



SITE CERTIFICATION SUMMARY

This Site Certification Summary provides information about the **Niagara Falls Storage Site Vicinity Properties, New York, Site**. The U.S. Department of Energy Office of Legacy Management is responsible for long-term stewardship of the site under the **Formerly Utilized Sites Remedial Action Program**.

Site Description and History

Both the Niagara Falls Storage Site (NFSS) and the Niagara Falls Storage Site Vicinity Properties (NFSS VPs) were part of the U.S. Army's original 7,500-acre Lake Ontario Ordnance Works (LOOW), which was constructed and used for TNT production early in World War II. The site was then reassigned to the Manhattan Engineer District (MED). From 1944 to 1947, MED used LOOW to store uranium ore-processing residues from a ceramics plant. By 1948, the War Assets Administration transferred or sold 6,000 acres of LOOW. The U.S. Atomic Energy Commission (AEC) retained ownership of the remaining 1,500 acres. AEC continued to use the 1,500-acre LOOW site to store uranium ore-processing residues. AEC also stored uranium rods and disposed radioactive wastes at LOOW. From 1955 to 1975, more than 1,300 acres of LOOW were transferred or sold to private owners, leaving 191 acres as the current NFSS.

Storage and shipment of radioactive materials at LOOW, as well as water and wind erosion, resulted in the migration of contamination off the NFSS site, chiefly through the NFSS drainage ditches. These areas, located adjacent to or near the NFSS, are referred to as the NFSS VPs. In addition to the NFSS VPs findings, Oak Ridge Associated University (ORAU) and Oak Ridge National Laboratory (ORNL) identified three properties — one each in the city of Niagara Falls and the towns Niagara Falls and Lewiston — as radioactively contaminated, based on a 1985 radiological survey conducted with a scanning van. These additional properties are referred to as the three anomalies and are included with the NFSS VPs for remediation by the Formerly Utilized Sites Remedial Action Program (FUSRAP).

Site Remediation Timeline

October 1970 and June 1971 — Radiological surveys of the about 1,300 acres formerly held by the AEC indicated that contamination levels on 6.5 acres exceeded the AEC exposure guideline then in effect.

1972 — About 15,000 cubic meters of contaminated soil and debris were removed and transported to NFSS for storage.

1979 and 1980 — Battelle Columbus Laboratories conducted a comprehensive radiological characterization at NFSS. The survey identified contamination in excess of U.S. Department of Energy (DOE) guidelines along the entire length of the West Drainage Ditch and most of the Central Drainage Ditch.

May-June 1981 — The 19-acre portion of the Property N/N' North was remediated and a post-remedial action survey was completed.

1981 to 1985 — ORAU and ORNL performed radiological surveys of the 1,300 acres that lie outside of NFSS and found that 21 of the 25 surveyed properties were contaminated in excess of DOE guidelines.

1983 — Cleanup of the vicinity properties and the three anomalies began.

1986 — Remedial action was completed at the NFSS VPs and anomalies.

October 17, 1991 — A notice of certification was signed, which certified that the properties complied with DOE decontamination criteria and standards developed to protect health, safety, and the environment.

October 25, 1991 — DOE published the notice of certification in the Federal Register.

September 22, 2014 — Vicinity properties H' (H prime) and X were referred to the U.S. Army Corps of Engineers (USACE) for further evaluation.

Certification Docket Contents

The [Certification Docket](#) documents the successful decontamination of the majority of the vicinity properties associated with NFSS. Three VPs (E, E', and G) still contained residual contamination exceeding DOE decontamination

criteria and standards at the time of certification, so these properties were not certified. These three properties are not accessible by the public and may require remedial action if land use changes.

