UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

ACTION MEMORANDUM RV1

DATE:

SUBJECT: Request for a Ceiling Increase for the Removal Action at the Niagara Falls Boulevard Site, Niagara Falls, Niagara County, New York

FROM: Peter Lisichenko, On-Scene Coordinator
Removal Action Branch

THRU: Joseph D. Rotola, Chief
Removal Action Branch

TO: Pat Evangelista, Acting Director
Superfund and Emergency Management Division

SITE ID No.: A23Q

I. PURPOSE

The purpose of this Action Memorandum is to request approval for a ceiling increase for the removal action described herein at the Niagara Falls Boulevard Site (Site) located at 9524 and 9540 Niagara Falls Boulevard, Niagara Falls, Niagara County, New York. The additional funding is necessary to remove and dispose of radioactive contaminated soil/slag that underlies portions of an active bowling alley, building supply store, a parking lot, and select wooded areas where it is found at both the surface and subsurface. Work at the Site was initiated in 2016 and again in 2018. However, due to substantial increase in excavation activities due to addition quantities of waste encountered and high disposal costs, the funding previously authorized was insufficient to cover the entire mitigation costs. The funding increase requested in this action memo will allow for the completion of the removal action.

The total extramural funding that has been authorized to date for the Site is $7,773,000, of which $7,167,640 is for mitigation contracting. This Action Memorandum requests authorization for an additional $3,000,000, of which $2,500,000 is for mitigation contracting. If approved, the Site ceiling would be raised to $10,773,000, of which $9,667,640 would be for mitigation contracting.

CONCURRENCES Name: Niagara Falls Boulevard Intl. sb Date: 05/01/2019 Action Memo #0493							
Symbol	SEMD-RAB	SEMD-RAB	SEMD-RAB	ORC-NJSFB	ORC-NJSFB	ORC-NJSFB	ERRD-DD
Surname	Lisichenko	Harkay	Rotola	Ludmer	Mellott	Flannigan	Prince
Date							

Conditions at the Site continue to meet the criteria for a removal action under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA) 42 U.S.C. §§ 9601-9675, and Section 300.415(b)(2) of the National Contingency Plan (NCP).

This Site is not on the National Priorities List (NPL) and there are no nationally significant or precedent setting issues associated with this removal action.

II. SITE CONDITIONS AND BACKGROUND

The Superfund Enterprise Management System ID Number for this time-critical removal action is NJD981178346

On May 13, 2016 the Division Director verbally authorized $600,000 of which $500,000 was for mitigation contracting to initiate a removal action. On June 14, 2016 the Division Director granted a second verbal authorization for an additional $500,000. On September 27, 2016 the Assistant Administrator for the Office of Land and Emergency Management authorized an action memorandum for a ceiling increase/12-month exemption/and 2-million-dollar exemption. Approval of this Action Memorandum provided a project ceiling of $7,773,000, of which $6,748,000 was for mitigation contracting.

Commented [HD1]: This number still does not match the number in the second paragraph under purpose (first page)

This action memorandum if approved will raise the total project ceiling to $10,773,000, of which $9,667,640 would be for mitigation contracting. Site conditions continue to meet the emergency exemption criteria as documented in the Action Memorandum dated September 27, 2016.

A. <u>Site Description</u>

1. Removal site evaluation (RSE)

Refer to previous Action Memorandum (see Attachment A).

2. Physical location

The main addresses associated with the Niagara Falls Boulevard Site are 9524, 9540, 9547, and 9626 Niagara Falls Boulevard in Niagara Falls, Niagara County, New York. The Site is comprised of multiple parcels. Specifically, 146.18-1-17, 146.18-2-4, 146.18-2-5, 146.18-2-7, 146.19-3-1, 146.19-3-2, 146.19-3-3 and 146.19-3-4. The Site is located in a mixed commercial and residential area of Niagara Falls and encompasses approximately 2.53 acres of land. The Site is bordered to the north by a wooded area; to the east by a church; to the south by Niagara Falls Boulevard, beyond which is a residential area; and to the west by a hotel and residential area. See Attachment B for map of the Site.

Sensitive areas identified around the Site:

- ~~First Assembly of God Inc. Church adjacent, to the Site, to the east.~~
- ~~Schools: Geraldine J Mann School (0.3 miles south)~~

- ~~Childcare: Niagara Falls Boys and Girls Club, Inc. (0.3 miles south)~~
- Freshwater Forested/Shrub wetlands borders the site to the north. The Buffalo Niagara Riverkeeper have proposed plans with the current property owner and the Town of Niagara to restore and protect this area and create a park.
- Cayuga Creek (0.3 miles west) hydrologically connected to the Forested/Shrub wetlands identified above.

3. Site characteristics

The 9524 Niagara Falls Boulevard property is currently owned by 9524 Niagara Falls Boulevard LLC. The parcel contains a building that is operated as a bowling alley by the Rapid Bowling Center (RBC) and an asphalt parking lot that adjoins the northern, southern, and eastern sides of the RBC building.

The 9540 Niagara Falls Boulevard property is currently owned by 9540 Niagara Falls Boulevard LLC. This parcel contains a building operated by the Greater Niagara Building Center (GNBC), a building supply business. In addition, the parcel contains an asphalt parking lot, which surrounds the GNBC building and is a continuation of the parking lot on the adjacent 9524 Niagara Falls Boulevard property. To the east of the GNBC building and the parking lot, there is a worn-down concrete padded area that is crumbling and contains patches of overgrown grass.

The removal action (RV1) documented in this Action Memorandum is a continuation of the removal activities authorized in the previous Action Memorandum dated September 27, 2016 (see Attachment A).

4. Release or threatened release into the environment of a hazardous substance, or pollutant, or contaminant

Sampling and analysis conducted at the site by EPA have identified CERCLA hazardous substances as defined in Section 101(14) of CERCLA, 42 U.S.C. – 9601(14) and are listed as a hazardous substance in 40 CRF Table 302.4. The Site is a facility within the meaning of Section 101(9) of CERCLA, 42 U.S.C. – 9601(9) and the presence of hazardous substances in subsurface media constitutes a "release" as defined in Section 101(22) of CERCLA, 42 U.S.C. -9601(22).

The release and threat of release of the contaminants Ra-226 and Ra-228 into the environment may impact the health of the public at the Site through a variety of pathways, including inhalation from dusts and gases; ingestion from dusts, soils, and water; and direct radiation from external doses of alpha, beta, and gamma radiation from a particulate radioactive material. Exposure to this material increases the cancer risk to the individual. Workers of RBC and GNBC, as well as passersby, patrons, merchants, and other members of the public at or near the Site are exposed to contamination via routes of inhalation or dermal contact to soils and windblown dust in the parking areas and indoors.

Hazardous Substances Statutory Source for Designation Under CERCLA:

Radiological Substances Identified	Maximum Concentration
Radium 226 (Ra-226)	199 pCi/g
Radium 228 (Ra-228)	807 pCi/g

Each of the radiological substances listed above are listed in 40 CFR 302.4, List of Hazardous Substances and Reportable Quantities, Appendix B – Radionuclides.
The statutory source for designating radionuclides as a hazardous substance under Section 102(a) of CERCLA, 42 U.S.C. § 9602(a), is Section 112 of the Clean Air Act, 42 U.S.C. § 7412.

5. NPL status

The Site was evaluated for potential NPL listing but is not on the NPL.

6. Maps and pictures depicting Site location and conditions

Attachment A: Action Memorandum, September 27, 2016 (RV1)
Attachment B: Site Location Map

B. Other Actions to Date

1. Previous actions

Starting in June 2016, EPA mobilized their Emergency and Rapid Response Services (ERRS) and Removal Support Team (RST) contractors to initiate work at the Site. Activities included: demolition of an office space at GNBC (removal of non-load-bearing walls and concrete floor), removal of the offices contaminated substrate, and restoration of the space; clearing and grubbing of the 0.6-acre wooded area behind RBC, excavation of contaminated substrate, and restoration of the area with crusher run gravel. Approximately 4,576 cubic yards of material was shipped to an NRC approved facility for disposal.

In September 2018, EPA remobilized ERRS and RST contractors to continue work at the Site. The focus of this mobilization was to address those areas external to the structures including the parking lot areas of the two businesses and the wooded area along the northern border of the Site. From September to October 2018, 12,704 tons of contaminated material was removed and shipped off-Site to an NRC approved facility, accounting for approximately 85-percent (approximately 2.5 acres) of the total external to structures excavation area. Areas of excavation were subsequently backfilled and restored including installing the basecoat of pavement for the parking lots. Shortfall for completing the areas external to structures is attributed to unexpected excavation at two locations where former underground petroleum storage tanks had been located. Both locations required excavations to depths between 10 to 15-feet below ground surface to

remove slag material that had been placed in the excavation as backfill after the tanks were removed.

In October 2018, additional assessment work, including gamma mapping and test pitting, was conducted to better delineate the horizontal and vertical extent of the contamination for areas external to the RBC and GNBC structures. Combined with previous assessment data, a new site model was developed. In total, it is estimated that 9,250-cubic yards of contaminated material remains at that Site. Impacted ares include portions of the parking lot, the wooded area along the Sites northern border, the breezeway at RBC, and two warehouse and two storage areas within GNBC.

2. Current actions

Efforts are being made to plan and prepare for the remaining work at the Site. Tasks include developing the project schedule; assigning ERRS to prepare Requests for Proposal (RFP) for restoration work (including subcontracts for concrete and paving services), equipment rentals, and certified clean fill; developing a removal strategy for working within the buildings; and coordinating with the disposal facility on the acceptance of the waste during the winter months. In addition, to minimize disruption and economic impacts, EPA is coordinating with the property and business owner to identify a secure temporary storage solution for their inventory while the work is being completed within GNBC.

C. State and Local Authorities Roles

1. State and local actions, to date

In September through October 2006 and May 2007, NYSDEC conducted radiological surveys of the interior and exterior of the Site using Exploranium-135 and Ludlum 2221 detectors. With the exception of an office area and storage space at GNBC which were constructed directly on top of the asphalt parking lot after the construction of the other structures on the parcel, interior radiation levels were generally at background level. Within the newer office area and storage space, the highest reading was roughly seven times higher than background. Exterior readings taken at waist height at GNBC indicated elevated radiation levels at a fenced area behind the building. Elevated readings were also observed on the swath of grass between the RBC property, the adjacent property to the west that contains a hotel, and in the marshy area beyond the parking lot behind the GNBC and RBC buildings. Two biased samples of slag confirmed contamination from locations that exhibited elevated static Ludlum detector readings. One of the samples was collected from an area of loose blacktop and indicated readings of approximately 171 times greater than background. The other samples were obtained from a slag pile located in a marshy area north of the parking lot that indicated readings over 200 times greater than background.

During a reconnaissance performed by the NYSDOH and NYSDEC on July 9, 2013, screening activities showed elevated radiation levels with a hand-held PIC unit around an area of broken asphalt and from a soil pile containing slag at the NFB Site.

2. Potential for continued State/local response

The NYSDEC will continue to act in an advisory/supporting role throughout the removal action.

III. THREATS TO PUBLIC HEALTH, OR WELFARE, OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

Hazardous substances present at the Site represent a threat to the public health and environment as defined by Section 300.415(b)(2) of the NCP in that there is a high potential for direct contact to radiation from alpha, beta, and gamma radioactive material.

Factors that support conducting the removal action at the Site are discussed below.

Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, or pollutants, or contaminants;

The Site contains two active businesses, RBC bowling alley and the GNBC supply business. These operations expose specific populations to the Ra-226 and Ra-228 contamination. Populations with increased cancer risk due to internal or external exposure to contamination are known as "receptors." Based on the compiled EPA Pre-Remedial Assessment and EPA RSE data, the receptors most likely to be exposed to the hazardous substance of radiation at the Site are:

<u>Outdoor workers</u>:

An outdoor worker who is employed full-time by either RBC or GNBC could come in contact with the hazardous substances while working on-site conducting outdoor maintenance activities throughout the day. The worker may be exposed long-term to the on-site surface soil contamination during the work day while performing tasks such as moderate digging or landscaping. The outdoor worker could be exposed to the contamination via the following pathways: incidental ingestion of soil, external radiation from contamination in soil, and inhalation of fugitive dust. According to a survey submitted to EPA by RBC, there are three outdoor RBC personnel that currently work at the Site.

<u>Indoor workers</u>:

An indoor worker at the RBC or GNBC buildings may come in contact with contamination through ingestion of contaminated soils that have been incorporated into indoor dust, external radiation from contamination in soil, and the inhalation of

contamination present in indoor air. According to a survey submitted to EPA by RBC, there are 28 indoor RBC personnel that currently work at the Site.

Recreators:

A recreator may spend time outside performing recreational activities on the Site. Recreators may come in contact with, or be exposed to, the contamination for short periods of time over a long term. A Recreator would consist of any patrons of either RBC or GNBC that spend time in the parking lot areas. There are also historical accounts and evidence of local teenagers hanging out for extended periods of time at night in the northeast corner of the parking lot at 9524 Niagara Falls Boulevard. The radiological sampling and survey results in this area showed some of the most elevated levels in the assessments.

Construction workers:

Construction workers may come in contact with or be exposed to contamination short-term during the work day while working around vehicles that suspend dust in the air. Activities such as trenching and excavating typically involve on-site exposures to surface soils. The construction worker could be exposed to contamination via the following pathways: incidental ingestion of soil, external radiation from contamination in soil, and inhalation of fugitive dust.

Actual or potential contamination of drinking water supplies or sensitive ecosystems;

North of the parking lot at the Site is an overgrown wetland area with vegetation, which is referred to as "the marsh." The marsh flows to the Cayuga Creek. If the hazardous substances at the Site migrate to the marsh, Cayuga Creek may be impacted. Cayuga Creek is a tributary to the Niagara River and originates in the Niagara Escarpment in the Town of Lewiston. Flowing southward and eventually meeting up with its tributary, Bergholtz Creek in Niagara Falls. The Creek is the Site of intense efforts by a local organization, Buffalo Niagara Riverkeeper, to restore it and protect it as a resource. Efforts include stream bank stabilization, reduction of pollutants entering the creek.

High levels of hazardous substances, or pollutants, or contaminants in soils, largely at or near the surface that may migrate; and

Ra-226 has been detected in surface soils at levels as high as 199 pCi/g and Ra-228 has been detected in surface soils at levels as high as 807 pCi/g. Radium-contaminated soils may migrate through airborne dust, surface runoff, construction activities, and foot traffic into the existing buildings on-site and/or into homes and residential areas. Since radium has a long half-life (approximately 1,600 years), it is highly probable that the Site will undergo physical changes before the radium on-site will decay to background. Building demolition and/or construction may result in increased exposures to humans from the contamination becoming suspended or airborne. Weathering and/or animal interaction may also cause contamination to migrate. The fenced-in area on the northeast side of the asphalt parking lot is a brushy area and has evidence of trespassing by teenagers who use

this area as a local hangout. Public visitors, patrons, and/or trespassers at the Site could cause a fire that could result in releasing the hazardous substances into the air. ~~In addition, a fire within either of the buildings located on the Site could result in the generation of smoke containing radioactive materials that could migrate off-site into neighboring residential and commercial areas, causing widespread contamination and increased exposure to gamma, and alpha and beta emitting radionuclides.~~

The availability of other appropriate federal or State response mechanisms to respond to the release.

The State of New York does not currently have the resources needed to take timely and appropriate action to respond to the threat posed by the presence of hazardous substances at the Site.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from the Site, if not addressed by implementing the response action selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, welfare, or the environment.

V. EXEMPTION FROM STATUTORY LIMITS

Site conditions continue to meet the emergency exemption criteria specified in the original $2-million exemption, ceiling increase, and12-month exemption Action Memorandum, approved by the Assistant Administrator of the Office of Land and Emergency Management, on September 27, 2016.

VI. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

1. Proposed action description

The additional funding being requested in this Memorandum will allow EPA to remove and dispose of the remaining radioactive slag material located at the Site and restore the areas impacted. In October 2018, additional assessment work, including gamma mapping and test pitting, was conducted to better delineate the horizontal and vertical extent of the contamination for areas external to the RBC and GNBC structures. Based on these measurements, it is approximated that, in total, 9,250-cubic yards of contaminated material remains at the Site. This includes the remaining portions of the parking lot, the wooded area along the Sites northern border, the breezeway at RBC, and warehouse and storage areas within GNBC. All areas will be excavated down to native soil, which is a distinctive lacustrine clay layer. A gamma scan will be conducted of the base of the excavation to verify removal of slag material and post-confirmation samples will be collected in accordance to the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM). To expedite the processing time, post-confirmation samples will be processed at the on-Site laboratory via High Purity Gemanium (HPGe)

Radiation Detector, providing confirmation results within hours as opposed to days via off-Site laboratory services. All areas will be backfilled and compacted with crusher run limestone gravel with fines. Parking lot areas will be repaved and striped. Areas internal to the structures will be restored to original condition which includes four to six inches of concrete in storage and warehouse areas GNBC and a tile floor in the RBC breezeway. The wooded area will be brought to grade with the

To accommodate the two active businesses, RBC and GNBC, the following will be taken into consideration in developing the Site schedule and removal plan:

- The RBC league bowling season, which extends from August to April, significantly increases the traffic within the parking area at both RBC and GNBC. The use of heavy equipment and trucks for disposal is not advised during this time.
- The GNBC is dependent on the area's construction industry which is concentrated during non-winter months of April through November. During this time is when they have the greatest quantity of inventory.
- Prior to work commencing inside GNBC, the property owner would like to construct a pole barn adjacent to the building to allow storage space for the GNBC business.

To ensure minimum impact to the two active businesses, the remaining tasks for the removal action will be accomplished in two mobilizations; July 2019 and November 2019.

July 2019 – Approximately three weeks in duration
The July 2019 mobilization is to complete removal activities for the remaining section of the parking lot, the area where the pole barn is to be constructed by the property owner, and the breezeway at RBC. In addition, the final paving application and striping will be completed for all parking lot areas including those completed in September and October 2018. Materials excavated (approximately 4,200-cubic yards) would be stockpiled and covered until the November 2019 mobilization.

November 2019 – Approximately six weeks in duration
The November 2019 mobilization is to complete all removal activities internal to GNBC, the wooded area along the northern Site boarder, and transportation and disposal (T&D) of all waste material from the two mobilizations to an NRC approved facility. The initial task will be to inventory the products and supplies contained within rooms at GNBC (that will be impacted by the removal activities) and transfer these items to the newly constructed pole barn. Once completed, the removal and restoration activities at GNBC will commence. Products and supplies will be transferred back to GNBC periodically once removal activities for a room is completed. The T&D activities will be conducted concurrently with the removal activities and the loadouts will be coordinated with the two businesses to minimize disruption (i.e. truck loadouts from 0530hrs to 1200hrs)

Provided the current Site conditions remain the same, once these proposed actions are completed, it is unlikely that any further removal activity by EPA will be necessary.

All disposal activities will be conducted in compliance with the EPA Off-Site Rule.

2. Contribution to remedial performance

The removal action at the Site is consistent with the requirement of Section 104(a)(2) of CERCLA, which states, "any removal action undertaken . . . should . . . to the extent practicable, contribute to the efficient performance of any long-term remedial action with respect to the release or the threatened release concerned." The removal activities proposed in this Action Memorandum would not impede future response actions based on available information.

3. Engineering evaluation/cost analysis (EE/CA)

Due to the time-critical nature of this removal action, an EE/CA was not prepared.

4. Applicable or relevant and appropriate requirements (ARARs)

ARARs identified for this project, including the Resource Conservation and Recovery Act, the U.S. Department of Transportation, the NRC, and NYSDEC regulations, that pertain to the transportation and disposal of material, from the Site, will be complied with to the fullest extent practicable.

5. Project schedule

The removal action will continue upon approval of this Action Memorandum and obligation of funding. A period of nine weeks is planned for the removal and disposal of waste material off-Site at an NRC approved facility. Actual off-Site disposal may require an additional two weeks depending on the availability of transportation.

Estimated Costs

The estimated costs for the completion of this project are summarized below.

Direct Extramural Costs:	Revised Current Ceilings Authorized	Ceiling Increase Requested in This Action Memorandum	Proposed New Total Project Ceilings
Total Cleanup Contractor Cost (Includes 20% Contingency)	$7,167,640	$2,500,000	$9,667,640
Removal Support Team, Extramural Costs	$605,360	$150,000	$620,300
Subtotal, Extramural Costs	$7,773,000	$2,650,000	$10,423,000
Extramural Cost Contingency	0	$350,000	$350,000
Total, Removal Action Project Ceiling	$7,773,000	$3,000,000	$10,773,000

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Given the Site conditions, the nature of the hazardous substances documented on-site and the potential exposure pathways to nearby populations described in Section III, actual or threatened releasees of hazardous substances from the Site, if not addressed by implanting the response action described in this Action Memorandum, may present an imminent and substantial endangerment to public health, or welfare, or the environment.

VII. OUTSTANDING POLICY ISSUES

None.

VIII. ENFORCEMENT

The total EPA removal costs that will be eligible for cost recovery are estimated to be $15,740.043. The following chart describes the costs which EPA believes are eligible for cost recovery.

Total Estimated Costs

COST CATEGORY	AMOUNT
Direct Extramural Cost	$10,773,000
Direct Intramural Cost	$150,000
Subtotal Direct Cost	$10,923,000
Indirect Costs (Indirect Regional Cost Rate 44.10%)	$4,817,043
Estimated EPA Costs Eligible for Cost Recovery	$15,740,043

Note: Direct costs include direct extramural costs and direct intramural costs. Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site-specific direct costs, consistent with the full cost accounting methodology effective October 2, 2000. These estimates do not include pre-judgment interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of a removal action. The estimates are for illustrative purposes only and their use is not intended to create any rights for responsible parties. Neither the lack of a total cost estimate nor deviation of actual costs from this estimate will affect the right of the United States to seek cost-recovery.

IX. RECOMMENDATION

This decision document describes the need for a ceiling increase to complete those activities previously approved as the removal response for the Niagara Falls Boulevard Site located in Niagara Falls, Niagara County, New York. This document was developed in accordance with CERCLA, as amended, and is not inconsistent with the NCP. This response action continues to be based on the Administrative Record for the Site.

Conditions at the Site continue to meet the NCP Section 300.415(b)(2) criteria for a removal action. The total extramural funding that has been authorized to date for this action is $7,773,000, of which $7,167,640 was used for mitigation contracting. This Action Memorandum requests authorization of an additional $3,000,000 of which $2,500,000 is from the Regional removal advise of allowance for mitigation contracting. If approved, the Site ceiling would be raised to $10,773,000, of which $9,667,640 would be for mitigation contracting.

Please indicate your formal approval for a ceiling increase for the Niagara Falls Boulevard Site, as per the current delegation of authority, by signing below.

APPROVED: _____ **DATE:** _____
Pat Evangelista, Acting Director
Superfund and Environmental Management Division

DISAPPROVED: _____**DATE:** _____
Pat Evangelista, Acting Director
Superfund and Environmental Management Division

cc: after approval
P. Evangelista, SEMD-AD
J. Prince, SEMD-DD
J. Rotola, SEMD-RAB
D. Harkay, SEMD-RAB
B. Grealish, SEMD-RAB
D. Mellott, ORC-NJSFB
C. Monroe, ORC-NJSFB
M. Mears, PAD
M. Fiore, OIG
T. Grier, 5104A
T. Benton, RST
R. Van Fossen, NJDEP
E. Putnam, NJDEP
F. Mumford, NJDEP
A. Raddant, USDOI
L. Rosman, NOAA

ATTACHMENT A

REQUEST FOR A CEILING INCREASE – April 27, 2017

REQUEST FOR CEILING INCREASE AND EXEMPTION – Sept. 6, 2016

CONFIRMATION OF VERBAL CEILING INCREASE – July 31, 2014

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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ACTION MEMORANDUM RV1

DATE:

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FROM: Peter Lisichenko, On-Scene Coordinator
Removal Action Branch

THRU: Joseph D. Rotola, Chief
Removal Action Branch

TO: Pat Evangelista, Acting Director
Superfund and Emergency Management Division

SITE ID No.: A23Q

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The purpose of this Action Memorandum is to request approval for a ceiling increase for the removal action described herein at the Niagara Falls Boulevard Site (Site) located at 9524 and 9540 Niagara Falls Boulevard, Niagara Falls, Niagara County, New York. The additional funding is necessary to remove and dispose of radioactive contaminated soil/slag that underlies portions of an active bowling alley, building supply store, a parking lot, and select wooded areas where it is found at both the surface and subsurface. Work at the Site was initiated in 2016 and again in 2018. However, ~~due to~~ because of high disposal costs and a substantial increase in excavation activities at the Site due to ~~addition~~the discovery of additional quantities of waste ~~encountered and high disposal costs~~, the funding previously authorized was insufficient to cover the entire mitigation costs. The funding increase requested in this ~~action memo~~Action Memorandum will allow for the completion of the removal action.

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Conditions at the Site continue to meet the criteria for a removal action under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA) 42 U.S.C. §§ 9601-9675, and Section 300.415(b)(2) of the National Contingency Plan (NCP).

This Site is not included on the National Priorities List (NPL) and there are no nationally significant or
precedent setting issues associated with this removal action.

II. SITE CONDITIONS AND BACKGROUND

The Superfund Enterprise Management System ID Number for this time-critical removal action is NJD981178346.

On May 13, 2016, the Director of the Emergency and Remedial Response Division ~~Director~~ (now known as the Superfund and Emergency Management Division or SEMD) verbally authorized $600,000, of which $500,000 was for mitigation contracting, to initiate a removal action. On June 14, 2016, the Division Director granted a second verbal authorization for an additional $500,000. On September 27, 2016 the Assistant Administrator for the Office of Land and Emergency Management authorized an action memorandum for a ceiling increase~~/~~, 12-month exemption~~/~~, and $2~~-~~ million~~ dollar~~ exemption. Approval of ~~this Action Memorandum~~ that action memorandum provided a project ceiling of $7,773,000, of which $6,748,000 was for mitigation contracting.

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This ~~action memorandum~~ Action Memorandum, if approved, will raise the total project ceiling to $10,773,000, of which $9,667,640 would be for mitigation contracting. Site conditions continue to meet the emergency exemption criteria as documented in the ~~Action Memorandum~~action memorandum dated September 27, 2016.

A. Site Description

1. Removal site evaluation (RSE)

Refer to previous ~~Action Memorandum~~action memorandum (see Attachment A).

2. Physical location

The main addresses associated with the Niagara Falls Boulevard Site are 9524, 9540, 9547, and 9626 Niagara Falls Boulevard in Niagara Falls, Niagara County, New York. The Site is comprised of ~~multiple~~the following parcels~~. Specifically,~~, identified by tax ID number: 146.18-1-17, 146.18-2-4, 146.18-2-5, 146.18-2-7, 146.19-3-1, 146.19-3-2, 146.19-3-3 and 146.19-3-4. The Site is located in a mixed commercial and residential area of Niagara Falls and encompasses approximately 2.53 acres of land. The Site is bordered to the north by a wooded area; to the east by a church; to the south by Niagara Falls Boulevard, beyond which is a residential area; and to the west by a hotel and residential area. See Attachment B for map of the Site.

Sensitive areas identified around the Site include the following:

- Freshwater ~~Forested/Shrub~~forested/shrub wetlands ~~borders~~, which border the ~~site~~Site to the north. The Buffalo Niagara Riverkeeper ~~have~~has proposed plans with the current property owner and the Town of Niagara to restore and protect this area and create a park.

- Cayuga Creek (0.3 miles west~~)~~), which is hydrologically connected to the ~~Forested/Shrub~~forested/shrub wetlands identified above.

3. Site characteristics

The 9524 Niagara Falls Boulevard property is currently owned by 9524 Niagara Falls Boulevard LLC. The parcel contains a building that is operated as a bowling alley by the Rapid Bowling Center (RBC) and an asphalt parking lot that adjoins the northern, southern, and eastern sides of the RBC building.

The 9540 Niagara Falls Boulevard property is currently owned by 9540 Niagara Falls Boulevard LLC. This parcel contains a building operated by the Greater Niagara Building Center (GNBC), a building supply business. In addition, the parcel contains an asphalt parking lot, which surrounds the GNBC building and is a continuation of the parking lot on the adjacent 9524 Niagara Falls Boulevard property. To the east of the GNBC building and the parking lot, there is a worn-down concrete padded area that is crumbling and contains patches of overgrown grass.

The removal ~~action~~activities (RV1) documented in this Action Memorandum ~~is~~are a continuation
of the removal activities authorized in the previous Action Memorandum dated September 27, 2016 (see Attachment A).

4. Release or threatened release into the environment of a hazardous substance, or pollutant, or contaminant

Sampling and analysis conducted at the ~~site~~Site by EPA ~~have~~has identified the presence of CERCLA hazardous substances, as that term is defined in Section 101(14) of CERCLA, 42 U.S.C. ~~–~~§ 9601(14) and ~~are listed as a hazardous substance in~~ 40 ~~CRF~~C.F.R. Table 302.4. The Site is a facility within the meaning of Section 101(9) of CERCLA, 42 U.S.C. ~~–~~§ 9601(9~~)~~), and the presence of hazardous substances in subsurface media constitutes a "release" as defined in Section 101(22) of CERCLA, 42 U.S.C. ~~-~~§ 9601(22).

The release and threat of release of the contaminants Ra-226 and Ra-228 into the environment may impact the health of the public at the Site through a variety of pathways, including inhalation from dusts and gases; ingestion from dusts, soils, and water; and direct radiation from external doses of alpha, beta, and gamma radiation from a particulate radioactive material. Exposure to this material increases the cancer risk to the individual. Workers of RBC and GNBC, as well as passersby, patrons, merchants, and other members of the public at or near the Site are exposed to contamination via

routes of inhalation or dermal contact to soils and windblown dust in the parking areas and indoors.

Hazardous Substances Statutory Source for Designation Under CERCLA:

Radiological Substances Identified	**Maximum Concentration**
Radium 226 (Ra-226)	199 pCi/g
Radium 228 (Ra-228)	807 pCi/g

Each of the radiological substances listed above are ~~listed~~included in 40 CFR 302.4, List of Hazardous Substances and Reportable Quantities, Appendix B – Radionuclides. The statutory source for designating radionuclides as a hazardous substance under Section 102(a) of CERCLA, 42 U.S.C. § 9602(a), is Section 112 of the Clean Air Act, 42 U.S.C. § 7412.

Commented [LM2]: "radionuclides"?

5. NPL status

The Site was evaluated for potential NPL listing, but ~~is~~was not included on the NPL.

6. Maps and pictures depicting Site location and conditions

Attachment A: Action Memorandum, September 27, 2016 (RV1)
Attachment B: Site Location Map

B. Other Actions to Date

1. Previous actions

Starting in June 2016, EPA mobilized ~~their~~its Emergency and Rapid Response Services (ERRS) and Removal Support Team (RST) contractors to initiate work at the Site. Activities included the following: demolition of an office space at GNBC (removal of non-load-bearing walls and concrete floor), removal of the offices contaminated substrate~~.~~ and restoration of the space~~;~~, clearing and grubbing of the 0.6-acre wooded area behind RBC, excavation of contaminated substrate, and restoration of the area with crusher run gravel. Approximately 4,576 cubic yards of material was shipped to ~~an NRC~~ a Nuclear Regulatory Commission (NRC)-approved facility for disposal.

Commented [LM3]: What does this mean?

In September 2018, EPA remobilized ERRS and RST contractors to continue work at the Site. The focus of this mobilization was to address those areas external to the structures including the parking lot areas of the two businesses and the wooded area along the northern border of the Site. From September to October 2018, 12,704 tons of contaminated material was removed and shipped off-Site to an NRC~~-~~-approved facility, accounting for approximately 85~~-~~ percent (approximately 2.5 acres) of the total "external to structures" excavation area. Areas of excavation were subsequently backfilled and restored, including ~~installing~~the installation of the basecoat of pavement for the parking lots. Shortfall for completing the areas external to structures is attributed to unexpected excavation at two locations where former underground petroleum storage tanks had been

located. Both locations required excavations to depths between 10 to 15~~-~~ feet below ground surface to remove slag material that had been placed ~~in the excavation~~there as backfill after the tanks were removed.

In October 2018, additional assessment work, including gamma mapping and test pitting, was conducted to better delineate the horizontal and vertical extent of the contamination for areas external to the RBC and GNBC structures. Combined with previous assessment data, a new ~~site~~Site model was developed. In total, it is estimated that 9,250~~-~~ cubic yards of contaminated material remains at ~~that~~the Site. Impacted ares include portions of the parking lot, the wooded area along the ~~Sites~~Site's northern border, the breezeway at RBC, and two warehouse and two storage areas within GNBC.

2. Current actions

Efforts are being made to plan and prepare for the remaining work at the Site. Tasks include developing the project schedule; assigning ERRS to prepare Requests for Proposal (~~RFP~~RFPs) for restoration work (including subcontracts for concrete and paving services), equipment rentals, and certified clean fill; developing a removal strategy for working within the buildings; and coordinating with the disposal facility on the acceptance of the waste during the winter months. In addition, to minimize disruption and economic impacts, EPA is coordinating with the property and business ~~owner~~owners at 9540 Niagara Falls Boulevard to identify a secure temporary storage solution for ~~their~~ inventory while the work is being completed within GNBC.

C. State and Local Authorities Roles

1. State and local actions, to date

In September through October 2006 and May 2007, ~~NYSDEC~~the New York State Department of Environmental Conservation (NYSDEC) conducted radiological surveys of the interior and exterior of the Site using Exploranium-135 and Ludlum 2221 detectors. With the exception of an office area and storage space at GNBC which were constructed directly on top of the asphalt parking lot after the construction of the other structures on the parcel, interior radiation levels were generally at background level. Within the newer office area and storage space, the highest reading was roughly seven times higher than background. Exterior readings taken at waist height at GNBC indicated elevated radiation levels at a fenced area behind the building. Elevated readings were also observed on the swath of grass between the RBC property, the adjacent property to the west that contains a hotel, and in the marshy area beyond the parking lot behind the GNBC and RBC buildings. Two biased samples of slag confirmed contamination from locations that exhibited elevated static Ludlum detector readings. One of the samples was collected from an area of loose blacktop and indicated readings of approximately 171 times greater than background. The other samples were obtained from a slag pile located in a marshy area north of the parking lot that indicated readings over 200 times greater than background.

During a reconnaissance performed by the ~~NYSDOH~~New York State Department of Health and NYSDEC on July 9, 2013, screening activities showed elevated radiation levels with a hand-held PIC unit around an area of broken asphalt and from a soil pile containing slag at the ~~NFB~~ Site.

2. Potential for continued State/local response

~~The~~ NYSDEC will continue to act in an advisory/supporting role throughout the performance of the removal action at the Site.

III. THREATS TO PUBLIC HEALTH, OR WELFARE, OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

Hazardous substances present at the Site represent a threat to the public health and environment as defined by Section 300.415(b)(2) of the NCP in that there is a high potential for direct contact to radiation from alpha, beta, and gamma radioactive material.

Factors that support conducting the removal action at the Site are discussed below.

Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, or pollutants, or contaminants;

The Site contains two active businesses, the RBC bowling alley and the GNBC supply business. These operations expose specific populations to the Ra-226 and Ra-228 contamination. Populations with increased cancer risk due to internal or external exposure to contamination are known as "receptors." Based on the compiled EPA Pre-Remedial Assessment and EPA RSE data, the receptors most likely to be exposed to the hazardous substance of radiation at the Site are:

Outdoor workers:

An outdoor worker who is employed full-time by either RBC or GNBC could come in contact with the hazardous substances while working on-site conducting outdoor maintenance activities throughout the day. The worker may be exposed long-term to the on-site surface soil contamination during the work day while performing tasks such as moderate digging or landscaping. The outdoor worker could be exposed to the contamination via the following pathways: incidental ingestion of soil, external radiation from contamination in soil, and inhalation of fugitive dust. According to a survey submitted to EPA by RBC, there ~~are~~were three ~~outdoor~~ RBC personnel that ~~currently work~~worked outdoors at the Site as of 201X.

Indoor workers:

An indoor worker at the RBC or GNBC buildings may come in contact with contamination through ingestion of contaminated soils that have been incorporated into indoor dust, external radiation from contamination in soil, and the inhalation of

contamination present in indoor air. According to a survey submitted to EPA by RBC, there ~~are~~were 28 ~~indoor~~ RBC personnel that ~~currently work~~worked indoors at the Site as of 201X.

Recreators:

A recreator may spend time outside performing recreational activities on the Site. Recreators may come in contact with, or be exposed to, the contamination for short periods of time over a long term. ~~A Recreator~~Recreators at the Site would consist of any patrons of either RBC or GNBC that spend time in the parking lot areas. There are also historical accounts and evidence of local teenagers hanging out for extended periods of time at night in the northeast corner of the parking lot at 9524 Niagara Falls Boulevard. The radiological sampling and survey results in this area showed some of the most elevated levels in the assessments.

Construction workers:

Construction workers may come in contact with or be exposed to contamination short-term during the work day while working around vehicles that suspend dust in the air. Activities such as trenching and excavating typically involve on-site exposures to surface soils. The construction worker could be exposed to contamination via the following pathways: incidental ingestion of soil, external radiation from contamination in soil, and inhalation of fugitive dust.

Actual or potential contamination of drinking water supplies or sensitive ecosystems;

North of the parking lot at the Site is an overgrown wetland area with vegetation, which is referred to as "the marsh." The marsh flows to the Cayuga Creek. If the hazardous substances at the Site migrate to the marsh, Cayuga Creek may be impacted. Cayuga Creek is a tributary to the Niagara River and originates in the Niagara Escarpment in the Town of Lewiston. Flowing southward ~~and~~, the Creek eventually ~~meeting~~meets up with ~~its~~a tributary, ~~-~~Bergholtz Creek, in Niagara Falls. ~~The Creek~~There is ~~the Site of~~ intense ~~efforts~~effort made by a local ~~-~~organization, Buffalo Niagara Riverkeeper, to restore ~~it~~ and protect ~~it~~Cayuga Creek as a resource. Efforts include stream bank stabilization~~,~~ and reduction of pollutants entering the creek.

Commented [LM4]: Is this accurate? Previous language was not a complete sentence.

High levels of hazardous substances, or pollutants, or contaminants in soils, largely at or near the surface that may migrate; and

Ra-226 has been detected in surface soils at levels as high as 199 pCi/g, and Ra-228 has been detected in surface soils at levels as high as 807 pCi/g. Radium-contaminated soils may migrate through airborne dust, surface runoff, construction activities, and foot traffic into the existing buildings on-~~site~~Site and/or into homes and residential areas. Since radium has a long half-life (approximately 1,600 years), it is highly probable that the Site will undergo physical changes before the radium on-~~site~~Site will decay to background. Building demolition and/or construction may result in increased exposures to humans from the contamination becoming suspended or airborne. Weathering and/or animal

interaction may also cause contamination to migrate. The fenced-in area on the northeast side of the asphalt parking lot is a brushy area, and ~~has~~there is evidence of ~~trespassing~~trespass by teenagers who use this area as a local hangout. Public visitors, patrons, and/or trespassers at the Site could ~~-~~cause a fire that could result in releasing the hazardous substances into the air.

The availability of other appropriate federal or State response mechanisms to respond to the release.

The State of New York does not currently have the resources needed to take timely and appropriate action to respond to the threat posed by the presence of hazardous substances at the Site.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from the Site, if not addressed by implementing the response action selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, welfare, or the environment.

V. EXEMPTION FROM STATUTORY LIMITS

Site conditions continue to meet the emergency exemption criteria specified in the original action memorandum for $2~~-~~ million exemption, ceiling increase, and12-month exemption~~ Action Memorandum~~, approved by the Assistant Administrator of the Office of Land and Emergency Management, on September 27, 2016.

VI. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

1. Proposed action description

The additional funding being requested in this Action Memorandum will allow EPA to remove and dispose of the remaining radioactive slag material located at the Site and to restore the ~~areas~~ impacted areas. In October 2018, additional assessment work, including gamma mapping and test pitting, was conducted at the Site to better delineate the horizontal and vertical extent of the contamination for areas external to the RBC and GNBC structures. Based on these measurements, it is approximated that, in total, 9,250-cubic yards of contaminated material remains at the Site. This includes ~~the remaining~~contamination in portions of the parking lot that have yet to be excavated, the wooded area along the ~~Sites~~Site's northern border, the breezeway at RBC, and warehouse and storage areas within GNBC. All areas will be excavated down to native soil, which is a distinctive lacustrine clay layer. A gamma scan will be conducted of the base of the excavation to verify removal of slag material, and post-confirmation samples will be collected in accordance ~~to~~with the Multi-Agency Radiation Survey and Site Investigation Manual~~ (MARSSIM).~~. To expedite the processing time, post-confirmation samples will be processed at the on-Site laboratory via ~~High Purity Gemanium~~a high purity gemanium

(HPGe) ~~Radiation Detector~~radiation detector, providing confirmation results within hours as opposed to days ~~via~~as would be the case for off-Site laboratory services. All areas will be backfilled and compacted with crusher run limestone gravel with fines. Parking lot areas will be repaved and striped. Areas internal to the structures will be restored to their original condition, which includes four to six inches of concrete in storage and warehouse areas of GNBC and a tile floor in the RBC breezeway. The wooded area will be brought to grade with the

Commented [LM5]: ?

To accommodate the two active businesses, RBC and GNBC, the following will be taken into consideration in developing the Site schedule and removal plan:

- The RBC league bowling season, which extends from August to April, significantly increases the traffic within the parking area at both RBC and GNBC. The use of heavy equipment and trucks for disposal is not advised during this time.
- The GNBC is dependent on the business of the area's construction industry, which ~~is concentrated~~most active during the non-winter months of April through November. During this time is when ~~they have~~GNBC has the greatest quantity of inventory.
- ~~Prior to~~Before work ~~commencing~~is commenced inside GNBC, the Site property owner would like to construct a pole barn adjacent to the building to allow storage space for the GNBC business.

To ensure minimum impact to the two active businesses, the remaining tasks for the removal action will be accomplished in two mobilizations~~;~~, which are expected to be in July 2019 and November 2019.

July 2019 – Approximately three weeks in duration
The July 2019 mobilization ~~is~~will be to complete removal activities for the remaining section of the parking lot, the area where the pole barn is to be constructed by the Site property owner, and the breezeway at RBC. In addition, the final paving application and striping will be completed for all parking lot areas, including those areas at which excavation was completed in September and October 2018. Materials excavated ~~(~~during this mobilization (an amount estimated to be approximately 4,200-cubic yards) ~~would~~will be stockpiled and covered until the November 2019 mobilization.

November 2019 – Approximately six weeks in duration
The November 2019 mobilization ~~is~~will be to complete all removal activities internal to GNBC, the wooded area along the northern Site boarder, and transportation and disposal (T&D) of all waste material from the two mobilizations to an NRC~~-~~-approved facility. The initial task will be to inventory the products and supplies contained within rooms at GNBC ~~(~~that will be impacted by the removal activities~~)~~ and transfer these items to the newly constructed pole barn. Once completed, the removal and restoration activities at GNBC will commence. Products and supplies will be transferred back to GNBC periodically once removal activities for a particular room is completed. The T&D activities will be conducted concurrently with the removal activities and the loadouts will

be coordinated with the two businesses at the Site to minimize disruption (i.e. truck loadouts from ~~0530hrs~~5:30 am to ~~1200hrs~~12:00 pm)

Provided the current Site conditions remain the same, once these proposed actions are completed, it is unlikely that any further removal activity by EPA will be necessary.

All disposal activities will be conducted in compliance with the EPA Off-Site Rule.

2. Contribution to remedial performance

The removal action at the Site is consistent with the requirement of Section 104(a)(2) of CERCLA, which states, "any removal action undertaken . . . should . . . to the extent practicable, contribute to the efficient performance of any long-term remedial action with respect to the release or the threatened release concerned." The removal activities proposed in this Action Memorandum would not impede future response actions based on available information.

3. Engineering evaluation/cost analysis (EE/CA)

Due to the time-critical nature of this removal action, an EE/CA was not prepared.

4. Applicable or relevant and appropriate requirements (ARARs)

ARARs identified for this project, including the Resource Conservation and Recovery Act~~,~~ and the U.S. Department of Transportation, ~~the~~ NRC, and NYSDEC regulations, that pertain to the transportation and disposal of material~~,~~ from the Site~~,~~ will be complied with to the fullest extent practicable.

5. Project schedule

The removal action will continue upon approval of this Action Memorandum and obligation of funding. A period of nine weeks is planned for the removal and disposal of waste material off-Site at an NRC~~-~~-approved facility. Actual off-Site disposal may require an additional two weeks depending on the availability of transportation.

Estimated Costs

The estimated costs for the completion of this project are summarized below.

Direct Extramural Costs:	Revised Current Ceilings Authorized	Ceiling Increase Requested in This Action Memorandum	Proposed New Total Project Ceilings
Total Cleanup Contractor Cost (Includes 20% Contingency)	$7,167,640	$2,500,000	$9,667,640
Removal Support Team, Extramural Costs	$605,360	$150,000	$620,300
Subtotal, Extramural Costs	$7,773,000	$2,650,000	$10,423,000
Extramural Cost Contingency	0	$350,000	$350,000

Total, Removal Action Project Ceiling	$7,773,000	$3,000,000	$10,773,000

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Given the Site conditions, the nature of the hazardous substances documented on-~~site~~Site, and the potential exposure pathways to nearby populations described in Section III, actual or threatened releasees of hazardous substances from the Site, if not addressed by ~~implanting~~implementing the response ~~action~~activities described in this Action Memorandum, may present an imminent and substantial endangerment to public health, or welfare, or the environment.

VII. OUTSTANDING POLICY ISSUES

None.

VIII. ENFORCEMENT

EPA has conducted a preliminary potentially responsible party (PRP) search for the Site. The EPA Region 2 Removal Action Branch will continue to work with the Office of Regional Counsel in an attempt to locate all viable PRPs to recover costs associated with the ongoing removal action.

The total EPA removal costs that will be eligible for cost recovery are estimated to be $15,740.043. The following chart describes the costs which EPA believes are eligible for cost recovery.

Total Estimated Costs

COST CATEGORY	AMOUNT
Direct Extramural Cost	$10,773,000
Direct Intramural Cost	$150,000
Subtotal Direct Cost	$10,923,000
Indirect Costs (Indirect Regional Cost Rate 44.10%)	$4,817,043
Estimated EPA Costs Eligible for Cost Recovery	$15,740,043

Note: Direct costs include direct extramural costs and direct intramural costs. Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site-specific direct costs, consistent with the full cost accounting methodology effective October 2, 2000. These estimates do not include pre-judgment interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of a removal action. The estimates are for illustrative purposes

only and their use is not intended to create any rights for responsible parties. Neither the lack of a total cost estimate nor deviation of actual costs from this estimate will affect the right of the United States to seek cost-recovery.

IX. RECOMMENDATION

This decision document describes the need for a ceiling increase to complete those activities previously approved as the removal response for the Niagara Falls Boulevard Site located in Niagara Falls, Niagara County, New York. This document was developed in accordance with CERCLA, as amended, and is not inconsistent with the NCP. This response action continues to be based on the Administrative Record for the Site.

Conditions at the Site continue to meet the NCP Section 300.415(b)(2) criteria for a removal action. The total extramural funding that has been authorized to date for this action is $7,773,000, of which $7,167,640 was used for mitigation contracting. This Action Memorandum requests authorization of an additional $3,000,000, of which $2,500,000 is from the Regional removal advise of allowance for mitigation contracting. If approved, the Site ceiling would be raised to $10,773,000, of which $9,667,640 would be for mitigation contracting.

Please indicate your formal approval for a ceiling increase for the Niagara Falls Boulevard Site, as per the current delegation of authority, by signing below.

APPROVED: _____ **DATE:** _____
Pat Evangelista, Acting Director
Superfund and ~~Environmental~~Emergency Management Division

DISAPPROVED: _____**DATE:** _____
Pat Evangelista, Acting Director
Superfund and ~~Environmental~~Emergency Management Division

cc: after approval
P. Evangelista, SEMD-AD
J. Prince, SEMD-DD
J. Rotola, SEMD-RAB
D. Harkay, SEMD-RAB
B. Grealish, SEMD-RAB
D. Mellott, ORC-NJSFB
C. Monroe, ORC-NJSFB
M. Mears, PAD
M. Fiore, OIG
T. Grier, 5104A
T. Benton, RST
R. Van Fossen, NJDEP
E. Putnam, NJDEP
F. Mumford, NJDEP
A. Raddant, USDOI
L. Rosman, NOAA

ATTACHMENT A

REQUEST FOR A CEILING INCREASE – April 27, 2017

REQUEST FOR CEILING INCREASE AND EXEMPTION – Sept. 6, 2016

CONFIRMATION OF VERBAL CEILING INCREASE – July 31, 2014

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II
EDISON, NEW JERSEY 08837

ACTION MEMORANDUM

DATE:

SUBJECT: Approval and Funding for a Removal Action at the 738 Upper Mountain Road Site, Lewiston, Niagara County, New York

FROM: Eric M. Daly, On-Scene Coordinator
Response and Prevention Branch

TO: Pat Evangelista, Acting Division Director
Superfund and Emergency Management Division

THRU: Eric Mosher, Chief
Response and Prevention Branch

Site ID: A23N

I. PURPOSE

The purpose of this Action Memorandum is to request and document approval of the proposed removal action for the 738 Upper Mountain Road Site (Site). The Site is located at 738 Upper Mountain Road, Lewiston, Niagara County, New York 14092. The purpose of this removal action is to mitigate the threat of release of contaminants Thorium-232 (Th-232) and Uranium-238 (U-238) into the environment that would impact the health of the public through a variety of pathways, including inhalation from dusts and gases; ingestion from dusts, soils, and water; and direct radiation from external doses (external direct radiation exposure is primarily attributable to gamma radiation with lesser internal exposures attributable to alpha and beta radiation from particulate radioactive material). The estimated cost of the removal action proposed in this Action Memorandum is $190,000 of which $110,000 is for mitigation contracting.

The Site meets the criteria for a removal action under the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. § 9601-9675, as described in Section 300.415(b)(2) of the National Contingency Plan (NCP), 40 C.F.R. § 300.415(b)(2).

This Site is not on the National Priorities List (NPL), and there are no nationally significant, or precedent-setting issues associated with the Site.

CONCURRENCES Name: 738 Upper Mountain Road Date: 08/27/2019									
Symbol	SEMD-RPB	SEMD-RPB	SEMD-RPB	SEMD-RPB	SEMD-RAB	ORC-NYCSFB	ORC-NYCSB	SEMD-DD	SEMD-AD
Surname	Daly	Hoppe	Mosher	Kodama	Rotola	Ludmer	Lieber	Prince	Evangelista
Date									

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II. SITE CONDITIONS AND BACKGROUND

The Superfund Enterprise Management System (SEMS) identification number for this Site is NYN000206697. The proposed removal action is considered "time-critical."

A. Site Description

The Site consists of two parcels within a residential neighborhood. The residential home associated with the Site is 738 Upper Mountain Road, Lewiston, Niagara County, NY, 14092 (Parcel #: 115.08-1-26). The area of observed radioactively contaminated soil and rock is located on the property owned by Talarico Bros. Building Corp (TBBC-Parcel #: 115.08-1-27). See Appendices A & B.

1. Removal Site Evaluation (RSE)

In July 1985, members of the Radiological Survey Activities (RASA) Group at Oak Ridge National Laboratory (ORNL) performed a radiological survey of the Site for the U.S. Department of Energy (DOE), which documented a maximum gamma exposure rate of 710 microroentgens per hour (µR/hr). The area with these readings was approximately 10 feet wide by 59 feet in length and located along a ditch and gravel residential driveway. The results of the survey were documented in a November 1986 report, which stated that the gamma radiation anomaly at the Site was associated with a phosphate slag (slag) material. Biased surface soil samples collected during the survey indicated the presence of Radium-226 (Ra-226), U-238, and Th-232 at the Site. The contaminated soil and rock samples collected had approximately equal concentrations of Ra-226 and U-238, which suggested to the investigators that the rocks probably originated from a singular source. The exact origin of the material was unknown; however, the report postulated that its source was some type of mineral extraction activity in the Niagara Falls area. The report stated that the anomaly at the Site was not related to materials connected with the Niagara Falls Storage Site (NFSS), including materials that were transported to NFSS.

During a reconnaissance performed by the New York State Department of Health (NYSDOH) and the New York State Department of Conservation (NYSDEC) on July 9, 2013, screening activities showed radiation levels at 300 µR/hr with a hand-held pressurized ion chamber. The background readings for this Site were approximately 10 µR/hr. Surveying with the sodium iodide 2x2 scintillation detector, the highest readings ranged from 105,000-110,000 counts per minute (cpm), with the estimated background readings at the Site being 9,000 cpm. Both elevated measurements were obtained at the end of the driveway adjacent to Upper Mountain Road. The NYSDEC and NYSDOH referred the Site to EPA on July 21, 2013 for further assessment.

In September 2013, the EPA Region 2 Pre-Remedial Section (PRS) initiated a preliminary assessment (PA) and site inspection (SI) to assess whether the Site posed a threat to human health and the environment. An on-site reconnaissance was conducted on September 10, 2013 to perform a gamma radiation screening. Elevated gamma readings were observed toward the end of the driveway close to the road in an approximately 45-foot by 45-foot gravel area. The readings in the area of elevated gamma radiation ranged from background levels (approximately 9,000 cpm) to greater than 300,000 cpm.

On December 12, 2013, PRS and EPA contractor (Weston Solutions, Inc.) personnel collected a total of nine soil samples (including one environmental duplicate sample) and two slag samples from the Site. Soil samples were also collected from two locations suspected to be outside the influence of the observed contamination to document background conditions. At each location, soil samples were either collected directly beneath slag material or at locations where a radioactive layer was not present, at the

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equivalent depth interval. The slag samples consisted of pulverized silty sand with rocks, cobbles, and gravel (i.e., radioactive waste material mixture) rather than singular pieces of slag.

The soil, slag, and aqueous rinsate blank samples were analyzed by Test America Laboratories for Target Analyte List metals analyses, including Mercury; Isotopic Thorium, Isotopic Uranium, and Ra-226 by alpha spectroscopy; and other radionuclides by gamma spectroscopy. Analytical results indicated concentrations of radionuclides found in the slag and soil to be higher than at background conditions. See Appendix C.

On May 1 and 2, 2014, PRS and Weston Solutions, Inc. personnel collected radon and thoron concentration measurements from locations on and in the vicinity of the Site. These measurements were collected with RAD7 radon detectors at the selected locations in background areas, above the source material, and off the source area. The radon and thoron measurements were collected at heights of one meter above the ground surface. There were no radon or thoron concentrations that exceeded ~~the~~ site-specific background levels.

Based on the PA and SI results, a Hazardous Ranking System (HRS) score was calculated. The calculated HRS score for the Site was less than 28.5 and, as a result, the Site did not qualify for inclusion on the NPL. The Site was referred to the Emergency and Remedial Response Division, now the Superfund and Emergency Management Division (SEMD), Removal Action Branch (RAB) for a determination as to whether the Site warranted a CERCLA removal action.

The RAB and an EPA Region 2 risk assessor utilized the PRS data site files, which included a Pre-CERCLIS Screening Form for the Site, as well as historic city directories, Sanborn maps, and analytical data collected for the Site, to conduct a preliminary removal site evaluation (RSE). In addition, an internet search for historic articles, maps, and photographs was conducted, and historic aerial photographs and online Erie County property records were reviewed. In June 2015, it was determined that conditions at the Site did not meet the requirements of Section 300.425(b) of the National Contingency Plan for the undertaking of a CERCLA removal action.

On September 23, 2016, a SEMD Response Prevention Branch (RPB) On-Scene Coordinator (OSC) was assigned to conduct a reassessment of the removal eligibility of the Site with the collection of additional field data. The reassessment utilized EPA's Preliminary Remediation Goals (PRG) Calculator. PRG calculations were performed by EPA Environmental Response Team (ERT) Health Physicist to determine whether the Site warranted a CERCLA removal action.

On October 25, 2016, RPB and Weston Solutions personnel performed a gamma survey at the Site. See Appendix B. The highest gamma reading recorded was approximately 462 µR/hr in comparison to a background reading of approximately 10 µR/hr.

On November 18, 2016, RPB and Weston Solutions personnel conducted soil sampling ~~at the Site~~ at several locations on the Site. See Appendix C.

On December 06, 2016, the soil samples collected were analyzed on-site with a High-Purity Germanium (HPGe) Detector. Once completed, the samples were shipped to a third-party fixed analytical laboratory for analysis for isotopic Uranium and isotopic Thorium by alpha spectroscopy, 21-day in-growth for Ra-226, as well as U-238 and Th-232 decay chain progeny radionuclides by gamma spectroscopy. On February 23, 2017, the preliminary soil sample results from the fixed analytical laboratory were received See Appendix C.

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On August 11, 2017, RPB and Weston Solutions personnel conducted an indoor gamma survey of the home located on the Site. There were no elevated gamma readings identified above background levels. A contracted radon specialist placed radon canisters throughout the home.

On August 18, 2017, the radon laboratory results were received indicating that radon levels in the building tested were below the EPA action level of 4.0 pCi/L. Mitigation was not recommended under the existing conditions.

The focus of this RSE was placed on ~~utilizing~~ analytical data from soil samples collected as part of the assessment in November 2016, the gamma survey and radon sampling results, and the PRS assessment data. The highest concentrations for each radionuclide are outlined in Appendix D. Also, the table exhibits the highest progeny concentration in each decay chain: pink highlight (Radium-226* (Ra-226)) for the U-238 ~~-~~decay chain and yellow highlight for the Th-232 (Thorium-228 (Th-228)) decay chain.

To determine if contamination levels exceed the cancer risk of 10^{-4} (i.e. an increase of 1 additional person in 10,000 ~~of~~developing cancer), a risk assessment was performed. EPA's PRG Calculator was created to help calculate risk for various receptors at the Site, taking into consideration exposures from all potential pathways and through all media (e.g., soil, ground water, surface water, sediment, air, structures, etc.). The most conservative receptor used to calculate risk was the child/adult ~~using~~in a residential scenario. The overall scenario for the risk calculation consisted~~s~~ of a child growing into adulthood living near the contamination~~nt~~. Since the contamination is located near the road, the possibility for growing food in the contamination was reduced to almost zero. ~~The assumption is that the individual lives on the property for 26 years. The child becomes the adult after 6 years and continues to live on the site for 20 more years.~~ The individual was assumed to live on the Site property for 26 years, for 6 years as child and 20 as an adult. The total risk of the ~~s~~Site without the removal of the contaminated material is ~~determined to be~~ 7.22 x 10^{-3}~~-~~, where the risk contribution of Th-232 is 6.46 x 10^{-3}, and U-238 is 7.06 x 10^{-4}. The total risk at the Site exceeds EPA's acceptable risk range of 10^{-4} to 10^{-6}. See Appendix E.

~~For a conservative approach on~~To establish~~ing~~ a conservative cleanup value, the acceptable risk ~~established~~ for the Site was set at 1x10^{-4}. The ~~corresponding~~ cleanup values for each radionuclide that ~~gives~~correspond to a risk level of 1x10^{-4} are represented in the tables of PRG values found in the right most column of Appendix E. The PRG value for Th-232 ~~shows~~is 5.01pCi/g and U-238 ~~shows~~is 5.18 pCi/g. These ~~values~~figures represent the cleanup values that must be ~~set~~achieved for both the parent and progeny radionuclide within each decay chain.

Background Information on Radioactive Contamination

Concepts

Elements within the periodic table are comprised of both unstable and stable forms. Unstable elements are known as "radionuclides," and they give off radiation in the form of a wave (i.e., gamma radiation) or particle (e.g., alpha radiation or beta radiation) to become more stable. The time it takes for radionuclides to become stable can range from seconds to billions of years. Long-lived radionuclides, such as Thorium and Uranium, have always been present within the Earth's crust and within the tissues of all living species. Material that contains radionuclides in their natural form is known as naturally occurring radioactive material, commonly referred to as "NORM," ~~and these radionuclides~~which contributes to background radiation levels. Examples of NORM include sands, clays, soils, rocks, coal, groundwater, oil and gas, as well as metal ores and non-metal minerals.

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NORM may become concentrated or exposed to the accessible environment as a result of human activities such as manufacturing, mineral extraction, or water processing. The resulting material is known as Technically Enhanced Radioactive Material or "TENORM." EPA has defined "Technologically Enhanced" to mean that the "radiological, physical, and chemical properties of the radioactive material have been concentrated or further altered by having been processed, or beneficiated, or disturbed in a way that increases the potential for human and/or environmental exposures." The contamination found at the Site qualifies as TENORM.

The extraction of precious metal and/or rare earth material from ore can result in the presence of TENORM in waste and/or product. Historically, radioactive waste at mines and mineral processing or manufacturing facilities was often regarded as non-hazardous material and was disposed of improperly. Some facilities sold or disposed of such waste as fill for construction projects, including the construction of roads and parking lots. The Site is one location where contaminated waste material was used as fill.

Terminology

To evaluate land and/or buildings that are potentially contaminated with radioactive materials, a variety of instrumentation must be used. When performing an initial scoping survey, the extent of the contamination (i.e., how widespread the contamination is at the Site), as well as the intensity of the radiation (i.e., which areas/locations contribute to the greatest risk or dose) must be identified. Hand-held and portable equipment such as sodium iodide detectors, Geiger Mueller counters, proportional detectors, and/or ion chambers may be used as field equipment to determine the extent of contamination and/or dose or exposure rates of gamma radiation. In general, most of these pieces of equipment are used qualitatively, and resulting data is compared to background readings to determine the extent and intensity of contamination and whether further investigation is needed. Examples of units used for qualitative measurements include cpm for contamination, µR/hr for exposure rate, or millirem per hour (mrem/hr) for dose rate measurements.

In most cases, the equipment used to collect qualitative measurements may not provide an accurate or precise measurement of the quantity of contamination because of less efficient detectors used, geometry effects of instrumentation setup, and/or shorter counting time. Qualitative measurements should always be paired with quantitative data when characterizing a site that has been contaminated with radioactive materials. Quantitative data can be used to verify or correlate the qualitative instrumentation reading. This is commonly referred to as "ground truthing." To obtain quantitative measurements, air, water, sediment, soil, and/or vegetation samples are taken from areas of known or suspected contamination and analyzed by a laboratory. The units for quantitative measurements are pCi/g. For the Site cleanup, only quantitative measurements are used to provide more definitive results and to verify cleanup has been completed.

Risk Calculation

As per 40 CFR 300.430(e)(2)(i)(A)(2), remedial actions need to meet the risk requirements of 10^{-4} to $10^{-6.}$ Since removal actions are not a part of the Remedial Program, the Site does not need to meet this requirement for site cleanup. However, in recent years, EPA has encouraged removal cleanups to meet, at a minimum, the remedial cleanup values associated with the 10^{-4} carcinogenic risk based on the reasonable maximum exposure for an individual. To determine if contamination levels exceed the cancer risk of 10^{-4} (i.e. an increase of 1 additional person in 10,000 developing cancer), a risk assessment must be performed. EPA's PRG Calculator was created to help calculate risk versus cleanup levels for various receptors, taking into consideration exposures from all potential pathways and through all media (e.g., soil, groundwater, surface water, sediment, air, structures, etc.).

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2. Physical Location

The Site consists of two parcels within a residential neighborhood. The residential property address associated with the Site is 738 Upper Mountain Road, Lewiston, Niagara County, NY, 14092 with coordinates of Latitude: 43.155319°/Longitude: -79.022158° (Parcel #: 115.08-1-26). The non-residential TBBC property coordinates in the area of concern are Latitude: 43.155537°/Longitude: -79.022463°(Parcel #: 115.08-1-27).

Within 0.5 mile of the Site there is the Our Lady of Peace Nursing Home (West), Mount St. Mary's Child Care Center (West), and Mount St. Mary's Hospital (West). Water-bodies located between 0.5-1.0 miles of the Site are the Niagara River (West), Ontario Hydro Reservoir (West) Power Reservoir (East), and the Fish Creek (North). ~~Lewiston, NY~~The population of Lewiston, New York, is approximately 15,964. See Appendix A.

3. Site Characteristics

The Site consists of two properties, identified as Parcel #~~:~~ 115.08-1-26 and Parcel #~~:~~ 115.08-1-27, located in Lewiston, NY. Parcel #~~:~~ 115.08-1-26 ~~has a residential home located on the property.~~is a residential property containing a single-family home. The~~is~~ residential property does not contain contamination as per historical data. Parcel #~~:~~ 115.08-1-27 is a vacant property, which is owned by TBBC and covers approximately 10.2 acres. An area of observed contamination of~~,~~ approximately 100 square meters in size~~,~~ is located on what was historically used as an access road to the southern portion of the TBBC property. Presently, this access road is used as a driveway by the resident of Parcel #~~:~~ 115.08-1-26. The Site is bordered to the north by Upper Mountain Road, residential properties and a wooded area; to the east and west by residential properties; and to the south by a wooded area. See Appendix A. ~~Presently, this access road is used as a driveway by the resident of Parcel #: 115.08-1-26.~~

The removal action documented in this Action Memorandum will be the first CERCLA removal action undertaken at the Site. The funding requested is necessary to conduct the removal action described herein and to address the threats posed by the Site.

4. Release or threatened release into the environment of a hazardous Substance, or pollutant, or contaminant

The release and threat of release of the contaminants Th-232 and U-238 into the environment may impact the health of the public at the Site through a variety of pathways, including inhalation from dusts and gases; ingestion from dusts, soils, and water; and direct radiation from external doses (external direct radiation exposure is primarily attributable to gamma radiation with lesser internal exposures attributable to alpha and beta radiation from particulate radioactive material). Residents of 738 Upper Mountain Road home, adjacent neighbors, and other members of the public at or near the Site are exposed to contamination via routes of inhalation or dermal contact to loose soils and windblown dust in the driveway area.

Hazardous Substances Statutory Source for Designation Under CERCLA:

Radiological Substances Identified	Maximum Concentration
Thorium 232 (Th-232)-Progeny: Thorium-228 (Th-228)	323.85 pCi/g
Uranium 238 (U-238)-Progeny: Radium-226 (Ra-226)	36.58 pCi/g

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Each of the radiological substances listed above are included in 40 CFR 302.4, List of Hazardous Substances and Reportable Quantities, Appendix B – Radionuclides. The statutory source for designating radionuclides as a hazardous substance under Section 102(a) of CERCLA, 42 U.S.C. § 9602(a), is Section 112 of the Clean Air Act, 42 U.S.C. § 7412.

5. National Priorities List status

The Site is not listed on the National Priorities List (NPL) nor is it proposed for inclusion.

6. Maps, Pictures, and Other Attached Documents

Appendix A: Site Maps
Appendix B: Qualitative Gamma Scan Measurements
Appendix C: Soil Sample Locations
Appendix D: Highest Soil Concentrations
Appendix E: PRG Residential Input Parameters and Output Values
Appendix F: Explanation of various child exposure times

B. Other Actions to Date

1. Previous Actions

No previous actions have been taken by any federal, state, or local government entity or private party to address the hazardous substances located at the Site. All federal and s~~S~~tate actions to date have been in the form of assessment activities.

2. Current Actions

The NYSDEC referred the Site to EPA Region 2 on July 21, 2013. In May 2014, based on the PRS PA and SI results, a HRS score was calculated. The calculated HRS score for the Site was less than 28.5 and, as a result, the Site did not qualify for inclusion on the NPL. The Site was referred to the EPA Region 2 Removal Program for consideration for~~of~~ a CERCLA removal action.

In June 2015, based on~~off~~ available historical and PRS information, RAB and the EPA Region 2 risk assessor initially determined that conditions at the Site did not meet the requirements of Section 300.425(b) of the National Contingency Plan for the undertaking of a CERCLA removal action.

Additional gamma survey, soil sampling analysis, and assessment information were collected by the EPA Region 2 Removal Program. Based on~~off of~~ the risk calculation methods established for~~at the~~ active EPA Region 2 Niagara County radiological and removal~~-~~-eligible Sites, an RSE was developed and finalized in December 2018.

There are no current CERCLA actions at the Site. Based on the findings detailed above in the RSE section of this~~e~~ Action Memorandum, ~~above,~~ the Site is eligible for a removal action.

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~~B.~~C. State and Local Authorities' Role

1. State and Local Actions to Date

In July 1985, members of the Radiological Surveys Activities Group (RASA) group at Oak Ridge National Laboratory (ORNL) performed a radiological survey of the Site, which documented a maximum gamma exposure rate of 710 µR/hr. The area with these readings was approximately 10 feet wide by 59 feet in length and located along a ditch and gravel residential driveway. The results of the survey were documented in a November 1986 report, which stated that the gamma radiation anomaly at the Site was associated with a phosphate slag material. Biased surface soil samples collected during the survey indicated the presence of ~~radium-226 (~~Ra-226~~)~~, ~~uranium-238 (~~U-238~~)~~, and ~~thorium-232 (~~Th-232~~)~~ at the Site. The contaminated soil and rock samples collected had approximately equal concentrations of Ra-226 and U-238, which suggested to the investigators that the rocks probably originated from a singular source. The exact origin of the material was unknown; however, the report postulated that its source was some type of mineral extraction activity in the Niagara Falls area. The report stated that the anomaly at the Site was not related to materials connected with the ~~Niagara Falls Storage Site (~~NFSS~~)~~, including materials that were transported to NFSS.

During a reconnaissance performed by the NYSDOH and NYSDEC on July 9, 2013, screening activities showed radiation levels at 300 µR/hr with a hand-held pressurized ion chamber. The background readings for this Site were approximately 10 µR/hr. Surveying with the sodium iodide 2x2 scintillation detector, the highest readings ranged from 105,000-110,000 cpm, with the estimated background readings at the Site being 9,000 cpm. Both of the elevated measurements were obtained at the end of the driveway adjacent to Upper Mountain Road.

2. Potential for Continued State/Local Response

Neither NYSDEC, NYSDOH, nor the local government have resources available to conduct a removal action at the Site. NYSDEC and NYSDOH referred the Site to EPA on July 21, 2013. These entities will act in a supporting role throughout the removal action.

III. THREATS TO PUBLIC HEALTH, OR WELFARE, OR THE ENVIRONMENT AND STATUTORY AND REGULATORY AUTHORITIES

Conditions at the Site met the requirements of Section 300.415(b)(2) of the NCP, 40 C.F.R. § 300.415(b)(2), for implementing a CERCLA removal action. Factors from Section 300.415(b)(2) of the NCP that supported conducting a removal action at the Site are discussed below.

(i) Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, or pollutants, or contaminants;

The Site contains an area of radioactive contamination utilized as a residential driveway. There are additional residences located along Upper Mountain Road. The Site residents and general public may move freely in this identified contaminated area. These activities and operations expose specific populations to the Th-232 and U-238 contamination. Populations with increased cancer risk due to internal or external exposure to contamination are known as "receptors." Based on the compiled EPA RSE data, the receptors most likely to be exposed to the hazardous substance of radiation at the Site are residents.~~:~~

~~**Residents:**~~

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Based on the site-specific assumptions developed in the RSE and the PRG Calculator results, the human health risk of Th-232 and U-238 is 6.46 $x10^{-3}$ and 7.06 $x10^{-4}$, respectively. See Appendices E & F. As a conservative assessment, the overall scenario for the risk calculation included both adults and children living on and near the contamination. In this assessment, the child was assumed to become~~s~~ ~~the~~an adult after 6 years and to continue~~s~~ to live on the site for 20 more years, for a total of 26 years. The child and adult were assumed to perform various activities at the site, which ~~result in a~~ totaled ~~of~~ 0.87 hours per day for the child and 0.25 hours per day for the adult for 365 days per year. Based on the risk calculations and the concentrations found at the Site, a removal action is warranted since both Th-232 and U-238 are outside of EPA's acceptable cancer risk range of $1x10^{-6}$ (1 in 1,000,000) to $1x10^{-4}$ (1 in 10,000).

(ii) Actual or potential contamination of drinking water supplies or sensitive ecosystems;

If the hazardous substances at the Site were to migrate, the potentially affected water-bodies located between 0.5-1.0 miles of the Site ~~are~~include the Niagara River (West), Ontario Hydro Reservoir (West) Power Reservoir (East), and the Fish Creek (North). The radioactive rock/soil at the Site is located near the surface ~~in area of concern at the Site~~ and may migrate to the local water-bodies via overland pathways during heavy rains and flooding.

(iv) High levels of hazardous substances or pollutants or contaminants in soils, largely at or near the surface that may migrate;

Th-232 (Progeny: Th-228) has been detected in surface soils at levels as high as 323.85 pCi/g, and U-238 (Progeny: Ra-226) has been detected in surface soils at levels as high as 36.58 pCi/g. See Appendix D. The radiologically contaminated soil may migrate through airborne dust, surface runoff, construction activities, and foot traffic into the existing buildings on-site and/or into homes and residential areas. Since Thorium-232 and Uranium-238, as well as their progenies, have a long half-life (i.e. billions of years), it is highly probable that the Site will undergo physical changes before the radiological contaminants on-site will decay to background concentrations. Excavation and/or construction may result in increased exposures to humans from the contamination becoming suspended or airborne. Local residents have alerted EPA officials ~~to the excavation of~~ that driveways in the area that may contain~~ing~~ radioactive material have been ~~conducted~~excavated independently and without specialized hazardous removal specialists or state/federal agency oversight. This type of activity in the contaminated areas may increase the potential for migration of the radioactive material. Weathering and/or animal interaction may also cause contamination to migrate. Residents of the property and/or trespassers at the Site could cause a fire that could result in the ~~wide~~spread of the contamination and increased exposure to gamma, ~~and~~ alpha, and beta emitting radionuclides.

(v) Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released;

The radioactive rock/soil is located near the surface in area of concern at the Site. Weather conditions may cause migration of the hazardous material to other parts of the Site, to public areas, and to the neighboring residential properties.

(vii) The availability of other appropriate federal or State response mechanisms to respond to the release;

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No other federal or state response mechanism were available to respond in a timely manner to the significant threat presented by the Site.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from the Site may present an imminent and substantial endangerment to public health, or welfare, or the environment.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

The purpose of this removal action is to address the release and/or threat of release of hazardous substances threatening human health and the environment. To mitigate these threats, the following actions will be necessary:

1. Proposed Action Description

- Establish support facilities on the TBBC property~~. The support facilities will~~ consisting of a vehicle parking area, staging areas for equipment, and sanitation facilities,~~.~~ and potential ~~F~~foliage removal ~~may be necessary~~ to establish this staging area;
- Secure and restrict access to the work areas;
- Conduct any additional assessment activities;
- Excavate approximately 102 cubic yards of radioactive material from the identified area of concern on the Site;
- Perform post-excavation gamma surveying, soil sampling, and analysis as per the Health Physicist Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) plan;
- Off-Site disposal of hazardous waste and/or substances in compliance with the CERCLA Off-Site Disposal Rule, 40 C.F.R 300.440, and specific disposal acceptance criteria as per the approved radiological disposal facility; and
- Restore excavated area to pre-excavation condition with clean fill.~~;~~

Based on current information and knowledge of the Site conditions, post-removal Site controls are not anticipated.

The actions proposed to address the threats ~~which~~that exist at the Site are based on the types and quantities of ~~waste~~hazardous substances identified during the EPA assessment and risk determination. Additional actions and/or costs may be necessary should the ~~waste~~ type and/or quantity of hazardous substances change as the proposed actions are implemented. The contingency funds requested in this Action Memorandum are proposed to address this uncertainty to a limited extent.

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2. Contribution to Remedial Performance

The response measures documented in this Action Memorandum will address direct contact and migration threats to public health and the environment from the hazardous substances identified at the Site. The action is consistent with the requirement of Section 104(a)(2) of CERCLA, 42 U.S.C. § 9604(a)(2), in that it would contribute to the efficient performance of any long-term remedial action with respect to the release or threatened release concerned. Currently there are no long-term remedial actions planned for the Site.

3. Engineering Evaluation/Cost Analysis (EE/CA)

Due to the time-critical nature of this removal action, an EE/CA will not be prepared.

4. Applicable or Relevant and Appropriate Requirements (ARARs)

It remains EPA's policy that ARARs will generally be considered protective absent multiple contaminants or pathways of exposure. However, in rare situations, EPA Regional offices establish PRGs at levels more protective than required by a given ARAR, even absent multiple pathways or contaminants, where application of the ARAR would not be protective of human health or the environment. It was determined that the Uranium Mill Tailings Radiation Control Act cleanup standard for radiological contamination, a surface soil cleanup level of 5 pCi/g above background, was not sufficiently protective of public health. Site-specific PRG numbers were calculated inclusive of background. The highest risk receptor, a resident whose daily activities included walking, landscaping, shoveling snow, riding a bike, waiting for the bus, and general child play was used in determining the most conservative value for cleanup levels at the Site. ARARs will be met to the extent practicable given the exigencies of the circumstances.

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5. Project Schedule

Field activities can be initiated within two weeks following the approval of this Action Memorandum. The project is expected to take approximately two months to complete. This includes the material being properly shipped off-Site to the appropriate disposal facility.

B. Estimated Costs

A summary of estimated total costs for the removal action is presented below.

Direct Extramural Costs	Proposed Ceiling
Regional Allowance Costs (Total clean-up contractor including labor, equipment, materials)	$110,000
RST 3START V Contractor Costs	$60,000
Subtotal, Extramural Costs	$170,000
Extramural Cost Contingency (20%)	$2034,000
Total Direct Extramural Costs	**$190204,000**

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VI~~I~~. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Given the Site conditions, the nature of the hazardous substances documented on-~~s~~Site, and the potential exposure pathways to nearby populations described in Section III.A., actual or threatened releases of hazardous substances from the Site, if not addressed by implementing the response action described in this Action Memorandum, may present an imminent and substantial endangerment to public health or welfare or the environment.

VII~~I~~. OUTSTANDING POLICY ISSUES

There are no known outstanding policy issues associated with this Site at the present time. While there is a Headquarters consultation process in place for sites where radioactive contamination is present (Headquarters Consultation for Radioactively Contaminated Sites, OSWER No. 9200.1-33P, July 26, 2000), this consultation requirement applies only to sites where radioactive material will be managed on-site (e.g. capping, disposal cells) or where there is a potential national, precedent-setting issue related to the radioactive materials. In this instance, the radioactive materials will not be managed in place and there is no potential national precedent-setting issue related to the radioactive materials. Therefore, Headquarters consultation is not required.

VIII~~IX~~. ENFORCEMENT

EPA has ~~conducted~~initiated a preliminary Potentially Responsible Party (PRP) search for the Site. The OSC will work with the Removal Action Branch enforcement staff and the Office of Regional Counsel to locate all viable PRPs to recover costs associated with this removal action.

Based on full cost accounting practices, the total EPA costs for this removal action that will be eligible for cost recovery are estimated to be $~~520,947~~331,677. The following chart describes the costs which EPA believes are eligible for cost recovery as part of this response action.

Cost Type	Total Funding Requested in this Memorandum
Direct Extramural Cost	$~~190~~204,000
Direct Intramural Cost	$20,000
Subtotal, Direct Cost	$2~~10~~24,000
Indirect Costs (Regional Indirect Cost Rate 48.07%)	$~~100,947~~107,677
Estimated EPA Costs Eligible for Cost Recovery	**$~~520,947~~331,677**

*Direct costs include direct extramural costs and direct intramural costs. Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site-specific direct costs, consistent with full cost accounting methodology effective 2009. These estimates do not include pre-judgment interest, do not take into account other enforcement costs, and

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may be adjusted during the course of the removal action. The estimates are for illustrative purposes only and their use in this Action Memorandum may not be relied upon by any third party as binding upon EPA. Neither the lack of a total cost estimate nor deviation of actual costs from this estimate will affect the United States' right to cost recovery.

X. RECOMMENDATION

This decision document represents the selected removal action for the 738 Upper Mountain Road Site located in Lewiston, Niagara County, New York. This document has been developed in accordance with CERCLA and is not inconsistent with the NCP. This decision is based on the administrative record for the Site.

~~This decision document represents the selected removal activities for the 738 Upper Mountain Road Superfund Site located in the Town of Lewiston, Niagara County, New York. This document has been developed in accordance with CERCLA and is not inconsistent with the NCP Section 300.415(b) criteria for a removal action. This decision is based on the administrative record for this action.~~

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The total funding requested by this Action Memorandum, if approved, would be $~~190~~204,000, of which $110,000 is for mitigation contracting. EPA anticipates ~~There are~~ sufficient monies in the Regional Removal Advice of Allowance to fund the project. Incremental funding is not necessary for this action.

Please indicate your formal authorization for the removal action at the 738 Upper Mountain Site, as per current Delegation of Authority, by signing below.

