

U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION/SITUATION REPORT
Solana Road Radiation Site - Removal Polrep
Initial Removal Polrep



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region IV

Subject: POLREP #1
Initial - Removal Action
Solana Road Radiation Site
B4K3
Ponte Vedra Beach, FL
Latitude: 30.2281280 Longitude: -81.3765250

To:
From: Terry Stilman, On-Scene Coordinator
Date: 5/23/2012
Reporting Period: 5/21/12 - 5/23/12

1. Introduction

1.1 Background

Site Number:	B4K3	Contract Number:	S4-07-03
D.O. Number:	0119	Action Memo Date:	4/25/2012
Response Authority:	CERCLA	Response Type:	Time-Critical
Response Lead:	EPA	Incident Category:	Removal Action
NPL Status:	Non NPL	Operable Unit:	
Mobilization Date:	5/8/2012	Start Date:	5/8/2012
Demob Date:		Completion Date:	
CERCLIS ID:		RCRIS ID:	
ERNS No.:		State Notification:	
FPN#:		Reimbursable Account #:	

1.1.1 Incident Category

Time Critical Removal Action

1.1.2 Site Description

Prior to development into a beachside resort and golfing community, the city of Ponte Vedra was known as "Mineral City". The National Lead Company operated a sand mine along 17 miles of oceanfront, removing the small percentages of heavy metal-bearing minerals in the sands. Minerals such as rutile and ilmenite were recovered for their titanium content, which was needed during World War I for steel production. The operation was started in 1914 and continued into the 1920s when the mine was closed due to a depressed demand for steel after the war. One of the ancillary minerals in the sand is monazite, which was not commercially recovered at the time of the National Lead operation in Mineral City. It is believed that concentrating monazite during the mineral separation process may have produced tailings piles. While actual production records are not available, it is believed that this technologically-enhanced naturally-occurring radioactive material (TENORM) could have later been used as fill or simply knocked down and spread out once the mine closed and properties in the area were developed.

1.1.2.1 Location

The center of the Site covers approximately ½ acre of land at 7 Solana Road and includes the aerial extent of contamination, in Ponte Vedra Beach, St. Johns County, Florida. The Site is in a predominantly residential area, approximately one block from the Atlantic Ocean. Historic use of the land included sand mining operations. The site is bordered to the south by Solana Road, the west and east by occupied residential structures and to the north by a lake on the 4th fairway of the Ponte Vedra Inn Golf Club.

1.1.2.2 Description of Threat

During a May 2011 golf-tournament in Ponte Vedra, Florida, the Florida Department of Transportation (FDOT), with assistance from the United States Department of Energy (DOE) Radiological Assistance Program (RAP), performed a radiation survey of the surrounding area using a truck-mounted portable scanner. DOT and DOE reported an instance of elevated gamma radiation from the empty lot at 7 Solana Road. Calculated dose rates from DOT and DOE measurements on the 7 Solana Road property were found to be as high as 1.21 millirem per hour (mrem/hr). This roughly correlates to an annual exposure of 7,623 millirem per year (mrem/yr). The Florida Department of Health (DOH) responded and collected samples of soil for analysis by gamma spectroscopy. Samples collected by DOH showed thorium²³² at 80 picocuries per gram (pCi/g) and radium²²⁶ at 47 pCi/g. Based on the levels of contamination found, DOH requested EPA assistance to further characterize the nature and scope of the contamination at 7 Solana Road.

The EPA Region 4, with assistance from the Environmental Response Team (ERT), conducted an investigation at the site on June 6, 2011. ERT surveyed the 7 Solana Road property with a GPS-tracked ATV-mounted survey detector. The collected data was used to generate a contour map detailing the location of two 'hotspots' on the property. Both of these hotspots trailed off to the edge of the 7 Solana Road property and extended onto neighboring property or into Solana Road. ERT concluded that the gamma radiation levels on the property were approximately 200 times the normal background of 6 microrem per hour ($\mu\text{rem/hr}$). ERT also recommended further assessment.