The following properties were released from FUSRAP in October 1991:

- Property A.
- Property B.
- Property C'.
- Property D.
- Property F.
- Property H'.
- Property L.
- Property M.
- Property N/N' North.
- Property N/N' South.
- Property P.
- Property Q.
- Property R.
- Property S.
- Property T.
- Property U.
- Property V.
- Property W.
- Property X.
- West Drainage Ditch.
- Central Drainage Ditch.
- Areas along Pletcher Road.
- Anomaly AA.
- Anomaly BB.
- Anomaly CC.

Remedial Action

From 1983 to 1986, DOE remediated NFSS VPs under FUSRAP. See the [Fact Sheet](#) for details.

The FUSRAP objectives at the site were to:

- Identify and assess all sites formerly utilized to support early MED/AEC nuclear work to determine whether further decontamination and/or control is needed.
- Decontaminate and/or apply controls to these sites to permit conformance with current applicable guidelines.
- Dispose of and/or stabilize all generated residues in an environmentally acceptable manner.
- Accomplish all work in accordance with appropriate landowner agreements; local and state environmental and land use requirements to the extent permitted by federal law and applicable DOE orders, regulations, standards, policies, and procedures.

- Certify, at the completion of remedial action, that the radiological conditions at the sites comply with guidelines and that the sites are appropriate for future use.

Post-Remediation Sampling

Soil samples taken after radioactive materials removal certified that no areas of radioactive contamination exceeding DOE guidelines remained. Soil samples were collected at grid intersections 6 meters apart. Other post-remedial sampling techniques included gamma walkover scans; gamma scans with a directional, lead-shielded detector (which were used after removing all walkover-detected contamination); and radon monitoring. No radon measurements exceeded DOE guidelines.

For more detailed results of the post-remediation sampling, see the [Site Certification Data Summary Worksheet](#) on pages 9-25. For a detailed map of the site and sampling locations, see the [Site Overview Map](#) on page 26.

Three Post-Remedial Action Reports (PRARs), each addressing different NFSS properties, document the successful decontamination of the NFSS VPs site.

January 1982 PRAR

The January 1982 PRAR addressed the 19-acre triangular portion of Property N/N' North owned by Modern Landfill, Inc. In May and June 1981, remedial action was performed on this property to remove areas of soil exceeding release criteria for radium-226 and cesium-137. ORAU performed the post-remedial action survey on June 25-27, 1981. The survey indicated that direct radiation levels throughout the property were within the applicable federal guidelines for unrestricted areas. Soil concentrations satisfied the criteria for cleanup of formerly utilized sites except for one small area along Vine Street, where the average radium-226 level of 7.7 picocuries per gram (pCi/g) slightly exceeded the guideline of 5 pCi/g. An evaluation of the potential radiation exposures to persons at the site indicated that these exposures were within federal guidelines and risks were negligible.

December 1986 PRAR

The remedial action performed 1983-1984 consisted of excavating contaminated soils and rubble. After the contaminated soil was removed, another radiological survey was conducted to ensure that radiological conditions at each of the 11 excavated areas complied with remedial action guidelines before it was backfilled with clean fill material.

Property A

Four small areas on Property A were decontaminated and backfilled. Results of soil sample analyses indicated that the remedial action guideline was met. The average radium-226 concentration in the two areas was 1.2 pCi/g, including a background concentration of 1 pCi/g. Thus, the average concentration was 0.2 pCi/g above background. This was well below the remedial action guideline of 15 pCi/g

for radium-226 concentrations in soil more than 6 inches beneath the ground surface.

Property H'

One large area on Property H' was decontaminated and backfilled. Results of soil sample analyses indicated that the remedial action guideline was met. The average radium-226 concentration was 1.9 pCi/g, including a background concentration of 1 pCi/g. Thus, the average concentration was 0.9 pCi/g above background. Results from five soil samples exceeded the guideline of 15 pCi/g. A review of the soil samples and near-surface gamma measurements at locations contiguous with these five locations indicated that the average concentrations per 100 square meters (m²) were each less than 15 pCi/g. For the highest value, 58.8 pCi/g, the average concentration in the immediate area was 12.7 pCi/g. This value was the average of four contiguous samples with background subtracted. Near-surface gamma measurements indicated that the area was much smaller than 100 m², probably less than 10 m². Thus, the remedial action guideline has been met throughout the decontaminated area.

