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

ACTION MEMORANDUM-RV1

DATE:

SUBJECT: Action Memorandum to confirm the Verbal Authorizations, Ceiling Increase and a 12-Month and $2 Million Exemption at the Niagara Falls Boulevard Site, Niagara Falls New York

FROM: Walter E. Mugdan, Director
Emergency and Remedial Response Division

TO: Mathy Stanislaus, Assistant Administrator
Office of Land and Emergency Management

THRU: Reggie Cheatham, Director
Office of Emergency Management

Site ID: A23Q

I. PURPOSE

The purpose of this Action Memorandum is to document the decision to initiate an emergency response action described herein for the Niagara Falls Boulevard Site (Site) located at 9524 & 9540 Niagara Falls Boulevard, Niagara Falls, Niagara County, New York. On May 13, 2016, the On-Scene Coordinator (OSC) requested and was granted a verbal authorization by the Emergency and Remedial Response Division (ERRD) Director pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) to initiate a removal action in the amount of $600,000.00, of which $500,000 was for mitigation contracting. On June 14, 2016, the OSC requested and was granted by the ERRD Deputy Director a second verbal authorization for an additional $500,000 for mitigation contracting, bringing the current project ceiling to $1,100,000.00.

The continued removal action would address the threats to public health, welfare, and the environment posed by the presence of radioactive contamination in the soil that underlies an active bowling alley, a building supply store, a parking lot, and select wooded areas located at the Site.

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DALY	KODAMA	MOSHER	ROTOLA	LUDMER	LIEBER	PRINCE

ERRD-D	DRA	RA	OEM-D	OLEM-AA
MUGDAN	MCCABE	ENCK	CHEATHAM	STANISLAUS

The total project ceiling requested in this Action Memorandum is $7,773,000.00 of Direct Extramural Funds, of which $6,748,000.00 would be for mitigation contracting.

The Action Memorandum would serve as approval for expenditures by EPA to take actions described herein to abate the imminent and substantial endangerment posed by hazardous substances at the Site.

The proposed removal of hazardous substances would be undertaken pursuant to Section 104(a)(1) of CERCLA, 42 U.S.C §9604(a)(1), and Section 300.415 of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR §300.415.

There are no nationally significant or precedent setting issues associated with this removal action.

II. SITE CONDITIONS

The Superfund Enterprise Management System (SEMS) identification number for this Site is NYN000206699. The proposed removal action is considered "time-critical".

A. Site Description

1. History

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 both parcels. 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.

2. Removal Site Evaluation

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 uranium and thorium, 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 contained 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.).

Site Assessment

From September to December 2013, the EPA Pre-Remedial Program conducted radiological surveys of the exterior areas of the Site. See Attachment C for the results of the gamma survey. The highest gamma radiation screening results were recorded from the exposed soil area of the rear, northern portion of the 9540 Niagara Falls Boulevard property. In December 2013, EPA also documented areas of observed contamination at the Site by measuring gamma radiation exposure rates and comparing these rates to site-specific background rates. An area of approximately 168,832 square feet (ft^2) was found to have gamma radiation levels that exceeded two times the background measurement.

To further quantify the contamination at the Site, in December 2013, a total of 16 soil samples, including one environmental duplicate sample, and three slag samples were collected from 15 boreholes throughout the main footprint of the Site using hollow-stem auger drilling methods. Two soil samples were collected on the adjacent First Assembly Church property to document background conditions. Analytical results indicated concentrations of radionuclides found in the slag and soil to be significantly higher than at background conditions. The maximum concentration of the radionuclides of concern were Radium-226 (Ra-226) at 199 picocuries per gram (pCi/g), and Radium-228 (Ra-228) at 807 pCi/g.

A screening risk assessment was conducted to calculate risk estimates using exposure rate data from the site and evaluating exposure pathways. Based on this screening, it was determined that there was an increased lifetime cancer risk above the acceptable risk range and that a removal action was necessary. Further assessment was warranted to determine the extent of the contamination and the scope of work to address the exposure.

Between July and August 2015, the EPA Region 2 Removal Program conducted further radiological assessment of the interior and exterior of the Site. The goal for this assessment was to determine the extent of contamination at the Site, as well as to determine whether workers at the Site were being exposed to elevated levels of radon/thoron or loose contamination. As reported by the Pre-Remedial Program, the office area and warehouse space located at 9540 Niagara Falls Boulevard showed elevated readings of gamma radiation roughly 25 times higher than background. Specific sections of the 9524 Niagara Falls Boulevard also exhibited elevated gamma radiation levels; the gamma survey readings were as high as four times background in the walk-in cooler of the building and 6 times background in the north end rear vestibule. The exterior area of the Site showed the highest elevation of contamination at roughly 30 times background.

