the form of sealed sources. The licensee used these radioactive materials in Troxler Laboratories Model 2401 moisture density gauges. The license was amended twice and subsequently expired on October 31, 1987. This docket file was reviewed by ORNL, and ORNL concluded that the docket file had incomplete radioactive material disposition information.

According to records obtained from Docket File 030-30406 and from the licensee, DOI submitted a license renewal application to the NRC headquarters office on September 25, 1987, and the NRC Region IV office on February 1, 1988. The NRC issued Materials License 35-15239-02 to DOI on February 18, 1988, because the original license had already expired. This second license was still active as of the date of the onsite visit by the NRC (April 27, 2000).

The NRC performed an onsite inspection of the licensee on January 22, 1988, during the time frame between the expiration of the original license and the issuance of the subsequent license. The inspection documentation identified no violations related to material inventory, leak test, and material receipt and disposal records.

The licensee provided the inspector with a letter from DOI to the NRC dated April 9, 1992. In the letter, the licensee informed the NRC that it had disposed of the three Model 2401 gauges by returning the gauges to Troxler Laboratories. Based on the information provided in this letter, the NRC subsequently revised License 35-15239-02

during May 1992 to remove all references to the Troxler Model 2401 gauges from that license.

In conclusion, **Region IV recommends the closure of this terminated sealed source file.** DOI continues to possess radioactive material under NRC License 35-15239-02, the locations of use remain the same in the current license, and the licensee had disposition information for the gauges possessed under the terminated license.

## ATTACHMENT 14

Final ORNL Score: 40

Docket No. 030-19657

License No. 35-21007-01

Licensee Name: **Phoenix Wireline**  
401 ½ West Main  
Henryetta, Oklahoma 74437

Site Name: Phoenix Wireline

Site Address: Highway 75 and McLaughlin, Henryetta, Oklahoma

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

### Status Summary:

Byproduct Materials License 35-21007-01 was issued by the NRC to Phoenix Wireline on April 5, 1982, for possession of cesium-137 and americium-241 for use in oil and gas well logging tools. There was only one authorized user, the company president/radiation safety officer. The license was amended on November 23, 1982, to include the possession of iodine-131 and iridium-192 for use in well tracer studies. The license expired on April 30, 1987. This docket file was reviewed by Oak Ridge National Laboratory (ORNL), and ORNL concluded that the docket file had incomplete radioactive material disposition information.

The NRC attempted to perform an inspection of the licensee's main office during September 1983. The site office had closed and the company could not be located. The NRC Office of Investigations (OI) subsequently located and interviewed the president during May 1988. The OI investigation concluded that the individual ceased business operations during late May or early June 1982 and returned his source to a licensed supplier. Further, the investigator concluded that the licensee knowingly transferred or abandoned the facility and/or radioactive sources without notifying the NRC, a violation of NRC regulations.

The information obtained during the OI investigation indicated that the licensee most likely possessed only one source, a 2-curie cesium-137 sealed source. The source, Serial No. RL-1-109, was obtained on April 26, 1982, and returned to the supplier on May 29, 1982. Information obtained from Computalog Wireline Products of Fort Worth, Texas, revealed that the source was sold to Phoenix Wireline by SIE/Geosource (Texas License L-0747). The source was subsequently transferred to and is currently in long term storage at the Computalog Wireline Services office in Hobbs, New Mexico (New Mexico License No. WL048-10).

In conclusion, **Region IV recommends the closure of this terminated sealed source file.** Phoenix Wireline apparently possessed only one sealed source, and the source is currently in storage in Hobbs, New Mexico. The Henryetta office was not inspected or surveyed for radiological material because there was no evidence that the sealed source had ever leaked.