Approved: _____ **Date:** _____
Pat Evangelista, Acting Director
Superfund and Emergency Management Division

Disapproved: _____ **Date:** _____
Pat Evangelista, Acting Director
Superfund and Emergency Management Division

cc: W. Mugdan, DRA
P. Evangelista, SEMD-AD
J. Prince, SEMD-DD
E. Mosher, SEMD-RPB
J. Rotola, SEMD-RAB
S. Hoppe, SEMD-RPB
M. Gregor, SEMD-RAB
B. Grealish, SEMD-RAB
T. Lieber, ORC-NYCSFB
M. Ludmer, ORC-NYCSFB
M. Mears, PAD
H. Freeman, OPM-GCMB
M. Fiore, OIG
B. Schlieger, 5104A
T. Benton, RST

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M. Franklin, NYSDEC
A. Raddant, USDOI
F. Csulak, NOAA

DO NOT PLACE IN ADMINISTRATIVE RECORD
DO NOT RELEASE TO THE PUBLIC

Confidential Enforcement Addendum

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Appendix A

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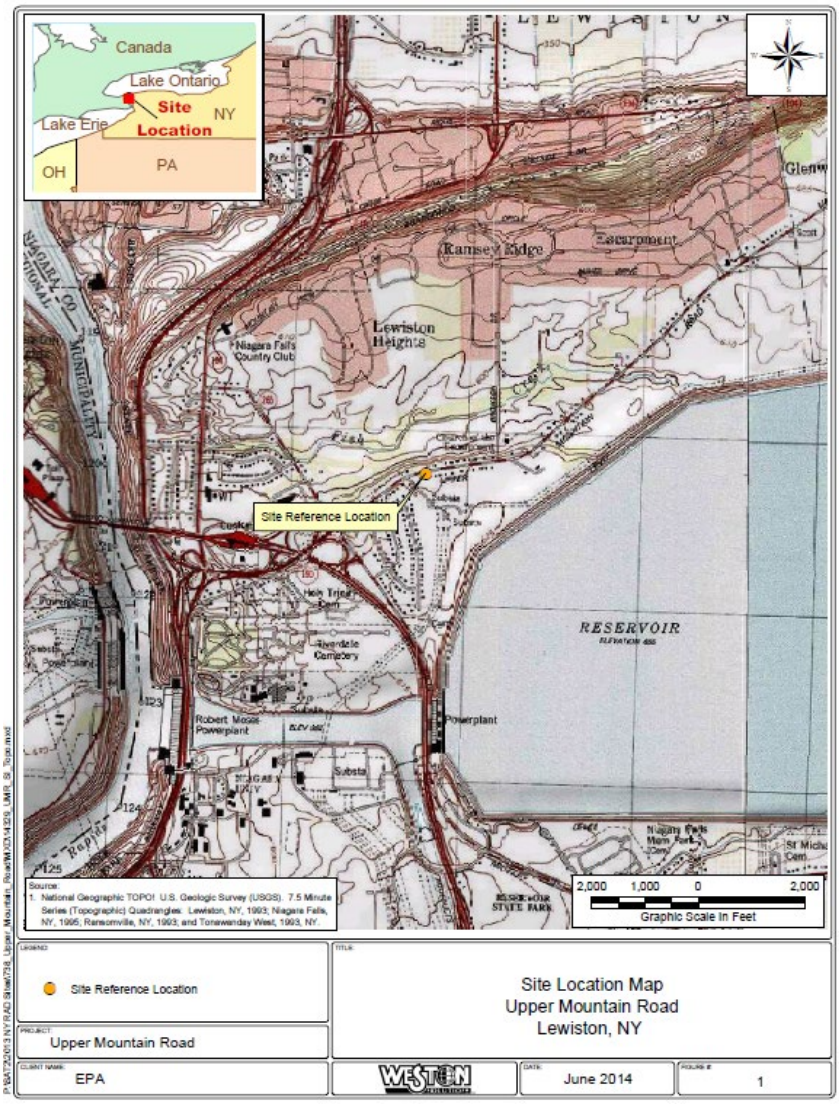
Site Location Map



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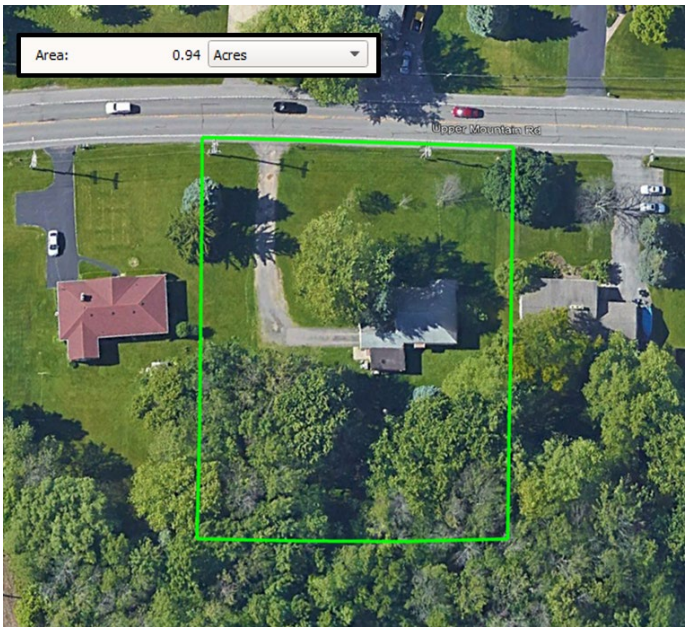
Site Perimeter with Area



Contaminant Perimeter

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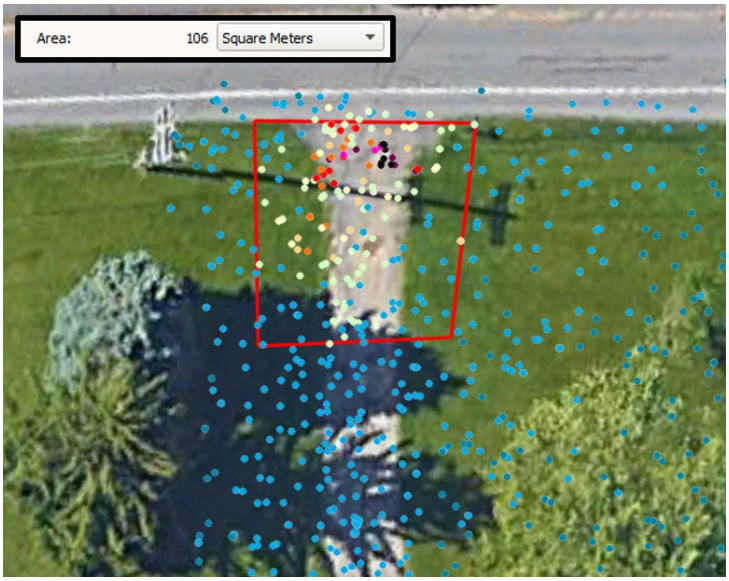

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Appendix B

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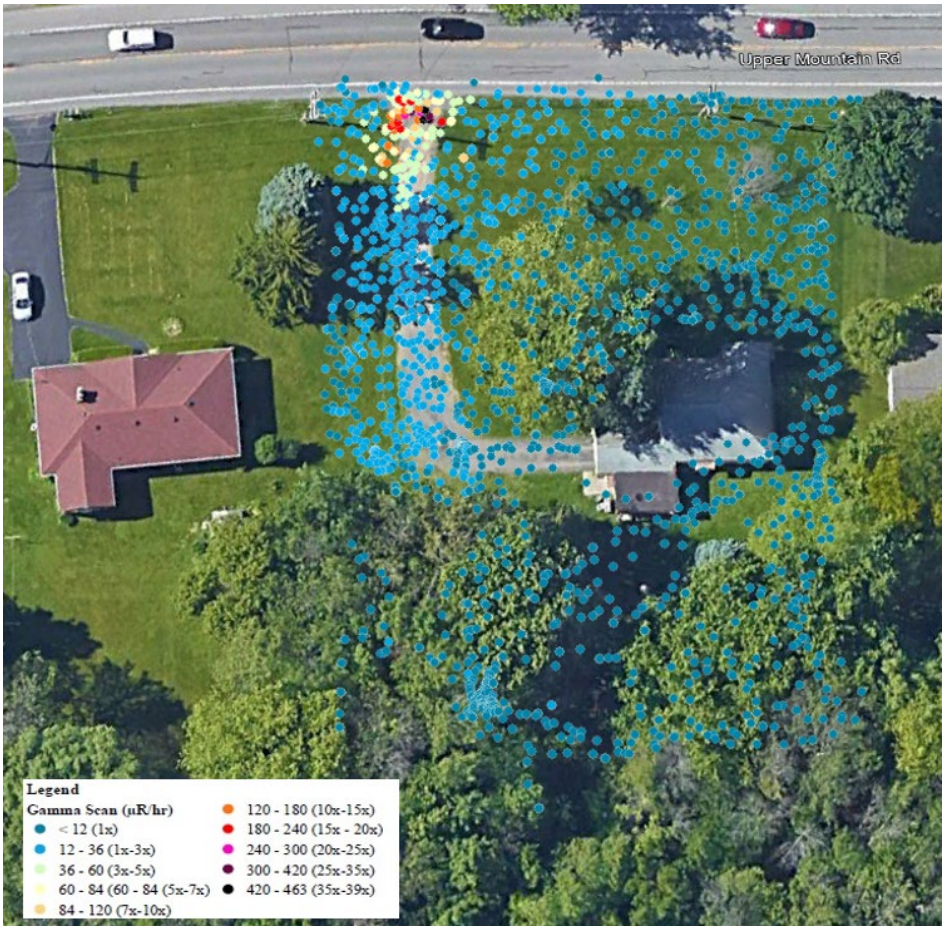
Qualitative Gamma Scan Measurements using 3” x 3” Sodium Iodide (NaI) Detector



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Appendix C

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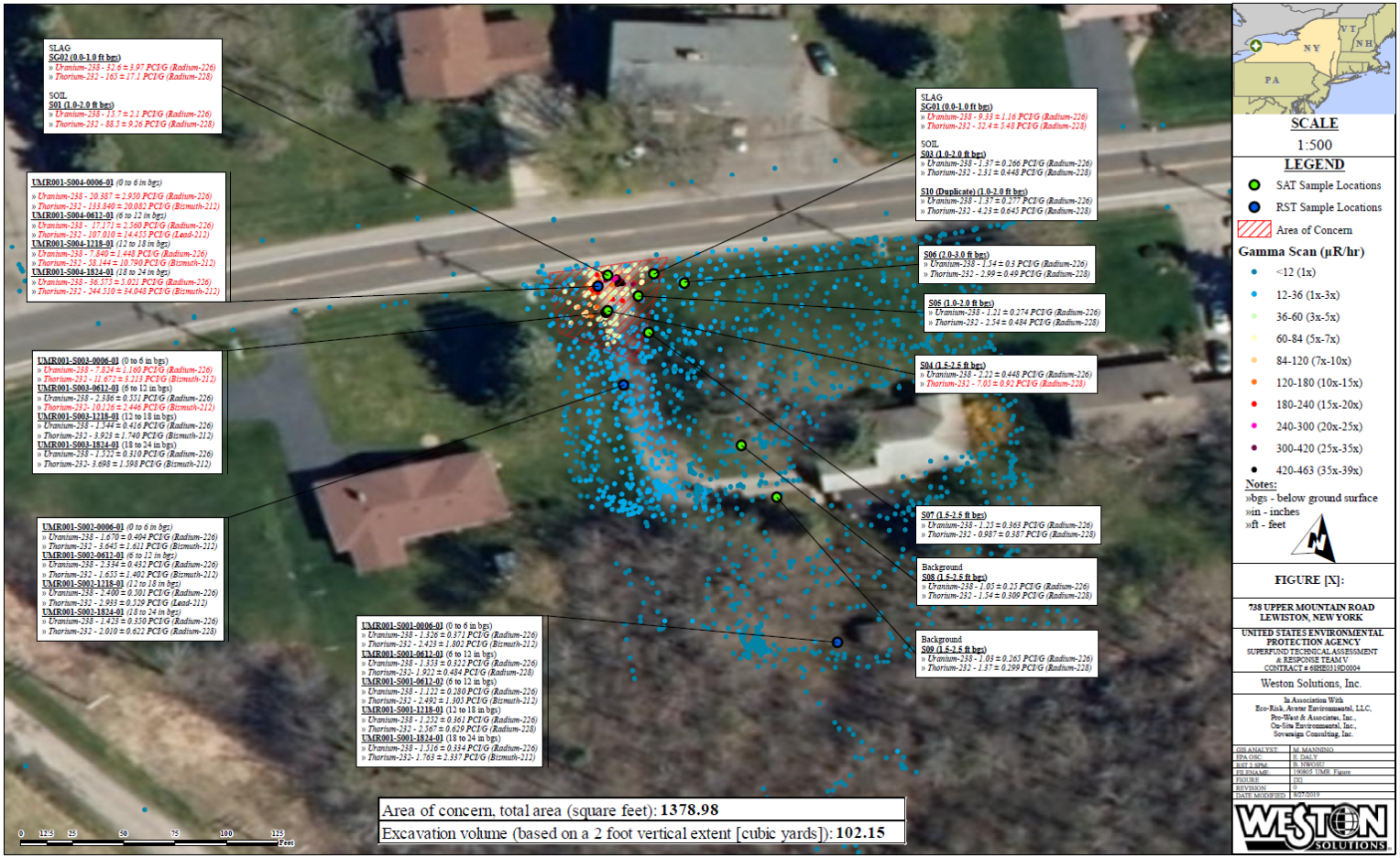
Soil Sample Locations



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Appendix D

Highest Soil Sample Concentrations

Radioisotope	Analytical Data RST Data pCi/g
Actinium-228 (Ac-228)	NA
Bismuth-212 (Bi-212)	244.51
Cesium-137 (Cs-137)	0.489
Lead-212 (Pb-212)	232.95
Potassium-40 (K-40)	29.895
Protactinium-234M	32.995
Radium-226* (Ra-226)	36.575
Radium-228 (Ra-228)	221.46
Thallium-208 (Tl-208)	78.922
Thorium-228 (Th-228)	323.85
Thorium-234 (Th-234)	22.436
Uranium-235 (U-235)	2.401
Thorium-228 (Th-228)	74.7
Thorium-230 (Th-230)	12.2
Thorium-232 (Th-232)	59.1
U-233/234	23.5
U-235/236	1.68
Uranium-238 (U-238)	24.2

Ra-226* (21 days ingrowth)
Yellow Highlight indicates the highest concentration in the Th-232 decay chain
Pink Highlight indicates the highest concentration in the U-238 decay chain

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Appendix E

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PRG Residential Input Parameters and Output Values Specific to 738 Upper Mountain Road Site

PRG Residential Input Parameters Values Specific to 738 Upper Mountain Road Site

Variable	Value
TR (target cancer risk) unitless	0.0001
t_{res} (time - resident) yr	26
ED_{res} (exposure duration - resident) yr	26
ET_{res} (exposure time - resident) hr/day	0.393076923
ET_{res-c} (exposure time - resident child) hr/day	0.87
ET_{res-a} (exposure time - resident adult) hr/day	0.25
ET_{res-i} (exposure time - indoor resident) hr/day	16.416
ET_{res-o} (exposure time - outdoor resident) hr/day	1.752
ED_{res-c} (exposure duration - resident child) yr	6
ED_{res-a} (exposure duration - resident adult) yr	20
EF_{res} (exposure frequency - resident) day/yr	365
EF_{res-c} (exposure frequency - resident child) day/yr	365
EF_{res-a} (exposure frequency - resident adult) day/yr	365
IRS_{res-a} (soil intake rate - resident adult) mg/day	100
IRS_{res-c} (soil intake rate - resident child) mg/day	200
IRA_{res-a} (inhalation rate - resident adult) m^3/day	20
IRA_{res-c} (inhalation rate - resident child) m^3/day	10
$IFS_{res-adj}$ (age-adjusted soil ingestion factor - resident) mg	1168000
$IFA_{res-adj}$ (age-adjusted soil inhalation factor - resident) m^3	2314.708
GSF_i (gamma shielding factor - indoor) unitless	0.4
Site area for ACF (area correction factor) m^2	100
Cover thickness for GSF_o (gamma shielding factor) cm	0
Cover thickness for GSF_b (gamma shielding factor) cm	1000
$IRAP_{res-a}$ (apple ingestion rate - resident adult) g/day	73.7
$IRAP_{res-c}$ (apple ingestion rate - resident child) g/day	72.2
$IFAP_{res-adj}$ (age-adjusted apple ingestion factor) g	696128
$IRCI_{res-a}$ (citrus ingestion rate - resident adult) g/day	309.4
$IRCI_{res-c}$ (citrus ingestion rate - resident child) g/day	194.1
$IFCI_{res-adj}$ (age-adjusted citrus ingestion factor) g	2683699
$IRBE_{res-a}$ (berry ingestion rate - resident adult) g/day	35.4
$IRBE_{res-c}$ (berry ingestion rate - resident child) g/day	23.9
$IFBE_{res-adj}$ (age-adjusted berry ingestion factor) g	310761
$IRPC_{res-a}$ (peach ingestion rate - resident adult) g/day	115.7
$IRPC_{res-c}$ (peach ingestion rate - resident child) g/day	111.4
$IFPC_{res-adj}$ (age-adjusted peach ingestion factor) g	1088576
$IRPR_{res-a}$ (pear ingestion rate - resident adult) g/day	51.9
$IRPR_{res-c}$ (pear ingestion rate - resident child) g/day	66.7
$IFPR_{res-adj}$ (age-adjusted pear ingestion factor) g	524943
$IRST_{res-a}$ (strawberry ingestion rate - resident adult) g/day	40.5
$IRST_{res-c}$ (strawberry ingestion rate - resident child) g/day	25.3
$IFST_{res-adj}$ (age-adjusted strawberry ingestion factor) g	351057

Variable	Value
$IRAS_{res-a}$ (asparagus ingestion rate - resident adult) g/day	39.3
$IRAS_{res-c}$ (asparagus ingestion rate - resident child) g/day	12
$IFAS_{res-adj}$ (age-adjusted asparagus ingestion factor) g	313170
$IRBT_{res-a}$ (beet ingestion rate - resident adult) g/day	33.9
$IRBT_{res-c}$ (beet ingestion rate - resident child) g/day	3.9
$IFBT_{res-adj}$ (age-adjusted beet ingestion factor) g	256011
$IRBR_{res-a}$ (broccoli ingestion rate - resident adult) g/day	32
$IRBR_{res-c}$ (broccoli ingestion rate - resident child) g/day	13.1
$IFBR_{res-adj}$ (age-adjusted broccoli ingestion factor) g	262289
$IRCB_{res-a}$ (cabbage ingestion rate - resident adult) g/day	92.1
$IRCB_{res-c}$ (cabbage ingestion rate - resident child) g/day	12.3
$IFCB_{res-adj}$ (age-adjusted cabbage ingestion factor) g	699267
$IRCR_{res-a}$ (carrot ingestion rate - resident adult) g/day	27.3
$IRCR_{res-c}$ (carrot ingestion rate - resident child) g/day	14.9
$IFCR_{res-adj}$ (age-adjusted carrot ingestion factor) g	231921
$IRCO_{res-a}$ (corn ingestion rate - resident adult) g/day	59.8
$IRCO_{res-c}$ (corn ingestion rate - resident child) g/day	23.8
$IFCO_{res-adj}$ (age-adjusted corn ingestion factor) g	488662
$IRCU_{res-a}$ (cucumber ingestion rate - resident adult) g/day	82.4
$IRCU_{res-c}$ (cucumber ingestion rate - resident child) g/day	25.4
$IFCU_{res-adj}$ (age-adjusted cucumber ingestion factor) g	657146
$IRLE_{res-a}$ (lettuce ingestion rate - resident adult) g/day	37.5
$IRLE_{res-c}$ (lettuce ingestion rate - resident child) g/day	4.2
$IFLE_{res-adj}$ (age-adjusted lettuce ingestion factor) g	282948
$IRLI_{res-a}$ (lima bean ingestion rate - resident adult) g/day	33.8
$IRLI_{res-c}$ (lima bean ingestion rate - resident child) g/day	6.5
$IFLI_{res-adj}$ (age-adjusted lima bean ingestion factor) g	260975
$IROK_{res-a}$ (okra ingestion rate - resident adult) g/day	30.2
$IROK_{res-c}$ (okra ingestion rate - resident child) g/day	5.3
$IFOK_{res-adj}$ (age-adjusted okra ingestion factor) g	232067
$IRON_{res-a}$ (onion ingestion rate - resident adult) g/day	21.8
$IRON_{res-c}$ (onion ingestion rate - resident child) g/day	5.8
$IFON_{res-adj}$ (age-adjusted onion ingestion factor) g	171842
$IRPE_{res-a}$ (pea ingestion rate - resident adult) g/day	35.4
$IRPE_{res-c}$ (pea ingestion rate - resident child) g/day	32.1
$IFPE_{res-adj}$ (age-adjusted pea ingestion factor) g	328719
$IRPU_{res-a}$ (pumpkin ingestion rate - resident adult) g/day	64.8
$IRPU_{res-c}$ (pumpkin ingestion rate - resident child) g/day	45.2
$IFPU_{res-adj}$ (age-adjusted pumpkin ingestion factor) g	572028

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Variable	Value
$IRSN_{res\text{-}a}$ (snap bean ingestion rate - resident adult) g/day	53.9
$IRSN_{res\text{-}c}$ (snap bean ingestion rate - resident child) g/day	27.3
$IFSN_{res\text{-}adj}$ (age-adjusted snap bean ingestion factor) g	453257
$IRTO_{res\text{-}a}$ (tomato ingestion rate - resident adult) g/day	80.3
$IRTO_{res\text{-}c}$ (tomato ingestion rate - resident child) g/day	29.7
$IFTO_{res\text{-}adj}$ (age-adjusted tomato ingestion factor) g	651233
$IRPT_{res\text{-}a}$ (potato ingestion rate - resident adult) g/day	127.8
$IRPT_{res\text{-}c}$ (potato ingestion rate - resident child) g/day	51.7
$IFPT_{res\text{-}adj}$ (age-adjusted potato ingestion factor) g	1046163
$IRRI_{res\text{-}a}$ (rice ingestion rate - resident adult) g/day	73.2
$IRRI_{res\text{-}c}$ (rice ingestion rate - resident child) g/day	28.8
$IFRI_{res\text{-}adj}$ (age-adjusted rice ingestion factor) g	597432
$IRCG_{res\text{-}a}$ (cereal grain ingestion rate - resident adult) g/day	76
$IRCG_{res\text{-}c}$ (cereal grain ingestion rate - resident child) g/day	38
$IFCG_{res\text{-}adj}$ (age-adjusted cereal grain ingestion factor) g	611800
$CF_{res\text{-}produce}$ (contaminated plant fraction) unitless	0.000001
$CF_{res\text{-}apple}$ (contaminated apple fraction) unitless	0.000001
$CF_{res\text{-}citrus}$ (contaminated citrus fraction) unitless	0.000001
$CF_{res\text{-}berry}$ (contaminated berry fraction) unitless	0.000001
$CF_{res\text{-}peach}$ (contaminated peach fraction) unitless	0.000001
$CF_{res\text{-}pear}$ (contaminated pear fraction) unitless	0.000001
$CF_{res\text{-}strawberry}$ (contaminated strawberry fraction) unitless	0.000001
$CF_{res\text{-}asparagus}$ (contaminated asparagus fraction) unitless	0.000001
$CF_{res\text{-}beet}$ (contaminated beet fraction) unitless	0.000001
$CF_{res\text{-}broccoli}$ (contaminated broccoli fraction) unitless	0.000001
$CF_{res\text{-}cabbage}$ (contaminated cabbage fraction) unitless	0.000001
$CF_{res\text{-}carrot}$ (contaminated carrot fraction) unitless	0.000001
$CF_{res\text{-}corn}$ (contaminated corn fraction) unitless	0.000001
$CF_{res\text{-}cucumber}$ (contaminated cucumber fraction) unitless	0.000001
$CF_{res\text{-}lettuce}$ (contaminated lettuce fraction) unitless	0.000001
$CF_{res\text{-}lima\ bean}$ (contaminated lima bean fraction) unitless	0.000001
$CF_{res\text{-}okra}$ (contaminated okra fraction) unitless	0.000001
$CF_{res\text{-}onion}$ (contaminated onion fraction) unitless	0.000001
$CF_{res\text{-}pea}$ (contaminated pea fraction) unitless	0.000001
$CF_{res\text{-}pumpkin}$ (contaminated pumpkin fraction) unitless	0.000001
$CF_{res\text{-}snap\ bean}$ (contaminated snap bean fraction) unitless	0.000001
$CF_{res\text{-}tomato}$ (contaminated tomato fraction) unitless	0.000001
$CF_{res\text{-}potato}$ (contaminated potato fraction) unitless	0.000001
$CF_{res\text{-}rice}$ (contaminated rice fraction) unitless	0.000001
$CF_{res\text{-}cereal\ grain}$ (contaminated cereal grain fraction) unitless	0.000001
MLF_{apple} (apple mass loading factor) unitless	0.00016

Variable	Value
MLF_{citrus} (citrus mass loading factor) unitless	0.000157
MLF_{berry} (berry mass loading factor) unitless	0.000166
MLF_{peach} (peach mass loading factor) unitless	0.00015
MLF_{pear} (pear mass loading factor) unitless	0.00016
$MLF_{strawberry}$ (strawberry mass loading factor) unitless	0.00008
$MLF_{asparagus}$ (asparagus mass loading factor) unitless	0.000079
MLF_{beet} (beet mass loading factor) unitless	0.000138
$MLF_{broccoli}$ (broccoli mass loading factor) unitless	0.00101
$MLF_{cabbage}$ (cabbage mass loading factor) unitless	0.000105
MLF_{carrot} (carrot mass loading factor) unitless	0.000097
MLF_{corn} (corn mass loading factor) unitless	0.000145
$MLF_{cucumber}$ (cucumber mass loading factor) unitless	0.00004
$MLF_{lettuce}$ (lettuce mass loading factor) unitless	0.0135
$MLF_{lima\ bean}$ (lima bean mass loading factor) unitless	0.00383
MLF_{okra} (okra mass loading factor) unitless	0.00008
MLF_{onion} (onion mass loading factor) unitless	0.000097
MLF_{pea} (pea mass loading factor) unitless	0.000178
$MLF_{pumpkin}$ (pumpkin mass loading factor) unitless	0.000058
$MLF_{snap\ bean}$ (snap bean mass loading factor) unitless	0.005
MLF_{tomato} (tomato mass loading factor) unitless	0.00159
MLF_{potato} (potato mass loading factor) unitless	0.00021
MLF_{rice} (rice mass loading factor) unitless	0.25
$MLF_{cereal\ grain}$ (cereal grain mass loading factor) unitless	0.25
TR (target cancer risk) unitless	0.0001
$ED_{res\text{-}c}$ (exposure duration - resident child) yr	6
$ED_{res\text{-}a}$ (exposure duration - resident adult) yr	20
$EF_{res\text{-}c}$ (exposure frequency - resident child) day/yr	365
$EF_{res\text{-}a}$ (exposure frequency - resident adult) day/yr	365
City (Climate Zone)	10
A_s (acres)	1
Q/C_{wp} (g/m²-s per kg/m³)	82.94800701
PEF (particulate emission factor) m³/kg	3006041573
A (PEF Dispersion Constant)	16.2302
B (PEF Dispersion Constant)	18.7762
C (PEF Dispersion Constant)	216.108
V (fraction of vegetative cover) unitless	0.8
U_m (mean annual wind speed) m/s	4.69
U_t (equivalent threshold value)	11.32
F(x) (function dependent on U_m/U_t) unitless	0.194

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Output PRG values for Residential Scenario Specific to 738 Upper Mountain Road Site

Th-232 Decay Chain:

Isotope	Ingestion PRG TR=0.0001 (pCi/g)	Inhalation PRG TR=0.0001 (pCi/g)	External Exposure PRG TR=0.0001 (pCi/g)	Produce Consumption PRG TR=0.0001 (pCi/g)	Total PRG TR=0.0001 (pCi/g)
**Secular Equilibrium PRG for Th-232*	*2.95E+01*	*5.61E+05*	*6.03E+00*	-	***5.01E+00***
Ac-228	1.74E+04	2.64E+09	1.77E+01	-	**1.76E+01**
Bi-212	5.10E+04	1.15E+09	1.45E+02	-	**1.44E+02**
Pb-212	1.35E+03	2.06E+08	1.67E+02	-	**1.49E+02**
Po-212	-	-	-	-	**-**
Po-216	-	-	1.02E+06	-	**1.02E+06**
Ra-224	2.01E+02	1.15E+07	2.13E+03	-	**1.84E+02**
Ra-228	4.33E+01	2.97E+06	1.53E+06	-	**4.32E+01**
Rn-220	-	1.13E+11	2.59E+04	-	**2.59E+04**
Th-228	3.52E+02	9.80E+05	1.27E+04	-	**3.43E+02**
Th-232	4.66E+02	3.00E+06	1.57E+05	-	**4.64E+02**
Tl-208	-	-	1.05E+01	-	**1.05E+01**

U-238 Decay Chain:

Isotope	Ingestion PRG TR=0.0001 (pCi/g)	Inhalation PRG TR=0.0001 (pCi/g)	External Exposure PRG TR=0.0001 (pCi/g)	Produce Consumption PRG TR=0.0001 (pCi/g)	Total PRG TR=0.0001 (pCi/g)
**Secular Equilibrium PRG for U-238*	*1.38E+01*	*8.97E+05*	*8.29E+00*	-	***5.18E+00***
At-218	-	-	1.07E+10	-	**1.07E+10**
Bi-210	3.57E+03	2.85E+08	2.81E+04	-	**3.16E+03**
Bi-214	2.12E+05	2.10E+09	9.52E+00	-	**9.52E+00**
Hg-206	-	-	8.26E+09	-	**8.26E+09**
Pa-234	9.97E+06	6.77E+13	6.84E+03	-	**6.83E+03**
Pa-234m	-	-	7.87E+02	-	**7.87E+02**
Pb-210	4.99E+01	8.18E+06	4.74E+04	-	**4.98E+01**
Pb-214	1.08E+05	1.67E+09	7.44E+01	-	**7.44E+01**
Po-210	2.61E+01	8.95E+06	1.60E+06	-	**2.61E+01**
Po-214	-	-	1.88E+05	-	**1.88E+05**
Po-218	-	9.34E+09	8.56E+09	-	**4.47E+09**
Ra-226	1.26E+02	4.61E+06	3.39E+03	-	**1.22E+02**
Rn-218	-	-	1.08E+11	-	**1.08E+11**
Rn-222	-	5.70E+10	4.18E+04	-	**4.18E+04**
Th-230	5.15E+02	3.81E+06	7.03E+04	-	**5.12E+02**
Th-234	1.37E+03	4.22E+09	4.45E+03	-	**1.05E+03**
Tl-206	-	-	9.55E+09	-	**9.55E+09**
Tl-210	-	-	2.50E+04	-	**2.50E+04**
U-234	5.77E+02	4.67E+06	2.11E+05	-	**5.75E+02**
U-238	6.37E+02	5.49E+06	4.26E+05	-	**6.36E+02**

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Site-Specific

Resident PRGs for Soil - Secular Equilibrium

Isotope	Ingestion PRG TR=0.0001 (pCi/g)	Inhalation PRG TR=0.0001 (pCi/g)	External Exposure PRG TR=0.0001 (pCi/g)	Produce Consumption PRG TR=0.0001 (pCi/g)	Total PRG TR=0.0001 (pCi/g)
**Secular Equilibrium PRG for Th-232*	*2.95E+01*	*2.98E+07*	*6.03E+00*	-	***5.01E+00***
**Secular Equilibrium PRG for U-238*	*1.38E+01*	*4.77E+07*	*8.29E+00*	-	***5.18E+00***

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Output Risk values for Residential Scenario Specific to 738 Upper Mountain Road Site

Isotope	Ingestion Risk	Inhalation Risk	External Exposure Risk	Produce Consumption Risk	Total Risk
**Secular Equilibrium Risk for Th-232*	*1.10E-03*	*5.77E-08*	*5.37E-03*	-	***6.46E-03***
Ac-228	1.86E-06	1.23E-11	1.83E-03	-	**1.84E-03**
Bi-212	6.35E-07	2.82E-11	2.24E-04	-	**2.25E-04**
Pb-212	2.39E-05	1.57E-10	1.94E-04	-	**2.18E-04**
Po-212	-	-	-	-	**-**
Po-216	-	-	3.19E-08	-	**3.19E-08**
Ra-224	1.61E-04	2.82E-09	1.52E-05	-	**1.76E-04**
Ra-228	7.49E-04	1.09E-08	2.11E-08	-	**7.49E-04**
Rn-220	-	2.87E-13	1.25E-06	-	**1.25E-06**
Th-228	9.20E-05	3.30E-08	2.55E-06	-	**9.45E-05**
Th-232	6.96E-05	1.08E-08	2.06E-07	-	**6.98E-05**
Tl-208	-	-	3.10E-03	-	**3.10E-03**

Isotope	Ingestion Risk	Inhalation Risk	External Exposure Risk	Produce Consumption Risk	Total Risk
**Secular Equilibrium Risk for U-238*	*2.65E-04*	*4.08E-09*	*4.41E-04*	-	***7.06E-04***
At-218	-	-	3.43E-13	-	**3.43E-13**
Bi-210	1.03E-06	1.28E-11	1.30E-07	-	**1.16E-06**
Bi-214	1.72E-08	1.74E-12	3.84E-04	-	**3.84E-04**
Hg-206	-	-	4.43E-13	-	**4.43E-13**
Pa-234	3.67E-10	5.40E-17	5.35E-07	-	**5.35E-07**
Pa-234m	-	-	4.65E-06	-	**4.65E-06**
Pb-210	7.33E-05	4.47E-10	7.72E-08	-	**7.34E-05**
Pb-214	3.38E-08	2.19E-12	4.91E-05	-	**4.92E-05**
Po-210	1.40E-04	4.08E-10	2.29E-09	-	**1.40E-04**
Po-214	-	-	1.95E-08	-	**1.95E-08**
Po-218	-	3.91E-13	4.27E-13	-	**8.19E-13**
Ra-226	2.89E-05	7.93E-10	1.08E-06	-	**3.00E-05**
Rn-218	-	-	3.39E-14	-	**3.39E-14**
Rn-222	-	6.42E-14	8.75E-08	-	**8.75E-08**
Th-230	7.10E-06	9.60E-10	5.20E-08	-	**7.15E-06**
Th-234	2.67E-06	8.67E-13	8.21E-07	-	**3.49E-06**
Tl-206	-	-	3.83E-13	-	**3.83E-13**
Tl-210	-	-	1.47E-07	-	**1.47E-07**
U-234	6.34E-06	7.84E-10	1.73E-08	-	**6.36E-06**
U-238	5.74E-06	6.66E-10	8.59E-09	-	**5.75E-06**

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Site-Specific

Resident Risk for Soil - Secular Equilibrium

Isotope	Ingestion Risk	Inhalation Risk	External Exposure Risk	Produce Consumption Risk	Total Risk
**Secular Equilibrium Risk for Th-232*	*1.10E-03*	*1.09E-09*	*5.37E-03*	-	***6.46E-03***
**Secular Equilibrium Risk for U-238*	*2.65E-04*	*7.67E-11*	*4.41E-04*	-	***7.06E-04***
**Total Risk*	*1.37E-03*	*1.17E-09*	*5.85E-03*	-	***7.22E-03***

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Appendix F

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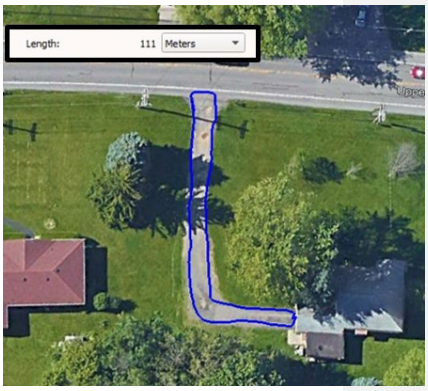
Explanation of various child exposure times in driveway depending on time of year



The average speed for a child used the calculation was 8 miles per hour.[1]

Typically, due to the proximity of the contamination close to the busy roadway, a child would not spend much time at the end of the driveway due to safety concerns.

The average distance was determined by outlining the driveway in the pathway of where a child would ride their bike.

1 rotation of a child riding a bike back and forth on the driveway is roughly 111m

If the drive way is 111m and the child rides the bike at 3.58 m/s (i.e. 8 mph), then a child spends 31 seconds riding a bike back and forth on the driveway per rotation.

$$\frac{111m}{3.58m/s} = 31\ seconds\ with\ no\ break$$

For the distance that a child rides on top of the contamination both a U-turn at the end of the driveway and a K-turn was considered where a U-turn is roughly 13m and a K-turn is roughly 30m. The average distance for both the K-turn and U-turn was 22m.

If the average distance was 22m that a child rides the bike on top of the contamination per rotation and the speed for the child riding the bike is 3.58m/s, the total time that the child spends on top of the contamination per rotation is 6 seconds.

$$\frac{22m}{3.58m/s} = 6\ seconds\ with\ no\ break$$

If a child spends roughly 3 hours (i.e. 10,800 seconds) during the non-summer months playing in the driveway and only spends 6 seconds per rotation on top of the contamination, then the total number of seconds that the child spends on top of the contamination for three ours is 2,090 seconds (i.e. roughly 0.6 hours).

$$10{,}800\ seconds\ x \frac{6secs\ on\ contamination}{rotation} x\ \frac{1\ rotation}{31\ seconds} = 2{,}090\ seconds\ on\ top\ of\ contamination$$

If a child spends roughly 5 hours (i.e. 18,000 seconds) during the summer months playing in the driveway and only spends 6 seconds per rotation on top of the contamination, then the total number of seconds that the child spends on top of the contamination for three ours is 3,484 seconds (i.e. roughly 1 hours).

$$18{,}000\ seconds\ x \frac{6secs\ on\ contamination}{rotation} x\ \frac{1\ rotation}{31\ seconds} = 3{,}484\ seconds\ on\ top\ of\ contamination$$

[1]Thompson, D.C."Bike speed measurements in a recreational population: validity of self reported speed." Inj Prev. 1997 Mar; 3(1): 43–45.

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
2890 WOODBRIDGE AVENUE
EDISON, NJ 08837

CONSENT FOR ACCESS TO PROPERTY

Property Owner: Talarico Brothers Building Corporation & Samuel A. Talarico

Property Address: Upper Mountain Road, Lewiston, New York

Tax Parcel: 115.08-1-27

I, the undersigned, consent to officers, employees, designated representatives, and authorized contractors of the United States Environmental Protection Agency ("EPA") entering and having continued access to the property referenced above ("Property") for the following purposes:

Performing radiological survey activities;

Collecting environmental samples;

Staging equipment and storage containers~~ on the property to perform removal action~~;

Excavating, removing, and properly disposing of radiological material;~~ and~~

Restor~~ation of~~ing excavated area(s); and

Performing additional response activities necessary to address any release or threatened release of a hazardous substance, pollutant, or contaminant, which EPA determines may pose a threat to the public health or welfare or the environment.

I understand that these actions may be taken by EPA pursuant to its response and enforcement authorities under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 ("CERCLA"), as amended, 42 U.S.C. §§ 9601-9675. I understand that EPA requires its contractors to maintain comprehensive vehicle liability insurance, as well as comprehensive general liability insurance for bodily injury, death, or loss of or damage to property or third persons arising from the activities of its contractors. I also understand that such insurance shall be maintained at all times that EPA's contractors are conducting activities on the Property.

I acknowledge that I have been informed of the aforementioned activities. This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind. I also acknowledge that I am fully authorized to grant such access.

_____ _____
Signature Date

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
2890 WOODBRIDGE AVENUE
EDISON, NJ 08837

_____
Name (Print)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II
290 BROADWAY
NEW YORK, NY 1000701866

ACTION MEMORANDUM

DATE:

SUBJECT: Request for Authorization of a Removal Action at the 738 Upper Mountain Road Site, Lewiston, Niagara County, New York

FROM: Peter Lisichenko, On-Scene Coordinator
Removal Action Branch

THRU: Joseph D. Rotola, Chief
Removal Action Branch

TO Pat Evangelista, Division Director
Superfund and Emergency Management Division

Site ID: A23N

I. PURPOSE

The purpose of this Action Memorandum is to request and document approval of the proposed removal action by Region 2 of the United States Environmental Protection Agency (EPA) for the 738 Upper Mountain Road Site (Site). The Site is located on Upper Mountain Road, Lewiston, Niagara County, New York, 14092, adjacent to the postal address 738 Upper Mountain Road. The purpose of this removal action is to mitigate the threat of release of Technologically Enhanced Naturally Occurring Radioactive Material (TENORM) Thorium-232 (Th-232) and Uranium-238 (U-238) and their decay progeny into the environment. A release of these radiological substances may impact the health of the public through a variety of pathways, including inhalation from dusts and gases; ingestion from dusts, soils, and water, and direct radiation from external doses. The estimated cost of the removal action proposed in this Action Memorandum is $252,000, of which $150,000 is for mitigation contracting.

The Site meets the criteria for a removal action under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. §§ 9601-9675, as described in Section 300.415(b)(2) of the National Contingency Plan (NCP), 40 C.F.R. § 300.415(b)(2).

The Site is not on the National Priorities List (NPL), and there are no nationally significant, nor precedent-setting issues associated with the Site.

II. SITE CONDITIONS AND BACKGROUND

The Superfund Enterprise Management System (SEMS) identification number for this Site is NYN000206697. The proposed removal action is considered time-critical to address the threats from radioactive hazardous substances found in slag fill material historically utilized at the Site.

In October 1984, the U.S. Department of Energy (DOE) identified radioactive anomalies throughout the Niagara Falls area in an effort to identify areas impacted by work and activities associated with the Lake Ontario Ordinance Works (LOOW) site under the Formerly Utilized Sites Remedial Action Program (FUSRAP). The Site was identified by this study as "Anomaly #43" and was described as a gravel ditch and driveway (10 by 59-feet area) with a maximum gamma exposure rate of 710 micro-Roentgen per hour (µR/hr). Subsequently, soil testing by DOE identified concentrations of U-238 and Th-232 that were 70 and 560 pico-Curies per gram (pCi/g), respectively. DOE concluded ultimately that the Site did not meet the FUSRAP guidelines and that the material was not associated with the LOOW.[1]

On July 9, 2013, the New York State Department of Health (NYSDOH) and the New York State Department of Conservation (NYSDEC) conducted a reconnaissance of the Site, which included radiological screening activities that reported radiation levels at 300 µR/hr using a hand-held pressurized ion chamber. The background readings for the Site were approximately 10 µR/hr. A survey with a sodium iodide 2x2 scintillation detector reported the highest readings ranging from 105,000-110,000 counts per minute (cpm), with the estimated background readings at the Site being 9,000 cpm. Both elevated measurements were obtained at the end of the driveway adjacent to Upper Mountain Road. NYSDEC and NYSDOH referred the Site to EPA on July 21, 2013 for further assessment.

In 2013, 2014, 2016, and 2017, EPA conducted assessments of the Site to fully identify the source, delineate the extent of contamination, and determine risk levels from potential exposures to Site contaminants. On March 24, 2020, a Removal Site Evaluation (RSE) was completed for the Site, which concluded the Site was eligible for a removal action under CERCLA.

A. <u>Site Description</u>

The Site consists of two parcels within a residential neighborhood in Lewiston, Niagara County, New York. The first parcel, referenced as Talarico Brother Building Corp (TBBC) (Parcel#: 115.08-1-27), is a 10.3-acre wooded lot that is set back from Upper Mountain Road by approximately 200 feet. Two 65-foot egresses connect the parcel to the roadway. The proposed action is to mitigate the egress along the western edge of the parcel, which is a gravel driveway with a culvert crossing. Radioactive slag material from an unknown source was used as fill material at the culvert crossing and spread down the driveway impacting a total area of approximately 10 feet x 60 feet (600 square feet). The second parcel, referenced as 738 Upper Mountain Road (738 UMR) (Parcel #: 115.08-

[1] Williams, J.K., Berven, B.A. (November 1986). Results of Radiological Measurements Taken in the Niagara Falls, New York Area (NF002). Oak Ridge National Laboratory, Oak Ridge, Tennessee.

1-26), is 0.5-acre residential property with a 1,400 square-foot, single family home. Though rights to use the western egress have not been formally recorded, 738 UMR uses the TBBC western egress as a driveway.

See Attachment A: Maps; Figure 1: Site Location Map and Figure 2: Site Parcel Maps.

1. RSE

The NYSDEC referred the Site to EPA Region 2 on July 21, 2013. In September 2013, the EPA Region 2 Pre-Remedial Section initiated a preliminary assessment (PA) and Site inspection (SI) to assess whether the Site posed a threat to human health and the environment. An on-Site reconnaissance was conducted on September 10, 2013 to perform a gamma radiation screening. Elevated gamma readings were observed toward the end of the driveway close to the road. The readings in the area of elevated gamma radiation ranged from background levels (approximately 9,000 cpm) to greater than 300,000 cpm.

On December 12, 2013, EPA's Site Assessment Team (SAT) contractor collected a total of nine soil samples (including one environmental duplicate sample) and two slag samples from the Site. Soil samples were also collected from two locations suspected to be outside the influence of the observed contamination to document background conditions. At each location, soil samples were either collected directly beneath slag material or at locations where a radioactive layer was not present, at the equivalent depth interval. The slag samples consisted of pulverized silty sand with rocks, cobbles, and gravel (i.e., radioactive waste material mixture) rather than singular pieces of slag.

The soil, slag, and aqueous rinsate blank samples were analyzed by Test America Laboratories for Target Analyte List metals analyses, including the following: Mercury; Isotopic Thorium, Isotopic Uranium, and Ra-226 by alpha spectrometry; and other radionuclides by gamma spectrometry. Analytical results indicated concentrations of radionuclides found in the slag and soil to be higher than at background conditions.

On May 1 and 2, 2014, EPA's SAT contractor collected radon and thoron concentration measurements from locations on and in the vicinity of the Site. These measurements were collected with RAD7 radon detectors at selected locations in background areas, above the source material, and off the source area. The radon and thoron measurements were collected at heights of one meter above the ground surface. There were no radon or thoron concentrations that exceeded Site-specific background levels.

In May 2014, based on the PA and SI results, a Hazard Ranking Score score was calculated. That score for the Site was less than the 28.5 threshold for inclusion on the NPL, and, as a result, the Site did not qualify. The Site was then referred to the EPA Region 2 Removal Program to be considered for a CERCLA removal action.

In June 2015, based upon on-Site information and available data, EPA conducted an initial risk assessment in which EPA determined that conditions at the Site did not meet the requirements of Section 300.425(b) of the NCP for a CERCLA removal action.

Following this initial eligibility determination, additional gamma radiation surveying, soil sampling, and assessment information were collected by the EPA Region 2 Removal Program. On October 25, 2016, EPA and the Removal Support Team (RST) contractor performed a gamma survey at the Site. The highest gamma reading recorded was approximately 463 μR/hr, in comparison to a background reading of approximately 10 μR/hr.

On November 18, 2016, EPA and the RST contractor conducted additional soil sampling at several locations on the Site and submitted the samples for radiological analysis. Results identified elevated concentrations of U-238 (36.58 pCi/g) and Th-232 (323.85 pCi/g) with the highest concentrations located at the culvert crossing.

On August 11, 2017, EPA and the RST contractor conducted an indoor gamma survey of the home located on the Site. There were no elevated gamma readings identified above background levels. A New York State certified radon specialist placed radon canisters throughout the home. The radon sampling results indicated that radon levels in the building were below the EPA action level of 4.0 picocuries per liter. No mitigation action was recommended.

On March 24, 2020, an RSE was completed for the Site based on the data collected in 2016 and 2017, and EPA concluded that the Site is eligible for a removal action under CERCLA. The radionuclides of concern include U-238 and Th-232. The calculated, area-specific exposure point concentrations (EPCs) included data from the top 2.5 feet of soil based on available soil data. This approach is consistent with chemical evaluations of residential soil exposures where EPA typically evaluates the top two feet. Cancer risk was set at 10^{-4}, which is consistent with removal management levels. The soil EPC calculated for U-238 was 22.6 pCi/g and for Th-232 was 127.3 pCi/g. The cancer risk assuming no shielding was calculated to be 9.65E-04, making the Site eligible for a removal action. In order to reduce the risk level below a level of 1×10^{-4} (see Section III(i), below), the Preliminary Remediation Goals (PRGs) necessary for the radionuclides of concern were calculated to be 12.0 pCi/g for U-238 and 13.2 pCi/g for Th-232. (NOTE: These PRGs should be considered in excess of background U-238 and Th-232 concentrations, PRG value plus background value).

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See Attachment A: Maps, Figure 3: Gamma Survey, and Figure 4: EPA Sample Locations and Results

See Attachment B: Final Removal Assessment Sampling Report, 2016 and 2017 Events

See Attachment C: RSE Memorandum

2. Physical location

The Site is located adjacent to 738 Upper Mountain Road, Lewiston, Niagara County, New York (N43.155529/W79.022452). From the intersection of Military Road and Upper Mountain Road, the Site is situated 0.4 miles northeast along Upper Mountain Road. The Site is located in a residential area and includes a gravel culvert crossing and portions of a driveway along the south side of Upper Mountain Road.

Sensitive areas identified around the Site include the following:

- 14-acre freshwater forested/shrub wetland 1,000-feet to the north, NWI code PFO1Ad~~,~~;
- Fish Creek, a tributary to the Niagara River, 1,000-feet to the north, NWI code R2UBHx;
- 1,900-acre freshwater lake 1,700-feet to the south of the site, Nation Wetlands Inventory (NWI) code L1UBHh;
- Mount St. Mary's Hospital 0.5 miles to the west; and
- Our Lady of Peace Nursing Home 0.7 miles to the west.

3. Site characteristics

The Site consists of a culvert crossing and portions of a gravel driveway that serve as an ingress to and egress from a wooded lot set back from Upper Mountain Road. Adjacent to the area of concern are residential properties, including the residence at 738 Upper Mountain Road that uses the driveway, as well. The radioactive fill material is concentrated at the culvert crossing and dissipates as going further down the driveway. A 2-inch gas line crosses the proposed excavation area at two to three-feet below grade. Upper Mountain Road (County Route 11) is classified by New York State Department of Transportation as a FC 16 – Urban Minor Arterial with a posted speed limit of 35 miles per hour. Approximately 4,000 vehicles[2] utilize Upper Mountain Road during the normal weekday.

The removal action documented in this Action Memorandum will be the first CERCLA removal activity undertaken at the Site. The funding requested is necessary to conduct the removal action described herein and to address the threats posed by the Site.

4. Release or threatened release into the environment of a hazardous substance, or pollutant, or contaminant

Sampling and analysis conducted at the Site by EPA has identified the presence of CERCLA hazardous substances, as that term is defined in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14), and 40 C.F.R. Table 302.4. The Site is a facility within the

[2] New York State Department of Transportation (1996). Traffic Count Hourly Report, Upper Mountain Road (CR11), Lewiston, New York.

meaning of Section 101(9) of CERCLA, 42 U.S.C. § 9601(9), and the presence of hazardous substances in subsurface media constitutes a "release" as defined in Section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

The release and threat of release of the hazardous substances Th-232 and U-238 into the environment may impact the health of the public at the Site through a variety of pathways, including inhalation of dusts and gases, ingestion of dusts, soils, and water, and direct radiation from external doses. External direct radiation exposure is primarily attributable to gamma radiation, and lesser internal exposures are attributable to alpha and beta radiation from particulate radioactive material. Residents of 738 Upper Mountain Road, adjacent neighbors, and other members of the public at or near the Site are potentially exposed to contamination via routes of inhalation or dermal contact with loose soils and windblown dust in the driveway area.

Hazardous Substances Statutory Source for Designation Under CERCLA:

Radionuclides Identified	**Maximum Concentration**
Thorium 232 (Th-232) + Progeny	323.85 pCi/g
Uranium 238 (U-238) + Progeny	36.58 pCi/g

Each of the radiological substances listed above are included in 40 CFR 302.4, List of Hazardous Substances and Reportable Quantities, Appendix B – Radionuclides. The statutory source for designating radionuclides as a hazardous substance under Section 102(a) of CERCLA, 42 U.S.C. § 9602(a), is Section 112 of the Clean Air Act, 42 U.S.C. § 7412.

5. NPL status

The Site is not listed on the NPL, nor is it proposed for inclusion.

6. Maps, pictures, and other attached documents

Attachment A: Maps
Attachment B: Final Removal Assessment Sampling Report, 2016 and 2017 Events
Attachment C: Removal Site Evaluation Memorandum

B. Other Actions to Date

1. Previous actions

No previous mitigation actions have been taken by any federal, State, or local government entity or private party to address the hazardous substances located at the Site. All federal and State actions, to date, have been in the form of assessment activities.

2. Current actions

There are no current CERCLA actions ongoing at the Site. Based on the findings detailed above in the RSE Section of this Action Memorandum, the Site is eligible for a removal action.

C. State and Local Authorities' Role

1. State and local actions, to date

During a reconnaissance performed by NYSDOH and NYSDEC on July 9, 2013, screening activities showed radiation levels at 300 µR/hr. with a hand-held pressurized ion chamber. The background readings for the Site were approximately 10 µR/hr. Surveying with the sodium iodide 2x2 scintillation detector, the highest readings ranged from 105,000-110,000 cpm, with the estimated background readings at the Site being 9,000 cpm. Both of the elevated measurements were obtained at the end of the driveway adjacent to Upper Mountain Road.

2. Potential for continued State/local response

NYSDEC, NYSDOH, and the local government do not have resources available to conduct a removal action at the Site. NYSDEC and NYSDOH referred the Site to EPA on July 21, 2013. These entities will act in a supporting role throughout the removal action.

III. THREATS TO PUBLIC HEALTH, OR WELFARE, OR THE ENVIRONMENT AND STATUTORY AND REGULATORY AUTHORITIES

Hazardous substances present at the Site pose a threat to public health, or welfare, or the environment. Sampling and analysis have confirmed a release and threat of continued release of hazardous substances at the Site.

Conditions at the Site met the requirements of Section 300.415(b)(2) of the NCP, 40 C.F.R. § 300.415(b)(2), for determining the appropriateness of a CERCLA removal action. Factors from Section 300.415(b)(2) of the NCP that supported conducting a removal action at the Site are discussed below.

(i) Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, or pollutants, or contaminants;

The Site contains radioactive contamination in an area utilized as a residential driveway that extends into the county road right of way. There are additional residences located along Upper Mountain Road. The Site residents and general public may move freely in this identified contaminated area. These activities potentially expose specific populations to the Th-232 and U-238 contamination. Populations with increased cancer

risk because of internal or external exposure to contamination are among potential "receptors." Based on the compiled EPA RSE data, the receptors most likely to be exposed to the hazardous substance of radiation at the Site are residents.

Based on the Site-specific assumptions developed in the RSE and the PRG Calculator results, the human health risk of Th-232 and U-238 at the Site is 8.14 $x10^{-4}$ and 1.51 $x10^{-4}$, respectively. EPA's acceptable cancer risk range is 1 x 10^{-4} (or, one additional instance of cancer in 10,000) to $1x10^{-6}$ (or, one additional instance of cancer in 1,000,000).

Ex 5 (intra-agency deliberative)

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As a conservative assessment, the overall scenario for the risk calculation included both adults and children living on and near the contamination. In this assessment, the child was assumed to become an adult after six years and to continue to live on the Site for 20 more years, for a total of 26 years of exposure. The child and adult were assumed to perform various activities at the site, which totaled 0.87 hours per day for the child and 0.25 hours per day for the adult for 365 days per year. Based on these risk calculations and the concentrations found at the Site, a removal action is warranted because exposure to both Th-232 and U-238 exceed EPA's acceptable cancer risk range of 1 x 10^{-4} to $1x10^{-6}$.

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(ii) Actual or potential contamination of drinking water supplies or sensitive ecosystems;

If the hazardous substances at the Site were to migrate, the potentially affected waterbodies located between 0.5-1.0 mile of the Site include the Niagara River (west), Ontario Hydro Reservoir (west), Power Reservoir (south), and the Fish Creek (north). The radioactive rock/soil at the Site is located near the surface and may migrate to the local waterbodies via overland pathways during heavy rains and flooding.

(iv) High levels of hazardous substances, or pollutants, or contaminants in soils, largely at or near the surface that may migrate;

Th-232 (Progeny: Th-228) has been detected in surface soils at levels as high as 323.85 pCi/g, and U-238 (Progeny: Ra-226) has been detected in surface soils at levels as high as 36.58 pCi/g. The radiologically contaminated soil may migrate through airborne dust, surface runoff, construction activities, and foot traffic into the existing buildings on-Site and/or into homes and residential areas. Since Th-232 and U-238, as well as their progen~~ies~~, have a long half-life (i.e. billions of years), it is highly probable that the Site will undergo physical changes before the radiological contaminants on-Site will decay to background concentrations. Excavation and/or construction (i.e. service work on utilities) may result in increased exposures to humans from the contamination becoming suspended or airborne. A subsurface gas service line is known to cross through the area of contamination, and any type of service work increases the potential for migration of the radioactive material as well as poses a risk of exposure to utility workers. Since the radioactive material is at the surface, vehicular traffic, snow removal operations, and surficial sheet flow may also cause contamination to migrate. In

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addition, as a result of the proximity of Upper Mountain Road, vehicular incidents (accidents and fires) could result in releases and exposure of first responders to the radionuclides.

(v) Weather conditions that may cause hazardous substances, or pollutants, or contaminants to migrate or be released; and

The radioactive rock/soil is located at the surface in area of concern at the Site. Weather conditions may cause migration of the hazardous material to other parts of the Site, to public areas, and to the neighboring residential properties.

(vii) The availability of other appropriate federal or State response mechanisms to respond to the release.

No other federal or State response mechanism are available to respond in a timely manner to the significant threat presented by the Site.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from the Site, if not addressed by implementing the response action selected in this Action Memorandum, may present an imminent and substantial endangerment to public health or welfare or the environment.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

The purpose of this removal action is to mitigate the release and/or threat of release of hazardous substances threatening human health and the environment. To mitigate these threats, the following actions are determined to be necessary.

1. Proposed action description

- Arrangements will be made with residents at 738 Upper Mountain Road to restrict ingress and~~use of the~~ egress during the removal operations.
- Shoulder closure procedures will be established at the TBBC egress along Upper Mountain Road in accordance with county and state requirements. Signage and temporary delineation markers may be required.
- Approximately 20-cubic yards of 2-inch crusher-run gravel will be staged at the Site.
- Contaminated material will be excavated into cubic-yard super sacks. The depth of excavation will be extended downwards until the radioactive contamination at levels above the PRG is removed in accordance with the RSE (12.0 pCi/g for U-238 and 13.2 pCi/g for Th-232 [NOTE: These PRGs should be considered in excess of background U-238 and Th-232 concentrations, PRG value plus background value]). Gamma scans will be conducted at the base of the excavation as the excavation

Ex 5 (intra-agency deliberative)

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progresses. Post-excavation confirmation samples will be collected and submitted for analyses to ensure remediation goals have been achieved.

- Excavation will be backfilled in 6-inch lifts from the stockpiled material and compacted. Additional backfill material will be brought in, if needed.
- Super sacks will be staged at a secure location on-Site.
- Excavated material will be disposed of in accordance with the EPA Off-Site Rule.
- Final Site restoration activities will be conducted.

It is anticipated that the excavation and backfill operations will be completed within two to three days, and one additional day will be needed for disposal and restoration work.

The actions proposed to address the threats that exist at the Site are based on the types and quantities of hazardous substances identified during the EPA assessment and risk determination. Additional actions and/or costs may be necessary should the type and/or quantity of hazardous substances change as the proposed actions are implemented. The contingency funds requested in this Action Memorandum are proposed to address this uncertainty to a defined extent.

2. Contribution to remedial performance

The response measures documented in this Action Memorandum will address direct contact and migration threats to public health and the environment from the hazardous substances identified at the Site. The action is consistent with the requirement of Section 104(a)(2) of CERCLA, 42 U.S.C. § 9604(a)(2), in that it will contribute to the efficient performance of any long-term remedial action with respect to the release or threatened release concerned. Currently there are no long-term remedial actions planned for the Site.

3. Engineering Evaluation/Cost Analysis (EE/CA)

As a result of the time-critical nature of this removal action, an EE/CA has not been prepared.

4. Applicable or Relevant and Appropriate Requirements (ARARs)

It remains EPA's policy to operate under the assumption that ARARs which, in removal actions are to be attained to the extent practicable, are generally protective, absent multiple contaminants or pathways of exposure. However, in unusual circumstances, such with radiological contamination, the use of dose-based approaches to support ARARs can result in EPA Regional offices having to establish risk-based preliminary remediation goals (PRGs) that result in levels that are more protective than a level established with a dose-based approach under a given ARAR, even absent multiple pathways or contaminants. In such circumstances, reliance on the ARAR would not be sufficiently protective of human health or the environment. For the response action discussed in this Action Memorandum, it was determined that site-specific PRG numbers

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were required, since ~~as~~ potential, dose-based ARARs were determined to not be sufficiently protective of human health or the environment. See OSWER Directive 9285.6-20 (June 13, 2014)("ARARs [at levels] that are greater than 12 [millirem per year] effective dose equivalent (EDE) are generally not considered sufficiently protective for developing cleanup levels under CERCLA . . . ."). Site-specific PRG numbers were calculated based on the highest risk receptor to determine the most conservative value for cleanup levels at the Site.

5. Project schedule

Field activities can be initiated within two weeks following the approval of this Action Memorandum. The project is expected to take approximately one week to complete. This includes the material being properly shipped off-Site to an appropriate disposal facility.

B. Estimated Costs

A summary of estimated total costs for the removal action is presented below.

Direct Extramural Costs	Proposed Ceiling
Regional Allowance Costs (Total clean-up contractor including labor, equipment, materials)	$150,000
START V Contractor Costs	$60,000
Subtotal, Extramural Costs	$210,000
Extramural Cost Contingency (20%)	$42,000
Total Direct Extramural Costs	**$252,000**

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Given the Site conditions, the nature of the hazardous substances documented on-Site, and the potential exposure pathways to nearby populations described in Section III.A., actual or threatened releases of hazardous substances from the Site, if not addressed by implementing the response action described in this Action Memorandum, may present an imminent and substantial endangerment to public health, or welfare, or the environment.

VII. OUTSTANDING POLICY ISSUES

There are no known outstanding policy issues associated with this Site at the present time. While there is a Headquarters consultation process in place for sites where radioactive contamination is present (Headquarters Consultation for Radioactively Contaminated Sites, OSWER No. 9200.1-33P, July 26, 2000), this consultation requirement applies only to sites where radioactive material will be managed on-Site (e.g. capping, disposal cells) or where there is a potential national, precedent-setting issue related to the radioactive materials. In this instance, the radioactive materials will not be managed in place and there is no potential national, precedent-

setting issue related to the radioactive materials. Therefore, Headquarters consultation is not required.

VIII. ENFORCEMENT

EPA has initiated a preliminary potentially responsible party (PRP) search for the Site. The OSC will work with the Removal Action Branch enforcement staff and the Office of Regional Counsel to identify and locate all viable PRPs to recover costs associated with this removal action.

Based on full cost accounting practices, the total EPA costs for this removal action that will be eligible for cost recovery are estimated to be $402,750. The following chart describes the estimate of costs that EPA believes will be eligible for cost recovery related to this response action.

Cost Type	Total Funding Requested in this Memorandum
Direct Extramural Cost	$252,000
Direct Intramural Cost	$20,000
Subtotal, Direct Cost	$272,000
Indirect Costs (Regional Indirect Cost Rate 48.07%)	$130,750
Estimated EPA Costs Eligible for Cost Recovery	**$402,750**

*Direct costs include direct extramural costs and direct intramural costs. Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site-specific direct costs, consistent with full cost accounting methodology effective 2009. These estimates do not include pre-judgment interest, do not take into account other enforcement costs, and may be adjusted during the course of the removal action. The estimates are for illustrative purposes only and their use in this Action Memorandum may not be relied upon by any third party as binding upon EPA. Neither the lack of a total cost estimate nor deviation of actual costs from this estimate will affect the United States' right to cost recovery.

X. RECOMMENDATION

This decision document presents the selected removal action for the 738 Upper Mountain Road Site located in Lewiston, Niagara County, New York. This document has been developed in accordance with CERCLA and is not inconsistent with the NCP. This decision is based on the Administrative record for the Site.

The total funding requested by this Action Memorandum, if approved, would be $252,000, of which $150,000 is for mitigation contracting. EPA anticipates sufficient monies in the Regional Removal Advice of Allowance to fund the project. Incremental funding is not necessary for this action.

Please indicate your formal authorization for the proposed removal action at the 738 Upper

Mountain Site, as per current Delegation of Authority, by signing below.

Approved: _____ **Date:** _____
Pat Evangelista, Director
Superfund and Emergency Management Division

Disapproved: _____ **Date:** _____
Pat Evangelista, Director
Superfund and Emergency Management Division

cc: P. Evangelista, SEMD-D
J. Prince, SEMD-DD
J. Rotola, SEMD-RAB
D. Harkay, SEMD-RAB
B. Grealish, SEMD-RAB
T. Lieber, ORC-NYCSFB
J. Doyle, ORC-NYCSFB
M. Ludmer, ORC-NYCSFB
M. Mears, PAD
A. Rajkowski-Reyes, OPM-GCMB
M. Fiore, OIG
B. Schlieger, 5104A
T. Benton, RST
M. Franklin, NYSDEC
A. Raddant, USDOI
F. Csulak, NOAA
L. Battes, NYSEMO
S. Bates, NYSDOH

Attachment A: Maps

Figure 1: Site Location Map
Figure 2: Site Parcel Map
Figure 3: Gamma Survey Map
Figure 4: EPA Sample Locations and Results Map

Figure 1: Site Location Map

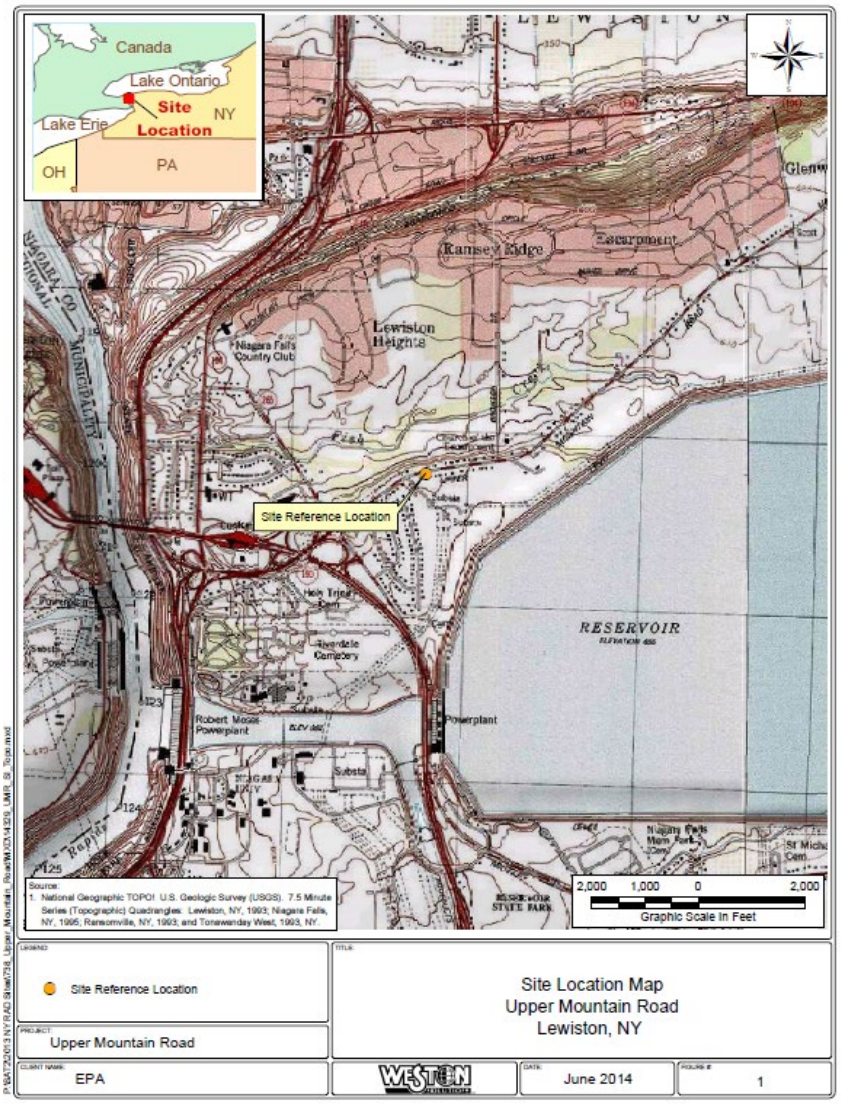


Figure 2: Site Parcel Map

Figure 3: Gamma Survey Map

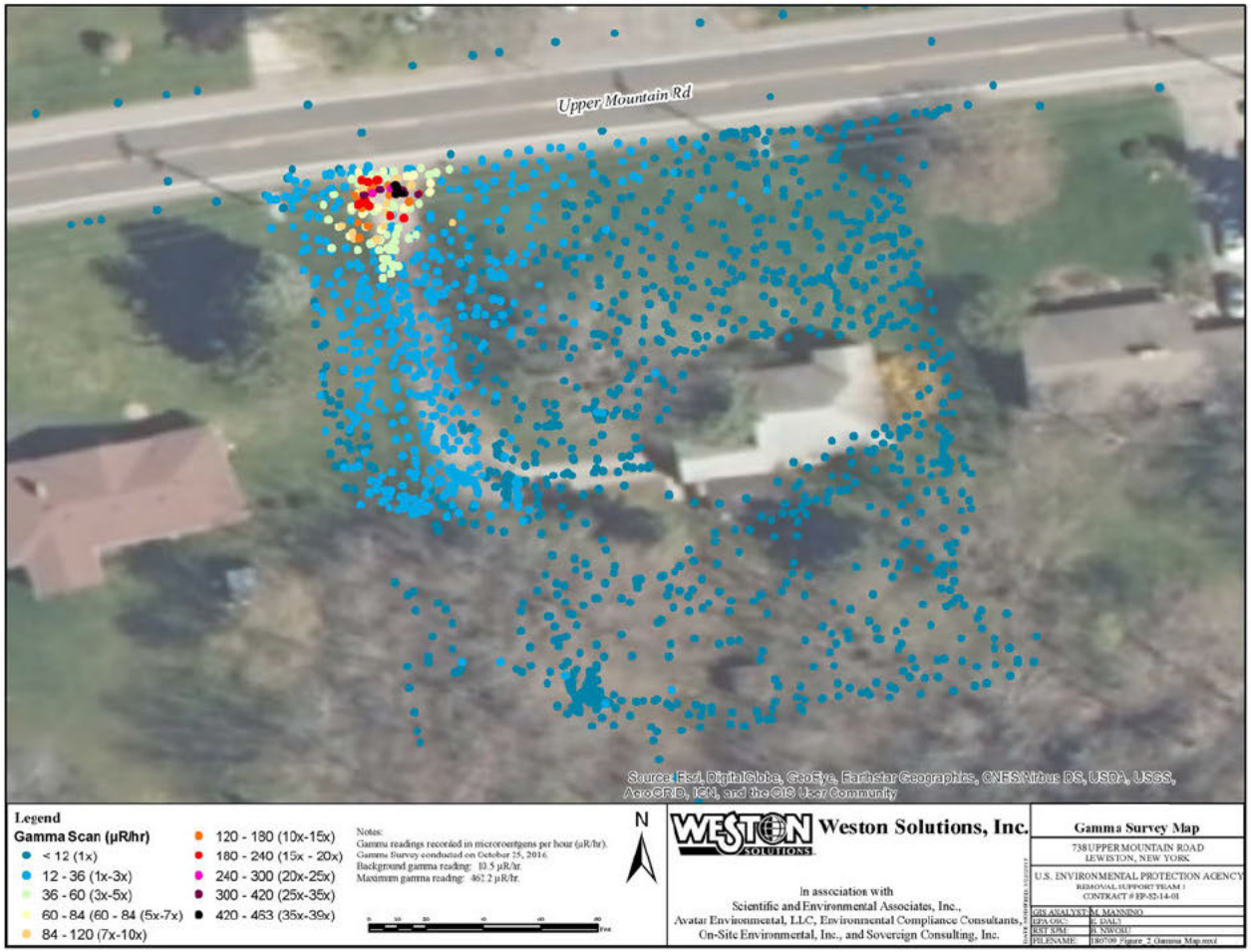
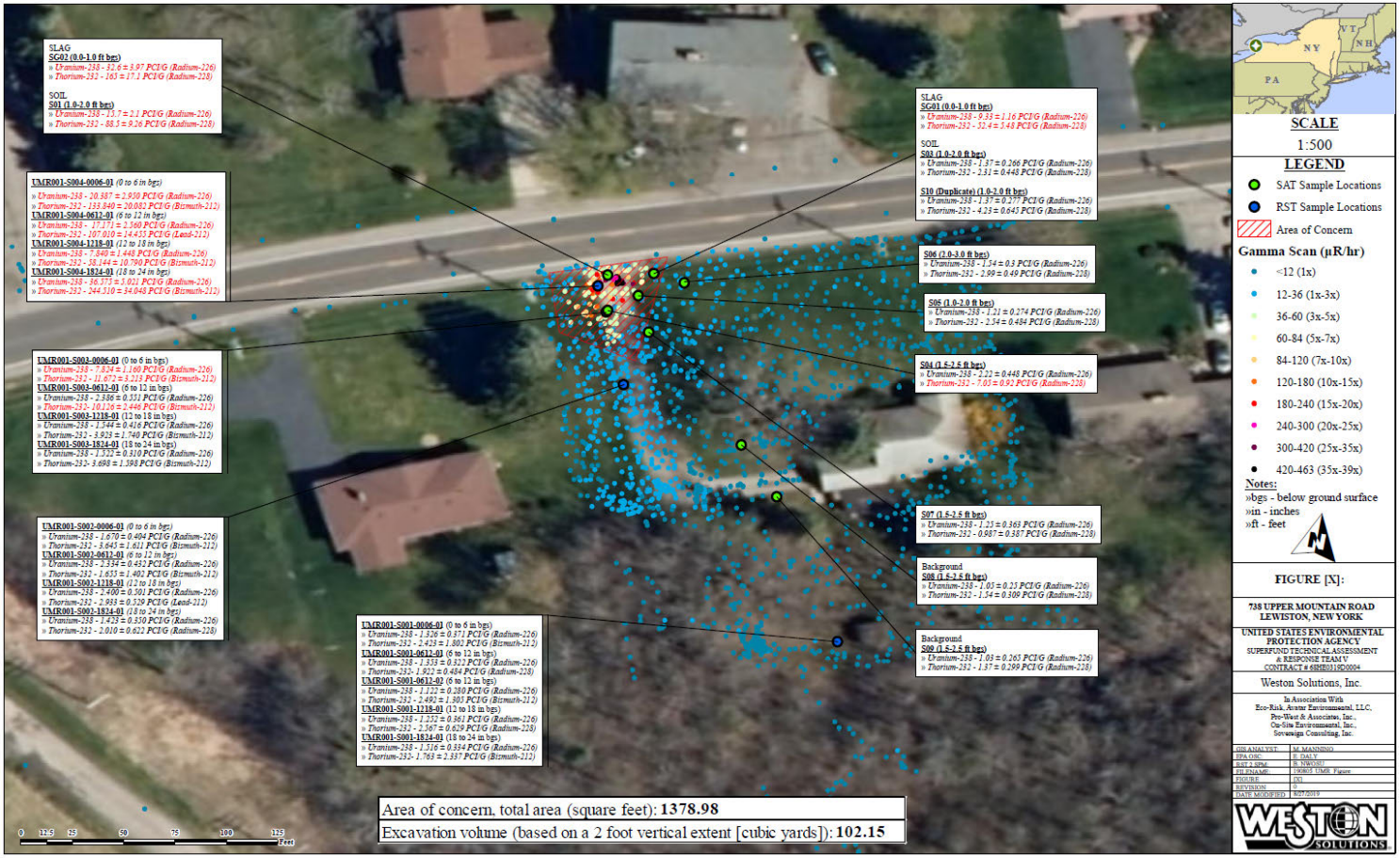


Figure 4: EPA Sample Locations and Results Map



Attachment B: Final Removal Assessment Sampling Report, 2016 and 2017 Events

Attachment C: Removal Site Evaluation Memorandum

DO NOT PLACE IN ADMINISTRATIVE RECORD
DO NOT RELEASE TO THE PUBLIC

Confidential Enforcement Addendum

Upper Mountain Road ("UMR Site")
Lewiston, Niagara County, New York

A. PRP Search

EPA is in the process of conducting a potentially responsible party ("PRP") search for the UMR Site. The UMR Site consists of radioactive slag material beneath a driveway on undeveloped land belonging to the Talarico Brothers Building Corporation ("TBBC") on Upper Mountain Road in Lewiston, New York (tax parcel no. 115.08-1-27). According to public records, TBBC has owned this property since August 22, 2015, prior to which date the property was owned by the Niagara Frontier Bible Church. The Church purchased the property on February 10, 2003, from the Estate of Dorothy P. Augspurger, and Ms. Augspurger had owned the property for an unknown period of time before then.

The driveway at the Site is used as an access road to an adjacent residential parcel with a street address of 738 Upper Mountain Road (tax parcel no. 115.08-1-26). This residential parcel is occupied and owned by John J. Grace, who purchased the property on December 28, 2000, from Eleanor E. Lozina. Ms. Lozina had owned the property since approximately December 1986. According to public records, the house at 738 Upper Mountain Road was constructed in 1942.

Ex 5 (intra-agency deliberative; attorney work product; attorney client privilege); Ex 7 (enforcement confidential)

[redacted]

Ex 5 (intra-agency deliberative; attorney work product; attorney client privilege); Ex 7 (enforcement confidential)

[redacted]

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II
290 BROADWAY
NEW YORK, NY 1000701866

ACTION MEMORANDUM

DATE:

SUBJECT: Request for Authorization of a Removal Action at the 738 Upper Mountain Road Site, Lewiston, Niagara County, New York

FROM: Peter Lisichenko, On-Scene Coordinator
Removal Action Branch

THRU: Joseph D. Rotola, Chief
Removal Action Branch

TO Pat Evangelista, Division Director
Superfund and Emergency Management Division

Site ID: A23N

I. PURPOSE

The purpose of this Action Memorandum is to request and document approval of the proposed removal action by Region 2 of the United States Environmental Protection Agency (EPA) for the 738 Upper Mountain Road Site (Site). The Site is located on Upper Mountain Road, Lewiston, Niagara County, New York, 14092, adjacent to the postal address 738 Upper Mountain Road. The purpose of this removal action is to mitigate the threat of release of Technologically Enhanced Naturally Occurring Radioactive Material (TENORM) Thorium-232 (Th-232) and Uranium-238 (U-238) and their decay progeny into the environment. A release of these radiological substances may impact the health of the public through a variety of pathways, including inhalation from dusts and gases; ingestion from dusts, soils, and water, and direct radiation from external doses. The estimated cost of the removal action proposed in this Action Memorandum is $252,000, of which $150,000 is for mitigation contracting.

The Site meets the criteria for a removal action under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. §§ 9601-9675, as described in Section 300.415(b)(2) of the National Contingency Plan (NCP), 40 C.F.R. § 300.415(b)(2).

The Site is not on the National Priorities List (NPL), and there are no nationally significant, nor precedent-setting issues associated with the Site.

II. SITE CONDITIONS AND BACKGROUND

The Superfund Enterprise Management System (SEMS) identification number for this Site is NYN000206697. The proposed removal action is considered time-critical to address the threats from radioactive hazardous substances found in slag fill material historically utilized at the Site.

In October 1984, the U.S. Department of Energy (DOE) identified radioactive anomalies throughout the Niagara Falls area in an effort to identify areas impacted by work and activities associated with the Lake Ontario Ordinance Works (LOOW) site under the Formerly Utilized Sites Remedial Action Program (FUSRAP). The Site was identified by this study as "Anomaly #43" and was described as a gravel ditch and driveway (10 by 59-feet area) with a maximum gamma exposure rate of 710 micro-Roentgen per hour (µR/hr). Subsequently, soil testing by DOE identified concentrations of U-238 and Th-232 that were 70 and 560 pico-Curies per gram (pCi/g), respectively. DOE concluded ultimately that the Site did not meet the FUSRAP guidelines and that the material was not associated with the LOOW.[1]

On July 9, 2013, the New York State Department of Health (NYSDOH) and the New York State Department of Conservation (NYSDEC) conducted a reconnaissance of the Site, which included radiological screening activities that reported radiation levels at 300 µR/hr using a hand-held pressurized ion chamber. The background readings for the Site were approximately 10 µR/hr. A survey with a sodium iodide 2x2 scintillation detector reported the highest readings ranging from 105,000-110,000 counts per minute (cpm), with the estimated background readings at the Site being 9,000 cpm. Both elevated measurements were obtained at the end of the driveway adjacent to Upper Mountain Road. NYSDEC and NYSDOH referred the Site to EPA on July 21, 2013 for further assessment.

In 2013, 2014, 2016, and 2017, EPA conducted assessments of the Site to fully identify the source, delineate the extent of contamination, and determine risk levels from potential exposures to Site contaminants. On March 24, 2020, a Removal Site Evaluation (RSE) was completed for the Site, which concluded the Site was eligible for a removal action under CERCLA.

A. <u>Site Description</u>

The Site consists of two parcels within a residential neighborhood in Lewiston, Niagara County, New York. The first parcel, referenced as Talarico Brother Building Corp (TBBC) (Parcel#: 115.08-1-27), is a 10.3-acre wooded lot that is set back from Upper Mountain Road by approximately 200 feet. Two 65-foot egresses connect the parcel to the roadway. The proposed action is to mitigate the egress along the western edge of the parcel, which is a gravel driveway with a culvert crossing. Radioactive slag material from an unknown source was used as fill material at the culvert crossing and spread down the driveway impacting a total area of approximately 10 feet x 60 feet (600 square feet). The second parcel, referenced as 738 Upper Mountain Road (738 UMR) (Parcel #: 115.08-

[1] Williams, J.K., Berven, B.A. (November 1986). Results of Radiological Measurements Taken in the Niagara Falls, New York Area (NF002). Oak Ridge National Laboratory, Oak Ridge, Tennessee.

1-26), is 0.5-acre residential property with a 1,400 square-foot, single family home. Though rights to use the western egress have not been formally recorded, 738 UMR uses the TBBC western egress as a driveway.

See Attachment A: Maps; Figure 1: Site Location Map and Figure 2: Site Parcel Maps.

1. RSE

The NYSDEC referred the Site to EPA Region 2 on July 21, 2013. In September 2013, the EPA Region 2 Pre-Remedial Section initiated a preliminary assessment (PA) and Site inspection (SI) to assess whether the Site posed a threat to human health and the environment. An on-Site reconnaissance was conducted on September 10, 2013 to perform a gamma radiation screening. Elevated gamma readings were observed toward the end of the driveway close to the road. The readings in the area of elevated gamma radiation ranged from background levels (approximately 9,000 cpm) to greater than 300,000 cpm.

On December 12, 2013, EPA's Site Assessment Team (SAT) contractor collected a total of nine soil samples (including one environmental duplicate sample) and two slag samples from the Site. Soil samples were also collected from two locations suspected to be outside the influence of the observed contamination to document background conditions. At each location, soil samples were either collected directly beneath slag material or at locations where a radioactive layer was not present, at the equivalent depth interval. The slag samples consisted of pulverized silty sand with rocks, cobbles, and gravel (i.e., radioactive waste material mixture) rather than singular pieces of slag.

The soil, slag, and aqueous rinsate blank samples were analyzed by Test America Laboratories for Target Analyte List metals analyses, including the following: Mercury; Isotopic Thorium, Isotopic Uranium, and Ra-226 by alpha spectrometry; and other radionuclides by gamma spectrometry. Analytical results indicated concentrations of radionuclides found in the slag and soil to be higher than at background conditions.

On May 1 and 2, 2014, EPA's SAT contractor collected radon and thoron concentration measurements from locations on and in the vicinity of the Site. These measurements were collected with RAD7 radon detectors at selected locations in background areas, above the source material, and off the source area. The radon and thoron measurements were collected at heights of one meter above the ground surface. There were no radon or thoron concentrations that exceeded Site-specific background levels.

In May 2014, based on the PA and SI results, a Hazard Ranking Score score was calculated. That score for the Site was less than the 28.5 threshold for inclusion on the NPL, and, as a result, the Site did not qualify. The Site was then referred to the EPA Region 2 Removal Program to be considered for a CERCLA removal action.

In June 2015, based on-Site information and available data, EPA conducted an initial risk assessment in which EPA determined that conditions at the Site did not meet the requirements of Section 300.425(b) of the NCP for a CERCLA removal action.

Following this initial eligibility determination, additional gamma radiation surveying, soil sampling, and assessment information were collected by the EPA Region 2 Removal Program. On October 25, 2016, EPA and the Removal Support Team (RST) contractor performed a gamma survey at the Site. The highest gamma reading recorded was approximately 463 μR/hr, in comparison to a background reading of approximately 10 μR/hr.

On November 18, 2016, EPA and the RST contractor conducted additional soil sampling at several locations on the Site and submitted the samples for radiological analysis. Results identified elevated concentrations of U-238 (36.58 pCi/g) and Th-232 (323.85 pCi/g) with the highest concentrations located at the culvert crossing.

On August 11, 2017, EPA and the RST contractor conducted an indoor gamma survey of the home located on the Site. There were no elevated gamma readings identified above background levels. A New York State certified radon specialist placed radon canisters throughout the home. The radon sampling results indicated that radon levels in the building were below the EPA action level of 4.0 picocuries per liter. No mitigation action was recommended.

On March 24, 2020, an RSE was completed for the Site based on the data collected in 2016 and 2017, and EPA concluded that the Site is eligible for a removal action under CERCLA. The radionuclides of concern include U-238 and Th-232. The calculated, area-specific exposure point concentrations (EPCs) included data from the top 2.5 feet of soil based on available soil data. This approach is consistent with chemical evaluations of residential soil exposures where EPA typically evaluates the top two feet. Cancer risk was set at 10^{-4}, which is consistent with removal management levels. The soil EPC calculated for U-238 was 22.6 pCi/g and for Th-232 was 127.3 pCi/g. The cancer risk assuming no shielding was calculated to be 9.65E-04, making the Site eligible for a removal action. In order to reduce the risk level below a level of 1×10^{-4} (see Section III(i), below), the Preliminary Remediation Goals (PRGs) necessary for the radionuclides of concern were calculated to be 12.0 pCi/g for U-238 and 13.2 pCi/g for Th-232. (NOTE: These PRGs should be considered in excess of background U-238 and Th-232 concentrations, PRG value plus background value).

See Attachment A: Maps, Figure 3: Gamma Survey, and Figure 4: EPA Sample Locations and Results

See Attachment B: Final Removal Assessment Sampling Report, 2016 and 2017 Events

See Attachment C: RSE Memorandum

2. Physical location

The Site is located adjacent to 738 Upper Mountain Road, Lewiston, Niagara County, New York (N43.155529/W79.022452). From the intersection of Military Road and Upper Mountain Road, the Site is situated 0.4 miles northeast along Upper Mountain Road. The Site is located in a residential area and includes a gravel culvert crossing and portions of a driveway along the south side of Upper Mountain Road.

Sensitive areas identified around the Site include the following:

- 14-acre freshwater forested/shrub wetland 1,000-feet to the north, NWI code PFO1Ad, ;
- Fish Creek, a tributary to the Niagara River, 1,000-feet to the north, NWI code R2UBHx;
- 1,900-acre freshwater lake 1,700-feet to the south of the site, Nation Wetlands Inventory (NWI) code L1UBHh;
- Mount St. Mary's Hospital 0.5 miles to the west; and
- Our Lady of Peace Nursing Home 0.7 miles to the west.

