

U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION/SITUATION REPORT
Radiation - Instruments and Flight Research (IFR) - Removal Polrep
Initial and Final Removal Polrep



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region VII

Subject: POLREP #1
Initial / Final
Radiation - Instruments and Flight Research (IFR)
B720
Wichita, KS
Latitude: 37.6419700 Longitude: -97.2771400

To: Kenneth Buchholz, EPA
Joan Nickum, USEPA R7

From: James Johnson, On-Scene Coordinator

Date: 5/27/2014

Reporting Period: 05/12 - 16/2014

1. Introduction

1.1 Background

Site Number:	B720	Contract Number:	
D.O. Number:		Action Memo Date:	9/24/2013
Response Authority:	CERCLA	Response Type:	Time-Critical
Response Lead:	EPA	Incident Category:	Removal Action
NPL Status:	Non NPL	Operable Unit:	00
Mobilization Date:	5/12/2014	Start Date:	5/12/2014
Demob Date:	5/16/2014	Completion Date:	5/17/2014
CERCLIS ID:	KSN000706276	RCRIS ID:	
ERNS No.:		State Notification:	05/27/2014
FPN#:		Reimbursable Account #:	

1.1.1 Incident Category

The IFR site is an inactive former radium dial stripping and repair facility.

EPA performed a time-critical removal action at the Radiation – Instruments and Flight Research (IFR), Site (Site), located at 2716 South George Washington Boulevard, Wichita, Kansas, 67210. The objective of the removal action is to protect public health or welfare or the environment by responding to the release, or substantial threat of release, of the hazardous substance radium-226 into the environment at the Site.

Radium-226 is present in the interior building and exterior soils at the Site. The removal action entailed the removal, remediation and excavation and off-site disposal of building materials, debris, drums, bags, equipment and soils contaminated with radium-226 at levels in excess of 5.87 picocuries per gram (pCi/g).

1.1.2 Site Description

The 12 digit CERCLIS ID number is KSN000706276. This was a time-critical removal action. An aircraft instrument repair shop operated on the property from as early as 1963 and was granted a radioactive materials license (RML 25-R223-01) by Kansas Department of Health and Environment (KDHE) in January 1970, which is in effect and is valid until terminated. The company primarily rebuilt surplus aircraft instruments and accessories. Aircraft instruments contained radioluminescent paint that contained radium. During the rebuilding or refurbishing process the radium bearing paint was removed with solvents. Previous KDHE investigations have identified radium-226 contamination in surface soil and on interior building surfaces and equipment.

The Site is located approximately seven miles southeast of the downtown Wichita area and causes a threat of exposure to exist for those who work and live nearby. Occupants at 2716 South George Washington Boulevard and passersby are exposed through the route of inhalation and ingestion. In addition to those possible exposures, if this contamination is not addressed, it may pose a threat to utility and construction workers or future residents who, through excavation, demolition or remodeling, should they come into direct contact with the contamination.

1.1.2.1 Location

The IFR facility is at 2716 South George Washington Boulevard in Wichita, Kansas, 67210, near the

intersection of South 47th Street and George Washington Boulevard. The Site is in the southwest quadrant of Section 1, Township 28 South, Range 1 East; the geographic coordinates of its approximate center are: 37.64197 degrees north latitude and 97.27714 degrees west longitude. The property includes a single-story building with a footprint of approximately 10,000 square feet. Two sheds are at the southeast corner of the property. Outdoor areas of the property include a gravel drive and parking area, concrete sidewalks and a grass lawn. The Site is within a mixed-use area of commercial, military and residential properties. Adjoining the property is a material storage yard for a construction company (Snodgrass and Sons Construction Company) to the north and east, McConnell Air Force Base to the south and South George Washington Boulevard to the west. According to the 2010 U.S. Census, there are approximately 2,803 persons residing within one square mile of the Site.

1.1.2.2 Description of Threat

The primary contaminant of concern at this Site is radium-226. The EPA and KDHE have documented radium-226 in building materials and concentrations in Site soils up to 720 pCi/g.