## ATTACHMENT 15

Final ORNL Score: 17

Docket No. 030-09181

License No. 35-15486-01

Licensee Name: **Nurrie Construction Company**  
P.O. Box 676  
Muskogee, Oklahoma 74401

Site Name: Nurrie Construction Company

Site Address: 1401 Beacon Street  
Muskogee, OK 74403

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

### Status Summary:

Byproduct Materials License 35-15486-01 was issued by the NRC to Nurrie Construction Company on February 22, 1973, for possession of cesium-137 and americium-241 for use in Troxler Model 2401 moisture density gauges. The license was amended on December 8, 1981, to include Troxler Model 3411B moisture density gauges. Records provided in this docket file indicate that the licensee possessed two Troxler gauges, a Model 2401, Serial No. 1939, and a Model 3411B, Serial No. 8531. The license expired on July 31, 1983. This docket file was reviewed by Oak Ridge National Laboratory (ORNL), and ORNL subsequently concluded that the docket file had incomplete radioactive material disposition information.

Information provided in Docket File 030-20261 revealed that the licensee filed a renewal application for License 35-15486-01 by letters dated August 16 and November 1, 1983. On January 6, 1984, the NRC issued Byproduct Material License 35-15486-02 to Nurrie Construction because the initial license had already expired. Information provided in Docket File 030-20261 also indicated that the licensee possessed only two gauges, the Troxler Model 2401 and Model 3411B gauges that were listed in the expired license docket file.

On January 26, 1988, Nurrie Construction formally transferred the two gauges to Knob Testing, Inc., of Knob Noster, Missouri. Knob Testing, Inc., had NRC License 24-25827-01 at the time. Nurrie Construction submitted an NRC Form 314, "Certificate of Disposition of Materials," dated January 26, 1988, to the NRC. The NRC subsequently terminated License 35-15486-02 on March 18, 1988.

As of May 10, 2000, the company that accepted the two gauges was named Kruger Technology, Inc., and was located in Merriam, Kansas. Kruger Technology, Inc., is

authorized to use the gauges in areas under NRC jurisdiction in accordance with NRC License 24-25827-01. The president of Kruger Technology, Inc., stated that the Model 3411B gauge, Serial No. 8531, was still in the company's possession. Recent leak test records were submitted to the NRC which confirmed that Kruger Technology, Inc., still possessed this gauge. The Model 2401 gauge, Serial No. 1939, was returned to Troxler during March 1989. Kruger Technology, Inc., submitted copies of these transfer records to the NRC for inclusion into Docket File No. 030-09181.

In conclusion, **Region IV recommends the closure of this terminated sealed source file.** Nurrie Construction possessed two gauges, and the two gauges were transferred to a different NRC licensee during 1988. One of the two gauges has since been transferred to the manufacturer, while the second gauge was still being used by Kruger Technology.

The Muskogee office was not inspected or surveyed for radiological material because there was no evidence that the sealed sources had ever leaked.

## ATTACHMENT 16

Final ORNL Score: 15

Docket No. 070-00047

License No. SNM-00045

Licensee Name: **Continental Oil Company**  
Research & Development Department  
Ponca City, Oklahoma 74601

Site Name: Radiochemistry Laboratory

Site Address: Conoco's Ponca City Refinery

Regional Contact: Robert Evans, P.E., Health Physicist  
Nuclear Materials Inspection Branch  
Division of Nuclear Materials Safety  
Region IV

### Status Summary:

Special Nuclear Materials (SNM) License SNM-00045 was issued by the U.S. Atomic Energy Commission (AEC) to Continental Oil Company (later known as Conoco) on October 22, 1956, for possession of up to 1400 grams of uranium-235. The licensee planned to use irradiated fuel elements as a source of gamma radiation for promotion of chemical reactions. On May 27, 1959, the AEC revised the license to increase the amount of SNM that Conoco could possess to 2000 grams. The license was renewed several times until October 1970 when Conoco requested that the license be terminated. The AEC terminated the license on October 23, 1970.

According to records obtained from Conoco, the licensee received 55 fuel elements between September 1957 through February 1962 from Phillips Petroleum Company of Idaho Falls, Idaho. The records indicate that all fuel elements were returned to Phillips within 6 months of receipt. Conoco maintained detailed records regarding receipt and shipment of the fuel elements, inventory records, and AEC-required Material Status Reports. Copies of actual shipping papers were not maintained by Conoco.