3. Site characteristics

The Site consists of a culvert crossing and portions of a gravel driveway that serve as an ingress to and egress from a wooded lot set back from Upper Mountain Road. Adjacent to the area of concern are residential properties, including the residence at 738 Upper Mountain Road that uses the driveway, as well. The radioactive fill material is concentrated at the culvert crossing and dissipates as going further down the driveway. A 2-inch gas line crosses the proposed excavation area at two to three-feet below grade. Upper Mountain Road (County Route 11) is classified by New York State Department of Transportation as a FC 16 – Urban Minor Arterial with a posted speed limit of 35 miles per hour. Approximately 4,000 vehicles[2] utilize Upper Mountain Road during the normal weekday.

The removal action documented in this Action Memorandum will be the first CERCLA removal activity undertaken at the Site. The funding requested is necessary to conduct the removal action described herein and to address the threats posed by the Site.

4. Release or threatened release into the environment of a hazardous substance, or pollutant, or contaminant

Sampling and analysis conducted at the Site by EPA has identified the presence of CERCLA hazardous substances, as that term is defined in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14), and 40 C.F.R. Table 302.4. The Site is a facility within the

[2] New York State Department of Transportation (1996). Traffic Count Hourly Report, Upper Mountain Road (CR11), Lewiston, New York.

meaning of Section 101(9) of CERCLA, 42 U.S.C. § 9601(9), and the presence of hazardous substances in subsurface media constitutes a "release" as defined in Section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

The release and threat of release of the hazardous substances Th-232 and U-238 into the environment may impact the health of the public at the Site through a variety of pathways, including inhalation of dusts and gases, ingestion of dusts, soils, and water, and direct radiation from external doses. External direct radiation exposure is primarily attributable to gamma radiation, and lesser internal exposures are attributable to alpha and beta radiation from particulate radioactive material. Residents of 738 Upper Mountain Road, adjacent neighbors, and other members of the public at or near the Site are potentially exposed to contamination via routes of inhalation or dermal contact with loose soils and windblown dust in the driveway area.

Hazardous Substances Statutory Source for Designation Under CERCLA:

Radiological Substances Identified	**Maximum Concentration**
Thorium 232 (Th-232) + Progeny	323.85 pCi/g
Uranium 238 (U-238) + Progeny	36.58 pCi/g

Each of the radiological substances listed above are included in 40 CFR 302.4, List of Hazardous Substances and Reportable Quantities, Appendix B – Radionuclides. The statutory source for designating radionuclides as a hazardous substance under Section 102(a) of CERCLA, 42 U.S.C. § 9602(a), is Section 112 of the Clean Air Act, 42 U.S.C. § 7412.

5. NPL status

The Site is not listed on the NPL, nor is it proposed for inclusion.

6. Maps, pictures, and other attached documents

Attachment A: Maps
Attachment B: Final Removal Assessment Sampling Report, 2016 and 2017 Events
Attachment C: Removal Site Evaluation Memorandum

B. Other Actions to Date

1. Previous actions

No previous mitigation actions have been taken by any federal, State, or local government entity or private party to address the hazardous substances located at the Site. All federal and State actions, to date, have been in the form of assessment activities.

2. Current actions

There are no current CERCLA actions ongoing at the Site. Based on the findings detailed above in the RSE Section of this Action Memorandum, the Site is eligible for a removal action.

C. State and Local Authorities' Role

1. State and local actions, to date

During a reconnaissance performed by NYSDOH and NYSDEC on July 9, 2013, screening activities showed radiation levels at 300 µR/hr. with a hand-held pressurized ion chamber. The background readings for the Site were approximately 10 µR/hr. Surveying with the sodium iodide 2x2 scintillation detector, the highest readings ranged from 105,000-110,000 cpm, with the estimated background readings at the Site being 9,000 cpm. Both of the elevated measurements were obtained at the end of the driveway adjacent to Upper Mountain Road.

2. Potential for continued State/local response

NYSDEC, NYSDOH, and the local government do not have resources available to conduct a removal action at the Site. NYSDEC and NYSDOH referred the Site to EPA on July 21, 2013. These entities will act in a supporting role throughout the removal action.

III. THREATS TO PUBLIC HEALTH, OR WELFARE, OR THE ENVIRONMENT AND STATUTORY AND REGULATORY AUTHORITIES

Hazardous substances present at the Site pose a threat to public health, or welfare, or the environment. Sampling and analysis have confirmed a release and threat of continued release of hazardous substances at the Site.

Conditions at the Site met the requirements of Section 300.415(b)(2) of the NCP, 40 C.F.R. § 300.415(b)(2), for determining the appropriateness of a CERCLA removal action. Factors from Section 300.415(b)(2) of the NCP that supported conducting a removal action at the Site are discussed below.

(i) Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, or pollutants, or contaminants;

The Site contains radioactive contamination in an area utilized as a residential driveway that extends into the county road right of way. There are additional residences located along Upper Mountain Road. The Site residents and general public may move freely in this identified contaminated area. These activities potentially expose specific populations to the Th-232 and U-238 contamination. Populations with increased cancer

risk because of internal or external exposure to contamination are among potential "receptors." Based on the compiled EPA RSE data, the receptors most likely to be exposed to the hazardous substance of radiation at the Site are residents.

Based on the Site-specific assumptions developed in the RSE and the PRG Calculator results, the human health risk of Th-232 and U-238 at the Site is 8.14 $x10^{-4}$ and 1.51 $x10^{-4}$, respectively. EPA's acceptable cancer risk range is 1 x 10^{-4} (or, one additional instance of cancer in 10,000) to $1x10^{-6}$ (or, one additional instance of cancer in 1,000,000).

As a conservative assessment, the overall scenario for the risk calculation included both adults and children living on and near the contamination. In this assessment, the child was assumed to become an adult after six years and to continue to live on the Site for 20 more years, for a total of 26 years of exposure. The child and adult were assumed to perform various activities at the site, which totaled 0.87 hours per day for the child and 0.25 hours per day for the adult for 365 days per year. Based on these risk calculations and the concentrations found at the Site, a removal action is warranted because exposure to both Th-232 and U-238 exceed EPA's acceptable cancer risk range of 1 x 10^{-4} to $1x10^{-6}$.

(ii) Actual or potential contamination of drinking water supplies or sensitive ecosystems;

If the hazardous substances at the Site were to migrate, the potentially affected waterbodies located between 0.5-1.0 mile of the Site include the Niagara River (west), Ontario Hydro Reservoir (west), Power Reservoir (south), and the Fish Creek (north). The radioactive rock/soil at the Site is located near the surface and may migrate to the local waterbodies via overland pathways during heavy rains and flooding.

(iv) High levels of hazardous substances, or pollutants, or contaminants in soils, largely at or near the surface that may migrate;

Th-232 (Progeny: Th-228) has been detected in surface soils at levels as high as 323.85 pCi/g, and U-238 (Progeny: Ra-226) has been detected in surface soils at levels as high as 36.58 pCi/g. The radiologically contaminated soil may migrate through airborne dust, surface runoff, construction activities, and foot traffic into the existing buildings on-Site and/or into homes and residential areas. Since Th-232 and U-238, as well as their progenies, have a long half-life (i.e. billions of years), it is highly probable that the Site will undergo physical changes before the radiological contaminants on-Site will decay to background concentrations. Excavation and/or construction (i.e. service work on utilities) may result in increased exposures to humans from the contamination becoming suspended or airborne. A subsurface gas service line is known to cross through the area of contamination, and any type of service work increases the potential for migration of the radioactive material as well as poses a risk of exposure to utility workers. Since the radioactive material is at the surface, vehicular traffic, snow removal operations, and surficial sheet flow may also cause contamination to migrate. In

addition, as a result of the proximity of Upper Mountain Road, vehicular incidents (accidents and fires) could result in releases and exposure of first responders to the radionuclides.

(v) Weather conditions that may cause hazardous substances, or pollutants, or contaminants to migrate or be released; and

The radioactive rock/soil is located at the surface in area of concern at the Site. Weather conditions may cause migration of the hazardous material to other parts of the Site, to public areas, and to the neighboring residential properties.

(vii) The availability of other appropriate federal or State response mechanisms to respond to the release.

No other federal or State response mechanism are available to respond in a timely manner to the significant threat presented by the Site.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from the Site, if not addressed by implementing the response action selected in this Action Memorandum, may present an imminent and substantial endangerment to public health or welfare or the environment.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

The purpose of this removal action is to mitigate the release and/or threat of release of hazardous substances threatening human health and the environment. To mitigate these threats, the following actions are determined to be necessary.

1. Proposed action description

- Arrangements will be made with residents at 738 Upper Mountain Road to restrict use of the egress during the removal operations.
- Shoulder closure procedures will be established at the TBBC egress along Upper Mountain Road in accordance with county and state requirements. Signage and temporary delineation markers may be required.
- Approximately 20-cubic yards of 2-inch crusher-run gravel will be staged at the Site.
- Contaminated material will be excavated into cubic-yard super sacks. The depth of excavation will be extended downwards until the radioactive contamination at levels above the PRG is removed in accordance with the RSE (12.0 pCi/g for U-238 and 13.2 pCi/g for Th-232 [NOTE: These PRGs should be considered in excess of background U-238 and Th-232 concentrations, PRG value plus background value]). Gamma scans will be conducted at the base of the excavation as the excavation

progresses. Post-excavation confirmation samples will be collected and submitted for analyses to ensure remediation goals have been achieved.
- Excavation will be backfilled in 6-inch lifts from the stockpiled material and compacted. Additional backfill material will be brought in, if needed.
- Super sacks will be staged at a secure location on-Site.
- Excavated material will be disposed of in accordance with the EPA Off-Site Rule.
- Final Site restoration activities will be conducted.

It is anticipated that the excavation and backfill operations will be completed within two to three days, and one additional day will be needed for disposal and restoration work.

The actions proposed to address the threats that exist at the Site are based on the types and quantities of hazardous substances identified during the EPA assessment and risk determination. Additional actions and/or costs may be necessary should the type and/or quantity of hazardous substances change as the proposed actions are implemented. The contingency funds requested in this Action Memorandum are proposed to address this uncertainty to a defined extent.

2. Contribution to remedial performance

The response measures documented in this Action Memorandum will address direct contact and migration threats to public health and the environment from the hazardous substances identified at the Site. The action is consistent with the requirement of Section 104(a)(2) of CERCLA, 42 U.S.C. § 9604(a)(2), in that it will contribute to the efficient performance of any long-term remedial action with respect to the release or threatened release concerned. Currently there are no long-term remedial actions planned for the Site.

3. Engineering Evaluation/Cost Analysis (EE/CA)

As a result of the time-critical nature of this removal action, an EE/CA has not been prepared.

4. Applicable or Relevant and Appropriate Requirements (ARARs)

It remains EPA's policy to operate under the assumption that ARARs are generally protective, absent multiple contaminants or pathways of exposure. However, in unusual circumstances, such with radiological contamination, the use of dose-based approaches to support ARARs can result in EPA Regional offices having to establish risk-based preliminary remediation goals (PRGs) that result in levels that are more protective than a level established with a dose-based approach under a given ARAR, even absent multiple pathways or contaminants. In such circumstances, reliance on the ARAR would not be sufficiently protective of human health or the environment. For the response action discussed in this Action Memorandum, it was determined that site-specific PRG numbers were required as potential, dose-based ARARs were not sufficiently protective of human

health or the environment. See OSWER Directive 9285.6-20 (June 13, 2014)("ARARs [at levels] that are greater than 12 [millirem per year] effective dose equivalent (EDE) are generally not considered sufficiently protective for developing cleanup levels under CERCLA . . . ."). Site-specific PRG numbers were calculated based on the highest risk receptor to determine the most conservative value for cleanup levels at the Site.

5. Project schedule

Field activities can be initiated within two weeks following the approval of this Action Memorandum. The project is expected to take approximately one week to complete. This includes the material being properly shipped off-Site to an appropriate disposal facility.

B. Estimated Costs

A summary of estimated total costs for the removal action is presented below.

Direct Extramural Costs	Proposed Ceiling
Regional Allowance Costs (Total clean-up contractor including labor, equipment, materials)	$150,000
START V Contractor Costs	$60,000
Subtotal, Extramural Costs	$210,000
Extramural Cost Contingency (20%)	$42,000
Total Direct Extramural Costs	**$252,000**

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Given the Site conditions, the nature of the hazardous substances documented on-Site, and the potential exposure pathways to nearby populations described in Section III.A., actual or threatened releases of hazardous substances from the Site, if not addressed by implementing the response action described in this Action Memorandum, may present an imminent and substantial endangerment to public health, or welfare, or the environment.

VII. OUTSTANDING POLICY ISSUES

There are no known outstanding policy issues associated with this Site at the present time. While there is a Headquarters consultation process in place for sites where radioactive contamination is present (Headquarters Consultation for Radioactively Contaminated Sites, OSWER No. 9200.1-33P, July 26, 2000), this consultation requirement applies only to sites where radioactive material will be managed on-Site (e.g. capping, disposal cells) or where there is a potential national, precedent-setting issue related to the radioactive materials. In this instance, the radioactive materials will not be managed in place and there is no potential national, precedent-setting issue related to the radioactive materials. Therefore, Headquarters consultation is not required.

VIII. ENFORCEMENT

EPA has initiated a preliminary potentially responsible party (PRP) search for the Site. The OSC will work with the Removal Action Branch enforcement staff and the Office of Regional Counsel to identify and locate all viable PRPs to recover costs associated with this removal action.

Based on full cost accounting practices, the total EPA costs for this removal action that will be eligible for cost recovery are estimated to be $402,750. The following chart describes the estimate of costs that EPA believes will be eligible for cost recovery related to this response action.

Cost Type	Total Funding Requested in this Memorandum
Direct Extramural Cost	$252,000
Direct Intramural Cost	$20,000
Subtotal, Direct Cost	$272,000
Indirect Costs (Regional Indirect Cost Rate 48.07%)	$130,750
Estimated EPA Costs Eligible for Cost Recovery	**$402,750**

*Direct costs include direct extramural costs and direct intramural costs. Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site-specific direct costs, consistent with full cost accounting methodology effective 2009. These estimates do not include pre-judgment interest, do not take into account other enforcement costs, and may be adjusted during the course of the removal action. The estimates are for illustrative purposes only and their use in this Action Memorandum may not be relied upon by any third party as binding upon EPA. Neither the lack of a total cost estimate nor deviation of actual costs from this estimate will affect the United States' right to cost recovery.

X. RECOMMENDATION

This decision document presents the selected removal action for the 738 Upper Mountain Road Site located in Lewiston, Niagara County, New York. This document has been developed in accordance with CERCLA and is not inconsistent with the NCP. This decision is based on the Administrative record for the Site.

The total funding requested by this Action Memorandum, if approved, would be $252,000, of which $150,000 is for mitigation contracting. EPA anticipates sufficient monies in the Regional Removal Advice of Allowance to fund the project. Incremental funding is not necessary for this action.

Please indicate your formal authorization for the proposed removal action at the 738 Upper Mountain Site, as per current Delegation of Authority, by signing below.

Approved: _____ **Date:** _____

Pat Evangelista, Director
Superfund and Emergency Management Division

Disapproved: _____ **Date:** _____

Pat Evangelista, Director
Superfund and Emergency Management Division

cc: P. Evangelista, SEMD-D
J. Prince, SEMD-DD
J. Rotola, SEMD-RAB
D. Harkay, SEMD-RAB
B. Grealish, SEMD-RAB
T. Lieber, ORC-NYCSFB
J. Doyle, ORC-NYCSFB
M. Ludmer, ORC-NYCSFB
M. Mears, PAD
A. Rajkowski-Reyes, OPM-GCMB
M. Fiore, OIG
B. Schlieger, 5104A
T. Benton, RST
M. Franklin, NYSDEC
A. Raddant, USDOI
F. Csulak, NOAA
L. Battes, NYSEMO
S. Bates, NYSDOH

Attachment A: Maps

Figure 1: Site Location Map
Figure 2: Site Parcel Map
Figure 3: Gamma Survey Map
Figure 4: EPA Sample Locations and Results Map

Figure 1: Site Location Map

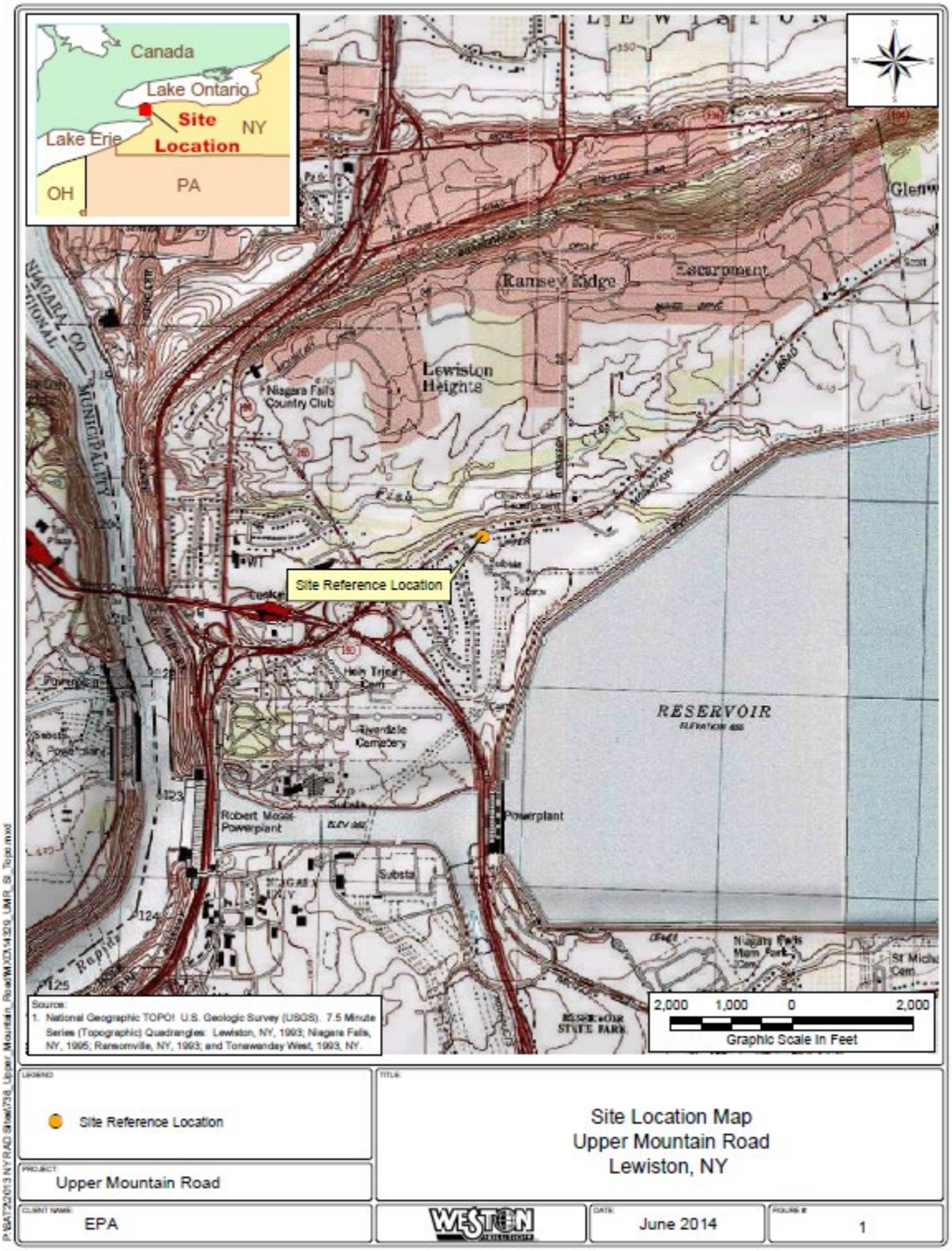
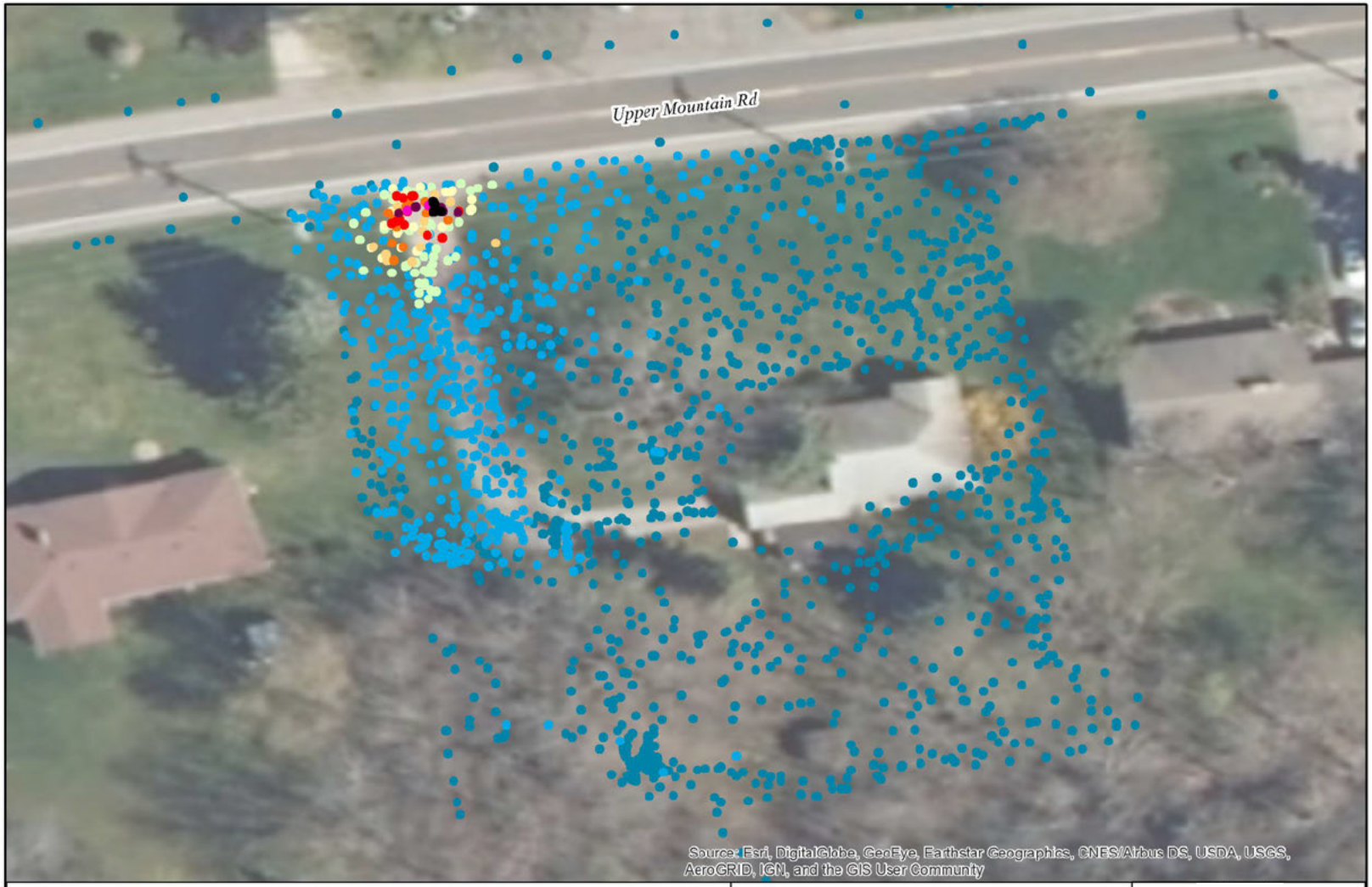


Figure 2: Site Parcel Map

Figure 3: Gamma Survey Map



Legend

Gamma Scan (µR/hr)

- < 12 (1x)
- 12 - 36 (1x-3x)
- 36 - 60 (3x-5x)
- 60 - 84 (60 - 84 (5x-7x)
- 84 - 120 (7x-10x)
- 120 - 180 (10x-15x)
- 180 - 240 (15x - 20x)
- 240 - 300 (20x-25x)
- 300 - 420 (25x-35x)
- 420 - 463 (35x-39x)

Notes:
Gamma readings recorded in microroentgens per hour (µR/hr).
Gamma Survey conducted on October 25, 2016.
Background gamma reading: 10.5 µR/hr.
Maximum gamma reading: 462.2 µR/hr.

0 10 20 40 60 80 Feet

N

Weston Solutions, Inc.

In association with
Scientific and Environmental Associates, Inc.,
Avatar Environmental, LLC, Environmental Compliance Consultants,
On-Site Environmental, Inc., and Sovereign Consulting, Inc.

DATE MODIFIED: 3/22/2019

Gamma Survey Map

738 UPPER MOUNTAIN ROAD
LEWISTON, NEW YORK

U.S. ENVIRONMENTAL PROTECTION AGENCY
REMOVAL SUPPORT TEAM 3
CONTRACT # EP-S2-14-01

GIS ANALYST:	M. MANNINO
EPA OSC:	E. DALY
RST SPM:	B. NWOSU
FILENAME:	180709_Figure_2_Gamma_Map.mxd

Figure 4: EPA Sample Locations and Results Map

Attachment B: Final Removal Assessment Sampling Report, 2016 and 2017 Events

Attachment C: Removal Site Evaluation Memorandum

DO NOT PLACE IN ADMINISTRATIVE RECORD
DO NOT RELEASE TO THE PUBLIC

Confidential Enforcement Addendum

Upper Mountain Road ("UMR Site")
Lewiston, Niagara County, New York

A. PRP Search

EPA is in the process of conducting a potentially responsible party ("PRP") search for the UMR Site. The UMR Site consists of radioactive slag material beneath a driveway on undeveloped land belonging to the Talarico Brothers Building Corporation ("TBBC") on Upper Mountain Road in Lewiston, New York (tax parcel no. 115.08-1-27). According to public records, TBBC has owned this property since August 22, 2015, prior to which date the property was owned by the Niagara Frontier Bible Church. The Church purchased the property on February 10, 2003, from the Estate of Dorothy P. Augspurger, and Ms. Augspurger had owned the property for an unknown period of time before then.

The driveway at the Site is used as an access road to an adjacent residential parcel with a street address of 738 Upper Mountain Road (tax parcel no. 115.08-1-26). This residential parcel is occupied and owned by John J. Grace, who purchased the property on December 28, 2000, from Eleanor E. Lozina. Ms. Lozina had owned the property since approximately December 1986. According to public records, the house at 738 Upper Mountain Road was constructed in 1942.

Ex 5 (intra-agency deliberative; attorney work product; attorney client privilege); Ex 7 (enforcement confidential)

[redacted]

Ex 5 (intra-agency deliberative; attorney work product; attorney client privilege); Ex 7 (enforcement confidential)

[redacted]

DATE:

SUBJECT: Enforcement Case Memorandum
789 Upper Mountain Road Site, Niagara County, New York

FROM: Margo Ludmer, New York / Caribbean Superfund Branch
Office of Regional Counsel
Peter Lisichenko, Removal Action Branch
Superfund and Emergency Management Division

TO: Eric Wilson
Deputy Director for Enforcement and Homeland Security
Superfund and Emergency Management Division

PRIVILEGED & CONFIDENTIAL

The attached memorandum, prepared by the Office of Regional Counsel ("ORC") and the Removal Action Branch ("RAB"), documents the initial potentially responsible party ("PRP") search and enforcement efforts undertaken by ORC and RAB, and describes decisions made and additional steps to be taken with respect to enforcement by RAB on advice of counsel.

********CONFIDENTIAL********

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ATTORNEY-CLIENT COMMUNICATION

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789 Upper Mountain Road Site
Town of Lewiston, Niagara County, New York

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[redacted]

cc: (after approval is obtained)
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J. Prince, SEMD-DD
J. Rotola, SEMD-RAB
M. Gregor, SEMD-RAB
D. Harkay, SEMD-RAB or SEMD-RPB
T. Lieber, ORC-NYCSB
J. Doyle, ORC-NYCSB

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789 Upper Mountain Road Site, Niagara County, New York

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Superfund and Emergency Management Division

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DO NOT RELEASE TO PUBLIC

789 Upper Mountain Road Site
Town of Lewiston, Niagara County, New York

Ex 5 (intra-agency deliberative; attorney work product; attorney client privilege); Ex 7 (enforcement confidential)

[redacted]

Ex 5 (intra-agency deliberative; attorney work product; attorney client privilege); Ex 7 (enforcement confidential)

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J. Doyle, ORC-NYCSB

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II
290 BROADWAY
NEW YORK, NY 1000701866

ACTION MEMORANDUM RV2

DATE:

SUBJECT: Confirmation of Verbal Authorization for a Removal Action, and Request for a $2 Million Exemption, a 12-Month Exemption, and a Ceiling Increase for the 789 Upper Mountain Road Site, Lewiston, Niagara County, New York

FROM: Peter Lisichenko, On-Scene Coordinator
Removal Action Branch

THRU: Pat Evangelista, Director
Superfund and Emergency Management Division

TO: Walter Mugdan
Acting Regional Administrator

SITE ID No.: A29X

I. PURPOSE

The purpose of this Action Memorandum is to request and document the verbal authorization of funding granted by the Acting Division Director of the Superfund and Emergency Management Division (SEMD) to request a $2 million exemption, 12-month exemption, and ceiling increase to continue the removal activities described herein at the 789 Upper Mountain Road (Site), located in Lewiston, Niagara County, New York (see Attachment A, Figure 1: Site Location Map). The U.S. Environmental Protection Agency (EPA) initiated removal activities at the Site in January 2021 pursuant to a December 9, 2020, verbal authorization (referred to herein as RV1). Additional funding is necessary to continue the removal activities at the Site by removing and disposing of radioactive-contaminated fill material identified on the property (these activities are referred to as RV2 for the purposes of this Action Memorandum). The impacted areas include locations beneath the residential home (including a crawl space, a utility room/laundry room, and garage) and the outside yard area. These impacted areas were identified during the investigations conducted by EPA at the Site in August 2020.

The total extramural funding that has been authorized to date for the Site is $20,000, of which $15,000 is for mitigation contracting. This Action Memorandum requests authorization for an additional $3,000,000, of which $2,700,000 is for mitigation contracting. If approved, the Site ceiling would be raised to $3,020,000, of which $2,715,000 would be for mitigation contracting.

Conditions at the Site meet the criteria for a removal action under the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. §§ 9601-9675, and Section 300.415(b)(2) of the National Contingency Plan (NCP).

This Site is not included on the National Priorities List (NPL) and there are no nationally significant or precedent-setting issues associated with these removal activities. Headquarters was consulted on this Action Memorandum because the funding request is greater than $2 million, but less than $6 million.

II. SITE CONDITIONS AND BACKGROUND

The Superfund Enterprise Management System (SEMS) identification number for the Site is NYN000203537. The proposed removal activities are considered "time-critical" and will address the threats to residents from the presence of radioactive-contaminated fill material historically utilized to grade the Site prior to construction of the home.

The Site, located at 789 Upper Mountain Road, Town of Lewiston, Niagara County, New York, is a 0.46-acre residential property and includes a 1,584 square-foot, split-level home that was built in 1957 (see Attachment A, Figure 2: Site Map). The Site property was identified in Aa 1986 report by the Department of Energy's Oak Ridge National Laboratory identified the property through mobile gamma scans as "Anomaly 42", , which presented the findings of a mobile gamma scanning survey in the Niagara Falls area. The Site was identified in the report as "Anomaly 42" out of a total of one hundred anomalies exhibiting elevated radionuclide concentrations. Subsequent sampling by Oak Ridge National Laboratory determined that although the radionuclide concentrations at the Site property were elevated, the Site was ineligible for remediation under the Formerly Utilized Sites Remedial Action Program (FUSRAP).

Since its originally constructioned, the home has transferred ownership several times after the report was completed. The current owners, who purchased the Site property in September 2011, recently learned of the Oak Ridge National Laboratory report from a local media who had been producing a story on the region's nuclear waste legacy. In October 2019, consultants for the property owners conducted a gamma survey and identified at the surface measurements of over 500 micro Roentgen per hour (µR/hr) beneath the residence, 30 times the background concentration of 10 to 20 µR/hr typical. The property owner's' legal representative notified the New York State Department of Health (NYSDOH) on October 15, 2019 of the radiation concerns. In August 2020, EPA conducted an assessment of the Site.property which included gamma scans of the entire Site property (including inside the residence), radon sampling of the indoor air, and soil sampling for radiological parameters and disposal characterization parameters at various depths throughout the property, including from a crawlspace below the home. EPA's results were consistent with the previous assessment conducted by the homeowner's' consultant in October 2019.

Commented [LM1]: As a lay person, "at the surface" "beneath the residence" is a bit confusing. Where was this reading taken?

Commented [LM2]: What does "typical" mean here?

EPA's indoor air radon tests were determined to contain concentrations above the New York State criteria for mitigation of
4.0 picocuries per liter (pCi/L) and ranged from 7.0 to 11.0 pCi/L. The elevated radon levels are being attributed to the decay of uranium and thorium that has been identified in soil samples from beneath the home. In October 2020, the Site was referred to EPA by NYSDOH (see Attachment B). In November 2020, a Removal Site Evaluation (RSE), conducted by EPA. determined that there was an unacceptable risk to the residents at the Siteproperty from gamma radiation and radon inhalation, as well as radioactive dust particles from contaminated soils existed. As a result, soils beneath the home and

around the Site~~property~~ are removal eligible. The installation of a radon mitigation system was recommended in the RSE as an immediate engineering control to reduce the inhalation exposures. In December 2020, a verbal authorization was granted for the installation of a radon mitigation system under RV1. In
January 2021, a radon mitigation system was installed by a New York State c~~C~~ertified installer.

A. Site Description

1. RSE

An RSE was conducted for the Site~~property~~ to determine removal eligibility. The radionuclides of concern (ROCs) were determined to be: Actinium-228 (Ac-228), Bismuth-212 (Bi-212), Lead-212 (Pb-212), Radium-226 (Ra-226), Radium-228 (Ra-228), Thallium-208 (Th-208), Thorium-234 (Th-234), Uranium-233/Uranium-234 (U-233/234), and Uranium-238 (U-238).

For the RSE, the cancer risk was set at 10-4, which is consistent with Removal Management Levels (RMLs). Current and accepted soil intakes (100 milligrams per day [mg/d]for an adult; 200 mg/d for a child) and inhalation rates (20 cubic meters per day [m^3/d] for an adult; 10-m^3/d for a child) were selected and utilized in the risk evaluation completed by the Site Risk Assessor and the Site Health Physicist. Property size of 0.5 acres (minimum allowed) was selected as it is representative of the residential property size. The produce pathway was not included in this calculation as it is unlikely that a residential garden would be placed beneath the home. All other exposure parameters reflect a default residential scenario. The calculated, area-specific exposure point concentrations (EPCs) included data predominantly from the top two feet of soil, although some samples were collected from a depth of four and a half feet below the ground surface. The home is a split-level structure with an attached garage, laundry room, hobby area, and a crawl space with a dirt floor on the ground level; living room, kitchen, and dining room on the first floor; and bedrooms and office space on the upper level.

Default residential exposure parameters were assumed, including the following parameters: 24 hours per day; 350 days per year; 26 years; 6 -child/20 adult. The area of contamination was estimated based on the property size: 2000 cubic meters. Since only one sample at three depth intervals was collected beneath the home, soil EPCs could not be calculated. Rather, the maximum concentration was selected. The following are concentrations of each radionuclide in the crawlspace soil samples: 518 picocurie per gram (pCi/g) Ac-228, 519 pCi/g Bi-212, 502 pCi/g Pb-212, 107 pCi/g Ra-226, 518 pCi/g Ra-228, 184 pCi/g Tl-208, 19.8 pCi/g Th-234, 70 pCi/g U-233/234, and 70.5 pCi/g U-238. Two decay chains were identified in the detected radio~~logical~~ nuclides. To prevent double counting of nuclides, the parents of each series, Th-232 and U-238, were selected for EPA's Preliminary Remediation Goal (PRG) calculator. The PRG calculator is a tool that allows EPA to determine initial, risk-based cleanup levels, or PRGs, for radiation in soil, water, and air for both removal and remedial projects under CERCLA. PRGs that are calculated for time-critical removal actions are also referred to as RMLs. The PRG calculator was run with Th-232 at 518 pCi/g and U-238 at 70.5 pCi/g and resulted in the following PRGs:

Commented [LM3]: Is this age? 6-year-old child/20-year-old adult?

radionuclide	cancer risk (goal < 10-4)	PRG (pCi/g)
Th-232	4.49E-02	1.13
U-238	4.87E-03	1.45

Both the Th-232 and U-238 decay chains at the Site result in an unacceptable risk level. Further, indoor air radon samples were collected via 4-inch charcoal canisters over three days within the home in August of 2020. Ten samples, plus one blank, were collected from the following locations:
crawl-space (2 duplicate samples), basement (2 samples), first (2 samples) and second (4 samples) floors. The crawl-space duplicate samples (10.9 and 11.0 pCi/L) as well as one of the basement samples (7.0 pCi/L) reported radon above EPA's action level of 4 pCi/L, indicating a potential indoor air risk.

Portions of the Site property are used for recreational purposes and raised bed gardening. As noted above, the yard areas were not quantitatively evaluated as there is an unacceptable risk resulting from residential exposure within the home, which is also protective of these recreational and gardening exposures. Further, a single, unified PRG will be selected for each parent radiological isotope of concern on the property, and the PRGs calculated for the home are appropriate to use elsewhere on the residential property (see Attachment C; RSE).

Commented [LM4]: This tough to understand. How do the decay chains "result in" an unacceptable risk level?

Commented [LM5]: What is a blank? And where was it collected from?

Commented [LM6]: Where?

Commented [LM7]: What does "which" refer to? PRGs selected based on risk from residential exposure?

Commented [LM8]: Isn't this saying the same thing as the last sentence?

2. Physical location

The Site is located at 789 Upper Mountain Road, Lewiston, Niagara County, New York. The parcel comprising the Site property is identified as tax ID number 115.08-1-13 and is located along the Niagara Escarpment,
approximately 0.74 miles east of Interstate I-190 1.1 miles east of the Niagara River and Canadian border, and 0.25 miles north of the New York Power Authority Lewiston Reservoir (see Attachment A; Figure 1: Site Map).

Sensitive areas identified around the Site include the following:

- a 14-acre freshwater forested/shrub wetland located 1,000 feet to the north of the Site (National Wetlands Inventory (NWI) code PFO1Ad);
- Fish Creek, a tributary to the Niagara River located 1,000 feet to the north of the Site (NWI code R2UBHx);
- a 1,900-acre freshwater lake located 1,400 feet to the south of the Site (NWI code L1UBHh);
- Mount St. Mary's Hospital located 0.7 miles to the west of the Site; and
- Our Lady of Peace Nursing Home located 0.9 miles to the west of the Site.

3. Site characteristics

The Site is a 0.46-acre property that slopes downhill (to the north) away from Upper Mountain Road. The parcel contains a split-level, 1,584 square-feet residential structure (circa 1957) with a single car garage, a utility room/hobby area, and laundry area in one-half of the lower level. The

remaining portions of the lower level is a dirt floor crawlspace that contains utilities and a 250-gallon fuel oil tank.

The remaining portions of the Site property include~~s~~ a grassy lawn in front and a fenced-in grassy rear yard with a newly built deck, fire pit, and raised bed garden area. Both front and rear yards contain large mature trees (i.e. maple and pine trees). The Site property is bordered to the west and east by other residential properties and to the north by a wooded area. Upper Mountain Road runs east to west along the southern border of the parcel.

Radioactive fill material was identified throughout the property, including underneath the residential structure. It was observed to consist of a gray to dark gray, lustrous, fine to medium sand. It was generally~~is typically~~ found to be collocated with fill material that includes furnace brick, ash and slag material, stone block, and other debris. In some cases, the radioactive sand was found in concentrated "pockets." ~~.~~ It is speculated that the fill was brought to level the Site~~property~~ prior to the construction of the home. A gamma surface scan was conducted throughout the Site property including inside the home. The highest measured concentrations include 1,500 micro-Roentgen per hour (µR/hr) in the backyard area and 600 µR/hr in the crawlspace area.

4. Release or threatened release into the environment of a hazardous substance, or pollutant, or contaminant

Sampling and analysis conducted at the Site by EPA has identified the presence of CERCLA hazardous substances, as that term is defined in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14), and 40 C.F.R. Table 302.4. The Site is a facility within the meaning of Section 101(9) of CERCLA, 42 U.S.C. § 9601(9), and the presence of hazardous substances in subsurface media constitutes a "release" as defined in Section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

The release and threat of release of the contaminants Th-232 and U-238, the parent nuclides for the decay series identified on-Site, into the environment creates the potential for an unacceptable risk to the residents at the Site through a variety of pathways, including inhalation from dusts and gases, ingestion from dusts, soils, and water, and direct radiation from external doses of alpha, beta, and gamma radiation from a particulate radioactive material. Exposure to this material increases the cancer risk of an individual. Residents as well as passersby of the Site are exposed to contamination via routes of inhalation or dermal contact to soils and windblown dust in the driveway and outdoor indoors.

Commented [LM9]: ?

Hazardous Substances Under CERCLA:

Radiological Substances Identified Maximum Concentration
Th-232 – 1,430 pCi/g
U-238 – 70.5 pCi/g

The radionuclides listed above are~~is~~ included in 40 CFR 302.4, List of Hazardous Substances and Reportable Quantities, Appendix B – Radionuclides.

The statutory source for designating radionuclides as a hazardous substance under Section 102(a) of CERCLA, 42 U.S.C. § 9602(a), is Section 112 of the Clean Air Act, 42 U.S.C. § 7412.

EPA concluded, based on risk assessment calculations, that the Site~~property~~ is removal eligible based on a risk calculation of 4.49E-02 for Th-232 and 4.87E-03 for U-238. Conservative PRGs have been established at 1.13 pCi/g for Th-232 and 1.45 pCi/g for U-238. These PRGs should be considered in excess of background Th-232 and U-238 concentrations, i.e., PRG value plus background value (see Attachment C; RSE).

5. NPL status

The Site has not been evaluated for NPL listing due to time constraints and the unacceptable immediate risk to the residents.

6. Maps and pictures depicting Site location and conditions

See Attachment A, Figure 1: Site Location Map
Figure 2: Site Map

B. <u>Other Actions to Date</u>

1. Previous actions

In August 2020, EPA conducted an assessment of the Site,~~property~~ which included gamma scans of the entire property (including inside the residence), radon sampling of the indoor air, and soil sampling for radiological and disposal characterization parameters at various depths throughout the property including underneath the residence. EPA's results were consistent with a~~the~~ previous assessment conducted by the property owners' contractors, and exceedances in indoor radon results ranged from 7.0 to 11.0 pCi/L.~~,~~ New York State's criteria for mitigation is 4.0 pCi/L. The elevated radon levels are being attributed to the decay of uranium and thorium that has been identified in soil samples from beneath the home.

In October 2020, the Site was referred to EPA by ~~New York State Department of Health~~NYSDOH (see Attachment B; New York State Department of Health Referral). In November 2020, a RSE and risk assessment~~,~~ conducted by EPA~~,~~ determined that there was an unacceptable risk to the residents at the ~~property~~ Site from gamma radiation and radon inhalation, as well as radioactive dust particles from contaminated soils ~~existed~~. As a result, soils beneath the home and around the Site property are removal eligible. The installation of a radon mitigation system was recommended in the RSE as an immediate engineering control to reduce the inhalation exposures (see Attachment C; RSE). In January 2021, in accordance with the verbal authorization granted on December 9, 2020, a radon mitigation system was installed in the home. In February 2020, ~~a~~ post-mitigation radon testing was conducted and confirmed the effectiveness of the mitigation system to reduce radon concentrations below 4.0 pCi/L.

2. Current actions

~~There are no current actions at the Site. However,~~ A~~a~~s described in the previous section, EPA ~~did~~ initiated ~~an~~ emergency response activities at the Site~~action~~ under verbal authorization and, with the approval of this A~~a~~ction M~~m~~emorandum, will plan to complete the removal action.

Ex 5 (intra-agency deliberative; attorney client privilege)

[redacted]

C. State and Local Authorities Roles

1. State and local actions, to date

No actions have been conducted by State or local entities at the Site. The New York State Department of Environmental Conservation (NYSDEC) and NYSDOH have been notified of the contamination at the property and have served as advisors on the proposed removal activities.

2. Potential for continued State/local response

NYSDEC and NYSDOH will continue to act in an advisory/supporting role throughout the performance of the removal activities at the Site, but they are financially unable to take the lead in the response activities.

III. THREATS TO PUBLIC HEALTH, OR WELFARE, OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

Hazardous substances present at the Site represent a threat to the public health and environment as defined by Section 300.415(b)(2) of the NCP as there is a high potential for direct contact to radiation from alpha, beta, and gamma radioactive material.

Factors that support conducting the removal activities at the Site are discussed below.

Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, or pollutants, or contaminants;

The Site includes one occupied residential structure. The occupants of the structure are the primary "receptors" with increased cancer risks because of internal and external exposure to Th-232 and U-238. The pathways of exposure for the occupants includes incidental ingestion of soil, external radiation from contamination in the soil, and inhalation of fugitive dust.

Actual or potential contamination of drinking water supplies or sensitive ecosystems;

Surficial overland and stormwater flow is discharged to the Niagara River, located 1.3-miles to the west via Fish Creek. Entrainment of contamination may result in adverse impacts to the Niagara River, a valued resource for both the United States and Canada as a drinking water source (Lewiston and Youngstown, New York and Niagara on the Lake, Ontario), as well as for recreational boating~~,~~ and fishing.

High levels of hazardous substances, or pollutants, or contaminants in soils, largely at or near the surface that may migrate; and

Th-232 and U-238 has been detected in surface soils at levels as high as 1,330 and 70.5 pCi/g respectively. Thorium and uranium-contaminated soils may migrate through airborne dust, surface runoff, intrusive yard activities, ~~and~~ foot traffic into the home, and recreational use of the yard area. Since both isotopes have a long half-life (approximately 14 billion~~-~~ and 4.5 billion ~~-~~ years for thorium and uranium, respectively), it is highly probable that the Site will undergo physical changes before the two isotopes will decay to background levels. Building demolition and/or construction may result in increased exposure to humans as it may cause the contamination to become suspended or airborne. Weathering and/or animal interaction may also cause contamination to migrate.

The availability of other appropriate federal or State response mechanisms to respond to the release.

The State of New York does not currently have the resources needed to take timely and appropriate action to respond to the threat posed by the presence of hazardous substances at the Site.

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IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from the Site, if not addressed by implementing the response activities selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, welfare, or the environment.

V. EXEMPTION FROM STATUTORY LIMITS

A. Emergency Exemption

Completion of the planned removal action will exceed the 12-month and $2 million statutory limits for removal actions. Conditions at the Site meet the criteria for emergency exemption under CERCLA 104(c). There are immediate risks to public health and the environment, and continued response actions are immediately required to prevent, limit, or mitigate the release or threat of release of hazardous substances at the Site. Based on the complexity of the Site, necessity for temporary relocation of the residents, the high cost of transportation and disposal, and associated logistics, the Site warrants exemption from the 12-month and $2 million statutory limits for a removal action based on the following factors:

1. There is an immediate risk to public health or welfare or the environment.

The radioactive material poses an immediate exposure threat to the residents, with exposure concentrations measured over 600 µR/hr at the surface contact, approximately 40 times background concentrations.

2. Continued response actions are immediately required to prevent, limit, or mitigate an emergency.

Site conditions continue to meet the emergency exemption criteria specified in the Confirmation of Verbal Authorization Memorandum (RV1) which was approved by the Region 2 Acting Division Director on December 9, 2020 to address the indoor inhalation hazard through the installation of a radon mitigation system (see Attachment D; Confirmation of Verbal Authorization for a Removal Action Memorandum RV1). Though the radon mitigation system has successfully mitigated the inhalation hazard, the source of the radon, the radioactive material buried at the Site~~on the property~~, continues to pose an immediate threat to the residents. The RSE, based on laboratory analysis, identified an unacceptable exposure risk of 4.49E-02 and 4.87E-03 for the isotopes Th-232 and U-238, respectively. Accordingly, the Agency for Toxic Substances and Disease Registry (ATSDR) has been briefed on the Site conditions and have provided consultation services to the property occupants of potential health impacts.

3. Assistance will not be otherwise be provided in a timely basis.

Neither the State nor the local government have the ability to undertake a removal action on a timely basis. Due to the magnitude and the immediacy of the work at the Site, EPA is the only governmental authority with the enforcement and contracting abilities to undertake a timely removal action at the Site.

VI. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

1. Proposed action description

The funding being requested in this RV2 Action Memorandum will allow EPA to remove and dispose of approximately 3,000 tons of the radioactive material located at the Site, including beneath the home. The soils will be excavated to native soil to attain a PRG of 1.13 pCi/g for Th-232 and 1.45 for U-238. A gamma radiation scan will be conducted at the base of the excavated areas to verify removal of radioactive material, and post-excavation confirmation samples will be collected in accordance with the Multi-Agency Radiation Survey and Site Investigation Manual. To expedite the analysis of post-excavation soil samples, a mobile laboratory equipped with a high purity germanium (HPGe) will be mobilized to the Site. Sample results will be received within hours as opposed to the weeks required for off-Site laboratory services. Following the receipt of acceptable confirmation sample results, all excavated areas will be backfilled and compacted with crushed limestone gravel. All backfill material brought on-S~~s~~ite will be scanned prior to acceptance for use to ensure that radioactivity levels do not exceed background levels. Representative samples of the material will also be sent for laboratory analysis to ensure compliance with NYSDEC Imported Fill Standards for Residential Use (see DER 10). The basement areas will be restored with new concrete and the driveway will be restored with pavement. The yard area will be restored with NYSDEC-certified clean topsoil and grass seed.

All disposal activities will be conducted in compliance with the EPA CERCLA Off-Site Rule.

The Site residents will be temporarily relocated during the removal activities.

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[redacted]

2. Contribution to remedial performance

The removal activities at the Site are consistent with the requirement of Section 104(a)(2) of CERCLA, which states, "any removal action undertaken . . . should . . . to the extent practicable, contribute to the efficient performance of any long-term remedial action with respect to the release or the threatened release concerned." The removal activities proposed in this Action Memorandum would not impede future response activities, should they be necessary, based on available information.

3. Engineering evaluation/cost analysis (EE/CA)

Because of the time-critical nature of the removal activities, an EE/CA was not prepared.

4. Applicable or relevant and appropriate requirements (ARARs)

It remains EPA's policy to operate under the assumption that ARARs are generally protective, absent multiple contaminants or pathways of exposure. However, in unusual circumstances, such with radiological contamination, the use of dose-based approaches to support ARARs can result in EPA Regional offices having to establish risk-based ~~preliminary remediation goals (~~PRGs~~)~~ that result in levels that are more protective than a level established with a dose-based approach under a given ARAR, even absent multiple pathways or contaminants. In such circumstances, reliance on the ARAR would not be sufficiently protective of human health or the environment. For the response action discussed in this Action Memorandum, it was determined that Site-specific PRG numbers were required as potential, dose-based ARARs were not sufficiently protective of human health or the environment. See OSWER Directive 9285.6-20 (June 13, 2014) ("ARARs [at levels] that are greater than 12 [millirem per year] effective dose equivalent (EDE) are generally not considered sufficiently protective for developing cleanup levels under CERCLA. . . ."). Site-specific PRG numbers were calculated based on the highest risk receptor to determine the most conservative value for cleanup levels at the Site.

Other ARARs may be identified by New York State in response to a request for ARARs from EPA. If such ARARs were to result in the need to alter the selected response activities~~action~~, such change would be addressed in a subsequent decision document.

5. Project schedule

The RV2 removal activities can begin as early as late summer 2021 and take approximately six to eight weeks to complete the mitigation and disposal of waste material off-Site at a permitted facility.

Estimated Costs

The estimated costs for the completion of this project are summarized below.

Direct Extramural Costs:	Current Project Ceiling	Ceiling Increase Requested in	Proposed New Total Project Ceilings

	This Action Memorandum		
Total Cleanup Contractor Cost (Includes 20% Contingency)	$15,000	$2,700,000	$2,715,000
Superfund Technical Assistance Response Team, Extramural Costs	$5,000	$300,000	$305,000
Subtotal, Extramural Costs	$20,000	$3,000,000	$3,020,000
Extramural Cost Contingency	$0	$0	$0
Total Project Ceiling	$20,000	$3,000,000	$3,020,000

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Given the Site conditions, the nature of the hazardous substances documented on-Site, and the potential exposure pathways to nearby populations described in Section III, actual or threatened releasees of hazardous substances from the Site, if not addressed by implementing the response activities described in this Action Memorandum, may present an imminent and substantial endangerment to public health or welfare or the environment.

VII. OUTSTANDING POLICY ISSUES

None.

VIII. ENFORCEMENT

EPA has conducted a preliminary potentially responsible party (PRP) search for the Site. The EPA Region 2 Removal Action Branch will continue to work with the Office of Regional Counsel to identify and locate all viable PRPs to recover costs associated with the ongoing removal activities.

The total EPA removal costs that will be eligible for cost recovery are estimated to be $4,885,475. The following chart summarizes the costs that EPA estimates will be eligible for cost recovery.

Total Estimated Costs

COST CATEGORY	AMOUNT
Direct Extramural Cost	$3,020,000
Direct Intramural Cost	$175,000
Subtotal Direct Cost	$3,195,000
Indirect Costs (Indirect Regional Cost Rate 52.91%)	$1,690,475
Estimated EPA Costs Eligible for Cost Recovery	$4,885,475

Note Direct costs include direct extramural costs and direct intramural costs Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site-specific direct costs, consistent with the full cost accounting methodology effective May 6, 2020 These estimates do not include pre-judgment interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted

during the course of a removal action The estimates are for illustrative purposes only and their use is not intended to create any rights for responsible parties Neither the lack of a total cost estimate nor deviation of actual costs from this estimate will affect the right of the United States to seek cost-recovery

IX. RECOMMENDATION

This decision document describes selected removal activities for the ongoing removal action at the 789 Upper Mountain Road Site located in Lewiston, Niagara County, New York. This document was developed in accordance with CERCLA, as amended, and is not inconsistent with the NCP. These response activities are based on the Administrative Record for the removal response action at the Site.

Conditions at the Site continue to meet the NCP Section 300.415(b)(2) criteria for a removal action as well ~~as meet~~ the criteria for a CERCLA section 104(c) emergency exemption from the $2 million limitation and 12-month limitation. This Action Memorandum requests authorization of an additional $3~~00~~,000,000, of which $2,700,000 is for mitigation contracting. If approved, the Site ceiling would be raised to $3,020,000, of which $2,715,000 would be for mitigation contracting.

Commented [LM12]: That would be quite the removal action!!

Please indicate your formal approval for the proposed ceiling increase~~,~~ and exemptions from the $2 ~~-~~million dollar~~,~~ and 12-month limits for the proposed removal activities~~action~~ at the 789 Upper Mountain
Road Site, as per the current delegation of authority, by signing below.

APPROVED: _____ **DATE:** _____
Walter Mugdan
Acting Regional Administrator

DISAPPROVED: _____ **DATE:** _____
Walter Mugdan
Acting Regional Administrator

cc: after approval
P. Evangelista, SEMD-D
J. Prince, SEMD-DD
E. Wilson, SEMD-DD
J. Rotola, SEMD-RAB
D. Harkay, SEMD-RAB
B. Grealish, SEMD-RAB
T. Lieber, ORC-NYCSUP
V. Capon, ORC-NYCSUP
M. Ludmer, ORC-NYCSUP

M. Mears, PAO
A. Rajkowski-Reyes, OPM-GCMB
B. Schlieger, 5104A
T. Benton, RST
M. Ryan, NYSDEC
M. Cruden, NYSDEC Albany
T. Rice, NYSDEC
M. Rubin, NYSDEC Region 9
S. Bates, NYSDOH
A. Raddant, USDOI
L. Rosman, NOAA

ATTACHMENT A

Figure 1: Site Location Map
Figure 2: Site Map

ATTACHMENT B

NEW YORK STATE DEPARTMENT OF HEALTH REFERRAL

ATTACHMENT C

REMOVAL SITE EVALUATION

ATTACHMENT D

CONFI~~O~~RMATION OF VERBAL AUTHORIZATION FOR A REMOVAL ACTION MEMORANDUM (RV1)

United States Environmental Protection Agency

EPA To Conduct a Removal Action at a Residential Property on Upper Mountain Road, Niagara County, Lewiston, NY

Community Update **December 2020**

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Public participation is essential to the success of EPA's community involvement program. If you have any questions, please contact:

Mike Basile
EPA Community Involvement Coordinator
(646) 369-0055
basile.michael@epa.gov

Or

Peter Lisichenko, P.G.
EPA On-Scene Coordinator
(347) 276-6251
lisichenko.peter@epa.gov

or visit EPA's website:
https://www.epa.gov/ny/niagara-county-radiation-removal-sites

For more information on EPA's response to COVID, please visit:
https://www.epa.gov/coronavirus

Current Activities

The U.S. Environmental Protection Agency (EPA) will be conducting removal work at a residential property on Upper Mountain Road in Lewiston, Niagara County, New York that has been determined to contain radioactive material buried beneath it.

The property was ~~officially~~ referred to EPA by the New York State Department of Health for evaluation under the removal program.

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[redacted]

removal~~remediation~~. EPA is currently developing a removal strategy to mitigate the hazards to human health and the environment. Immediate steps include the installation of a radon mitigation system.

~~The property was officially referred to EPA by the New York State Department of Health for evaluation under the removal program.~~

~~All future activities at this site~~EPA will be employing COVID-19 precautions for all future site activities as part of its standard operating procedures. When remedial activities begin at the site, a health and safety plan will be created to protect the contractors on-site as well as the public.

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II
EDISON, NEW JERSEY 08837

ACTION MEMORANDUM ~~RV1~~

DATE:

SUBJECT: Request for Authorization of a Removal Action at the 738 Upper Mountain Road Site, Lewiston, Niagara County, New York

FROM: Peter Lisichenko, On-Scene Coordinator
Removal Action Branch

THRU: Joseph D. Rotola, Chief
Removal Action Branch

TO: Pat Evangelista, Acting Division Director
Superfund and Emergency Management Division

Site ID: A23N

I. PURPOSE

The purpose of this Action Memorandum is to request and document approval of the proposed removal action by Region 2 of the United States Environmental Protection Agency (EPA) for the 738 Upper Mountain Road Site (Site). The Site is located on Upper Mountain Road, Lewiston, Niagara County, New York, 14092, adjacent to the postal address 738 Upper Mountain Road. The purpose of this removal action is to mitigate the threat of release of Technologically Enhanced Naturally Occurring Radioactive Material (TENORM) Thorium-232 (Th-232) and Uranium-238 (U-238) and their decay progeny into the environment. ~~that~~ A release of these radiological substances ~~would~~may impact the health of the public through a variety of pathways, including inhalation from dusts and gases; ingestion from dusts, soils, and water, and direct radiation from external doses ~~(external direct radiation exposure is primarily attributable to gamma radiation with lesser internal exposures attributable to alpha and beta radiation from particulate radioactive material)~~. The estimated cost of the removal action proposed in this Action Memorandum is $252,000, of which $150,000 is for mitigation contracting.

Commented [LM1]: This is explained at another point in the AM, and does not seem necessary to include here in the "Purpose" section.

CONCURRENCES Name: 738 Upper Mountain Road Date: 03/25/2020							
Symbol	SEMD-RAB	SEMD-RAB	SEMD-RAB	ORC-NYCSFB	ORC-NYCSFB	ORC-NYCSFB	SEMD-DD
Surname	Lisichenko	Harkay	Rotola	Ludmer	Mellott	Flannigan	Evangelista
Date							

The Site meets the criteria for a removal action under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. § 9601-9675, as described in Section 300.415(b)(2) of the National Contingency Plan (NCP), 40 C.F.R. § 300.415(b)(2).

This Site is not on the National Priorities List (NPL), and there are no nationally significant or precedent-setting issues associated with the Site.

II. SITE CONDITIONS AND BACKGROUND

The Superfund Enterprise Management System (SEMS) identification number for this Site is NYN000206697. The proposed removal action is considered time-critical to address the threats from radioactive hazardous substances found in ~~a~~ slag fill material historically utilized at the Site.

In October 1984, the U.S. Department of Energy (DOE) identified radioactive anomalies throughout the Niagara Falls area in an effort to identify areas impacted by work and activities associated with the Lake Ontario Ordinance Works (LOOW) site under the Formerly Utilized Sites Remedial Action Program (FUSRAP). The Site was identified by this study as "Anomaly #43" and was described as a gravel ditch and driveway (10 by 59-feet area) with a maximum gamma exposure rate of 710 micro-Roentgen per hour (µR/hr). Subsequent soil testing by DOE identified concentrations of ~~uranium~~U-238 and ~~thorium~~Th-232 were 70 and 560 pico-Curies per gram (pCi/g), respectively. The DOE concluded that the Site did not meet the FUSRAP guidelines and the material was not associated with the LOOW.[1]~~.~~

On July 9, 2013, the New York State Department of Health (NYSDOH) and the New York State Department of Conservation (NYSDEC) conducted a reconnaissance of the Site, which included radiological screening activities that reported radiation levels at 300 µR/hr using a hand-held pressurized ion chamber. The background readings for the Site were approximately 10 µR/hr. A survey with a sodium iodide 2x2 scintillation detector reported the highest readings ranging from 105,000-110,000 counts per minute (cpm), with the estimated background readings at the Site being 9,000 cpm. Both elevated measurements were obtained at the end of the driveway adjacent to Upper Mountain Road. NYSDEC and NYSDOH referred the Site to ~~the U.S. Environmental Protection Agency (~~EPA~~)~~ on July 21, 2013 for further assessment.

In 2013, 2014, 2016, and 2017, EPA conducted assessments of the Site to fully identify the source, delineate the extent of contamination, and determine risk levels from potential exposures to Site contaminants. On March 24, 2020, a Removal Site Evaluation (RSE) was completed for the Site, which concluded the Site was eligible for removal action under CERCLA.

A. Site Description

[1] Wi~~i~~lliams, J.K., Berven, B.A. (November 1986). Results of Radiological Measurements Taken

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The Site consists of two parcels within a residential neighborhood in Lewiston, Niagara County, New York. The first parcel, referenced as Talarico Brother Building Corp (TBBC) (Parcel#: 115.08-1-27), is a 10.3-acre wooded lot that is set back from Upper Mountain Road by approximately 200 feet. Two 65-foot egresses connect the parcel to the roadway. The proposed action is to mitigate the egress along the western edge of the parcel, which is a gravel driveway with a culvert crossing. Radioactive slag material from an unknown source was historically used as fill material at the culvert crossing and spread down the driveway impacting a total area of approximately 10 ~~-foot~~feet x 60~~-foot~~feet (600 square feet). The second parcel, referenced as 738 Upper Mountain Road (738 UMR) (Parcel #: 115.08-1-26), is 0.5-acre residential property with a 1,400 square-foot, single family home. Though ~~not deeded~~rights to use the western egress have not been formally granted, 738 UMR uses the TBBC western egress as a driveway.

See Attachment A: Maps; Figure 1: Site Location Map and Figure 2: Site Parcel Maps.

1. Removal Site Evaluation (RSE)

The NYSDEC referred the Site to USEPA Region 2 on July 21, 2013. In September 2013, the EPA Region 2 Pre-Remedial Section (PRS) initiated a preliminary assessment (PA) and site inspection (SI) to assess whether the Site posed a threat to human health and the environment. An on-Site reconnaissance was conducted on September 10, 2013 to perform a gamma radiation screening. Elevated gamma readings were observed toward the end of the driveway close to the road. The readings in the area of elevated gamma radiation ranged from background levels (approximately 9,000 cpm) to greater than 300,000 cpm.

On December 12, 2013, EPA's Site Assessment Team (SAT) contractor collected a total of nine soil samples (including one environmental duplicate sample) and two slag samples from the Site. Soil samples were also collected from two locations suspected to be outside the influence of the observed contamination to document background conditions. At each location, soil samples were either collected directly beneath slag material or at locations where a radioactive layer was not present, at the equivalent depth interval. The slag samples consisted of pulverized silty sand with rocks, cobbles, and gravel (i.e., radioactive waste material mixture) rather than singular pieces of slag.

The soil, slag, and aqueous rinsate blank samples were analyzed by Test America Laboratories for Target Analyte List metals analyses, including Mercury; Isotopic Thorium, Isotopic Uranium, and Ra-226 by alpha spectrometry; and other radionuclides by gamma spectrometry. Analytical results indicated concentrations of radionuclides found in the slag and soil to be higher than at background conditions.

On May 1 and 2, 2014, EPA's SAT contractor collected radon and thoron concentration measurements from locations on and in the vicinity of the Site. These measurements were collected with RAD7 radon detectors at selected locations in background areas, above the source

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in the Niagara Falls, New York Area (NF002). Oak Ridge National Laboratory, Oak Ridge, Tennessee.

material, and off the source area. The radon and thoron measurements were collected at heights of one meter above the ground surface. There were no radon or thoron concentrations that exceeded Site-specific background levels.

In May 2014, based on the PA and SI results, a HRS score was calculated. The calculated HRS score for the Site was less than the 28.5 threshold and, as a result, the Site did not qualify for inclusion on the NPL. The Site was then referred to the EPA Region 2 Removal Program to be considered for a CERCLA removal action.

In June 2015, based on Site information and available data, the USEPA Region 2 conducted an initial risk assessment that determined that conditions at the Site did not meet the requirements of Section 300.425(b) of the NCP for the undertaking of a CERCLA removal action.

Following the initial eligibility determination, additional gamma radiation surveying, soil sampling analysis, and assessment information were collected by the EPA Region 2 Removal Program. On October 25, 2016, EPA and the Removal Support Team (RST) contractor performed a gamma survey at the Site The highest gamma reading recorded was approximately 463 µR/hr in comparison to a background reading of approximately 10 µR/hr.

On November 18, 2016, EPA and the RST contractor conducted soil sampling at several locations on the Site. On December 6, 2016, soil samples collected in November 2016 were analyzed on-site with a High-Purity Germanium Detector. Once completed, the samples were shipped to a third-party fixed analytical laboratory for the following analyses: isotopic Uranium and isotopic Thorium by alpha spectrometry, 21-day in-growth for Ra-226, ~~as well as~~and U-238 and Th-232 decay chain progeny radionuclides by gamma spectrometry. On February 23, 2017, the preliminary soil sample results from the fixed analytical laboratory were received.

On August 11, 2017, EPA and the RST contractor conducted an indoor gamma survey of the home located on the Site. There were no elevated gamma readings identified above background levels. A New York State certified radon specialist placed radon canisters throughout the home.

On August 18, 2017, the radon laboratory results were received indicating that radon levels in the building ~~tested~~ were below the EPA action level of 4.0 picocuries per liter. A mitigation action within the building was not recommended under the existing conditions.

On March 24, 2020, a Removal Site Evaluation (RSE) was completed for the Site based on the data collected in 2016 and 2017, and concluded the Site is eligible for a removal action under CERCLA. The radionuclides of concern include ~~Uranium-238 (~~U-238~~)~~ and ~~Thorium-232 (~~Th-232~~)~~. The calculated area-specific exposure point concentrations (EPCs) included data from the top 2.5 feet of soil based on available soil data. ~~Further, t~~This approach is consistent with chemical evaluations of residential soil exposures where EPA typically evaluates the top 2 feet. Cancer risk was set at 10^{-4} , which is consistent with Removal Management Levels (RMLs). The soil EPC~~s~~ calculated for U-238 ~~=~~was 22.6 pCi/g and for Th-232 ~~=~~was 127.3 pCi/g. The cancer risk assuming no shielding was calculated to be 9.65E-04, making the Site removal eligible. In order to reduce the risk level below 10^{-4}, the Preliminary Remediation Goals (PRGs) for the radionuclides of concern were calculated to be~~:~~ ~~U-238 =~~ 12.0 pCi/g for U-238 and ~~Th-232 =~~ 13.2

pCi/g for Th-232.

See Attachment A: Maps, Figure 3: Gamma Survey and Figure 4: EPA Sample Locations and Results.

See Attachment B: Final Removal Assessment Sampling Report, 2016 and 2017 Events

See Attachment C: Removal Site Evaluation (RSE) Memorandum

2. Physical Location

The Site is located adjacent to 738 Upper Mountain Road, Lewiston, Niagara County, New York (N43.155529/W79.022452). From the intersection of Military Road and Upper Mountain Road, the Site is situated 0.4 miles northeast along Upper Mountain Road. The Site~~,~~ is located in a residential area~~,~~ and is a gravel culvert crossing and driveway along the south side of Upper Mountain Road.

Sensitive areas identified around the Site include the following:

- 14-acre~~a~~ ~~F~~freshwater ~~F~~forested/~~S~~shrub ~~W~~wetland 1,000-feet to the north, NWI code PFO1Ad.~~,~~
- Fish Creek, a tributary to the Niagara River, 1,000-feet to the north, NWI code R2UBHx.~~,~~
- 1,900-acre lake freshwater lake 1,700-feet to the south of the site, Nation Wetlands Inventory (NWI) code L1UBHh.~~,~~
- Mount St. Mary's Hospital 0.5 miles to the west.~~,~~
- Our Lady of Peace Nursing Home 0.7 miles to the west.~~,~~
- St. Peters School 1.4 miles to the northwest.~~,~~
- Tuscarora Nation Reservation ~~is~~ 1.5 miles to the east.~~,~~
- Colonial Village Elementary School 2.5 miles to the southeast.~~,~~ and
- Maple Avenue Elementary School 2.6 miles to the southwest.

3. Site Characteristics

The Site consists of a culvert crossing and portions of a gravel driveway that serve~~s~~ as an egress to a wooded lot set back from Upper Mountain Road. Adjacent to the area of concern are residential properties, including the residence at 738 Upper Mountain Road that uses the egress ~~to enter its own property~~. The radioactive fill material is concentrated at the culvert crossing and thins out going down the driveway. A 2-inch gas line crosses the proposed excavation area at two to three-feet below grade. Upper Mountain Road (County Route 11) is classified by New York State Department of Transportation ~~(NYSDOT)~~ as a FC 16 – Urban Minor Arterial with a posted speed limit of 35 miles per hour. Approximately 4,000 vehicles[2] utilize Upper Mountain Road during the normal weekday.

The removal action documented in this Action Memorandum will be the first CERCLA removal

[2] New York State Department of Transportation (1996). Traffic Count Hourly Report, Upper Mountain Road (CR11), Lewiston, New York.

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action undertaken at the Site. The funding requested is necessary to conduct the removal action described herein and to address the threats posed by the Site.

4. Release or threatened release into the environment of a hazardous substance, or pollutant, or contaminant

Sampling and analysis conducted at the Site by EPA has identified the presence of CERCLA hazardous substances, as that term is defined in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14), and 40 C.F.R. Table 302.4. The Site is a facility within the meaning of Section 101(9) of CERCLA, 42 U.S.C. § 9601(9), and the presence of hazardous substances in subsurface media constitutes a "release" as defined in Section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

The release and threat of release of the hazardous substances Th-232 and U-238 into the environment may impact the health of the public at the Site through a variety of pathways, including inhalation of dusts and gases; ingestion of dusts, soils, and water; and direct radiation from external doses. (eExternal direct radiation exposure is primarily attributable to gamma radiation, withand lesser internal exposures are attributable to alpha and beta radiation from particulate radioactive material). Residents of 738 Upper Mountain Road, adjacent neighbors, and other members of the public at or near the Site are potentially exposed to contamination via routes of inhalation or dermal contact with loose soils and windblown dust in the driveway area.

Hazardous Substances Statutory Source for Designation Under CERCLA:

Radiological Substances Identified	Maximum Concentration
Thorium 232 (Th-232) + Progeny	323.85 pCi/g
Uranium 238 (U-238) + Progeny	36.58 pCi/g

Each of the radiological substances listed above are included in 40 CFR 302.4, List of Hazardous Substances and Reportable Quantities, Appendix B – Radionuclides. The statutory source for designating radionuclides as a hazardous substance under Section 102(a) of CERCLA, 42 U.S.C. § 9602(a), is Section 112 of the Clean Air Act, 42 U.S.C. § 7412.

5. National Priorities List (NPL) status

The Site is not listed on the NPL nor is it proposed for inclusion.

6. Maps, pictures, and other attached documents

Attachment A: Maps
Attachment B: Final Removal Assessment Sampling Report, 2016 and 2017 Events
Attachment C: Removal Site Evaluation (RSE) Memorandum

B. Other Actions to Date

1. Previous actions

No previous mitigation actions have been taken by any federal, State, or local government entity or private party to address the hazardous substances located at the Site. All federal and State actions, to date, have been in the form of assessment activities.

2. Current actions

There are no current CERCLA actions ongoing at the Site. Based on the findings detailed above in the RSE Section of this Action Memorandum, the Site is eligible for a removal action.

C. State and Local Authorities' Role

1. State and local actions, to date

In July 1985, members of the Radiological Surveys Activities Group at Oak Ridge National Laboratory performed a radiological survey of the Site, which documented a maximum gamma exposure rate of 710 µR/hr. The area with these readings was approximately 10 feet wide by 59 feet in length and located along a ditch and gravel residential driveway. The results of the survey were documented in a November 1986 report, which stated that the gamma radiation anomaly at the Site was associated with a phosphate slag material. Biased surface soil samples collected during the survey indicated the presence of Ra-226, U-238, and Th-232 at the Site. The contaminated soil and rock samples collected had approximately equal concentrations of Ra-226 and U-238, which suggested to the investigators that the rocks probably originated from a singular source. The exact origin of the material was unknown; however, it was postulated in the report that its source was some type of mineral extraction activity in the Niagara Falls area. A conclusion in the report was that the anomaly at the Site was not related to materials connected with the LOOW, including materials that were transported to LOOW.

During a reconnaissance performed by NYSDOH and NYSDEC on July 9, 2013, screening activities showed radiation levels at 300 µR/hr with a hand-held pressurized ion chamber. The background readings for the Site were approximately 10 µR/hr. Surveying with the sodium iodide 2x2 scintillation detector, the highest readings ranged from 105,000-110,000 cpm, with the estimated background readings at the Site being 9,000 cpm. Both of the elevated measurements were obtained at the end of the driveway adjacent to Upper Mountain Road.

2. Potential for continued State/local response

~~Neither~~ NYSDEC, NYSDOH, ~~nor~~and the local government do not have resources available to conduct a removal action at the Site. NYSDEC and NYSDOH referred the Site to EPA on July 21, 2013. These entities will act in a supporting role throughout the

removal action.

III. THREATS TO PUBLIC HEALTH, OR WELFARE, OR THE ENVIRONMENT AND STATUTORY AND REGULATORY AUTHORITIES

Hazardous substances present at the Site pose a threat to public health, or welfare, or the environment. Sampling and analysis have confirmed a release and threat of continued release of hazardous substances at the Site.

Conditions at the Site met the requirements of Section 300.415(b)(2) of the NCP, 40 C.F.R. § 300.415(b)(2), for determining the appropriateness of a CERCLA removal action. Factors from Section 300.415(b)(2) of the NCP that supported conducting a removal action at the Site are discussed below.

(i) Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, or pollutants, or contaminants;

The Site contains radioactive contamination in an area utilized as a residential driveway that extends into the county road right of way. There are additional residences located along Upper Mountain Road. The Site residents and general public may move freely in this identified contaminated area. These activities potentially expose specific populations to the Th-232 and U-238 contamination. Populations with increased cancer risk because of internal or external exposure to contamination are known as "receptors." Based on the compiled EPA RSE data, the receptors most likely to be exposed to the hazardous substance of radiation at the Site are residents.

Based on the site-specific assumptions developed in the RSE and the PRG Calculator results, the human health risk of Th-232 and U-238 is 8.14 $x10^{-4}$ and 1.51 $x10^{-4}$, respectively. As a conservative assessment, the overall scenario for the risk calculation included both adults and children living on and near the contamination. In this assessment, the child was assumed to become an adult after six years and to continue to live on the Site for 20 more years, for a total of 26 years of exposure. The child and adult were assumed to perform various activities at the site, which totaled 0.87 hours per day for the child and 0.25 hours per day for the adult for 365 days per year. Based on the risk calculations and the concentrations found at the Site, a removal action is warranted since both Th-232 and U-238 exceed EPA's acceptable cancer risk range of 1 x 10^{-4} (1 in 10,000) to $1x10^{-6}$ (1 in 1,000,000).

(ii) Actual or potential contamination of drinking water supplies or sensitive ecosystems;

If the hazardous substances at the Site were to migrate, the potentially affected waterbodies located between 0.5-1.0 mile of the Site include the Niagara River (west), Ontario Hydro Reservoir (west), Power Reservoir (south), and the Fish Creek (north). The radioactive rock/soil at the Site is located near the surface and may migrate to the local waterbodies via overland pathways during heavy rains and flooding.

(iv) High levels of hazardous substances, or pollutants, or contaminants in soils, largely at or near the surface that may migrate;

Th-232 (Progeny: Th-228) has been detected in surface soils at levels as high as 323.85 pCi/g, and U-238 (Progeny: Ra-226) has been detected in surface soils at levels as high as 36.58 pCi/g. The radiologically contaminated soil may migrate through airborne dust, surface runoff, construction activities, and foot traffic into the existing buildings on-Site and/or into homes and residential areas. Since Th~~orium~~-232 and U~~ranium~~-238, as well as their progenies, have a long half-life (i.e. billions of years), it is highly probable that the Site will undergo physical changes before the radiological contaminants on-Site will decay to background concentrations. Excavation and/or construction (i.e. service work on utilities) may result in increased exposures to humans from the contamination becoming suspended or airborne. A subsurface gas service line is known to cross through the area of contamination and any type of service work increase the potential for migration of the radioactive material as well as exposure to utility workers. Since the radioactive material is at the surface, vehicular traffic, snow removal operations, and surficial sheet flow may also cause contamination to migrate. In addition, due to the proximity of Upper Mountain Road, vehicular incidents (accidents and fires) could result in releases and exposure of first responders to the radionuclides.

(v) Weather conditions that may cause hazardous substances, or pollutants, or contaminants to migrate or be released; and

The radioactive rock/soil is located at the surface in area of concern at the Site. Weather conditions may cause migration of the hazardous material to other parts of the Site, to public areas, and to the neighboring residential properties.

(vii) The availability of other appropriate federal or State response mechanisms to respond to the release.

No other federal or State response mechanism ~~wea~~re available to respond in a timely manner to the significant threat presented by the Site.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from the Site, if not addressed by implementing the response action selected in this Action Memorandum, may present an imminent and substantial endangerment to public health~~,~~ or welfare~~,~~ or the environment.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

The purpose of this removal action is to mitigate the release and/or threat of release of hazardous substances threatening human health and the environment. To mitigate these threats, the following actions will be necessary:

1. Proposed action description

- ~~Make a~~Arrangements will be made with residents at 738 Upper Mountain Road to restrict use of the egress during the removal operations.
- ~~Establish s~~Shoulder closure procedures will be established at the TBBC egress along Upper Mountain Road in accordance ~~to~~with ~~C~~county and ~~S~~state requirements. Signage and temporary delineation markers may be required.
- ~~Stage a~~Approximately 20-cubic yards of 2-inch crusher-run gravel will be staged at the ~~s~~Site.
- ~~Excavate c~~Contaminated material will be excavated into cubic-yard super sacks. ~~D~~The depth of excavation will be extended downwards until radioactive contamination above the PRG is removed in accordance with the RSE. Gamma scans will be conducted at the base of the excavation as the excavation progresses. Post-excavation confirmation samples will be collected and submitted for analyses to ensure remediation goals have been achieved.
- Excavation will be backfilled in 6-inch lifts from the stockpiled material and compacted. Additional backfill material will be brought in if needed.
- Super sacks will be staged at a secure location on-site.
- ~~Dispose of the e~~Excavated material will be disposed of in accordance with the EPA offsite rule.
- ~~Conduct f~~Final Site restoration activities will be conducted.

It is anticipated that the excavation and backfill operations will be completed within 2 – 3 days, and one additional day will be needed for disposal and restoration work.

The actions proposed to address the threats that exist at the Site are based on the types and quantities of hazardous substances identified during the EPA assessment and risk determination. Additional actions and/or costs may be necessary should the type and/or quantity of hazardous substances change as the proposed actions are implemented. The contingency funds requested in this Action Memorandum are proposed to address this uncertainty to a limited extent.

2. Contribution to remedial performance

The response measures documented in this Action Memorandum will address direct contact and migration threats to public health and the environment from the hazardous substances identified at the Site. The action is consistent with the requirement of Section 104(a)(2) of CERCLA, 42 U.S.C. § 9604(a)(2), in that it will~~ould~~ contribute to the efficient performance of any long-term remedial action with respect to the release or threatened release concerned. Currently there are no long-term remedial actions planned for the Site.

3. Engineering Evaluation/Cost Analysis (EE/CA)

As a result of the time-critical nature of this removal action, an EE/CA will not be

prepared.

4. Applicable or Relevant and Appropriate Requirements (ARARs)

It remains EPA's policy that ARARs will generally be considered protective absent multiple contaminants or pathways of exposure. However, in rare situations, EPA Regional offices establish PRGs at levels more protective than required by a given ARAR, even absent multiple pathways or contaminants, where application of the ARAR would not be sufficiently protective of human health or the environment. It was determined that the Uranium Mill Tailings Radiation Control Act cleanup standard for radiological contamination, a surface soil cleanup level of 5 pCi/g above background, was not sufficiently protective of public health. Site-specific PRG numbers were calculated inclusive of background. The highest risk receptor, a resident whose daily activities included walking, landscaping, shoveling snow, riding a bike, waiting for the bus, and general child play, was used in determining the most conservative value for cleanup levels at the Site. ARARs will be met to the extent practicable given the exigencies of the circumstances.

5. Project schedule

Field activities can be initiated within two weeks following the approval of this Action Memorandum. The project is expected to take approximately one week to complete. This includes the material being properly shipped off-site to an appropriate disposal facility.

B. Estimated Costs

A summary of estimated total costs for the removal action is presented below.

Direct Extramural Costs	Proposed Ceiling
Regional Allowance Costs (Total clean-up contractor including labor, equipment, materials)	$150,000
START V Contractor Costs	$60,000
Subtotal, Extramural Costs	$210,000
Extramural Cost Contingency (20%)	$42,000
Total Direct Extramural Costs	**$252,000**

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Given the Site conditions, the nature of the hazardous substances documented on-site, and the potential exposure pathways to nearby populations described in Section III.A., actual or

threatened releases of hazardous substances from the Site, if not addressed by implementing the response action described in this Action Memorandum, may present an imminent and substantial endangerment to public health, or welfare or the environment.

VII. OUTSTANDING POLICY ISSUES

There are no known outstanding policy issues associated with this Site at the present time. While there is a Headquarters consultation process in place for sites where radioactive contamination is present (Headquarters Consultation for Radioactively Contaminated Sites, OSWER No. 9200.1-33P, July 26, 2000), this consultation requirement applies only to sites where radioactive material will be managed on-site (e.g. capping, disposal cells) or where there is a potential national, precedent-setting issue related to the radioactive materials. In this instance, the radioactive materials will not be managed in place and there is no potential national, precedent-setting issue related to the radioactive materials. Therefore, Headquarters consultation is not required.

VIII. ENFORCEMENT

EPA has initiated a preliminary Potentially Responsible Party (PRP) search for the Site. The OSC will work with the RAB enforcement staff and the Office of Regional Counsel to identify and locate all viable PRPs to recover costs associated with this removal action.

Based on full cost accounting practices, the total EPA costs for this removal action that will be eligible for cost recovery are estimated to be $402,750. The following chart describes the costs, which EPA believes are eligible for cost recovery as part of this response action.

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Cost Type	**Total Funding Requested in this Memorandum**
Direct Extramural Cost	$252,000
Direct Intramural Cost	$20,000
Subtotal, Direct Cost	$272,000
Indirect Costs (Regional Indirect Cost Rate 48.07%)	$130,750
Estimated EPA Costs Eligible for Cost Recovery	**$402,750**

*Direct costs include direct extramural costs and direct intramural costs. Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site-specific direct costs, consistent with full cost accounting methodology effective 2009. These estimates do not include pre-judgment interest, do not take into account other enforcement costs, and may be adjusted during the course of the removal action. The estimates are for illustrative purposes only and their use in this Action Memorandum may not be relied

upon by any third party as binding upon EPA. Neither the lack of a total cost estimate nor deviation of actual costs from this estimate will affect the United States' right to cost recovery.

X. RECOMMENDATION

This decision document ~~re~~presents the selected removal action for the 738 Upper Mountain Road Site located in Lewiston, Niagara County, New York. This document has been developed in accordance with CERCLA and is not inconsistent with the NCP. This decision is based on the administrative record for the Site.