Property L

Two small areas on Property L were decontaminated and backfilled. Results of soil sample analyses indicated that the remedial action guideline was met. The average radium-226 concentration was 2.7 pCi/g, including a background concentration of 1 pCi/g. Thus, the average concentration was 1.7 pCi/g above background. This was well below the remedial action guideline of 15 pCi/g for radium-226 concentrations in soil more than 6 inches beneath the ground surface.

Property M

Three areas on Property M were decontaminated and backfilled. Results of soil sample analyses indicated that the remedial action guideline was met. The average radium-226 concentration was 3.4 pCi/g, including a background concentration of 1 pCi/g. Thus, the average concentration was 2.4 pCi/g above background. Results from the sample taken at one location exceeded the remedial action guideline of 15 pCi/g. A review of these results and those from three contiguous soil samples indicated that the average concentration per 100 m² was 5.6 pCi/g with background subtracted. Thus, the remedial action guideline has been met in all the decontaminated areas.

Property N/N' South

Eleven areas on Property N/N' South were decontaminated and backfilled. Results of soil sample analyses indicated that the remedial action guideline was met. The average radium-226 concentration in the decontaminated areas was 2.3 pCi/g, including a background concentration of 1 pCi/g. Thus, the average concentration was 1.3 pCi/g above background. Results from two soil samples exceeded the guideline of 15 pCi/g. A review of the soil samples and near-surface gamma measurements at locations contiguous with these two locations indicated that the average concentration per 100 m² was 11.2 pCi/g. This value was the average of seven contiguous samples with background subtracted.

Near-surface gamma measurements indicated that the areas were much smaller than 100 m², probably less than 1 m². Thus, the remedial action guideline has been met in all the decontaminated areas.

Property Q

Twenty areas on Property Q were decontaminated and backfilled. Results of soil sample analyses indicated that the remedial action guideline was met. The average radium-226 concentration was 2.2 pCi/g, including a background concentration of 1 pCi/g. Thus, the average concentration was 1.2 pCi/g above background. Results from two soil samples exceeded the remedial action guideline of 15 pCi/g. A review of the soil samples and near-surface gamma measurements at locations contiguous with these two locations indicated that the average concentrations per 100 m² were each less than 15 pCi/g. For the highest value, 37.4 pCi/g, the average concentration in the immediate area was 10.6 pCi/g. This value was the average of three contiguous samples with background subtracted. Near-surface gamma measurements indicated that the area was much smaller than 100 m², probably less than 10 m². Thus, the remedial action guideline for radium-226 has been met in all decontaminated areas. Results from one sample exceeded the remedial action guideline of 15 pCi/g for thorium-232. However, a review of the soil samples at locations contiguous with this location indicated that the average concentration (with background subtracted) was 4.5 pCi/g — thus, meeting the guideline.

Property R

Three small areas on Property R were decontaminated and backfilled. Results of soil sample analyses indicated that the remedial action guideline was met. The average radium-226 concentration was 2.1 pCi/g, including a background concentration of 1 pCi/g. Thus, the average concentration was 1.1 pCi/g above background. This was well below the remedial action guideline of 15 pCi/g for radium-226 concentrations in soil more than 6 inches beneath the ground surface.

Property S

One small area on Property S was decontaminated and backfilled. Results of soil sample analyses indicated that the remedial action guideline was met. The average radium-226 concentration was 4.5 pCi/g, including a background concentration of 1 pCi/g. Thus, the average concentration was 3.5 pCi/g above background. This was well below the remedial action guideline of 15 pCi/g for radium-226 concentrations in soil more than 6 inches beneath the ground surface.