1.1.3 Preliminary Removal Assessment/Removal Site Inspection Results

The EPA conducted field activities for a Removal Site Evaluation (RSE) in April 2013. The primary objectives of this phase of the RSE were to determine the extent of radium-226 contamination (and other associated radionuclides) on the property, building materials, debris, equipment, drums, bags, barrels, piping, surface and subsurface soil, and to assess the inside of the commercial property for radium-226 contamination. During the interior surveys, three 55-gallon steel drums and two plastic bags, that contained radioactive materials, were found in the equipment room. The EPA inventoried the containers and also obtained exterior dose rate readings as high as 200 microrem per hour ($\mu\text{r/hr}$). Field screening with radiation detectors and radiation analysis of soil samples further defined the lateral, vertical and areal extent of contamination inside and outside of the property. A total of 17 soil samples, including four background samples, were collected during the RSE. Radium-226 was detected in 10 samples above its current screening level of 5 pCi/g plus background. The highest radium-226 concentration of 720 pCi/g was detected on-Site.

For the Site, the EPA has established a time-critical removal action level for radium-226 of 5 pCi/g above background in soil. Based on the analytical results for the background samples collected in April 2013, the estimated average background concentration for radium-226 at the IFR Site is 0.87 pCi/g. Therefore, the estimated time-critical site-specific removal action level for radium-226 is 5.87 pCi/g and levels established by IFR's license to terminate activities. In addition, the EPA conducted surface area contamination surveys and compared this data to release criteria established for termination of IFR's radioactive materials license granted by KDHE.

The EPA's overall assessment confirmed the presence of radiation in excess of five times background and delineated areas for removal consideration that included equipment, soils, three 55-gallon drums, two plastic bags with material in them, piping and interior and exterior portions of the former facility. While radium-226 was detected by KDHE in trace amounts in the groundwater, the detections were well below the screening level and maximum contaminant level for radium-226.

2. Current Activities

2.1 Operations Section

2.1.1 Narrative

The primary contaminant of concern at this Site is radium-226. The EPA and KDHE have documented radium-226 concentrations in Site soils up to 720 pCi/g. The EPA and KDHE assessments identified several areas of contamination, which are situated on the commercial lot at 2716 South George Washington Boulevard, Wichita, Kansas. Hot areas identified at the Site are: inside the IFR building, two outside sheds, paint shop, equipment room, several building floor drains, several outdoor areas, three 55-gallon drums and two plastic bags containing radiologically impacted materials. While radium-226 was detected by KDHE in trace amounts in the groundwater, the detections were well below the screening level and maximum contaminant level for radium-226.

While many of these areas contain removable amounts of radiological contaminants that pose a threat of release to the environment and to public health, the threat posed by the 55-gallon drums and assorted loosely bagged contaminated material pose a more serious threat due to the nature of their increased portability. These items have the potential to be easily removed from the Site; damaged, stolen and disposed of in a manner that is not consistent with regulatory disposal methods.

Soil, drums, building materials and other associated wastes contaminated with radium-226 above the 5.87 pCi/g action level will be removed and transported to US Ecology Idaho, Inc., disposal facility in Grand View, Idaho. After removing the estimated 50 tons of materials from the affected areas, the excavated soils will be replaced with clean soils and the interior building areas will be restored. Clean soils are soils that have been analyzed for radium, with results indicating that the concentration is at or below the background and that all other hazardous substances, pollutants or contaminants are below residential soil screening levels as determined by the EPA, or as referenced in the Region 9 Preliminary Remediation Goal tables found at <http://www.epa.gov/region9/superfund/prgl/>, or as outlined in the KDHE RSK Manual, Version 5, 2010.

The soils at the Site will be backfilled with soil topped with either, gravel, concrete or sod/seed. The excavated material will be transported and disposed of at a licensed facility in accordance with all applicable local, state and federal requirements.

2.1.2 Response Actions to Date

May 8-12, 2014: The City of Wichita's Street Department, Sewer Department and other city officials came by and performed a Site reconnaissance that afternoon and had no issues with the planned removal action. Mr. James F. Garufo, Jr (Garufo) signed the access agreement, provided the EPA with a key to get in the

property and work started. A fund-lead time-critical removal action was initiated. This removal action will entail the removal, remediation and/or excavation and off-Site disposal of building materials, debris, drums, bags, equipment and soils contaminated with radium-226 at levels in excess of 5.87 picocuries per gram (pCi/g). Contamination at the Site was caused by the rebuilding and/or refurbishing of aircraft instruments at the Site 1963 – 2005 by IFR.