The total funding requested by this Action Memorandum, if approved, would be $252,000, of which $150,000 is for mitigation contracting. EPA anticipates sufficient monies in the Regional Removal Advice of Allowance to fund the project. Incremental funding is not necessary for this action.

Please indicate your formal authorization for the proposed removal action at the 738 Upper Mountain Site, as per current Delegation of Authority, by signing below.

Approved: _____ **Date:** _____
Pat Evangelista, Acting Director
Superfund and Emergency Management Division

Disapproved: _____ **Date:** _____
Pat Evangelista, Acting Director
Superfund and Emergency Management Division

cc: P. Evangelista, SEMD-AD
J. Prince, SEMD-DD
E. Mosher, SEMD-RPB
J. Rotola, SEMD-RAB
S. Hoppe, SEMD-RPB
M. Gregor, SEMD-RAB
B. Grealish, SEMD-RAB
T. Lieber, ORC-NYCSFB
M. Ludmer, ORC-NYCSFB
M. Mears, PAD
H. Freeman, OPM-GCMB
M. Fiore, OIG
B. Schlieger, 5104A
T. Benton, RST
M. Franklin, NYSDEC
A. Raddant, USDOI
F. Csulak, NOAA

DO NOT PLACE IN ADMINISTRATIVE RECORD
DO NOT RELEASE TO THE PUBLIC

Confidential Enforcement Addendum

Attachment A: Maps

Figure 1: Site Location Map
Figure 2: Site Parcel Map
Figure 3: Gamma Survey Map
Figure 4: EPA Sample Locations and Results Map

Figure 1: Site Location Map

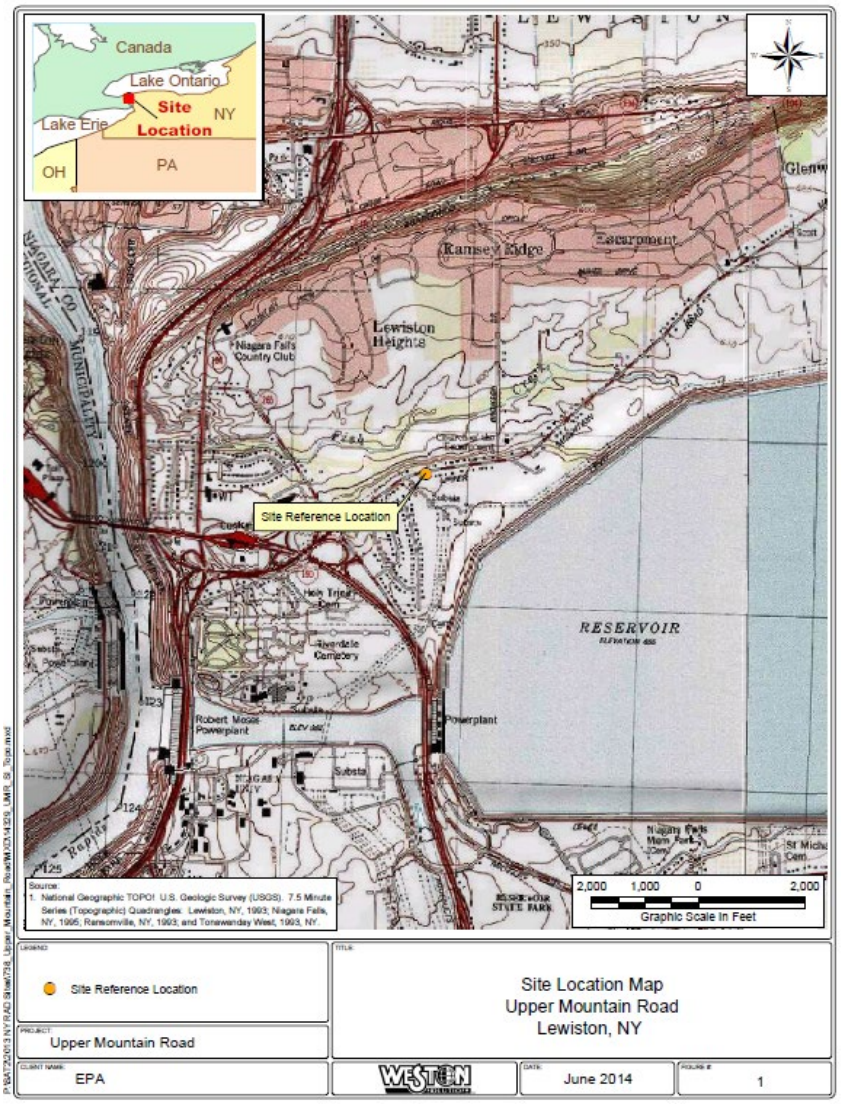

Figure 2: Site Parcel Map

Figure 3: Gamma Survey Map

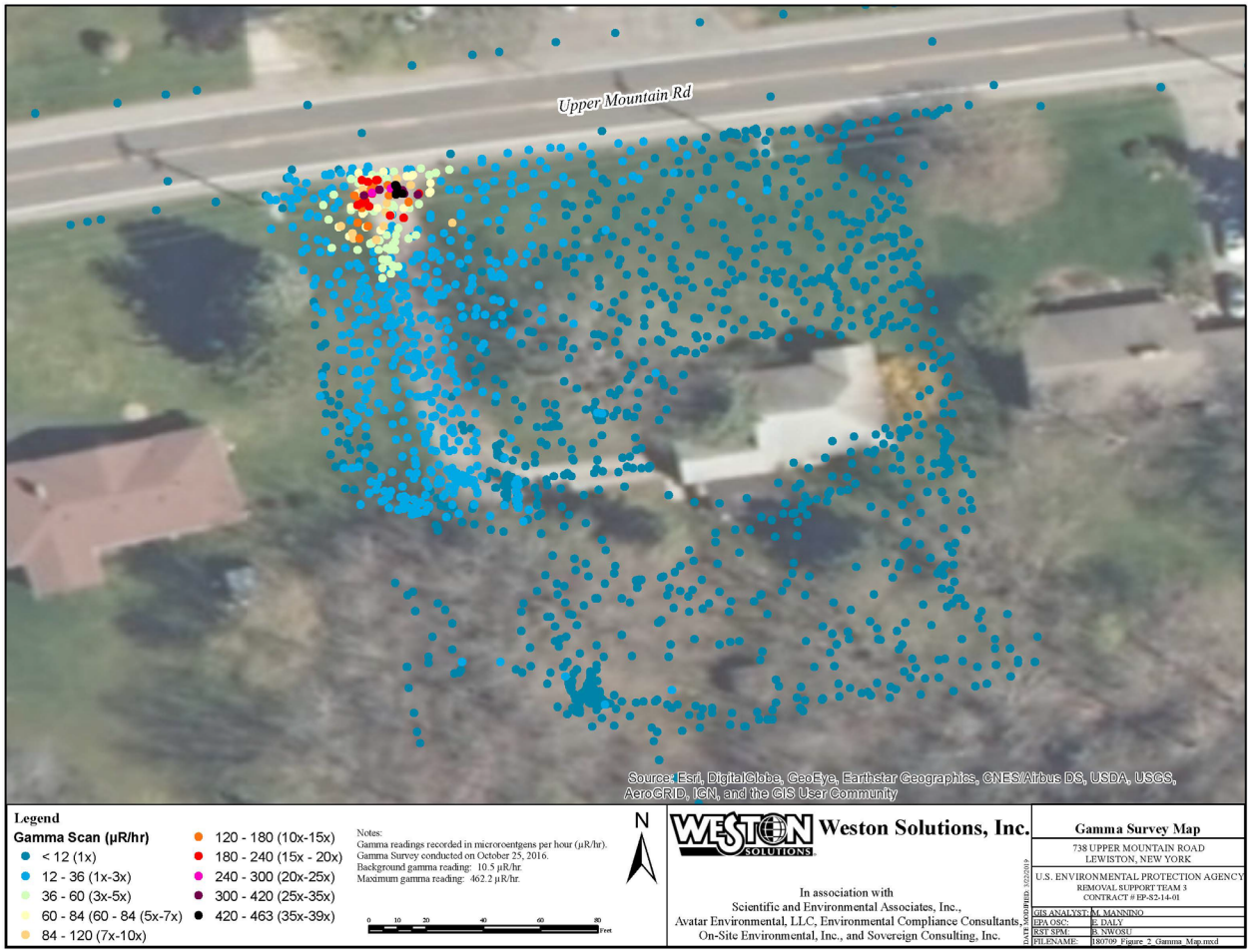

Figure 4: EPA Sample Locations and Results Map

Attachment B: Final Removal Assessment Sampling Report, 2016 and 2017 Events

Attachment C: Removal Site Evaluation (RSE) Memorandum

U.S. Environmental Protection Agency, Region 2
Superfund and Emergency Management Division
2890 Woodbridge Avenue
Edison, New Jersey 08837

CONSENT FOR ACCESS TO PROPERTY

Addressed to:
Talarico Bros Bldg. Corp
Upper Mountain Road
Lewiston, New York 14092

I, the undersigned, am the owner of the property located on Upper Mountain Road in the Town of Lewiston, Niagara County, New York, identified by tax map number 115.08-1-27 (hereinafter, the "Property"). I have authority to grant access to the Property.

I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (EPA) entering and having continued access to the Property for the following purposes:

- Conducting monitoring and sampling activities to identify environmental contamination in soil, air, surface water, groundwater, containers, building materials and property, including radioactive emitting/containing materials located on the Property;

- Undertaking removal activities to address hazardous substances at the Property, including the excavation of contaminated materials as well as staging, backfilling, and restoration activities;

- Performing other actions, as determined necessary by EPA, to assess the presence and extent of hazardous substances on the Property; and

- Taking any response action to address any release or threatened release of a hazardous substance, pollutant or contaminant which EPA determines may pose a threat to the public health or welfare or the environment.

I understand that these actions may be taken by EPA pursuant to its response and enforcement authorities under the Comprehensive Environmental Response, Compensation, and Liability Act, as amended, 42 U.S.C Section 9601 et seq., and that access to the Property is needed by EPA to effectuate a response action.

This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

I understand that EPA or its representatives will notify me at the provided contact number or email address of the approximate times and dates when access will be required.

By the signature below, I affirm that I own the Property, that I have authority to grant access to the Property, and that I authorize entry onto the Property for the purposes described above.

_____ _____
Signature Date

_____ _____
Printed Name Contact Number or email

U.S. Environmental Protection Agency, Region 2
Superfund and Emergency Management Division
2890 Woodbridge Avenue
Edison, New Jersey 08837

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By the signature below, I affirm that I own the Property, that I have authority to grant access to the Property, and that I authorize entry onto the Property for the purposes described above.

_____ _____
Signature Date

_____ _____
Printed Name Contact Number or email

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

ACTION MEMORANDUM RV1

DATE:

SUBJECT: Request for a Ceiling Increase for the Removal Action at the Niagara Falls Boulevard Site, Niagara Falls, Niagara County, New York

FROM: Peter Lisichenko, On-Scene Coordinator
Removal Action Branch

THRU: Joseph D. Rotola, Chief
Removal Action Branch

TO: Pat Evangelista, Acting Director
Superfund and Emergency Management Division

SITE ID No.: A23Q

I. PURPOSE

The purpose of this Action Memorandum is to request approval for a ceiling increase for the removal action described herein at the Niagara Falls Boulevard Site (Site) located at 9524 and 9540 Niagara Falls Boulevard, Niagara Falls, Niagara County, New York. The additional funding is necessary to remove and dispose of radioactive contaminated soil/slag that underlies portions of an active bowling alley, building supply store, a parking lot, and select wooded areas where it is found at both the surface and subsurface. Work at the Site was initiated in 2016 and again in 2018. However, because of high disposal costs and a substantial increase in excavation activities at the Site due to the discovery of additional quantities of waste, the funding previously authorized was insufficient to cover the entire mitigation costs. The funding increase requested in this Action Memorandum will allow for the completion of the removal action.

The total extramural funding that has been authorized to date for the Site is $7,773,000, of which $7,167,640 is for mitigation contracting. This Action Memorandum requests authorization for an additional $3,000,000, of which $2,500,000 is for mitigation contracting. If approved, the Site ceiling would be raised to $10,773,000, of which $9,667,640 would be for mitigation contracting.

CONCURRENCES Name: Niagara Falls Boulevard Intl. sb Date: 05/01/2019 Action Memo #0493							
Symbol	SEMD-RAB	SEMD-RAB	SEMD-RAB	ORC-NJSFB	ORC-NJSFB	ORC-NJSFB	ERRD-DD
Surname	Lisichenko	Harkay	Rotola	Ludmer	Mellott	Flannigan	Prince
Date							

Conditions at the Site continue to meet the criteria for a removal action under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA) 42 U.S.C. §§ 9601-9675, and Section 300.415(b)(2) of the National Contingency Plan (NCP).

This Site is not included on the National Priorities List (NPL) and there are no nationally significant or precedent setting issues associated with this removal action.

II. SITE CONDITIONS AND BACKGROUND

The Superfund Enterprise Management System ID Number for this time-critical removal action is NJD981178346.

On May 13, 2016, the Director of the Emergency and Remedial Response Division (now known as the Superfund and Emergency Management Division or SEMD) verbally authorized $600,000, of which $500,000 was for mitigation contracting, to initiate a removal action. On June 14, 2016, the Division Director granted a second verbal authorization for an additional $500,000. On September 27, 2016 the Assistant Administrator for the Office of Land and Emergency Management authorized an action memorandum for a ceiling increase, 12-month exemption, and $2 million exemption. Approval of that action memorandum provided a project ceiling of $7,773,000, of which $6,748,000 was for mitigation contracting.

Commented [HD1]: This number still does not match the number in the second paragraph under purpose (first page)

This Action Memorandum, if approved, will raise the total project ceiling to $10,773,000, of which $9,667,640 would be for mitigation contracting. Site conditions continue to meet the emergency exemption criteria as documented in the action memorandum dated September 27, 2016.

A. Site Description

1. Removal site evaluation (RSE)

Refer to previous action memorandum (see Attachment A).

2. Physical location

The main addresses associated with the Niagara Falls Boulevard Site are 9524, 9540, 9547, and 9626 Niagara Falls Boulevard in Niagara Falls, Niagara County, New York. The Site is comprised of the following parcels, identified by tax ID number: 146.18-1-17, 146.18-2-4, 146.18-2-5, 146.18-2-7, 146.19-3-1, 146.19-3-2, 146.19-3-3 and 146.19-3-4. The Site is located in a mixed commercial and residential area of Niagara Falls and encompasses approximately 2.53 acres of land. The Site is bordered to the north by a wooded area; to the east by a church; to the south by Niagara Falls Boulevard, beyond which is a residential area; and to the west by a hotel and residential area. See Attachment B for map of the Site.

Sensitive areas identified around the Site include the following:

- Freshwater forested/shrub wetlands, which border the Site to the north. The Buffalo Niagara Riverkeeper has proposed plans with the current property owner and the Town of Niagara to restore and protect this area and create a park.

- Cayuga Creek (0.3 miles west), which is hydrologically connected to the forested/shrub wetlands identified above.

3. Site characteristics

The 9524 Niagara Falls Boulevard property is currently owned by 9524 Niagara Falls Boulevard LLC. The parcel contains a building that is operated as a bowling alley by the Rapid Bowling Center (RBC) and an asphalt parking lot that adjoins the northern, southern, and eastern sides of the RBC building.

The 9540 Niagara Falls Boulevard property is currently owned by 9540 Niagara Falls Boulevard LLC. This parcel contains a building operated by the Greater Niagara Building Center (GNBC), a building supply business. In addition, the parcel contains an asphalt parking lot, which surrounds the GNBC building and is a continuation of the parking lot on the adjacent 9524 Niagara Falls Boulevard property. To the east of the GNBC building and the parking lot, there is a worn-down concrete padded area that is crumbling and contains patches of overgrown grass.

The removal activities (RV1) documented in this Action Memorandum are a continuation of the removal activities authorized in the previous Action Memorandum dated September 27, 2016 (see Attachment A).

4. Release or threatened release into the environment of a hazardous substance, or pollutant, or contaminant

Sampling and analysis conducted at the Site by EPA has identified the presence of CERCLA hazardous substances, as that term is defined in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14) and 40 C.F.R. Table 302.4. The Site is a facility within the meaning of Section 101(9) of CERCLA, 42 U.S.C. § 9601(9), and the presence of hazardous substances in subsurface media constitutes a "release" as defined in Section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

The release and threat of release of the contaminants Ra-226 and Ra-228 into the environment may impact the health of the public at the Site through a variety of pathways, including inhalation from dusts and gases; ingestion from dusts, soils, and water; and direct radiation from external doses of alpha, beta, and gamma radiation from a particulate radioactive material. Exposure to this material increases the cancer risk to the individual. Workers of RBC and GNBC, as well as passersby, patrons, merchants, and other members of the public at or near the Site are exposed to contamination via routes of inhalation or dermal contact to soils and windblown dust in the parking areas and indoors.

Hazardous Substances Statutory Source for Designation Under CERCLA:

Radiological Substances Identified	Maximum Concentration
Radium 226 (Ra-226)	199 pCi/g
Radium 228 (Ra-228)	807 pCi/g

Each of the radiological substances listed above are included in 40 CFR 302.4, List of Hazardous Substances and Reportable Quantities, Appendix B – Radionuclides. The statutory source for designating radionuclides as a hazardous substance under Section 102(a) of CERCLA, 42 U.S.C. § 9602(a), is Section 112 of the Clean Air Act, 42 U.S.C. § 7412.

Commented [LM2]: "radionuclides"?

5. NPL status

The Site was evaluated for potential NPL listing, but was not included on the NPL.

6. Maps and pictures depicting Site location and conditions

Attachment A: Action Memorandum, September 27, 2016 (RV1)
Attachment B: Site Location Map

B. Other Actions to Date

1. Previous actions

Starting in June 2016, EPA mobilized its Emergency and Rapid Response Services (ERRS) and Removal Support Team (RST) contractors to initiate work at the Site. Activities included the following: demolition of an office space at GNBC (removal of non-load-bearing walls and concrete floor), removal of the offices contaminated substrate and restoration of the space, clearing and grubbing of the 0.6-acre wooded area behind RBC, excavation of contaminated substrate, and restoration of the area with crusher run gravel. Approximately 4,576 cubic yards of material was shipped to a Nuclear Regulatory Commission (NRC)-approved facility for disposal.

Commented [LM3]: What does this mean?

In September 2018, EPA remobilized ERRS and RST contractors to continue work at the Site. The focus of this mobilization was to address those areas external to the structures including the parking lot areas of the two businesses and the wooded area along the northern border of the Site. From September to October 2018, 12,704 tons of contaminated material was removed and shipped off-Site to an NRC-approved facility, accounting for approximately 85 percent (approximately 2.5 acres) of the total "external to structures" excavation area. Areas of excavation were subsequently backfilled and restored, including the installation of the basecoat of pavement for the parking lots. Shortfall for completing the areas external to structures is attributed to unexpected excavation at two locations where former underground petroleum storage tanks had been located. Both locations required excavations to depths between 10 to 15 feet below

ground surface to remove slag material that had been placed there as backfill after the tanks were removed.

In October 2018, additional assessment work, including gamma mapping and test pitting, was conducted to better delineate the horizontal and vertical extent of the contamination for areas external to the RBC and GNBC structures. Combined with previous assessment data, a new Site model was developed. In total, it is estimated that 9,250 cubic yards of contaminated material remains at the Site. Impacted ares include portions of the parking lot, the wooded area along the Site's northern border, the breezeway at RBC, and two warehouse and two storage areas within GNBC.

2. Current actions

Efforts are being made to plan and prepare for the remaining work at the Site. Tasks include developing the project schedule; assigning ERRS to prepare Requests for Proposal (RFPs) for restoration work (including subcontracts for concrete and paving services), equipment rentals, and certified clean fill; developing a removal strategy for working within the buildings; and coordinating with the disposal facility on the acceptance of the waste during the winter months. In addition, to minimize disruption and economic impacts, EPA is coordinating with the property and business owners at 9540 Niagara Falls Boulevard to identify a secure temporary storage solution for inventory while the work is being completed within GNBC.

C. State and Local Authorities Roles

1. State and local actions, to date

In September through October 2006 and May 2007, the New York State Department of Environmental Conservation (NYSDEC) conducted radiological surveys of the interior and exterior of the Site using Exploranium-135 and Ludlum 2221 detectors. With the exception of an office area and storage space at GNBC which were constructed directly on top of the asphalt parking lot after the construction of the other structures on the parcel, interior radiation levels were generally at background level. Within the newer office area and storage space, the highest reading was roughly seven times higher than background. Exterior readings taken at waist height at GNBC indicated elevated radiation levels at a fenced area behind the building. Elevated readings were also observed on the swath of grass between the RBC property, the adjacent property to the west that contains a hotel, and in the marshy area beyond the parking lot behind the GNBC and RBC buildings. Two biased samples of slag confirmed contamination from locations that exhibited elevated static Ludlum detector readings. One of the samples was collected from an area of loose blacktop and indicated readings of approximately 171 times greater than background. The other samples were obtained from a slag pile located in a marshy area north of the parking lot that indicated readings over 200 times greater than background.

During a reconnaissance performed by the New York State Department of Health and NYSDEC on July 9, 2013, screening activities showed elevated radiation levels with a hand-held PIC unit around an area of broken asphalt and from a soil pile containing slag at the Site.

2. Potential for continued State/local response

NYSDEC will continue to act in an advisory/supporting role throughout the performance of the removal action at the Site.

III. THREATS TO PUBLIC HEALTH, OR WELFARE, OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

Hazardous substances present at the Site represent a threat to the public health and environment as defined by Section 300.415(b)(2) of the NCP in that there is a high potential for direct contact to radiation from alpha, beta, and gamma radioactive material.

Factors that support conducting the removal action at the Site are discussed below.

Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, or pollutants, or contaminants;

The Site contains two active businesses, the RBC bowling alley and the GNBC supply business. These operations expose specific populations to the Ra-226 and Ra-228 contamination. Populations with increased cancer risk due to internal or external exposure to contamination are known as "receptors." Based on the compiled EPA Pre-Remedial Assessment and EPA RSE data, the receptors most likely to be exposed to the hazardous substance of radiation at the Site are:

Outdoor workers:

An outdoor worker who is employed full-time by either RBC or GNBC could come in contact with the hazardous substances while working on-site conducting outdoor maintenance activities throughout the day. The worker may be exposed long-term to the on-site surface soil contamination during the work day while performing tasks such as moderate digging or landscaping. The outdoor worker could be exposed to the contamination via the following pathways: incidental ingestion of soil, external radiation from contamination in soil, and inhalation of fugitive dust. According to a survey submitted to EPA by RBC, there were three RBC personnel that worked outdoors at the Site as of 201X.

Indoor workers:

An indoor worker at the RBC or GNBC buildings may come in contact with contamination through ingestion of contaminated soils that have been incorporated into indoor dust, external radiation from contamination in soil, and the inhalation of

contamination present in indoor air. According to a survey submitted to EPA by RBC, there were 28 RBC personnel that worked indoors at the Site as of 201X.

Recreators:

A recreator may spend time outside performing recreational activities on the Site. Recreators may come in contact with, or be exposed to, the contamination for short periods of time over a long term. Recreators at the Site would consist of any patrons of either RBC or GNBC that spend time in the parking lot areas. There are also historical accounts and evidence of local teenagers hanging out for extended periods of time at night in the northeast corner of the parking lot at 9524 Niagara Falls Boulevard. The radiological sampling and survey results in this area showed some of the most elevated levels in the assessments.

Construction workers:

Construction workers may come in contact with or be exposed to contamination short-term during the work day while working around vehicles that suspend dust in the air. Activities such as trenching and excavating typically involve on-site exposures to surface soils. The construction worker could be exposed to contamination via the following pathways: incidental ingestion of soil, external radiation from contamination in soil, and inhalation of fugitive dust.

Actual or potential contamination of drinking water supplies or sensitive ecosystems;

North of the parking lot at the Site is an overgrown wetland area with vegetation, which is referred to as "the marsh." The marsh flows to the Cayuga Creek. If the hazardous substances at the Site migrate to the marsh, Cayuga Creek may be impacted. Cayuga Creek is a tributary to the Niagara River and originates in the Niagara Escarpment in the Town of Lewiston. Flowing southward, the Creek eventually meets up with a tributary, Bergholtz Creek, in Niagara Falls. There is intense effort made by a local organization, Buffalo Niagara Riverkeeper, to restore and protect Cayuga Creek as a resource. Efforts include stream bank stabilization and reduction of pollutants entering the creek.

Commented [LM4]: Is this accurate? Previous language was not a complete sentence.

High levels of hazardous substances, or pollutants, or contaminants in soils, largely at or near the surface that may migrate; and

Ra-226 has been detected in surface soils at levels as high as 199 pCi/g, and Ra-228 has been detected in surface soils at levels as high as 807 pCi/g. Radium-contaminated soils may migrate through airborne dust, surface runoff, construction activities, and foot traffic into the existing buildings on-Site and/or into homes and residential areas. Since radium has a long half-life (approximately 1,600 years), it is highly probable that the Site will undergo physical changes before the radium on-Site will decay to background. Building demolition and/or construction may result in increased exposures to humans from the contamination becoming suspended or airborne. Weathering and/or animal interaction may also cause contamination to migrate. The fenced-in area on the northeast side of the asphalt parking lot is a brushy area, and there is evidence of trespass by teenagers who

use this area as a local hangout. Public visitors, patrons, and/or trespassers at the Site could cause a fire that could result in releasing the hazardous substances into the air.

The availability of other appropriate federal or State response mechanisms to respond to the release.

The State of New York does not currently have the resources needed to take timely and appropriate action to respond to the threat posed by the presence of hazardous substances at the Site.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from the Site, if not addressed by implementing the response action selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, welfare, or the environment.

V. EXEMPTION FROM STATUTORY LIMITS

Site conditions continue to meet the emergency exemption criteria specified in the original action memorandum for $2 million exemption, ceiling increase, and12-month exemption, approved by the Assistant Administrator of the Office of Land and Emergency Management, on September 27, 2016.

VI. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

1. Proposed action description

The additional funding being requested in this Action Memorandum will allow EPA to remove and dispose of the remaining radioactive slag material located at the Site and to restore the impacted areas. In October 2018, additional assessment work, including gamma mapping and test pitting, was conducted at the Site to better delineate the horizontal and vertical extent of the contamination for areas external to the RBC and GNBC structures. Based on these measurements, it is approximated that, in total, 9,250-cubic yards of contaminated material remains at the Site. This includes contamination in portions of the parking lot that have yet to be excavated, the wooded area along the Site's northern border, the breezeway at RBC, and warehouse and storage areas within GNBC. All areas will be excavated down to native soil, which is a distinctive lacustrine clay layer. A gamma scan will be conducted of the base of the excavation to verify removal of slag material, and post-confirmation samples will be collected in accordance with the Multi-Agency Radiation Survey and Site Investigation Manual. To expedite the processing time, post-confirmation samples will be processed at the on-Site laboratory via a high purity gemanium (HPGe) radiation detector, providing confirmation results within hours as opposed to days as would be the case for off-Site laboratory services. All areas will be backfilled and compacted with crusher run limestone gravel with fines. Parking lot areas will be repaved and striped. Areas internal to the structures will be

restored to their original condition, which includes four to six inches of concrete in storage and warehouse areas of GNBC and a tile floor in the RBC breezeway. The wooded area will be brought to grade with the

Commented [LM5]: ?

To accommodate the two active businesses, RBC and GNBC, the following will be taken into consideration in developing the Site schedule and removal plan:

- The RBC league bowling season, which extends from August to April, significantly increases the traffic within the parking area at both RBC and GNBC. The use of heavy equipment and trucks for disposal is not advised during this time.
- The GNBC is dependent on the business of the area's construction industry, which most active during the non-winter months of April through November. During this time is when GNBC has the greatest quantity of inventory.
- Before work is commenced inside GNBC, the Site property owner would like to construct a pole barn adjacent to the building to allow storage space for the GNBC business.

To ensure minimum impact to the two active businesses, the remaining tasks for the removal action will be accomplished in two mobilizations, which are expected to be in July 2019 and November 2019.

July 2019 – Approximately three weeks in duration
The July 2019 mobilization will be to complete removal activities for the remaining section of the parking lot, the area where the pole barn is to be constructed by the Site property owner, and the breezeway at RBC. In addition, the final paving application and striping will be completed for all parking lot areas, including those areas at which excavation was completed in September and October 2018. Materials excavated during this mobilization (an amount estimated to be approximately 4,200-cubic yards) will be stockpiled and covered until the November 2019 mobilization.

November 2019 – Approximately six weeks in duration
The November 2019 mobilization will be to complete all removal activities internal to GNBC, the wooded area along the northern Site boarder, and transportation and disposal (T&D) of all waste material from the two mobilizations to an NRC-approved facility. The initial task will be to inventory the products and supplies contained within rooms at GNBC that will be impacted by the removal activities and transfer these items to the newly constructed pole barn. Once completed, the removal and restoration activities at GNBC will commence. Products and supplies will be transferred back to GNBC periodically once removal activities for a particular room is completed. The T&D activities will be conducted concurrently with the removal activities and the loadouts will be coordinated with the two businesses at the Site to minimize disruption (i.e. truck loadouts from 5:30 am to 12:00 pm)

Provided the current Site conditions remain the same, once these proposed actions are completed, it is unlikely that any further removal activity by EPA will be necessary.

All disposal activities will be conducted in compliance with the EPA Off-Site Rule.

2. Contribution to remedial performance

The removal action at the Site is consistent with the requirement of Section 104(a)(2) of CERCLA, which states, "any removal action undertaken . . . should . . . to the extent practicable, contribute to the efficient performance of any long-term remedial action with respect to the release or the threatened release concerned." The removal activities proposed in this Action Memorandum would not impede future response actions based on available information.

3. Engineering evaluation/cost analysis (EE/CA)

Due to the time-critical nature of this removal action, an EE/CA was not prepared.

4. Applicable or relevant and appropriate requirements (ARARs)

ARARs identified for this project, including the Resource Conservation and Recovery Act and the U.S. Department of Transportation, NRC, and NYSDEC regulations, that pertain to the transportation and disposal of material from the Site will be complied with to the fullest extent practicable.

5. Project schedule

The removal action will continue upon approval of this Action Memorandum and obligation of funding. A period of nine weeks is planned for the removal and disposal of waste material off-Site at an NRC-approved facility. Actual off-Site disposal may require an additional two weeks depending on the availability of transportation.

Estimated Costs

The estimated costs for the completion of this project are summarized below.

Direct Extramural Costs:	Revised Current Ceilings Authorized	Ceiling Increase Requested in This Action Memorandum	Proposed New Total Project Ceilings
Total Cleanup Contractor Cost (Includes 20% Contingency)	$7,167,640	$2,500,000	$9,667,640
Removal Support Team, Extramural Costs	$605,360	$150,000	$620,300
Subtotal, Extramural Costs	$7,773,000	$2,650,000	$10,423,000
Extramural Cost Contingency	0	$350,000	$350,000
Total, Removal Action Project Ceiling	$7,773,000	$3,000,000	$10,773,000

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Given the Site conditions, the nature of the hazardous substances documented on-Site, and the potential exposure pathways to nearby populations described in Section III, actual or threatened releasees of hazardous substances from the Site, if not addressed by implementing the response activities described in this Action Memorandum, may present an imminent and substantial endangerment to public health, or welfare, or the environment.

VII. OUTSTANDING POLICY ISSUES

None.

VIII. ENFORCEMENT

EPA has conducted a preliminary potentially responsible party (PRP) search for the Site. The EPA Region 2 Removal Action Branch will continue to work with the Office of Regional Counsel in an attempt to locate all viable PRPs to recover costs associated with the ongoing removal action.

The total EPA removal costs that will be eligible for cost recovery are estimated to be $15,740.043. The following chart describes the costs which EPA believes are eligible for cost recovery.

Total Estimated Costs

COST CATEGORY	AMOUNT
Direct Extramural Cost	$10,773,000
Direct Intramural Cost	$150,000
Subtotal Direct Cost	$10,923,000
Indirect Costs (Indirect Regional Cost Rate 44.10%)	$4,817,043
Estimated EPA Costs Eligible for Cost Recovery	$15,740,043

Note: Direct costs include direct extramural costs and direct intramural costs. Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site-specific direct costs, consistent with the full cost accounting methodology effective October 2, 2000. These estimates do not include pre-judgment interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of a removal action. The estimates are for illustrative purposes only and their use is not intended to create any rights for responsible parties. Neither the lack of a total cost estimate nor deviation of actual costs from this estimate will affect the right of the United States to seek cost-recovery.

IX. RECOMMENDATION

This decision document describes the need for a ceiling increase to complete those activities

previously approved as the removal response for the Niagara Falls Boulevard Site located in Niagara Falls, Niagara County, New York. This document was developed in accordance with CERCLA, as amended, and is not inconsistent with the NCP. This response action continues to be based on the Administrative Record for the Site.

Conditions at the Site continue to meet the NCP Section 300.415(b)(2) criteria for a removal action. The total extramural funding that has been authorized to date for this action is $7,773,000, of which $7,167,640 was used for mitigation contracting. This Action Memorandum requests authorization of an additional $3,000,000, of which $2,500,000 is from the Regional removal advise of allowance for mitigation contracting. If approved, the Site ceiling would be raised to $10,773,000, of which $9,667,640 would be for mitigation contracting.

Please indicate your formal approval for a ceiling increase for the Niagara Falls Boulevard Site, as per the current delegation of authority, by signing below.

APPROVED: _____ **DATE:** _____
Pat Evangelista, Acting Director
Superfund and Emergency Management Division

DISAPPROVED: _____**DATE:** _____
Pat Evangelista, Acting Director
Superfund and Emergency Management Division

cc: after approval
P. Evangelista, SEMD-AD
J. Prince, SEMD-DD
J. Rotola, SEMD-RAB
D. Harkay, SEMD-RAB
B. Grealish, SEMD-RAB
D. Mellott, ORC-NJSFB
C. Monroe, ORC-NJSFB
M. Mears, PAD
M. Fiore, OIG
T. Grier, 5104A
T. Benton, RST
R. Van Fossen, NJDEP
E. Putnam, NJDEP
F. Mumford, NJDEP
A. Raddant, USDOI
L. Rosman, NOAA

ATTACHMENT A

REQUEST FOR A CEILING INCREASE – April 27, 2017

REQUEST FOR CEILING INCREASE AND EXEMPTION – Sept. 6, 2016

CONFIRMATION OF VERBAL CEILING INCREASE – July 31, 2014

U.S. Environmental Protection Agency, Region 2
Superfund and Emergency Management Division
2890 Woodbridge Avenue
Edison, New Jersey 08837

CONSENT FOR ACCESS TO PROPERTY

Addressed to:
Talarico Bros Bldg. Corp
Upper Mountain Road
Lewiston, New York 14092

I, the undersigned, am the owner of the property located on Upper Mountain Road~~, (SBL: 115.08-1-27)~~ in the ~~municipality~~Town of Lewiston, Niagara County, ~~State of~~ New York, identified by tax map number 115.08-1-27 (hereinafter, the "Property"). I have authority to grant access to the Property~~property of question~~.

I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (~~U.S.~~ EPA) entering and having continued access to the P~~p~~roperty ~~referenced above~~ for the following purposes:

- Conducting monitoring and sampling activities to ~~determine~~identify environmental contamination in soil, air, surface water, groundwater, containers, building materials and property, including~~particularly~~ radioactive emitting/containing materials located on the P~~p~~roperty;

- Undertaking removal activities to address hazardous substances at the Property, including the excavation of contaminated materials as well as staging, backfilling, and restoration activities;

- Performing other actions, as determined necessary by EPA, to assess the presence and extent of hazardous substances on the P~~p~~roperty; and

- Taking any response action~~, including removing soils and contaminated objects,~~ to address any release or threatened release of a hazardous substance, pollutant or contaminant which ~~U.S.~~ EPA determines may pose a threat to the public health or welfare or the environment.

I understand that these actions may be taken by EPA ~~is conducting an action,~~ pursuant to its response and enforcement authorities under ~~Section 311 (c) of the Clean Water Act, 40 CFR 300 of the National Contingency Plan, and/or Section 104 of~~ the Comprehensive Environmental Response, Compensation, and Liability Act, as amended, 42 U.S.C Section ~~9604 and '~~9601 et seq., and that access to the P~~p~~roperty is needed~~required~~ by EPA to effectuate a response action.

This written permission is given by me voluntarily with knowledge of my right to refuse and without threats or promises of any kind.

I understand that EPA or its representatives will notify me at the provided contact number or email address of the approximate times and dates when access will be required.

By the signature below, I affirm that I own the P~~p~~roperty ~~described above~~, that I have authority to grant access to the P~~p~~roperty, and that I authorize entry onto the~~my~~ P~~p~~roperty for ~~-~~ the purposes described above~~conducting a removal assessment/action that is authorized under CWA, NCP, CERCLA or other federal laws~~.

_____ _____

Commented [LM1]: Are we actually going to be sampling and "monitoring" all of these things? Also, what is "property" in this context?

Signature

Date

_____

Printed Name

_____

Contact Number or email

U.S. Environmental Protection Agency, Region 2
Superfund and Emergency Management Division
2890 Woodbridge Avenue
Edison, New Jersey 08837

CONSENT FOR ACCESS TO PROPERTY

Addressed to:
Upper Mountain Road LLC
Upper Mountain Road
Lewiston, New York 14092

Upper Mountain Road LLC is the owner of real property located on Upper Mountain Road in the Town of Lewiston, Niagara County, New York, identified by tax map number 115.08-1-27 (hereinafter, the "Property"). Upper Mountain Road LLC consents to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency ("EPA") entering and having continued access to the Property for the following purposes:

- Conducting monitoring and sampling activities to identify environmental contamination in soil, air, surface water, groundwater, containers, building materials and property, including radioactive emitting/containing materials located on the Property;

- Undertaking removal activities to address hazardous substances at the Property, including the excavation of contaminated materials as well as staging, backfilling, and restoration activities;

- Performing other actions, as determined necessary by EPA, to assess the presence and extent of hazardous substances on the Property; and

- Taking any response action to address any release or threatened release of a hazardous substance, pollutant or contaminant which EPA determines may pose a threat to the public health or welfare or the environment.

Upper Mountain Road LLC acknowledges that EPA is taking these actions pursuant to its response and enforcement authorities under the Comprehensive Environmental Response, Compensation, and Liability Act, as amended, 42 U.S.C. Section 9601 et seq., and that access to the Property is needed by EPA to effectuate a response action.

This written permission is given voluntarily with knowledge of right to refuse and without threats or promises of any kind.

Upper Mountain Road LLC understands that EPA or its representatives will notify Upper Mountain Road LLC's authorized representative at the contact number below of the approximate times and dates when access will be required.

By the signature below, the authorized representative affirms that Upper Mountain Road LLC owns the Property and grants entry and access to the Property for the purposes described above.

_____ Date: _____

Upper Mountain Road LLC
By: Alisa Malstrom, Authorized Representative
Phone: (716) 990-5656

U.S. Environmental Protection Agency, Region 2
Superfund and Emergency Management Division
2890 Woodbridge Avenue
Edison, New Jersey 08837

CONSENT FOR ACCESS TO PROPERTY

Addressed to:
Upper Mountain Road LLC
Upper Mountain Road
Lewiston, New York 14092

Upper Mountain Road LLC is the owner of real property located on Upper Mountain Road in the Town of Lewiston, Niagara County, New York, identified by tax map number 115.08-1-27 (hereinafter, the "Property"). Upper Mountain Road LLC consents to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency ("EPA") entering and having continued access to the Property for the following purposes:

- Conducting monitoring and sampling activities to identify environmental contamination in soil, air, surface water, groundwater, containers, building materials and property, including radioactive emitting/containing materials located on the Property;

- Undertaking removal activities to address hazardous substances at the Property, including the excavation of contaminated materials as well as staging, backfilling, and restoration activities;

- Performing other actions, as determined necessary by EPA, to assess the presence and extent of hazardous substances on the Property; and

- Taking any response action to address any release or threatened release of a hazardous substance, pollutant or contaminant which EPA determines may pose a threat to the public health or welfare or the environment.

Upper Mountain Road LLC acknowledges that EPA is taking these actions pursuant to its response and enforcement authorities under the Comprehensive Environmental Response, Compensation, and Liability Act, as amended, 42 U.S.C. Section 9601 et seq., and that access to the Property is needed by EPA to effectuate a response action.

This written permission is given voluntarily with knowledge of right to refuse and without threats or promises of any kind.

Upper Mountain Road LLC understands that EPA or its representatives will notify Upper Mountain Road LLC's authorized representative at the contact number below of the approximate times and dates when access will be required.

By the signature below, the authorized representative affirms that Upper Mountain Road LLC owns the Property~~,~~ and grants entry and access to the Property ~~(to the extent required and necessary as EPA's actions will affect the driveway used by Mr. John Grace, resident at 738 Upper Mountain Road, Lewiston, New York 14092), and authorizes entry onto the Property~~ for the purposes described above.

_____ Date: _____

Upper Mountain Road LLC
By: Alisa Malstrom, Authorized Representative
Phone: (716) 990-5656

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II
290 BROADWAY
NEW YORK, NY 1000701866

ACTION MEMORANDUM RV2

DATE:

SUBJECT: Request for a Ceiling Increase for the Holy Trinity Cemetery Site (Residential Properties), Lewiston, Niagara County, New York

FROM: Peter Lisichenko, On-Scene Coordinator
Removal Action Branch

THRU: Joseph D. Rotola, Chief
Removal Action Branch

TO: Pat Evangelista, Director
Superfund and Emergency Management Division

SITE ID No.: A23M

I. PURPOSE

The purpose of this Action Memorandum is to request approval for a ceiling increase to continue the removal activities described herein at the Holy Trinity Cemetery (HTC) Site (Site), located in Lewiston, Niagara County, New York (see Attachment A, Figure 1: Site Location Map). The U.S. Environmental Protection Agency (EPA) initiated removal activities at the Site in April 2016 pursuant to a March 24, 2016, verbal authorization (referred to herein as RV1). Additional funding is necessary to continue the removal activities at the Site by removing and disposing of radioactive-contaminated soil/slag identified at two residential properties comprising a portion of the Site (these activities are referred to as RV2 for the purposes of this Action Memorandum). Impacted areas on these two properties include a residential driveway and adjacent lawn area, as well as a residential garage. These impacted areas were identified during the investigations conducted by EPA at the Site in 2016.

The total extramural funding that has been authorized to date for the Site is $150,000, of which $130,000 is for mitigation contracting. This Action Memorandum requests authorization for an additional $420,000, of which $300,000 is for mitigation contracting. If approved, the Site ceiling would be raised to $570,000, of which $430,000 would be for mitigation contracting.

Conditions at the Site meet the criteria for a removal action under the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. §§ 9601-9675, and Section 300.415(b)(2) of the National Contingency Plan (NCP).

This Site is not included on the National Priorities List (NPL) and there are no nationally significant or precedent setting issues associated with these removal activities.

II. SITE CONDITIONS AND BACKGROUND

The Superfund Enterprise Management System (SEMS) identification number for the Site is NYN000206698. The proposed removal activities are considered "time-critical."

In a 1978 U.S. Department of Energy aerial radiological survey, multiple properties throughout the Niagara County region were identified as having elevated levels of radiation above background levels. In February 1980, the New York State Department of Health (NYSDOH) Bureau of Radiological Health and the Niagara County Department of Health (NCDOH) conducted a radiological survey of a property known as the HTC (parcel #: 115.00-1-7), located in the Town of Lewiston, Niagara Falls County, New York. The survey identified areas on the HTC property where radiological slag material was used as subbase for roadways. Subsequent surveys and sampling events were conducted by New York State Department of Environmental Conservation (NYSDEC) and NCDOH in 2006, 2007, and 2013. This work identified the presence of Uranium-238 (U-238)/Uranium-234, Radium-226 (Ra-226), and Thorium-232 at the Site. Field radioactivity surveys using an Exploranium GR-135 were performed in areas of concentrated slag material, which indicated levels between 200 to 700 micro-Roentgen per hour (µR/hr).

The Site was referred to the EPA by the NYSDEC and NYSDOH on July 21, 2013. In 2013, 2015, 2016 and 2017, EPA conducted assessments of the HTC portion of the Site in an effort to better understand the horizontal and vertical extent of the radioactive contamination and implement physical controls to minimize exposure to HTC workers and patrons. It was during this time that the two adjacent residential properties were identified as containing radioactive material. The two residential properties were identified as Area 6 and Area 7 of the Site, and further investigations were conducted to define the extent of the contamination.

A. <u>Site Description</u>

1. Removal Site Evaluation (RSE)

An RSE was conducted for Area 6 and Area 7 to determine removal eligibility. The radionuclide of concern (ROC) was determined to be Ra-226, which was also present on the cemetery property and assumed to be in secular equilibrium. Both the U-238 chain and Ra-226 were analyzed individually to demonstrate that Ra-226 is the predominant ROC from within this decay series. As a result, risk estimates and preliminary remediation goals (PRGs) were selected based on Ra-226 only. Cancer risk was set at the 1×10^{-4} level, which is consistent with Removal Management Levels, and PRGs for Ra-226 were set in order to reduce the cancer risk to below this level. PRGs in an instance like this are calculated using the PRG calculator, which incorporates a methodology into which site-specific data is input. The PRG calculator has been used nationwide to determine cancer risk and set cleanup goals for both removal and remedial projects under CERCLA. The calculated area-specific exposure point concentrations (EPCs) included data from the top two feet of soil since the highest concentrations were detected in the top eighteen inches. This approach is consistent with chemical evaluations of residential soil exposures where EPA typically evaluates the top two feet.

For Area 6, the soil EPC was calculated at 85.8 picocuries per gram (pCi/g) for Ra-226. The RSE results assuming no shielding were: risk = 6.45E-04; PRG = 13.3 pCi/g. With shielding, the results were: risk = 3.6E-04; PRG = 23.8 pCi/g. For Area 7, the soil EPC was calculated at 25 pCi/g Ra-226. The results assuming a current use were: risk = 5.99E-04; PRG = 4.17 pCi/g. The results considering a potential future conversion of the garage to a living space were: risk = 1.39E-03; PRG = 1.79 pCi/g. (NOTE: These PRGs should be considered to the extent that they are in excess of background Ra-226 concentrations.) There remains the potential for unacceptable risk in both Area 6 and Area 7 for any reasonably anticipated use scenario, and therefore both areas are removal eligible.

See Attachment B, RSE.

2. Physical location

The HTC portion of the Site is located at 5401 Robert Avenue, Lewiston, Niagara County. The residential properties are located to the west of HTC, along the western side of Roberts Avenue, which runs north to south. The northern parcel, 5380 Roberts Avenue (referenced as Area 6), is identified by tax ID number 115.15-1-21. The southern parcel, 5382 Roberts Avenue (referenced as Area 7), is identified by tax ID number 115.15-1-22. The Site is located in a residential neighborhood south of Interstate 190, to the east of the Niagara Gorge and the United States/ Canada border, and to the north of the Gates of Heaven Cemetery.

See Attachment A, Figure 2: Site Map.

Sensitive areas identified around the Site include the following:

- Freshwater forested/shrub wetlands, which are located approximately 0.1 miles to the northeast; and

- The Niagara River, which serves as the border between the United States and Canada and is located 0.4 miles to the west of the Site.

3. Site characteristics

Area 6 is a 0.25-acre, rectangular-shaped parcel, with a long axis running east to west and 62 feet of roadway frontage along Roberts Avenue. A two-story residential structure, built in 1955, is located in the center of the parcel. A concrete driveway along the parcel's southeast corner extends 90 feet from Roberts Avenue to the south side of the residential structure and terminates at a concrete patio.

Area 7 is a 0.60-acre, "L" shaped parcel with 62 feet of frontage along Roberts Avenue to the east and 70 feet of frontage along Colt Avenue to the south. It contains a two-story residential structure with an attached two-car garage. The main structure, located in the northeast portion of Area 7, was built in 1950, while the garage was built later. The asphalt driveway extends 60 feet from the northeast corner of the property to the garage and was a replacement to the original concrete driveway. It is believed that the former concrete driveway had extended from Roberts Avenue to the northside of the home. The footprint of the garage addition extended over the former driveway.

Radioactive slag material was identified at the Area 6 parcel under the entire length of the concrete driveway and within a patch of dirt and grass that separates the Area 6 and Area 7 driveways. For Area 7, elevated radioactive activity was identified in the garage and at an isolated location south of the driveway. It is understood that radioactive slag was used as a subbase for both the Area 6 and Area 7 concrete driveways. For Area 7, the concrete driveway and subbase was removed several years ago and replaced with an asphalt driveway; the final disposition of the removed material is presently unknown. The radioactive activity in the garage are assumed to be related to the former driveway subbase, as the garage was built over the driveway. The small pocket of elevated radioactive activity to the south of the driveway is assumed to be a single slag fragment that had been displaced from the subbase.

4. Release or threatened release into the environment of a hazardous substance, or pollutant, or contaminant

Sampling and analysis conducted at the Site by EPA has identified the presence of CERCLA hazardous substances, as that term is defined in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14), and 40 C.F.R. Table 302.4. The Site is a facility within the meaning of Section 101(9) of CERCLA, 42 U.S.C. § 9601(9), and the presence of hazardous substances in subsurface media constitutes a "release" as defined in Section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

The release and threat of release of the contaminants Ra-226 into the environment may impact the health of the residents at the Site through a variety of pathways, including inhalation from dusts and gases, ingestion from dusts, soils, and water, and direct radiation from external doses of alpha, beta, and gamma radiation from a particulate radioactive material. Exposure to this material increases the cancer risk of an individual. Residents as well as passersby of the Site are exposed to contamination via routes of inhalation or dermal contact to soils and windblown dust in the driveway areas and indoors.

Hazardous Substances Under CERCLA:

Radionuclides Identified Maximum Concentration
Ra-226 – 53 pCi/g

The radionuclide listed above is included in 40 CFR 302.4, List of Hazardous Substances and Reportable Quantities, Appendix B – Radionuclides.

The statutory source for designating radionuclides as a hazardous substance under Section 102(a) of CERCLA, 42 U.S.C. § 9602(a), is Section 112 of the Clean Air Act, 42 U.S.C. § 7412.

EPA concluded, based on risk assessment calculations, that both Area 6 and Area 7 are removal eligible based on a risk calculation of 6.45E-04 and 1.39E-03, respectively. Conservative PRGs have been established at 13.3 pCi/g for Area 6 and 1.79 pCi/g for Area 7. These PRGs should be considered to the extent that they are in excess of background Ra-226 concentrations (see Attachment B).

5. NPL status

The Site was evaluated for listing on the NPL and determined to be ineligible.

6. Maps and pictures depicting Site location and conditions

See Attachment A, Figure 1: Site Location Map
Figure 2: Site Map

B. Other Actions to Date

1. Previous actions

In March 2016, RV1 activities were initiated at the Site as result of conditions identified during 2013/2014 site assessments. EPA determined that site conditions warranted immediate removal activities, which included installation of security fencing around areas of HTC where contaminated slag is stock piled and slag-stabilized roads exist. Additionally, a radon mitigation system was installed in a home where radon readings exceeded the action level of 4.0 pCi/L.

In October 2016, EPA mobilized its Removal Support Team contractor to the Site again to conduct a radiological assessment. An exterior radiological survey was conducted on both Area 6 and Area 7 utilizing a Ludlum 2241 gamma meter equipped with a 3x3 Sodium Iodine (NaI) scintillator. Areas of elevated activity were identified, and soil samples were collected at depth to delineate the vertical extent of the contamination. These samples were submitted to a laboratory for radiological analysis. Analytical results indicated exceedances of the Ra-226 radionuclide in the upper 12 inches of the properties in areas of elevated activity. In May 2017, air samples for radon were collected in both Area 6 and Area 7 residential structures. Results of this air sampling were found to be below the action level for the Site.

2. Current actions

Efforts are being made to plan and prepare for the upcoming RV2 work activities. Tasks include identifying suitable staging areas, developing project schedules, and providing updates to the property owners and local officials on the planned work.

C. State and Local Authorities Roles

1. State and local actions, to date

No actions have been conducted by State or local entities for Area 6 and Area 7 of the Site. However, the NYSDEC has been notified of the contamination at the two properties and has served as an advisor on the proposed removal activities.

2. Potential for continued State/local response

NYSDEC and NYSDOH will continue to act in an advisory/supporting role throughout the performance of the removal activities at the Site, but they are financially unable to take the lead in the response activities.

II. THREATS TO PUBLIC HEALTH, OR WELFARE, OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

Hazardous substances present at Area 6 and Area 7 of the Site represent a threat to the public health and environment as defined by Section 300.415(b)(2) of the NCP as there is a high potential for direct contact to radiation from alpha, beta, and gamma radioactive material.

Factors that support conducting the removal activities at the Site are discussed below.

Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, or pollutants, or contaminants;

The Site includes two occupied residential structures. The occupants of these structures are the primary "receptors" with increased cancer risks because of internal and external exposure to Ra-226. The pathways of exposure for the occupants includes incidental ingestion of soil, external radiation from contamination in the soil, and inhalation of fugitive dust.

Actual or potential contamination of drinking water supplies or sensitive ecosystems;

Surficial overland and stormwater flow is discharged to the Niagara River, located 0.5 miles to the west, through a series of drainage ditches and culverts. Entrainment of contamination may result in adverse impacts to the Niagara River, a valued resource for both the United States and Canada.

High levels of hazardous substances, or pollutants, or contaminants in soils, largely at or near the surface that may migrate; and

Ra-226 has been detected in surface soils at levels as high as 42.63 pCi/g. Radium-contaminated soils may migrate through airborne dust, surface runoff, construction activities, and foot traffic into the existing buildings on-Site and/or into homes and residential areas. Since radium has a long half-life (approximately 1,600 years), it is highly probable that the Site will undergo physical changes before the radium on-Site will decay to background levels. Building demolition and/or construction may result in increased exposure to humans as it may cause the contamination to become suspended or airborne. Weathering and/or animal interaction may also cause contamination to migrate.

The availability of other appropriate federal or State response mechanisms to respond to the release.

The State of New York does not currently have the resources needed to take timely and appropriate action to respond to the threat posed by the presence of hazardous substances at the Site.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from the Site, if not addressed by implementing the response activities selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, welfare, or the environment.

V. EXEMPTION FROM STATUTORY LIMITS

Site conditions continue to meet the emergency exemption criteria specified in the RV1 Action Memorandum supporting the 12-month exemption, which was approved by the Region 2 Acting Division Director on August 29, 2019. The RV1 Action Memorandum is included as Attachment C.

VI. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

1. Proposed action description

The funding being requested in this RV2 Action Memorandum will allow EPA to remove and dispose of the radioactive material located at Area 6 and Area 7 of the Site and restore the impacted areas. For Area 6, the concrete driveway will be removed and excavated to native soil to attain the PRG of 13.3 pCI/g. For Area 7, the concrete garage floor will be removed and excavated to native soil to attain the PRG of 1.79 pCi/g. The single hotspot in the Area 7 front lawn will also be excavated. A gamma scan will be conducted of the base of the excavated areas to verify removal of slag material, and post-confirmation samples will be collected in accordance with the Multi-Agency Radiation Survey and Site Investigation Manual. To expedite the processing time, post-confirmation samples will be processed at the on-Site laboratory via a high purity germanium (HPGe) radiation detector, providing confirmation results within hours as opposed to the days required for off-Site laboratory services. All excavated areas will be backfilled and compacted with crusher run limestone gravel with fines. This fill material will be scanned to ensure that radioactivity does not exceed background levels. The material will also be sent for laboratory analysis to ensure compliance with NYSDEC Imported Fill Standards for Residential Use (see DER 10). Both the driveway and garage locations will be restored with new concrete. The single hotspot in Area 7 will be restored with NYSDEC-certified clean topsoil and grass seed.

All disposal activities will be conducted in compliance with the EPA Off-Site Rule.

2. Contribution to remedial performance

The removal activities at the Site are consistent with the requirement of Section 104(a)(2) of CERCLA, which states, “any removal action undertaken . . . should . . . to the extent practicable, contribute to the efficient performance of any long-term remedial action with respect to the release or the threatened release concerned.” The removal activities proposed in this Action Memorandum would not impede future response activities, should they be necessary, based on available information.

3. Engineering evaluation/cost analysis (EE/CA)

Because of the time-critical nature of the removal activities, an EE/CA was not prepared.

4. Applicable or relevant and appropriate requirements (ARARs)

It remains EPA's policy to operate under the assumption that ARARs, which in removal actions are to be attained to the extent practicable, are generally protective, absent multiple contaminants or pathways of exposure. However, in unusual circumstances, such as with radiological contamination, dose-based ARARs can result in EPA Regional offices having to establish risk-based PRGs that result in levels that are more protective than a level established with a dose-based approach under a given ARAR, even absent multiple pathways or contaminants. In such circumstances, reliance on the dose-based ARAR would not be sufficiently protective of human health or the environment. For the response action discussed in this Action Memorandum, it was determined that site-specific PRG numbers were required because potential, dose-based ARARs were determined to not be sufficiently protective of human health or the environment. See OSWER Directive 9285.6-20 (June 13, 2014)("ARARs [at levels] that are greater than 12 [millirem per year] effective dose equivalent (EDE) are generally not considered sufficiently protective for developing cleanup levels under CERCLA . . . ."). Site-specific PRG numbers were calculated based on the highest risk receptor to determine the most conservative value for cleanup levels at the Site.

5. Project schedule

These RV2 removal activities are planned to begin in August 2020. A period of two weeks is planned for the removal and disposal of waste material off-Site at an NRC-approved facility.

Estimated Costs

The estimated costs for the completion of this project are summarized below.

Direct Extramural Costs:	**Current Project Ceiling**	**Ceiling Increase Requested in This Action Memorandum**	**Proposed New Total Project Ceilings**
Total Cleanup Contractor Cost (Includes 20% Contingency)	$130,000	$300,000	$430,000
Superfund Technical Assistance Response Team, Extramural Costs	$20,000	$120,000	$140,00
Subtotal, Extramural Costs	$150,000	$420,000	$570,000
Extramural Cost Contingency	$0	$0	$0
Total Project Ceiling	$150,000	$420,000	$570,000

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Given the Site conditions, the nature of the hazardous substances documented on-Site, and the potential exposure pathways to nearby populations described in Section III, actual or threatened releasees of hazardous substances from the Site, if not addressed by implementing the response activities described in this Action Memorandum, may present an imminent and substantial endangerment to public health or welfare or the environment.

VII. OUTSTANDING POLICY ISSUES

None.

VIII. ENFORCEMENT

EPA has conducted a preliminary potentially responsible party (PRP) search for the Site. The EPA Region 2 Removal Action Branch will continue to work with the Office of Regional Counsel in an attempt to identify and locate all viable PRPs to recover costs associated with the ongoing removal activities.

The total EPA removal costs that will be eligible for cost recovery are estimated to be $1,103,121. The following chart describes the costs that EPA estimates will be eligible for cost recovery.

Total Estimated Costs

COST CATEGORY	AMOUNT
Direct Extramural Cost	$570,000
Direct Intramural Cost	$175,000
Subtotal Direct Cost	$745,000
Indirect Costs (Indirect Regional Cost Rate 48.87%)	$358,121
Estimated EPA Costs Eligible for Cost Recovery	$1,103,121

Note:Direct costs include direct extramural costs and direct intramural costs. Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site-specific direct costs, consistent with the full cost accounting methodology effective October 2, 2000. These estimates do not include pre-judgment interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of a removal action. The estimates are for illustrative purposes only and their use is not intended to create any rights for responsible parties. Neither the lack of a total cost estimate nor deviation of actual costs from this estimate will affect the right of the United States to seek cost-recovery.

IX. RECOMMENDATION

This decision document describes selected removal activities for the ongoing removal action at the Holy Trinity Cemetery Site located in Lewiston, Niagara County, New York. This document was developed in accordance with CERCLA, as amended, and is not inconsistent with the NCP. These response activities are based on the Administrative Record for the removal response action at the Site.

Conditions at the Site meet the NCP Section 300.415(b)(2) criteria for a removal action. This Action Memorandum requests authorization of an additional $420,000, of which $300,000 is for mitigation

contracting. If approved, the Site ceiling would be raised to $570,000, of which $430,000 would be for mitigation contracting.

Please indicate your formal approval for the proposed ceiling increase for the Holy Trinity Cemetery Site, as per the current delegation of authority, by signing below.

APPROVED: _____ **DATE:** _____
Pat Evangelista, Director
Superfund and Emergency Management Division

DISAPPROVED: _____ **DATE:** _____
Pat Evangelista, Director
Superfund and Emergency Management Division

cc: after approval
P. Evangelista, SEMD-D
J. Prince, SEMD-DD
J. Rotola, SEMD-RAB
D. Harkay, SEMD-RAB
B. Grealish, SEMD-RAB
T. Lieber, ORC-NYCSUP
M. Ludmer, ORC-NYCSUP
M. Mears, PAO
A. Rajkowski-Reyes, OPM-GCMB
B. Schlieger, 5104A
T. Benton, RST
M. Ryan, NYSDEC
M. Cruden, NYSDEC Albany
T. Rice, NYSDEC
M. Rubin, NYSDEC Region 9
S. Bates, NYSDOH
A. Raddant, USDOI
L. Rosman, NOAA

ATTACHMENT A

Figure 1: Site Location Map
Figure 2: Site Map

ATTACHMENT B

REMOVAL SITE EVALUATION

ATTACHMENT C

HOLY TRINITY CEMETARY ACTION MEMORANDUM - RV1

DO NOT PLACE IN ADMINISTRATIVE RECORD
DO NOT RELEASE TO THE PUBLIC

Confidential Enforcement Addendum

Holy Trinity Cemetery Site ("HTC Site")
Lewiston, Niagara County, New York

A. PRP Search

EPA has conducted a preliminary potentially responsible party ("PRP") search for the HTC Site. The cemetery portion of the HTC Site was owned and operated by the Holy Trinity Roman Catholic Church Society of Niagara Falls, New York ("Holy Trinity") from 1910 to 2012. In 2008, Holy Trinity was canonically merged into the Divine Mercy Roman Catholic Parish ("Divine Mercy"), and in 2012 the cemetery property was legally transferred to Divine Mercy. On March 30, 2017, EPA sent Divine Mercy an information request letter pursuant to Section 104(e) of the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. § 9604(e). EPA received a response to that information request on June 13, 2017 ("Divine Mercy Response").

Directly to the west of the cemetery are three residential properties that comprise a portion of the HTC Site. The northernmost residential property, known as Area 5, is located at 5374 Robert Avenue and is currently owned by John Raymond, who purchased the property in the early 1980s. Area 6 of the HTC Site, located south of Area 5 at 5380 Robert Avenue, is owned by Harold W. Wade, who purchased the property from James D. and Patricia A. Ellerington on June 30, 1993. From 2011 to 2018, Kristen S. Wade was co-owner of the Area 6 property. Area 7 of the HTC Site, located furthest to the south at 5382 Robert Avenue, has been jointly owned by Walter D. Michaels and Barbara A. Michaels since August 14, 1978, prior to which time Mr. Michaels owned the property for an unknown length of time. Additional ownership information regarding the Area 5, Area 6, and Area 7 properties is the subject of ongoing investigation by EPA.

Ex 5 (intra-agency deliberative; attorney work product; attorney client privilege); Ex 7 (enforcement confidential)

[redacted]

Ex 5 (intra-agency deliberative; attorney work product; attorney client privilege); Ex 7 (enforcement confidential)

[redacted]

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II
290 BROADWAY
NEW YORK, NY 1000701866

ACTION MEMORANDUM RV2

DATE:

SUBJECT: Request for a Ceiling Increase for the Holy Trinity Cemetery Site (Residential Properties), Lewiston, Niagara County, New York

FROM: Peter Lisichenko, On-Scene Coordinator
Removal Action Branch

THRU: Joseph D. Rotola, Chief
Removal Action Branch

TO: Pat Evangelista, Director
Superfund and Emergency Management Division

SITE ID No.: A23M

I. PURPOSE

The purpose of this Action Memorandum is to request approval for a ceiling increase to continue the removal activities described herein at the Holy Trinity Cemetery (HTC) Site (Site), located in Lewiston, Niagara County, New York (see Attachment A, Figure 1: Site Location Map). The U.S. Environmental Protection Agency (EPA) initiated removal activities at the Site in April 2016 pursuant to a March 24, 2016, verbal authorization (referred to herein as RV1). Additional funding is necessary to continue the removal activities at the Site by removing and disposing of radioactive-contaminated soil/slag identified at two residential properties comprising a portion of the Site (these activities are referred to as RV2 for the purposes of this Action Memorandum). Impacted areas on these two properties include a residential driveway and adjacent lawn area, as well as a residential garage. These impacted areas were identified during the investigations conducted by EPA at the Site in 2016.

The total extramural funding that has been authorized to date for the Site is $150,000, of which $130,000 is for mitigation contracting. This Action Memorandum requests authorization for an additional $420,000, of which $300,000 is for mitigation contracting. If approved, the Site ceiling would be raised to $570,000, of which $430,000 would be for mitigation contracting.

Conditions at the Site meet the criteria for a removal action under the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. §§ 9601-9675, and Section 300.415(b)(2) of the National Contingency Plan (NCP).

This Site is not included on the National Priorities List (NPL) and there are no nationally significant or precedent setting issues associated with these removal activities.

II. SITE CONDITIONS AND BACKGROUND

The Superfund Enterprise Management System (SEMS) identification number for the Site is NYN000206698. The proposed removal activities are considered "time-critical."

In a 1978 U.S. Department of Energy aerial radiological survey, multiple properties throughout the Niagara County region were identified as having elevated levels of radiation above background levels. In February 1980, the New York State Department of Health (NYSDOH) Bureau of Radiological Health and the Niagara County Department of Health (NCDOH) conducted a radiological survey of a property known as the HTC (parcel #: 115.00-1-7), located in the Town of Lewiston, Niagara Falls County, New York. The survey identified areas on the HTC property where radiological slag material was used as subbase for roadways. Subsequent surveys and sampling events were conducted by New York State Department of Environmental Conservation (NYSDEC) and NCDOH in 2006, 2007, and 2013. This work identified the presence of Uranium-238 (U-238)/Uranium-234, Radium-226 (Ra-226), and Thorium-232 at the Site. Field radioactivity surveys using an Exploranium GR-135 were performed in areas of concentrated slag material, which indicated levels between 200 to 700 micro-Roentgen per hour (µR/hr).

The Site was referred to the EPA by the NYSDEC and NYSDOH on July 21, 2013. In 2013, 2015, 2016 and 2017, EPA conducted assessments of the HTC portion of the Site in an effort to better understand the horizontal and vertical extent of the radioactive contamination and implement physical controls to minimize exposure to HTC workers and patrons. It was during this time that the two adjacent residential properties were identified as containing radioactive material. The two residential properties were identified as Area 6 and Area 7 of the Site, and further investigations were conducted to define the extent of the contamination.

A. Site Description

1. Removal Site Evaluation (RSE)

An RSE was conducted for Area 6 and Area 7 to determine removal eligibility. The radionuclide of concern (ROC) was determined to be Ra-226, which was also present on the cemetery property and assumed to be in secular equilibrium. Both the U-238 chain and Ra-226 were analyzed individually to demonstrate that Ra-226 is the predominant ROC from within this decay series. As a result, risk estimates and preliminary remediation goals (PRGs) were selected based on Ra-226 only. Cancer risk was set at the 1 x 10^{-4} level, which is consistent with Removal Management Levels,~~.~~ and PRGs for Ra-226 were set in order to reduce the cancer risk to below this level. PRGs in an instance like this are calculated using the PRG calculator, which incorporates a methodology into which site-specific data is input. The PRG calculator has been used nationwide to determine cancer risk and set cleanup goals for both removal and remedial projects under CERCLA. The calculated area-specific exposure point concentrations (EPCs) included data from the top two feet of soil since the highest concentrations were detected in the top eighteen inches. This approach is consistent with chemical evaluations of residential soil exposures where EPA typically evaluates the top two feet.

For Area 6, the soil EPC was calculated at 85.8 picocuries per gram (pCi/g) for Ra-226. The RSE results assuming no shielding were: risk = 6.45E-04; PRG = 13.3 pCi/g. With shielding, the results were: risk = 3.6E-04; PRG = 23.8 pCi/g. For Area 7, the soil EPC was calculated at 25 pCi/g Ra-226. The results assuming a current use ~~was~~were: risk = 5.99E-04; PRG = 4.17 pCi/g. The results considering a potential future conversion of the garage to a living space ~~was~~were: risk = 1.39E-03; PRG = 1.79 pCi/g. (NOTE: These PRGs should be considered to the extent that they are in excess of background Ra-226 concentrations~~, PRG value plus background value~~.) There remains the potential for unacceptable risk in both Area 6 and Area 7 for any reasonably anticipated use scenario, and therefore both areas are removal eligible.

See Attachment B, RSE.

2. Physical location

The HTC portion of the Site is located at 5401 Robert Avenue, Lewiston, Niagara County. The residential properties are located to the west of HTC, along the western side of Roberts Avenue, which runs north to south. The northern parcel, 5380 Roberts Avenue (referenced as Area 6), is identified by tax ID number 115.15-1-21. The southern parcel, 5382 Roberts Avenue (referenced as Area 7), is identified by tax ID number 115.15-1-22. The Site is located in a residential neighborhood south of Interstate 190, to the east of the Niagara Gorge and the United States/ Canada border, and to the north of the Gates of Heaven Cemetery.

See Attachment A, Figure 2: Site Map.

Sensitive areas identified around the Site include the following:

- Freshwater forested/shrub wetlands, which are located approximately 0.1 miles to the northeast; and

- The Niagara River, which serves as the border between the United States and Canada and is located 0.4 miles to the west of the Site.

3. Site characteristics

Area 6 is a 0.25-acre, rectangular-shaped parcel, with a long axis running east to west and 62 feet of roadway frontage along Roberts Avenue. A two-story residential structure, built in 1955, is located in the center of the parcel. A concrete driveway along the parcel's southeast corner extends 90 feet from Roberts Avenue to the south side of the residential structure and terminates at a concrete patio.

Area 7 is a 0.60-acre, "L" shaped parcel with 62 feet of frontage along Roberts Avenue to the east and 70 feet of frontage along Colt Avenue to the south. It contains a two-story residential structure with an attached two-car garage. The main structure, located in the northeast portion of Area 7, was built in 1950, while the garage was built later. The asphalt driveway extends 60 feet from the northeast corner of the property to the garage and was a replacement to the original concrete driveway. It is believed that the former concrete driveway had extended from Roberts Avenue to the northside of the home. The footprint of the garage addition extended over the former driveway.

Radioactive slag material was identified at the Area 6 parcel under the entire length of the concrete driveway and within a patch of dirt and grass that separates the Area 6 and Area 7 driveways. For Area 7, elevated radioactive activity was identified in the garage and at an isolated location south of the driveway. It is understood that radioactive slag was used as a subbase for both the Area 6 and Area 7 concrete driveways. For Area 7, the concrete driveway and subbase was removed several years ago and replaced with an asphalt driveway; the final disposition of the removed material is presently unknown. The radioactive activity in the garage are assumed to be related to the former driveway subbase, as the garage was built over the driveway. The small pocket of elevated radioactive activity to the south of the driveway is assumed to be a single slag fragment that had been displaced from the subbase.

4. Release or threatened release into the environment of a hazardous substance, or pollutant, or contaminant

Sampling and analysis conducted at the Site by EPA has identified the presence of CERCLA hazardous substances, as that term is defined in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14), and 40 C.F.R. Table 302.4. The Site is a facility within the meaning of Section 101(9) of CERCLA, 42 U.S.C. § 9601(9), and the presence of hazardous substances in subsurface media constitutes a "release" as defined in Section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

The release and threat of release of the contaminants Ra-226 into the environment may impact the health of the residents at the Site through a variety of pathways, including inhalation from dusts and gases, ingestion from dusts, soils, and water, and direct radiation from external doses of alpha, beta, and gamma radiation from a particulate radioactive material. Exposure to this material increases the cancer risk of an individual. Residents as well as passersby of the Site are exposed to contamination via routes of inhalation or dermal contact to soils and windblown dust in the driveway areas and indoors.

Hazardous Substances Under CERCLA:

~~Radiological Substances~~Radionuclides Identified Maximum Concentration
Ra-226 – 53 pCi/g

The radionuclide listed above is included in 40 CFR 302.4, List of Hazardous Substances and Reportable Quantities, Appendix B – Radionuclides.

The statutory source for designating radionuclides as a hazardous substance under Section 102(a) of CERCLA, 42 U.S.C. § 9602(a), is Section 112 of the Clean Air Act, 42 U.S.C. § 7412.

EPA concluded, based on risk assessment calculations, that both Area 6 and Area 7 are removal eligible based on a risk calculation of 6.45E-04 and 1.39E-03, respectively. Conservative PRGs have been established at 13.3 pCi/g for Area 6 and 1.79 pCi/g for Area 7. These PRGs should be considered to the extent that they are in excess of background Ra-226 concentrations~~, PRG value plus background value~~ (see Attachment B).

5. NPL status

The Site was evaluated for listing on the NPL and determined to be ineligible.

6. Maps and pictures depicting Site location and conditions

See Attachment A, Figure 1: Site Location Map
Figure 2: Site Map

B. <u>Other Actions to Date</u>

1. Previous actions

In March 2016, RV1 activities were initiated at the Site as result of conditions identified during 2013/2014 site assessments. EPA determined that site conditions warranted immediate removal activities, which included installation of security fencing around areas of HTC where contaminated slag is stock piled and slag-stabilized roads exist. Additionally, a radon mitigation system was installed in a home where radon readings exceeded the action level of 4.0 pCi/L.

In October 2016, EPA mobilized its Removal Support Team contractor to the Site again to conduct a radiological assessment. An exterior radiological survey was conducted on both Area 6 and Area 7 utilizing a Ludlum 2241 gamma meter equipped with a 3x3 Sodium Iodine (NaI) scintillator. Areas of elevated activity were identified, and soil samples were collected at depth to delineate the vertical extent of the contamination. These samples were submitted to a laboratory for radiological analysis. Analytical results indicated exceedances of the Ra-226 radionuclide in the upper 12 inches of the properties in areas of elevated activity. In May 2017, air samples for radon were collected in both Area 6 and Area 7 residential structures. Results of this air sampling were found to be below the action level for the Site.

2. Current actions

Efforts are being made to plan and prepare for the upcoming RV2 work activities. Tasks include identifying suitable staging areas, developing project schedules, and providing updates to the property owners and local officials on the planned work.

C. <u>State and Local Authorities Roles</u>

1. State and local actions, to date

No actions have been conducted by State or local entities for Area 6 and Area 7 of the Site. However, the NYSDEC has been notified of the contamination at the two properties and has served as an advisor on the proposed removal activities.

2. Potential for continued State/local response

NYSDEC and NYSDOH will continue to act in an advisory/supporting role throughout the performance of the removal activities at the Site, but they are financially unable to take the lead in the response activities.

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Hazardous substances present at Area 6 and Area 7 of the Site represent a threat to the public health and environment as defined by Section 300.415(b)(2) of the NCP as there is a high potential for direct contact to radiation from alpha, beta, and gamma radioactive material.

Factors that support conducting the removal activities at the Site are discussed below.

Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, or pollutants, or contaminants;

The Site includes two occupied residential structures. The occupants of these structures are the primary "receptors" with increased cancer risks because of internal and external exposure to Ra-226. The pathways of exposure for the occupants includes incidental ingestion of soil, external radiation from contamination in the soil, and inhalation of fugitive dust.

Actual or potential contamination of drinking water supplies or sensitive ecosystems;

Surficial overland and stormwater flow is discharged to the Niagara River, located 0.5 miles to the west, through a series of drainage ditches and culverts. Entrainment of contamination may result in adverse impacts to the Niagara River, a valued resource for both the United States and Canada.

High levels of hazardous substances, or pollutants, or contaminants in soils, largely at or near the surface that may migrate; and

Ra-226 has been detected in surface soils at levels as high as 42.63 pCi/g. Radium-contaminated soils may migrate through airborne dust, surface runoff, construction activities, and foot traffic into the existing buildings on-Site and/or into homes and residential areas. Since radium has a long half-life (approximately 1,600 years), it is highly probable that the Site will undergo physical changes before the radium on-Site will decay to background levels. Building demolition and/or construction may result in increased exposure to humans as it may cause the contamination to become suspended or airborne. Weathering and/or animal interaction may also cause contamination to migrate.

The availability of other appropriate federal or State response mechanisms to respond to the release.

The State of New York does not currently have the resources needed to take timely and appropriate action to respond to the threat posed by the presence of hazardous substances at the Site.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from the Site, if not addressed by implementing the response activities selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, welfare, or the environment.

V. EXEMPTION FROM STATUTORY LIMITS

Site conditions continue to meet the emergency exemption criteria specified in the RV1 Action Memorandum supporting the 12-month exemption, which was approved by the Region 2 Acting Division Director on August 29, 2019. The RV1 Action Memorandum is included as Attachment C.

VI. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

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All disposal activities will be conducted in compliance with the EPA Off-Site Rule.

2. Contribution to remedial performance

The removal activities at the Site are consistent with the requirement of Section 104(a)(2) of CERCLA, which states, “any removal action undertaken . . . should . . . to the extent practicable, contribute to the efficient performance of any long-term remedial action with respect to the release or the threatened release concerned.” The removal activities proposed in this Action Memorandum would not impede future response activities, should they be necessary, based on available information.

3. Engineering evaluation/cost analysis (EE/CA)

Because of the time-critical nature of the removal activities, an EE/CA was not prepared.

4. Applicable or relevant and appropriate requirements (ARARs)

It remains EPA's policy to operate under the assumption that ARARs, which in removal actions are to be attained to the extent practicable, are generally protective, absent multiple contaminants or pathways of exposure. However, in unusual circumstances, such as with radiological contamination, dose-based ARARs can result in EPA Regional offices having to establish risk-based PRGs that result in levels that are more protective than a level established with a dose-based approach under a given ARAR, even absent multiple pathways or contaminants. In such circumstances, reliance on the dose-based ARAR would not be sufficiently protective of human health or the environment. For the response action discussed in this Action Memorandum, it was determined that site-specific PRG numbers were required because potential, dose-based ARARs were determined to not be sufficiently protective of human health or the environment. See OSWER Directive 9285.6-20 (June 13, 2014)("ARARs [at levels] that are greater than 12 [millirem per year] effective dose equivalent (EDE) are generally not considered sufficiently protective for developing cleanup levels under CERCLA . . . ."). Site-specific PRG numbers were calculated based on the highest risk receptor to determine the most conservative value for cleanup levels at the Site.

5. Project schedule

These RV2 removal activities are planned to begin in August 2020. A period of two weeks is planned for the removal and disposal of waste material off-Site at an NRC-approved facility.

Estimated Costs

The estimated costs for the completion of this project are summarized below.

Direct Extramural Costs:	Current Project Ceiling	Ceiling Increase Requested in This Action Memorandum	Proposed New Total Project Ceilings
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VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Given the Site conditions, the nature of the hazardous substances documented on-Site, and the potential exposure pathways to nearby populations described in Section III, actual or threatened releasees of hazardous substances from the Site, if not addressed by implementing the response activities described in this Action Memorandum, may present an imminent and substantial endangerment to public health or welfare or the environment.

VII. OUTSTANDING POLICY ISSUES

None.

VIII. ENFORCEMENT

EPA has conducted a preliminary potentially responsible party (PRP) search for the Site. The EPA Region 2 Removal Action Branch will continue to work with the Office of Regional Counsel in an attempt to identify and locate all viable PRPs to recover costs associated with the ongoing removal activities.

The total EPA removal costs that will be eligible for cost recovery are estimated to be $1,103,121. The following chart describes the costs that EPA estimates will be eligible for cost recovery.

Total Estimated Costs

COST CATEGORY	AMOUNT
Direct Extramural Cost	$570,000
Direct Intramural Cost	$175,000
Subtotal Direct Cost	$745,000
Indirect Costs (Indirect Regional Cost Rate 48.87%)	$358,121
Estimated EPA Costs Eligible for Cost Recovery	$1,103,121

Note Direct costs include direct extramural costs and direct intramural costs Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site-specific direct costs, consistent with the full cost accounting methodology effective October 2, 2000 These estimates do not include pre-judgment interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of a removal action The estimates are for illustrative purposes only and their use is not intended to create any rights for responsible parties Neither the lack of a total cost estimate nor deviation of actual costs from this estimate will affect the right of the United States to seek cost-recovery

IX. RECOMMENDATION

This decision document describes selected removal activities for the ongoing removal action at the Holy Trinity Cemetery Site located in Lewiston, Niagara County, New York. This document was developed in accordance with CERCLA, as amended, and is not inconsistent with the NCP. These response activities are based on the Administrative Record for the removal response action at the Site.

Conditions at the Site meet the NCP Section 300.415(b)(2) criteria for a removal action. This Action Memorandum requests authorization of an additional $420,000, of which $300,000 is for mitigation

contracting. If approved, the Site ceiling would be raised to $570,000, of which $430,000 would be for mitigation contracting.

Please indicate your formal approval for the proposed ceiling increase for the Holy Trinity Cemetery Site, as per the current delegation of authority, by signing below.

APPROVED: _____ **DATE:** _____
Pat Evangelista, Director
Superfund and Emergency Management Division

DISAPPROVED: _____ **DATE:** _____
Pat Evangelista, Director
Superfund and Emergency Management Division

cc: after approval
P. Evangelista, SEMD-D
J. Prince, SEMD-DD
J. Rotola, SEMD-RAB
D. Harkay, SEMD-RAB
B. Grealish, SEMD-RAB
T. Lieber, ORC-NYCSUP
M. Ludmer, ORC-NYCSUP
M. Mears, PAO
A. Rajkowski-Reyes, OPM-GCMB
B. Schlieger, 5104A
T. Benton, RST
M. Ryan, NYSDEC
M. Cruden, NYSDEC Albany
T. Rice, NYSDEC
M. Rubin, NYSDEC Region 9
S. Bates, NYSDOH
A. Raddant, USDOI
L. Rosman, NOAA

ATTACHMENT A

Figure 1: Site Location Map
Figure 2: Site Map

ATTACHMENT B

REMOVAL SITE EVALUATION

ATTACHMENT C

HOLY TRINITY CEMETARY ACTION MEMORANDUM - RV1

DO NOT PLACE IN ADMINISTRATIVE RECORD
DO NOT RELEASE TO THE PUBLIC

Confidential Enforcement Addendum

Holy Trinity Cemetery Site ("HTC Site")
Lewiston, Niagara County, New York

A. PRP Search

EPA has conducted a preliminary potentially responsible party ("PRP") search for the HTC Site. The cemetery portion of the HTC Site was owned and operated by the Holy Trinity Roman Catholic Church Society of Niagara Falls, New York ("Holy Trinity") from 1910 to 2012. In 2008, Holy Trinity was canonically merged into the Divine Mercy Roman Catholic Parish ("Divine Mercy"), and in 2012 the cemetery property was legally transferred to Divine Mercy. On March 30, 2017, EPA sent Divine Mercy an information request letter pursuant to Section 104(e) of the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. § 9604(e). EPA received a response to that information request on June 13, 2017 ("Divine Mercy Response").

Directly to the west of the cemetery are three residential properties that comprise a portion of the HTC Site. The northernmost residential property, known as Area 5, is located at 5374 Robert Avenue and is currently owned by John Raymond, who purchased the property in the early 1980s. Area 6 of the HTC Site, located south of Area 5 at 5380 Robert Avenue, is owned by Harold W. Wade, who purchased the property from James D. and Patricia A. Ellerington on June 30, 1993. From 2011 to 2018, Kristen S. Wade was co-owner of the Area 6 property. Area 7 of the HTC Site, located furthest to the south at 5382 Robert Avenue, has been jointly owned by Walter D. Michaels and Barbara A. Michaels since August 14, 1978, prior to which time Mr. Michaels owned the property for an unknown length of time. Additional ownership information regarding the Area 5, Area 6, and Area 7 properties is the subject of ongoing investigation by EPA.