Properties U and V

Eight small areas on Properties U and V were decontaminated and backfilled. Results of soil sample analyses indicated that the remedial action guideline was met. The average radium-226 concentration was 1.1 pCi/g, including a background concentration of 1 pCi/g. Thus, the average concentration was 0.1 pCi/g above background. This was well below the remedial action guideline of 15 pCi/g for radium-226

concentrations in soil more than 6 inches beneath the ground surface.

Property X

Fourteen small areas on Property X were decontaminated and backfilled. Results of soil sample analyses indicated that the remedial action guideline was met. The average radium-226 concentration was 1.0 pCi/g, including a background concentration of 1 pCi/g. Thus, the average concentration was equal to background. This was well below the remedial action guideline of 15 pCi/g for radium-226 concentrations in soil more than 6 inches beneath the ground surface.

West Drainage Ditch

The section of the West Drainage Ditch extending from the northern boundary of the NFSS to the confluence with the Central Drainage Ditch was decontaminated, but not backfilled. Results of soil sample analyses indicated that the remedial action guideline was met. The average radium-226 concentration was 1.5 pCi/g, including a background concentration of 1 pCi/g. Thus, the average concentration was 0.5 pCi/g above background. Results from seven soil samples exceeded the remedial action guideline of 5 pCi/g for surface concentrations of radium-226. A review of the soil samples and near-surface gamma measurements at locations contiguous with these seven locations indicated that the average concentrations per 100 m² were each less than 5 pCi/g. For the highest value, 14.3 pCi/g, the average concentration in the immediate area was 2.9 pCi/g. This value is the average of six contiguous samples with background subtracted. Near-surface gamma measurements indicated that the area was much smaller than 100 m², probably less than 10 m². Thus, the remedial action guideline has been met throughout the decontaminated area. Results from one sample exceeded the remedial action guideline of 15 pCi/g for thorium-232. However, a review of the soil samples contiguous with this location indicated that the average concentration (with background subtracted) was 4.2 pCi/g — thus, meeting the guideline.

Central Drainage Ditch

The section of the Central Drainage Ditch extending from the northern boundary of the NFSS to a location 1,500 feet west of Lutts Road was decontaminated, but not backfilled, along most of the distance cleaned. The average radium-226 concentration was 2.2 pCi/g, including a background concentration of 1 pCi/g. Thus, the average concentration was 1.2 pCi/g above background. While this average was well below the remedial action guideline of 5 pCi/g for surface concentrations of radium-226, results from 101 of the 1,750 samples collected exceeded 5 pCi/g above background. Each of these results was evaluated using contiguous soil samples and near-surface gamma measurements to determine average concentrations per 100 m² and the sizes of areas where results exceeded the guideline. Based on this evaluation, seven areas were identified that exceeded the guideline. The average radium-226 concentration in each of these areas was less than 15 pCi/g. Based on a pathways analysis, the resulting dose due to radium-226 contamination

in each of these areas was a fraction of the radiation protection standard of 100 millirems per year (mrem/yr). Therefore, it was determined by DOE that decontamination of the Central Drainage Ditch met the radiation protection standard.

In addition to the section cleaned, the section of the ditch from 1,500 to 4,500 feet west of where Lutts Road crosses the ditch was sampled to determine whether or not remedial action was required. The average concentration of radium-226 in this section was 6.1 pCi/g with a maximum of 11.5 pCi/g. Results of the pathways analysis indicated, however, that the resulting dose to the public would be only a small fraction of the radiation protection standard (100 mrem/yr). Consequently, it was determined by DOE that no remedial action was required along this section of the ditch.

January 1989 PRAR

The remedial action performed in 1985 and 1986 consisted of excavating contaminated soil and rubble. After the contaminated soil was removed, another radiological survey was conducted to ensure that radiological conditions at each excavated area complied with remedial action guidelines before the area was backfilled with clean fill material.