Activities during this time period include mobilization of the Emergency and Rapid Response Services contractor (Environmental Restoration, LLC), the Superfund Technical Assessment and Response Team (START) contractor (TetraTech), and EPA personnel. The EPA conducted interior / exterior gamma surveys to delineate areas to mark prior to removal. The interiors of two outdoor sheds were also surveyed. KDHE had previously issued IFR a license to use radioactive materials (ram), as part of the licensee, IFR has a building surface release criteria of 1,000 disintegrations per minute (dpm) per 100 square centimeters (100 cm²) for radium-226 based on an annual total effective dose equivalent (TEDE) of 25 microroentgen equivalent man (mrem). The objective of the removal action was to use remediation techniques (such as cleaning affected surfaces or cutting and removing material from furniture) to get levels below license termination limits and soil below 5.87 pCi/g.

May 13, 2014: Remediation of areas inside the facility proper and excavation of contaminated areas outside the building began. The plan is to remove the all contaminated materials and area, inside and outside, in select spots that were captured by the RAT survey. The EPA and START will use a "MARSSIM" style approach and clear sections by sample analysis. "BERT" is set up on-Site and is being used as a field lab to run "clearance" samples prior to them being shipped for laboratory analysis. Samples are being analyzed on-site by the EPA (with a 3x3 NaI probe) to help establish that the removal action level is being achieved. Contaminated building material and soil are being stockpiled at on the south side of the facility and will ultimately be loaded onto trucks for delivery to US Ecology Idaho, Inc, in Grand View, Idaho.

May 14, 2014: The EPA continued remediation of areas inside/outside the IFR site. Work included remediating Ra-226 contaminated concrete, piping, drums, grading, dust suppression, graveling and leveling of the sites. The first truck shipment from IFR was loaded with approximately 22 tons of building material and soil and was ready for transport to the US Ecology facility in Grand View, Idaho. The EPA also discussed property restoration concerns with Mr. Garufo to cover excavated areas, seeding and sodding, concrete flooring and wall repair, dust build-up, miscellaneous cleanup items, etc.

May 15, 2014: The EPA continued working at the Site. The initial analytical results from samples collected by the EPA indicate that Ra-226 was identified in surface and near-surface soils at the Site at levels as high as 720 pCi/g and the containerized waste that was discovered inside the building exhibited levels of radioactivity up to 356 µR/hr. After the removal phase was mostly completed, the dose rate was trending downward from a high of 356 microR/hr to about 15 microR/hr on average. The Ludlum Model 19 microR Meter saw: Background outside was: 8 – 13 uR/hr and inside the facility was 7 – 15 uR/hr. (1) paint booth room: 7 – 23 uR/hr; (2) equipment room: 10 - 16 uR/hr; (3) drum storage room: 20 – 35 uR/hr; Alpha readings ranged between 0 – 11 cpm "fixed" in the equipment and paint booth floor areas. KDHE (Aaron Schwartz - BAR) visited the Site to get a progress update.

May 16, 2014: The EPA continued working at the Site and by 1800 hours, all on-Site activities were concluded. Site restoration activities also occurred during this time frame. Excavated areas were backfilled with soil and covered with rock except for the interior areas which were originally covered with concrete. Those areas were remediated, scrubbed, a sealer applied and a thin layer of concrete was applied. The interior areas inside the storage room (drum area) were also over layered with concrete, holes filled, concrete walls shored up and the piping was either removed and what was left was filled with concrete. The second truck was loaded (approximately 19 tons of contaminated material) and sent for disposal (approximately 40 – 45 tons of total wastes were disposed).

The EPA conducted decontamination swipes and surveys of the equipment and also conducted a walk-through survey of IFR. The EPA turned in swipes and decontamination surveys for analysis to START. IFR's facility entrance was "graveled and leveled" and the Site was secured. Mr. Garufo stated that he was fine and okay with the work and restorations that were being done and the EPA also returned his Site property key. The EPA conducted a final walk-through, all areas were resurveyed, secondary confirmatory samples were taken and site photos were also taken. The EPA ensured all equipment and property was turned in and all personnel demobed from the IFR site property.

There were no media interest or items of concern generated by the public during the removal action.

May 17, 2014: The ERRS crew demobilized from Wichita, Kansas, back to Denver, Colorado.

May 28, 2014: Awaiting the final disposition of excavated material, debris, equipment and soil that was sent to US Ecology Idaho, Inc. The Final PolRep was prepared and submitted for review.

2.1.3 Enforcement Activities, Identity of Potentially Responsible Parties (PRPs)

At the current time, there were no identifiable PRPs, this was a fund-lead removal action.