Ex 5 (intra-agency deliberative; attorney work product; attorney client privilege); Ex 7 (enforcement confidential)

[redacted]

Ex 5 (intra-agency deliberative; attorney work product; attorney client privilege); Ex 7 (enforcement confidential)

[redacted]

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II
290 BROADWAY
NEW YORK, NY 1000701866

ACTION MEMORANDUM RV2

DATE:

SUBJECT: Request for a Ceiling Increase for the Holy Trinity Cemetery Site (Residential Properties), Lewiston, Niagara County, New York

FROM: Peter Lisichenko, On-Scene Coordinator
Removal Action Branch

THRU: Joseph D. Rotola, Chief
Removal Action Branch

TO: Pat Evangelista, Director
Superfund and Emergency Management Division

SITE ID No.: A23M

I. PURPOSE

The purpose of this Action Memorandum is to request approval for a ceiling increase to continue the removal activities described herein at the Holy Trinity Cemetery (HTC) Site (Site), located in Lewiston, Niagara County, New York (see Attachment A, Figure 1: Site Location Map). The U.S. Environmental Protection Agency (EPA) initiated removal activities at the Site in April 2016 pursuant to a March 24, 2016, verbal authorization (referred to herein as RV1). Additional funding is necessary to continue the removal activities at the Site by removing and disposing of radioactive-contaminated soil/slag identified at two residential properties comprising a portion of the Site (these activities are referred to as RV2 for the purposes of this Action Memorandum). Impacted areas on these two properties include a residential driveway and adjacent lawn area, as well as a residential garage. These impacted areas were identified during the investigations conducted by EPA at the Site in 2016.

The total extramural funding that has been authorized to date for the Site is $150,000, of which $130,000 is for mitigation contracting. This Action Memorandum requests authorization for an additional $420,000, of which $300,000 is for mitigation contracting. If approved, the Site ceiling would be raised to $570,000, of which $430,000 would be for mitigation contracting.

Conditions at the Site meet the criteria for a removal action under the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. §§ 9601-9675, and Section 300.415(b)(2) of the National Contingency Plan (NCP).

This Site is not included on the National Priorities List (NPL) and there are no nationally significant or precedent setting issues associated with these removal activities.

II. SITE CONDITIONS AND BACKGROUND

The Superfund Enterprise Management System (SEMS) identification number for the Site is NYN000206698. The proposed removal activities are considered "time-critical."

In a 1978 U.S. Department of Energy aerial radiological survey, multiple properties throughout the Niagara County region were identified as having elevated levels of radiation above background levels. In February 1980, the New York State Department of Health (NYSDOH) Bureau of Radiological Health and the Niagara County Department of Health (NCDOH) conducted a radiological survey of a property known as the HTC (parcel #: 115.00-1-7), located in the Town of Lewiston, Niagara Falls County, New York. The survey identified areas on the HTC property where radiological slag material was used as subbase for roadways. Subsequent surveys and sampling events were conducted by New York State Department of Environmental Conservation (NYSDEC) and NCDOH in 2006, 2007, and 2013. This work identified the presence of Uranium-238 (U-238)/Uranium-234, Radium-226 (Ra-226), and Thorium-232 at the Site. Field radioactivity surveys using an Exploranium GR-135 were performed in areas of concentrated slag material, which indicated levels between 200 to 700 micro-Roentgen per hour (µR/hr).

The Site was referred to the EPA by the NYSDEC and NYSDOH on July 21, 2013. In 2013, 2015, 2016 and 2017, EPA conducted assessments of the HTC portion of the Site in an effort to better understand the horizontal and vertical extent of the radioactive contamination and implement physical controls to minimize exposure to HTC workers and patrons. It was during this time that the two adjacent residential properties were identified as containing radioactive material. The two residential properties were identified as Area 6 and Area 7 of the Site, and further investigations were conducted to define the extent of the contamination.

A. <u>Site Description</u>

1. Removal Site Evaluation (RSE)

An RSE was conducted for Area 6 and Area 7 to determine removal eligibility. The radionuclide of concern (ROC) was determined to be Ra-226, which was also present on the cemetery property and assumed to be in secular equilibrium. Both the U-238 chain and Ra-226 were analyzed individually to demonstrate that Ra-226 is the predominant ROC from within this decay series. As a result, risk estimates and preliminary remediation goals (PRGs) were selected based on Ra-226 only. Cancer risk was set at the 1×10^{-4} level, which is consistent with Removal Management Levels, and PRGs for Ra-226 were set in order to reduce the cancer risk to below this level. PRGs in an instance like this are calculated using the PRG calculator, which incorporates a methodology into which site-specific data is input. The PRG calculator has been used nationwide to determine cancer risk and set cleanup goals for both removal and remedial projects under CERCLA. PRGs calculated for time-critical removal actions are also referred to as Regional Removal Management Levels.

The calculated area-specific exposure point concentrations (EPCs) included data from the top two feet of soil since the highest concentrations were detected in the top eighteen inches. This approach is consistent with chemical evaluations of residential soil exposures where EPA typically evaluates the top two feet.

For Area 6, the soil EPC was calculated at 85.8 picocuries per gram (pCi/g) for Ra-226. The RSE results assuming no shielding were: risk = 6.45E-04; PRG = 13.3 pCi/g. With shielding, the results were: risk = 3.6E-04; PRG = 23.8 pCi/g. For Area 7, the soil EPC was calculated at 25 pCi/g Ra-226. The results assuming a current use were: risk = 5.99E-04; PRG = 4.17 pCi/g. The results considering a potential future conversion of the garage to a living space were: risk = 1.39E-03; PRG = 1.79 pCi/g. (NOTE: These PRGs should be considered to the extent that they are in excess of background Ra-226 concentrations.) There remains the potential for unacceptable risk in both Area 6 and Area 7 for any reasonably anticipated use scenario, and therefore both areas are removal eligible.

See Attachment B, RSE.

2. Physical location

The HTC portion of the Site is located at 5401 Robert Avenue, Lewiston, Niagara County. The residential properties are located to the west of HTC, along the western side of Roberts Avenue, which runs north to south. The northern parcel, 5380 Roberts Avenue (referenced as Area 6), is identified by tax ID number 115.15-1-21. The southern parcel, 5382 Roberts Avenue (referenced as Area 7), is identified by tax ID number 115.15-1-22. The Site is located in a residential neighborhood south of Interstate 190, to the east of the Niagara Gorge and the United States/ Canada border, and to the north of the Gates of Heaven Cemetery.

See Attachment A, Figure 2: Site Map.

Sensitive areas identified around the Site include the following:

- Freshwater forested/shrub wetlands, which are located approximately 0.1 miles to the northeast; and

- The Niagara River, which serves as the border between the United States and Canada and is located 0.4 miles to the west of the Site.

3. Site characteristics

Area 6 is a 0.25-acre, rectangular-shaped parcel, with a long axis running east to west and 62 feet of roadway frontage along Roberts Avenue. A two-story residential structure, built in 1955, is located in the center of the parcel. A concrete driveway along the parcel's southeast corner extends 90 feet from Roberts Avenue to the south side of the residential structure and terminates at a concrete patio.

Area 7 is a 0.60-acre, "L" shaped parcel with 62 feet of frontage along Roberts Avenue to the

east and 70 feet of frontage along Colt Avenue to the south. It contains a two-story residential structure with an attached two-car garage. The main structure, located in the northeast portion of Area 7, was built in 1950, while the garage was built later. The asphalt driveway extends 60 feet from the northeast corner of the property to the garage and was a replacement to the original concrete driveway. It is believed that the former concrete driveway had extended from Roberts Avenue to the northside of the home. The footprint of the garage addition extended over the former driveway.

Radioactive slag material was identified at the Area 6 parcel under the entire length of the concrete driveway and within a patch of dirt and grass that separates the Area 6 and Area 7 driveways. For Area 7, elevated radioactive activity was identified in the garage and at an isolated location south of the driveway. It is understood that radioactive slag was used as a subbase for both the Area 6 and Area 7 concrete driveways. For Area 7, the concrete driveway and subbase was removed several years ago and replaced with an asphalt driveway; the final disposition of the removed material is presently unknown. The radioactive activity in the garage are assumed to be related to the former driveway subbase, as the garage was built over the driveway. The small pocket of elevated radioactive activity to the south of the driveway is assumed to be a single slag fragment that had been displaced from the subbase.

4. Release or threatened release into the environment of a hazardous substance, or pollutant, or contaminant

Sampling and analysis conducted at the Site by EPA has identified the presence of CERCLA hazardous substances, as that term is defined in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14), and 40 C.F.R. Table 302.4. The Site is a facility within the meaning of Section 101(9) of CERCLA, 42 U.S.C. § 9601(9), and the presence of hazardous substances in subsurface media constitutes a "release" as defined in Section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

The release and threat of release of the contaminants Ra-226 into the environment may impact the health of the residents at the Site through a variety of pathways, including inhalation from dusts and gases, ingestion from dusts, soils, and water, and direct radiation from external doses of alpha, beta, and gamma radiation from a particulate radioactive material. Exposure to this material increases the cancer risk of an individual. Residents as well as passersby of the Site are exposed to contamination via routes of inhalation or dermal contact to soils and windblown dust in the driveway areas and indoors.

Hazardous Substances Under CERCLA:

Radionuclides Identified Maximum Concentration
Ra-226 – 53 pCi/g

The radionuclide listed above is included in 40 CFR 302.4, List of Hazardous Substances and Reportable Quantities, Appendix B – Radionuclides.

The statutory source for designating radionuclides as a hazardous substance under Section 102(a) of CERCLA, 42 U.S.C. § 9602(a), is Section 112 of the Clean Air Act, 42 U.S.C. § 7412.

EPA concluded, based on risk assessment calculations, that both Area 6 and Area 7 are removal eligible based on a risk calculation of 6.45E-04 and 1.39E-03, respectively. Conservative PRGs have been established at 13.3 pCi/g for Area 6 and 1.79 pCi/g for Area 7. These PRGs should be considered to the extent that they are in excess of background Ra-226 concentrations (see Attachment B).

5. NPL status

The Site was evaluated for listing on the NPL and determined to be ineligible.

6. Maps and pictures depicting Site location and conditions

See Attachment A, Figure 1: Site Location Map
Figure 2: Site Map

B. Other Actions to Date

1. Previous actions

In March 2016, RV1 activities were initiated at the Site as result of conditions identified during 2013/2014 site assessments. EPA determined that site conditions warranted immediate removal activities, which included installation of security fencing around areas of HTC where contaminated slag is stock piled and slag-stabilized roads exist. Additionally, a radon mitigation system was installed in a home where radon readings exceeded the action level of 4.0 pCi/L.

In October 2016, EPA mobilized its Removal Support Team contractor to the Site again to conduct a radiological assessment. An exterior radiological survey was conducted on both Area 6 and Area 7 utilizing a Ludlum 2241 gamma meter equipped with a 3x3 Sodium Iodine (NaI) scintillator. Areas of elevated activity were identified, and soil samples were collected at depth to delineate the vertical extent of the contamination. These samples were submitted to a laboratory for radiological analysis. Analytical results indicated exceedances of the Ra-226 radionuclide in the upper 12 inches of the properties in areas of elevated activity. In May 2017, air samples for radon were collected in both Area 6 and Area 7 residential structures. Results of this air sampling were found to be below the action level for the Site.

2. Current actions

Efforts are being made to plan and prepare for the upcoming RV2 work activities. Tasks include identifying suitable staging areas, developing project schedules, and providing updates to the property owners and local officials on the planned work.

C. State and Local Authorities Roles

1. State and local actions, to date

No actions have been conducted by State or local entities for Area 6 and Area 7 of the Site. However, the NYSDEC has been notified of the contamination at the two properties and has served as an advisor on the proposed removal activities.

2. Potential for continued State/local response

NYSDEC and NYSDOH will continue to act in an advisory/supporting role throughout the performance of the removal activities at the Site, but they are financially unable to take the lead in the response activities.

II. THREATS TO PUBLIC HEALTH, OR WELFARE, OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

Hazardous substances present at Area 6 and Area 7 of the Site represent a threat to the public health and environment as defined by Section 300.415(b)(2) of the NCP as there is a high potential for direct contact to radiation from alpha, beta, and gamma radioactive material.

Factors that support conducting the removal activities at the Site are discussed below.

Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, or pollutants, or contaminants;

The Site includes two occupied residential structures. The occupants of these structures are the primary "receptors" with increased cancer risks because of internal and external exposure to Ra-226. The pathways of exposure for the occupants includes incidental ingestion of soil, external radiation from contamination in the soil, and inhalation of fugitive dust.

Actual or potential contamination of drinking water supplies or sensitive ecosystems;

Surficial overland and stormwater flow is discharged to the Niagara River, located 0.5 miles to the west, through a series of drainage ditches and culverts. Entrainment of contamination may result in adverse impacts to the Niagara River, a valued resource for both the United States and Canada.

High levels of hazardous substances, or pollutants, or contaminants in soils, largely at or near the surface that may migrate; and

Ra-226 has been detected in surface soils at levels as high as 42.63 pCi/g. Radium-contaminated soils may migrate through airborne dust, surface runoff, construction activities, and foot traffic into the existing buildings on-Site and/or into homes and residential areas. Since radium has a long half-life (approximately 1,600 years), it is highly probable that the Site will undergo physical changes before the radium on-Site will decay to background levels. Building demolition and/or construction may result in increased exposure to humans as it may cause the contamination to become suspended or airborne. Weathering and/or animal interaction may also cause contamination to migrate.

The availability of other appropriate federal or State response mechanisms to respond to the release.

The State of New York does not currently have the resources needed to take timely and appropriate action to respond to the threat posed by the presence of hazardous substances at the Site.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from the Site, if not addressed by implementing the response activities selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, welfare, or the environment.

V. EXEMPTION FROM STATUTORY LIMITS

Site conditions continue to meet the emergency exemption criteria specified in the RV1 Action Memorandum supporting the 12-month exemption, which was approved by the Region 2 Acting Division Director on August 29, 2019. The RV1 Action Memorandum is included as Attachment C.

VI. PROPOSED ACTIONS AND ESTIMATED COSTS

A. <u>Proposed Actions</u>

1. Proposed action description

The funding being requested in this RV2 Action Memorandum will allow EPA to remove and dispose of the radioactive material located at Area 6 and Area 7 of the Site and restore the impacted areas. For Area 6, the concrete driveway will be removed and excavated to native soil to attain the PRG of 13.3 pCI/g. For Area 7, the concrete garage floor will be removed and excavated to native soil to attain the PRG of 1.79 pCi/g. The single hotspot in the Area 7 front lawn will also be excavated. A gamma scan will be conducted of the base of the excavated areas to verify removal of slag material, and post-confirmation samples will be collected in accordance with the Multi-Agency Radiation Survey and Site Investigation Manual. To expedite the processing time, post-confirmation samples will be processed at the on-Site laboratory via a high purity germanium (HPGe) radiation detector, providing confirmation results within hours as opposed to the days required for off-Site laboratory services. All excavated areas will be backfilled and compacted with crusher run limestone gravel with fines. This fill material will be scanned to ensure that radioactivity does not exceed background levels. The material will also be sent for laboratory analysis to ensure compliance with NYSDEC's Imported Fill Standards for Residential Use as set forth in the NYSDEC Technical Guidance for Site Investigation and Remediation (DER 10). Both the driveway and garage locations will be restored with new concrete. The single hotspot in Area 7 will be restored with NYSDEC-certified clean topsoil and grass seed.

All disposal activities will be conducted in compliance with the EPA Off-Site Rule.

2. Contribution to remedial performance

The removal activities at the Site are consistent with the requirement of Section 104(a)(2) of CERCLA, which states, "any removal action undertaken . . . should . . . to the extent practicable, contribute to the efficient performance of any long-term remedial action with respect to the release or the threatened release concerned." The removal activities proposed in this Action Memorandum would not impede future response activities, should they be necessary, based on available information.

3. Engineering evaluation/cost analysis (EE/CA)

Because of the time-critical nature of the removal activities, an EE/CA was not prepared.

4. Applicable or relevant and appropriate requirements (ARARs)

It remains EPA's policy to operate under the assumption that ARARs, which in removal actions are to be attained to the extent practicable, are generally protective, absent multiple contaminants or pathways of exposure. However, in unusual circumstances, such as with radiological contamination, dose-based ARARs can result in EPA Regional offices having to establish risk-based PRGs that result in levels that are more protective than a level established with a dose-based approach under a given ARAR, even absent multiple pathways or contaminants. In such circumstances, reliance on the dose-based ARAR would not be sufficiently protective of human health or the environment. For the response action discussed in this Action Memorandum, it was determined that site-specific PRG numbers were required because potential, dose-based ARARs were determined to not be sufficiently protective of human health or the environment. See OSWER Directive 9285.6-20 (June 13, 2014)("ARARs [at levels] that are greater than 12 [millirem per year] effective dose equivalent (EDE) are generally not considered sufficiently protective for developing cleanup levels under CERCLA . . . ."). Site-specific PRG numbers were calculated based on the highest risk receptor to determine the most conservative value for cleanup levels at the Site.

5. Project schedule

These RV2 removal activities are planned to begin in August 2020. A period of two weeks is planned for the removal and disposal of waste material off-Site at an NRC-approved facility.

Estimated Costs

The estimated costs for the completion of this project are summarized below.

Direct Extramural Costs:	Current Project Ceiling	Ceiling Increase Requested in This Action Memorandum	Proposed New Total Project Ceilings

Total Cleanup Contractor Cost (Includes 20% Contingency)	$130,000	$300,000	$430,000
Superfund Technical Assistance Response Team, Extramural Costs	$20,000	$120,000	$140,00
Subtotal, Extramural Costs	$150,000	$420,000	$570,000
Extramural Cost Contingency	$0	$0	$0
Total Project Ceiling	$150,000	$420,000	$570,000

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Given the Site conditions, the nature of the hazardous substances documented on-Site, and the potential exposure pathways to nearby populations described in Section III, actual or threatened releasees of hazardous substances from the Site, if not addressed by implementing the response activities described in this Action Memorandum, may present an imminent and substantial endangerment to public health or welfare or the environment.

VII. OUTSTANDING POLICY ISSUES

None.

VIII. ENFORCEMENT

EPA has conducted a preliminary potentially responsible party (PRP) search for the Site. The EPA Region 2 Removal Action Branch will continue to work with the Office of Regional Counsel in an attempt to identify and locate all viable PRPs to recover costs associated with the ongoing removal activities.

The total EPA removal costs that will be eligible for cost recovery are estimated to be $1,103,121. The following chart describes the costs that EPA estimates will be eligible for cost recovery.

Total Estimated Costs

COST CATEGORY	AMOUNT
Direct Extramural Cost	$570,000
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Estimated EPA Costs Eligible for Cost Recovery	$1,103,121

Note:Direct costs include direct extramural costs and direct intramural costs. Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site-specific direct costs, consistent with the full cost accounting methodology effective October 2, 2000. These estimates

do not include pre-judgment interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of a removal action. The estimates are for illustrative purposes only and their use is not intended to create any rights for responsible parties. Neither the lack of a total cost estimate nor deviation of actual costs from this estimate will affect the right of the United States to seek cost-recovery.

IX. RECOMMENDATION

This decision document describes selected removal activities for the ongoing removal action at the Holy Trinity Cemetery Site located in Lewiston, Niagara County, New York. This document was developed in accordance with CERCLA, as amended, and is not inconsistent with the NCP. These response activities are based on the Administrative Record for the removal response action at the Site.

Conditions at the Site meet the NCP Section 300.415(b)(2) criteria for a removal action. This Action Memorandum requests authorization of an additional $420,000, of which $300,000 is for mitigation contracting. If approved, the Site ceiling would be raised to $570,000, of which $430,000 would be for mitigation contracting.

Please indicate your formal approval for the proposed ceiling increase for the Holy Trinity Cemetery Site, as per the current delegation of authority, by signing below.

APPROVED: _____ **DATE:** _____
Pat Evangelista, Director
Superfund and Emergency Management Division

DISAPPROVED: _____ **DATE:** _____
Pat Evangelista, Director
Superfund and Emergency Management Division

cc: after approval
P. Evangelista, SEMD-D
J. Prince, SEMD-DD
J. Rotola, SEMD-RAB
D. Harkay, SEMD-RAB
B. Grealish, SEMD-RAB
T. Lieber, ORC-NYCSUP
M. Ludmer, ORC-NYCSUP
M. Mears, PAO
A. Rajkowski-Reyes, OPM-GCMB
B. Schlieger, 5104A
T. Benton, RST
M. Ryan, NYSDEC
M. Cruden, NYSDEC Albany
T. Rice, NYSDEC
M. Rubin, NYSDEC Region 9
S. Bates, NYSDOH
A. Raddant, USDOI
L. Rosman, NOAA

ATTACHMENT A

Figure 1: Site Location Map
Figure 2: Site Map

ATTACHMENT B

REMOVAL SITE EVALUATION

ATTACHMENT C

HOLY TRINITY CEMETARY ACTION MEMORANDUM - RV1

DO NOT PLACE IN ADMINISTRATIVE RECORD
DO NOT RELEASE TO THE PUBLIC

Confidential Enforcement Addendum

Holy Trinity Cemetery Site ("HTC Site")
Lewiston, Niagara County, New York

A. PRP Search

EPA has conducted a preliminary potentially responsible party ("PRP") search for the HTC Site. The cemetery portion of the HTC Site was owned and operated by the Holy Trinity Roman Catholic Church Society of Niagara Falls, New York ("Holy Trinity") from 1910 to 2012. In 2008, Holy Trinity was canonically merged into the Divine Mercy Roman Catholic Parish ("Divine Mercy"), and in 2012 the cemetery property was legally transferred to Divine Mercy. On March 30, 2017, EPA sent Divine Mercy an information request letter pursuant to Section 104(e) of the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. § 9604(e). EPA received a response to that information request on June 13, 2017 ("Divine Mercy Response").

Directly to the west of the cemetery are three residential properties that comprise a portion of the HTC Site. The northernmost residential property, known as Area 5, is located at 5374 Robert Avenue and is currently owned by John Raymond, who purchased the property in the early 1980s. Area 6 of the HTC Site, located south of Area 5 at 5380 Robert Avenue, is owned by Harold W. Wade, who purchased the property from James D. and Patricia A. Ellerington on June 30, 1993. From 2011 to 2018, Kristen S. Wade was co-owner of the Area 6 property. Area 7 of the HTC Site, located furthest to the south at 5382 Robert Avenue, has been jointly owned by Walter D. Michaels and Barbara A. Michaels since August 14, 1978, prior to which time Mr. Michaels owned the property for an unknown length of time. Additional ownership information regarding the Area 5, Area 6, and Area 7 properties is the subject of ongoing investigation by EPA.

Ex 5 (intra-agency deliberative; attorney work product; attorney client privilege); Ex 7 (enforcement confidential)

[redacted]

Ex 5 (intra-agency deliberative; attorney work product; attorney client privilege); Ex 7 (enforcement confidential)

[redacted]

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II
EDISON, NEW JERSEY 08837

ACTION MEMORANDUM-RV1

DATE:

SUBJECT: Approval and Funding for a Confirmation of Verbal Authorization and 12-Month Exemption for the CERCLA Removal Action at the Holy Trinity Cemetery Site, Lewiston, New York

FROM: Eric M. Daly, On-Scene Coordinator
Response and Prevention Branch

THRU: Eric Mosher, Chief
Response and Prevention Branch

TO: Pat Evangelista, Acting Division Director
Superfund and Emergency Management Division

Site ID: A23M

I. PURPOSE

The purpose of this Action Memorandum is to document the verbal authorization and 12-month exemption for a removal action by the U.S. Environmental Protection Agency (EPA) at the Holy Trinity Cemetery Site (Site) located at Robert Avenue, Lewiston, Niagara County, New York. A verbal authorization was granted on March 24, 2016, by the Director of the Emergency and Remedial Response Division (ERRD) (now known as the Superfund and Emergency Management Division (SEMD)) of EPA Region 2 to initiate a removal action with a project ceiling in the amount of $150,000, of which $130,000 was for mitigation contracting.

Removal activities performed pursuant to the March 2016 verbal authorization (RV1) were initiated at the Site on April 18, 2016 and continued until August 28, 2017. RV1 was performed as part of a removal action to address the release and threatened release of hazardous substances, radionuclides Thorium-232 (Th-232) and Uranium-238 (U-238), at or from the Site into the environment. The hazardous substances at the Site present a threat to public health through a variety of pathways, including inhalation from dusts and gases; ingestion from dusts, soils, and

CONCURRENCES Name: Holy Trinity Cemetery Date: 06/17/2019									
Symbol	SEMD-RPB	SEMD-RPB	SEMD-RPB	SEMD-RAB	ORC-NYCSFB	ORC-NYCSFB	ORC-NYCSB	SEMD-DD	SEMD-AD
Surname	Daly	Hoppe	Kodama	Rotola	Ludmer	Capon	Lieber	Prince	Evangelista
Date									

water; and direct radiation from external doses (external direct radiation exposure is primarily attributable to gamma radiation, with lesser internal exposures attributable to alpha and beta radiation from particulate radioactive material). The removal action to address Site contamination has not been completed, and additional removal activities at the Site are contemplated.

The Site meets the criteria for a removal action under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. § 9601-9675, as described in Section 300.415(b)(2) of the National Contingency Plan (NCP), 40 C.F.R. § 300.415(b)(2).

The Site is not listed on the National Priorities List (NPL), and there are no nationally significant, or precedent-setting issues associated with the Site.

II. SITE CONDITIONS AND BACKGROUND

The Superfund Enterprise Management System (SEMS) identification number for this Site is NYN000206698. The proposed removal action is considered "time-critical".

A. Site Description

The Site consists of multiple areas of observed radioactively contaminated soil and rock at property owned by Holy Trinity Cemetery, as well as a single-family residential home located west of the Holy Trinity Cemetery property (see Attachment A).

1. Removal Site Evaluation (RSE)

In 1978, a U.S. Department of Energy (DOE) aerial radiological survey identified multiple properties throughout Niagara Falls County with elevated levels of radiation above background amounts. In February 1980, the New York State Department of Health (NYSDOH) Bureau of Radiological Health and the Niagara County Department of Health (NCDOH) conducted a radiological survey of the Site to identify areas of elevated radioactivity because of the historic use of radioactive slag for fill at the property. The New York State Department of Environmental Conservation (NYSDEC) and NYSDOH referred the Site to EPA on July 21, 2013 for further assessment.

In December 2013, the EPA Region 2 Pre-Remedial Section (PRS) initiated a preliminary assessment (PA) and site inspection (SI) to assess whether the Site posed a threat to human health and the environment.

On December 12-13, 2013, personnel from EPA PRS and EPA's contractor (Weston Solutions, Inc.) conducted radiological surveys of the exterior of the Site and confirmed previous work performed by NYSDEC and NYSDOH. To quantify the contamination identified, a total of 14 soil samples (including one environmental duplicate sample) were collected from 13 boreholes throughout the main footprint of the Site using hollow-stem auger drilling methods. Two soil samples were collected on the property to document background conditions.

Per the PRS Pre-Remedial Assessment Report, the maximum concentrations for the radionuclides of interest were 358 picoCuries/gram (pCi/g) for Th-232 (Sample: SG01), 303 pCi/g for Radium-228 (Ra-228; Sample: SG01), 287 pCi/g for U-238 (Sample: SG01), and 360 pCi/g for Radium-226 (Ra-226; Sample: SG01) from slag samples (see Appendix A-Attachment C, Figure 1). For the radiological risk assessment, the EPA Emergency Response Team Health Physicist conservatively used the highest analytical results of the progenies within each decay chain (i.e., U-238 and Th-232) to assign the maximum concentration for the parent radionuclide. For example, the highest concentration value of U-238 for the risk assessment was represented by the progeny Thorium-230 (Th-230) result from the 2013 EPA PRS data (Th-230 at 461 pCi/g; Sample: SG01) (see Attachment C, Figure 1).

Based on the PA and SI results, a Hazardous Ranking System (HRS) score was calculated. The calculated HRS score for the Site was less than 28.5 and, as a result, the Site did not qualify for inclusion on the NPL. The Site was referred to the ERRD (now known as SEMD) Removal Action Branch (RAB) for a determination as to whether the Site warranted a CERCLA removal action.

The RAB and an EPA Region 2 risk assessor utilized the PRS data Site files, which included a Pre-Comprehensive Environmental Response, Compensation and Liability Information System Screening Form for the Site, as well as historic city directories, Sanborn maps, and analytical data collected for the Site, to conduct a preliminary Removal Site Evaluation. In addition, an internet search for historic articles, maps, and photographs was conducted, and historic aerial photographs and online Erie County property records were reviewed. In June 2015, RAB and the EPA Region 2 risk assessor determined that conditions at the Site appeared to meet the requirements of Section 300.425(b)(2) of the ~~of the~~ NCP for the undertaking of a CERCLA removal action. Further assessment of the Site was requested.

In August 2015, the EPA Region 2 ERRD (now known as SEMD) Response and Prevention Branch (RPB) On-Scene Coordinator (OSC), EPA Environmental Response Team (ERT) Health Physicist, and Weston Solutions (Removal Support Team) conducted further radiological assessment of the interior space of the only building on the HTC-owned parcel of the Site. This building contains a chapel, office, maintenance garage, and upstairs residential apartment (referred to as the chapel/maintenance building within this document). The ~~exterior~~perimeter of the property was also assessed. The goal for this assessment was to determine the extent of contamination outside of the previously assessed areas and to determine the interior impacts of the contamination. EPA verified the ~~outside areas~~bounds of gamma-contaminated material and identified the perimeter of the contamination. (See Attachments B and C). There were no elevated gamma or radon levels detected in the chapel/maintenance building.

During the August 2015 assessment, EPA advanced eight boreholes using hollow-stem auger drilling methods and collected a total of nine soil samples, including one environmental duplicate sample (see Attachment C, Figure 1). One sampling point was

from an area of the property with low gamma levels, which was used as a background location during the PRS Pre-Remedial Assessment. Although the primary goal of this soil sampling effort was to gain an understanding of the perimeter outside the previously identified areas of contamination, samples were also ~~excavated~~obtained at depth from the known areas to determine depth of the contaminated areas as well as confirmation of the previous results.

In Area 1, the maximum concentrations of the radionuclides of interest for this round of sampling (see Appendix A-Attachment C, Figure 1) were Th-232 at 31.6 pCi/g (Sample: H001-SS008-0012-01), Ra-228 at 65.3 pCi/g (Sample: H001-SS008-0012-01; Ac-228 lab results were used for quantifying Ra-228), U-238 at 13 pCi/g (Sample: H001-SS008-0012-01), and Ra-226 at 77.7 pCi/g (Sample: H001-SS003-0012-01). The maximum depth of the contamination was determined to be two feet. The majority of these elevated radiological concentrations were in the slag layer located in the first foot depth of the exterior surface.

The second area of elevated gamma levels that was sampled during the August 2015 event was referred to as Area 2 (see Attachment B). The maximum concentration of the radionuclides of concern for Area 2 were Th-232 at 0.801 pCi/g, Ra-228 at 0.55 pCi/g, U-238 at 21.6 pCi/g, and Ra-226 at 35.5 pCi/g (Sample: H001-SS002-0012-01) (see Attachment C, Figure 1).

In addition to exterior samples, interior swipe samples were collected inside the chapel/maintenance building to determine if there was any radiological contamination that had been tracked into the structure. No contamination was found inside the structure.

On March 08, 2016, an RPB OSC was assigned to the Site to collect additional field data and determine if contamination levels exceed the cancer risk of 10^{-4} (i.e., 1 excess cancer incidence in 10,000 of cancer). A risk assessment was performed to determine whether the Site was eligible for a removal action. The assessment of removal eligibility involved the use of EPA's Preliminary Remediation Goals (PRG) Calculator, and the calculations were performed by the EPA ERT Health Physicist. EPA's PRG Calculator was created to help calculate risk for various receptors at ~~the Site~~sites, taking into consideration exposures from all potential pathways and through all media (e.g., soil, ground water, surface water, sediment, air, structures, etc.).

Site-specific high concentration soil data (see Attachment D) was used to assess risk to both cemetery patrons and the cemetery outdoor worker (see Attachments E and F). Based on the risk calculations, equilibriums, and the high soil concentrations found at the Site, the contaminants of concern were identified as Th-232 and U-238. For HTC, the most conservative receptor used to calculate risk was an outdoor worker scenario performing daily duties including burial and lawn maintenance activities. The total risk of the site without removal of the contaminated material was determined to be 2.43×10^{-2} where the risk contribution of Th-232 is 1.26×10^{-2} and U-238 is 1.19×10^{-2}. A removal action was determined to be warranted since both Th-232 and U-238 values were outside of EPA's acceptable risk range of 1×10^{-6} to 1×10^{-4}, with the greatest risk posed to the outdoor worker.

As a result of the assessment activities, risk calculations, and removal action determination, the ERRD (now known as SEMD) Director granted a verbal authorization for a $150,000 total project ceiling for a removal action at the Site on March 24, 2016. The primary purpose of this verbal authorization was to stabilize the Site and further assess the extent of the contamination.

During this time, EPA was approached by a resident of Robert Avenue with property located at Tax Parcel # 115.15-1-20 (Area 5/Attachment B), directly across from the 2.91-acre area of concern at HTC cemetery (Area 1). The resident indicated that the slag road bed present in that area of concern continued across Robert Avenue onto his property and under his home. Based on this information, it was determined that the assessment of this property should be included as part of the removal work at the Site. A gamma survey of the interior of the home and external property was conducted; no elevated readings above background were observed. However, radon sampling was conducted throughout the home, and the radon laboratory results indicated that all radon levels in the residential home basement were above the EPA action level of 4.0 picoCuries per Liter (pCi/L). The highest result was 11.2 pCi/L (see Appendix G). Immediate mitigation activities were recommended as part of the response work.

2. Background information on radioactive contamination

Concepts

Elements within the periodic table are comprised of both unstable and stable forms. Unstable elements are known as "radionuclides," and they give off radiation in the form of a wave (i.e., gamma radiation) or particle (e.g., alpha radiation or beta radiation) to become more stable. The time it takes for radionuclides to become stable can range from seconds to billions of years. Long-lived radionuclides, such as Thorium and Uranium, have always been present within the Earth's crust and within the tissues of all living species. Material that contains radionuclides in their natural form is known as ~~N~~naturally ~~O~~occurring ~~R~~radioactive ~~M~~material, commonly referred to as "NORM," and these radionuclides contribute~~s~~ to background radiation levels. Examples of NORM include sands, clays, soils, rocks, coal, groundwater, oil and gas, as well as metal ores and non-metal minerals.

NORM may become concentrated or exposed to the accessible environment as a result of human activities such as manufacturing, mineral extraction, or water processing. The resulting material is known as Technically Enhanced Radioactive Material or "TENORM." EPA has defined "Technologically Enhanced" to mean that the "radiological, physical, and chemical properties of the radioactive material have been concentrated or further altered by having been processed, or beneficiated, or disturbed in a way that increases the potential for human and/or environmental exposures." The contamination found at the Site qualifies as TENORM.

The extraction of precious metal and/or rare earth~~s~~ material from ore can result in the

presence of TENORM in waste and/or product. Historically, radioactive waste at mines and mineral processing or manufacturing facilities was often regarded as non-hazardous material and was disposed of improperly. Some facilities sold or disposed of such waste as fill for construction projects, including the construction of roads and parking lots. The Site is one location where contaminated waste material was used as fill.

Terminology

To evaluate land and/or buildings that are potentially contaminated with radioactive materials, a variety of instrumentation must be used. When performing an initial scoping survey, the extent of the contamination (i.e., how widespread the contamination is at the ~~s~~Site), as well as the intensity of the radiation (i.e., which areas/locations contribute to the greatest risk or dose) must be identified. Hand-held and portable equipment such as sodium iodide detectors, Geiger Mueller counters, proportional detectors, and/or ion chambers may be used as field equipment to determine the extent of contamination and/or dose or exposure rates ~~due to~~of gamma radiation. In general, most of these pieces of equipment are used qualitatively, and resulting data is compared to background readings to determine the extent and intensity of contamination and whether further investigation is needed. Examples of units used for qualitative measurements include counts per minute (cpm) for contamination, microroentgen per hour (µR/hr) for exposure rate, or millirem per hour (mrem/hr) for dose rate measurements.

In most cases, the equipment used to collect qualitative measurements may not provide an accurate or precise measurement of the quantity of contamination ~~due to~~because of poor efficiencies for specific radionuclides, poor geometries ~~due to~~because of the instrumentation setup, or fast counting time. Qualitative measurements should always be paired with quantitative data when characterizing a site that has been contaminated with radioactive materials. Quantitative data can be used to verify or correlate the qualitative instrumentation reading. This is commonly referred to as "ground truthing." To obtain quantitative measurements, air, water, sediment, soil, and/or vegetation samples are taken from areas of known or suspected contamination and analyzed by a laboratory. The units for quantitative measurements are ~~picoCuries per gram (~~pCi/g~~)~~. For the Site cleanup, only quantitative measurements are used to provide more definitive results and to verify cleanup has been completed.

Risk Calculation

As per 40 CFR 300.430(e)(2)(i)(A)(2), remedial actions need to meet the risk requirements of 10^{-4} to 10^{-6} Since removal actions are not a part of the Remedial Program, the Site does not need to meet this requirement for site cleanup. However, in recent years, EPA has encouraged removal cleanups to meet, at a minimum, the remedial cleanup values associated with the 10^{-4} carcinogenic risk based on the reasonable maximum exposure for an individual. To determine if contamination levels exceed the cancer risk of 10^{-4} (i.e. an increase of 1 additional person in 10,000 ~~risk of~~ developing cancer), a risk assessment must be performed. EPA's PRG Calculator was created to help

calculate risk versus cleanup levels for various receptors, taking into consideration exposures from all potential pathways and through all media (e.g., soil, groundwater, surface water, sediment, air, structures, etc.).

3. Physical location

The addresses associated with the Holy Trinity Cemetery Site are 5401 Robert Avenue, Lewiston, Niagara County, NY 14092 (Areas 1, 2, 3, 4 & 8), 43.149668°; Longitude: -79.032245° and 5374 Robert Avenue, Lewiston, Niagara County, New York 14092 (Area 5), Latitude: 43.149931°; Longitude: -79.032829° (see Attachment A). These two properties comprising the Site are identified on the Niagara County tax map as 115.00-1-7 and 115.15-1-20, respectively.

There are several active facilities within 0.5 mile of the Site, including the Our Lady of Peace Nursing Home, Mount St. Mary's Child Care Center, and Mount St. Mary's Hospital. Waterbodies located between 0.5-1.0 miles of the Site are the Niagara River to the West, Ontario Hydro Reservoir also to the West, Power Reservoir to the East, and Fish Creek to the North of the Site. The Lewiston, New York, population is approximately 15,964.

4. Site characteristics

The Site consists of two parcels. The first parcel, identified as tax parcel # 115.00-1-7, is approximately 39.2 acres in size and is the location of a cemetery. This property is owned by the Divine Mercy Roman Catholic Parish (formerly, the Holy Trinity Cemetery. Roman Catholic Church Society of Niagara Falls, New York). One area of observed contamination at the cemetery parcel is 4.21 acres in size and is located in the northernmost portion of the property. The contamination is located along two undeveloped roadways on a relatively flat and slightly elevated grassy field, which has been designated as Area 1 (see Appendix A-Attachment A). There are also piles of contaminated material and an undeveloped roadway in Area 2, a pile of contaminated material within Area 4, and contamination underneath the developed cemetery roadway designated as Area 9 (see Appendix A-Attachment A). There is one building on the cemetery property, which has been utilized as a residence, chapel, and cemetery maintenance facility (see Appendix A-Attachment A).

The second parcel ~~comprising~~at the Site, tax parcel #: 115.15-1-20, is located to the west of the cemetery on Robert Avenue and is a single-family residential property of approximately 0.59 acres in size. This parcel is designated as Area 5 (see Appendix A-Attachment B).

The Site is bordered to the north and east by Interstate 190, to the south by another cemetery, and to the west by Robert Avenue and a residential area.

The removal activities documented in this Action Memorandum (RV1) comprise a portion of the ongoing CERCLA removal action at the Site.

5. **Release or threatened release into the environment of a hazardous substance, or pollutant, or contaminant**

The release and threat of release of the contaminants Th-232 and U-238 at or from the Site into the environment may impact the health of the public at the Site through a variety of pathways, including inhalation from dusts and gases; ingestion from dusts, soils, and water; and direct radiation from external doses (external direct radiation exposure is primarily attributable to gamma radiation, with lesser internal exposures attributable to alpha and beta radiation from particulate radioactive material). Workers at the cemetery, as well as adjacent neighbors, patrons, and other members of the public at or near the Site may be exposed to contamination via routes of inhalation or dermal contact to loose soils and windblown dust in the parking areas and indoors.

Hazardous Substances Statutory Source for Designation Under CERCLA:

Radiological Substances Identified	Maximum Concentration
Thorium 232 (Th-232)-Daughter: Ra-228	365 pCi/g
Uranium 238 (U-238)-Daughter: Ra-226	461 pCi/g

Each of the radiological substances listed above are included in 40 CFR 302.4, List of Hazardous Substances and Reportable Quantities, Appendix B – Radionuclides. The radionuclides are designated as a hazardous substance under Section 102(a) of CERCLA, 42 U.S.C. § 9602(a), and Section 112 of the Clean Air Act, 42 U.S.C. § 7412.

6. **NPL status**

The Site is not listed on the NPL, nor is it proposed for inclusion.

7. **Maps, pictures, and other attached documents**

Attachment A: Site Maps
Attachment B: Qualitative Gamma Scan Measurements
Attachment C: Soil Sample Locations
Attachment D: Highest Soil Concentrations
Attachment E: Outdoor Worker Preliminary Remediation Goals
Attachment F: Recreator Preliminary Remediation Goals
Attachment G: Indoor Radon Sample Results

B. Other Actions to Date

1. Previous actions

No previous actions have been taken by any federal, State, or local government entity or private party to address the hazardous substances located at the Site. All federal and New York State actions to date have been in the form of assessment activities.

2. Current actions

The activities taken by EPA thus far to mitigate the threats posed by the radioactive contamination at the Site are described in Section VI.A.1. These activities were initiated on April 18, 2016 and continued until August 28, 2017. EPA expended approximately $83,000 in mitigation costs and $8,000 in technical support costs at the Site to address the radioactive contamination.

B. State and Local Authorities' Role

1. State and local actions, to date

In 1978, a USDOE aerial radiological survey identified multiple properties throughout the Niagara County region with elevated levels of radiation above background readings. In February 1980, the NYSDOH Bureau of Radiological Health and the NCDOH conducted a radiological survey of the Site to identify areas of elevated radioactivity because of the historic use of radioactive slag as fill on the property. During the survey, cemetery personnel showed NYSDOH a slag pile located near the caretaker's garage in the western portion of the cemetery property. Cemetery personnel stated that this slag was used as fill for the cemetery roads throughout the property.

Further inspection of the Site revealed that the slag was used as fill for the base of two proposed roadways that extended approximately 500 to 600 feet from the caretaker's garage northwest toward Robert Avenue. At the time of the 1980 survey, the construction of these roads had been abandoned. The underlying slag base was covered with an unknown amount of soil and was left as an open field. Using an Eberline PRM 7 radiation meter, radioactivity of the slag pile was measured at 250 µR/hr. Readings along the fully constructed cemetery roads ranged from 5 µR/hr (i.e., background concentration) to 30 µR/hr. Readings along the undeveloped roadways ranged from 200 µR/hr to 400 µR/hr. Samples of the slag were collected as part of the investigation, and laboratory analyses of these samples indicated detectable concentrations of Potassium-40, Uranium-235 and Uranium-238, Radium-226, and Thorium-232.

In October 2006, NYSDEC and the NCDOH conducted a Site visit. At that time, the slag pile that had previously been observed near the caretaker's garage was no longer present at the Site; the then-current caretaker did not have any knowledge of the slag pile or what had happened to it. The caretaker indicated that children living nearby used the cemetery area for recreation. Since the 1980 NYSDOH Site investigation, trees had

grown through the undeveloped slag roadway in Area 1, pushing the slag to the surface. As part of the Site visit, NYSDEC conducted a radioactivity survey with an Exploranium GR-135. Readings taken while walking along the Area 1 undeveloped roadways indicated levels of 200–450 µR/hr at waist height and a surface contact reading of 450–570 µR/hr. A contact reading of 700 µR/hr at exposed slag near a tree was also documented. NYSDEC collected four samples of the slag, which were analyzed for isotopic Uranium and isotopic Thorium and underwent gamma-ray spectroscopy analysis. Laboratory analytical results indicated the presence of Uranium-238/234 ranging from 114 to 1,664 pCi/g and Thorium-232 ranging from 114 to 898 pCi/g.

In May 2007, NYSDEC visited the Site to identify contamination in an on-Site debris pile using gamma-ray spectroscopy. A 5-minute static reading was taken, and Radium-226 was the only nuclide identified. An additional, similar analysis was conducted on one of the Area 1 undeveloped roadways, confirming the presence of Thorium-232.

During a July 2013 NYSDOH reconnaissance, screening activities showed elevated radiation levels at the Site along the Area 1 undeveloped roadways and along the Area 2 undeveloped roadway leading off-Site. In Area 1, the radiation levels were up to 51 µR/hr with the pressurized ion chamber and up to 50,000 cpm when tested with the sodium iodide (NaI) 2x2 detector.

The Site was referred to the EPA by the NYSDEC and NYSDOH on July 21, 2013. No other removal actions were taken by other government or private parties prior to this request.

2. Potential for continued State/local response

Neither NYSDEC, ~~nor~~ NYSDOH, nor the local government have resources available to conduct a removal action at the Site. NYSDEC and NYSDOH referred the Site to EPA on July 21, 2013. These entities ~~will act~~have acted in a supporting role throughout the removal action.

III. THREATS TO PUBLIC HEALTH, OR WELFARE, OR THE ENVIRONMENT AND STATUTORY AND REGULATORY AUTHORITIES

Conditions at the Site met the requirements of Section 300.415(b)(2) of the NCP, 40 C.F.R. § 300.415(b)(2), for implementing a CERCLA removal action. Factors from Section 300.415(b)(2) of the NCP that supported conducting a removal action at the Site are discussed below.

(i) Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, or pollutants, or contaminants;

The Site contains an active public cemetery with a chapel utilized by patrons and cemetery workers. Patrons and the public move freely throughout the property, including the identified contaminated areas. There are residences located directly across Robert Avenue to the west of the Holy Trinity Cemetery property. Cemetery personnel's daily duties included burial and lawn maintenance activities in and around the contaminated areas. These activities and operations expose specific populations to the

Th-232 and U-238 contamination. Populations with increased cancer risk due to internal or external exposure to contamination are known as "receptors." Based on the compiled EPA PRS Assessment and EPA RSE data, the receptors that were most likely to be exposed to the hazardous substance of radiation at the Site ~~are~~were:

Outdoor workers:

An outdoor worker who is employed full-time could come in contact with the hazardous substances while working on-Site conducting outdoor maintenance activities throughout the day. The worker may be exposed long-term to the on-Site surface soil contamination during the work day while performing tasks such as moderate digging or landscaping. The outdoor worker could be exposed to the contamination via the following pathways: incidental ingestion of soil, external radiation from contamination in soil, and inhalation of fugitive dust. According to an occupancy survey submitted to EPA in 2016 by Holy Trinity Cemetery, there are multiple personnel that worked outdoors at the Site.

Indoor workers:

An indoor worker at the chapel building may come in contact with contamination through ingestion of contaminated soils that have been incorporated into indoor dust, external radiation from contamination in soil, and the inhalation of contamination present in indoor air. According to the 2016 HTC Occupancy Survey, there was one person that worked indoors in the chapel at the Site.

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[redacted]

Recreators:

A recreator may spend time outside performing recreational activities on the Site. Recreators may come in contact with, or be exposed to, the contamination for short periods of time over a long term. A recreator would consist of any patrons of the cemetery or local residents that had free access to walk on the HTC property. There are also historical accounts and evidence of local residents walking their dogs and mowing cemetery grass in the contaminated locations (specifically, Area 1) consistently over a long period of time. This was also witnessed by EPA staff during the removal assessment (August 2015) until the fence was installed around Area 1 in April 2016. The HTC Occupancy Survey indicated that there is an apartment on top of the chapel that was a residence for the groundskeeper's family. The family maintained a garden in Area 1 of the property. The radiological sampling and survey results in this area showed

some of the most elevated levels observed during the Site assessments.

Construction workers:

Construction workers may come in contact with or be exposed to contamination over the short-term, during the work day while working around vehicles that suspend dust in the

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air. Activities such as trenching and excavating typically involve on-site exposures to surface soils. Construction workers could be exposed to contamination via the following pathways: incidental ingestion of soil, external radiation from contamination in soil, and inhalation of fugitive dust.

(ii) Actual or potential contamination of drinking water supplies or sensitive ecosystems;

If the hazardous substances at the Site migrate, the potentially affected water bodies located between 0.5-1.0 miles of the Site are the Niagara River and Ontario Hydro Reservoir to the west, Power Reservoir to the east, and Fish Creek to the north of the Site. The radioactive rock/soil at the Site is located at the surface in many areas and may migrate to the local water bodies via overland pathways during heavy rains and flooding.

(iv) High levels of hazardous substances, or pollutants, or contaminants in soils, largely at or near the surface that may migrate;

Th-232 (Daughter: Th-228) has been detected in surface soils at levels as high as 365 pCi/g, and U-238 (Daughter: Th-230) has been detected in surface soils at levels as high as 461 pCi/g. The radiologically contaminated soil may migrate through airborne dust, surface runoff, construction activities, and foot traffic into the existing buildings on-site and/or into homes and residential areas. Since Thorium-232 and Uranium-238, as well as their progenies, have a long half-life (i.e. billions of years), it is highly probable that the Site will undergo physical changes before the radiological contaminants on-Site will decay to background concentrations. Building demolition and/or construction may result in increased exposures to humans from the contamination becoming suspended or airborne. Specifically, the expansion of the cemetery into these contaminated areas would increase the exposure through excavation as well as patron visits. Residents surrounding the property have been witnessed mowing the lawn in the contaminated areas, as well as walking pets within the areas of concern. Weathering and/or animal interaction may also cause contamination to migrate. Public visitors, patrons, and/or trespassers at the Site could cause a fire that could result in widespread contamination and increased exposure to gamma, and alpha and beta emitting radionuclides.

(v) Weather conditions that may cause hazardous substances, or pollutants, or

contaminants to migrate or be released; and

Due to weather conditions such as rain, flooding, and wind, the Site radioactive rock/soil located near the ground surface may migrate to other parts of the Site or to the neighboring residential properties.

(vii) The availability of other appropriate federal or State response mechanisms to respond to the release.

No other federal or State response mechanisms were available to respond in a timely manner to the significant threat presented by the Site.

IV. ENDANGERMENT DETERMINATION

The time necessary to implement the proposed response activities exceeded the 12-month statutory limit for removal actions and required an exemption. The threat to human health or the environment posed by the contamination existing at the Site warranted the continued action thereby requiring a 12-month exemption based on the following factors:

V. EXEMPTION FROM STATUTORY LIMITS

A. Emergency Exemption

1. There was an immediate risk to public health, or welfare, or the environment.

Continued response activities beyond 12 months were required to mitigate the threats posed by the Site. Conditions at the Site (described in Section III of this Action Memorandum) and the proposed actions meet the criteria for an emergency exemption as specified in Section 104(c) of CERCLA, 42 U.S.C. § 9604(c). The radiological contamination at the Site posed immediate risks to public health and the environment, and continued response activities were required to mitigate the release or threat of release of hazardous substances at the Site.

2. Future response actions ~~are~~were required to eliminate unwarranted risk.

The radioactive materials impacting the Site are Th-232 and U-238. The maximum concentrations of these materials are 365 pCi/g and 461 pCi/g, respectively. Current removal activities have limited access to the contaminated material, but the radionuclides still pose a risk to public health, welfare and the environment. As described above, to achieve the carcinogenic risk value of 1×10^{-4}, the removal action must continue until the cancer risk at the Site falls to a level within EPA's acceptable risk range. Should additional removal activities (i.e. excavation of contaminated material) not be conducted, the public ——will continue to be at risk of exposure to unacceptable radiation levels from the Site.

3. Assistance will not otherwise be provided on a timely basis.

Other federal, State, or local response mechanisms and resources were~~are~~ not available to respond to the release and/or threat of release of hazardous substances, contaminants, or pollutants from the Site in a timely manner. Both the New York State and local government lacked the necessary resources to perform a response at the Site.

VI. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

The purpose of the RV1 removal activities was to limit the threat of direct contact with the radioactive contaminated material that exists at the Site. To minimize these threats, EPA sampled and analyzed Site contamination and installed fencing.

The actions stated below were necessary to mitigate the actual and potential risks to human health and the environment associated with the presence of radioactive material at the Site. EPA actions at the Site included the following activities:

1. Proposed action description

On July 21, 2013, the Site was referred to EPA by the NYSDEC and the NYSDOH. This referral was followed by further assessment of Site conditions by EPA PRS and EPA Removal Program. The data from this assessment was evaluated (see Section II, A., 1. of this Action Memorandum) and a PRG calculator was used to determine the risk to receptors at the Site. The risk was determined to exceed the established regional limits and therefore warranted a removal action at the Site (see Attachments E and F).

On March 24, 2016, the Director of the ERRD (now known as SEMD) verbally authorized funding to initiate a response action at the Site.

On April 25, 2016, the permanent fencing installation around Area 1 (see Attachment B) was completed. Area 1 contains most of the radiologically contaminated material at the Site and is located closest to the residential properties along Robert Avenue.

On June 15, 2016, a radon mitigation system was installed in Area 5 at the residential home (see Attachment B) due to levels of radon detected in the basement as high as 11.0 pCi/L (see Attachment G). Post-installation radon data indicated the system was working properly and radon readings were below the action level of 4.0 pCi/L (see Attachment G).

On August 28, 2017, the permanent fencing around Areas 2 & 4 (see Attachment B) was completed. Area 2 contained an unfinished road with radiologically contaminated material as well as individual piles of radiologically contaminated material. Area 4 contained individual piles of radiologically contaminated material.

2. Contribution to remedial performance

The removal activities undertaken at the Site were consistent with the requirement of Section 104(a)(2) of CERCLA, which states, "any removal action undertaken. . . should. . .to the extent practicable, contribute to the efficient performance of any long-term remedial action with respect to the release or the threatened release concerned." Additional removal activities are contemplated as part of the ongoing removal action at the Site. There are no long-term remedial actions planned for the Site.

3. Engineering Evaluation/Cost Analysis (EE/CA)

Due to the time-critical nature of this removal action, an EE/CA ~~will~~was not ~~be~~ prepared.

4. Applicable or Relevant and Appropriate Requirements (ARARs)

It remains EPA's policy that ARARs will generally be considered protective absent multiple contaminants or pathways of exposure. However, in rare situations, EPA

Regional offices establish PRGs at levels more protective than required by a given ARAR, even absent multiple pathways or contaminants, where application of the ARAR would not be protective of human health or the environment. It was determined that the Uranium Mill Tailings Radiation Control Act cleanup standard for radiological contamination, and its subsurface soil cleanup level of 5 pCi/g, was not sufficiently protective of public health. Site-specific PRG numbers were calculated. The highest risk receptor, a composite worker whose daily duties include indoor and outdoor activities, was used in determining the most conservative value for cleanup levels at the Site.

5. Project schedule

EPA and its contractors mobilized to the Site on April 18, 2016, and the removal activities addressed in RV1 were completed on August 28, 2017.

B. Estimated Costs

A summary of estimated total costs for the removal action is presented below.

Extramural Costs:	**Total Funding Verbally Authorized March 24, 2016**
Regional Allowance Costs: Total cleanup contractor costs include labor, equipment, materials and laboratory disposal analysis (includes 20% contingency)	$130,000
Other Extramural Costs Not Funded From the Regional Allowance: Technical support (RST)	$ 20,000
Subtotal, extramural costs	$150,000
Extramural Costs Contingency (10%)	$ 0
Total Removal Project Ceiling	$150,000

VII. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Given the Site conditions, the nature of the hazardous substances documented on-Site, and the potential exposure pathways to nearby populations described in Section III.A., actual or threatened releases of hazardous substances from the Site, if not addressed by implementing the response activities described in this Action Memorandum, presented an imminent and substantial endangerment to public health or welfare or the environment.

VIII. OUTSTANDING POLICY ISSUES

There are no known outstanding policy issues associated with this Site at the present time. While there is a Headquarters consultation process in place for sites where radioactive contamination is present (Headquarters Consultation for Radioactively Contaminated Sites, OSWER No. 9200.1-33P, July 26, 2000), this consultation requirement applies only to sites where radioactive material will be managed on-Site (e.g., capping, disposal cells) or where there is a potential, national precedent-setting issue related to the radioactive materials. In this instance, the radioactive materials will not be managed in place, and there is no potential national precedent-setting issue related to the radioactive materials. Therefore, Headquarters consultation is not required.

IX. ENFORCEMENT

EPA has conducted a preliminary Potentially Responsible Party (PRP) search for the Site. The OSC will work with the RAB enforcement staff and the Office of Regional Counsel in an attempt to locate all viable PRPs to recover costs associated with the ongoing removal action.

Based on full cost accounting practices, the total EPA costs for the RV1 removal activities that will be eligible for cost recovery are estimated to be $150,000. The following chart describes the costs that EPA believes are eligible for cost recovery.

Cost Type	Total Funding Requested in this Memorandum
Direct Extramural Cost	$150,000
Direct Intramural Cost	$125,000
Subtotal, Direct Cost	$275,000
Indirect Costs (Regional Indirect Cost Rate 44.1%)	$121,275
Estimated EPA Costs Eligible for Cost Recovery	**$396,275**

Note: Direct Costs include direct extramural costs and direct intramural costs Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site-specific direct costs, consistent with the full cost accounting methodology effective October 2, 2000 These estimates do not include pre-judgment interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of a removal action The estimates are for illustrative purposes only and their use is not intended to create any rights for responsible parties Neither the lack of a total cost estimate nor deviation of actual total costs from this estimate will affect the United States' right to cost recovery

X. RECOMMENDATION

This decision document ~~describes~~confirms the selected removal activities ~~for~~that were performed at the Holy Trinity Cemetery Site located in Lewiston, Niagara County, New York. This document has been developed in accordance with CERCLA and is not inconsistent with the NCP. This decision is based on the administrative record for the Site.

Conditions at the Site met the NCP Section 300.415(b) criteria for a removal action, and I recommend your approval of the proposed removal action and waiver of the 12-month limitation. The verbal authorization was granted by the Director of ERRD (now known as SEMD) of EPA Region 2 on March 24, 2016, in the amount of a $150,000, of which

$130,000 was for mitigation contracting and $20,000 in RST contractor funding. The Site work under the March 2016 verbal authorization was initiated on April 18, 2016, and continued until August 28, 2017. There were sufficient monies in the Regional removal advice of allowance to fund this project. Future, additional removal activities ~~comprising~~as part of this removal action are contemplated.

Please indicate your formal approval of the verbal authorizations granted for the emergency removal action at the Holy Trinity Cemetery Site, as per current Delegation of Authority, by signing below.

Approved: _____ **Date:** _____
Pat Evangelista, Acting Director
Superfund and Emergency Management Division

Disapproved: _____ **Date:** _____
Pat Evangelista, Acting Director
Superfund and Emergency Management Division

cc: P. Evangelista, SEMD-AD
J. Prince, SEMD-DD
E. Mosher, SEMD-RPB
J. Rotola, SEMD-RAB
S. Hoppe, SEMD-RPB
B. Grealish, SEMD-RAB
T. Lieber, ORC-NYCSFB
M. Ludmer, ORC-NYCSFB
M. Mears, PAD
H. Freeman, OPM-GCMB
M. Fiore, OIG
B. Schlieger, 5104A
T. Benton, RST
M. Franklin, NYSDEC
A. Raddant, USDOI
L. Rosman, NOAA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II
EDISON, NEW JERSEY 08837

ACTION MEMORANDUM-RV1

DATE:

SUBJECT: Approval and Funding for a Confirmation of Verbal Authorization and 12-Month Exemption for the CERCLA Removal Action at the Holy Trinity Cemetery Site, Lewiston, New York

FROM: Eric M. Daly, On-Scene Coordinator
Response and Prevention Branch

THRU: Eric Mosher, Chief
Response and Prevention Branch

TO: Pat Evangelista, Acting Division Director
Superfund and Emergency Management Division

Site ID: A23M

I. PURPOSE

The purpose of this Action Memorandum is to document the verbal authorization and 12-month exemption for a removal action by the U.S. Environmental Protection Agency (EPA) at the Holy Trinity Cemetery Site (Site) located at Robert Avenue, Lewiston, Niagara County, New York. A verbal authorization was granted on March 24, 2016, by the Director of the Emergency and Remedial Response Division (ERRD) (now known as the Superfund and Emergency Management Division (SEMD)) of EPA Region 2 to initiate a removal action with a project ceiling in the amount of $150,000, of which $130,000 was for mitigation contracting.

Removal activities performed pursuant to the March 2016 verbal authorization (RV1) were initiated at the Site on April 18, 2016 and continued until August 28, 2017. RV1 was performed as part of a removal action to address the release and threatened release of hazardous substances, radionuclides Thorium-232 (Th-232) and Uranium-238 (U-238), at or from the Site into the environment. The hazardous substances at the Site present a threat to public health through a variety of pathways, including inhalation from dusts and gases; ingestion from dusts, soils, and

water; and direct radiation from external doses (external direct radiation exposure is primarily attributable to gamma radiation, with lesser internal exposures attributable to alpha and beta radiation from particulate radioactive material). The removal action to address Site contamination has not been completed, and additional removal activities at the Site are contemplated.

The Site meets the criteria for a removal action under the Comprehensive Environmental

Response, Compensation, and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. § 9601-9675, as described in Section 300.415(b)(2) of the National Contingency Plan (NCP), 40 C.F.R. § 300.415(b)(2).

The Site is not listed on the National Priorities List (NPL), and there are no nationally significant, or precedent-setting issues associated with the Site.

II. SITE CONDITIONS AND BACKGROUND

The Superfund Enterprise Management System (SEMS) identification number for this Site is NYN000206698. The proposed removal action is considered "time-critical".

A. Site Description

The Site consists of multiple areas of observed radioactively contaminated soil and rock at property owned by Holy Trinity Cemetery, as well as a single-family residential home located west of the Holy Trinity Cemetery property (see Attachment A).

1. Removal Site Evaluation (RSE)

In 1978, a U.S. Department of Energy (DOE) aerial radiological survey identified multiple properties throughout Niagara Falls County with elevated levels of radiation above background amounts. In February 1980, the New York State Department of Health (NYSDOH) Bureau of Radiological Health and the Niagara County Department of Health (NCDOH) conducted a radiological survey of the Site to identify areas of elevated radioactivity because of the historic use of radioactive slag for fill at the property. The New York State Department of Environmental Conservation (NYSDEC) and NYSDOH referred the Site to EPA on July 21, 2013 for further assessment.

In December 2013, the EPA Region 2 Pre-Remedial Section (PRS) initiated a preliminary assessment (PA) and site inspection (SI) to assess whether the Site posed a threat to human health and the environment.

On December 12-13, 2013, personnel from EPA PRS and EPA's contractor (Weston Solutions, Inc.) conducted radiological surveys of the exterior of the Site and confirmed previous work performed by NYSDEC and NYSDOH. To quantify the contamination identified, a total of 14 soil samples (including one environmental duplicate sample) were collected from 13 boreholes throughout the main footprint of the Site using hollow-stem auger drilling methods. Two soil samples were collected on the property to document background conditions.

Per the PRS Pre-Remedial Assessment Report, the maximum concentrations for the radionuclides of interest were 358 picoCuries/gram (pCi/g) for Th-232 (Sample: SG01), 303 pCi/g for Radium-228 (Ra-228; Sample: SG01), 287 pCi/g for U-238 (Sample: SG01), and 360 pCi/g for Radium-226 (Ra-226; Sample: SG01) from slag samples (see Appendix A-Attachment C, Figure 1). For the radiological risk assessment, the EPA Emergency Response Team Health Physicist conservatively used the highest analytical results of the progenies within each decay chain (i.e., U-238 and Th-232) to assign the maximum concentration for the parent radionuclide. For example, the highest concentration value of U-238 for the risk assessment was represented by the progeny Thorium-230 (Th-230) result from the 2013 EPA PRS data (Th-230 at 461 pCi/g; Sample: SG01) (see Attachment C, Figure 1).

Based on the PA and SI results, a Hazardous Ranking System (HRS) score was calculated. The calculated HRS score for the Site was less than 28.5 and, as a result, the Site did not qualify for inclusion on the NPL. The Site was referred to the ERRD (now known as SEMD) Removal Action Branch (RAB) for a determination as to whether the Site warranted a CERCLA removal action.

The RAB and an EPA Region 2 risk assessor utilized the PRS data Site files, which included a Pre-Comprehensive Environmental Response, Compensation and Liability Information System Screening Form for the Site, as well as historic city directories, Sanborn maps, and analytical data collected for the Site, to conduct a preliminary Removal Site Evaluation. In addition, an internet search for historic articles, maps, and photographs was conducted, and historic aerial photographs and online Erie County property records were reviewed. In June 2015, RAB and the EPA Region 2 risk assessor determined that conditions at the Site appeared to meet the requirements of Section 300.425(b)(2) of the NCP for the undertaking of a CERCLA removal action. Further assessment of the Site was requested.

In August 2015, the EPA Region 2 ERRD (now known as SEMD) Response and Prevention Branch (RPB) On-Scene Coordinator (OSC), EPA Environmental Response Team (ERT) Health Physicist, and Weston Solutions (Removal Support Team) conducted further radiological assessment of the interior space of the only building on the HTC-owned parcel of the Site. This building contains a chapel, office, maintenance garage, and upstairs residential apartment (referred to as the chapel/maintenance building within this document). The perimeter of the property was also assessed. The goal for this assessment was to determine the extent of contamination outside of the previously assessed areas and to determine the interior impacts of the contamination. EPA verified the bounds of gamma-contaminated material and identified the perimeter of the contamination. (See Attachments B and C). There were no elevated gamma or radon levels detected in the chapel/maintenance building.

During the August 2015 assessment, EPA advanced eight boreholes using hollow-stem auger drilling methods and collected a total of nine soil samples, including one environmental duplicate sample (see Attachment C, Figure 1). One sampling point was from an area of the property with low gamma levels, which was used as a background location during the PRS Pre-Remedial Assessment. Although the primary goal of this soil sampling effort was to gain an understanding of the perimeter outside the previously

identified areas of contamination, samples were also obtained at depth from the known areas to determine depth of the contaminated areas as well as confirmation of the previous results.

In Area 1, the maximum concentrations of the radionuclides of interest for this round of sampling (see Appendix A-Attachment C, Figure 1) were Th-232 at 31.6 pCi/g (Sample: H001-SS008-0012-01), Ra-228 at 65.3 pCi/g (Sample: H001-SS008-0012-01; Ac-228 lab results were used for quantifying Ra-228), U-238 at 13 pCi/g (Sample: H001-SS008-0012-01), and Ra-226 at 77.7 pCi/g (Sample: H001-SS003-0012-01). The maximum depth of the contamination was determined to be two feet. The majority of these elevated radiological concentrations were in the slag layer located in the first foot depth of the exterior surface.

The second area of elevated gamma levels that was sampled during the August 2015 event was referred to as Area 2 (see Attachment B). The maximum concentration of the radionuclides of concern for Area 2 were Th-232 at 0.801 pCi/g, Ra-228 at 0.55 pCi/g, U-238 at 21.6 pCi/g, and Ra-226 at 35.5 pCi/g (Sample: H001-SS002-0012-01) (see Attachment C, Figure 1).

In addition to exterior samples, interior swipe samples were collected inside the chapel/maintenance building to determine if there was any radiological contamination that had been tracked into the structure. No contamination was found inside the structure.

On March 08, 2016, an RPB OSC was assigned to the Site to collect additional field data and determine if contamination levels exceed the cancer risk of 10^{-4} (i.e., 1 excess cancer incidence in 10,000 of cancer). A risk assessment was performed to determine whether the Site was eligible for a removal action. The assessment of removal eligibility involved the use of EPA's Preliminary Remediation Goals (PRG) Calculator, and the calculations were performed by the EPA ERT Health Physicist. EPA's PRG Calculator was created to help calculate risk for various receptors at sites, taking into consideration exposures from all potential pathways and through all media (e.g., soil, ground water, surface water, sediment, air, structures, etc.).

Site-specific high concentration soil data (see Attachment D) was used to assess risk to both cemetery patrons and the cemetery outdoor worker (see Attachments E and F). Based on the risk calculations, equilibriums, and the high soil concentrations found at the Site, the contaminants of concern were identified as Th-232 and U-238. For HTC, the most conservative receptor used to calculate risk was an outdoor worker scenario performing daily duties including burial and lawn maintenance activities. The total risk of the site without removal of the contaminated material was determined to be 2.43×10^{-2} where the risk contribution of Th-232 is 1.26×10^{-2} and U-238 is 1.19×10^{-2}. A removal action was determined to be warranted since both Th-232 and U-238 values were outside of EPA's acceptable risk range of 1×10^{-6} to 1×10^{-4}, with the greatest risk posed to the outdoor worker.

As a result of the assessment activities, risk calculations, and removal action determination, the ERRD (now known as SEMD) Director granted a verbal authorization for a $150,000 total project ceiling for a removal action at the Site on March 24, 2016.

The primary purpose of this verbal authorization was to stabilize the Site and further assess the extent of the contamination.

During this time, EPA was approached by a resident of Robert Avenue with property located at Tax Parcel # 115.15-1-20 (Area 5/Attachment B), directly across from the 2.91-acre area of concern at HTC cemetery (Area 1). The resident indicated that the slag road bed present in that area of concern continued across Robert Avenue onto his property and under his home. Based on this information, it was determined that the assessment of this property should be included as part of the removal work at the Site. A gamma survey of the interior of the home and external property was conducted; no elevated readings above background were observed. However, radon sampling was conducted throughout the home, and the radon laboratory results indicated that all radon levels in the residential home basement were above the EPA action level of 4.0 picoCuries per Liter (pCi/L). The highest result was 11.2 pCi/L (see Appendix G). Immediate mitigation activities were recommended as part of the response work.

2. Background information on radioactive contamination

Concepts

Elements within the periodic table are comprised of both unstable and stable forms. Unstable elements are known as "radionuclides," and they give off radiation in the form of a wave (i.e., gamma radiation) or particle (e.g., alpha radiation or beta radiation) to become more stable. The time it takes for radionuclides to become stable can range from seconds to billions of years. Long-lived radionuclides, such as Thorium and Uranium, have always been present within the Earth's crust and within the tissues of all living species. Material that contains radionuclides in their natural form is known as naturally occurring radioactive material, commonly referred to as "NORM," and these radionuclides contribute to background radiation levels. Examples of NORM include sands, clays, soils, rocks, coal, groundwater, oil and gas, as well as metal ores and non-metal minerals.

NORM may become concentrated or exposed to the accessible environment as a result of human activities such as manufacturing, mineral extraction, or water processing. The resulting material is known as Technically Enhanced Radioactive Material or "TENORM." EPA has defined "Technologically Enhanced" to mean that the "radiological, physical, and chemical properties of the radioactive material have been concentrated or further altered by having been processed, or beneficiated, or disturbed in a way that increases the potential for human and/or environmental exposures." The contamination found at the Site qualifies as TENORM.

The extraction of precious metal and/or rare earth material from ore can result in the presence of TENORM in waste and/or product. Historically, radioactive waste at mines and mineral processing or manufacturing facilities was often regarded as non-hazardous material and was disposed of improperly. Some facilities sold or disposed of such waste as fill for construction projects, including the construction of roads and parking lots. The Site is one location where contaminated waste material was used as fill.

Terminology

To evaluate land and/or buildings that are potentially contaminated with radioactive materials, a variety of instrumentation must be used. When performing an initial scoping survey, the extent of the contamination (i.e., how widespread the contamination is at the Site), as well as the intensity of the radiation (i.e., which areas/locations contribute to the greatest risk or dose) must be identified. Hand-held and portable equipment such as sodium iodide detectors, Geiger Mueller counters, proportional detectors, and/or ion chambers may be used as field equipment to determine the extent of contamination and/or dose or exposure rates of gamma radiation. In general, most of these pieces of equipment are used qualitatively, and resulting data is compared to background readings to determine the extent and intensity of contamination and whether further investigation is needed. Examples of units used for qualitative measurements include counts per minute (cpm) for contamination, microroentgen per hour (µR/hr) for exposure rate, or millirem per hour (mrem/hr) for dose rate measurements.

In most cases, the equipment used to collect qualitative measurements may not provide an accurate or precise measurement of the quantity of contamination because of poor efficiencies for specific radionuclides, poor geometries because of the instrumentation setup, or fast counting time. Qualitative measurements should always be paired with quantitative data when characterizing a site that has been contaminated with radioactive materials. Quantitative data can be used to verify or correlate the qualitative instrumentation reading. This is commonly referred to as "ground truthing." To obtain quantitative measurements, air, water, sediment, soil, and/or vegetation samples are taken from areas of known or suspected contamination and analyzed by a laboratory. The units for quantitative measurements are pCi/g. For the Site cleanup, only quantitative measurements are used to provide more definitive results and to verify cleanup has been completed.

Risk Calculation

As per 40 CFR 300.430(e)(2)(i)(A)(2), remedial actions need to meet the risk requirements of 10^{-4} to $10^{-6.}$ Since removal actions are not a part of the Remedial Program, the Site does not need to meet this requirement for site cleanup. However, in recent years, EPA has encouraged removal cleanups to meet, at a minimum, the remedial cleanup values associated with the 10^{-4} carcinogenic risk based on the reasonable maximum exposure for an individual. To determine if contamination levels exceed the cancer risk of 10^{-4} (i.e. an increase of 1 additional person in 10,000 developing cancer), a risk assessment must be performed. EPA's PRG Calculator was created to help calculate risk versus cleanup levels for various receptors, taking into consideration exposures from all potential pathways and through all media (e.g., soil, groundwater, surface water, sediment, air, structures, etc.).

3. Physical location

The addresses associated with the Holy Trinity Cemetery Site are 5401 Robert Avenue, Lewiston, Niagara County, NY 14092 (Areas 1, 2, 3, 4 & 8), 43.149668°; Longitude: -79.032245° and 5374 Robert Avenue, Lewiston, Niagara County, New York 14092 (Area 5), Latitude: 43.149931°; Longitude: -79.032829° (see Attachment A). These two properties comprising the Site are identified on the Niagara County tax map as 115.00-1-7 and 115.15-1-20, respectively.

There are several active facilities within 0.5 mile of the Site, including the Our Lady of Peace Nursing Home, Mount St. Mary's Child Care Center, and Mount St. Mary's Hospital. Waterbodies located between 0.5-1.0 miles of the Site are the Niagara River to the West, Ontario Hydro Reservoir also to the West, Power Reservoir to the East, and Fish Creek to the North of the Site. The Lewiston, New York, population is approximately 15,964.

4. Site characteristics

The Site consists of two parcels. The first parcel, identified as tax parcel # 115.00-1-7, is approximately 39.2 acres in size and is the location of a cemetery. This property is owned by the Divine Mercy Roman Catholic Parish (formerly, the Holy Trinity Cemetery. Roman Catholic Church Society of Niagara Falls, New York). One area of observed contamination at the cemetery parcel is 4.21 acres in size and is located in the northernmost portion of the property. The contamination is located along two undeveloped roadways on a relatively flat and slightly elevated grassy field, which has been designated as Area 1 (see Appendix A-Attachment A). There are also piles of contaminated material and an undeveloped roadway in Area 2, a pile of contaminated material within Area 4, and contamination underneath the developed cemetery roadway designated as Area 9 (see Appendix A-Attachment A). There is one building on the cemetery property, which has been utilized as a residence, chapel, and cemetery maintenance facility (see Appendix A-Attachment A).

The second parcel at the Site, tax parcel #: 115.15-1-20, is located to the west of the cemetery on Robert Avenue and is a single-family residential property of approximately 0.59 acres in size. This parcel is designated as Area 5 (see Appendix A-Attachment B).

The Site is bordered to the north and east by Interstate 190, to the south by another cemetery, and to the west by Robert Avenue and a residential area.

The removal activities documented in this Action Memorandum (RV1) comprise a portion of the ongoing CERCLA removal action at the Site.

5. Release or threatened release into the environment of a hazardous substance, or pollutant, or contaminant

The release and threat of release of the contaminants Th-232 and U-238 at or from the Site into the environment may impact the health of the public at the Site through a variety of pathways, including inhalation from dusts and gases; ingestion from dusts, soils, and

water; and direct radiation from external doses (external direct radiation exposure is primarily attributable to gamma radiation, with lesser internal exposures attributable to alpha and beta radiation from particulate radioactive material). Workers at the cemetery, as well as adjacent neighbors, patrons, and other members of the public at or near the Site may be exposed to contamination via routes of inhalation or dermal contact to loose soils and windblown dust in the parking areas and indoors.

Hazardous Substances Statutory Source for Designation Under CERCLA:

Radiological Substances Identified	Maximum Concentration
Thorium 232 (Th-232)-Daughter: Ra-228	365 pCi/g
Uranium 238 (U-238)-Daughter: Ra-226	461 pCi/g

Each of the radiological substances listed above are included in 40 CFR 302.4, List of Hazardous Substances and Reportable Quantities, Appendix B – Radionuclides. The radionuclides are designated as a hazardous substance under Section 102(a) of CERCLA, 42 U.S.C. § 9602(a), and Section 112 of the Clean Air Act, 42 U.S.C. § 7412.

6. NPL status

The Site is not listed on the NPL, nor is it proposed for inclusion.

7. Maps, pictures, and other attached documents

Attachment A: Site Maps
Attachment B: Qualitative Gamma Scan Measurements
Attachment C: Soil Sample Locations
Attachment D: Highest Soil Concentrations
Attachment E: Outdoor Worker Preliminary Remediation Goals
Attachment F: Recreator Preliminary Remediation Goals
Attachment G: Indoor Radon Sample Results

B. Other Actions to Date

1. Previous actions

No previous actions have been taken by any federal, State, or local government entity or private party to address the hazardous substances located at the Site. All federal and New York State actions to date have been in the form of assessment activities.

2. Current actions

The activities taken by EPA thus far to mitigate the threats posed by the radioactive contamination at the Site are described in Section VI.A.1. These activities were initiated on April 18, 2016 and continued until August 28, 2017. EPA expended approximately $83,000 in mitigation costs and $8,000 in technical support costs at the Site to address the radioactive contamination.

B. State and Local Authorities' Role

1. State and local actions, to date

In 1978, a USDOE aerial radiological survey identified multiple properties throughout the Niagara County region with elevated levels of radiation above background readings. In February 1980, the NYSDOH Bureau of Radiological Health and the NCDOH conducted a radiological survey of the Site to identify areas of elevated radioactivity because of the historic use of radioactive slag as fill on the property. During the survey, cemetery personnel showed NYSDOH a slag pile located near the caretaker's garage in the western portion of the cemetery property. Cemetery personnel stated that this slag was used as fill for the cemetery roads throughout the property.

Further inspection of the Site revealed that the slag was used as fill for the base of two proposed roadways that extended approximately 500 to 600 feet from the caretaker's garage northwest toward Robert Avenue. At the time of the 1980 survey, the construction of these roads had been abandoned. The underlying slag base was covered with an unknown amount of soil and was left as an open field. Using an Eberline PRM 7 radiation meter, radioactivity of the slag pile was measured at 250 µR/hr. Readings along the fully constructed cemetery roads ranged from 5 µR/hr (i.e., background concentration) to 30 µR/hr. Readings along the undeveloped roadways ranged from 200 µR/hr to 400 µR/hr. Samples of the slag were collected as part of the investigation, and laboratory analyses of these samples indicated detectable concentrations of Potassium-40, Uranium-235 and Uranium-238, Radium-226, and Thorium-232.

In October 2006, NYSDEC and the NCDOH conducted a Site visit. At that time, the slag pile that had previously been observed near the caretaker's garage was no longer present at the Site; the then-current caretaker did not have any knowledge of the slag pile or what had happened to it. The caretaker indicated that children living nearby used the cemetery area for recreation. Since the 1980 NYSDOH Site investigation, trees had grown through the undeveloped slag roadway in Area 1, pushing the slag to the surface. As part of the Site visit, NYSDEC conducted a radioactivity survey with an Exploranium GR-135. Readings taken while walking along the Area 1 undeveloped roadways indicated levels of 200–450 µR/hr at waist height and a surface contact reading of 450–570 µR/hr. A contact reading of 700 µR/hr at exposed slag near a tree was also documented. NYSDEC collected four samples of the slag, which were analyzed for isotopic Uranium and isotopic Thorium and underwent gamma-ray spectroscopy analysis. Laboratory analytical results indicated the presence of Uranium-238/234 ranging from 114 to 1,664 pCi/g and Thorium-232 ranging from 114 to 898 pCi/g.

In May 2007, NYSDEC visited the Site to identify contamination in an on-Site debris pile using gamma-ray spectroscopy. A 5-minute static reading was taken, and Radium-226 was the only nuclide identified. An additional, similar analysis was conducted on one of the Area 1 undeveloped roadways, confirming the presence of Thorium-232.

During a July 2013 NYSDOH reconnaissance, screening activities showed elevated radiation levels at the Site along the Area 1 undeveloped roadways and along the Area 2

undeveloped roadway leading off-Site. In Area 1, the radiation levels were up to 51 µR/hr with the pressurized ion chamber and up to 50,000 cpm when tested with the sodium iodide (NaI) 2x2 detector.

The Site was referred to the EPA by the NYSDEC and NYSDOH on July 21, 2013. No other removal actions were taken by other government or private parties prior to this request.

2. Potential for continued State/local response

Neither NYSDEC, NYSDOH, nor the local government have resources available to conduct a removal action at the Site. NYSDEC and NYSDOH referred the Site to EPA on July 21, 2013. These entities have acted in a supporting role throughout the removal action.

III. THREATS TO PUBLIC HEALTH, OR WELFARE, OR THE ENVIRONMENT AND STATUTORY AND REGULATORY AUTHORITIES

Conditions at the Site met the requirements of Section 300.415(b)(2) of the NCP, 40 C.F.R. § 300.415(b)(2), for implementing a CERCLA removal action. Factors from Section 300.415(b)(2) of the NCP that supported conducting a removal action at the Site are discussed below.

(i) Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, or pollutants, or contaminants;

The Site contains an active public cemetery with a chapel utilized by patrons and cemetery workers. Patrons and the public move freely throughout the property, including the identified contaminated areas. There are residences located directly across Robert Avenue to the west of the Holy Trinity Cemetery property. Cemetery personnel's daily duties included burial and lawn maintenance activities in and around the contaminated areas. These activities and operations expose specific populations to the

Th-232 and U-238 contamination. Populations with increased cancer risk due to internal or external exposure to contamination are known as "receptors." Based on the compiled EPA PRS Assessment and EPA RSE data, the receptors that were most likely to be exposed to the hazardous substance of radiation at the Site were:

<u>Outdoor workers</u>:

An outdoor worker who is employed full-time could come in contact with the hazardous substances while working on-Site conducting outdoor maintenance activities throughout the day. The worker may be exposed long-term to the on-Site surface soil contamination during the work day while performing tasks such as moderate digging or landscaping. The outdoor worker could be exposed to the contamination via the following pathways: incidental ingestion of soil, external radiation from contamination in soil, and inhalation of fugitive dust. According to an occupancy survey submitted to EPA in 2016 by Holy Trinity Cemetery, there are multiple personnel that worked outdoors at the Site.

Indoor workers:

An indoor worker at the chapel building may come in contact with contamination through ingestion of contaminated soils that have been incorporated into indoor dust, external radiation from contamination in soil, and the inhalation of contamination present in indoor air. According to the 2016 HTC Occupancy Survey, there was one person that worked indoors in the chapel at the Site.

Recreators:

A recreator may spend time outside performing recreational activities on the Site. Recreators may come in contact with, or be exposed to, the contamination for short periods of time over a long term. A recreator would consist of any patrons of the cemetery or local residents that had free access to walk on the HTC property. There are also historical accounts and evidence of local residents walking their dogs and mowing cemetery grass in the contaminated locations (specifically, Area 1) consistently over a long period of time. This was also witnessed by EPA staff during the removal assessment (August 2015) until the fence was installed around Area 1 in April 2016. The HTC Occupancy Survey indicated that there is an apartment on top of the chapel that was a residence for the groundskeeper's family. The family maintained a garden in Area 1 of the property. The radiological sampling and survey results in this area showed some of the most elevated levels observed during the Site assessments.