Property B

Seven small areas on Property B were decontaminated and backfilled. Because several external radiation measurements taken near some of the excavations indicated that additional contamination might have been present, several samples were taken in unexcavated areas. These samples were analyzed to verify that the concentration of radium-226 in surface soil was lower than the remedial action guideline of 5 pCi/g. Results of soil sample analyses indicated that the remedial action guideline was met. The average radium-226 concentration was 5.1 pCi/g, including a background concentration of 1 pCi/g. Thus, the average concentration was 4.1 pCi/g above background. This was well below the remedial action guideline of 15 pCi/g for radium-226 concentrations in soil more than 6 inches beneath the ground surface.

A warehouse on Property B was contaminated with radium-226 and polychlorinated biphenyls (PCBs). The building was being used to store PCBs. In certain parts of the building, the levels of surface contamination exceeded those permitted by the generic remedial action guidelines. Because of the toxicity problems presented by the presence of PCBs, a pathways analysis was performed to determine the appropriate remedial action response. This analysis showed that if the warehouse were to be demolished, the maximum concentration of radium-226 in the rubble would be 2.4 pCi/g. Actual concentrations, when averaged over 10-meter by 10-meter areas and a depth 6 inches would be a fraction of this value. Demolition and burial of the warehouse at least 6 inches beneath the surface of the ground in an unrestricted burial area was therefore feasible from a radiological standpoint.

Property C'

Four small areas on Property C' were decontaminated. These areas were not backfilled because they were in a wetlands area and were under water. Because several external radiation measurements taken near some of the excavations indicated that additional contamination might have been present, several samples were taken in unexcavated areas. These samples were analyzed to verify that the concentration of radium-226 in surface soil was below the remedial action guideline of 5 pCi/g. Results of soil sample analyses indicated that the remedial action guideline was met. The average radium-226 concentration in the four areas was 1.9 pCi/g, including a background concentration of 1 pCi/g. Thus, the average concentration was 0.9 pCi/g above background. This was well below the remedial action guideline of 5 pCi/g for radium-226 concentration in the top 6 inches of soil.

Although analysis results for two soil samples exceeded 5 pCi/g, a review of analysis results for soil and of near-surface gamma measurements obtained at locations contiguous with these two sampling locations indicated that the average concentrations per 100 m² were each less than 5 pCi/g. For the highest value of 9.4 pCi/g, the average concentration in the immediate area was 2.0 pCi/g. This value was the average of the values for three contiguous samples with background subtracted. Thus, the remedial action guideline for surface soil has been met throughout the decontaminated area.

Property D

Six areas on Property D were decontaminated during the 1985-1986 remedial action activities. Analysis results for soil from these six areas indicated that the remedial action guideline was met. The average radium-226 concentration in the six areas was 2.3 pCi/g, including a background concentration of 1 pCi/g. Thus, the average concentration was 1.3 pCi/g above background. This was well below the remedial action guideline of 15 pCi/g for radium-226 concentrations in soil more than 6 inches beneath the ground surface. The seventh area was part of a much larger area of contamination on Property U, which was decontaminated and backfilled as a part of remedial actions completed in 1984. The eighth area contained several 6- to 12-inch diameter pieces of a slag-like material with a uranium-to-radium ratio that was characteristic of MED/AEC materials. This material was removed during the verification survey. After the slag-like material was removed, a near-surface gamma survey indicated that there was no contamination present.

Property E

During May and June 1983, ORAU conducted a radiological survey of Property E that identified one area of contamination in part of the berm surrounding Lagoon 6 and another smaller area of contamination in the north-central part of the property. Lagoon 6, which was used to retain PCB-contaminated liquids, was part of a much larger, limited-access, hazardous chemical waste disposal facility. As part of remedial action on the property in 1985, additional radiological surveys of the

two contaminated areas were conducted by BNI. These surveys included electromagnetometer measurements, gamma logging of boreholes, and surface radiation scans. Data from the 1983 and 1985 surveys indicated that contamination in the berm consisted of small metal objects and plaster-like chips. According to ORAU, the chemical composition of these chips suggested that they may be lead cake residues. Data from the ORAU survey indicated that, while there were small areas in which contamination exceeded 5 pCi/g on the surface and 15 pCi/g in the subsurface, as specified by the generic remedial action guidelines, the average concentration of radium-226 in the area was less than either criterion. Contamination levels measured in both the berm and the contaminated area in the north-central part of Property E during the 1985 survey complied with the generic guideline.