The licensee requested termination of the SNM license, in part, because they intended to use a 27,000 curie cobalt-60 source in lieu of the uranium-235 fuel elements to promote chemical reactions. The licensee possessed the cobalt-60 source under AEC Byproduct Materials License 35-07402-10. License 35-07402-10 has since been terminated. (The docket file for License 35-07402-10 must have included adequate disposition information for the cobalt-60 source because this file was not listed on ORNL's terminated license list.)

Conoco subsequently decommissioned the Radiochemistry Laboratory during 1986. The licensee released the building for unrestricted use, and the building is currently used by site security. An NRC inspector toured the former Radiochemistry Laboratory

building during January 19, 2000, and the building was noted to have been extensively remodeled. A limited confirmatory survey by the inspector did not identify any radioactive materials in the building.

In conclusion, **Region IV recommends the closure of this terminated sealed source file.** Conoco maintained records confirming that all 55 fuel elements possessed under this license had been shipped offsite. Conoco has since decommissioned the former Radiochemistry Laboratory, and Conoco still possessed an NRC broadscope license (35-07402-11).

## ATTACHMENT 17

Final ORNL Score: 3

Docket No. 030-90031

License No. 35-11581-01

Licensee Name: **U.S. Department of Interior**  
Federal Water Pollution Control Administration  
P.O. Box 1198  
Ada, Oklahoma 74820

Site Name: Robert S. Kerr Water Research Center

Site Address: 919 Kerr Research Drive  
Ada, Oklahoma 74820

Regional Contact: Robert Evans, P.E., Health Physicist  
Nuclear Materials Inspection Branch  
Division of Nuclear Materials Safety  
Region IV

### Status Summary:

Byproduct Materials License 35-11581-01 was issued to the Department of Health, Education & Welfare (later known as Department of Interior) on March 14, 1966, to support research activities at the Robert S. Kerr Water Research Center. The original U.S. Atomic Energy Commission (AEC) license allowed the Department to use iron-59 for a sewage treatment plant study in San Antonio, Texas.

Subsequent amendments added hydrogen-3, carbon-14, phosphorus-32, iron-59, krypton-85 and iodine-131 in loose (unsealed) form as well as hydrogen-3, cobalt-60, nickel-63, cesium-137, and americium-241 in sealed form. Locations of use included the Robert S. Kerr Water Research Center (all radionuclides), any areas throughout the States of Oklahoma and New Mexico (carbon-14 only), a sewage treatment plant in Amarillo (iron-59 only), the Southwestern Great Plains Research Center near Amarillo (hydrogen-3 only), and Galveston Bay (hydrogen-3 and krypton-85 only). License 35-11581-01 subsequently expired on March 31, 1973, without being renewed by the Department of Interior.

During July 1970, President Nixon submitted to Congress a proposal for major realignment of federal agencies, and the "new" U.S. Environmental Protection Agency (EPA) was created in December 1970. The EPA subsequently assumed control of the Robert S. Kerr Environmental Research Laboratory. On May 11, 1973, EPA submitted a request to AEC to renew License 35-11581-01. The renewal request was submitted after the expiration of the original license. The AEC issued a new license, No. 35-11581-02, to EPA on July 13, 1973. As of January 18, 2000 (date of last NRC inspection of the Robert S. Kerr Environmental Research Center), EPA still possessed NRC Materials License 35-11581-02.

In conclusion, **Region IV recommends the closure of this terminated sealed source file.** The EPA assumed control of both the research laboratory and the radioactive materials used at the laboratory, and the AEC issued EPA a license for possession of the radioactive materials during July 1973. As of January 2000, EPA continues to possess radioactive materials under an NRC license.

Any decommissioning of the Research Center will be conducted under the current NRC license. The NRC has concluded that decommissioning records for the areas outside of the Research Center that were previously under Department of Interior's control are not necessary to close out this file because the ORNL reviewer concluded that only the "missing" sealed sources were of concern. ORNL concluded that the loose radioactive materials were not a concern based on the small amounts of material approved for use and the half-lives of the radionuclides involved.