In August 2015, EPA Region 2 Removal Program took a total of 16 soil samples including one environmental duplicate sample. Fifteen boreholes were excavated and soil

samples collected throughout the perimeter of the Site using hollow-stem auger drilling methods. See Attachment D for soil sample results of Pre-Remedial Assessment and Removal Site Evaluation (RSE) Assessment. The other samples were soil samples collected on the adjacent First Assembly Church property to document background conditions. Per the 2015-2016 EPA RSE data, the maximum concentrations of the radionuclides of concern in the outdoor samples were Ra-226 at 4.60 pCi/g and Ra-228 at 13.6 pCi/g. The extent of depth of contamination was determined to be at a two foot depth where the majority of elevated exposure rates was due to the slag located in the first foot depth of the exterior surface.

In March 2016, EPA Region 2 Removal Program took a total of 118 soil samples (which included six environmental duplicate samples) from fourteen boreholes within the Greater Niagara Building Center (GNBC) building. A sample was collected every six inches for a total of eight samples per borehole (Depth range 0-48 inches). The maximum concentrations of the radionuclides of concern in the GNBC indoor samples were Ra-226 at 126 pCi/g and Ra-228 at 438 pCi/g. The results indicate that the contamination is located within the first foot of depth. See Attachment F for GNBC indoor soil sample results.

To determine if contamination levels exceed the cancer risk of 10^{-4} (i.e. 1 in 10,000 of cancer), [1] a risk assessment was performed. EPA's PRG Calculator was created to help calculate risk versus cleanup levels 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 for determining the cleanup values for the removal was a composite worker whose daily duties included both indoor and outdoor activities. The cleanup value established for the Site, based on an increase of 10^{-4} cancer risk, are:

Radium-226 at levels in excess of 2.48 pCi/g
Radium-228 at levels in excess of 15.90 pCi/g

3. Physical location

The main addresses associated with the Niagara Falls Boulevard Site are 9524, 9540, 9547 & 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 A for map of the Site. Sensitive areas identified around the Site:

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[1] 40 CFR § 300.430(e)(2)(i)(A)(2) provides: "For known or suspected carcinogens, acceptable exposure levels are generally concentration levels that represent an excess upper bound lifetime cancer risk to an individual of between 10^{-4} and 10^{-6} using information on the relationship between dose and response." See also, "Establishment of Cleanup Levels for CERCLA Sites with Radioactive Contamination" (OSWER No. 9200.4-18, August 22, 1997) (providing clarification for establishing protective cleanup levels for radioactive contamination at CERCLA sites).

- First Assembly of God Inc. Church adjacent, to the Site, to the east.
- Niagara Falls Memorial Medical Center (five miles west).
- Niagara Rehabilitation and Nursing Center (5 miles west).
- Heritage Manor of Niagara Nursing Home (2.5 miles south west).
- Schools: Geraldine J Mann School (0.3 miles south), Catholic Academy of Niagara Falls Elementary School (0.9 miles southwest).
- Childcare: Niagara Falls Boys And Girls Club, Inc. (0.3 miles south), Small World Too, Inc. (0.9 miles southeast).
- 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.
- Raw Water Intake from Niagara River (2.5 miles south west).Waterways: Cayuga Creek (1500ft), Niagara River (1.5 miles northwest), Bergholtz Creek (0.5 miles south).

4. 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 will be the first CERCLA removal action undertaken 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 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. 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 loose 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.

6. National Priorities List status

The Site is not listed on the National Priorities List (NPL). In June 2014, the Pre-Remedial Program determined that the Site did not score high enough on the Hazardous Ranking System (HRS) to be added to the NPL.

7. Maps, pictures, and other attached documents

Attachment A: Site Location Map
Attachment B: Picture of Sampling Locations in 2006
Attachment C: Gamma Survey of the Site
Attachment D: Pre-Remedial and Removal Action Assessment Outdoor Soil Data
Attachment E: Proposed Excavation Area
Attachment F: Removal Action Assessment GNBC Indoor Soil Data

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

Starting on June 2, 2016, the OSC, USEPA ERT Health Physicist, Weston and Guardian Environmental Services mobilized at the NFB Site. Removal activities conducted at the time of creation of this document:

- Wooded area vegetation was cleared and gamma scanned for staging areas.
- Equipment/laboratory/personnel trailers and material staging containers were mobilized.
- An internal storage room for GNBC supplies was constructed. This area was needed to relocate supplies from the GNBC Southwest Office that the business utilizes on a daily basis.
- Deconstruction of the internal non-load bearing walls of the Southwest Office walls in preparation for floor removal.
- Cutting, removal and staging of all concrete flooring in the GNBC Southwest Office Area.
- Removal and staging of approximately ten cubic yards of hazardous substance from the GNBC Southwest Office Area.