Since PCBs were stored in the lagoon, no survey was made of the soil beneath the lagoon. DOE expressed its willingness to the Property E owner to resurvey the area beneath Lagoon 6 after decommissioning the lagoon. It was not possible to state categorically that contamination did or did not exist in that area. However, the probability that the concentration of radioactive contamination beneath the lagoon is greater than the levels permitted by the generic remedial action guidelines is small. This evaluation was based on the type of radioactively contaminated material found in the berm and the fact that the berm was constructed by excavating material from the area now filled by the lagoon. Contaminated soil or rubble that might originally have been present within the bermed area should now be in the berm itself.

Since the survey data collected by ORAU and BNI did not reveal the presence of contamination in excess of the generic guidelines, remedial action was not performed on the berm around Lagoon 6 and the other small area in the northern part of the property. All contamination noted during the ORAU and BNI surveys was in the form of small pieces of metal or plaster-like chips buried more than 6 inches beneath the ground surface. No subsurface concentrations of radium-226 in excess of 15 pCi/g when averaged over a 100-m² area were measured.

Property E'

Sixteen areas on Property E' were decontaminated and backfilled. Property E' was part of a much larger, limited-access, hazardous chemical waste disposal facility. Since several external radiation measurements taken near some of the excavations indicated that additional contamination might have been present, several samples were taken in unexcavated areas. These samples were analyzed to verify that the concentration of radium-226 in surface soil was lower than the remedial action guideline of 5 pCi/g. Results of soil sample analyses indicate that the remedial action guideline was met. The average radium-226 concentration was 2.3 pCi/g, including a background concentration of 1 pCi/g. Thus, the average concentration was 1.3 pCi/g above background. This is well below the remedial action guideline of 15 pCi/g for radium-226 concentrations in soil more than 6 inches beneath the ground surface.

Two additional areas of the property were not accessible for remedial action. One of these areas was beneath two PCB storage tanks and the other was beneath a road. The contamination remaining in these areas was present in a 0.3-meter-thick layer, about 0.6 meters beneath the ground surface. It was in the form of small white chips, the chemical composition of which suggested that they may be lead cake residues. Although the concentrations of radium-226 in these small chips were above 15 pCi/g, the average concentrations for contiguous areas of 100 m² were below 15 pCi/g. Remedial actions were conducted in the vicinity of these two areas to remove as much of the contamination as possible in an effort to reduce radiation levels to as low as reasonably achievable. Since the average concentrations of radium-226 for contiguous areas of 100 meters were below 15 pCi/g, the decision was made to leave the residual contamination remaining under the PCB tanks and the roadway in place. No undesirable effects on the health and safety of workers in the area will occur as a result of these materials.

Property F

One small area on Property F was decontaminated and backfilled. Results of soil sample analyses indicated that the remedial action guideline was met. The radium-226 concentration was 0.8 pCi/g; thus, the concentration was below background levels.

Property G

Forty-five areas on Property G were decontaminated and backfilled. Because external radiation measurements taken near some of the excavations indicated that additional contamination might have been present, several samples were taken in unexcavated areas. These samples were analyzed to verify that the concentration of radium-226 in surface soil was lower than the remedial action guideline of 5 pCi/g. Results of soil sample analyses indicated that the remedial action guideline was met. The average radium-226 concentration was 2.1 pCi/g, including a background concentration of 1 pCi/g. Thus, the average concentration was 1.1 pCi/g above background. This was well below the remedial action guideline of 15 pCi/g for radium-226 concentrations in soil more than 6 inches beneath the ground surface.