Construction workers:

Construction workers may come in contact with or be exposed to contamination over the short-term, during the work day while working around vehicles that suspend dust in the air. Activities such as trenching and excavating typically involve on-site exposures to surface soils. Construction workers could be exposed to contamination via the following pathways: incidental ingestion of soil, external radiation from contamination in soil, and inhalation of fugitive dust.

(ii) Actual or potential contamination of drinking water supplies or sensitive ecosystems;

If the hazardous substances at the Site migrate, the potentially affected water bodies located between 0.5-1.0 miles of the Site are the Niagara River and Ontario Hydro Reservoir to the west, Power Reservoir to the east, and Fish Creek to the north of the Site. The radioactive rock/soil at the Site is located at the surface in many areas and may migrate to the local water bodies via overland pathways during heavy rains and flooding.

(iv) High levels of hazardous substances, or pollutants, or contaminants in soils, largely at or near the surface that may migrate;

Th-232 (Daughter: Th-228) has been detected in surface soils at levels as high as 365 pCi/g, and U-238 (Daughter: Th-230) has been detected in surface soils at levels as

high as 461 pCi/g. The radiologically contaminated soil may migrate through airborne dust, surface runoff, construction activities, and foot traffic into the existing buildings on-site and/or into homes and residential areas. Since Thorium-232 and Uranium-238, as well as their progenies, have a long half-life (i.e. billions of years), it is highly probable that the Site will undergo physical changes before the radiological contaminants on-Site will decay to background concentrations. Building demolition and/or construction may result in increased exposures to humans from the contamination becoming suspended or airborne. Specifically, the expansion of the cemetery into these contaminated areas would increase the exposure through excavation as well as patron visits. Residents surrounding the property have been witnessed mowing the lawn in the contaminated areas, as well as walking pets within the areas of concern. Weathering and/or animal interaction may also cause contamination to migrate. Public visitors, patrons, and/or trespassers at the Site could cause a fire that could result in widespread contamination and increased exposure to gamma, and alpha and beta emitting radionuclides.

(v) Weather conditions that may cause hazardous substances, or pollutants, or contaminants to migrate or be released; and

Due to weather conditions such as rain, flooding, and wind, the Site radioactive rock/soil located near the ground surface may migrate to other parts of the Site or to the neighboring residential properties.

(vii) The availability of other appropriate federal or State response mechanisms to respond to the release.

No other federal or State response mechanisms were available to respond in a timely manner to the significant threat presented by the Site.

IV. ENDANGERMENT DETERMINATION

The time necessary to implement the proposed response activities exceeded the 12-month statutory limit for removal actions and required an exemption. The threat to human health or the environment posed by the contamination existing at the Site warranted the continued action thereby requiring a 12-month exemption based on the following factors:

V. EXEMPTION FROM STATUTORY LIMITS

A. Emergency Exemption

1. There was an immediate risk to public health, or welfare, or the environment.

Continued response activities beyond 12 months were required to mitigate the threats posed by the Site. Conditions at the Site (described in Section III of this Action Memorandum) and the proposed actions meet the criteria for an emergency exemption as specified in Section 104(c) of CERCLA, 42 U.S.C. § 9604(c). The radiological contamination at the Site posed immediate risks to public health and the environment, and continued response activities were required to mitigate the release or threat of release of hazardous substances at the Site.

2. Future response actions were required to eliminate unwarranted risk.

The radioactive materials impacting the Site are Th-232 and U-238. The maximum concentrations of these materials are 365 pCi/g and 461 pCi/g, respectively. Current removal activities have limited access to the contaminated material, but the radionuclides still pose a risk to public health, welfare and the environment. As described above, to achieve the carcinogenic risk value of 1×10^{-4}, the removal action must continue until the cancer risk at the Site falls to a level within EPA's acceptable risk range. Should additional removal activities (i.e. excavation of contaminated material) not be conducted, the public will continue to be at risk of exposure to unacceptable radiation levels from the Site.

3. Assistance will not otherwise be provided on a timely basis.

Other federal, State, or local response mechanisms and resources were not available to respond to the release and/or threat of release of hazardous substances, contaminants, or pollutants from the Site in a timely manner. Both the New York State and local government lacked the necessary resources to perform a response at the Site.

VI. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

The purpose of the RV1 removal activities was to limit the threat of direct contact with the radioactive contaminated material that exists at the Site. To minimize these threats, EPA sampled and analyzed Site contamination and installed fencing.

The actions stated below were necessary to mitigate the actual and potential risks to human health and the environment associated with the presence of radioactive material at the Site. EPA actions at the Site included the following activities:

1. Proposed action description

On July 21, 2013, the Site was referred to EPA by the NYSDEC and the NYSDOH. This referral was followed by further assessment of Site conditions by EPA PRS and EPA Removal Program. The data from this assessment was evaluated (see Section II, A., 1. of this Action Memorandum) and a PRG calculator was used to determine the risk to receptors at the Site. The risk was determined to exceed the established regional limits and therefore warranted a removal action at the Site (see Attachments E and F).

On March 24, 2016, the Director of the ERRD (now known as SEMD) verbally authorized funding to initiate a response action at the Site.

On April 25, 2016, the permanent fencing installation around Area 1 (see Attachment B) was completed. Area 1 contains most of the radiologically contaminated material at the Site and is located closest to the residential properties along Robert Avenue.

On June 15, 2016, a radon mitigation system was installed in Area 5 at the residential home (see Attachment B) due to levels of radon detected in the basement as high as 11.0 pCi/L (see Attachment G). Post-installation radon data indicated the system was working properly and radon readings were below the action level of 4.0 pCi/L (see Attachment G).

On August 28, 2017, the permanent fencing around Areas 2 & 4 (see Attachment B) was completed. Area 2 contained an unfinished road with radiologically contaminated material as well as individual piles of radiologically contaminated material. Area 4 contained individual piles of radiologically contaminated material.

2. Contribution to remedial performance

The removal activities undertaken at the Site were consistent with the requirement of Section 104(a)(2) of CERCLA, which states, "any removal action undertaken . . . should . . . to the extent practicable, contribute to the efficient performance of any long-term remedial action with respect to the release or the threatened release concerned." Additional removal activities are contemplated as part of the ongoing removal action at the Site. There are no long-term remedial actions planned for the Site.

3. Engineering Evaluation/Cost Analysis (EE/CA)

Due to the time-critical nature of this removal action, an EE/CA was not prepared.

4. Applicable or Relevant and Appropriate Requirements (ARARs)

It remains EPA's policy that ARARs will generally be considered protective absent multiple contaminants or pathways of exposure. However, in rare situations, EPA Regional offices establish PRGs at levels more protective than required by a given ARAR, even absent multiple pathways or contaminants, where application of the ARAR would not be protective of human health or the environment. It was determined that the Uranium Mill Tailings Radiation Control Act cleanup standard for radiological contamination, and its subsurface soil cleanup level of 5 pCi/g, was not sufficiently protective of public health. Site-specific PRG numbers were calculated. The highest risk

receptor, a composite worker whose daily duties include indoor and outdoor activities, was used in determining the most conservative value for cleanup levels at the Site.

5. Project schedule

EPA and its contractors mobilized to the Site on April 18, 2016, and the removal activities addressed in RV1 were completed on August 28, 2017.

B. Estimated Costs

A summary of estimated total costs for the removal action is presented below.

Extramural Costs:	Total Funding Verbally Authorized March 24, 2016
Regional Allowance Costs: Total cleanup contractor costs include labor, equipment, materials and laboratory disposal analysis (includes 20% contingency)	$130,000
Other Extramural Costs Not Funded From the Regional Allowance: Technical support (RST)	$ 20,000
Subtotal, extramural costs	$150,000
Extramural Costs Contingency (10%)	$ 0
Total Removal Project Ceiling	$150,000

VII. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Given the Site conditions, the nature of the hazardous substances documented on-Site, and the potential exposure pathways to nearby populations described in Section III.A., actual or threatened releases of hazardous substances from the Site, if not addressed by implementing the response activities described in this Action Memorandum, presented an imminent and substantial endangerment to public health or welfare or the environment.

VIII. OUTSTANDING POLICY ISSUES

There are no known outstanding policy issues associated with this Site at the present time. While there is a Headquarters consultation process in place for sites where radioactive contamination is present (Headquarters Consultation for Radioactively Contaminated Sites, OSWER No. 9200.1-33P, July 26, 2000), this consultation requirement applies only to sites where radioactive material will be managed on-Site (e.g., capping, disposal cells) or where there is a potential, national precedent-setting issue related to the radioactive materials. In this instance, the radioactive materials will not be managed in place, and there is no potential national precedent-setting issue related to the radioactive materials. Therefore, Headquarters consultation is not required.

IX. ENFORCEMENT

EPA has conducted a preliminary Potentially Responsible Party (PRP) search for the Site. The

OSC will work with the RAB enforcement staff and the Office of Regional Counsel in an attempt to locate all viable PRPs to recover costs associated with the ongoing removal action.

Based on full cost accounting practices, the total EPA costs for the RV1 removal activities that will be eligible for cost recovery are estimated to be $150,000. The following chart describes the costs that EPA believes are eligible for cost recovery.

Cost Type	Total Funding Requested in this Memorandum
Direct Extramural Cost	$150,000
Direct Intramural Cost	$125,000
Subtotal, Direct Cost	$275,000
Indirect Costs (Regional Indirect Cost Rate 44.1%)	$121,275
Estimated EPA Costs Eligible for Cost Recovery	**$396,275**

Note: Direct Costs include direct extramural costs and direct intramural costs. Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site-specific direct costs, consistent with the full cost accounting methodology effective October 2, 2000. These estimates do not include pre-judgment interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of a removal action. The estimates are for illustrative purposes only and their use is not intended to create any rights for responsible parties. Neither the lack of a total cost estimate nor deviation of actual total costs from this estimate will affect the United States' right to cost recovery.

X. RECOMMENDATION

This decision document confirms the selected removal activities that were performed at the Holy Trinity Cemetery Site located in Lewiston, Niagara County, New York. This document has been developed in accordance with CERCLA and is not inconsistent with the NCP. This decision is based on the administrative record for the Site.

Conditions at the Site met the NCP Section 300.415(b) criteria for a removal action, and I recommend your approval of the proposed removal action and waiver of the 12-month limitation. The verbal authorization was granted by the Director of ERRD (now known as SEMD) of EPA Region 2 on March 24, 2016, in the amount of a $150,000, of which $130,000 was for mitigation contracting and $20,000 in RST contractor funding. The Site work under the March 2016 verbal authorization was initiated on April 18, 2016 and continued until August 28, 2017. There were sufficient monies in the Regional removal advice of allowance to fund this project. Future, additional removal activities as part of this removal action are contemplated.

Please indicate your formal approval of the verbal authorizations granted for the emergency removal action at the Holy Trinity Cemetery Site, as per current Delegation of Authority, by signing below.

Approved: _____ **Date:** _____
Pat Evangelista, Acting Director
Superfund and Emergency Management Division

Disapproved: _____ **Date:** _____

Pat Evangelista, Acting Director
Superfund and Emergency Management Division

cc: P. Evangelista, SEMD-AD
J. Prince, SEMD-DD
E. Mosher, SEMD-RPB
J. Rotola, SEMD-RAB
S. Hoppe, SEMD-RPB
B. Grealish, SEMD-RAB
T. Lieber, ORC-NYCSFB
M. Ludmer, ORC-NYCSFB
M. Mears, PAD
H. Freeman, OPM-GCMB
M. Fiore, OIG
B. Schlieger, 5104A
T. Benton, RST
M. Franklin, NYSDEC
A. Raddant, USDOI
L. Rosman, NOAA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II
EDISON, NEW JERSEY 08837

ACTION MEMORANDUM-RV1

DATE:

SUBJECT: Approval and Funding for a Confirmation of Verbal Authorization and 12-Month Exemption for the CERCLA Removal Action at the Holy Trinity Cemetery Site, Lewiston, New York

FROM: Eric M. Daly, On-Scene Coordinator
Response and Prevention Branch

TO: Pat Evangelista~~Angela Carpenter~~, Acting Division Director
~~Emergency and Remedial Response Division~~Superfund and Emergency Management Division

THRU: Eric Mosher, Chief
Response and Prevention Branch

Site ID: A23M

I. PURPOSE

The purpose of this Action Memorandum is to document the verbal authorization and 12-month exemption for a removal action by the U.S. Environmental Protection Agency (EPA) at the Holy Trinity Cemetery Site (Site) located at Robert Avenue, Lewiston, Niagara County, New York. A verbal authorization was granted on March 24, 2016, by the Director of the Emergency and Remedial Response Division (now known as the Superfund and Emergency Management Division or SEMD~~ERRD~~) ~~Director~~of EPA Region 2 to initiate a removal action with a project ceiling in the amount of $150,000~~.00~~, of which $130,000 was for mitigation contracting.

~~The removal action was~~Removal activities performed pursuant to the March 2016 verbal authorization (RV1) were initiated at ~~this~~the~~is~~ Site on April 18, 2016 and ~~was completed on~~continued until August 28, 2017. RV1 was performed as part of a removal action to address t~~T~~he ~~Site posed a threat~~ release and threatened ~~of~~ release of ~~the~~ hazardous substances, radionuclides~~contaminants~~ Thorium-232 (Th-232) and Uranium-238 (U-238), at or from the Site into the environment. The hazardous substances at the Site ~~that would impact the~~present a threat to public health ~~of the public~~ through a variety of pathways, including inhalation from dusts and gases; ingestion from dusts, soils, and water; and direct radiation from external doses (external direct radiation exposure is primarily attributable to gamma radiation, with lesser internal exposures attributable to alpha and beta radiation from particulate radioactive material). The removal action to address Site contamination has not been completed, and additional removal activities at the Site are contemplated.

The Site meets the criteria for a removal action under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. § 9601-9675, as described in Section 300.415(b)(2) of the National Contingency Plan (NCP), 40 C.F.R. § 300.415(b)(2).

The~~is~~ Site is not listed on the National Priorities List (NPL), and there are no nationally significant~~,~~ or precedent-setting issues associated with the Site.

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CONCURRENCES Name: Holy Trinity Cemetery Date: 04/05/2019									
Symbol	ERRD-RPB	ERRD-RPB	ERRD-RPB	ERRD-RPB	ERRD-RAB	ORC-NYCSFB	ORC-NYCSB	ERRD-DD	ERRD-AD
Surname	Daly	Hoppe	Mosher	Kodama	Rotola	Ludmer	Lieber	Prince	Carpenter
Date									

II. SITE CONDITIONS AND BACKGROUND

The Superfund Enterprise Management System (SEMS) identification number for this Site is NYN000206698. The proposed removal action is considered "time-critical".

A. Site Description

The Site consists of multiple areas of observed radioactively contaminated soil and ~~/~~rock at ~~the~~ property owned by Holy Trinity Cemetery, as well as a single-family residential home located west of the Holy Trinity Cemetery property. (See Attachment A).

1. Removal Site Evaluation (RSE)

Ex 5 (intra-agency deliberative; attorney client privilege)

[redacted]

In December 2013, the EPA Region 2 Pre-Remedial Section (PRS) initiated a preliminary assessment (PA) and site inspection (SI) to assess whether the Site posed a threat to human health and the environment.

On December 12-13, 2013, personnel from EPA PRS and EPA's contractor (Weston Solutions, Inc.) ~~personnel~~ conducted radiological surveys of the exterior of the Site and confirmed previous work performed by NYSDEC and NYSDOH. To quantify the contamination identified, a total of 14 soil samples (including one environmental duplicate sample) were collected from 13 boreholes throughout the main footprint of the Site using hollow-stem auger drilling methods. Two soil samples were collected on the property to document background conditions.

Per the PRS Pre-Remedial Assessment Report, the maximum concentrations for the radionuclides of interest were 358 pCi/g for Th-232 (Sample: SG01), 303 pCi/g for Ra-228 (Sample: SG01), 287 pCi/g for U-238 (Sample: SG01), and 360 pCi/g for Ra-226 (Sample: SG01) from slag samples. (See Appendix A-Attachment C, Figure 1). For the~~is~~ RSE, EPA ERT Health Physicist conservatively used

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the highest analytical results of the progenies within each decay chain (i.e., U-238 and Th-232) to assign the maximum concentration for the parent radionuclide. For example, the highest concentration value of U-238 for the risk assessment~~PRG calculation~~ was represented by the progeny Th-230 result from the 2013 EPA PRS data (Th-230 at 461 pCi/g; Sample: SG01). (See Attachment C, Figure 1). ~~EPA conducted radiological surveys of the exterior of both parcels and confirmed previous work performed by NYSDEC and NYSDOH. To quantify the contamination identified, a total of 14 soil samples (including one environmental duplicate sample) were collected from 13 boreholes throughout the main footprint of the Site using hollow-stem auger drilling methods. Two soil samples were collected on the property to document background conditions. Per the PRS Pre-Remedial Assessment Report, the maximum concentration of the radionuclides of concern were Th-232 at 358 picocuries per gram (pCi/g) (Sample: SG01), Ra-228 at 303 pCi/g (Sample: SG01), U-238 at 287 pCi/g (Sample: SG01), and Ra-226 at 360 pCi/g (Sample: SG01) from slag samples. (See Attachment C, Figure 1).~~

Based on the PA and SI results, a Hazardous Ranking System (HRS) score was calculated. The calculated HRS score for the Site was less than 28.5 and, as a result, the Site did not qualify for inclusion on the NPL. The Site was referred to the SEMD~~ERRD~~ Removal Action Branch (RAB) for a determination as to whether the Site warranted a CERCLA removal action.

The RAB and an EPA Region 2 risk assessor utilized the PRS data site files, which included a Pre-CERCLIS ~~Pre-Remedial Data Site files, which included a Pre-Comprehensive Environmental Response, Compensation and Liability Information System~~ Screening Form for the Site, as well as historic city directories, Sanborn maps, and analytical data collected ~~from~~ for the Site, to conduct a preliminary RSE. In addition, an internet search for historic articles, maps, and photographs was conducted, and historic aerial photographs and online Erie County property records were reviewed. In June 2015, RAB and the EPA Region 2 risk assessor determined that conditions at the Site appeared to meet the requirements of Section 300.425(b)(2) of the of the ~~National Contingency Plan (~~NCP~~)~~ for the undertaking of a CERCLA removal action. Further assessment of the Site was requested.

In August 2015, the EPA Region 2 ~~ERRD Removal~~ Response and Prevention Branch (RPB) On-Scene Coordinator (OSC), EPA Environmental Response Team (ERT) Health Physicist, and Weston Solutions (Removal Support Team) conducted further radiological assessment of the interior of the chapel/ maintenance building at the Site and the exterior of the property. The goal for this assessment was to determine the extent of contamination outside of the previously assessed areas and to determine the interior impacts of the contamination ~~impacts~~. ~~The~~ EPA verified the o~~O~~utside areas of gamma-contaminated material ~~were verified,~~ and identified the perimeter of the contamination. ~~identified~~~~identified~~ (See Attachments B and C). ~~-~~ There were no elevated gamma or radon levels detected in the chapel/maintenance building. ~~There were no elevated gamma or radon levels in the HTC chapel/maintenance building.~~

During the August 2015 assessment, EPA advanced eight (8) boreholes using hollow-stem auger drilling methods and collected a total of nine (9) soil samples, including one environmental duplicate sample. (See Attachment C, Figure 1). One sampling point was from an ~~low gamma surveyed~~ area of the property with low gamma levels, which was used as a background location during the PRS Pre-Remedial Assessment. Although the primary goal of this soil sampling effort was to gain an understanding of the perimeter and depth of the contaminated areas, three sample points were excavated from areas that exhibited elevated gamma readings.

In Area 1, the maximum concentrations of the radionuclides of interest for this round of sampling (s~~S~~ee Appendix A-Attachment C, Figure 1) were Th-232 at 31.6 pCi/g (Sample: H001-SS008-0012-01), Ra-228 at 65.3 pCi/g (Sample: H001-SS008-0012-01; Ac-228 lab results were used for quantifying Ra-228), U-238 at 13 pCi/g (Sample: H001-SS008-0012-01), and Ra-226 at 77.7 pCi/g (Sample: H001-

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SS003-0012-01). The maximum ~~extent of~~ depth of the contamination was determined to be ~~at~~ two ~~-~~ fee~~oot depths~~. The majority of these elevated radiological concentrations were~~-~~ in~~in~~ the slag layer located in the first foot depth of the exterior surface.

~~In Area 1, the maximum concentration of the radionuclides of concern for this round of sampling were Thorium-232 (Th-232) at 31.6 pCi/g (Sample: H001-SS008-0012-01), Actinium-228 (Ac-228) at 65.3 pCi/g (Sample: H001-SS008-0012-01), Radium-228 (Ra-228) at 65.3 pCi/g (Sample: H001-SS008-0012-01), Uranium (U-238) at 13 pCi/g (Sample: H001-SS008-0012-01), and Radium-226 (Ra-226) at 77.7 pCi/g (Sample: H001-SS003-0012-01). (See Attachment C, Figure 1). The extent of depth of contamination was determined to be at a two-foot depth wherewhere majority of elevated exposure rates was duedue to the slag located in the first foot depth of the exterior surface.~~

The second area of elevated gamma ~~area~~levels that was sampled during the August 2015 event was referred to as ~~in~~ Area 2. (See Attachment B). The maximum concentration of the radionuclides of concern for ~~Sample H001-SS002-0012-01~~Area 2 were Th-232 at 0.801 pCi/g, Ra-228 at 0.55 pCi/g, U-238 at 21.6 pCi/g, and Ra-226 at 35.5 pCi/g~~-~~ (Sample: H001-SS002-0012-01). (See Attachment C, Figure 1).

In addition to exterior samples, interior swipe samples were collected inside the chapel/~~/~~maintenance~~/apartment~~ building to determine if there was any radiological contamination that had been~~being~~ tracked into the structure. No contamination was found inside the structure. ~~areas of the HTC building to determine if elevated readings were due to contaminationbeing tracked into the structure. No contamination was found inside the structure.~~

On March 08, 2016, ~~a~~an RPB OSC was assigned to the Site ~~in order~~ to collect~~determine the removal eligibility through the collection of~~ additional field data and determine whether the Site was eligible for a removal action. The assessment of removal eligibility involved the ~~-~~use of~~tilized~~ EPA's Preliminary Remediation Goals (PRG) Calculator and the calculations were performed by the EPA ERT Health Physicist. Site~~-~~-specific high concentration soil data (Attachment D) was used to assess risk to both ~~public /~~cemetery patrons and the cemetery outdoor worker (Attachments E and F) ~~risk~~. Based on the risk calculations, equilibriums, and the concentrations found at the Site, the contaminants of concern were identified as Th-232 and U-238. A removal action was determined to be warranted since both Th-232 and U-238 values we~~a~~re outside of EPA's acceptable risk range of 10^{-6} to 10^{-4}~~-~~, with the greatest risk posed~~given~~ to the outdoor worker.

As a result of the ~~Due to the~~ assessment activities~~information collected~~, ~~the~~ risk calculations~~ed~~, and ~~the~~ removal action determination, the Emergency and Remedial Response Division (now known as SEMD) ~~(ERRD)~~ Director granted a verbal authorization for a $150,000 total project ceiling for a removal action at the Site on March 24, 2016. ~~In March 2016, OSC and EPA ERT Health Physicist compiled the assessment data and utilized EPA's Preliminary Remediation Goals (PRG) Calculator to determine risk. PRG calculation results indicated that the Site warranted a CERCLA removal action due to the Site contamination levels exceeding the cancer risk of 10^{-4} (i.e.1 in 10,000 of cancer). (See Attachments E & F). The Site was determined to be removal eligible and on March 24, 2016, ERRD Director granted a verbal authorization for $150,000 total project ceiling for a removal action.~~ The primary purpose of this verbal authorization was to stabilize the Site and further assess the extent of the contamination.

During this time, EPA was approached by a resident of Robert Avenue ~~resident~~ ~~(~~with property located at Tax Parcel #~~:~~ 115.15-1-20 ~~(/~~Area 5/Attachment B), ~~located~~ directly across from the 2.91-acre area of concern at~~of~~ HTC cemetery~~Site~~ (Area 1). The resident indicated that the slag road bed present in that area of concern continued across Robert Avenue onto his property and under his home. Based on this information, i~~I~~t was determined that the assessment of this property should be included ~~into~~as part of the removal work at the ~~HTC~~ Site. A gamma survey of the interior of the home and external property was

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conducted~~, with~~ no elevated readings above background were observed. However, r~~R~~adon sampling was conducted throughout the home and the radon laboratory results indicated that all radon levels in the residential home basement ~~tested~~ were above the EPA action level of 4.0 picocuries per Liter (pCi/L). The highest result ~~being~~was 11.2 pCi/L. (See Appendix G). I~~An i~~mmediate mitigation activities~~on~~ were~~as~~ recommended ~~to be included~~ as part of the response work~~with the verbal removal action~~.

To determine if contamination levels exceed the cancer risk of 10^{-4} (i.e. 1 in 10,000 of cancer), a risk assessment was performed. EPA's PRG Calculator was created to help calculate risk for various receptors at the Site, taking into consideration exposures from all potential pathways and through all media (e.g., soil, ground water, surface water, sediment, air, structures, etc.). For HTC, the most conservative receptor used to calculate risk was an outdoor worker scenario performing daily duties including burial and lawn maintenance activities. The total risk of the site without removal of the contaminated material was determined to be 2.43×10^{-2} where the risk contribution of Th-232 is 1.26×10^{-2} and U-238 is 1.19×10^{-2}. The total risk at HTC exceeds EPA's acceptable risk range of 10^{-4} to 10^{-6}.

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2. Background Information on Radioactive Contamination

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Concepts

Elements within the periodic table are comprised of both unstable and stable forms. Unstable elements are known as "radionuclides," and give off radiation in the form of a wave (i.e. gamma radiation) or particle (e.g. alpha radiation or beta radiation) to become more stable. The time it takes for~~in which~~ radionuclides to become~~s~~ stable can range from seconds to billions of years. Long-lived radionuclides, such as Thorium and Uranium, have always been present within the Earth's crust and within the tissues of all living species. Material that ~~contain~~contains radionuclides in their natural form is known as Naturally Occurring Radioactive Material~~s~~, ~~or~~ commonly referred to as "NORM~~"~~," and ~~contribute~~contributes to background radiation levels. Examples of NORM include sands, clays, ~~and~~ soils, rocks, coal, groundwater, oil and gas, as well as~~,~~ metal ores and non-metal minerals.

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~~Many radionuclides within~~ NORM may become concentrated or exposed to the accessible environment as a result of human activities such as manufacturing, mineral extraction, or water processing. The resulting material~~This~~ is known as Technically Enhanced Radioactive Material or "TENORM." EPA has ~~described~~ defined~~scribed~~ "Technologically Enhanced"~~TENORM~~ to mean that the~~as any~~ ~~:~~

"radiological, physical, and chemical properties of the radioactive material have been concentrated or further altered by having been processed, or beneficiated, or disturbed in a way that increases the potential for human and/or environmental exposures." The contamination found at the Site qualifies as TENORM.

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> ~~When companies began extracting~~ The extraction of precious metal and/or rare earths material from ore~~, companies had little suspicion that the principal minerals being mined or processed would~~ can result in the presence of TENORM in ~~the~~ waste and/or product ~~of the material being extracted~~. ~~As a result~~Historically, radioactive waste at mines and mineral processing or ~~/~~manufacturing facilities was often regarded as non-hazardous material and ~~were~~was disposed of improperly. ~~The majority of~~Some facilities~~companies saw opportunities to recycle~~sold or disposed of such waste ~~to businesses within their area~~ as fill ~~dirt~~ for construction projects, including the construction of roads~~s construction~~ and parking lots. The Site is one location where contaminated ~~fill~~ waste material~~dirt~~ was used as fill~~to construct the parking lot~~.

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Terminology

To evaluate land and/or buildings that are potentially contaminated with radioactive materials, a variety of instrumentation must be used. When performing an initial scoping survey, the extent of the contamination (i.e. how widespread ~~is~~ the contamination is at~~on~~ the s~~S~~ite), as well as~~,~~ the intensity of the radiation (i.e. which areas/locations contribute to the greatest risk or dose) must be identified. Hand-held and portable equipment such as ~~a~~ sodium iodide detectors, Geiger Mueller ~~counter~~counters, proportional detectors, and/or ion chambers may be used as ~~a~~ field equipment to determine the extent of contamination and/or dose or exposure rates due to gamma radiation. In general, most of these pieces of equipment are used qualitatively, and resulting data is compared to background readings to determine the extent and intensity of contamination and whether~~, in addition to, answering if~~ further investigation is needed. Examples of units used for qualitative measurements~~ at the Site~~ include counts per minute (cpm) for contamination, micro~~r-R~~oentgen per hour (µR/hr) for exposure rate, or millirem per hour (mrem/hr) for dose rate measurements.

In most cases, the equipment used to collect qualitative measurements may not provide~~give~~ an accurate or precise measurement of the quantity of contamination due to poor efficiencies for specific radionuclides, poor geometries due to the instrumentation setup, or~~and~~ fast counting time. Qualitative measurements should always be paired with quantitative data when characterizing a ~~Site~~ s~~S~~ite that has been contaminated with radioactive materials. Quantitative data can be used to verify or correlate the qualitative instrumentation reading~~ to quantitative soil sampling~~. This is commonly referred to as "ground truthing~~"~~. ". To obtain ~~Examples of~~ quantitative measurements, ~~are samples, such as~~ air, water, sediment, soil, and/or vegetation samples~~,~~ are taken from areas of known or suspected contamination

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10^{-4} carcinogenic risk based on the reasonable maximum exposure for an individual. To determine if contamination levels exceed the cancer risk of 10^{-4} (i.e. a 1 in 10,000 risk of developing cancer), a risk assessment must be performed. EPA's Preliminary Remediation Goal (PRG) Calculator was created to help calculate risk ~~vs.~~ versus cleanup levels for various receptors, taking into consideration exposures from all potential pathways~~,~~ and through all media (e.g., soil, ground water, surface water, sediment, air, structures, etc.).

~~2.~~3. Physical Location

The ~~main~~ addresses associated with the Holy Trinity Cemetery Site are 5401 Robert Avenue, Lewiston, Niagara County, NY 14092 (Areas 1, 2, 3, 4 & 8) and 5374 Robert Avenue, Lewiston, Niagara County, NY 14092 (Area 5), Latitude: 43.149668°; Longitude: -79.032245°. (See Attachment A). These two properties comprising the Site are identified on the Niagara County tax map as 115.00-1-7 and 115.15-1-20, respectively.

~~The Site is comprised of two parcels. Specifically, 115.00-1-7 and 115.15-1-20.~~ There are several active facilities w~~W~~ithin 0.5 mile of the Site, ~~there~~including ~~is~~ the Our Lady of Peace Nursing Home, Mount St. Mary's Child Care Center, and Mount St. Mary's Hospital. Water bodies located between 0.5-1.0 miles of the Site are the Niagara River ~~(~~to the West~~)~~, Ontario Hydro Reservoir ~~(~~also to the West~~)~~, Power Reservoir ~~(~~to the East~~)~~, and ~~the~~ Fish Creek ~~(~~to the North~~)~~ of the Site~~)~~. The Lewiston, ~~NY~~New York, population is approximately 15,964.

~~3.~~4. Site Characteristics

The Site ~~(EPA ID No. NYN000206698)~~ consists of two parcels~~consists of two parcels~~. The first~~main~~ parcel~~art of the Site~~, ~~(~~identified as tax p~~P~~arcel #~~:~~ 115.00-1-7~~)~~ is ~~located at a cemetery of~~ approximately 39.2 acres in size and is the location of a cemetery ~~Lewiston, NY~~. ~~The~~This property is owned by the Divine Mercy Roman Catholic Parish (formerly, the Holy Trinity Cemetery, Roman Catholic Church Society of Niagara Falls, New York). One area of observed contamination at the cemetery parcel is 4.21 acres in size~~; the property is owned by Holy Trinity Cemetery~~~~The main area of observed contamination is approximately 4.21 acres~~ and is located in the northernmost portion of the property. The contamination is located along two undeveloped roadways on a relatively flat and slightly elevated grassy field, which ~~and~~ has been designated as Area 1, (See Appendix A-Attachment A).~~ There are other concentrated areas identified on the Holy Trinity Cemetery within this property.~~ There are also piles of contaminated material and an undeveloped roadway in Area 2, a pile of contaminated material within Area 4, and contamination underneath the developed cemetery roadway designated as Area 9, (See Appendix A-Attachment A). There is one building on the ~~Holy Trinity c~~Cemetery p~~P~~roperty, which has been utilized ~~as a residence, chapel, and on site~~as a residence, chapel, and cemetery maintenance facility, (See Appendix A-Attachment A).~~.~~

The second parcel comprising~~t of~~ the Site, tax p~~outside of the Holy Trinity Cemetery Property boundaries~~arcel #: 115.15-1-20, ~~-~~is located to the west of the cemetery on Robert Avenue and is a single-family residential property ~~home (Parcel #: 115.15-1-20)~~ of approximately~~on~~ 0.59 acres in size. This parcel is designated as Area 5, (See Appendix A-Attachment B). ~~The Site~~

The S~~s~~ite is bordered~~:~~ to the north and east by Interstate 190,~~;~~ to the south by another cemetery,~~;~~ and to the west by Robert Avenue and a residential area.

~~The Site (EPA ID No. NYN000206698) consists of two parcels. The main part of the Site (Parcel #: 115.00-1-7) is located at a cemetery of approximately 39.2 acres in Lewiston, NY. The area of observed contamination is 4.21 acres; the property is owned by Holy Trinity Cemetery. The main area of observed contamination is in the northernmost portion of the property on a relatively flat and slightly elevated grassy field. There are other concentrated areas within this property as well as other roadbeds. There is one building on site, which has been utilized as a residence, chapel, and cemetery maintenance facility. The second part of the Site is a single-family residential home (Parcel #: 115.15-1-20) on 0.59 acres. The HTC site is bordered: to the north and east by Interstate 190; to the south by another cemetery; and to the west by Robert Avenue and a residential area.;~~

The removal ~~action~~activities~~on~~ ~~(RV1)~~ documented in this Action Memorandum (RV1) comprise a portion of the ongoing ~~will be the first~~ CERCLA removal action ~~undertaken~~ at the ~~Site.~~Site~~e~~.

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~~4.~~5. Release or threatened release into the environment of a hazardous Substance, or pollutant, or contaminant

The release and threat of release of the contaminants Th-232 and U-238 at or from the Site into the environment may impact the health of the public at the Site through a variety of pathways, including inhalation from dusts and gases; ingestion from dusts, soils, and water; and direct radiation from external doses (external direct radiation exposure is primarily attributable to gamma radiation, with lesser internal exposures attributable to alpha and beta radiation from particulate radioactive material). Workers at the cemetery, as well as~~,~~ adjacent neighbors, patrons, and other members of the public at or near the Site are exposed to contamination via routes of inhalation or dermal contact to loose soils and windblown dust in the parking areas and indoors.

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Hazardous Substances Statutory Source for Designation Under CERCLA:

Radiological Substances Identified	Maximum Concentration
Thorium 232 (Th-232)-Daughter: Ra-228	365 pCi/g
Uranium 238 (U-238)-Daughter: Ra-226	461 pCi/g

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Each of the radiological substances listed above are included in 40 CFR 302.4, List of Hazardous Substances and Reportable Quantities, Appendix B – Radionuclides. ~~The statutory source for designating~~The radionuclides are designated as a hazardous substance under Section 102(a) of CERCLA, 42 U.S.C. § 9602(a)~~, is~~ and Section 112 of the Clean Air Act, 42 U.S.C. § 7412.

~~5.~~6. National Priorities List status

The Site is not listed on the National Priorities List (NPL~~)~~), nor is it proposed for inclusion.

~~6.~~7. Maps, Pictures, and Other Attached Documents

Attachment A: Site Maps
Attachment B: Qualitative Gamma Scan Measurements
Attachment C: Soil Sample Locations
Attachment D: Highest Soil Concentrations
Attachment E: Outdoor Worker Preliminary Remediation Goals
Attachment F: Recreator Preliminary Remediation Goals
Attachment G: Indoor Radon Sample Results

B. Other Actions to Date

1. Previous Actions

No previous actions have been taken by any federal, state, or local government entity or private party to address the hazardous substances located at the Site. All federal and New York State actions to date have been in the form of assessment activities.

2. Current Actions

The ~~actions~~activities taken by EPA thus far to mitigate the threats posed by the radioactive contamination at the Site are described in Section VI.A.1. ~~This action was~~These activities were initiated on April 18, 2016 and ~~completed on~~continued until August 28, 2017. EPA expended approximately $83,000 in

mitigation ~~cost~~costs and $8,000 in technical support costs at the Site to address the radioactive contamination.

B. State and Local Authorities' Role

1. State and Local Actions to Date

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Further inspection of the Site revealed that~~Additionally,~~ the slag was used as fill for the base of two proposed ~~roadbeds~~ roadways that extended approximately 500 to 600 feet from the caretaker's garage northwest toward Robert Avenue. At the time of the 1980 survey, the construction of these roads had been abandoned. The underlying slag base was covered with an unknown amount of soil and was left as an open field. Using an Eberline PRM 7 radiation meter, radioactivity of the slag pile was measured at 250 ~~microroentgens per hour (~~µR/hr~~).~~ ~~:~~ R~~r~~eadings along the fully constructed~~developed~~ cemetery roads ranged from 5 µR/hr (i.e., background concentration) to 30 µR/hr. Readings along the undeveloped roadways~~abandoned roadbeds~~ ranged from 200 µR/hr to 400 µR/hr. Samples of the slag were collected as part of the investigation, and~~;~~ laboratory analyses of these samples indicated detectable concentrations of Potassium-40, Uranium-235 and Uranium-238, Radium-226, and Thorium-232.

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In October 2006, NYSDEC and the NCDOH conducted a Site visit. At that time, the slag pile that had previously ~~had~~ been observed near the caretaker's garage was no longer present at the~~on~~ Site; the then-current caretaker did not have any~~had neither~~ knowledge of the slag pile ~~, n~~or~~-~~ what had happened to it. The caretaker ~~also~~ indicated that children living nearby used the cemetery~~is~~ area for recreation. Since the 1980 NYSDOH S~~s~~ite investigation, trees had grown through the undeveloped slag roadway in Area 1, pushing the slag to the surface. As part of the Site visit, NYSDEC conducted a radioactivity survey with an Exploranium GR-135. Readings taken while walking along the Area 1 undeveloped roadways indicated levels of 200–450 µR/hr at waist height and a surface contact reading of 450–570 µR/hr ~~;~~ A~~a~~ contact reading of 700 µR/hr at exposed slag near a tree was also documented. NYSDEC collected four samples of the slag, ~~;~~which ~~the samples~~ were analyzed for isotopic Uranium and isotopic Thorium and

underwent gamma-ray spectroscopy analysis. Laboratory analytical results indicated the presence of Uranium-238/234 ranging from 114 to 1,664 ~~picocuries per gram (~~pCi/g~~)~~ and Thorium-232 ranging from 114 to 898 pCi/g.
~~In October 2006, the NYSDEC and the Niagara County Health Department conducted a site visit at HTC. At that time, the slag pile that previously had been observed near the caretaker's garage was no longer on site; the current caretaker had neither knowledge of the slag pile, nor what happened to it. The caretaker also indicated that children living nearby use this area for recreation. Since the 1980 NYSDOH site investigation, trees had grown through the abandoned slag roadbeds, pushing the slag to the surface. As part of the site visit, NYSDEC conducted a radioactivity survey with an Exploranium GR-135. Readings taken while walking along the roadbed indicated levels of 200–450 µR/hr at waist height and a surface contact reading of 450–570 µR/hr; a contact reading of 700 µR/hr at exposed slag near a tree was documented. NYSDEC collected four samples of the slag; the samples were analyzed for isotopic Uranium and isotopic Thorium and underwent gamma-ray spectroscopy analysis. Laboratory analytical results indicated the presence of Uranium-238/234 ranging from 114 to 1,664 pCi/g and Thorium-232 ranging from 114 to 898 pCi/g.~~

In May 2007, NYSDEC visited the site to identify contamination in an on-~~S~~site debris pile using gamma-ray spectroscopy. A 5-minute static reading was taken and~~,~~ Radium-226 was the only nuclide identified. An additional similar analysis was conducted on one of the Area 1 undeveloped roadways ~~roadbeds,~~ confirming the presence of Thorium-232.

During a July 2013 NYSDOH reconnaissance, screening activities showed elevated radiation levels at the Site along the Area 1 undeveloped roadways and along the Area 2 undeveloped roadway leading ~~to~~ off-~~S~~site. In Area 1, the radiation levels were up to 51 µR/hr with the pressurized ion chamber ~~(PIC)~~ and up to 50,000 ~~counts per minute (~~cpm~~)~~ with the sodium iodide (NaI) 2x2 detector.
~~During a July 2013 NYSDOH reconnaissance, screening activities showed radiation levels at the HTC site along the roadway and along the back roadway leading to offsite with radiation levels up to 51 µR/hr in the roadway with the pressurized ion chamber (PIC) and up to 50,000 counts per minute (cpm) with the sodium iodide (NaI) 2x2 detector.~~

The Site was referred to the EPA by the NYSDEC and NYSDOH on July 21, 2013. No other removal actions were~~have been~~ taken by other government or private parties prior to this request.

2. Potential for Continued State/Local Response

Neither NYSDEC, nor NYSDOH, nor the local government have resources available to conduct a removal action at the Site. NYSDEC and NYSDOH referred the Site to EPA on July 21, 2013. These entities will act in a supporting role throughout the removal action.

III. THREATS TO PUBLIC HEALTH, OR WELFARE, OR THE ENVIRONMENT AND STATUTORY AND REGULATORY AUTHORITIES

Conditions at the Site met the requirements of Section 300.415(b)(2) of the NCP, 40 C.F.R. § 300.415(b)(2), for implementing a CERCLA removal action. Factors from Section 300.415(b)(2) of the NCP that supported conducting a removal action at the Site are discussed below.

(i) Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, or pollutants, or contaminants;

The Site contains an active public cemetery with a chapel utilized by patrons and cemetery workers. Patrons and the public move~~d~~ freely throughout the property, including the identified contaminated

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areas. There are residences located directly across Robert Avenue to the west of the Holy Trinity Cemetery property. Cemetery personnel's daily duties included burial and lawn maintenance activities in and around the contaminated areas. These activities and operations expose specific populations to the Th-232 and U-238 contamination. Populations with increased cancer risk due to internal or external exposure to contamination are known as "receptors." Based on the compiled EPA ~~Pre-Remedial~~PRS Assessment and EPA RSE data, the receptors most likely to be exposed to the hazardous substance of radiation at the Site are:

Outdoor workers:

An outdoor worker who is employed full-time could come in contact with the hazardous substances while working on-S~~s~~ite conducting outdoor maintenance activities throughout the day. The worker may be exposed long-term to the on-S~~s~~ite surface soil contamination during the work day while performing tasks such as moderate digging or landscaping. The outdoor worker could be exposed to the contamination via the following pathways: incidental ingestion of soil, external radiation from

Ex 5 (intra-agency deliberative; attorney client privilege)

[redacted]

An indoor worker at the chapel building may come in contact with contamination through ingestion of contaminated soils that have been incorporated into indoor dust, external radiation from contamination

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Recreators:

A recreator may spend time outside performing recreational activities on the Site. Recreators may come in contact with, or be exposed to, the contamination for short periods of time over a long term. A ~~R~~recreator would consist of any patrons of the cemetery or local residents. There are also historical accounts and evidence of local residents walking their dogs and mowing cemetery grass in the contaminated locations (~~S~~specifically, Area 1) for extended periods of time. The ~~s~~HTC Survey ~~also~~ indicated that there is an apartment on top of the chapel that was a residence for the groundskeeper's family. The~~y~~ family maintained a garden in Area 1 of the property. The radiological sampling and survey results in this area showed some of the most elevated levels observed during~~in~~ the Site assessments.

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Construction workers:

Construction workers may come in contact with or be exposed to contamination over the short-term, during the work day while working around vehicles that suspend dust in the air. Activities such as trenching and excavating typically involve on-site exposures to surface soils. ~~The c~~Construction workers could be exposed to contamination via the following pathways: incidental ingestion of soil, external radiation from contamination in soil, and inhalation of fugitive dust.

(ii) Actual or potential contamination of drinking water supplies or sensitive ecosystems;

If the hazardous substances at the Site migrate, the potentially affected water bodies located between 0.5-1.0 miles of the Site are the Niagara River and~~(West),~~ Ontario Hydro Reservoir to the w~~(W~~est~~,)~~ Power Reservoir to the e~~(E~~ast~~)~~, and ~~the~~ Fish Creek to the n~~(N~~orth of the Site~~)~~. The radioactive

rock/soil at the Site is located at the surface in many ~~of the~~ areas ~~at the Site~~ and may migrate to the local water bodies via overland pathways during heavy rains and flooding.

(iv) High levels of hazardous substances or pollutants or contaminants in soils, largely at or near the surface that may migrate;

Th-232 (Daughter: Th-228) has been detected in surface soils at levels as high as 365 pCi/g, and U-238 (Daughter: Th-230) has been detected in surface soils at levels as high as 461 pCi/g. The radiologically contaminated soil may migrate through airborne dust, surface runoff, construction activities, and foot traffic into the existing buildings on-site and/or into homes and residential areas. Since Thorium-232 and Uranium-238, as well as their progenies, have a long half-life (i.e. billions of years), it is highly probable that the Site will undergo physical changes before the radiological contaminants on-Ssite will decay to background concentrations. Building demolition and/or construction may result in increased exposures to humans from the contamination becoming suspended or airborne. Specifically, the expansion of the cemetery into these contaminated areas would increase the exposure through excavation as well as patron visits. Residents surrounding the property have been witnessed mowing the lawn in the contaminated areas as well as walking pets within the areas of concern. Weathering and/or animal interaction may also cause contamination to migrate. Public visitors, patrons, and/or trespassers at the Site could cause a fire that could result in ~~the~~ widespread contamination and increased exposure to gamma, and alpha and beta emitting radionuclides.

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(v) Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released;

The radioactive rock/soil at the Site is located at the surface in many ~~of the~~ areas ~~at the Site~~ and may migrate due to weather to other parts of the Site not fenced off to the workers and public, as well as to the neighboring residential properties~~y~~.

Ex 5 (intra-agency deliberative; attorney client privilege)

(vii) The availability of other appropriate federal or State response mechanisms to respond to the release;

No other federal or state response mechanisms were available to respond in a timely manner to the significant threat presented by the Site.

IV. ENDANGERMENT DETERMINATION

The time necessary to implement the proposed response activities~~action~~ exceeded the 12-month statutory limit for removal actions and required an exemption. The threat to human health or the environment posed by the contamination existing at the Site warranted the continued action thereby requiring a 12-month exemption based on the following factors:

V. EXEMPTION FROM STATUTORY LIMITS

A. Emergency Exemption

1. There was an immediate risk to public health or welfare or the environment.

Continued response activities beyond 12 months were required ~~to complete the necessary removal action~~ to mitigate the threats posed by the~~is~~ Site. Conditions at the Site (d~~D~~escribed in Section III of this Action Memo) and the proposed actions meet the criteria for an emergency exemption as specified in Section 104(c) of CERCLA, 42 U.S.C. § 9604(c). The radiological contamination at the Site posed immediate risks to public health and the environment, and continued response activities

were required to mitigate the release or threat of release of hazardous substances at the Site.

2. Future response actions are required to eliminate unwarranted risk.

The radioactive materials impacting the Site are Th-232 and U-238. The maximum concentrations of these materials are 365 pCi/g and 461 pCi/g, respectively. Current removal activitie~~on~~s have limited access to the contaminated material, but the radionuclides still pose a risk to public health, welfare and the environment. As described above, to achieve the carcinogenic risk value of 10^{-4}, the removal action~~vities~~ must continue until the cancer~~following~~ risk at~~of~~ the S~~s~~ite falls within EPA's acceptable risk range. Should ~~an~~ additional removal activities~~on~~ (i.e. excavation of contaminated material) not be conducted, the public will continue to be at risk of exposure to unacceptable radiation levels from the Site.

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3. Assistance will not otherwise be provided on a timely basis.

Other federal, state, or local response mechanisms and resources are not available to respond to the release and/or threat of release of hazardous substances, contaminants, or pollutants from the Site in a timely manner. Both the New York State and local government lack the necessary resources to perform a response at the Site.

VI. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

The purpose of the RV1~~is~~ removal activities~~on~~ was to limit the threat of direct contact with the radioactive contaminated material that~~which~~ exists~~ed~~ at the~~on~~ Site. To minimize these threats, EPA sampled and~~,~~ analyzed Site contamination~~,~~ and installed fencing.

The actions stated below were necessary to mitigate the actual and potential risks to human health and the environment associated with the presence of radioactive material at the Site. EPA actions at the Site included the following activities:

1. Proposed Action Description

On July 21, 2013, the Site was referred to EPA by the NYSDEC and the NYSDOH. This referral was followed by further assessment of Site conditions by EPA PRS and EPA Removal Program. ~~After the evaluation of EPA PRS and EPA Removal Program~~The d~~D~~ata from this assessment was evaluted (s~~S~~ee Section II, A., 1. of this Action Memo) and ~~utilization of the~~a PRG calculator was used to determine the risk to receptors at the Site.~~-~~ T~~t~~he risk was determined to exceed the established regional limits and therefore warrant~~ed~~ a removal action at the Site. (S~~S~~ee Attachments E and F).

On March 24, 2016, the ~~ERRD~~ Director of the Emergency and Remedial Response Division (now known as SEMD) verbally authorized funding to initiate a response action at the~~is~~ Site.

On April 25, 2016, the permanent fencing installation around Area 1 (s~~S~~ee Attachment B) was completed. Area 1~~This area~~ contains most of the ~~site~~ radiologically contaminated material at the Site and is located closest to the residential properties along Robert Avenue.

On June 15, 2016, a radon mitigation system was installed in ~~the~~ Area 5 at the residential home ~~location~~ (s~~S~~ee Attachment B) due to levels of radon detected in the basement as high as 11.0

pCi/L (s~~S~~ee Attachment G). Post installation radon data indicated the system was working properly and radon readings were below the action level of 4.0 pCi/L (s~~S~~ee Attachment G).

On August 28, 2017, the permanent fencing around Areas 2 & 4 (s~~S~~ee Attachment B) was completed. Area 2 contained an unfinished road with radiologically contaminated material as well as individual piles of radiologically contaminated material. Area 4 contained individual piles of radiologically contaminated material.

2. Contribution to Remedial Performance

The removal activities~~on~~ undertaken at the Site were~~as~~ consistent with the requirement of Section 104(a)(2) of CERCLA, which states, "any removal action undertaken. . . should. . .to the extent practicable, contribute to the efficient performance of any long-term remedial action with respect to the release or the threatened release concerned." ~~The removal action implemented met that requirement.~~ Additional removal activities are contemplated as part of the ongoing removal action at the Site. T~~T~~here are no long-term remedial actions planned for the Site.

3. Engineering Evaluation/Cost Analysis (EE/CA)

Due to the time-critical nature of this removal action, an EE/CA will not be prepared.

4. Applicable or Relevant and Appropriate Requirements (ARARs)

It remains EPA's policy that ARARs will generally be considered protective absent multiple contaminants or pathways of exposure. However, in rare situations, EPA Regional offices establish PRGs at levels more protective than required by a given ARAR, even absent multiple pathways or contaminants, where application of the ARAR would not be protective of human health or the environment. It was determined that the Uranium Mill Tailings Radiation Control Act cleanup standard for radiological contamination, a subsurface soil cleanup level of 5 pCi/g, was not sufficiently protective of public health. Site-specific PRG numbers were calculated. The highest risk receptor, a composite worker whose daily duties include indoor and outdoor activities, was used in determining the most conservative value for cleanup levels at the Site.

5. Project Schedule

EPA and its contractors mobilized to the Site on April 18, 2016, and the removal activities addressed in RV1 were completed on August 28, 2017.

B. Estimated Costs

A summary of estimated total costs for the removal action is presented below.

Extramural Costs:	**Total Funding Verbally Authorized March 24, 2016**
Regional Allowance Costs: Total cleanup contractor costs include labor, equipment, materials and laboratory disposal analysis (includes 20% contingency)	$130,000
Other Extramural Costs Not Funded From the Regional Allowance: Technical support (RST)	$20,000
Subtotal, extramural costs	$150,000
Extramural Costs Contingency (10%)	$0
Total Removal Project Ceiling	$150,000

VII. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Given the Site conditions, the nature of the hazardous substances documented on-S~~s~~ite, and the potential exposure pathways to nearby populations described in Section III.A., actual or threatened releases of hazardous substances from the Site, if not addressed by implementing the response activities~~on~~ described in this Action Memorandum, ~~may~~ presented an imminent and substantial endangerment to public health or welfare or the environment.

VIII. OUTSTANDING POLICY ISSUES

There are no known outstanding policy issues associated with this Site at the present time. While there is a Headquarters consultation process in place for sites where radioactive contamination is present (Headquarters Consultation for Radioactively Contaminated Sites, OSWER No. 9200.1-33P, July 26, 2000), this consultation requirement applies only to sites where radioactive material will be managed on-site (e.g. capping, disposal cells) or where there is a potential national precedent-setting issue related to the radioactive materials. In this instance, the radioactive materials will not be managed in place and there is no potential national precedent-setting issue related to the radioactive materials. Therefore, Headquarters consultation is not required.

IX. ENFORCEMENT

EPA has conducted a preliminary Potentially Responsible Party (PRP) search for the Site. The OSC will work with the Removal Action Branch enforcement staff and the Office of Regional Counsel in an attempt to locate all viable PRPs to recover costs associated with the ongoing~~is~~ removal action.

Based on full cost accounting practices, the total EP-A costs for the RV1~~is~~ removal activities~~ion~~ that will be

eligible for cost recovery are estimated to be $150,000. The following chart describes the costs ~~which~~that EP-A believes are eligible for cost recovery~~ as part of this response action~~.

Cost Type	Total Funding Requested in this Memorandum
Direct Extramural Cost	$150,000
Direct Intramural Cost	$125,000
Subtotal, Direct Cost	$275,000
Indirect Costs (Regional Indirect Cost Rate 44.1%)	$121,275
Estimated EPA Costs Eligible for Cost Recovery	**$396,275**

Note: Direct Costs include direct extramural costs and direct intramural costs Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site-specific direct costs, consistent with the full cost accounting methodology effective October 2, 2000 These estimates do not include pre-judgment interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of a removal action The estimates are for illustrative purposes only and their use is not intended to create any rights for responsible parties Neither the lack of a total cost estimate nor deviation of actual total costs from this estimate will affect the United States' right to cost recovery

X. RECOMMENDATION

This decision document describes~~represents~~ ~~the~~ selected removal activities~~on~~ for the Holy Trinity Cemetery Site located in Lewiston, Niagara County, New York. This document has been developed in accordance with CERCLA and is not inconsistent with the NCP. This decision is based on the administrative record for the Site.

Conditions at the Site met the NCP Section 300.415(b) criteria for a removal action, and I recommend your approval of the proposed removal action and waiver of the 12-month limitation. The verbal authorization was granted by the ~~ERRD~~ Director of the Emergency and Remedial Response Division (now known as SEMD) of EPA Region 2 on March 24, 2016, in the amount of a $150,000~~.00~~, of which $130,000~~.00~~ was for mitigation contracting and $20,000~~.00~~ in RST contractor funding. The Site work under the March 2016 verbal authorization was initiated on April 18, 2016 and continued until~~was completed on~~ August 28, 2017. There

were sufficient monies in the Regional removal advice of allowance to fund this project. Future, additional removal activities comprising this removal action are contemplated.

Please indicate your formal approval of the verbal authorizations granted for the emergency removal action at the Holy Trinity Cemetery Site, as per current Delegation of Authority, by signing below.

Approved: _____ **Date:** _____
Pat Evangelista~~Angela B. Carpenter~~, Acting Director
Superfund and Emergency Management~~Emergency and Remedial Response~~ Division

Disapproved: _____ **Date:** _____
Pat Evangelista~~Angela B. Carpenter~~, Acting Director
~~Emergency and Remedial Response~~Superfund and Emergency Management Division

cc: P. Lopez, RA
W. Mugdan, DRA
A. Carpenter, ERRD-D
J. Prince, ERRD-DD
E. Mosher, ERRD-RPB
J. Rotola, ERRD-RAB
S. Hoppe, ERRD-RPB
B. Grealish, ERRD-RAB
T. Lieber, ORC-NYCSFB
M. Ludmer, ORC-NYCSFB
M. Mears, PAD
H. Freeman, OPM-GCMB
M. Fiore, OIG
B. Schlieger, 5104A
T. Benton, RST
M. Franklin, NYSDEC
A. Raddant, USDOI
L. Rosman, NOAA

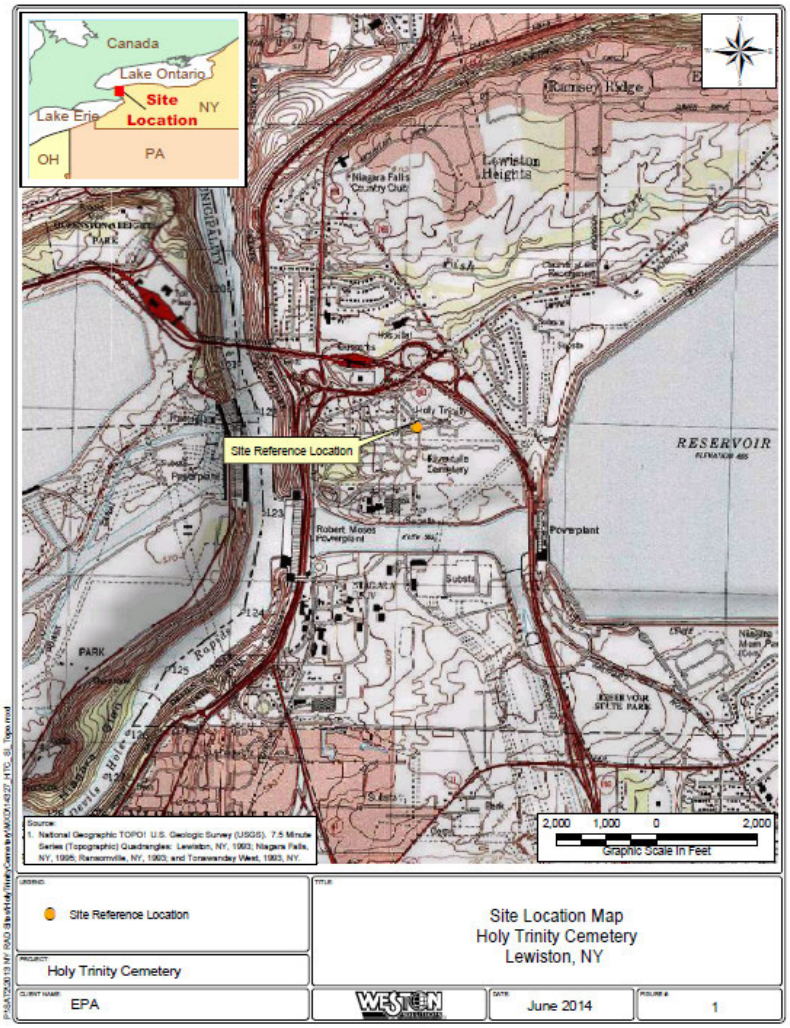
Commented [LM16]: Don't forget to update titles, where necessary.

DO NOT PLACE IN ADMINISTRATIVE RECORD
DO NOT RELEASE TO THE PUBLIC

Confidential Enforcement Addendum

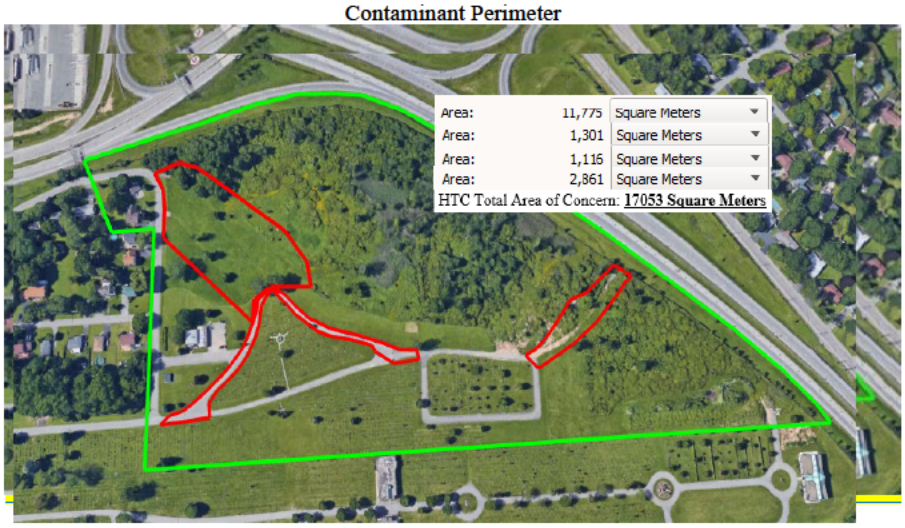
Attachment A

Site Location Map



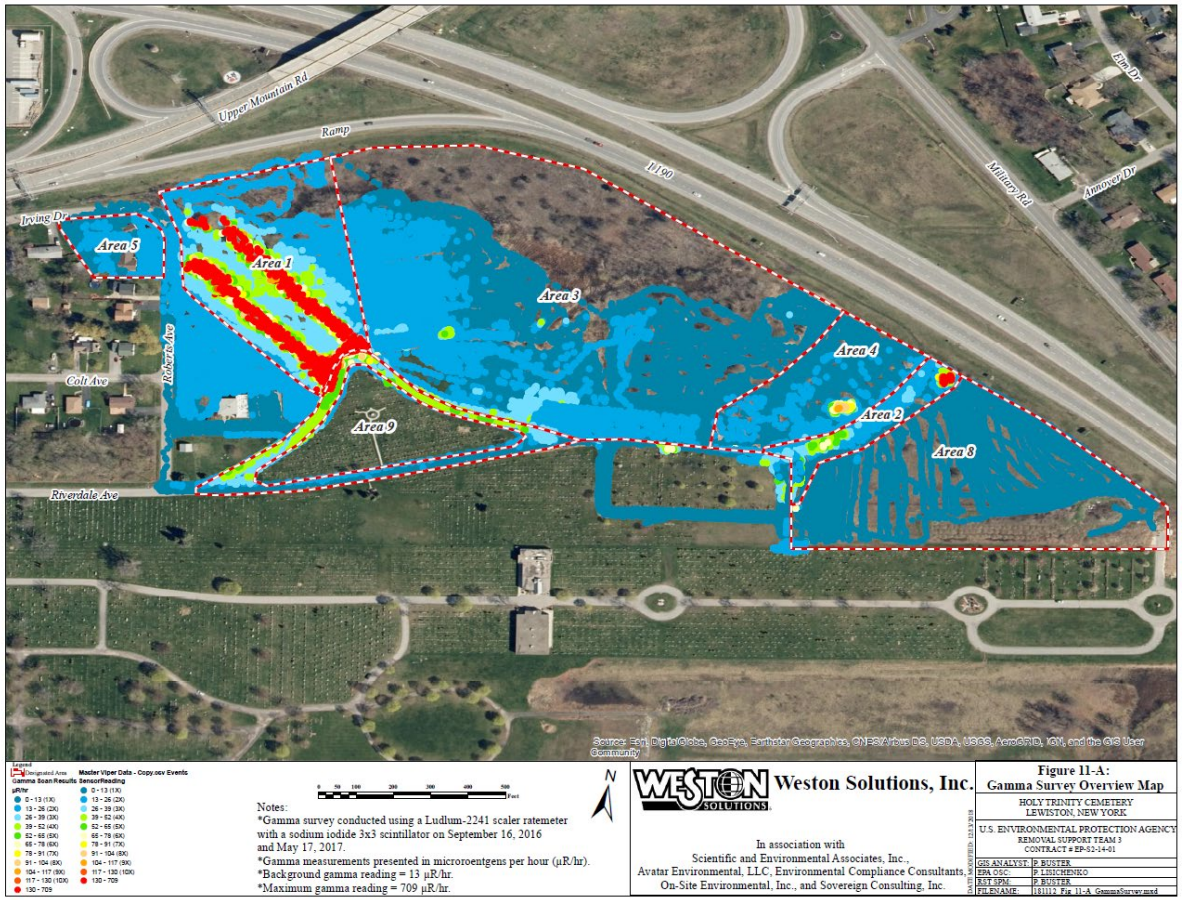
Site Perimeter with Area

Contaminant Perimeter



Attachment B

Qualitative Gamma Scan Measurements using 3” x 3” Sodium Iodide (NaI) Detector



Legend
Designated Area
Gamma Scan Results µR/hr
0 - 13 (1X)
13 - 26 (2X)
26 - 39 (3X)
39 - 52 (4X)
52 - 65 (5X)
65 - 78 (6X)
78 - 91 (7X)
91 - 104 (8X)
104 - 117 (9X)
117 - 130 (10X)
130 - 709
Master Viper Data - Copy.ocv Events
SensorReading
0 - 13 (1X)
13 - 26 (2X)
26 - 39 (3X)
39 - 52 (4X)
52 - 65 (5X)
65 - 78 (6X)
78 - 91 (7X)
91 - 104 (8X)
104 - 117 (9X)
117 - 130 (10X)
130 - 709

0 50 100 200 300 400 500 Feet

Notes:
*Gamma survey conducted using a Ludlum-2241 scaler ratemeter with a sodium iodide 3x3 scintillator on September 16, 2016 and May 17, 2017.
*Gamma measurements presented in microroentgens per hour (µR/hr).
*Background gamma reading = 13 µR/hr.
*Maximum gamma reading = 709 µR/hr.

N

WESTON SOLUTIONS Weston Solutions, Inc.

In association with
Scientific and Environmental Associates, Inc.,
Avatar Environmental, LLC, Environmental Compliance Consultants,
On-Site Environmental, Inc., and Sovereign Consulting, Inc.

Figure 11-A:
Gamma Survey Overview Map

HOLY TRINITY CEMETERY
LEWISTON, NEW YORK

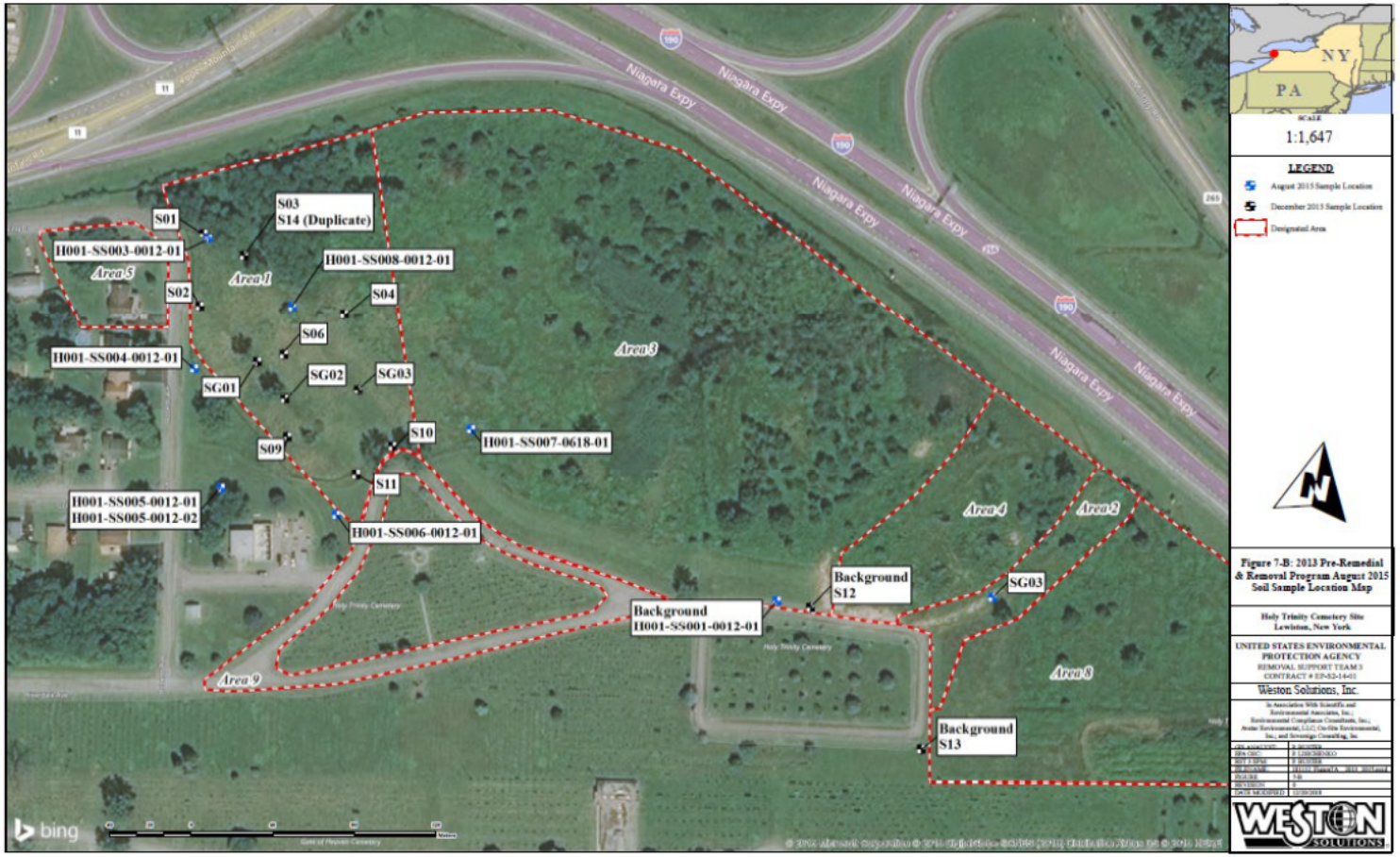
U.S. ENVIRONMENTAL PROTECTION AGENCY
REMOVAL SUPPORT TEAM 3
CONTRACT # EP-S2-14-01

GIS ANALYST:	P. BUSTER
EPA OSC:	P. LISICHENKO
RST SPM:	P. BUSTER
FILENAME:	181112_Fig_11-A_GammaSurvey.mxd

DATE MODIFIED: 12/13/2018

Attachment C

Figure 1-Soil Sample Locations from 2013 & 2015



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Attachment D

Highest Soil Sample Concentrations

Radioisotope	Analytical Data pCi/g
Actinium-228 (Ac-228)	65.3
Bismuth-210 (Bi-210)	20
Bismuth-212 (Bi-212)	72.4
Bismuth-214 (Bi-214)	78.1
Cesium-137 (Cs-137)	0.31
Lead-210 (Pb-210)	25
Lead-212 (Pb-212)	66.9
Lead-214 (Pb-214)	79
Potassium-40 (K-40)	19.9
Protactinium (Pa-234)	0
Radium-224 (Ra-224)	0
Radium-226* (Ra-226)	360
Radium-228 (Ra-228)	303
Thallium-208 (Tl-208)	23.2
Thorium-228 (Th-228)	365.0
Thorium-230 (Th-230)	461
Thorium-232 Th-232)	358
Thorium-234 (Th-234)	62.9
Uranium-233/234 (U-233/234)	288
Uranium-235/236 (U-235/236)	14.2
Uranium-235 (U-235)	0
Uranium-238 (U-238)	287

Ra-226* (21 days ingrowth)
Yellow Highlight indicates the highest concentration in the Th-232 decay chain
Pink Highlight indicates the highest concentration in the U-238 decay chain

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Attachment E

PRG Outdoor Worker Input Parameters and Output Values Specific to Holy Trinity Cemetery Site

PRG Outdoor Worker Input Parameters Specific to Holy Trinity Cemetery Site

Variable	Outdoor Worker Soil Default Value	Form-input Value
A (PEF Dispersion Constant)	16.2302	15.5169
B (PEF Dispersion Constant)	18.7762	18.4248
City (Climate Zone)	Default	Harrisburg, PA (7)
C (PEF Dispersion Constant)	216.108	211.7679
F(x) (function dependent on U_m/U_t) unitless	0.194	0.0086
PEF (particulate emission factor) m^3/kg	1359344438	1.79771E+11
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	43.38639428
A_s (acres)	0.5	39.2
ED_{ow} (exposure duration - outdoor worker) yr	25	25
EF_{ow} (exposure frequency - outdoor worker) day/yr	225	70
ET_{ow} (exposure time - outdoor worker) hr/day	8	16
IRA_{ow} (inhalation rate - outdoor worker) m^3/day	60	23.04
IRS_{ow} (soil intake rate - outdoor worker) mg/day	100	100
t_{ow} (time - outdoor worker) yr	25	25
TR (target cancer risk) unitless	0.000001	0.0001
U_m (mean annual wind speed) m/s	4.69	3.44
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.9

Output PRG values for Outdoor Worker Scenario Specific to Holy Trinity Cemetery Site

Isotope	Ingestion PRG TR=0.0001 (pCi/g)	Inhalation PRG TR=0.0001 (pCi/g)	External Exposure PRG TR=0.0001 (pCi/g)	Total PRG TR=0.0001 (pCi/g)
**Secular Equilibrium PRG for Th-232*	*6.23E+02*	*2.89E+06*	*2.89E+00*	***2.88E+00***
**Secular Equilibrium PRG for U-238*	*2.27E+02*	*4.62E+06*	*3.92E+00*	***3.85E+00***

Output Risk values for Outdoor Worker Scenario Specific to Holy Trinity Cemetery Site

Isotope	Ingestion Risk	Inhalation Risk	External Exposure Risk	Total Risk
**Secular Equilibrium Risk for Th-232*	*5.86E-05*	*1.26E-08*	*1.25E-02*	***1.26E-02***
Ac-228	5.48E-08	2.69E-12	4.44E-03	**4.44E-03**
Bi-212	2.84E-08	6.17E-12	5.40E-04	**5.40E-04**
Pb-212	8.39E-07	3.43E-11	4.88E-04	**4.89E-04**
Po-212	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**
Po-216	0.00E+00	0.00E+00	7.75E-08	**7.75E-08**
Ra-224	5.41E-06	6.18E-10	3.70E-05	**4.24E-05**
Ra-228	4.28E-05	2.38E-09	4.00E-08	**4.28E-05**
Rn-220	0.00E+00	6.28E-14	3.01E-06	**3.01E-06**
Th-228	4.09E-06	7.23E-09	6.33E-06	**1.04E-05**
Th-232	5.41E-06	2.36E-09	4.18E-07	**5.83E-06**
Tl-208	0.00E+00	0.00E+00	7.11E-03	**7.11E-03**

Isotope	Ingestion Risk	Inhalation Risk	External Exposure Risk	Total Risk
**Secular Equilibrium Risk for U-238*	*2.03E-04*	*9.98E-09*	*1.17E-02*	***1.19E-02***
At-218	0.00E+00	0.00E+00	7.28E-12	**7.28E-12**
Bi-210	3.01E-07	3.14E-11	3.54E-06	**3.84E-06**
Bi-214	1.19E-08	4.26E-12	1.01E-02	**1.01E-02**
Hg-206	0.00E+00	0.00E+00	1.21E-11	**1.21E-11**
Pa-234	1.25E-10	1.32E-16	1.46E-05	**1.46E-05**
Pa-234m	0.00E+00	0.00E+00	1.27E-04	**1.27E-04**
Pb-210	4.84E-05	1.09E-09	2.07E-06	**5.04E-05**
Pb-214	1.78E-08	5.35E-12	1.35E-03	**1.35E-03**
Po-210	1.16E-04	1.00E-09	6.22E-08	**1.16E-04**
Po-214	0.00E+00	0.00E+00	5.30E-07	**5.30E-07**
Po-218	0.00E+00	9.58E-13	9.07E-12	**1.00E-11**
Ra-226	2.38E-05	1.94E-09	3.05E-05	**5.42E-05**
Rn-218	0.00E+00	0.00E+00	9.11E-13	**9.11E-13**
Rn-222	0.00E+00	1.57E-13	2.35E-06	**2.35E-06**
Th-230	6.24E-06	2.35E-09	1.25E-06	**7.49E-06**
Th-234	7.67E-07	2.12E-12	2.62E-05	**2.69E-05**
Tl-206	0.00E+00	0.00E+00	1.17E-11	**1.17E-11**
Tl-210	0.00E+00	0.00E+00	3.90E-06	**3.90E-06**
U-234	4.12E-06	1.92E-09	3.73E-07	**4.49E-06**
U-238	3.76E-06	1.63E-09	1.82E-07	**3.95E-06**

Site-Specific
Outdoor Worker Risk for Soil - Secular Equilibrium

Isotope	Ingestion Risk	Inhalation Risk	External Exposure Risk	Total Risk
*Secular Equilibrium Risk for Th-232	5.86E-05	1.26E-08	1.25E-02	**1.26E-02**
*Secular Equilibrium Risk for U-238	2.03E-04	9.98E-09	1.17E-02	**1.19E-02**
*Total Risk	2.62E-04	2.26E-08	2.41E-02	**2.43E-02**

Attachment F

PRG Recreator Input Parameters and Output Values Specific to Holy Trinity Cemetery Site

PRG Recreator Input Parameters Specific to Holy Trinity Cemetery Site

Variable	Recreator Soil Default Value	Form-input Value
A (PEF Dispersion Constant)	16.2302	15.5169
B (PEF Dispersion Constant)	18.7762	18.4248
City (Climate Zone)	Default	Harrisburg, PA (7)
C (PEF Dispersion Constant)	216.108	211.7679
F(x) (function dependent on U_m/U_t) unitless	0.194	0.0086
PEF (particulate emission factor) m^3/kg	1359344438	1.79771E+11
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	43.38639428
A_s (acres)	0.5	39.2
ED_{rec} (exposure duration - recreator) yr	0	26
ED_{rec-a} (exposure duration - recreator adult) yr	0	20
ED_{resc-c} (exposure duration - recreator child) yr	0	6
EF_{rec} (exposure frequency - recreator) day/yr	0	182
EF_{rec-a} (exposure frequency - recreator adult) day/yr	0	182
EF_{rec-c} (exposure frequency - recreator child) day/yr	0	182
ET_{rec} (exposure time - recreator) hr/day	0	4
ET_{rec-a} (exposure time - recreator) hr/day	0	4
ET_{rec-c} (exposure time - recreator) hr/day	0	4
$IFA_{rec-adj}$ (age-adjusted inhalation rate - recreator) m^3	0	13953.333
$IFS_{rec-adj}$ (age-adjusted soil intake rate - recreator) mg	0	582400
IRA_{rec-a} (inhalation rate - recreator adult) m^3/day	20	20
IRA_{rec-c} (inhalation rate - recreator child) m^3/day	10	10
IRS_{rec-a} (soil intake rate - recreator adult) mg/day	100	100
IRS_{rec-c} (soil intake rate - recreator child) mg/day	200	200
t_{rec} (time - recreator) yr	0	26
TR (target cancer risk) unitless	0.000001	0.0001
U_m (mean annual wind speed) m/s	4.69	3.44
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.9

PRG Recreator Input Parameters Specific to Holy Trinity Cemetery Site

Isotope	Ingestion PRG TR=0.0001 (pCi/g)	Inhalation PRG TR=0.0001 (pCi/g)	External Exposure PRG TR=0.0001 (pCi/g)	Total PRG TR=0.0001 (pCi/g)
**Secular Equilibrium PRG for Th-232*	*5.92E+01*	*5.56E+06*	*4.28E+00*	***3.99E+00***
**Secular Equilibrium PRG for U-238*	*2.77E+01*	*8.90E+06*	*5.80E+00*	***4.79E+00***

PRG Recreator Input Parameters Specific to Holy Trinity Cemetery Site

Isotope	Ingestion Risk	Inhalation Risk	External Exposure Risk	Total Risk
**Secular Equilibrium Risk for Th-232*	*6.17E-04*	*6.56E-09*	*8.53E-03*	***9.15E-03***
Ac-228	1.05E-06	1.39E-12	3.00E-03	**3.00E-03**
Bi-212	3.57E-07	3.20E-12	3.65E-04	**3.65E-04**
Pb-212	1.34E-05	1.78E-11	3.30E-04	**3.43E-04**
Po-212	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**
Po-216	0.00E+00	0.00E+00	5.24E-08	**5.24E-08**
Ra-224	9.05E-05	3.21E-10	2.50E-05	**1.15E-04**
Ra-228	4.21E-04	1.24E-09	2.71E-08	**4.21E-04**
Rn-220	0.00E+00	3.26E-14	2.03E-06	**2.03E-06**
Th-228	5.17E-05	3.75E-09	4.28E-06	**5.60E-05**
Th-232	3.91E-05	1.23E-09	2.83E-07	**3.94E-05**
Tl-208	0.00E+00	0.00E+00	4.80E-03	**4.80E-03**

Isotope	Ingestion Risk	Inhalation Risk	External Exposure Risk	Total Risk
**Secular Equilibrium Risk for U-238*	*1.67E-03*	*5.18E-09*	*7.95E-03*	***9.62E-03***
At-218	0.00E+00	0.00E+00	4.92E-12	**4.92E-12**
Bi-210	6.45E-06	1.63E-11	2.39E-06	**8.84E-06**
Bi-214	1.08E-07	2.21E-12	6.89E-03	**6.89E-03**
Hg-206	0.00E+00	0.00E+00	8.18E-12	**8.18E-12**
Pa-234	2.30E-09	6.86E-17	9.89E-06	**9.89E-06**
Pa-234m	0.00E+00	0.00E+00	8.56E-05	**8.56E-05**
Pb-210	4.61E-04	5.68E-10	1.40E-06	**4.62E-04**
Pb-214	2.13E-07	2.78E-12	9.15E-04	**9.15E-04**
Po-210	8.79E-04	5.19E-10	4.20E-08	**8.79E-04**
Po-214	0.00E+00	0.00E+00	3.58E-07	**3.58E-07**
Po-218	0.00E+00	4.97E-13	6.13E-12	**6.63E-12**
Ra-226	1.82E-04	1.01E-09	2.06E-05	**2.02E-04**
Rn-218	0.00E+00	0.00E+00	6.16E-13	**6.16E-13**
Rn-222	0.00E+00	8.16E-14	1.59E-06	**1.59E-06**
Th-230	4.46E-05	1.22E-09	8.42E-07	**4.54E-05**
Th-234	1.68E-05	1.10E-12	1.77E-05	**3.45E-05**
Tl-206	0.00E+00	0.00E+00	7.88E-12	**7.88E-12**
Tl-210	0.00E+00	0.00E+00	2.64E-06	**2.64E-06**
U-234	3.98E-05	9.96E-10	2.52E-07	**4.01E-05**
U-238	3.61E-05	8.46E-10	1.23E-07	**3.62E-05**

Site-Specific
Recreator Risk for Soil - Secular Equilibrium

Isotope	Ingestion Risk	Inhalation Risk	External Exposure Risk	Total Risk
**Secular Equilibrium Risk for Th-232*	*6.17E-04*	*6.56E-09*	*8.53E-03*	***9.15E-03***
**Secular Equilibrium Risk for U-238*	*1.67E-03*	*5.18E-09*	*7.95E-03*	***9.62E-03***
**Total Risk*	*2.28E-03*	*1.17E-08*	*1.64E-02*	***1.86E-02***

Attachment G

HTC Area 5 Residential Home Radon Sampling Results

<u>April 2016 HTC Area 5 Residential Home Radon Sampling Results Prior To Radon Mitigation System Installation</u>

RTCA RADON TESTING CORPORATION OF AMERICA

PC1604260021

Site Radon Inspection Report

Date : 04/26/2016

Mr. Rick Pezzino
ACCU-VIEW PROPERTY INSP.
P.O. Box 641
Buffalo, NY 14051-

Client: Unknown
Test Location: 5374 Robert Avenue
Lewiston, NY 14092-

Individual Canister Results

Canister ID# :	2474800	Test Start :	04/22/2016 @ 12:27
Canister Type :	Charcoal Canister 3 inch	Test Stop :	04/25/2016 @ 12:32
Location :	Basement--Sump--#5374-03	Received:	04/26/2016 @ 11:22
Radon Level :	11.2 pCi/L	Analyzed:	04/28/2016 @ 10:48
Error for Measurement is: ±	0.5 pCi/L		

Canister ID# :	2474807	Test Start :	04/22/2016 @ 12:23
Canister Type :	Charcoal Canister 3 inch	Test Stop :	04/25/2016 @ 12:29
Location :	Basement--East--#5374-02	Received:	04/26/2016 @ 11:22
Radon Level :	4.6 pCi/L	Analyzed:	04/28/2016 @ 11:37
Error for Measurement is: ±	0.3 pCi/L		

Canister ID# :	2474826	Test Start :	04/22/2016 @ 12:41
Canister Type :	Charcoal Canister 3 inch	Test Stop :	04/25/2016 @ 12:39
Location :	1st Fl--Above Crawl--Foyer--#5	Received:	04/26/2016 @ 11:22
Radon Level :	1.0 pCi/L	Analyzed:	04/28/2016 @ 11:37
Error for Measurement is: ±	0.2 pCi/L		

Canister ID# :	2474833	Test Start :	04/22/2016 @ 12:39
Canister Type :	Charcoal Canister 3 inch	Test Stop :	04/25/2016 @ 12:36
Location :	1st Fl--Office/Bed--#5374-06	Received:	04/26/2016 @ 11:22
Radon Level :	1.0 pCi/L	Analyzed:	04/28/2016 @ 11:37
Error for Measurement is: ±	0.3 pCi/L		

Canister ID# :	2474843	Test Start :	04/22/2016 @ 12:30
Canister Type :	Charcoal Canister 3 inch	Test Stop :	04/25/2016 @ 12:35
Location :	Basement--NW--#5374-05	Received:	04/26/2016 @ 11:22
Radon Level :	4.0 pCi/L	Analyzed:	04/28/2016 @ 10:49
Error for Measurement is: ±	0.4 pCi/L		

Canister ID# :	2474851	Test Start :	04/22/2016 @ 12:19
Canister Type :	Charcoal Canister 3 inch	Test Stop :	04/25/2016 @ 12:26
Location :	Basement--West--#5374-01	Received:	04/26/2016 @ 11:22
Radon Level :	4.1 pCi/L	Analyzed:	04/28/2016 @ 11:37
Error for Measurement is: ±	0.3 pCi/L		

National Radon Safety Board NRSB Certified Radon Professionals

Andreas C. George
Radon Measurement Specialist
NJ MES 11089

Dante Galan
Laboratory Director

NRSB ARL0001
NYS ELAP ID: 10806
PADEP ID: 0346
NJDEP ID: NY933
NJ MEB 90036
FL DOH RB1609
IL RNL2000201

(914)345-3380
2 Hayes Street, Elmsford, NY 10523

RTCA RADON TESTING CORPORATION OF AMERICA

PC1604260021

Site Radon Inspection Report

Date : 04/26/2016

Mr. Rick Pezzino
ACCU-VIEW PROPERTY INSP.
P.O. Box 641
Buffalo, NY 14051-

Client: Unknown
Test Location: 5374 Robert Avenue
Lewiston, NY 14092-

Individual Canister Results

Canister ID# :	2474873	Test Start :	04/22/2016 @ 12:45
Canister Type :	Charcoal Canister 3 inch	Test Stop :	04/25/2016 @ 12:40
Location :	1st Fl--Above Crawl--Family Rm	Received:	04/26/2016 @ 11:22
Radon Level :	0.9 pCi/L	Analyzed:	04/28/2016 @ 11:57
Error for Measurement is: ±	0.3 pCi/L		

Canister ID# :	2474887	Test Start :	04/22/2016 @ 12:19
Canister Type :	Charcoal Canister 3 inch	Test Stop :	04/25/2016 @ 12:26
Location :	BLANK--Basement--West #FB1	Received:	04/26/2016 @ 11:22
Radon Level :	0.1 pCi/L	Analyzed:	04/28/2016 @ 10:49
Error for Measurement is: ±	0.6 pCi/L		

Canister ID# :	2474896	Test Start :	04/22/2016 @ 12:40
Canister Type :	Charcoal Canister 3 inch	Test Stop :	04/25/2016 @ 12:38
Location :	1st Fl--Mast Bedroom--#5374-0	Received:	04/26/2016 @ 11:22
Radon Level :	1.1 pCi/L	Analyzed:	04/28/2016 @ 11:37
Error for Measurement is: ±	0.2 pCi/L		

Canister ID# :	2474918	Test Start :	04/22/2016 @ 12:30
Canister Type :	Charcoal Canister 3 inch	Test Stop :	04/25/2016 @ 12:35
Location :	Basement--NW--#5374-04	Received:	04/26/2016 @ 11:22
Radon Level :	4.5 pCi/L	Analyzed:	04/28/2016 @ 10:48
Error for Measurement is: ±	0.3 pCi/L		

Canister ID# :	2474924	Test Start :	04/22/2016 @ 12:47
Canister Type :	Charcoal Canister 3 inch	Test Stop :	04/25/2016 @ 12:41
Location :	2nd Fl--W-Bedroom--#5374-10	Received:	04/26/2016 @ 11:22
Radon Level :	1.8 pCi/L	Analyzed:	04/28/2016 @ 11:37
Error for Measurement is: ±	0.3 pCi/L		

Canister ID# :	2474929	Test Start :	04/22/2016 @ 12:49
Canister Type :	Charcoal Canister 3 inch	Test Stop :	04/25/2016 @ 12:42
Location :	2nd Fl--E-Bedroom--#5374-11	Received:	04/26/2016 @ 11:22
Radon Level :	1.1 pCi/L	Analyzed:	04/28/2016 @ 11:37
Error for Measurement is: ±	0.2 pCi/L		

National Radon Safety Board NRSB Certified Radon Professionals

Andreas C. George
Radon Measurement Specialist
NJ MES 11089

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Laboratory Director

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PC1604260021

RTCA RADON TESTING CORPORATION OF AMERICA

Site Radon Inspection Report

Date : 04/26/2016

Mr. Rick Pezzino
ACCU-VIEW PROPERTY INSP.
P.O. Box 641
Buffalo, NY 14051-

Client: Unknown

Test Location: 5374 Robert Avenue
Lewiston, NY 14092-

Individual Canister Results

The results indicate that at least one testing device registered at or above the United States Environmental Protection Agency (EPA) action level of 4.0 picoCuries per liter of air (pCi/L). The EPA recommends mitigation if the average of two short-term tests taken in the lowest level of the building suitable for occupancy show radon levels that are equal to or greater than 4.0 pCi/L.