2.1.4 Progress Metrics

Waste Stream	Medium	Quantity	Manifest #	Treatment	Disposal
					US

Radium contaminated materials	Soil, concrete, drums, equipment and IDW.	Aproximately 19 tons	KSR200168854	None	Ecology Idaho, Inc, Grand View, ID
Radium contaminated materials	Soil, concrete, drums, equipment and IDW.	Aproximately 22 tons	KSR200168854	None	US Ecology Idaho, Inc, Grand View, ID

2.2 Planning Section

2.2.1 Anticipated Activities

A removal action was warranted for the IFR Site. The EPA anticipates that the removal action will address the issues of the license termination action levels required by KDHE/BAR. The last truck was shipped from the Site on May 16, 2014. It is estimated to take up to 30 days before a waste manifest certificate of disposal is sent back to the EPA by US Ecology Idaho, Inc in Grand View, IDaho.

2.2.1.1 Planned Response Activities

There are no further planned response activities at this time.

2.2.1.2 Next Steps

Ensure that US Ecology Idaho receives and disposes of the radium contaminated soil (need certificate of destruction, burial and/or hazardous waste disposal manifest). Remediate and restore the Site back to non-restricted public use. The EPA's actions should not impede any future remedial plans or other response actions for this Site.

No further removal actions are planned at this time. KDHE was notified on May 27, 2014, that the removal action was complete and that a Trip Report will be issued to them in about 45-60 days. Any future POLREPs will be dependent upon the outcome of the KDHE groundwater investigation and the EPA PRP search.

2.2.2 Issues

As the cleanup standard to be applied will allow for unrestricted Site use, no post-removal Site controls, such as institutional controls, will be required, as no contamination above the action level is expected to be left on-Site. However, the possibility does exist that additional contamination could be discovered in the future, separate from the current assessed area.

2.3 Logistics Section

Logistics are being handled by the ERRS Response Manager in coordination with the START and the lead OSC.

Logistical issues: very tight working conditions and within populated areas. Consideration should be given to routes, visibility of equipment, access restrictions in work areas, and safety of workers and the resident population in general, such as buried utilities and other site hazards (utility locates to be coordinated by the ERRS contractor with notification to the OSC in a manner consistent with one call policies and so as not contribute to work stoppage and slow down). ERRS provided on-Site watering, to ensure that dust created during removal, did not leave the Site

Equipment used - various used:

- 1 - 5 - 10 yard Dump Truck
- 2 - 1/2 ton pick-up 4 x 4
- 1 - 308 Excavator
- 1 - Skid Steer 299 Cat
- 1 - Equipment Trailer (mounted) / Tool Trailer
- 1 - Concrete / Asphalt Saw / Chisels / Misc supplies
- 2 - Transport trucks (approx 22 - 27 tons capacity)

2.4 Finance Section

2.4.1 Narrative

The accounting of expenditures is an estimate based on figures known to the OSC at the time this report was written. The cost accounting provided in this report does not necessarily represent an exact monetary figure which the government may include in any claim for cost recovery.

The below listed accounting of expenditures is an estimate based on figures known to the OSC at the time this report was written. The OSC does not necessarily receive specific figures on final payments made to any contractor(s). Other financial data which the OSC must rely upon may not be entirely up-to-date. The cost accounting provided in this report does not necessarily represent an exact monetary figure which the government may include in any claim for cost recovery.

Estimated Costs *

	Budgeted	Total To Date	Remaining	% Remaining
Extramural Costs				
ERRS - Cleanup Contractor	\$261,263.00	\$0.00	\$261,263.00	100.00%
TAT/START	\$35,000.00	\$0.00	\$35,000.00	100.00%
Intramural Costs				
Total Site Costs	\$296,263.00	\$0.00	\$296,263.00	100.00%

* The above accounting of expenditures is an estimate based on figures known to the OSC at the time this report was written. The OSC does not necessarily receive specific figures on final payments made to any contractor(s). Other financial data which the OSC must rely upon may not be entirely up-to-date. The cost accounting provided in this report does not necessarily represent an exact monetary figure which the government may include in any claim for cost recovery.

2.5 Other Command Staff

2.5 Other Command Staff

All removal work is being conducted in accordance with the approved Site Safety Plan and under the guidance of the EPA Region 7 Radiation Safety Officer, Chuck Hooper – 913.551.7271 and R7 Safety Coordinator, Roy Krueger, USEPA - 913.551.7296

2.5.1 Safety Officer

On May 12, 2014, the site health and safety plan was finalized and signed by all site personnel. START established hot zone air monitoring utilizing e-perms and a Rad-7. ERRS established a safety perimeter to ensure that the general public did not have immediate access to the Site. Personnel protective equipment was worn by all personnel while on-Site during the duration of the removal.