1.1.3 Preliminary Removal Assessment/Removal Site Inspection Results

In order to investigate the possibility that tailings were used over large areas of Ponte Vedra Beach, EPA Region 4, EPA's Radiological Emergency Response Team (RERT) and DOH initiated a neighborhood-wide assessment in November of 2011. RERT performed a survey of over 600 acres of residential properties surrounding 7 Solana Road using a van-mounted scanner Mobile Radiation Directional Scanning System (MRDSS) that is able to determine radiation levels at a distance. Prior to surveying, RERT determined the average background concentration in the area, which was confirmed to be 6 $\mu\text{rem/hr}$, or about 38 mrem/year. The MRDSS traveled the public thoroughfares and compared the readings to background levels. The site-specific threshold for determining whether further characterization was warranted on a property agreed to by EPA and DOH was 100 mrem/yr over the background level, which equates to 138 mrem/year.

Once characterization for a given property was complete, the property was assigned to one of three tiers based on the exposure dose rate of the occupants.

- Tier 1 – If the derived dose rate is less than 100 mrem/yr above background, no further investigation will be conducted under this program.
- Tier 2 - If the derived dose rate is below 500 mrem/yr above background but exceeds 100 mrem/yr above background, further action may be warranted on a case-by-case basis.
- Tier 3 - If the derived dose rate exceeds 500 mrem/yr above background prioritization for further action should be given.

Only the properties surrounding 7 Solana Road exhibited gamma radiation levels above the threshold of 138 mrem/yr. RERT and START collected dose rate data from points on the 7 Solana Road property as well as along the roadway and public sidewalks down Solana Road and Rutile Drive. Although exposure values with hand-held instruments taken from the roadway did not indicate any areas with exposure values over the site-specific threshold of 138 mrem/year, the more sensitive instrumentation on the van-mounted scanner indicated several areas which possibly exceeded this threshold located at some distance off the roadway coinciding with 13 properties near 7 Solana Road. Additional assessment is recommended for these other properties.

Only one property, 7 Solana Road, is currently assigned to Tier 3. During the November 2011 investigation, RERT collected samples of the soil on 7 Solana Road and submitted it to the National Air and Radiation Environmental Laboratory (NAREL) for spectrographic analysis. NAREL confirmed the presence of both thorium and uranium decay-chain daughter products. After review of the data by EPA toxicologists, it was determined that radium²²⁶ and radium²²⁸ were the two leading risk radionuclides on the property.

Spectrographic analysis showed the average activity of radium²²⁶ in the top 10 inches of soil was 281 pCi/g and fell to 85.3 pCi/g at approximately 30 inches below the surface.

Radium²²⁸ activity ranged from 643 pCi/g to 112 pCi/g within the same depth range.

2. Current Activities

2.1 Operations Section

2.1.1 Narrative

Based on the presence of elevated Radium 226 and 228, the EPA Region 4 Superfund Division Director has approved the use of CERCLA funds to remove contaminated soils from the 7 Solana Road parcel.

2.1.2 Response Actions to Date

On May 7, OSC Stilman and ERRS were on-site to discuss the scope of the removal action and meet with adjacent neighbors.

On May 21 - 23, OSCs Stilman and Berry, RERT, START and ERRS returned to the Site to collect samples to prepare for disposal of the contaminated soils. In Addition, a direct push hydraulic sampler was used to collect an additional 50 samples to assist with determining the scope of the excavation. Samples were taken from 10 foot grids at one to two foot intervals from surface to 8 feet below surface. The samples were field screened to determine exposure levels. Field screening was conducted by RERT.

Two areas on-site are above EPA's clean-up level at surface, based on exposure. Total soil volumes will be calculated to aid in disposal facility procurement.

2.1.4 Progress Metrics

<i>Waste Stream</i>	<i>Medium</i>	<i>Quantity</i>	<i>Manifest #</i>	<i>Treatment</i>	<i>Disposal</i>
Radiation Contaminated Soils					

2.2 Planning Section

2.2.1 Anticipated Activities

2.2.1.1 Planned Response Activities

Upon receipt of analytical results, ERRS will propose a transportation and disposal contractor. Excavation will be scheduled upon selection of a disposal facility

2.2.1.2 Next Steps

Excavation of contaminated areas.

2.2.2 Issues

2.3 Logistics Section

No information available at this time.

2.4 Finance Section

No information available at this time.

2.5 Other Command Staff

No information available at this time.

3. Participating Entities

3.1 Cooperating Agencies

Florida Department of Health

Florida Department of Environmental Protection

4. Personnel On Site

5/08

EPA - 1

ERRS - 1

5/21 - 5/23

EPA - 2

START - 1

ERRS - 1

RERT - 1

5. Definition of Terms

No information available at this time.

6. Additional sources of information

No information available at this time.

7. Situational Reference Materials

No information available at this time.