For information on how to reduce radon levels in your home, please review the EPA booklet: Consumer's Guide to Radon Reduction (www.epa.gov/radon/pdfs/consguid.pdf) and contact your state health department. The EPA maintains a radon information website, including copies of its publications, at www.epa.gov/iaq/radon.

For New Jersey clients: Please see the attached guidance document entitled Radon Testing and Mitigation: The Basics for further information.

For New York clients: If the radon level of one or more testing devices is equal to or exceeds 20 pCi/L please contact the New York State Department of Health, Bureau of Environmental Radiation Protection, for technical advice and assistance at 518-402-7556 or toll free1-800-458-1158.

PLEDGE OF ASSURED QUALITY

All procedures used for generating this report are in complete accordance with the current EPA protocols for the analysis of radon in air (EPA 402-R-92-004). The analytical results relate only to the samples tested, in the condition received by the lab, and that calculations were based upon the information suppiled by client. RTCA and its personnel do not assume responsibility or liability, collectively and individually, for analysis results when detectors have been improperly handled or placed by the consumer, nor does RTCA and its personnel accept responsibility for any financial or health consequences of subsequent action or lack of action, taken by the customer or it's consultants based on RTCA-provided results.

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August 2016 HTC Area 5 Residential Home Radon Sampling Results Post Radon Mitigation System Installation

RTCA RADON TESTING CORPORATION OF AMERICA

PC1608050104

Site Radon Inspection Report

Date : 08/05/2016

Mr. Rick Pezzino
ACCU-VIEW PROPERTY INSP.
P.O. Box 641
Buffalo, NY 14051-

Client: Unknown

Test Location: 5374 Roberts Avenue
Lewiston, NY 14092-

Individual Canister Results

Canister ID# :	2474818	Test Start :	08/01/2016 @ 12:09
Canister Type :	Charcoal Canister 3 inch	Test Stop :	08/04/2016 @ 11:41
Location :	BLANK-Office	Received:	08/05/2016 @ 12:04
Radon Level :	**0.1 pCi/L**	Analyzed:	08/05/2016 @ 17:36

Error for Measurement is: ± 0.6 pCi/L

Canister ID# :	2474890	Test Start :	08/01/2016 @ 11:58
Canister Type :	Charcoal Canister 3 inch	Test Stop :	08/04/2016 @ 11:36
Location :	Basement-SE/Laundry	Received:	08/05/2016 @ 12:04
Radon Level :	**1.8 pCi/L**	Analyzed:	08/05/2016 @ 17:36

Error for Measurement is: ± 0.2 pCi/L

Canister ID# :	2474895	Test Start :	08/01/2016 @ 11:50
Canister Type :	Charcoal Canister 3 inch	Test Stop :	08/04/2016 @ 11:31
Location :	Basement-Sump Pump	Received:	08/05/2016 @ 12:04
Radon Level :	**2.0 pCi/L**	Analyzed:	08/05/2016 @ 17:36

Error for Measurement is: ± 0.3 pCi/L

Canister ID# :	2474902	Test Start :	08/01/2016 @ 12:06
Canister Type :	Charcoal Canister 3 inch	Test Stop :	08/04/2016 @ 11:39
Location :	1st Fl-Foyer	Received:	08/05/2016 @ 12:04
Radon Level :	**0.2 pCi/L**	Analyzed:	08/05/2016 @ 17:36

Error for Measurement is: ± 0.2 pCi/L

Canister ID# :	2474912	Test Start :	08/01/2016 @ 12:07
Canister Type :	Charcoal Canister 3 inch	Test Stop :	08/04/2016 @ 11:39
Location :	1st Fl-East/TV	Received:	08/05/2016 @ 12:04
Radon Level :	**0.2 pCi/L**	Analyzed:	08/05/2016 @ 17:36

Error for Measurement is: ± 0.2 pCi/L

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PC1608050104

RTCA RADON TESTING CORPORATION OF AMERICA

Site Radon Inspection Report

Date : 08/05/2016

Canister ID# :	2482386	Test Start :	08/01/2016 @ 12:01
Canister Type :	Charcoal Canister 3 inch	Test Stop :	08/04/2016 @ 11:36
Location :	Basement-NW-Storage	Received:	08/05/2016 @ 12:04
Radon Level :	**1.6 pCi/L**	Analyzed:	08/05/2016 @ 17:54

Error for Measurement is: ± 0.2 pCi/L

Canister ID# :	2482442	Test Start :	08/01/2016 @ 12:09
Canister Type :	Charcoal Canister 3 inch	Test Stop :	08/04/2016 @ 11:41
Location :	1st Fl-Office	Received:	08/05/2016 @ 12:04
Radon Level :	**0.2 pCi/L**	Analyzed:	08/05/2016 @ 17:54

Error for Measurement is: ± 0.2 pCi/L

Canister ID# :	2474914	Test Start :	08/01/2016 @ 11:54
Canister Type :	Charcoal Canister 3 inch	Test Stop :	08/04/2016 @ 11:33
Location :	Basement-West/Chimney	Received:	08/05/2016 @ 12:04
Radon Level :	**1.7 pCi/L**	Analyzed:	08/05/2016 @ 17:36

Error for Measurement is: ± 0.2 pCi/L

Canister ID# :	2474927	Test Start :	08/01/2016 @ 12:11
Canister Type :	Charcoal Canister 3 inch	Test Stop :	08/04/2016 @ 11:42
Location :	1st Fl-Bedroom/TV	Received:	08/05/2016 @ 12:04
Radon Level :	**0.2 pCi/L**	Analyzed:	08/05/2016 @ 17:36

Error for Measurement is: ± 0.3 pCi/L

The reported results indicate that radon levels in the building are below the United States Environmental Protection Agency (EPA) action level of 4.0 picoCuries per liter of air (pCi/L). The EPA recommends retesting if your living patterns change and you begin occupying a lower level of the building, such as a basement or if major remodeling is done.

General radon information may be obtained by consulting the EPA booklet: A Citizen's Guide to Radon (www.epa.gov/radon/pubs/citguide.html). To request a copy or for further information, please contact your state health department. The EPA maintains a radon information website, including copies of its publications, at www.epa.gov/iaq/radon.

For New Jersey clients: Please see the attached guidance document entitled Radon Testing and Mitigation: The Basics for further information.

For New York clients: If the radon level of one or more testing devices is equal to or exceeds 20 pCi/L please contact the New York State Department of Health, Bureau of Environmental Radiation Protection, for technical advice and assistance at 518-402-7556 or toll free1-800-458-1158.

PLEDGE OF ASSURED QUALITY

All procedures used for generating this report are in complete accordance with the current EPA protocols for the analysis of radon in air (EPA 402-R-92-004). The analytical results relate only to the samples tested, in the condition received by the lab, and that calculations were based upon the information supplied by client. RTCA and its personnel do not assume responsibility or liability, collectively and individually, for analysis results when detectors have been improperly handled or placed by the consumer, nor does RTCA and its personnel accept responsibility for any financial or health consequences of subsequent action or lack of action, taken by the customer or it's consultants based on RTCA-provided results.

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2 Hayes Street, Elmsford, NY 10523

fUNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION II
EDISON, NEW JERSEY 08837

ACTION MEMORANDUM-RV1

DATE:

SUBJECT: Approval and Funding for a Confirmation of Verbal Authorization and 12-Month Exemption for the CERCLA Removal Action at the Holy Trinity Cemetery Site, Lewiston, New York

FROM: Eric M. Daly, On-Scene Coordinator
Response and Prevention Branch

TO: Angela Carpenter, Acting Division Director
Emergency and Remedial Response Division

THRU: Eric Mosher, Chief
Response and Prevention Branch

Site ID: A23M

I. PURPOSE

The purpose of this Action Memorandum is to document the verbal authorization and 12-month exemption for a removal action at the Holy Trinity Cemetery Site (Site) located at Robert Avenue, Lewiston, Niagara County, New York. A verbal authorization was granted on March 24, 2016, by the Emergency and Remedial Response Division (ERRD) Director to initiate a removal action with a project ceiling in the amount of $150,000.00, of which $130,000 was for mitigation contracting.

The removal action was initiated at this Site on April 18, 2016 and was completed on August 28, 2017. The Site posed a threat of release of the contaminants Thorium-232 (Th-232) and Uranium-238 (U-238) into the environment that would impact the health of the public through a variety of pathways, including inhalation from dusts and gases; ingestion from dusts, soils, and water; and direct radiation from external doses (external direct radiation exposure is primarily attributable to gamma radiation with lesser internal exposures attributable to alpha and beta radiation from particulate radioactive material).

The Site meets the criteria for a removal action under the Comprehensive Environmental Response Compensation and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. § 9601-9675, as described in Section 300.415(b)(2) of the National Contingency Plan (NCP), 40 C.F.R. § 300.415(b)(2).

This Site is not on the National Priorities List (NPL), and there are no nationally significant, or precedent-setting issues associated with the Site.

CONCURRENCES Name: Holy Trinity Cemetery Date: 04/05/2019									
Symbol	ERRD-RPB	ERRD-RPB	ERRD-RPB	ERRD-RPB	ERRD-RAB	ORC-NYCSFB	ORC-NYCSB	ERRD-DD	ERRD-AD
Surname	Daly	Hoppe	Mosher	Kodama	Rotola	Ludmer	Lieber	Prince	Carpenter
Date									

II. SITE CONDITIONS AND BACKGROUND

The Superfund Enterprise Management System (SEMS) identification number for this Site is NYN000206698. The proposed removal action is considered "time-critical".

A. Site Description

The Site consists of multiple areas of observed radioactive contaminated soil/rock at the property owned by Holy Trinity Cemetery as well as a single-family residential home located west of the Holy Trinity Cemetery property. (See Attachment A).

1. Removal Site Evaluation (RSE)

In a 1978 U.S. Department of Energy (U.S. DOE) aerial radiological survey, multiple properties throughout Niagara Falls County were identified as having elevated levels of radiation above background. In February 1980, the NYSDOH Bureau of Radiological Health and the Niagara County Department of Health (NCDOH) conducted a radiological survey of the Site to identify areas of elevated radioactivity because of radioactive slag having been used on the property for fill. The survey was conducted based on information that the slag used at the cemetery was from the same source used at two other locations in nearby Niagara Falls, which had been identified by the NYSDOH as containing elevated levels of radioactivity. The NYSDEC and NYSDOH referred the Site to EPA on July 21, 2013 for further assessment.

~~In 1978, the U.S. Department of Energy (DOE) conducted an aerial radiological survey of the Niagara Falls region and found more than 15 properties, including the Site, having elevated levels of radiation above background levels. Beginning in September 2006 through July 2013, New York State Department of Environmental Conservation (NYSDEC) and New York State Department of Health (NYSDOH) conducted radiological surveys of the interior and exterior of the Site. The Site was referred to the U.S. Environmental Protection Agency (EPA) by the NYSDEC and the NYSDOH on July 21, 2013 to assess the Site for a potential CERCLA response action.~~

In December 2013, the EPA Region 2 Pre-Remedial Section (PRS) initiated a preliminary assessment (PA) and site inspection (SI) to assess whether the Site posed a threat to human health and the environment.

On December 12-13, 2013 EPA PRS and EPA contractor (Weston Solutions, Inc.) personnel conducted radiological surveys of the exterior of the Site and confirmed previous work performed by NYSDEC and NYSDOH. To quantify the contamination identified, a total of 14 soil samples (including one environmental duplicate sample) were collected from 13 boreholes throughout the main footprint of the Site using hollow-stem auger drilling methods. Two soil samples were collected on the property to document background conditions. Per the PRS Pre-Remedial Assessment Report, the maximum concentrations for the radionuclides of interest were 358 pCi/g for Th-232 (Sample: SG01), 303 pCi/g for Ra-228 (Sample: SG01), 287 pCi/g for U-238 (Sample: SG01), and 360 pCi/g for Ra-226 (Sample: SG01) from slag samples. (See Appendix A-Attachment C, Figure 1). For this RSE, EPA ERT Health Physicist conservatively used the highest analytical results of the progenies within each decay chain (i.e. U-238 and Th-232) to assign the maximum concentration for the parent radionuclide. For example, the highest concentration value of U-238 for the PRG calculation was represented by the progeny Th-230 result from the 2013 EPA PRS data (Th-230 at 461 pCi/g; Sample: SG01). (See Attachment C, Figure 1).

~~EPA conducted radiological surveys of the exterior of both parcels and confirmed previous work performed by NYSDEC and NYSDOH. To quantify the contamination identified, a total of 14 soil samples (including one environmental duplicate sample) were collected from 13 boreholes throughout the main footprint of the Site using hollow-stem auger drilling methods. Two soil samples were~~

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~~collected on the property to document background conditions. Per the PRS Pre-Remedial Assessment Report, the maximum concentration of the radionuclides of concern were Th-232 at 358 picocuries per gram (pCi/g) (Sample: SG01), Ra-228 at 303 pCi/g (Sample: SG01), U-238 at 287 pCi/g (Sample: SG01), and Ra-226 at 360 pCi/g (Sample: SG01) from slag samples. (See Attachment C, Figure 1).~~

Based on the PA and SI results, a Hazardous Ranking System (HRS) score was calculated. The calculated HRS score for the Site was less than 28.5 and, as a result, the Site did not qualify for the NPL. The Site was referred to the ERRD Removal Action Branch (RAB) for a determination as to whether the Site warranted a CERCLA removal action.

The RAB and an EPA Region 2 risk assessor utilized the PRS data site files, which included a Pre-CERCLIS ~~Pre-Remedial Data Site files, which included a Pre-Comprehensive Environmental Response, Compensation and Liability Information System~~ Screening Form for the Site, as well as historic city directories, Sanborn maps, and analytical data collected ~~from~~ for the Site, to conduct a preliminary RSE. In addition, an internet search for historic articles, maps, and photographs was conducted, and historic aerial photographs and online Erie County property records were reviewed. In June 2015, RAB and the EPA Region 2 risk assessor determined that conditions at the Site appeared to meet the requirements of Section 300.425(b)(2) of the of the National Contingency Plan (NCP) for the undertaking of a CERCLA removal action. Further assessment of the Site was requested.

In August 2015, EPA Region 2 ERRD ~~Removal~~ Response and Prevention Branch (RPB) On-Scene Coordinator (OSC), EPA Environmental Response Team (ERT) Health Physicist, and Weston Solutions (Removal Support Team) conducted further radiological assessment of the interior of the chapel/ maintenance building and exterior of the property. The goal for this assessment was to determine the extent of contamination outside of the previously assessed areas and determine the interior contamination impacts. The outside areas of gamma-contaminated material were verified, and the perimeter ~~identified~~identified (See Attachments B and C). There were no elevated gamma or radon levels detected in the chapel/maintenance building.~~. There were no elevated gamma or radon levels in the HTC chapel/maintenance building.~~

During the August 2015 assessment, EPA advanced eight (8) boreholes using hollow-stem auger drilling methods and collected a total of nine (9) soil samples including one environmental duplicate sample (See Attachment C, Figure 1). One sampling point was from a low gamma surveyed area of the property which was used as a background location during the PRS Pre-Remedial Assessment. Although the primary goal of this soil sampling effort was to gain an understanding of the perimeter and depth of the contaminated areas, three sample points were excavated from areas that exhibited elevated gamma readings.
In Area 1, the maximum concentrations of the radionuclides of interest for this round of sampling (See Appendix A-Attachment C, Figure 1) were Th-232 at 31.6 pCi/g (Sample: H001-SS008-0012-01), Ra-228 at 65.3 pCi/g (Sample: H001-SS008-0012-01; Ac-228 lab results were used for quantifying Ra-228), U-238 at 13 pCi/g (Sample: H001-SS008-0012-01), and Ra-226 at 77.7 pCi/g (Sample: H001-SS003-0012-01). The extent of depth of contamination was determined to be at two-foot depths. The majority of elevated radiological concentrations were in the slag layer located in the first foot depth of the exterior surface.

~~In Area 1, the maximum concentration of the radionuclides of concern for this round of sampling were Thorium-232 (Th-232) at 31.6 pCi/g (Sample: H001-SS008-0012-01), Actinium-228 (Ac-228) at 65.3 pCi/g (Sample: H001-SS008-0012-01), Radium-228 (Ra-228) at 65.3 pCi/g (Sample: H001-SS008-0012-01), Uranium (U-238) at 13 pCi/g (Sample: H001-SS008-0012-01), and Radium-226 (Ra-226) at 77.7 pCi/g (Sample: H001-SS003-0012-01). (See Attachment C, Figure 1). The extent of depth of contamination was determined to be at a two-foot depth where majority of elevated exposure rates was due to the slag located in the first foot depth of the exterior surface.~~

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The second elevated gamma area sampled during the August 2015 event was in Area 2 (See Attachment B). The maximum concentration of the radionuclides of concern for Sample H001-SS002-0012-01 were Th-232 at 0.801 pCi/g, Ra-228 at 0.55 pCi/g, U-238 at 21.6 pCi/g, and Ra-226 at 35.5 pCi/g. (See Attachment C, Figure 1).

In addition to exterior samples, interior swipe samples were collected inside the chapel/maintenance/apartment building to determine if there was any radiological contamination being tracked into the structure. No contamination was found inside the structure. ~~areas of the HTC building to determine if elevated readings were due to contamination being tracked into the structure. No contamination was found inside the structure.~~

On March 08, 2016, a RPB OSC was assigned to the Site in order to determine the removal eligibility through the collection of additional field data. The assessment utilized EPA's Preliminary Remediation Goals (PRG) Calculator and the calculations were performed by the EPA ERT Health Physicist. Site specific high concentration soil data (Attachment D) was used to assess both public /cemetery patrons and the cemetery outdoor worker (Attachments E and F) risk. Based on the risk calculations, equilibriums, and the concentrations found at the Site, the contaminants of concern were identified as Th-232 and U-238. A removal action was warranted since both Th-232 and U-238 values are outside of EPA's acceptable risk range of 10^{-6} to 10^{-4} with the greatest risk given to the outdoor worker.

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Due to the assessment information collected, the risk calculated, and the removal action determination, the Emergency and Remedial Response Division (ERRD) Director granted a verbal authorization for $150,000 total project ceiling for a removal action at the Site on March 24, 2016. ~~In March 2016, OSC and EPA ERT Health Physicist compiled the assessment data and utilized EPA's Preliminary Remediation Goals (PRG) Calculator to determine risk. PRG calculation results indicated that the Site warranted a CERCLA removal action due to the Site contamination levels exceeding the cancer risk of 10^{-4} (i.e. 1 in 10,000 of cancer). (See Attachments E & F). The Site was determined to be removal eligible and on March 24, 2016, ERRD Director granted a verbal authorization for $150,000 total project ceiling for a removal action.~~ The primary purpose of this verbal authorization was to stabilize the Site and further assess the extent of contamination.

During this time, EPA was approached by a Robert Avenue resident (Parcel #: 115.15-1-20/Area 5/Attachment B) located directly across from the 2.91-acre area of concern of HTC Site (Area 1). The resident indicated that the slag road bed present in that area continued across Robert Avenue onto his property and under his home. It was determined that the assessment of this property be included into the HTC Site. A gamma survey of the interior of the home and external property was conducted with no elevated readings above background observed. Radon sampling was conducted throughout the home and the radon laboratory results indicated that all radon levels in the residential home basement tested were above the EPA action level of 4.0 picocuries per Liter (pCi/L). The highest result being 11.2 pCi/L (See Appendix G). An immediate mitigation action was recommended to be included with the verbal removal action.

To determine if contamination levels exceed the cancer risk of 10^{-4} (i.e. 1 in 10,000 of cancer), a risk assessment was performed. EPA's PRG Calculator was created to help calculate risk for various receptors at the Site, taking into consideration exposures from all potential pathways and through all media (e.g., soil, ground water, surface water, sediment, air, structures, etc.). For HTC, the most conservative receptor used to calculate risk was an outdoor worker scenario performing daily duties including burial and lawn maintenance activities. The total risk of the site without removal of the contaminated material was determined to be 2.43×10^{-2} where the risk contribution of Th-232 is 1.26×10^{-2} and U-238 is 1.19×10^{-2}. The total risk at HTC exceeds EPA's acceptable risk range of 10^{-4} to 10^{-6}.

Concepts

Elements within the periodic table are comprised of both unstable and stable forms. Unstable elements are known as "radionuclides," and give off radiation in the form of a wave (i.e. gamma radiation) or particle (e.g. alpha radiation or beta radiation) to become more stable. The time in which radionuclides becomes stable can range from seconds to billions of years. Long-lived radionuclides, such as Thorium and Uranium, have always been present within the Earth's crust and within the tissues of all living species. Material that contain radionuclides in natural form is known as Naturally Occurring Radioactive Materials, or commonly referred to as "NORM" and contribute to background radiation levels. Examples of NORM include sands, clays and soils, rocks, coal, groundwater, oil and gas, as well as, metal ores and non-metal minerals.

Many radionuclides within NORM may become concentrated or exposed to the accessible environment as a result of human activities such as manufacturing, mineral extraction, or water processing. This is known as Technically Enhanced Radioactive Material or "TENORM." EPA has described TENORM as any:

"radiological, physical, and chemical properties of the radioactive material have been concentrated or further altered by having been processed, or beneficiated, or disturbed in a way that increases the potential for human and/or environmental exposures."

When companies began extracting precious metal and/or rare earths material from ore, companies had little suspicion that the principal minerals being mined or processed would result in TENORM in the waste and/or product of the material being extracted. As a result, radioactive waste at mines and mineral processing/manufacturing facilities was often regarded as non-hazardous material and were disposed improperly. The majority of companies saw opportunities to recycle waste to businesses within their area as fill dirt for projects including road construction and parking lots. The Site is one location where contaminated fill dirt was used to construct the parking lot.

Terminology

To evaluate land and/or buildings potentially contaminated with radioactive materials, a variety of instrumentation must be used. When performing a scoping survey, the extent of contamination (i.e. how widespread is the contamination on the Site), as well as, the intensity of radiation (i.e. which areas/locations contribute to the greatest risk or dose) must be identified. Hand held and portable equipment such as a sodium iodide detectors, Geiger Mueller counter, proportional detectors, and/or ion chambers may be used as a field equipment to determine the extent of contamination and/or dose or exposure rates due to gamma radiation. In general, most of these pieces of equipment are used qualitatively and compared to background readings to determine the extent and intensity of contamination, in addition to, answering if further investigation is needed. Examples of units used for qualitative measurements at the Site include counts per minute (cpm) for contamination, micro-Roetgen per hour (µR/hr) for exposure rate, or millirem per hour (mrem/hr) for dose rate measurements.

In most cases, the equipment used to collect qualitative measurements may not give an accurate or precise quantity of contamination due to poor efficiencies for specific radionuclides, poor geometries due to the instrumentation setup, and fast counting time. Qualitative measurements should always be paired with quantitative data when characterizing a Site contaminated with radioactive materials. Quantitative data can be used to verify or correlate the qualitative instrumentation reading to quantitative soil sampling. This is commonly referred to as "ground truthing". Examples of quantitative measurements are samples, such as air, water, sediment, soil,

and/or vegetation, taken from areas of known or suspected contamination and analyzed by a laboratory. The units for quantitative measurements are in units of picoCuries per gram (pCi/g). For the Site cleanup, only quantitative measurements are used to give definitive results and to verify cleanup has been completed.

Risk Calculation

Since removal actions are not a part of the remedial program, removal is not mandated to meet the risk requirements of 10^{-4} to 10^{-6} for site cleanups. However, in recent years, EPA has encouraged removal cleanups to meet, at a minimum, the remedial cleanup values associated with the 10^{-4} carcinogenic risk based on the reasonable maximum exposure for an individual. To determine if contamination levels exceed the cancer risk of 10^{-4} (i.e. 1 in 10,000 of cancer), a risk assessment must be performed. EPA's Preliminary Remediation Goal (PRG) Calculator was created to help calculate risk vs. cleanup levels for various receptors taking into consideration exposures from all potential pathways, and through all media (e.g., soil, ground water, surface water, sediment, air, structures, etc.).

2. Physical Location

The main addresses associated with the Holy Trinity Cemetery Site are 5401 Robert Avenue, Lewiston, Niagara County, NY 14092 (Areas 1, 2, 3, 4 & 8) and 5374 Robert Avenue, Lewiston, Niagara County, NY 14092 (Area 5), Latitude: 43.149668°; Longitude: -79.032245°. (See Attachment A).

The Site is comprised of two parcels. Specifically, 115.00-1-7 and 115.15-1-20. Within 0.5 mile of the Site there is the Our Lady of Peace Nursing Home, Mount St. Mary's Child Care Center, and Mount St. Mary's Hospital. Water bodies located between 0.5-1.0 miles of the Site are the Niagara River (West), Ontario Hydro Reservoir (West) Power Reservoir (East), and the Fish Creek (North). Lewiston, NY population is approximately 15,964.

3. Site Characteristics

The Site (EPA ID No. NYN000206698) consists of two parcels. The main part of the Site (Parcel #: 115.00-1-7) is located at a cemetery of approximately 39.2 acres in Lewiston, NY. The property is owned by Holy Trinity Cemetery. The main area of observed contamination is approximately 4.21 acres and is located in the northernmost portion of the property. The contamination is located along two undeveloped roadways on a relatively flat and slightly elevated grassy field and has been designated as Area 1 (See Appendix A-Attachment A). There are other concentrated areas of contamination identified on the Holy Trinity Cemetery property. There are piles of contaminated material and an undeveloped roadway in Area 2, a pile of contaminated material within Area 4, and contamination underneath the developed cemetery roadway designated as Area 9 (See Appendix A-Attachment A). There is one building on the Holy Trinity Cemetery Property, which has been utilized as a residence, chapel, and cemetery maintenance facility (See Appendix A-Attachment A). The second part of the Site outside of the Holy Trinity Cemetery Property boundaries is a single-family residential home (Parcel #: 115.15-1-20) on 0.59 acres designated as Area 5 (See Appendix A-Attachment B). The Site is bordered: to the north and east by Interstate 190; to the south by another cemetery; and to the west by Robert Avenue and a residential area.

~~The Site (EPA ID No. NYN000206698) consists of two parcels. The main part of the Site (Parcel #: 115.00-1-7) is located at a cemetery of approximately 39.2 acres in Lewiston, NY. The area of observed contamination is 4.21 acres; the property is owned by Holy Trinity Cemetery. The main area of observed contamination is in the northernmost portion of the property on a relatively flat and slightly elevated grassy field. There are other concentrated areas within this property as well as other roadbeds. There is one building on site, which has been utilized as a residence, chapel, and cemetery maintenance facility.~~

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~~The second part of the Site is a single-family residential home (Parcel #: 115.15-1-20) on 0.59 acres. The HTC site is bordered: to the north and east by Interstate 190; to the south by another cemetery; and to the west by Robert Avenue and a residential area.~~

The removal action (RV1) documented in this Action Memorandum will be the first CERCLA removal action undertaken at the Site.

4. Release or threatened release into the environment of a hazardous Substance, or pollutant, or contaminant

The release and threat of release of the contaminants Th-232 and U-238 into the environment may impact the health of the public at the Site through a variety of pathways, including inhalation from dusts and gases; ingestion from dusts, soils, and water; and direct radiation from external doses (external direct radiation exposure is primarily attributable to gamma radiation with lesser internal exposures attributable to alpha and beta radiation from particulate radioactive material). Workers at the cemetery, as well as, adjacent neighbors, patrons, and other members of the public at or near the Site are exposed to contamination via routes of inhalation or dermal contact to loose soils and windblown dust in the parking areas and indoors.

Hazardous Substances Statutory Source for Designation Under CERCLA:

Radiological Substances Identified	Maximum Concentration
Thorium 232 (Th-232)-Daughter: Ra-228	365 pCi/g
Uranium 238 (U-238)-Daughter: Ra-226	461 pCi/g

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Each of the radiological substances listed above are included in 40 CFR 302.4, List of Hazardous Substances and Reportable Quantities, Appendix B – Radionuclides. The statutory source for designating radionuclides as a hazardous substance under Section 102(a) of CERCLA, 42 U.S.C. § 9602(a), is Section 112 of the Clean Air Act, 42 U.S.C. § 7412.

5. National Priorities List status

The Site is not listed on the National Priorities List (NPL) nor is it proposed for inclusion.

6. Maps, Pictures, and Other Attached Documents

Attachment A: Site Maps

Attachment B: Qualitative Gamma Scan Measurements
Attachment C: Soil Sample Locations
Attachment D: Highest Soil Concentrations
Attachment E: Outdoor Worker Preliminary Remediation Goals
Attachment F: Recreator Preliminary Remediation Goals
Attachment G: Indoor Radon Sample Results

B. Other Actions to Date

1. Previous Actions

No previous actions have been taken by any federal, state, or local government entity or private party to address the hazardous substances located at the Site. All federal and State actions to date have been in the form of assessment activities.

2. Current Actions

The actions taken by EPA to mitigate the threats posed by the radioactive contamination are described in Section VI.A.1. This action was initiated on April 18, 2016 and completed on August 28, 2017. EPA expended approximately $83,000 in mitigation cost and $8,000 in technical support costs at the Site to address the radioactive contamination.

B. State and Local Authorities' Role

1. State and Local Actions to Date

In a 1978 U.S. Department of Energy (U.S. DOE) aerial radiological survey, multiple properties throughout the Niagara County Region were identified as having elevated levels of radiation above background. In February 1980, the NYSDOH Bureau of Radiological Health and the NCDOH conducted a radiological survey of the Site to identify areas of elevated radioactivity because of radioactive slag having been used on the property for fill. The survey was conducted based on information that the slag used at the cemetery was from the same source used at two other locations in nearby Niagara Falls, which had been identified by the NYSDOH as containing elevated levels of radioactivity. During the survey, cemetery personnel showed NYSDOH a slag pile located near the caretaker's garage in the western portion of the property. Cemetery personnel stated that this slag was used as fill for the cemetery roads throughout the property.
~~In a 1978, the DOE aerial radiological survey, multiple properties throughout the region were identified as having elevated levels of radiation above background. In February 1980 NYSDOH Bureau of Radiological Health and the Niagara County Health Department conducted a radiological survey of the Holy Trinity Cemetery site to identify areas of elevated radioactivity because of radioactive slag having been used on the property for fill. The survey was conducted based on information that the slag used at the cemetery was from the same source used at two other locations in nearby Niagara Falls, which had been identified by the NYSDOH as containing elevated levels of radioactivity. During the survey, cemetery personnel showed NYSDOH a slag pile located near the caretaker's garage in the western portion of the property. Cemetery personnel stated that this slag was used as fill for the cemetery roads throughout the property.~~

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Additionally, the slag was used as fill for the base of two proposed ~~roadbeds~~ roadways that extended approximately 500 to 600 feet from the caretaker's garage northwest toward Robert Avenue. At the time of the survey, the construction of these roads had been abandoned. The underlying slag base was covered with an unknown amount of soil and was left as an open field. Using an Eberline PRM 7 radiation meter, radioactivity of the slag pile was measured at 250

microroentgens per hour (µR/hr); readings along the developed cemetery roads ranged from 5 µR/hr (i.e., background concentration) to 30 µR/hr. Readings along the undeveloped roadways~~abandoned roadbeds~~ ranged from 200 µR/hr to 400 µR/hr. Samples of the slag were collected as part of the investigation; laboratory analyses of the samples indicated detectable concentrations of Potassium-40, Uranium-235 and Uranium-238, Radium-226, and Thorium-232.

In October 2006, NYSDEC and the NCDOH conducted a Site visit. At that time, the slag pile that previously had been observed near the caretaker's garage was no longer on Site; the current caretaker had neither knowledge of the slag pile, nor what happened to it. The caretaker also indicated that children living nearby use this area for recreation. Since the 1980 NYSDOH site investigation, trees had grown through the undeveloped slag roadway in Area 1, pushing the slag to the surface. As part of the Site visit, NYSDEC conducted a radioactivity survey with an Exploranium GR-135. Readings taken while walking along the Area 1 undeveloped roadways indicated levels of 200–450 µR/hr at waist height and a surface contact reading of 450–570 µR/hr; a contact reading of 700 µR/hr at exposed slag near a tree was documented. NYSDEC collected four samples of the slag; the samples were analyzed for isotopic Uranium and isotopic Thorium and underwent gamma-ray spectroscopy analysis. Laboratory analytical results indicated the presence of Uranium-238/234 ranging from 114 to 1,664 picocuries per gram (pCi/g) and Thorium-232 ranging from 114 to 898 pCi/g.
~~In October 2006, the NYSDEC and the Niagara County Health Department conducted a site visit at HTC. At that time, the slag pile that previously had been observed near the caretaker's garage was no longer on site; the current caretaker had neither knowledge of the slag pile, nor what happened to it. The caretaker also indicated that children living nearby use this area for recreation. Since the 1980 NYSDOH site investigation, trees had grown through the abandoned slag roadbeds, pushing the slag to the surface. As part of the site visit, NYSDEC conducted a radioactivity survey with an Exploranium GR-135. Readings taken while walking along the roadbed indicated levels of 200–450 µR/hr at waist height and a surface contact reading of 450–570 µR/hr; a contact reading of 700 µR/hr at exposed slag near a tree was documented. NYSDEC collected four samples of the slag; the samples were analyzed for isotopic Uranium and isotopic Thorium and underwent gamma-ray spectroscopy analysis. Laboratory analytical results indicated the presence of Uranium-238/234 ranging from 114 to 1,664 pCi/g and Thorium-232 ranging from 114 to 898 pCi/g.~~

In May 2007, NYSDEC visited the site to identify contamination in an on-site debris pile using gamma-ray spectroscopy. A 5-minute static reading was taken; Radium-226 was the only nuclide identified. An additional similar analysis was conducted on one of the Area 1 undeveloped roadways.~~roadbeds,~~ confirming the presence of Thorium-232.

During a July 2013 NYSDOH reconnaissance, screening activities showed elevated radiation levels at the Site along the Area 1 undeveloped roadways and along the Area 2 undeveloped roadway leading to offsite. In Area 1, the radiation levels were up to 51 µR/hr with the pressurized ion chamber (PIC) and up to 50,000 counts per minute (cpm) with the sodium iodide (NaI) 2x2 detector.
~~During a July 2013 NYSDOH reconnaissance, screening activities showed radiation levels at the HTC site along the roadway and along the back roadway leading to offsite with radiation levels up to 51 µR/hr in the roadway with the pressurized ion chamber (PIC) and up to 50,000 counts per minute (cpm) with the sodium iodide (NaI) 2x2 detector.~~

The Site was referred to the EPA by the NYSDEC and NYSDOH on July 21, 2013. No other removal actions have been taken by other government or private parties prior to this request.

2. Potential for Continued State/Local Response

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Neither NYSDEC, NYSDOH, nor the local government have resources available to conduct a removal action at the Site. NYSDEC and NYSDOH referred the Site to EPA on July 21, 2013. These entities will act in a supporting role throughout the removal action.

III. THREATS TO PUBLIC HEALTH, OR WELFARE, OR THE ENVIRONMENT AND STATUTORY AND REGULATORY AUTHORITIES

Conditions at the Site met the requirements of Section 300.415(b)(2) of the NCP, 40 C.F.R. § 300.415(b)(2), for implementing a CERCLA removal action. Factors from Section 300.415(b)(2) of the NCP that supported conducting a removal action at the Site are discussed below.

(i) Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, or pollutants, or contaminants;

The Site contains an active public cemetery with a chapel utilized by patrons and cemetery workers. Patrons and the public moved freely throughout the property including the identified contaminated areas. There are residences located directly across Robert Avenue west of Holy Trinity Cemetery property. Cemetery personnel daily duties included burial and lawn maintenance activities in and around the contaminated areas. These activities and operations expose specific populations to the Th-232 and U-238 contamination. Populations with increased cancer risk due to internal or external exposure to contamination are known as "receptors." Based on the compiled EPA ~~Pre-Remedial~~PRS Assessment and EPA RSE data, the receptors most likely to be exposed to the hazardous substance of radiation at the Site are:

Outdoor workers:

An outdoor worker who is employed full-time could come in contact with the hazardous substances while working on-site conducting outdoor maintenance activities throughout the day. The worker may be exposed long-term to the on-site surface soil contamination during the work day while performing tasks such as moderate digging or landscaping. The outdoor worker could be exposed to the contamination via the following pathways: incidental ingestion of soil, external radiation from contamination in soil, and inhalation of fugitive dust. According to a survey submitted to EPA by Holy Trinity Cemetery, there are multiple outdoor personnel that currently work at the Site.

Indoor workers:

An indoor worker at the chapel building may come in contact with contamination through ingestion of contaminated soils that have been incorporated into indoor dust, external radiation from contamination in soil, and the inhalation of contamination present in indoor air. According to a survey submitted to EPA by Holy Trinity Cemetery, there is one indoor person that works in the chapel at the Site.

Recreators:

A recreator may spend time outside performing recreational activities on the Site. Recreators may come in contact with, or be exposed to, the contamination for short periods of time over a long term. A Recreator would consist of any patrons of the cemetery or local residents. There are also historical accounts and evidence of local residents walking their dogs and mowing cemetery grass in the contaminated locations (Specifically Area 1) for extended periods of time. The survey also indicated that there is an apartment on top of the chapel that was a residence for the groundskeeper family. They maintained a garden in Area 1 of the property. The radiological sampling and survey results in this area showed some of the most elevated levels in the assessments.

Construction workers:

Construction workers may come in contact with or be exposed to contamination short-term during the work day while working around vehicles that suspend dust in the air. Activities such as trenching and excavating typically involve on-site exposures to surface soils. The construction worker could be exposed to contamination via the following pathways: incidental ingestion of soil, external radiation from contamination in soil, and inhalation of fugitive dust.

(ii) Actual or potential contamination of drinking water supplies or sensitive ecosystems;

If the hazardous substances at the Site migrate, the potentially affected water bodies located between 0.5-1.0 miles of the Site are the Niagara River (West), Ontario Hydro Reservoir (West) Power Reservoir (East), and the Fish Creek (North). The radioactive rock/soil is located at the surface in many of the areas at the Site and may migrate to the local water bodies via overland pathway during heavy rains and flooding.

(iv) High levels of hazardous substances or pollutants or contaminants in soils, largely at or near the surface that may migrate;

Th-232 (Daughter: Th-228) has been detected in surface soils at levels as high as 365 pCi/g and U-238 (Daughter: Th-230) has been detected in surface soils at levels as high as 461 pCi/g. The radiologically contaminated soil may migrate through airborne dust, surface runoff, construction activities, and foot traffic into the existing buildings on-site and/or into homes and residential areas. Since Thorium-232 and Uranium-238, as well as their progenies, have a long half-life (i.e. billions of years), it is highly probable that the Site will undergo physical changes before the radiological contaminants on-site will decay to background concentrations. Building demolition and/or construction may result in increased exposures to humans from the contamination becoming suspended or airborne. Specifically, the expansion of the cemetery into these contaminated areas would increase the exposure through excavation as well as patron visits. Residents surrounding the property have been witnessed mowing the lawn in the contaminated areas as well as walking pets within the areas of concern. Weathering and/or animal interaction may also cause contamination to migrate. Public visitors, patrons, and/or trespassers at the Site could cause a fire that could result in the widespread contamination and increased exposure to gamma, and alpha and beta emitting radionuclides.

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(v) Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released;

The radioactive rock/soil is located at the surface in many of the areas at the Site and may migrate to other parts of the Site not fenced off to the workers and public as well as to the neighboring residential property.

(vii) The availability of other appropriate federal or State response mechanisms to respond to the release;

No other federal or state response mechanism were available to respond in a timely manner to the significant threat presented by the Site.

IV. ENDANGERMENT DETERMINATION

The time necessary to implement the proposed action exceeded the 12-month statutory limit for removal actions and required an exemption. The threat to human health or the environment posed by the contamination existing at the Site warranted the continued action thereby requiring a 12-month exemption based on the following factors:

V. EXEMPTION FROM STATUTORY LIMITS

A. Emergency Exemption

1. There was an immediate risk to public health or welfare or the environment.

Continued response activities beyond 12 months were required to complete the necessary removal action to mitigate the threats posed by this Site. Conditions at the Site (Described in Section III of this Action Memo) and the proposed actions meet the criteria for an emergency exemption as specified in Section 104(c) of CERCLA, 42 U.S.C. § 9604(c). The radiological contamination at the Site posed immediate risks to public health and the environment, and continued response activities were required to mitigate the release or threat of release of hazardous substances at the Site.

2. Future response actions are required to eliminate unwarranted risk.

The radioactive materials impacting the Site are Th-232 and U-238. The maximum concentrations of these materials are 365 pCi/g and 461 pCi/g, respectively. Current removal actions have limited access to the contaminated material, but the radionuclides still pose a risk to public health, welfare and the environment. As described above, to achieve the carcinogenic risk value of 10^{-4}, removal activities must continue until the following risk of the site falls within EPA's acceptable risk range. Should an additional removal action (i.e. excavation of contaminated material) not be conducted, the public will continue to be at risk of exposure to unacceptable radiation levels from the Site.

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3. Assistance will not otherwise be provided on a timely basis.

Other federal, state, or local response mechanisms and resources are not available to respond to the release and/or threat of release of hazardous substances, contaminants, or pollutants from the Site in a timely manner. Both the State and local government lack the necessary resources to perform a response at the Site.

VI. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

The purpose of this removal action was to limit the threat of direct contact with the radioactive contaminated material which existed on Site. To minimize these threats, EPA sampled, analyzed, and installed fencing.

The actions stated below were necessary to mitigate the actual and potential risks to human health and the environment associated with the presence of radioactive material at the Site. EPA actions at the Site included the following activities:

1. Proposed Action Description

On July 21, 2013, the Site was referred to EPA by the NYSDEC and the NYSDOH. This was followed by further assessment by EPA PRS and EPA Removal Program. After the evaluation of EPA PRS and EPA Removal Program Data (See Section II, A., 1. of this Action Memo) and utilization of the PRG calculator, the risk was determined to exceed the established regional limits and therefore warranted a removal action (See Attachments E and F).

On March 24, 2016, the ERRD Director verbally authorized funding to initiate a response action at this Site.

On April 25, 2016, the permanent fencing installation around Area 1 (See Attachment B) was completed. This area contains most of the site radiological contaminated material and is located closest to the residential properties along Robert Avenue.

On June 15, 2016, a radon mitigation system was installed in the Area 5 residential home location (See Attachment B) due to levels of radon detected in the basement as high as 11.0 pCi/L (See Attachment G). Post installation radon data indicated the system was working properly and radon readings were below the action level of 4.0 pCi/L (See Attachment G).

On August 28, 2017, the permanent fencing around Areas 2 & 4 (See Attachment B) was completed. Area 2 contained an unfinished road with radiological contaminated material as well as individual piles of radiological contaminated material. Area 4 contained individual piles of radiological contaminated material.

2. Contribution to Remedial Performance

The removal action undertaken at the Site was consistent with the requirement of Section 104(a)(2) of CERCLA, which states, "any removal action undertaken. . . should. . .to the extent practicable, contribute to the efficient performance of any long-term remedial action with respect to the release or the threatened release concerned." The removal action implemented met that requirement. There are no long-term remedial actions planned for the Site.

3. Engineering Evaluation/Cost Analysis (EE/CA)

Due to the time-critical nature of this removal action, an EE/CA will not be prepared.

4. Applicable or Relevant and Appropriate Requirements (ARARs)

It remains EPA's policy that ARARs will generally be considered protective absent multiple contaminants or pathways of exposure. However, in rare situations, EPA Regional offices establish PRGs at levels more protective than required by a given ARAR, even absent multiple pathways or contaminants, where application of the ARAR would not be protective of human health or the environment. It was determined that the Uranium Mill Tailings Radiation Control Act cleanup standard for radiological contamination, a subsurface soil cleanup level of 5 pCi/g, was not sufficiently protective of public health. Site-specific PRG numbers were calculated. The highest risk receptor, a composite worker whose daily duties include indoor and outdoor activities, was used in determining the most conservative value for cleanup levels at the Site.

5. Project Schedule

EPA and its contractors mobilized to the Site on April 18, 2016 and the removal activities addressed in RV1 were completed on August 28, 2017.

B. Estimated Costs

A summary of estimated total costs for the removal action is presented below.

Extramural Costs:	**Total Funding Verbally Authorized March 24, 2016**
Regional Allowance Costs: Total cleanup contractor costs include labor, equipment, materials and laboratory disposal analysis (includes 20% contingency)	$130,000
Other Extramural Costs Not Funded From the Regional Allowance: Technical support (RST)	$20,000
Subtotal, extramural costs	$150,000
Extramural Costs Contingency (10%)	$0
Total Removal Project Ceiling	$150,000

VII. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Given the Site conditions, the nature of the hazardous substances documented on-site, and the potential exposure pathways to nearby populations described in Section III.A., actual or threatened releases of hazardous substances from the Site, if not addressed by implementing the response action described in this Action Memorandum, may present an imminent and substantial endangerment to public health or welfare or the environment.

VIII. OUTSTANDING POLICY ISSUES

There are no known outstanding policy issues associated with this Site at the present time. While there is a Headquarters consultation process in place for sites where radioactive contamination is present (Headquarters Consultation for Radioactively Contaminated Sites, OSWER No. 9200.1-33P, July 26, 2000), this consultation requirement applies only to sites where radioactive material will be managed on-site (e.g. capping, disposal cells) or where there is a potential national precedent-setting issue related to the radioactive materials. In this instance, the radioactive materials will not be managed in place and there is no potential national precedent-setting issue related to the radioactive materials. Therefore, Headquarters consultation is not required.

IX. ENFORCEMENT

EPA has conducted a preliminary Potentially Responsible Party (PRP) search for the Site. The OSC will work

with the Removal Action Branch enforcement staff and the Office of Regional Counsel in an attempt to locate all viable PRPs to recover costs associated with this removal action.

Based on full cost accounting practices, the total EP A costs for this removal action that will be eligible for cost recovery are estimated to be $150,000. The following chart describes the costs which EP A believes are eligible for cost recovery as part of this response action.

Cost Type	Total Funding Requested in this Memorandum
Direct Extramural Cost	$150,000
Direct Intramural Cost	$125,000
Subtotal, Direct Cost	$275,000
Indirect Costs (Regional Indirect Cost Rate 44.1%)	$121,275
Estimated EPA Costs Eligible for Cost Recovery	**$396,275**

Note: Direct Costs include direct extramural costs and direct intramural costs. Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site-specific direct costs, consistent with the full cost accounting methodology effective October 2, 2000. These estimates do not include pre-judgment interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of a removal action. The estimates are for illustrative purposes only and their use is not intended to create any rights for responsible parties. Neither the lack of a total cost estimate nor deviation of actual total costs from this estimate will affect the United States' right to cost recovery.

X. RECOMMENDATION

This decision document represents the selected removal action for the Holy Trinity Cemetery Site located in Lewiston, Niagara County, New York. This document has been developed in accordance with CERCLA and is not inconsistent with the NCP. This decision is based on the administrative record for the Site.

Conditions at the Site met the NCP Section 300.415(b) criteria for a removal action and I recommend your approval of the proposed removal action and waiver of the 12-month limitation. The verbal authorization was

granted by the ERRD Director on March 24, 2016, in the amount of a $150,000.00, of which $130,000.00 was for mitigation contracting and $20,000.00 in RST contractor funding. Site work was initiated on April 18, 2016 and was completed on August 28, 2017. There were sufficient monies in the Regional removal advice of allowance to fund this project.

Please indicate your formal approval of the verbal authorizations granted for the emergency removal action at the Holy Trinity Cemetery Site, as per current Delegation of Authority, by signing below.

Approved: _____ **Date:** _____
Angela B. Carpenter, Acting Director
Emergency and Remedial Response Division

Disapproved: _____ **Date:** _____
Angela B. Carpenter, Acting Director
Emergency and Remedial Response Division

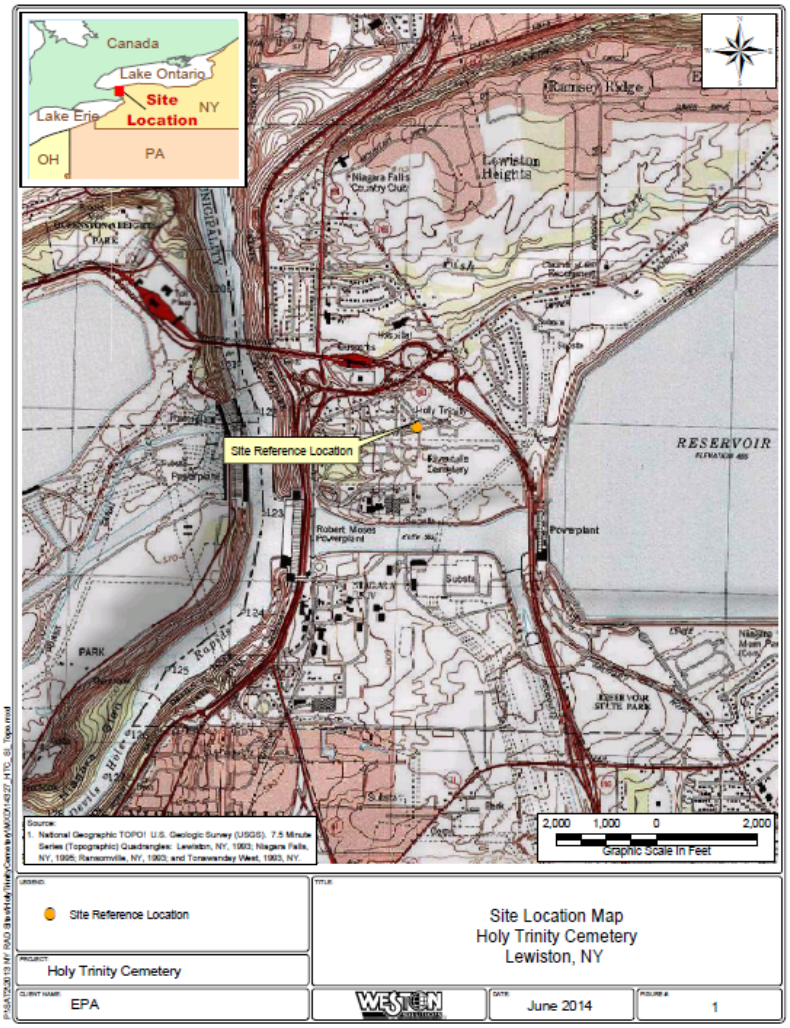
cc: P. Lopez, RA
W. Mugdan, DRA
A. Carpenter, ERRD-D
J. Prince, ERRD-DD
E. Mosher, ERRD-RPB
J. Rotola, ERRD-RAB
S. Hoppe, ERRD-RPB
B. Grealish, ERRD-RAB
T. Lieber, ORC-NYCSFB
M. Ludmer, ORC-NYCSFB
M. Mears, PAD
H. Freeman, OPM-GCMB
M. Fiore, OIG
B. Schlieger, 5104A
T. Benton, RST
M. Franklin, NYSDEC
A. Raddant, USDOI
L. Rosman, NOAA

DO NOT PLACE IN ADMINISTRATIVE RECORD
DO NOT RELEASE TO THE PUBLIC

Confidential Enforcement Addendum

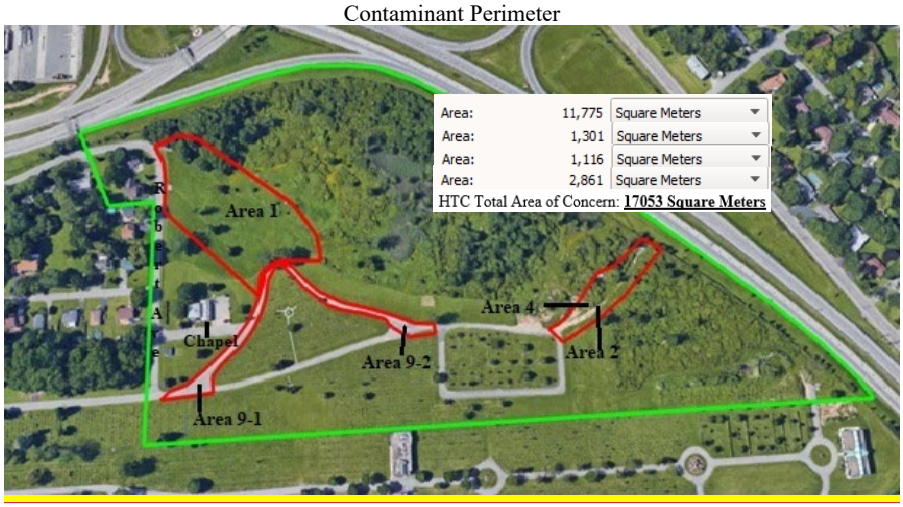
Attachment A

Site Location Map



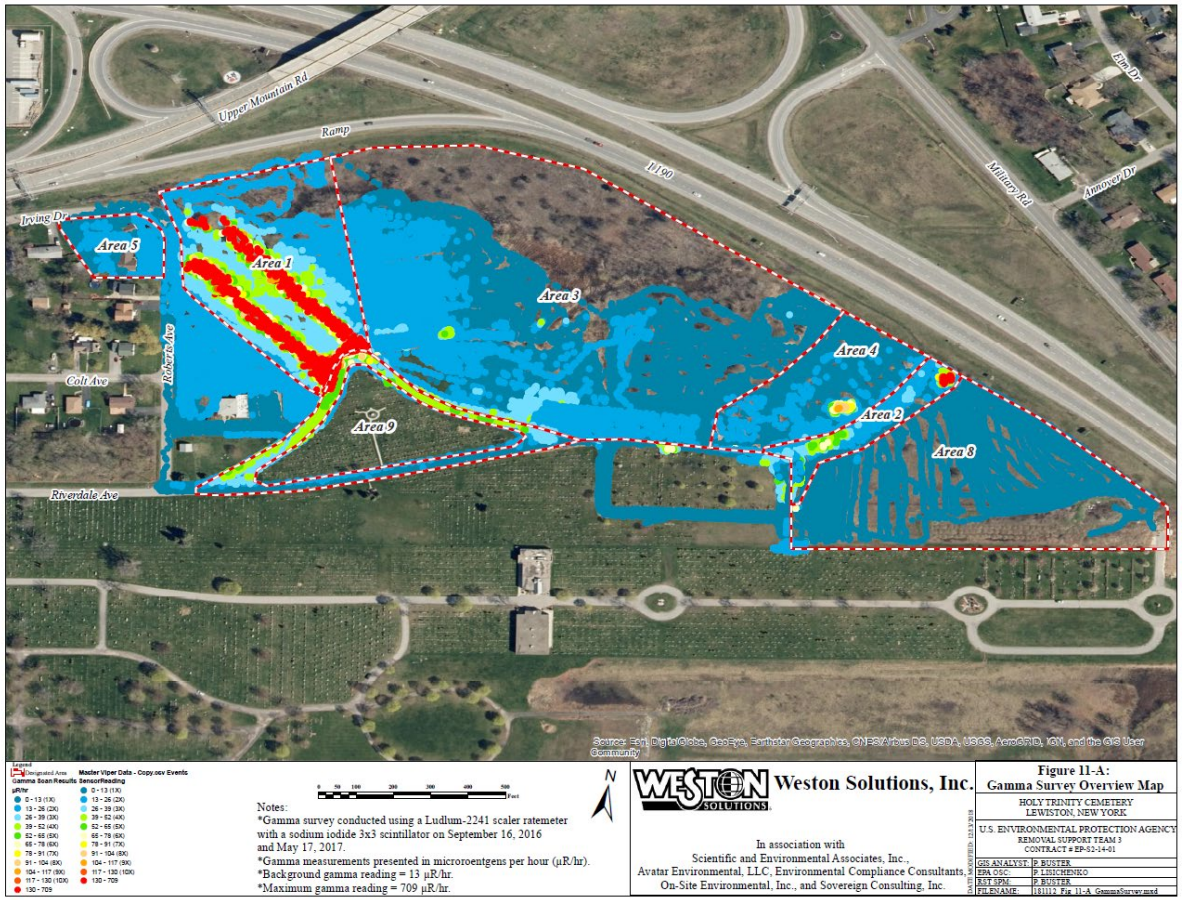
Site Perimeter with Area

Contaminant Perimeter



Attachment B

Qualitative Gamma Scan Measurements using 3” x 3” Sodium Iodide (NaI) Detector



Legend
Designated Area
Gamma Scan Results µR/hr
0 - 13 (1X)
13 - 26 (2X)
26 - 39 (3X)
39 - 52 (4X)
52 - 65 (5X)
65 - 78 (6X)
78 - 91 (7X)
91 - 104 (8X)
104 - 117 (9X)
117 - 130 (10X)
130 - 709
Master Viper Data - Copy.ocv Events
SensorReading
0 - 13 (1X)
13 - 26 (2X)
26 - 39 (3X)
39 - 52 (4X)
52 - 65 (5X)
65 - 78 (6X)
78 - 91 (7X)
91 - 104 (8X)
104 - 117 (9X)
117 - 130 (10X)
130 - 709

0 50 100 200 300 400 500 Feet

Notes:
*Gamma survey conducted using a Ludlum-2241 scaler ratemeter with a sodium iodide 3x3 scintillator on September 16, 2016 and May 17, 2017.
*Gamma measurements presented in microroentgens per hour (µR/hr).
*Background gamma reading = 13 µR/hr.
*Maximum gamma reading = 709 µR/hr.

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WESTON SOLUTIONS Weston Solutions, Inc.

In association with
Scientific and Environmental Associates, Inc.,
Avatar Environmental, LLC, Environmental Compliance Consultants,
On-Site Environmental, Inc., and Sovereign Consulting, Inc.

Figure 11-A:
Gamma Survey Overview Map

HOLY TRINITY CEMETERY
LEWISTON, NEW YORK

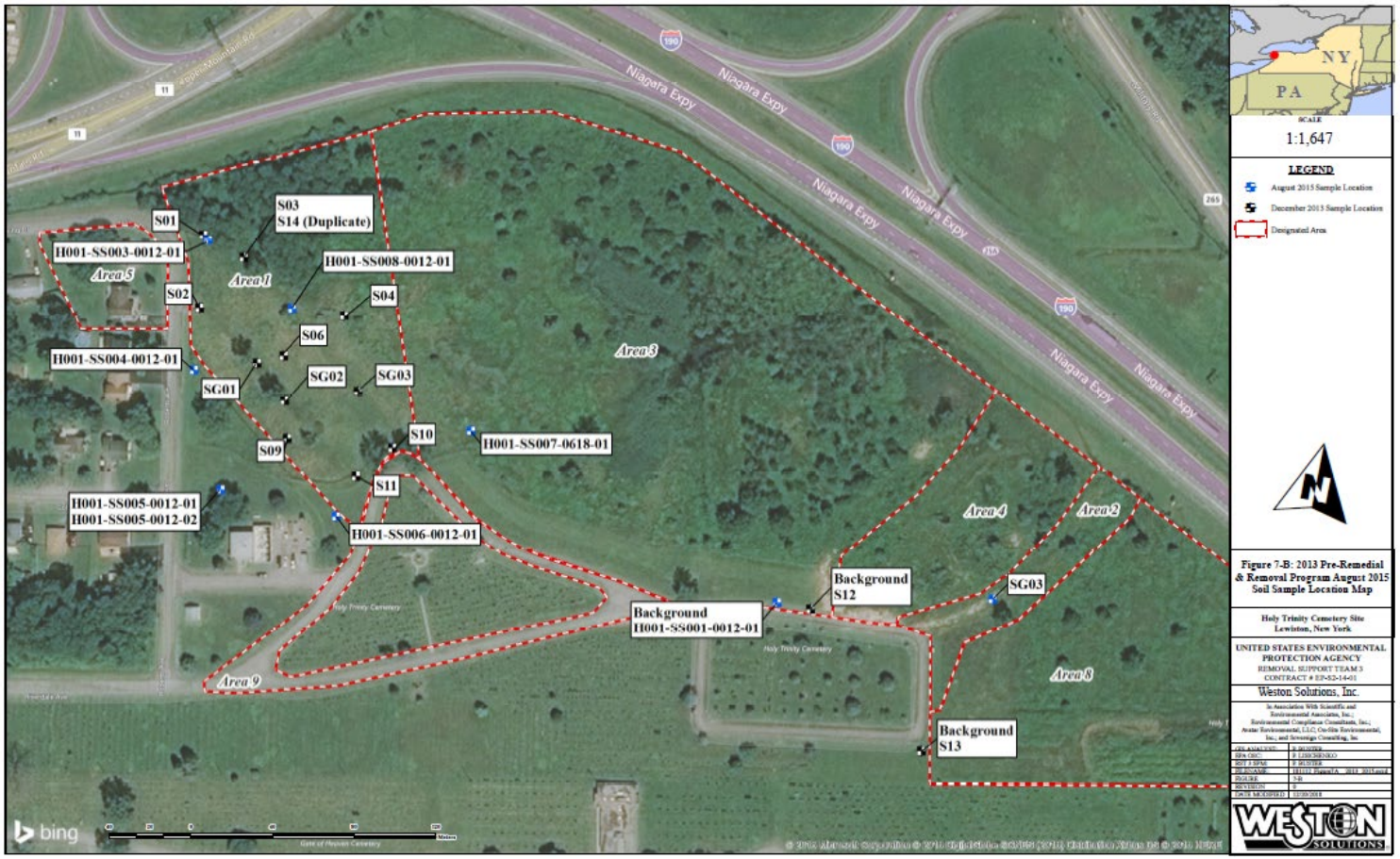
U.S. ENVIRONMENTAL PROTECTION AGENCY
REMOVAL SUPPORT TEAM 3
CONTRACT # EP-S2-14-01

GIS ANALYST:	P. BUSTER
EPA OSC:	P. LISICHENKO
RST SPM:	P. BUSTER
FILENAME:	181112_Fig_11-A_GammaSurvey.mxd

DATE MODIFIED: 12/13/2018

Attachment C

Figure 1-Soil Sample Locations from 2013 & 2015



Attachment D

Highest Soil Sample Concentrations

Radioisotope	Analytical Data pCi/g
Actinium-228 (Ac-228)	65.3
Bismuth-210 (Bi-210)	20
Bismuth-212 (Bi-212)	72.4
Bismuth-214 (Bi-214)	78.1
Cesium-137 (Cs-137)	0.31
Lead-210 (Pb-210)	25
Lead-212 (Pb-212)	66.9
Lead-214 (Pb-214)	79
Potassium-40 (K-40)	19.9
Protactinium (Pa-234)	0
Radium-224 (Ra-224)	0
Radium-226* (Ra-226)	360
Radium-228 (Ra-228)	303
Thallium-208 (Tl-208)	23.2
Thorium-228 (Th-228)	365.0
Thorium-230 (Th-230)	461
Thorium-232 Th-232)	358
Thorium-234 (Th-234)	62.9
Uranium-233/234 (U-233/234)	288
Uranium-235/236 (U-235/236)	14.2
Uranium-235 (U-235)	0
Uranium-238 (U-238)	287

Ra-226* (21 days ingrowth)
Yellow Highlight indicates the highest concentration in the Th-232 decay chain
Pink Highlight indicates the highest concentration in the U-238 decay chain

Formatted: Highlight

Attachment E

PRG Outdoor Worker Input Parameters and Output Values Specific to Holy Trinity Cemetery Site

PRG Outdoor Worker Input Parameters Specific to Holy Trinity Cemetery Site

Variable	Outdoor Worker Soil Default Value	Form-input Value
A (PEF Dispersion Constant)	16.2302	15.5169
B (PEF Dispersion Constant)	18.7762	18.4248
City (Climate Zone)	Default	Harrisburg, PA (7)
C (PEF Dispersion Constant)	216.108	211.7679
F(x) (function dependent on U_m/U_t) unitless	0.194	0.0086
PEF (particulate emission factor) m^3/kg	1359344438	1.79771E+11
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	43.38639428
A_s (acres)	0.5	39.2
ED_{ow} (exposure duration - outdoor worker) yr	25	25
EF_{ow} (exposure frequency - outdoor worker) day/yr	225	70
ET_{ow} (exposure time - outdoor worker) hr/day	8	16
IRA_{ow} (inhalation rate - outdoor worker) m^3/day	60	23.04
IRS_{ow} (soil intake rate - outdoor worker) mg/day	100	100
t_{ow} (time - outdoor worker) yr	25	25
TR (target cancer risk) unitless	0.000001	0.0001
U_m (mean annual wind speed) m/s	4.69	3.44
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.9

Output PRG values for Outdoor Worker Scenario Specific to Holy Trinity Cemetery Site

Isotope	Ingestion PRG TR=0.0001 (pCi/g)	Inhalation PRG TR=0.0001 (pCi/g)	External Exposure PRG TR=0.0001 (pCi/g)	Total PRG TR=0.0001 (pCi/g)
**Secular Equilibrium PRG for Th-232*	*6.23E+02*	*2.89E+06*	*2.89E+00*	***2.88E+00***
**Secular Equilibrium PRG for U-238*	*2.27E+02*	*4.62E+06*	*3.92E+00*	***3.85E+00***

Output Risk values for Outdoor Worker Scenario Specific to Holy Trinity Cemetery Site

Isotope	Ingestion Risk	Inhalation Risk	External Exposure Risk	Total Risk
**Secular Equilibrium Risk for Th-232*	*5.86E-05*	*1.26E-08*	*1.25E-02*	***1.26E-02***
Ac-228	5.48E-08	2.69E-12	4.44E-03	**4.44E-03**
Bi-212	2.84E-08	6.17E-12	5.40E-04	**5.40E-04**
Pb-212	8.39E-07	3.43E-11	4.88E-04	**4.89E-04**
Po-212	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**
Po-216	0.00E+00	0.00E+00	7.75E-08	**7.75E-08**
Ra-224	5.41E-06	6.18E-10	3.70E-05	**4.24E-05**
Ra-228	4.28E-05	2.38E-09	4.00E-08	**4.28E-05**
Rn-220	0.00E+00	6.28E-14	3.01E-06	**3.01E-06**
Th-228	4.09E-06	7.23E-09	6.33E-06	**1.04E-05**
Th-232	5.41E-06	2.36E-09	4.18E-07	**5.83E-06**
Tl-208	0.00E+00	0.00E+00	7.11E-03	**7.11E-03**

Isotope	Ingestion Risk	Inhalation Risk	External Exposure Risk	Total Risk
**Secular Equilibrium Risk for U-238*	*2.03E-04*	*9.98E-09*	*1.17E-02*	***1.19E-02***
At-218	0.00E+00	0.00E+00	7.28E-12	**7.28E-12**
Bi-210	3.01E-07	3.14E-11	3.54E-06	**3.84E-06**
Bi-214	1.19E-08	4.26E-12	1.01E-02	**1.01E-02**
Hg-206	0.00E+00	0.00E+00	1.21E-11	**1.21E-11**
Pa-234	1.25E-10	1.32E-16	1.46E-05	**1.46E-05**
Pa-234m	0.00E+00	0.00E+00	1.27E-04	**1.27E-04**
Pb-210	4.84E-05	1.09E-09	2.07E-06	**5.04E-05**
Pb-214	1.78E-08	5.35E-12	1.35E-03	**1.35E-03**
Po-210	1.16E-04	1.00E-09	6.22E-08	**1.16E-04**
Po-214	0.00E+00	0.00E+00	5.30E-07	**5.30E-07**
Po-218	0.00E+00	9.58E-13	9.07E-12	**1.00E-11**
Ra-226	2.38E-05	1.94E-09	3.05E-05	**5.42E-05**
Rn-218	0.00E+00	0.00E+00	9.11E-13	**9.11E-13**
Rn-222	0.00E+00	1.57E-13	2.35E-06	**2.35E-06**
Th-230	6.24E-06	2.35E-09	1.25E-06	**7.49E-06**
Th-234	7.67E-07	2.12E-12	2.62E-05	**2.69E-05**
Tl-206	0.00E+00	0.00E+00	1.17E-11	**1.17E-11**
Tl-210	0.00E+00	0.00E+00	3.90E-06	**3.90E-06**
U-234	4.12E-06	1.92E-09	3.73E-07	**4.49E-06**
U-238	3.76E-06	1.63E-09	1.82E-07	**3.95E-06**

Site-Specific
Outdoor Worker Risk for Soil - Secular Equilibrium

Isotope	Ingestion Risk	Inhalation Risk	External Exposure Risk	Total Risk
*Secular Equilibrium Risk for Th-232	5.86E-05	1.26E-08	1.25E-02	**1.26E-02**
*Secular Equilibrium Risk for U-238	2.03E-04	9.98E-09	1.17E-02	**1.19E-02**
*Total Risk	2.62E-04	2.26E-08	2.41E-02	**2.43E-02**

Attachment F

PRG Recreator Input Parameters and Output Values Specific to Holy Trinity Cemetery Site

PRG Recreator Input Parameters Specific to Holy Trinity Cemetery Site

Variable	Recreator Soil Default Value	Form-input Value
A (PEF Dispersion Constant)	16.2302	15.5169
B (PEF Dispersion Constant)	18.7762	18.4248
City (Climate Zone)	Default	Harrisburg, PA (7)
C (PEF Dispersion Constant)	216.108	211.7679
F(x) (function dependent on U_m/U_t) unitless	0.194	0.0086
PEF (particulate emission factor) m^3/kg	1359344438	1.79771E+11
Q/C_{wind} (g/m^2-s per kg/m^3)	93.77	43.38639428
A_s (acres)	0.5	39.2
ED_{rec} (exposure duration - recreator) yr	0	26
ED_{rec-a} (exposure duration - recreator adult) yr	0	20
ED_{resc-c} (exposure duration - recreator child) yr	0	6
EF_{rec} (exposure frequency - recreator) day/yr	0	182
EF_{rec-a} (exposure frequency - recreator adult) day/yr	0	182
EF_{rec-c} (exposure frequency - recreator child) day/yr	0	182
ET_{rec} (exposure time - recreator) hr/day	0	4
ET_{rec-a} (exposure time - recreator) hr/day	0	4
ET_{rec-c} (exposure time - recreator) hr/day	0	4
$IFA_{rec-adj}$ (age-adjusted inhalation rate - recreator) m^3	0	13953.333
$IFS_{rec-adj}$ (age-adjusted soil intake rate - recreator) mg	0	582400
IRA_{rec-a} (inhalation rate - recreator adult) m^3/day	20	20
IRA_{rec-c} (inhalation rate - recreator child) m^3/day	10	10
IRS_{rec-a} (soil intake rate - recreator adult) mg/day	100	100
IRS_{rec-c} (soil intake rate - recreator child) mg/day	200	200
t_{rec} (time - recreator) yr	0	26
TR (target cancer risk) unitless	0.000001	0.0001
U_m (mean annual wind speed) m/s	4.69	3.44
U_t (equivalent threshold value)	11.32	11.32
V (fraction of vegetative cover) unitless	0.5	0.9

PRG Recreator Input Parameters Specific to Holy Trinity Cemetery Site

Isotope	Ingestion PRG TR=0.0001 (pCi/g)	Inhalation PRG TR=0.0001 (pCi/g)	External Exposure PRG TR=0.0001 (pCi/g)	Total PRG TR=0.0001 (pCi/g)
**Secular Equilibrium PRG for Th-232*	*5.92E+01*	*5.56E+06*	*4.28E+00*	***3.99E+00***
**Secular Equilibrium PRG for U-238*	*2.77E+01*	*8.90E+06*	*5.80E+00*	***4.79E+00***

PRG Recreator Input Parameters Specific to Holy Trinity Cemetery Site

Isotope	Ingestion Risk	Inhalation Risk	External Exposure Risk	Total Risk
**Secular Equilibrium Risk for Th-232*	*6.17E-04*	*6.56E-09*	*8.53E-03*	***9.15E-03***
Ac-228	1.05E-06	1.39E-12	3.00E-03	**3.00E-03**
Bi-212	3.57E-07	3.20E-12	3.65E-04	**3.65E-04**
Pb-212	1.34E-05	1.78E-11	3.30E-04	**3.43E-04**
Po-212	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**
Po-216	0.00E+00	0.00E+00	5.24E-08	**5.24E-08**
Ra-224	9.05E-05	3.21E-10	2.50E-05	**1.15E-04**
Ra-228	4.21E-04	1.24E-09	2.71E-08	**4.21E-04**
Rn-220	0.00E+00	3.26E-14	2.03E-06	**2.03E-06**
Th-228	5.17E-05	3.75E-09	4.28E-06	**5.60E-05**
Th-232	3.91E-05	1.23E-09	2.83E-07	**3.94E-05**
Tl-208	0.00E+00	0.00E+00	4.80E-03	**4.80E-03**

Isotope	Ingestion Risk	Inhalation Risk	External Exposure Risk	Total Risk
**Secular Equilibrium Risk for U-238*	*1.67E-03*	*5.18E-09*	*7.95E-03*	***9.62E-03***
At-218	0.00E+00	0.00E+00	4.92E-12	**4.92E-12**
Bi-210	6.45E-06	1.63E-11	2.39E-06	**8.84E-06**
Bi-214	1.08E-07	2.21E-12	6.89E-03	**6.89E-03**
Hg-206	0.00E+00	0.00E+00	8.18E-12	**8.18E-12**
Pa-234	2.30E-09	6.86E-17	9.89E-06	**9.89E-06**
Pa-234m	0.00E+00	0.00E+00	8.56E-05	**8.56E-05**
Pb-210	4.61E-04	5.68E-10	1.40E-06	**4.62E-04**
Pb-214	2.13E-07	2.78E-12	9.15E-04	**9.15E-04**
Po-210	8.79E-04	5.19E-10	4.20E-08	**8.79E-04**
Po-214	0.00E+00	0.00E+00	3.58E-07	**3.58E-07**
Po-218	0.00E+00	4.97E-13	6.13E-12	**6.63E-12**
Ra-226	1.82E-04	1.01E-09	2.06E-05	**2.02E-04**
Rn-218	0.00E+00	0.00E+00	6.16E-13	**6.16E-13**
Rn-222	0.00E+00	8.16E-14	1.59E-06	**1.59E-06**
Th-230	4.46E-05	1.22E-09	8.42E-07	**4.54E-05**
Th-234	1.68E-05	1.10E-12	1.77E-05	**3.45E-05**
Tl-206	0.00E+00	0.00E+00	7.88E-12	**7.88E-12**
Tl-210	0.00E+00	0.00E+00	2.64E-06	**2.64E-06**
U-234	3.98E-05	9.96E-10	2.52E-07	**4.01E-05**
U-238	3.61E-05	8.46E-10	1.23E-07	**3.62E-05**

Site-Specific
Recreator Risk for Soil - Secular Equilibrium

Isotope	Ingestion Risk	Inhalation Risk	External Exposure Risk	Total Risk
**Secular Equilibrium Risk for Th-232*	*6.17E-04*	*6.56E-09*	*8.53E-03*	***9.15E-03***
**Secular Equilibrium Risk for U-238*	*1.67E-03*	*5.18E-09*	*7.95E-03*	***9.62E-03***
**Total Risk*	*2.28E-03*	*1.17E-08*	*1.64E-02*	***1.86E-02***

Attachment G

HTC Area 5 Residential Home Radon Sampling Results

<u>April 2016 HTC Area 5 Residential Home Radon Sampling Results Prior To Radon Mitigation System Installation</u>

RTCA RADON TESTING CORPORATION OF AMERICA

PC1604260021

Site Radon Inspection Report

Date : 04/26/2016

Mr. Rick Pezzino
ACCU-VIEW PROPERTY INSP.
P.O. Box 641
Buffalo, NY 14051-

Client: Unknown
Test Location: 5374 Robert Avenue
Lewiston, NY 14092-

Individual Canister Results

Canister ID# :	2474800	Test Start :	04/22/2016 @ 12:27
Canister Type :	Charcoal Canister 3 inch	Test Stop :	04/25/2016 @ 12:32
Location :	Basement--Sump--#5374-03	Received:	04/26/2016 @ 11:22
Radon Level :	11.2 pCi/L	Analyzed:	04/28/2016 @ 10:48
Error for Measurement is: ±	0.5 pCi/L		

Canister ID# :	2474807	Test Start :	04/22/2016 @ 12:23
Canister Type :	Charcoal Canister 3 inch	Test Stop :	04/25/2016 @ 12:29
Location :	Basement--East--#5374-02	Received:	04/26/2016 @ 11:22
Radon Level :	4.6 pCi/L	Analyzed:	04/28/2016 @ 11:37
Error for Measurement is: ±	0.3 pCi/L		

Canister ID# :	2474826	Test Start :	04/22/2016 @ 12:41
Canister Type :	Charcoal Canister 3 inch	Test Stop :	04/25/2016 @ 12:39
Location :	1st Fl--Above Crawl--Foyer--#5	Received:	04/26/2016 @ 11:22
Radon Level :	1.0 pCi/L	Analyzed:	04/28/2016 @ 11:37
Error for Measurement is: ±	0.2 pCi/L		

Canister ID# :	2474833	Test Start :	04/22/2016 @ 12:39
Canister Type :	Charcoal Canister 3 inch	Test Stop :	04/25/2016 @ 12:36
Location :	1st Fl--Office/Bed--#5374-06	Received:	04/26/2016 @ 11:22
Radon Level :	1.0 pCi/L	Analyzed:	04/28/2016 @ 11:37
Error for Measurement is: ±	0.3 pCi/L		

Canister ID# :	2474843	Test Start :	04/22/2016 @ 12:30
Canister Type :	Charcoal Canister 3 inch	Test Stop :	04/25/2016 @ 12:35
Location :	Basement--NW--#5374-05	Received:	04/26/2016 @ 11:22
Radon Level :	4.0 pCi/L	Analyzed:	04/28/2016 @ 10:49
Error for Measurement is: ±	0.4 pCi/L		

Canister ID# :	2474851	Test Start :	04/22/2016 @ 12:19
Canister Type :	Charcoal Canister 3 inch	Test Stop :	04/25/2016 @ 12:26
Location :	Basement--West--#5374-01	Received:	04/26/2016 @ 11:22
Radon Level :	4.1 pCi/L	Analyzed:	04/28/2016 @ 11:37
Error for Measurement is: ±	0.3 pCi/L		

National Radon Safety Board NRSB Certified Radon Professionals

Andreas C. George
Radon Measurement Specialist
NJ MES 11089

Dante Galan
Laboratory Director

NRSB ARL0001
NYS ELAP ID: 10806
PADEP ID: 0346
NJDEP ID: NY933
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FL DOH RB1609
IL RNL2000201

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2 Hayes Street, Elmsford, NY 10523

RTCA RADON TESTING CORPORATION OF AMERICA

PC1604260021

Site Radon Inspection Report

Date : 04/26/2016

Mr. Rick Pezzino
ACCU-VIEW PROPERTY INSP.
P.O. Box 641
Buffalo, NY 14051-

Client: Unknown
Test Location: 5374 Robert Avenue
Lewiston, NY 14092-

Individual Canister Results

Canister ID# :	2474873	Test Start :	04/22/2016 @ 12:45
Canister Type :	Charcoal Canister 3 inch	Test Stop :	04/25/2016 @ 12:40
Location :	1st Fl--Above Crawl--Family Rm	Received:	04/26/2016 @ 11:22
Radon Level :	0.9 pCi/L	Analyzed:	04/28/2016 @ 11:57
Error for Measurement is: ±	0.3 pCi/L		

Canister ID# :	2474887	Test Start :	04/22/2016 @ 12:19
Canister Type :	Charcoal Canister 3 inch	Test Stop :	04/25/2016 @ 12:26
Location :	BLANK--Basement--West #FB1	Received:	04/26/2016 @ 11:22
Radon Level :	0.1 pCi/L	Analyzed:	04/28/2016 @ 10:49
Error for Measurement is: ±	0.6 pCi/L		

Canister ID# :	2474896	Test Start :	04/22/2016 @ 12:40
Canister Type :	Charcoal Canister 3 inch	Test Stop :	04/25/2016 @ 12:38
Location :	1st Fl--Mast Bedroom--#5374-0	Received:	04/26/2016 @ 11:22
Radon Level :	1.1 pCi/L	Analyzed:	04/28/2016 @ 11:37
Error for Measurement is: ±	0.2 pCi/L		

Canister ID# :	2474918	Test Start :	04/22/2016 @ 12:30
Canister Type :	Charcoal Canister 3 inch	Test Stop :	04/25/2016 @ 12:35
Location :	Basement--NW--#5374-04	Received:	04/26/2016 @ 11:22
Radon Level :	4.5 pCi/L	Analyzed:	04/28/2016 @ 10:48
Error for Measurement is: ±	0.3 pCi/L		

Canister ID# :	2474924	Test Start :	04/22/2016 @ 12:47
Canister Type :	Charcoal Canister 3 inch	Test Stop :	04/25/2016 @ 12:41
Location :	2nd Fl--W-Bedroom--#5374-10	Received:	04/26/2016 @ 11:22
Radon Level :	1.8 pCi/L	Analyzed:	04/28/2016 @ 11:37
Error for Measurement is: ±	0.3 pCi/L		

Canister ID# :	2474929	Test Start :	04/22/2016 @ 12:49
Canister Type :	Charcoal Canister 3 inch	Test Stop :	04/25/2016 @ 12:42
Location :	2nd Fl--E-Bedroom--#5374-11	Received:	04/26/2016 @ 11:22
Radon Level :	1.1 pCi/L	Analyzed:	04/28/2016 @ 11:37
Error for Measurement is: ±	0.2 pCi/L		

National Radon Safety Board NRSB Certified Radon Professionals

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PC1604260021

RTCA RADON TESTING CORPORATION OF AMERICA

Site Radon Inspection Report

Date : 04/26/2016

Mr. Rick Pezzino
ACCU-VIEW PROPERTY INSP.
P.O. Box 641
Buffalo, NY 14051-

Client: Unknown

Test Location: 5374 Robert Avenue
Lewiston, NY 14092-

Individual Canister Results

The results indicate that at least one testing device registered at or above the United States Environmental Protection Agency (EPA) action level of 4.0 picoCuries per liter of air (pCi/L). The EPA recommends mitigation if the average of two short-term tests taken in the lowest level of the building suitable for occupancy show radon levels that are equal to or greater than 4.0 pCi/L.