2.6 Liaison Officer

James A. Johnson, OSC - EPA R7
Ben Washburn, OPA-EPA R7
Gary Heller, ER - Response Manager
Rob Monnig - START

2.7 Information Officer

Ben Washburn

2.7.1 Public Information Officer

Ben Washburn, PIO

A fact sheet was developed for the Site and provided to the congressional and state representatives and the Director of the Sedgwick County, Kansas Health Department, who provides briefings to the local government. The RA was complete on 16 May 2014.

The administrative record is on file at the USEPA Superfund repository in Kansas City, Kansas, and the Planeview Public Library, Wichita, Kansas.

2.7.2 Community Involvement Coordinator

Ben Washburn / James Johnson

3. Participating Entities

3.1 Unified Command

The command structure for the RA consisted of:

1. EPA (EPA coordinated the activities of START & ERRS).
2. KDHE
3. City of Wichita

3.2 Cooperating Agencies

1. City of Wichita
2. Sedgwick County, Kansas Health Department
3. KDHE
4. ATSDR
5. KS One Call
6. City of Wichita Water Department

4. Personnel On Site

For the Removal Action:

- 2 - EPA OSC's - (J. Johnson, T. Mahler)
- 1 - EPA Health Physicist
- 1 - EPA RPM
- 2 - START Personnel
- 5 - ERRS Personnel

5. Definition of Terms

Radium Contaminated Soil - Ra-226 / Ra-228

BAR - Bureau of Air and Radiation

CERCLA - Comprehensive Environmental Response and Liability Act

CFR - Code of Federal Regulations

EPA - U.S. Environmental Protection Agency

ERRS - Emergency and Rapid Response Services

KDHE - Kansas Department of Health and Environment

MARSSIM - Multi-Agency Radiation Survey and Site Investigation Manual

"Picocurie per gram" (pCi/g) = This refers to the amount of radioactivity in a particular solid substance. Picture a one-ton batch of concrete that contains 1,000 pounds of gravel, 500 pounds of cement, and 500 pounds of water. To describe this particular mix of concrete, one might say it contains "500 pounds per ton" of cement. This means that for every pound of concrete, there will also be a quarter of a pound of cement present. Similarly, if you wished to describe the amount of radioactivity that typically exists in soil throughout the United States, you would say that it contains about "one picocurie per gram" of radium, one picocurie per gram of thorium, and a host of other radioactive elements. This means that for every gram (about 0.002 pounds) of soil, there will also be one picocurie of radium and one picocurie per gram of thorium present, along with the rest of the radioactive elements commonly found in soil.

RCRA - Resource Conservation and Recovery Act

RA - Removal Action

RSE - Removal Site Evaluation

RSK - Risk-based Standards for Kansas

START - Superfund Technical Assistance and Response Team

UFA - Unified Focus Assessment

UMTRCA - Uranium Mill Tailings Radiation Control Act

6. Additional sources of information

6.1 Internet location of additional information/report

The objective of this removal action is to protect public health or welfare or the environment by responding to the release of hazardous substances and pollutants or contaminants into the environment as presented by soils contaminated with radium-226 at the Site.

For additional information, please refer to "documents" on www.epaosc.org/IFR.

For additional reference material, please refer to www.iem-inc.com/primrite.html

6.2 Reporting Schedule

This Polrep covers the Removal Assessment (RSE) and the Removal Action (RA) and it is considered to be "Final" when published. Updates will be posted as new information / materials become available. Last site update was May 28, 2014.

7. Situational Reference Materials

For additional information, photographs, maps, sample analysis, etc; please refer to "Documents" on www.epaosc.org/ifr

For additional information radium-226, please refer to: <http://www.epa.gov/radiation/radionuclides/radium.html>

February 12, 1998, memorandum from Stephen Luftig, the Director of the Office of Superfund Remediation Technology Innovation (February 12, 1998, Directive number 9200.4-25) Section 275 of the Atomic Energy Act, 42 U.S.C. § 2022, as amended by section 206 of the UMTRCA of 1978, 42 U.S.C. § 7918, and regulations at 40 CFR § 192.12

Region 9 Regional Screening Level tables found at <http://www.epa.gov/region9/superfund/prg/>

KDHE RSK Manual, Version 5, 2010.