C. State and Local Authorities' Role

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 both Site parcels using Exploranium-135 and Ludlum 2221 detectors. With the exception of an office area and storage space at 9540 Niagara Falls Boulevard, 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 9540 Niagara Falls Boulevard indicated elevated radiation levels at a fenced area behind the GNBC building. Elevated readings were also observed on the swath of grass between the 9524 Niagara Falls Boulevard 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. See Attachment B for a picture of the sample location. 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

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

Due to the release and the threat of future releases of hazardous substances, namely Ra-226 and Ra-228, to the environment at the Site, current site conditions meet the criteria in the NCP for a CERCLA removal action under 40 CFR §300.415(b)(2).

A. Threats to Public Health or Welfare

Section 300.415(b) of the NCP states:

> "At any release . . . where the lead agency makes the determination, based on the factors in paragraph (b)(2) of this section, that there is a threat to public health or welfare of the United States or the environment, the lead agency may take any appropriate removal action to abate, prevent, minimize, stabilize, mitigate, or eliminate the release or the threat of release."

Factors from Section 300.415(b)(2) of the NCP that support the need for a removal action at the Site are discussed below.

Section 300.415(b)(2)(i)—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:

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 RBC, there are three outdoor RBC personnel that currently work at the Site.

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 twenty-eight 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.

Section 300.415(b)(2)(ii)—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, and education of adjacent homeowners and businesses.

Section 300.415(b)(2)(iv)—High levels of hazardous substances or pollutants or contaminants in soils, largely at or near the surface that may migrate:

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 1600 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.

Section 300.415(b)(2) (vii)—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.

B. <u>Threats to the Environment</u>

At this time there is no documentation to indicate that the Site would acutely impact any sensitive environments or natural resources. However, the contaminated soils will continue to spread through migration via surface water runoff, human and animal activities, and wind, and have the potential to contaminate the wetland areas surrounding 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

A. Emergency Exemption

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

Continued response activities beyond 12 months will be required to complete the necessary removal action to mitigate the threats posed by this Site. The funding for this removal action will also require a $2 million exemption to statutory limits. Conditions at the Site 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 Ra-226 and Ra-228 contamination at the Site poses immediate risks to public health and the environment, and continued response activities are immediately required to mitigate the release or threat of release of hazardous substances at the Site. Neither the state, nor the local government can adequately address the hazardous substances at the Site in a timely manner.

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

The radioactive materials impacting the Site are Ra-226 and Ra-228. The maximum concentrations of these materials are 199 pCi/g and 807 pCi/g, respectively. These radionuclides pose an immediate 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 levels are reached:

Radium-226 at levels in excess of 2.48 pCi/g
Radium-228 at levels in excess of 15.90 pCi/g

Should the planned removal activities for the Site not be completed, the public will continue to be exposed 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 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 objective of the removal action is to eliminate the threat of exposure to hazardous substances present both inside and outside the buildings at the Site. The EPA will mobilize the Emergency and Rapid Response Services (ERRS) contractor to the Site and will complete the following:

1. Proposed action description

a. Material contaminated with Ra-226 above 2.48 pCi/g and/or with Ra-228 above 15.90 pCi/g will be removed, temporarily staged, analyzed, transported and disposed of at a designated disposal facility. Transportation, treatment, storage, and disposal of hazardous substances will be performed in accordance with all applicable local, State, and federal requirements, and off-site disposal will comply with the CERCLA Off-Site Rule, promulgated pursuant to CERCLA § 121(d)(3), 42 U.S.C § 9621(d)(3), and codified at 40 CFR § 300.440.

b. Designated Areas for Mitigation:

- The asphalt parking lot
  - There is minimal shielding provided by the asphalt and there are breaches throughout the parking lot that exhibit even higher readings of gamma radiation and provide a greater chance of airborne material to migrate.
- The surrounding woods
  - The contaminated material has been deposited well beyond the asphalt parking lot.
  - There are signs of the public spending time in these wooded areas (bottles, trash, makeshift seating areas, fire pits).
- Sections of the RBC building
  - Certain sections of the RBC building were constructed after the contaminated fill was deposited and located on top of the radioactive contamination.
    - The northern vestibule.
    - The walk-in cooler located on the southwest side of the building.
    - Other areas as identified during removal.
- Sections of the GNBC building
  - Certain sections were constructed after the contaminated fill was deposited and located on top of the radioactive contamination. Some of the main areas are identified below:
    - Office area added to the southwest side of the building.
    - The northern warehouse (Warehouse #3) of the building.
    - Sections of Warehouse #2.
    - Other areas as identified during removal.

c. Interior Contamination: Identified indoor areas will be addressed by removal of the concrete flooring and excavation of the underlying contaminated fill. There are no plans to demolish the structures of the building. Some walls may be temporarily removed in order to allow access to equipment. All altered structures will be reconstructed. After removing the contaminated material from the affected areas, the material will be staged in secured structures.