For information on how to reduce radon levels in your home, please review the EPA booklet: Consumer's Guide to Radon Reduction (www.epa.gov/radon/pdfs/consguid.pdf) and contact your state health department. The EPA maintains a radon information website, including copies of its publications, at www.epa.gov/iaq/radon.

For New Jersey clients: Please see the attached guidance document entitled Radon Testing and Mitigation: The Basics for further information.

For New York clients: If the radon level of one or more testing devices is equal to or exceeds 20 pCi/L please contact the New York State Department of Health, Bureau of Environmental Radiation Protection, for technical advice and assistance at 518-402-7556 or toll free1-800-458-1158.

PLEDGE OF ASSURED QUALITY

All procedures used for generating this report are in complete accordance with the current EPA protocols for the analysis of radon in air (EPA 402-R-92-004). The analytical results relate only to the samples tested, in the condition received by the lab, and that calculations were based upon the information supplied by client. RTCA and its personnel do not assume responsibility or liability, collectively and individually, for analysis results when detectors have been improperly handled or placed by the consumer, nor does RTCA and its personnel accept responsibility for any financial or health consequences of subsequent action or lack of action, taken by the customer or it's consultants based on RTCA-provided results.

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August 2016 HTC Area 5 Residential Home Radon Sampling Results Post Radon Mitigation System Installation

RTCA RADON TESTING CORPORATION OF AMERICA

PC1608050104

Site Radon Inspection Report

Date : 08/05/2016

Mr. Rick Pezzino
ACCU-VIEW PROPERTY INSP.
P.O. Box 641
Buffalo, NY 14051-

Client: Unknown

Test Location: 5374 Roberts Avenue
Lewiston, NY 14092-

Individual Canister Results

Canister ID# :	2474818	Test Start :	08/01/2016 @ 12:09
Canister Type :	Charcoal Canister 3 inch	Test Stop :	08/04/2016 @ 11:41
Location :	BLANK-Office	Received:	08/05/2016 @ 12:04
Radon Level :	**0.1 pCi/L**	Analyzed:	08/05/2016 @ 17:36

Error for Measurement is: ± 0.6 pCi/L

Canister ID# :	2474890	Test Start :	08/01/2016 @ 11:58
Canister Type :	Charcoal Canister 3 inch	Test Stop :	08/04/2016 @ 11:36
Location :	Basement-SE/Laundry	Received:	08/05/2016 @ 12:04
Radon Level :	**1.8 pCi/L**	Analyzed:	08/05/2016 @ 17:36

Error for Measurement is: ± 0.2 pCi/L

Canister ID# :	2474895	Test Start :	08/01/2016 @ 11:50
Canister Type :	Charcoal Canister 3 inch	Test Stop :	08/04/2016 @ 11:31
Location :	Basement-Sump Pump	Received:	08/05/2016 @ 12:04
Radon Level :	**2.0 pCi/L**	Analyzed:	08/05/2016 @ 17:36

Error for Measurement is: ± 0.3 pCi/L

Canister ID# :	2474902	Test Start :	08/01/2016 @ 12:06
Canister Type :	Charcoal Canister 3 inch	Test Stop :	08/04/2016 @ 11:39
Location :	1st Fl-Foyer	Received:	08/05/2016 @ 12:04
Radon Level :	**0.2 pCi/L**	Analyzed:	08/05/2016 @ 17:36

Error for Measurement is: ± 0.2 pCi/L

Canister ID# :	2474912	Test Start :	08/01/2016 @ 12:07
Canister Type :	Charcoal Canister 3 inch	Test Stop :	08/04/2016 @ 11:39
Location :	1st Fl-East/TV	Received:	08/05/2016 @ 12:04
Radon Level :	**0.2 pCi/L**	Analyzed:	08/05/2016 @ 17:36

Error for Measurement is: ± 0.2 pCi/L

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IL RNL2000201

2 Hayes Street, Elmsford, NY 10523

PC1608050104

RTCA RADON TESTING CORPORATION OF AMERICA

Site Radon Inspection Report

Date : 08/05/2016

Canister ID# :	2482386	Test Start :	08/01/2016 @ 12:01
Canister Type :	Charcoal Canister 3 inch	Test Stop :	08/04/2016 @ 11:36
Location :	Basement-NW-Storage	Received:	08/05/2016 @ 12:04
Radon Level :	**1.6 pCi/L**	Analyzed:	08/05/2016 @ 17:54

Error for Measurement is: ± 0.2 pCi/L

Canister ID# :	2482442	Test Start :	08/01/2016 @ 12:09
Canister Type :	Charcoal Canister 3 inch	Test Stop :	08/04/2016 @ 11:41
Location :	1st Fl-Office	Received:	08/05/2016 @ 12:04
Radon Level :	**0.2 pCi/L**	Analyzed:	08/05/2016 @ 17:54

Error for Measurement is: ± 0.2 pCi/L

Canister ID# :	2474914	Test Start :	08/01/2016 @ 11:54
Canister Type :	Charcoal Canister 3 inch	Test Stop :	08/04/2016 @ 11:33
Location :	Basement-West/Chimney	Received:	08/05/2016 @ 12:04
Radon Level :	**1.7 pCi/L**	Analyzed:	08/05/2016 @ 17:36

Error for Measurement is: ± 0.2 pCi/L

Canister ID# :	2474927	Test Start :	08/01/2016 @ 12:11
Canister Type :	Charcoal Canister 3 inch	Test Stop :	08/04/2016 @ 11:42
Location :	1st Fl-Bedroom/TV	Received:	08/05/2016 @ 12:04
Radon Level :	**0.2 pCi/L**	Analyzed:	08/05/2016 @ 17:36

Error for Measurement is: ± 0.3 pCi/L

The reported results indicate that radon levels in the building are below the United States Environmental Protection Agency (EPA) action level of 4.0 picoCuries per liter of air (pCi/L). The EPA recommends retesting if your living patterns change and you begin occupying a lower level of the building, such as a basement or if major remodeling is done.

General radon information may be obtained by consulting the EPA booklet: A Citizen's Guide to Radon (www.epa.gov/radon/pubs/citguide.html). To request a copy or for further information, please contact your state health department. The EPA maintains a radon information website, including copies of its publications, at www.epa.gov/iaq/radon.

For New Jersey clients: Please see the attached guidance document entitled Radon Testing and Mitigation: The Basics for further information.

For New York clients: If the radon level of one or more testing devices is equal to or exceeds 20 pCi/L please contact the New York State Department of Health, Bureau of Environmental Radiation Protection, for technical advice and assistance at 518-402-7556 or toll free1-800-458-1158.

PLEDGE OF ASSURED QUALITY

All procedures used for generating this report are in complete accordance with the current EPA protocols for the analysis of radon in air (EPA 402-R-92-004). The analytical results relate only to the samples tested, in the condition received by the lab, and that calculations were based upon the information supplied by client. RTCA and its personnel do not assume responsibility or liability, collectively and individually, for analysis results when detectors have been improperly handled or placed by the consumer, nor does RTCA and its personnel accept responsibility for any financial or health consequences of subsequent action or lack of action, taken by the customer or it's consultants based on RTCA-provided results.

National Radon Safety Board NRSB Certified Radon Professionals

Andreas C. George
Radon Measurement Specialist
NJ MES 11089

Dante Galan
Laboratory Director

NRSB ARL0001
NYS ELAP ID: 10806
PADEP ID: 0346
NJDEP ID: NY933
NJ MEB 90036
FL DOH RB1609
IL RNL2000201

(914)345-3380
2 Hayes Street, Elmsford, NY 10523

EPA to Conduct a Removal Action on the Holy Trinity Cemetery Site

Niagara County, Lewiston, NY

United States Environmental Protection Agency

Community Update **October 2020**

Public participation is essential to the success of EPA's community involvement program. If you have any questions, please contact:

Mike Basile
EPA Community Involvement Coordinator
(646) 369-0055
basile.michael@epa.gov

Peter Lisichenko, P.G.
EPA On-Scene Coordinator
(347) 276-6251
lisichenko.peter@epa.gov

For more information on this site please visit:
https://www.epa.gov/ny/niagara-county-radiation-removal-sites

For more information on EPA's response to COVID, please visit:
https://www.epa.gov/coronavirus

CURRENT ACTIVITIES

The U.S. Environmental Protection Agency (EPA) ~~is set to undertake a removal action to~~will ~~address cleanup~~mitigate radiological contamination beginning in April 2021~~0~~ at two residential properties adjacent to Holy Trinity Cemetery along Robert Street in Lewiston, Niagara County, New York. The project will be designed in fall 2020 ~~The work areas will~~ and will include removal of contamination from a ~~a~~ driveway at one property and a garage area at the other property. ~~The work will be initiated in Fall 2020 with the project design and planning phase. The physical removal is scheduled to begin in April 2021.~~~~The project will be designed in the Fall of 2020 and the actual cleanup will commence on site in April 2021.~~

EPA will excavate ~~C~~contaminated material ~~will be excavated and~~that~~which~~ will ~~then~~ be transported to a licensed disposal facility that is in compliance with EPA's Off-site Rule.~~EPA and the Nuclear Reglatory Commission and EPA have approved disposal facility.~~ EPA will collect post-~~-~~excavation soil samples ~~after~~~~Post-~~ ~~excavation samples will be collected~~ to confirm that cleanup goals have been achieved. ~~and t~~The two excavated areas will be backfilled and compacted with material that meets New York State Department of Environmental Conservation criteria, and restored to pre-construction conditions. ~~followed by site restoration~~. ~~Post removal work will include the restoration of both areas to pre-removal conditions. It is anticipated that the excavation, backfill, and restoration operations will be~~The cleanup activities will be completed in ~~take~~ approxi~~a~~ma~~e~~tely ~~completed within two to~~ three weeks~~s to complete~~.

EPA has both a work and health/safety plan for this ~~removal action~~removal action~~cleanup~~, ~~as is done at all work sites,~~ and will be employing COVID-19 precautions as part of its standard operating procedures. ~~-~~Air monitoring activities will be in place during the ~~-~~removal effort to protect the workers and the general public.

BACKGROUND

In the early to mid 20th century, nearby industrial ore processing facilities produced a gravel-like, waste by-product, commonly referred to as "slag,"~~,~~ that contained radiological elements including uranium and thorium. In some instances, this material was considered cheap "fill" material and was used during construction activities throughout the area. In the case of this~~e~~ site, slag was used as fill/stablization material in the driveway and garage area. The original source of the material is unknown and is the subject of ongoing investigation~~s~~.

The site was originally identified by the U.S. Department of Energy and subsequently, the New York State Department of Health and the New York State Department of Environmental Conservation referred it to EPA ~~for~~

to conduct a removal action to mitigate the public health threats posed by exposure to ~~removeal of conta~~ radiological contamination.~~minants.~~ ~~by the New York State Department of Health and the Department of Conservation.~~

DO NOT PLACE IN ADMINISTRATIVE RECORD
DO NOT RELEASE TO THE PUBLIC

Confidential Enforcement Addendum

Holy Trinity Cemetery Site ("HTC Site")
Lewiston, Niagara County, New York

A. PRP Search

EPA has conducted a preliminary Potentially Responsible Party ("PRP") search for the HTC Site. The HTC Site was owned and operated by the Holy Trinity Roman Catholic Church Society of Niagara Falls, New York ("Holy Trinity") from 1910 to 2012. In 2008, Holy Trinity was canonically merged into the Divine Mercy Roman Catholic Parish ("Divine Mercy"), and in 2012 the cemetery property was legally transferred to Divine Mercy. On March 30, 2017, EPA sent Divine Mercy an information request letter pursuant to Section 104(e) of the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. § 9604(e). EPA received a response to that information request on June 13, 2017 ("Divine Mercy Response").

Ex 5 (intra-agency deliberative; attorney work product; attorney client privilege); Ex 7 (enforcement confidential)

[redacted]

Ex 5 (intra-agency deliberative; attorney work product; attorney client privilege); Ex 7 (enforcement confidential)

[redacted]

DO NOT PLACE IN ADMINISTRATIVE RECORD
DO NOT RELEASE TO THE PUBLIC

Confidential Enforcement Addendum

ENFORCEMENT ADDENDUM
Holy Trinity Cemetery Site ("HTC Site")
Lewiston, Niagara County, New York

A. PRP Search

EPA has conducted a preliminary Potentially Responsible Party ("PRP") search for the HTC Site. The HTC Site was owned and operated by the Holy Trinity Roman Catholic Church Society of Niagara Falls, New York ("Holy Trinity") from 1910 to 2012. In 2008, Holy Trinity was canonically merged into the Divine Mercy Roman Catholic Parish ("Divine Mercy"), and in 2012 the cemetery property was legally transferred to Divine Mercy. On March 30, 2017, EPA sent Divine Mercy an information request letter pursuant to Section 104(e) of the Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. § 9604(e). EPA received a response to that information request on June 13, 2017 ("Divine Mercy Response").

Ex 5 (intra-agency deliberative; attorney work product; attorney client privilege); Ex 7 (enforcement confidential)

[redacted]

Ex 5 (intra-agency deliberative; attorney work product; attorney client privilege); Ex 7 (enforcement confidential)

[redacted]

DO NOT PLACE IN ADMINISTRATIVE RECORD
DO NOT RELEASE TO THE PUBLIC

Confidential Enforcement Addendum

Holy Trinity Cemetery Site ("HTC Site")
Lewiston, Niagara County, New York

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Directly to the west of the cemetery are three residential properties that comprise a portion of the HTC Site. The northernmost residential property, known as Area 5, is located at 5374 Robert Avenue and is currently owned by John Raymond, who purchased the property in the early 1980s. Area 6 of the HTC Site, located south of Area 5 at 5380 Robert Avenue, is owned by Harold W. Wade, who purchased the property from James D. and Patricia A. Ellerington on June 30, 1993. From 2011 to 2018, Kristen S. Wade was co-owner of the Area 6 property. Area 7 of the HTC Site, located furthest to the south at 5382 Robert Avenue, has been jointly owned by Walter D. Michaels and Barbara A. Michaels since August 14, 1978, prior to which time Mr. Michaels owned the property for an unknown length of time. Additional ownership information regarding the Area 5, Area 6, and Area 7 properties is the subject of ongoing investigation by EPA.

Ex 5 (intra-agency deliberative; attorney work product; attorney client privilege); Ex 7 (enforcement confidential)

[redacted]

Ex 5 (intra-agency deliberative; attorney work product; attorney client privilege); Ex 7 (enforcement confidential)

[redacted]

Ex 5 (intra-agency deliberative; attorney work product; attorney client privilege); Ex 7 (enforcement confidential)

[redacted]

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Confidential Enforcement Addendum

Holy Trinity Cemetery Site ("HTC Site")
Lewiston, Niagara County, New York

A. PRP Search

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[redacted]

Ex 5 (intra-agency deliberative; attorney work product; attorney client privilege); Ex 7 (enforcement confidential)

[redacted]

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

ACTION MEMORANDUM RV2

DATE:

SUBJECT: Request for a Ceiling Increase for the Holy Trinity Cemetery Site (Residential Properties), Lewiston, Niagara County, New York

FROM: Peter Lisichenko, On-Scene Coordinator
Removal Action Branch

THRU: Joseph D. Rotola, Chief
Removal Action Branch

TO: Pat Evangelista, Acting Director
Superfund and Emergency Management Division

SITE ID No.: A23M

I. PURPOSE

The purpose of this Action Memorandum is to request approval for a ceiling increase for the removal activities~~on~~ described herein at the Holy Trinity Cemetcary ~~Residential Properties~~ Site ("Site"), located in

Ex 5 (intra-agency deliberative)

[redacted]

The total extramural funding that has been authorized to date for the Site is $150,000, of which $130,000 is for mitigation contracting. This Action Memorandum requests authorization for an additional $420,000, of which $300,000 is for mitigation contracting. If approved, the Site ceiling would be raised to $570,000, of which $450,000 would be for mitigation contracting.

CONCURRENCES Name: Niagara Falls Boulevard Intl sb Date: 05/01/2019 Action Memo #0493							
Symbol	SEMD-RAB	SEMD-RAB	SEMD-RAB	ORC-NJSFB	ORC-NJSFB	ORC-NJSFB	ERRD-DD

Surname	Lisichenko	Harkay	Rotola	Ludmer	Doyle	Lieber	Prince
Date							

Conditions at the Site continue to meet the criteria for a removal action under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA) 42 U.S.C. §§ 9601-9675, and Section 300.415(b)(2) of the National Contingency Plan (NCP).

This Site is not included on the National Priorities List (NPL) and there are no nationally significant or precedent setting issues associated with this removal action.

II. SITE CONDITIONS AND BACKGROUND

Ex 5 (intra-agency deliberative)

In a 1978 U.S. Department of Energy (U.S. DOE) aerial radiological survey, multiple properties through the Niagara County r~~R~~egion were identified as having elevated levels of radiation above background. In February 1980, the New York State Department of Health (NYSDOH) Bureau of Radiological Health and the Niagara County Department of Health (NCDOH) conducted a radiological survey of a property known as the Holy Trinity Cemetery (HTC) (parcel #: 115.00-1-7), located in the Town of Lewiston, Niagara Falls County, New York. The survey identified areas on the property where radiological slag material was used as sub-base for roadways. Subsequent surveys and sampling events were conducted by New York State Department of Environmental Conservation (NYSDEC) and NCDOH in 2006, 2007, and 2013. This work identified~~concluded~~ the presence of Uranium-238/234, Radium-226 and Thorium-232 at the Site. Field radioactivity surveys using an Exploranium GR-135 were performed in~~of~~ areas of concentrated slag material, which indicated levels between 200 to 700 micro-Roentgen per hour (µR/hr). The S~~HTC s~~ite was referred to the EPA by the NYSDEC and NYSDOH on July 21, 2013.

In 2013, 2015, 2016 and 2017, EPA conducted assessments of the Site~~HTC~~ to understand the horizontal and vertical extent of the radioactive contamination and implement physical controls to minimize exposure to HTC workers and patrons. It was during this time that the two adjacent residential properties were identified as containing radioactive material. The two residential properties were identified as Area 6 and Area 7 of the Site, and further investigations were conducted to define the extent of the contamination.

A. Site Description

1. Removal Site Evaluation (RSE)

See Attachment B: Removal Site Evaluation

Commented [HD1]: The RSE needs to be summarized here because nowhere in the action memo are the findings of the assessment discussed and a removal eligibility determination is made The RSE is is OK to be referenced following the brief discussion of the data and the threats

2. Physical location

The HTC portion of the Site is located at 5401 Robert Avenue, Lewiston, Niagara County. The residential properties are located to~~, here after referred to as the "Site" consists of two adjacent parcels to~~ the west of HTC, along the western side of Roberts Avenue which runs north to south. The northern parcel, 5380 Roberts Avenue (referenced as Area 6), is identified by tax ID number 115.15-1-21. The southern parcel, 5382 Roberts Avenue (referenced as Area 7), is identified by tax ID number 115.15-1-22. The Site is located in a residential neighborhood south of Interstate 190, to the~~;~~ east of the Niagara Gorge and the United States / Canada border and to the~~,~~ north of the Gates of Heaven Cemetc~~e~~ry~~; and west by HTC~~.

See Attachment A, Figure 2: Site Map.

Sensitive areas identified around the Site include the following:

- Freshwater forested/shrub wetlands, which are located approximately 0.1 miles to the northeast; and~~.~~
- The Niagara River, which serves as the border between the United States and Canada~~,~~ and is located 0.4 miles to the west of the Site.

3. Site characteristics

Area 6 is a 0.25-acre rectangular~~-~~-shaped parcel, with a~~its~~ long axis running east to west and ~~and~~ 62 feet of roadway frontage along Roberts Avenue. A two-story residential structure, built in 1955, is centrally located on the parcel. A concrete driveway along the parcel's southeast corner extends 90 feet from Roberts Avenue to the south side of the residential structure and terminates at a concrete patio.

Area 7 is a 0.60-acre "L" shaped parcel with 62~~-~~-feet of frontage along Roberts Avenue to the east and 70-feet of frontage along Colt Avenue to the south. It contains a two-story residential structure with an attached two-car garage. The main structure, located in the northeast portion of Area 7~~the site~~, was built in 1950, while the garage was built later. The asphalt driveway extends 60-feet from the northeast corner of the property to the garage and was a replacement to the original concrete driveway. It is believed that the former concrete driveway had extended from Roberts Avenue to the northside of the home. The footprint of the garage addition extended over the former driveway.

Radioactive slag material was identified at the Area 6 parcel under the entire length of the concrete driveway and a portion of grass area between Area 6 and Area 7 driveway. Area 7 has a small pocket of elevated radioactive activity south of the driveway in the front lawn area. Field screening also identified radioactive activity under the garage area as well. It is understood that radioactive slag was used as a subbase for both the Area 6 and Area 7 concrete driveways. For Area 7, the subbase for the driveway was disposed of~~had been removed~~ off-site when the new driveway was installed; the~~,~~ final disposition of this material is unknown. The activity under the garage is assumed to be related to the former driveway subbase. ~~-~~The small pocket of elevated activity to the south of the driveway is assumed to be a single slag fragment that had been displaced from the subbase.

Commented [LM2]: I am having trouble following this

4. Release or threatened release into the environment of a hazardous substance, or pollutant, or contaminant

Sampling and analysis conducted at the Site by EPA has identified the presence of CERCLA hazardous substances, as that term is defined in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14), and 40 C.F.R. Table 302.4. The Site is a facility within the meaning of Section 101(9) of CERCLA, 42 U.S.C. § 9601(9), and the presence of hazardous substances in subsurface media constitutes a "release" as defined in Section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

Ex 5 (intra-agency deliberative)

[redacted]

Hazardous Substances ~~Statutory Source for Designation~~ Under CERCLA:

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Radiological Substances Identified	Maximum Concentration
Radium 226 (Ra-226)	53 pCi/g

The radionucleides listed above are included in 40 CFR 302.4, List of Hazardous Substances and Reportable Quantities, Appendix B – Radionuclides.
The statutory source for designating radionuclides as a hazardous substance under Section 102(a) of CERCLA, 42 U.S.C. § 9602(a), is Section 112 of the Clean Air Act, 42 U.S.C. § 7412.

Ex 5 (intra-agency deliberative; attorney client privilege)

[redacted]

5. NPL status

Ex 5 (intra-agency deliberative)

[redacted]

6. Maps and pictures depicting Site location and conditions

See Attachment A

Figure 1: Site Location Map
Figure 2: Site Map

B. Other Actions to Date

1. Previous actions

In October 2016, EPA mobilized its Removal Support Team (RST) contractor to the Site to conduct a radiological assessment. An exterior radiological survey was conducted on both Area 6 and Area 7 utilizing a Ludlum 2241 gamma meter equipped with a 3x3 Sodium Iodine (NaI) scintillator. ~~With a~~Areas of elevated activity were identified, and soil samples were collected at depth to delineate the vertical extent of the contamination. Analytical results indicated exceedances of the~~in~~ Radium-226 radionuclide. In May 2017, air samples for radon were~~as~~ collected in both Area 6 and Area 7 residential structures. Results of this air sampling were found to be below action limits for the Site.

Commented [HD9]: from where?

2. Current actions

Efforts are being made to plan and prepare for the upcoming removal work. Tasks include identifying suitable staging areas, developing project schedules, and providing updates to the property owners and local officials on the planned work.

C. State and Local Authorities Roles

1. State and local actions, to date

No actions have been conducted by State or local entities for Area 6 and Area 7 of the Site. However, the NYSDEC has been notified of the contamination at the two properties and has served as an advisor on the proposed removal activities~~on~~.

2. Potential for continued State/local response

NYSDEC will continue to act in an advisory/supporting role throughout the performance of the removal activities~~on~~ at the Site, but is financially unable to take the lead in the response activities.

III. THREATS TO PUBLIC HEALTH, OR WELFARE, OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

Hazardous substances present at Area 6 and Area 7 of the Site represent a threat to the public health and environment as defined by Section 300.415(b)(2) of the NCP as~~in that~~ there is a high potential for direct contact to radiation from alpha, beta, and gamma radioactive material.

Ex 5 (intra-agency deliberative)

[redacted]

from hazardous substances, or pollutants, or contaminants;

The Site contains two occupied residential structures. The occupants of these structures are the primary "receptors" with increased cancer risks due to internal and external

Ex 5 (intra-agency deliberative)

Actual or potential contamination of drinking water supplies or sensitive ecosystems;

Surficial overland and stormwater flow is discharged to the Niagara River, located 0.5 miles to the west through a series of drainage ditches and culverts. Entrainment of

Ex 5 (intra-agency deliberative)

High levels of hazardous substances, or pollutants, or contaminants in soils, largely at or near the surface that may migrate; and

Ex 5 (intra-agency deliberative)

residential areas. Since radium has a long half-life (approximately 1,600 years), it is highly probable that the Site will undergo physical changes before the radium on-Site will decay to background levels. Building demolition and/or construction may result in increased exposure~~s~~ to humans as it may cause~~from~~ the contamination to become~~ing~~ suspended or airborne. Weathering and/or animal interaction may also cause contamination to migrate.

The availability of other appropriate federal or State response mechanisms to respond to the release.

The State of New York does not currently have the resources needed to take timely and appropriate action to respond to the threat posed by the presence of hazardous substances at the Site.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from the Site, if not addressed by implementing the response activities~~on~~ selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, welfare, or the environment.

V. EXEMPTION FROM STATUTORY LIMITS

Site conditions continue to meet the emergency exemption criteria specified in the RV1 Action Memorandum supporting the 12-month exemption, which was approved by

Ex 5 (intra-agency deliberative)

VI. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

1. Proposed action description

The funding being requested in this Action Memorandum will allow EPA to remove and dispose of the radioactive material located at Area 6 and Area 7 of the Site and restore the impacted areas. For Area 6, the concrete driveway will be removed~~demolished~~ and excavated to native soil. For Area 7, the concrete garage floor will be removed~~demolished~~ and excavated to native soil. The single hotspot in the Area 7 front lawn will also be excavated. A gamma scan will be conducted of the base of the excavated areas~~ions~~ to verify removal of slag material, and post-confirmation samples will be collected in accordance with the Multi-Agency Radiation Survey and Site Investigation Manual. To expedite the processing time, post-confirmation samples will be processed at the on-Site laboratory via a high purity gemanium (HPGe) radiation detector, providing confirmation results within hours as opposed to the days required~~as would be the case~~ for off-Site laboratory services. All excavated areas will be backfilled and compacted with crusher run limestone gravel with fines. This fill material will- be scanned to ensure~~as assurance~~ that radiation is not present. Both the driveway and garage locations will be restored with new concrete. The single hotspot in Area 7 will be restored with NYSDEC–certified clean topsoil and grass seed. All work is expected to be completed within two weeks from the time of mobilization.

Ex 5 (intra-agency deliberative; attorney client privilege)

2. Contribution to remedial performance

Ex 5 (intra-agency deliberative)

action with respect to the release or the threatened release concerned." The removal activities proposed in this Action Memorandum would not impede future response actions, should they be necessary, based on available information.

3. Engineering evaluation/cost analysis (EE/CA)

Ex 5 (intra-agency deliberative)

4. Applicable or relevant and appropriate requirements (ARARs)

ARARs identified for this project, including the Resource Conservation and Recovery Act and the U.S. Department of Transportation, Nuclear Regulatory Commission (NRC), and NYSDEC regulations~~,~~ that pertain to the transportation and disposal of material from the Site, will be complied with to the fullest extent practicable.

5. Project schedule

The removal activities~~on~~ are ~~is~~ planned to begin in May 2020. A period of two weeks is planned for the removal and disposal of waste material off-Site at an NRC-approved facility.

Estimated Costs

The estimated costs for the completion of this project are summarized below.

Commented [HD14]: Need new column showing current funding additional funding, then proposed TPC (see NFB) AM

Direct Extramural Costs:	Proposed New Total Project Ceilings
Total Cleanup Contractor Cost (Includes 20% Contingency)	$430,000
Superfund Technical Assistance Response Team, Extramural Costs	$140,000
Subtotal, Extramural Costs	$570,000
Extramural Cost Contingency	$0
Total, Removal Action Project Ceiling	$570,000

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Given the Site conditions, the nature of the hazardous substances documented on-Site, and the potential exposure pathways to nearby populations described in Section III, actual or threatened releasees of hazardous substances from the Site, if not addressed by implementing the response activities described in this Action Memorandum, may present an imminent and substantial endangerment to public health, or welfare, or the environment.

VII. OUTSTANDING POLICY ISSUES

None.

VIII. ENFORCEMENT

EPA has conducted a preliminary potentially responsible party (PRP) search for the Site. The EPA Region 2 Removal Action Branch will continue to work with the Office of Regional Counsel in an attempt to locate all viable PRPs to recover costs associated with the ongoing removal action.

The total EPA removal costs that will be eligible for cost recovery are estimated to be $570,000. The following chart describes the costs ~~which~~that EPA believes are eligible for cost recovery.

Total Estimated Costs

COST CATEGORY	AMOUNT
Direct Extramural Cost	$492,000
Direct Intramural Cost	$50,000
Subtotal Direct Cost	$542,000
Indirect Costs (Indirect Regional Cost Rate 44 10%)	$216,972
Estimated EPA Costs Eligible for Cost Recovery	$708,972

Note: Direct costs include direct extramural costs and direct intramural costs Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site-specific direct costs, consistent with the full cost accounting methodology effective October 2, 2000 These estimates do not include pre-judgment interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of a removal action The estimates are for illustrative purposes only and their use is not intended to create any rights for responsible parties Neither the lack of a total cost estimate nor deviation of actual costs from this estimate will affect the right of the United States to seek cost-recovery

IX. RECOMMENDATION

This decision document describes ~~the need to implement the~~ selected ~~a~~ removal ~~response~~ activities~~on~~ for the ongoing removal action at the Holy Trinity Cemet~~e~~ary ~~Residential~~ Site located in Lewiston, Niagara County, New York. This document was developed in accordance with CERCLA, as amended, and is not inconsistent with the NCP. This response action is based on the Administrative Record for the removal response action at the Site.

Conditions at the Site meet the NCP Section 300.415(b)(2) criteria for a removal action. This Action Memorandum requests authorization of an additional~~for~~ $420,000, of which $300,000 is for mitigation contracting. If approved, the Site ceiling would be raised to $570,000, of which $450,000 would be for mitigation contracting.

Please indicate your formal approval for proposed ~~funding~~ ceiling increase for the Holy Trinity Cemetery ~~Residential Properties~~ Site, as per the current delegation of authority, by signing below.

APPROVED: _____ **DATE:** _____
Pat Evangelista, Acting Director
Superfund and Emergency Management Division

DISAPPROVED: _____ **DATE:** _____
Pat Evangelista, Acting Director
Superfund and Emergency Management Division

cc: after approval
P. Evangelista, SEMD-AD
J. Prince, SEMD-DD
J. Rotola, SEMD-RAB

D. Harkay, SEMD-RAB
B. Grealish, SEMD-RAB
M. Ludmer, ORC-NYSUP
M. Mears, PAD
M. Fiore, OIG
T. Grier, 5104A
T. Benton, RST
R. Van Fossen, NJDEP
E. Putnam, NJDEP
F. Mumford, NJDEP
A. Raddant, USDOI
L. Rosman, NOAA

ATTACHMENT A

FIGURE 1: SITE LOCATION MAP

FIGURE 2: SITE MAP

ATTACHMENT B

REMOVAL SITE EVALUATION

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

ACTION MEMORANDUM RV2

DATE:

SUBJECT: Request for a Ceiling Increase for the Holy Trinity Cemetery Site (Residential Properties), Lewiston, Niagara County, New York

FROM: Peter Lisichenko, On-Scene Coordinator
Removal Action Branch

THRU: Joseph D. Rotola, Chief
Removal Action Branch

TO: Eric J. Wilson, Acting Director
Superfund and Emergency Management Division

SITE ID No.: A23M

I. PURPOSE

Ex 5 (intra-agency deliberative)

[redacted]

well as a residential garage. These impacted areas were identified during the investigations conducted by ~~the U.S Environmental Protection Agency (~~EPA~~)~~ at the Site in 2016.

The total extramural funding that has been authorized to date for the Site is $150,000, of which $130,000 is for mitigation contracting. This Action Memorandum requests authorization for an additional $420,000, of which $300,000 is for mitigation contracting. If approved, the Site ceiling would be raised to $570,000, of which $430,000 would be for mitigation contracting.

Conditions at the Site meet the criteria for a removal action under the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. §§ 9601-9675, and Section 300.415(b)(2) of the National Contingency Plan (NCP).

CONCURRENCES Name: Niagara Falls Boulevard Intl sb Date: 12/4/2019 Action Memo Niagara Falls Blvd RV2							
Symbol	SEMD-RAB	SEMD-RAB	SEMD-RAB	ORC-NJSFB	ORC-NJSFB	ORC-NJSFB	ERRD-DD
Surname	Lisichenko	Harkay	Rotola	Ludmer	Doyle	Lieber	Prince
Date							

This Site is not included on the National Priorities List (NPL) and there are no nationally significant or precedent setting issues associated with this removal action.

II. SITE CONDITIONS AND BACKGROUND

The Superfund Enterprise Management System (SEMS) identification number for the Site is NYN000206698. The proposed removal activities are considered "time-critical."

In a 1978 U.S. Department of Energy (DOE) aerial radiological survey, multiple properties throughout the Niagara County region were identified as having elevated levels of radiation above background levels. In February 1980, the New York State Department of Health (NYSDOH) Bureau of Radiological Health and the Niagara County Department of Health (NCDOH) conducted a radiological survey of a property known as the HTC (parcel #: 115.00-1-7), located in the Town of Lewiston, Niagara Falls County, New York. The survey identified areas on the HTC property where radiological slag material was used as sub-base for roadways. Subsequent surveys and sampling events were conducted by New York State Department of Environmental Conservation (NYSDEC) and NCDOH in 2006, 2007, and 2013. This work identified the presence of Uranium-238 (U-238)/Uranium-234, Radium-226 (Ra-226), and Thorium-232 at the Site. Field radioactivity surveys using an Exploranium GR-135 were performed in areas of concentrated slag material, which indicated levels between 200 to 700 micro-Roentgen per hour (µR/hr).

The Site was referred to the EPA by the NYSDEC and NYSDOH on July 21, 2013.

In 2013, 2015, 2016 and 2017, EPA conducted assessments of the HTC portion of the Site in an effort to better understand the horizontal and vertical extent of the radioactive contamination and implement physical controls to minimize exposure to HTC workers and patrons. It was during this time that the two adjacent residential properties were identified as containing radioactive material. The two residential properties were identified as Area 6 and Area 7 of the Site, and further investigations were conducted to define the extent of the contamination.

A. Site Description

1. Removal Site Evaluation (RSE)

The Removal Site Evaluation was conducted for Area 6 and Area 7 to determine removal eligibility. The radionuclide of concern (ROC) was determined to be Radium-226 (Ra-226), which was also present on the cemetery property and assumed to be in secular equilibrium. Both the U-238 chain and Ra-226 were run individually to demonstrate that Ra-226 is the predominant ROC from within this decay series. As a result, risk estimates and preliminary remediation goals (PRGs) were selected based on Ra-226 only. Cancer risk was set at 10^{-4} which is consistent with Removal Management Levels (RMLs). The calculated area-specific exposure point concentrations (EPCs) included data from the top two feet of soil since the highest concentrations were detected in the top eighteen inches. TFurther, this approach is consistent with chemical evaluations of residential soil exposures where EPA typically evaluates the top two feet.

For Area 6, the soil EPC was calculated at 85.8 picocuries per gram (pCi/g) for Ra-226. The RSE results, assuming no shielding, were: risk = 6.45E-04; PRG = 13.3 pCi/g. and With shielding,

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the results were: risk = 3.6E-04; PRG = 23.8 pCi/g. For Area 7, the soil EPC was calculated at 25 pCi/g Ra-226. The results, assuming a current use, were: risk = 5.99E-04; PRG = 4.17 pCi/g. The results considering a potential future conversion of the garage to a living space were:

Ex 5 (intra-agency deliberative; attorney client privilege)

[redacted]

See Attachment B, RSE.

2. Physical location

The HTC portion of the Site is located at 5401 Robert Avenue, Lewiston, Niagara County. The residential properties are located to the west of HTC, along the western side of Roberts Avenue, which runs north to south. The northern parcel, 5380 Roberts Avenue (referenced as Area 6), is identified by tax ID number 115.15-1-21. The southern parcel, 5382 Roberts Avenue (referenced as Area 7), is identified by tax ID number 115.15-1-22. The Site is located in a residential neighborhood south of Interstate 190, to the east of the Niagara Gorge and the United States/ Canada border, and to the north of the Gates of Heaven Cemetery.

See Attachment A, Figure 2: Site Map.

Sensitive areas identified around the Site include the following:

- Freshwater forested/shrub wetlands, which are located approximately 0.1 miles to the northeast; and
- The Niagara River, which serves as the border between the United States and Canada and is located 0.4 miles to the west of the Site.

3. Site characteristics

Area 6 is a 0.25-acre rectangular-shaped parcel, with a long axis running east to west and 62 feet of roadway frontage along Roberts Avenue. A two-story residential structure, built in 1955, is centrally located on the parcel. A concrete driveway along the parcel's southeast corner extends 90 feet from Roberts Avenue to the south side of the residential structure and terminates at a concrete patio.

Area 7 is a 0.60-acre "L" shaped parcel with 62 feet of frontage along Roberts Avenue to the east and 70-feet of frontage along Colt Avenue to the south. It contains a two-story residential structure with an attached two-car garage. The main structure, located in the northeast portion of Area 7, was built in 1950, while the garage was built later. The asphalt driveway extends 60-feet from the northeast corner of the property to the garage and was a replacement to the original concrete driveway. It is believed that the former concrete driveway had extended from Roberts Avenue to the northside of the home. The footprint of the garage addition extended over the former driveway.

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Radioactive slag material was identified at the Area 6 parcel under the entire length of the concrete driveway and within a patch of dirt and grass that separates the Area 6 and Area 7 driveways. For Area 7, elevated activity was identified in the garage and at an isolated location south of the driveway. It is understood that radioactive slag was used as a subbase for both the Area 6 and Area 7 concrete driveways. For Area 7, the concrete driveway and subbase was removed several years ago and replaced with an asphalt driveway; the final disposition of the removed material is presently unknown. The activity ~~under~~in the garage is assumed to be related to the former driveway subbase, ~~in which~~as the garage was built over the driveway. The small pocket of elevated activity to the south of the driveway is assumed to be a single slag fragment that had been displaced from the subbase.

Commented [LM2]: Does the concrete driveway still exist under the garage?

4. Release or threatened release into the environment of a hazardous substance, or pollutant, or contaminant

Sampling and analysis conducted at the Site by EPA has identified the presence of CERCLA hazardous substances, as that term is defined in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14), and 40 C.F.R. Table 302.4. The Site is a facility within the meaning of Section 101(9) of CERCLA, 42 U.S.C. § 9601(9), and the presence of hazardous substances in subsurface media constitutes a "release" as defined in Section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

The release and threat of release of the contaminants Ra-226 into the environment may impact the health of the residents at the Site through a variety of pathways, including inhalation from dusts and gases, ingestion from dusts, soils, and water, and direct radiation from external doses of alpha, beta, and gamma radiation from a particulate radioactive material. Exposure to this material increases the cancer risk of an individual. Residents as well as passerby of the Site are exposed to contamination via routes of inhalation or dermal contact to soils and windblown dust in the driveway areas and indoors.

Hazardous Substances Under CERCLA:

Radiological Substances Identified Maximum Concentration
~~Radium 226 (~~Ra-226~~)~~ – 53 pCi/g

The radionucl~~e~~ides listed above are included in 40 CFR 302.4, List of Hazardous Substances and Reportable Quantities, Appendix B – Radionuclides.

The statutory source for designating radionuclides as a hazardous substance under Section 102(a) of CERCLA, 42 U.S.C. § 9602(a), is Section 112 of the Clean Air Act, 42 U.S.C. § 7412.

Risk assessment calculations concluded that both Area 6 and Area 7 are removal eligible based

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5. NPL status

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HTC was evaluated for listing on the NPL and determined to be ineligible.

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6. Maps and pictures depicting Site location and conditions

See Attachment A, Figure 1: Site Location Map
Figure 2: Site Map

B. <u>Other Actions to Date</u>

1. Previous actions

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[redacted]

~~by EPA~~, which included installation of security fencing around areas of ~~the~~ HTC~~,~~ where contaminated slag is stockpiled and slag-stabilized roads exist. Additionally, a radon mitigation system was installed in a home where radon readings exceeded the action level of 4.0 pCi/L.

In October 2016, EPA mobilized its Removal Support Team (RST) contractor to the Site again to conduct a radiological assessment. An exterior radiological survey was conducted on both Area 6 and Area 7 utilizing a Ludlum 2241 gamma meter equipped with a 3x3 Sodium Iodine (NaI) scintillator. Areas of elevated activity were identified, and soil samples were collected at depth to delineate the vertical extent of the contamination. These samples were submitted to a laboratory for radiological analysis. Analytical results indicated exceedances of the Ra~~dium~~-226 radionuclide in the upper 12-inches of the properties in areas of elevated activity. In May 2017, air samples for radon were collected in both Area 6 and Area 7 residential structures. Results of this air sampling were found to be below the action level for the Site.

2. Current actions

Efforts are being made to plan and prepare for the upcoming removal work. Tasks include identifying suitable staging areas, developing project schedules, and providing updates to the property owners and local officials on the planned work.

C. <u>State and Local Authorities Roles</u>

1. State and local actions, to date

No actions have been conducted by State or local entities for Area 6 and Area 7 of the Site. However, the NYSDEC has been notified of the contamination at the two properties and has served as an advisor on the proposed removal activities.

2. Potential for continued State/local response

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NYSDEC and New York State Department of Health (NYSDOH) will continue to act in an advisory/supporting role throughout the performance of the removal activities at the Site, but are~~is~~ financially unable to take the lead in the response activities.

III. THREATS TO PUBLIC HEALTH, OR WELFARE, OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

Hazardous substances present at Area 6 and Area 7 of the Site represent a threat to the public health and environment as defined by Section 300.415(b)(2) of the NCP as there is a high potential for direct contact to radiation from alpha, beta, and gamma radioactive material.

Factors that support conducting the removal activities at the Site are discussed below.

Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, or pollutants, or contaminants;

The Site contains two occupied residential structures. The occupants of these structures are the primary "receptors" with increased cancer risks due to internal and external exposure to Ra-226. The pathways of exposure for the occupants includes incidental ingestion of soil, external radiation from contamination in the soil, and inhalation of fugitive dust.

Actual or potential contamination of drinking water supplies or sensitive ecosystems;

Surficial overland and stormwater flow is discharged to the Niagara River, located 0.5 miles to the west through a series of drainage ditches and culverts. Entrainment of contamination may result in adverse impacts to the Niagara River, a valued resource for both the United States and Canada.

High levels of hazardous substances, or pollutants, or contaminants in soils, largely at or near the surface that may migrate; and

Ra-226 has been detected in surface soils at levels as high as 42.63 pCi/g. Radium-contaminated soils may migrate through airborne dust, surface runoff, construction activities, and foot traffic into the existing buildings on-Site and/or into homes and residential areas. Since radium has a long half-life (approximately 1,600 years), it is highly probable that the Site will undergo physical changes before the radium on-Site will decay to background levels. Building demolition and/or construction may result in increased exposure to humans as it may cause the contamination to become suspended or airborne. Weathering and/or animal interaction may also cause contamination to migrate.

The availability of other appropriate federal or State response mechanisms to respond to the release.

The State of New York does not currently have the resources needed to take timely and appropriate action to respond to the threat posed by the presence of hazardous substances at the Site.

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IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from the Site, if not addressed by implementing the response activities selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, welfare, or the environment.

V. EXEMPTION FROM STATUTORY LIMITS

Site conditions continue to meet the emergency exemption criteria specified in the RV1 Action Memorandum supporting the 12-month exemption, which was approved by Acting Division Director on August 29, 2019. The RV1 Action Memorandum is included as Attachment C.

VI. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

1. Proposed action description

The funding being requested in this Action Memorandum will allow EPA to remove and dispose of the radioactive material located at Area 6 and Area 7 of the Site and restore the impacted areas. For Area 6, the concrete driveway will be removed and excavated to native soil to attain the PRG of 13.3 pCI/g. For Area 7, the concrete garage floor will be removed and excavated to native soil to attain the PRG of 1.79 pCi/g ~~(NOTE: PRGs should be considered in excess of background Ra-226 concentrations)~~. The single hotspot in the Area 7 front lawn will also be excavated. A gamma scan will be conducted of the base of the excavated areas to verify removal of slag material, and post-confirmation samples will be collected in accordance with the Multi-Agency Radiation Survey and Site Investigation Manual. To expedite the processing time, post-confirmation samples will be processed at the on-Site laboratory via a high purity germanium (HPGe) radiation detector, providing confirmation results within hours as opposed to the days required for off-Site laboratory services. All excavated areas will be backfilled and compacted with crusher run limestone gravel with fines. This fill material will be scanned to ensure that radioactivity ~~activity~~ does not exceed background levels. The material will also be sent for laboratory analysis to ensure compliance with NYSDEC Imported Fill Standards for Residential Use (DER 10). Both the driveway and garage locations will be restored with new concrete. The single hotspot in Area 7 will be restored with NYSDEC-certified clean topsoil and grass seed.

All disposal activities will be conducted in compliance with the EPA Off-Site Rule.

2. Contribution to remedial performance

The removal activities at the Site are consistent with the requirement of Section 104(a)(2) of CERCLA, which states, "any removal action undertaken . . . should . . . to the extent practicable, contribute to the efficient performance of any long-term remedial action with respect to the release or the threatened release concerned." The removal activities proposed in this Action Memorandum would not impede future response actions, should they be necessary, based on available information.

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3. Engineering evaluation/cost analysis (EE/CA)

Due to the time-critical nature of the removal activities, an EE/CA was not prepared.

4. Applicable or relevant and appropriate requirements (ARARs)

ARARs identified for this project, including the Resource Conservation and Recovery Act and the U.S. Department of Transportation, Nuclear Regulatory Commission (NRC), and NYSDEC regulations that pertain to the transportation and disposal of material from the Site, will be complied with to the fullest extent practicable. It remains EPA's policy that ARARs will generally be considered protective absent multiple contaminants or pathways of exposure. However, in rare situations, EPA Regional offices establish preliminary remediation goals (PRGs) at levels more protective than required by a given ARAR, even absent multiple pathways or contaminants, where application of the ARAR would not be protective of human health or the environment. Site specific PRG numbers were calculated based on the highest risk receptor to~~was used in~~ determin~~ing~~ the most conservative value for cleanup levels at the Site.

5. Project schedule

The RV2 removal activities are planned to begin in August 2020. A period of two weeks is planned for the removal and disposal of waste material off-Site at an NRC-approved facility.

Estimated Costs

The estimated costs for the completion of this project are summarized below.

Direct Extramural Costs:	Current Project Ceiling	Ceiling Increase Requested in This Action Memorandum	Proposed New Total Project Ceilings
Total Cleanup Contractor Cost (Includes 20% Contingency)	$130,000	$300,000	$430,000
Superfund Technical Assistance Response Team, Extramural Costs	$20,000	$120,000	$140,00
Subtotal, Extramural Costs	$150,000	$420,000	$570,000
Extramural Cost Contingency	$0	$0	$0
Total, Removal Action Project Ceiling	$150,000	$420,000	$570,000

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Given the Site conditions, the nature of the hazardous substances documented on-Site, and the potential exposure pathways to nearby populations described in Section III, actual or threatened releasees of

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hazardous substances from the Site, if not addressed by implementing the response activities described in this Action Memorandum, may present an imminent and substantial endangerment to public health, or welfare, or the environment.

VII. OUTSTANDING POLICY ISSUES

None.

VIII. ENFORCEMENT

EPA has conducted a preliminary potentially responsible party (PRP) search for the Site. The EPA Region 2 Removal Action Branch will continue to work with the Office of Regional Counsel in an attempt to locate all viable PRPs to recover costs associated with the ongoing removal action.

The total EPA removal costs that will be eligible for cost recovery are estimated to be $1,103,121. The following chart describes the costs that EPA believes are eligible for cost recovery.

Total Estimated Costs

COST CATEGORY	AMOUNT
Direct Extramural Cost	$570,000
Direct Intramural Cost	$175,000
Subtotal Direct Cost	$745,000
Indirect Costs (Indirect Regional Cost Rate 48.87%)	$358,121
Estimated EPA Costs Eligible for Cost Recovery	$1,103,121

Note Direct costs include direct extramural costs and direct intramural costs Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site-specific direct costs, consistent with the full cost accounting methodology effective October 2, 2000 These estimates do not include pre-judgment interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of a removal action The estimates are for illustrative purposes only and their use is not intended to create any rights for responsible parties Neither the lack of a total cost estimate nor deviation of actual costs from this estimate will affect the right of the United States to seek cost-recovery

IX. RECOMMENDATION

This decision document describes selected removal activities for the ongoing removal action at the Holy Trinity Cemetery Site located in Lewiston, Niagara County, New York. This document was developed in accordance with CERCLA, as amended, and is not inconsistent with the NCP. This response action is based on the Administrative Record for the removal response action at the Site.

Conditions at the Site meet the NCP Section 300.415(b)(2) criteria for a removal action. This Action Memorandum requests authorization of an additional $420,000, of which $300,000 is for mitigation contracting. If approved, the Site ceiling would be raised to $570,000, of which $430,000 would be for mitigation contracting.

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Please indicate your formal approval for the proposed ceiling increase for the Holy Trinity Cemetery Site, as per the current delegation of authority, by signing below.

APPROVED: _____ **DATE:** _____
Eric J Wilson, Acting Director
Superfund and Emergency Management Division

DISAPPROVED: _____ **DATE:** _____
Eric J Wilson, Acting Director
Superfund and Emergency Management Division

cc: after approval
E. Wilson, SEMD-AD
J. Prince, SEMD-DD
P. Evangelista, SEMD-SA
J. Rotola, SEMD-RAB
D. Harkay, SEMD-RAB
B. Grealish, SEMD-RAB
T. Lieber, ORC-NYCSUP
M. Ludmer, ORC-NYCSUP
M. Mears, PAO
A. Rajkowski-Reyes, OPM-GCMB
B. Schlieger, 5104A
T. Benton, RST
M. Ryan, NYSDEC
M. Cruden, NYSDEC Albany
T. Rice, NYSDEC
M. Rubin, NYSDEC Region 9
S. Bates, NYSDOH
A. Raddant, USDOI
L. Rosman, NOAA

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ATTACHMENT A

FIGURE 1: SITE LOCATION MAP

FIGURE 2: SITE MAP

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ATTACHMENT B

REMOVAL SITE EVALUATION

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ATTACHMENT C

HOLY TRINITY CEMETARY ACTION MEMORANDUM – RV1

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Confidential Enforcement Addendum

ENFORCEMENT ADDENDUM
Niagara Falls Boulevard Site
Niagara Falls, Niagara County, New York

A. PRP Search

EPA continues to conduct a potentially responsible party (PRP) search for the Niagara Falls Boulevard Site (Site).

Ex 5 (intra-agency deliberative; attorney work product; attorney client privilege); Ex 7 (enforcement confidential)

[redacted]

Ex 5 (intra-agency deliberative; attorney work product; attorney client privilege); Ex 7 (enforcement confidential)

[redacted]

Ex 5 (intra-agency deliberative; attorney work product; attorney client privilege); Ex 7 (enforcement confidential)

[redacted]

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[redacted]

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[redacted]

Ex 5 (intra-agency deliberative; attorney work product; attorney client privilege); Ex 7 (enforcement confidential)

[redacted]

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Confidential Enforcement Addendum

ENFORCEMENT ADDENDUM
Niagara Falls Boulevard Site
Niagara Falls, Niagara County, New York

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[redacted]

Ex 5 (intra-agency deliberative; attorney work product; attorney client privilege); Ex 7 (enforcement confidential)

[redacted]

Ex 5 (intra-agency deliberative; attorney work product; attorney client privilege); Ex 7 (enforcement confidential)

[redacted]

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

ACTION MEMORANDUM RV1

DATE:

SUBJECT: Request for a Ceiling Increase for the Removal Action at the Niagara Falls Boulevard Site, Niagara Falls, Niagara County, New York

FROM: Pat Evangelista, Acting Director
Superfund and Emergency Management Division

THRU: Reginald B. Cheatham, Director
Office of Emergency Management

TO: Peter Wright, Assistant Administrator
Office of Land and Emergency Management

SITE ID No.: A23Q

I. PURPOSE

The purpose of this Action Memorandum is to request approval for a ceiling increase for the removal action described herein at the Niagara Falls Boulevard Site (Site) located at 9524 and 9540 Niagara Falls Boulevard, Niagara Falls, Niagara County, New York. The additional funding is necessary to remove and dispose of radioactive contaminated soil/slag that underlies portions of an active bowling alley, building supply store, a parking lot, and select wooded areas where it is found at both the surface and subsurface. Work at the Site was initiated in 2016 and was continued in 2018. However, because of high disposal costs and a substantial increase in excavation activities at the Site due to the discovery of additional quantities of waste, the funding previously authorized was insufficient to cover the entire mitigation costs. The funding increase requested in this Action Memorandum will allow for the completion of the removal action.

The total extramural funding that has been authorized to date for the Site is $7,773,000, of which $7,167,640 is for mitigation contracting. This Action Memorandum requests authorization for an additional $3,000,000, of which $2,500,000 is for mitigation contracting. If approved, the Site ceiling would be raised to $10,773,000, of which $9,667,640 would be for mitigation contracting.

Symbol	SEMD-RAB	SEMD-RAB	SEMD-RAB	ORC-NYCSFB	ORC-NYCSFB	ORC-NYCSFB	ERRD-DD	ERRD-AD	OEM
Surname	Lisichenko	Harkay	Rotola	Ludmer	Doyle	Lieber	Prince	Evangelista	Cheatham
Date									

Conditions at the Site continue to meet the criteria for a removal action under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA) 42 U.S.C. §§ 9601-9675, and Section 300.415(b)(2) of the National Contingency Plan (NCP).

This Site is not included on the National Priorities List (NPL) and there are no nationally significant or precedent setting issues associated with this removal action.

II. SITE CONDITIONS AND BACKGROUND

The Superfund Enterprise Management System ID Number for this time-critical removal action is NYN000206699.

On May 13, 2016, the Director of the Emergency and Remedial Response Division (now known as the Superfund and Emergency Management Division or SEMD) verbally authorized $600,000, of which $500,000 was for mitigation contracting, to initiate a removal action. On June 14, 2016, the Division Director granted a second verbal authorization for an additional $500,000. On September 27, 2016 the Assistant Administrator for the Office of Land and Emergency Management authorized an action memorandum for a ceiling increase, 12-month exemption, and $2 million exemption. Approval of that Action Memorandum provided a project ceiling of $7,773,000, of which $7,167,640 was for mitigation contracting.

This Action Memorandum, if approved, will raise the total project ceiling to $10,773,000, of which $9,667,640 would be for mitigation contracting. Site conditions continue to meet the emergency exemption criteria as documented in the action memorandum dated September 27, 2016.

A. <u>Site Description</u>

1. Removal site evaluation (RSE)

Refer to previous Action Memorandum (see Attachment A).

2. Physical location

The main addresses associated with the Niagara Falls Boulevard Site are 9524, 9540, 9547, and 9626 Niagara Falls Boulevard in Niagara Falls, Niagara County, New York. The Site is comprised of the following parcels, identified by tax ID number: 146.18-1-17, 146.18-2-4, 146.18-2-5, 146.18-2-7, 146.19-3-1, 146.19-3-2, 146.19-3-3 and 146.19-3-4. The Site is located in a mixed commercial and residential area of Niagara Falls and encompasses approximately 2.53 acres of land. The Site is bordered to the north by a wooded area; to the east by a church; to the south by Niagara Falls Boulevard, beyond which is a residential area; and to the west by a hotel and residential area (see Attachment B for a map of the Site).

Sensitive areas identified around the Site include the following:

- Freshwater forested/shrub wetlands, which border the Site to the north. The Buffalo Niagara Riverkeeper has proposed plans with the current property owner and the Town of Niagara to restore and protect this area and create a park.

- Cayuga Creek (0.3 miles west), which is hydrologically connected to the forested/shrub wetlands identified above.

3. Site characteristics

The 9524 Niagara Falls Boulevard property is currently owned by 9524 Niagara Falls Boulevard LLC. The parcel contains a building that is operated as a bowling alley by the Rapid Bowling Center (RBC) and an asphalt parking lot that adjoins the northern, southern, and eastern sides of the RBC building.

The 9540 Niagara Falls Boulevard property is currently owned by 9540 Niagara Falls Boulevard LLC. This parcel contains a building operated by the Greater Niagara Building Center (GNBC), a building supply business. In addition, the parcel contains an asphalt parking lot, which surrounds the GNBC building and is a continuation of the parking lot on the adjacent 9524 Niagara Falls Boulevard property. To the east of the GNBC building and the parking lot, there is a worn-down concrete padded area that is crumbling and contains patches of overgrown grass.

The removal activities (RV1) documented in this Action Memorandum are a continuation of the removal activities authorized in the previous Action Memorandum dated September 27, 2016 (see Attachment A).

4. Release or threatened release into the environment of a hazardous substance, or pollutant, or contaminant

Sampling and analysis conducted at the Site by EPA has identified the presence of CERCLA hazardous substances, as that term is defined in Section 101(14) of CERCLA, 42 U.S.C. § 9601(14), and 40 C.F.R. Table 302.4. The Site is a facility within the meaning of Section 101(9) of CERCLA, 42 U.S.C. § 9601(9), and the presence of hazardous substances in subsurface media constitutes a “release” as defined in Section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

Ra-226 and Ra-228 have been detected in surface soils at elevated levels. The release and threat of release of radium-contaminated materials into the environment will impact the health of the public at or near the Site through a variety of pathways, including inhalation from dust of any exposed soils, ingestion of dusts, soils, and water, and direct radiation from external doses of alpha, beta, and gamma radiation from a particulate radioactive material near the surface underneath the buildings, parking lot, and in the wooded area. Exposure to this material increases the cancer risk to the individual. Workers of RBC and GNBC, as well as passersby, patrons, merchants, and other members of the public from the nearby residential area at or near the Site, are exposed to contamination via routes of

inhalation or dermal contact to soils and windblown dust in the parking areas and indoors.

Hazardous Substances Statutory Source for Designation Under CERCLA:

Radiological Substances Identified	Maximum Concentration
Radium 226 (Ra-226)	199 pCi/g
Radium 228 (Ra-228)	807 pCi/g

Each of the radionucleides listed above are included in 40 CFR 302.4, List of Hazardous Substances and Reportable Quantities, Appendix B – Radionuclides.

The statutory source for designating radionuclides as a hazardous substance under Section 102(a) of CERCLA, 42 U.S.C. § 9602(a), is Section 112 of the Clean Air Act, 42 U.S.C. § 7412.

5. NPL status

The Site is not on the NPL.

6. Maps and pictures depicting Site location and conditions

Attachment A: Action Memorandum, September 27, 2016 (RV1)
Attachment B: Site Location Map

B. Other Actions, to Date

1. Previous actions

Starting in June 2016, EPA mobilized its Emergency and Rapid Response Services (ERRS) and Removal Support Team (RST) contractors to initiate work at the Site. Activities included the following: demolition of an office space at GNBC (removal of non-load-bearing walls and concrete floor), removal of contaminated material from the office space, and restoration of the space to its original condition, clearing and grubbing of the 0.6-acre wooded area behind RBC, excavation of contaminated substrate, and back-filled the area with crusher run gravel. Approximately 4,576 cubic yards of material was shipped to a Nuclear Regulatory Commission (NRC)-approved facility for disposal.

In September 2018, EPA remobilized ERRS and RST contractors to continue work at the Site. The focus of this mobilization was to address those areas external to the structures including the parking lot areas of the two businesses and the wooded area along the northern border of the Site. From September to October 2018, 12,704 tons of contaminated material was removed and shipped off-Site to an NRC-approved facility, accounting for approximately 85 percent (approximately 2.5 acres) of the total "external to structures" excavation area. Areas of excavation were subsequently backfilled and restored to its original state, including the installation of the basecoat of pavement for the parking lots. The funding shortfall for completing the areas external to structures is

attributed to unexpected excavation at two locations where former underground petroleum storage tanks (privately removed) had been located. Both locations required excavations to depths between 10 to 15 feet below ground surface to remove radioactive slag material that had been placed there as backfill after the tanks were removed.

In October 2018, additional assessment work, including gamma mapping and test pitting, was conducted to better delineate the horizontal and vertical extent of the contamination in areas external to the RBC and GNBC structures. Combined with previous assessment data, a new Site model was developed. In total, it is estimated that 9,250 cubic yards of contaminated material remains at the Site. Impacted areas include portions of the parking lot, the wooded area along the Site's northern border, the breezeway at RBC, and two warehouse and two storage areas within GNBC.

2. Current actions

Efforts are being made to plan and prepare for the remaining work at the Site. Tasks include the following: developing the project schedule; assigning ERRS to prepare requests for proposal (RFPs) for restoration work (including subcontracts for concrete and paving services), equipment rentals, and certified clean fill; developing a removal strategy for working within the buildings; and coordinating with the disposal facility on the acceptance of the waste during the winter months. In addition, to minimize disruption and economic impacts, EPA is coordinating with the property and business owners at 9540 Niagara Falls Boulevard to identify a secure, temporary storage solution for inventory while the work is being completed within GNBC.

C. State and Local Authorities Roles

1. State and local actions, to date

In September through October 2006 and May 2007, the New York State Department of Environmental Conservation (NYSDEC) conducted radiological surveys of the interior and exterior areas of the Site using Exploranium-135 and Ludlum 2221 detectors. With the exception of an office area and storage space at GNBC, which were constructed directly on top of the asphalt parking lot after the construction of the other structures on the parcel, interior radiation levels were generally at background level. Within the newer office area and storage space, the highest reading was roughly seven times higher than background. Exterior readings taken at waist height at GNBC indicated elevated radiation levels at a fenced area behind the building. Elevated readings were also observed on the swath of grass between the RBC property and the adjacent property to the west that contains a hotel, and in the marshy area beyond the parking lot behind the GNBC and RBC buildings. Two biased samples of slag confirmed contamination from locations that exhibited elevated static Ludlum detector readings. One of the samples was collected from an area of loose blacktop and indicated readings of approximately 171 times greater than background. The other samples were obtained from a slag pile located in a marshy area north of the parking lot that indicated readings over 200 times greater than background.

During a reconnaissance performed by the New York State Department of Health and NYSDEC on July 9, 2013, screening activities showed elevated radiation levels with a hand-held Pressurized Ionization Chamber (PIC) unit around an area of broken asphalt and from a soil pile containing slag at the Site.

2. Potential for continued State/local response

NYSDEC will continue to act in an advisory/supporting role throughout the performance of the removal action at the Site but is financially unable to take the lead in the response activities.

III. THREATS TO PUBLIC HEALTH, OR WELFARE, OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

Hazardous substances present at the Site represent a threat to the public health and environment as defined by Section 300.415(b)(2) of the NCP in that there is a high potential for direct contact to radiation from alpha, beta, and gamma radioactive material.

Factors that support conducting the removal action at the Site are discussed below.

Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, or pollutants, or contaminants;

The Site contains two active businesses, the RBC bowling alley and the GNBC supply business. These operations expose specific populations to the Ra-226 and Ra-228 contamination. Populations with increased cancer risk due to internal or external exposure to contamination are known as "receptors." Based on the compiled EPA Pre-Remedial Assessment and EPA RSE data, the receptors most likely to be exposed to the hazardous substance of radiation at the Site are as follows:

<u>Outdoor workers</u>:

An outdoor worker who is employed full-time by either RBC or GNBC could come in contact with the hazardous substances while working on-site conducting outdoor maintenance activities throughout the day. The worker may be exposed long-term to the on-site surface soil contamination during the work day while performing tasks such as moderate digging or landscaping. The outdoor worker could be exposed to the contamination via the following pathways: incidental ingestion of soil, external radiation from contamination in soil, and inhalation of fugitive dust. According to a survey submitted to EPA by RBC, there were three RBC personnel that worked outdoors at the Site as of 2019.

<u>Indoor workers</u>:

An indoor worker at the RBC or GNBC building may come in contact with contamination through ingestion of contaminated soils that have been incorporated into

indoor dust, external radiation from contamination in soil, and the inhalation of contamination present in indoor air. According to a survey submitted to EPA by RBC, there were 28 RBC personnel that worked indoors at the Site as of 2019.

Nearby residents and patrons:

Patrons and area residents spend time outside of the buildings during work breaks or hanging out. These individuals may come in contact with, or be exposed to, the contamination in the parking areas for short periods of time over a long term. There are also historical accounts and evidence of local teenagers hanging out for extended periods of time at night in the northeast corner of the parking lot at 9524 Niagara Falls Boulevard. The radiological sampling and survey results in this area showed some of the most elevated levels in the assessments.

Construction workers:

Construction workers may come in contact with or be exposed to contamination short-term during the work day while working around vehicles that suspend dust in the air. Activities such as trenching and excavating typically involve on-site exposures to surface soils. The construction worker could be exposed to contamination via the following pathways: incidental ingestion of soil, external radiation from contamination in soil, and inhalation of fugitive dust.

Actual or potential contamination of drinking water supplies or sensitive ecosystems;

North of the parking lot at the Site is an overgrown wetland area with vegetation, which is referred to as "the marsh." The marsh flows to the Cayuga Creek. If the hazardous substances at the Site migrate to the marsh, Cayuga Creek may be impacted. Cayuga Creek is a tributary to the Niagara River and originates in the Niagara Escarpment in the Town of Lewiston. There is intense effort made by a local organization, Buffalo Niagara Riverkeeper, to restore and protect Cayuga Creek as a resource. Efforts include stream bank stabilization and reduction of pollutants entering the creek.

High levels of hazardous substances, or pollutants, or contaminants in soils, largely at or near the surface that may migrate; and

Ra-226 has been detected in surface soils at levels as high as 199 pCi/g, and Ra-228 has been detected in surface soils at levels as high as 807 pCi/g. Radium-contaminated soils may migrate through airborne dust, surface runoff, construction activities, and foot traffic into the existing buildings on-Site and/or into homes and residential areas. Since radium has a long half-life (approximately 1,600 years), it is highly probable that the Site will undergo physical changes before the radium on-Site will decay to background. Building demolition and/or construction may result in increased exposures to humans from the contamination becoming suspended or airborne. Weathering and/or animal interaction may also cause contamination to migrate. The fenced-in area on the northeast side of the asphalt parking lot is a brushy area, and there is evidence of trespass by teenagers who

use this area as a local hangout. Public visitors, patrons, and/or trespassers at the Site could cause a fire that could result in releasing the hazardous substances into the air.

The availability of other appropriate federal or state response mechanisms to respond to the release.

The State of New York does not currently have the resources needed to take timely and appropriate action to respond to the threat posed by the presence of hazardous substances at the Site.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from the Site, if not addressed by implementing the response action selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, welfare, or the environment.

V. EXEMPTION FROM STATUTORY LIMITS

Site conditions continue to meet the emergency exemption criteria specified in the original Action Memorandum supporting the $2 million exemption, ceiling increase, and 12-month exemption, approved by the Assistant Administrator of the Office of Land and Emergency Management, on September 27, 2016.

VI. PROPOSED ACTIONS AND ESTIMATED COSTS

A. <u>Proposed Actions</u>

1. Proposed action description

The additional funding being requested in this Action Memorandum will allow EPA to remove and dispose of the remaining radioactive slag material located at the Site and to restore the impacted areas. In October 2018, additional assessment work, including gamma mapping and test pitting, was conducted at the Site to better delineate the horizontal and vertical extent of the contamination for areas external to the RBC and GNBC structures. Based on these measurements, it is approximated that, in total, 9,250-cubic yards of contaminated material remains at the Site. This includes contamination in portions of the parking lot that have yet to be excavated, the wooded area along the Site's northern border, the breezeway at RBC, and warehouse and storage areas within GNBC. All areas will be excavated down to native soil, which is a distinctive lacustrine clay layer. A gamma scan will be conducted of the base of the excavation to verify removal of slag material, and post-confirmation samples will be collected in accordance with the Multi-Agency Radiation Survey and Site Investigation Manual. To expedite the processing time, post-confirmation samples will be processed at the on-Site laboratory via a high purity gemanium (HPGe) radiation detector, providing confirmation results within hours as opposed to days as would be the case for off-Site laboratory services. All areas will be backfilled and compacted with crusher run limestone gravel with fines. Parking lot areas that were removed to access contamination

will be repaved and striped. Areas internal to the structures will be restored to their original condition, which includes four to six inches of concrete in storage and warehouse areas of GNBC and a tile floor in the RBC breezeway. The wooded area will be brought to grade with crusher run limestone gravel with fines.

To accommodate the two active businesses, RBC and GNBC, the following will be taken into consideration in developing the Site schedule and removal plan:

- The RBC league bowling season, which extends from August to April, significantly increases the traffic within the parking area at both RBC and GNBC. The use of heavy equipment and trucks for disposal is not advised during this time.
- The GNBC is dependent on the business of the area's construction industry, which is most active during the non-winter months of April through November. During this time, GNBC has the greatest quantity of inventory.
- Before work is commenced inside GNBC, the Site property owner would like to construct a pole barn adjacent to the building to allow storage space for the GNBC business.

To ensure minimum impact to the two active businesses, the remaining tasks for the removal action will be accomplished in two mobilizations, which are expected to be in September 2019 and November 2019.

September 2019 – Approximately three weeks in duration
The September 2019 mobilization will be to complete removal activities for the remaining section of the parking lot, the area where the pole barn is to be constructed by the Site property owner, and the breezeway at RBC. In addition, the final paving application and striping will be completed for all parking lot areas, including those areas at which excavation was completed in September and October 2018. Materials excavated during this mobilization (an amount estimated to be approximately 4,200-cubic yards) will be stockpiled and covered until the November 2019 mobilization.

November 2019 – Approximately six weeks in duration
The November 2019 mobilization will be to complete all removal activities internal to GNBC, the wooded area along the northern Site boarder, and transportation and disposal (T&D) of all waste material from the two mobilizations to an NRC-approved facility. The initial task will be to inventory the products and supplies contained within rooms at GNBC that will be impacted by the removal activities and transfer these items to the newly constructed pole barn. Once completed, the removal and restoration activities at GNBC will commence. Products and supplies will be transferred back into the GNBC structure periodically once removal activities for a particular room are completed. The T&D activities will be conducted concurrently with the removal activities and the loadouts will be coordinated with the two businesses at the Site to minimize disruption (i.e. truck loadouts from 5:30 am to 12:00 pm)

Provided the current Site conditions remain the same, once these proposed actions are completed, it is unlikely that any further removal activity by EPA will be necessary.

All disposal activities will be conducted in compliance with the EPA Off-Site Rule.

2. Contribution to remedial performance

The removal action at the Site is consistent with the requirement of Section 104(a)(2) of CERCLA, which states, "any removal action undertaken . . . should . . . to the extent practicable, contribute to the efficient performance of any long-term remedial action with respect to the release or the threatened release concerned." The removal activities proposed in this Action Memorandum would not impede future response actions, should they be necessary, based on available information.

3. Engineering evaluation/cost analysis (EE/CA)

Due to the time-critical nature of this removal action, an EE/CA was not prepared.

4. Applicable or relevant and appropriate requirements (ARARs)

ARARs identified for this project, including the Resource Conservation and Recovery Act and the U.S. Department of Transportation, NRC, and NYSDEC regulations, that pertain to the transportation and disposal of material from the Site will be complied with to the fullest extent practicable.

5. Project schedule

The removal action will continue upon approval of this Action Memorandum and obligation of funding. A period of nine weeks is planned for the removal and disposal of waste material off-Site at an NRC-approved facility. Actual off-Site disposal may require an additional two weeks depending on the availability of transportation.

Estimated Costs

The estimated costs for the completion of this project are summarized below.

Direct Extramural Costs:	Revised Current Ceilings Authorized	Ceiling Increase Requested in This Action Memorandum	Proposed New Total Project Ceilings
Total Cleanup Contractor Cost (Includes 20% Contingency)	$7,167,640	$2,500,000	$9,667,640
Removal Support Team, Extramural Costs	$605,360	$150,000	$755,360
Subtotal, Extramural Costs	$7,773,000	$2,650,000	$10,423,000
Extramural Cost Contingency	0	$350,000	$350,000
Total, Removal Action Project Ceiling	$7,773,000	$3,000,000	$10,773,000

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Given the Site conditions, the nature of the hazardous substances documented on-Site, and the potential exposure pathways to nearby populations described in Section III, actual or threatened releases of hazardous substances from the Site, if not addressed by implementing the response activities described in this Action Memorandum, may present an imminent and substantial endangerment to public health, or welfare, or the environment.

VII. OUTSTANDING POLICY ISSUES

None.

VIII. ENFORCEMENT

EPA has conducted a preliminary potentially responsible party (PRP) search for the Site. The EPA Region 2 Removal Action Branch will continue to work with the Office of Regional Counsel in an attempt to locate all viable PRPs to recover costs associated with the ongoing removal action.

The total EPA removal costs that will be eligible for cost recovery are estimated to be $15,740,043. The following chart describes the costs which EPA believes are eligible for cost recovery.

Total Estimated Costs

COST CATEGORY	AMOUNT
Direct Extramural Cost	$10,773,000
Direct Intramural Cost	$150,000
Subtotal Direct Cost	$10,923,000
Indirect Costs (Indirect Regional Cost Rate 44.10%)	$4,817,043
Estimated EPA Costs Eligible for Cost Recovery	$15,740,043

Note: Direct costs include direct extramural costs and direct intramural costs. Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site-specific direct costs, consistent with the full cost accounting methodology effective October 2, 2000. These estimates do not include pre-judgment interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of a removal action. The estimates are for illustrative purposes only and their use is not intended to create any rights for responsible parties. Neither the lack of a total cost estimate nor deviation of actual costs from this estimate will affect the right of the United States to seek cost-recovery.

IX. RECOMMENDATION

This decision document describes the need for a ceiling increase to complete the removal action for the Niagara Falls Boulevard Site located in Niagara Falls, Niagara County, New York. This

document was developed in accordance with CERCLA, as amended, and is not inconsistent with the NCP. This response action is based on the Administrative Record for the removal response action at the Site.

Conditions at the Site continue to meet the NCP Section 300.415(b)(2) criteria for a removal action. The total extramural funding that has been authorized to date for this action is $7,773,000, of which $7,167,640 was used for mitigation contracting. This Action Memorandum requests authorization of an additional $3,000,000, of which $2,500,000 is from the Regional removal advice of allowance for mitigation contracting. If approved, the Site ceiling would be raised to $10,773,000, of which $9,667,640 would be for mitigation contracting.

Please indicate your formal approval for a ceiling increase for the Niagara Falls Boulevard Site, as per the current delegation of authority, by signing below.

APPROVED: _____ **DATE:** _____
Peter Wright, Assistant Administrator
Office of Land and Emergency Management

DISAPPROVED: _____ **DATE:** _____
Peter Wright, Assistant Administrator
Office of Land and Emergency Management

cc: after approval
P. Evangelista, SEMD-AD
J. Prince, SEMD-DD
J. Rotola, SEMD-RAB
D. Harkay, SEMD-RAB
B. Grealish, SEMD-RAB
M. Ludmer, ORC-NYSUP
M. Mears, PAD
M. Fiore, OIG
T. Grier, 5104A
T. Benton, RST
R. Van Fossen, NJDEP
E. Putnam, NJDEP
F. Mumford, NJDEP
A. Raddant, USDOI
L. Rosman, NOAA

ATTACHMENT A

ACTION MEMORANDUM TO CONFIRM THE VERBAL AUTHORIZATIONS, CEILING INCREASE AND A 12-MONTH EXEMPTION AT THE NIAGARA FALLS BOULEVARD SITE, NIAGARA FALLS, NEW YORK - September 15, 2016

ATTACHMENT B

SITE LOCATION MAP

DO NOT PLACE IN ADMINISTRATIVE RECORD
DO NOT RELEASE TO THE PUBLIC

Confidential Enforcement Addendum

ENFORCEMENT ADDENDUM
Niagara Falls Boulevard Site
Niagara Falls, Niagara County, New York

A. PRP Search

EPA continues to conduct a potentially responsible party (PRP) search for the Niagara Falls Boulevard Site (Site).

Ex 5 (intra-agency deliberative; attorney work product; attorney client privilege); Ex 7 (enforcement confidential)

[redacted]

Ex 5 (intra-agency deliberative; attorney work product; attorney client privilege); Ex 7 (enforcement confidential)

[redacted]

Ex 5 (intra-agency deliberative; attorney work product; attorney client privilege); Ex 7 (enforcement confidential)

[redacted]

EPA Completes Cleanup Activities at the Niagara Falls Boulevard Site

Niagara Falls, New York

Community Update **July 2020**

Public Participation is essential to the success of EPA's community involvement program. If you have any questions, please contact:

Michael Basile
EPA Public Affairs Specialist
(716) 551-4410
basile.michael@epa.gov

For more information, visit:
https://www.epa.gov/ny/niagara-county-radiation-removal-sites

CURRENT ACTIVITIES

The U.S. Environmental Protection Agency (EPA) ~~has~~ recently completed a four-year removal of radioactive waste material from properties located at 9512, 9524, 9540, and 9626 Niagara Falls Boulevard, as well as portions of an adjacent wooded area in Niagara Falls, Niagara County, New York. These properties together make up the Niagara Falls Boulevard site (site).

ASSEMENT OF PROPERTIES

EPA conducted radiological scans and multimedia sampling for both soil and air at the site in 2015 after New York State referred the site to EPA. Results from the assessment identified areas of elevated radiological activity, including~~-~~ a 1.4~~-~~-acre~~s of~~ woodland area, a 3.3~~-~~-acre portion~~s~~ of the parking lot at the site, and approximately 7,526 square feet of internal building space consisting of~~, which included~~ an~~one~~ office space, two warehouses, and two storage areas. Though the site did not qualify for listing on EPA's National Priorities List, it was determined that a significant health risk was present making ~~it~~the site eligible for a response action under EPA's removal program.

PHASED CLEANUP APPROACH

EPA initiated a phased removal in 2016 to excavate and safely dispose of the radiological waste material. The removal ~~action~~activities included:

- Minimizing the impact of the cleanup work on two businesses present at the site, a bowling alley and a building supply center, ~~by~~which ~~allowing~~allowed ~~for them~~the businesses to remain open during removal operations;
- Implementing a Community Air Monitoring Program to ensure the health and safety of the workers at the properties, the businesses' patrons, and the surrounding community;
- Establishing an on-site laboratory to process radiological samples, allowing for rapid results for decision-making purposes;
- Excavating internal building areas including an office space, two warehouses, and two storage rooms, which included demolishing concrete floors, removing waste material, importing clean backfill, and restoring areas to pre-removal condition by~~ also~~ adding new concrete floors;
- Clearing and excavating a small wooded area in the northwest corner of the site;
- Excavating and backfilling the asphalt parking lot in stages to allow continued access to the two active businesses;
- Excavating, backfilling, and grading non-asphalt areas to ensure proper drainage from overland flow;
- Installing ~~-~~a new base and topcoat of asphalt throughout the ~~former~~ parking lot area; and,
- Safely shipping and disposing approximately 28,362 tons of low-level radioactive material to a Nuclear Regulatory Commission (NRC)~~-~~-approved disposal facility in Belleville, Michigan.

BACKGROUND

Ex 5 (intra-agency deliberative; attorney client privilege)

[redacted]

Ex 5 (intra-agency deliberative; attorney client privilege)

[redacted]

DO NOT PLACE IN ADMINISTRATIVE RECORD
DO NOT RELEASE TO THE PUBLIC

Confidential Enforcement Addendum

Upper Mountain Road ("UMR Site")
Lewiston, Niagara County, New York

A. PRP Search

EPA is in the process of conducting a potentially responsible party ("PRP") search for the UMR Site. The UMR Site consists of radioactive slag material beneath a driveway on undeveloped land belonging to the Talarico Brothers Building Corporation ("TBBC") on Upper Mountain Road in Lewiston, New York (tax parcel no. 115.08-1-27). According to public records, TBBC has owned this property since August 22, 2015, prior to which date the property was owned by the Niagara Frontier Bible Church. The Church purchased the property on February 10, 2003, from the Estate of Dorothy P. Augspurger, and Ms. Augspurger had owned the property for an unknown period of time before then.

The driveway at the Site is used as an access road to an adjacent residential parcel with a street address of 738 Upper Mountain Road (tax parcel no. 115.08-1-26). This residential parcel is occupied and owned by John J. Grace, who purchased the property on December 28, 2000, from Eleanor E. Lozina. Ms. Lozina had owned the property since approximately December 1986. According to public records, the house at 738 Upper Mountain Road was constructed in 1942.

Ex 5 (intra-agency deliberative; attorney work product; attorney client privilege); Ex 7 (enforcement confidential)

[redacted]

Ex 5 (intra-agency deliberative; attorney work product; attorney client privilege); Ex 7 (enforcement confidential)

[redacted]