d. Exterior Contamination: EPA Pre-Remedial and EPA Removal Programs observed the radioactive top fill layer to generally range in thickness from 0.5–2 feet. The footprint of the contamination area of concern is approximately 176,829 square feet. The approximate amount of contaminated material to excavate is 13,098 cubic yards. See Attachment E for map of proposed excavation area.

e. Contaminated material will be surveyed while the excavation is being conducted. Survey instrumentation will be used to determine if the soil is above or below the cleanup values established. Surveying will determine the initial depth of each excavation area and will assist in segregating and stockpiling contaminated material.

f. Soil samples will be collected from the stockpiled material for transportation and disposal. These soil samples will be sent out for laboratory analysis and to establish disposal profiles. Soil samples will also be collected from the top layers of each excavated area. These soil samples will be sent out for laboratory analysis to verify levels are below the established cleanup values and determine whether or not additional excavation is required. If needed, a statistical test (e.g. MARSSIM) will be used to determine if the Site has met the cleanup criteria.

g. The excavated material will be replaced with certified clean fill. Certified clean fill is soil that has been analyzed for Ra-226 and Ra-228, with results indicating that the concentration is at or below the established cleanup values and that all other hazardous substances and pollutants are at acceptable levels. Areas currently asphalted, concreted, sodded, or graveled over, will be replaced with asphalt, concrete, sod, or gravel, accordingly.

h. It is anticipated that there will be no need for post-removal site control at the conclusion of this removal action.

2. Contribution to remedial performance

The actions proposed in this Action Memorandum should not impede any future remedial plans or other response actions for the Site, although it is expected that no further response actions will be required at 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 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. It was determined that the Uranium Mill Tailings Radiation Control Act cleanup standard for Ra-226 and Ra-228, 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

The response activities described in the proposed action description above were initiated on June 1, 2016. EPA estimates the response activities will require12- 24 months to complete. This schedule is dependent on numerous factors including the cooperation of the tenants, favorable weather conditions and field conditions consistent with those encountered during the Site assessment, and the availability of approved off-site disposal facilities. Changes in any or all of these factors will have an impact on the project schedule.

B. Estimated Costs

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

Extramural Costs:	**Funding Verbally Authorized May 13, 2016**	**Funding Verbally Authorized June 14, 2016**	**Requested Funding**	**Proposed Ceiling**
Regional Allowance Costs: Total cleanup contractor costs include labor, equipment, materials and laboratory disposal analysis (includes 20% contingency)	$500,000	$500,000	$5,748,000	$6,748,000
Other Extramural Costs Not Funded From the Regional Allowance: Technical support (RST2)	$100,000		$218,000	$318,000
Subtotal, extramural costs	$600,000	$500,000	$5,966,000	$7,066,000
Extramural Costs Contingency (10%)			$707,000	$707,000
Total Removal Project Ceiling	$600,000	$500,000	**$7,003,000**	**$7,773,000**

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.

The total EPA costs for this removal action based on the full-cost accounting practices that will be eligible for cost recovery are estimated to be $13,453,000.00.

Cost Type	Total Funding Requested in this Memorandum
Direct Extramural Cost	$7,773,000
Direct Intramural Cost (16%)	$1,244,000
Subtotal, Direct Cost	$9,017,000
Indirect Costs (Regional Indirect Cost Rate 49.2%)	$4,436,000
Estimated EPA Costs Eligible for Cost Recovery	**$13,453,000**

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 Niagara Falls Boulevard Site located in Niagara Falls, 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 meet the NCP Section 300.415(b)(2) criteria for a removal action. The total project ceiling, if approved, will be $7,773,000 of which $6,748,000 is for mitigation contracting. There are sufficient funds available in the FY 16 Advice of Allowance to initiate this response action. The balance of funds necessary to complete the response action will be available in our FY 17 Advice of Allowance.

Please indicate your formal approval of the funding request, the $2 million exemption, and a 12-month exemption for the removal action at the Niagara Fall Boulevard Site, as per current Delegation of Authority, by signing below.

APPROVED: _____ **DATE:** 9/27/16
Mathy Stanislaus, Assistant Administrator
Office of Land and Emergency Management

DISAPPROVED: _____ **DATE:** _____
Mathy Stanislaus, Assistant Administrator
Office of Land and Emergency Management

cc: J. Enck, RA
C. McCabe, DRA
W. Mugdan, ERRD-D
J. Prince, ERRD-DD
E. Mosher, ERRD-RPB
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T. Grier, 5204G
P. McKechnie, OIG
J. Quinn, NYSDEC
A. Raddant, USDOI
L. Rosman, NOAA
L. Battes, NYSEMO
S. Bates, NYSDOH
R. Craig, RST