Uranium-238 concentrations exceeded 44 pCi/g in two samples. A review of analysis results for soil samples obtained at locations contiguous to the first sample indicated that the average concentration (with background subtracted) was 30 pCi/g, which is within the remedial action guideline for uranium-238 in soil. No sample was collected from the area contiguous to the second sample; therefore, no average value could be obtained. However, near-surface gamma measurements in this contiguous area and the as-built drawing were reviewed. The review of these sources demonstrated that the area contiguous to the second sample was about 24 m²; thus, the "hot spot" criteria could be applied. The hot spot criterion is determined by multiplying the remedial action guideline for the respective radionuclide by a factor of

$(100/A)^{1/2}$, where A is the area of the hot spot. Using this formula, a value of 90 pCi/g was obtained for uranium-238. Therefore, the uranium-238 concentration at the second location met the hot spot criterion.

All of Property G was cleaned up in 1986, except for one small area containing several buried drums. One drum was removed in 1986 and its contents analyzed. The analysis showed the presence of numerous organic compounds. These compounds are common constituents of coal tars and coal tar derivatives. The drum also was found to be radioactively contaminated. It was postulated that the drums were originally used to store K-65 residues, and that there was residual contamination because it was not possible to remove all of the K-65 residues. In 1987, the area of the drums was excavated. Thirty-one additional drums were removed and placed in over-packs. Ninety drums of soil, contaminated with the material from the original drums, were also removed.

Property N/N' North

Property N/N' North is owned by Modern Landfill, Inc., which requested in 1980 that DOE remove restrictions on a 19-acre parcel of the property so that it could be developed as a sanitary landfill. The parcel is a triangular area bounded by Vine and "O" Streets and Castle Garden Road. DOE entered into an agreement with Modern Landfill, Inc., to perform the remedial action and certify that the subject property complied with applicable radiological criteria and guidelines. BNI conducted the remedial action in June 1981 and surveyed an additional 15.8 acres of the property in November of that year. In 1982, ORAU issued a post-remedial action report, and DOE certified that use of the 34.8-acre parcel would not result in any measurable radiological hazard to the general public.

The remainder of Property N/N' North was decontaminated during the 1985 and 1986 work seasons. Twenty-three areas were decontaminated and backfilled. Because several external radiation measurements taken near some of the excavations indicated that additional contamination might have been present, several samples were taken in unexcavated areas. These samples were analyzed to verify that the concentration of radium-226 in surface soil was lower than the remedial action guideline of 5 pCi/g.

Results of soil sample analyses indicated that the remedial action guideline was met. The average radium-226 concentration was 1.8 pCi/g, including a background concentration of 1 pCi/g. Thus, the average concentration was 0.8 pCi/g above background. Although results from one soil sample exceeded 15 pCi/g, a review of the soil samples and near-surface gamma measurements at locations contiguous with this location indicated that the average concentration per 100 m² was 6.6 pCi/g. This value is the average of three contiguous samples with background subtracted. Thus, the remedial action guideline for radium-226 in subsurface soil has been met in all decontaminated areas.

The concentration of uranium-238 exceeded 44 pCi/g in only one sample. A review of analysis results for soil samples taken at locations contiguous with that sample indicated that the

average concentration (with background subtracted) was 64 pCi/g, which still exceeds the remedial action guideline. However, near-surface gamma measurements and the as-built drawing of the contiguous areas were both reviewed. The review of these sources demonstrated that the area contiguous to the sample was about 21 m²; thus, the “hot spot” criteria could be applied. Again, the hot spot criterion is determined by multiplying the respective remedial action guideline by a factor of $(100/A)^{1/2}$, where A is the area of the hot spot. The sample met the 96-pCi/g hot spot criterion thus calculated.

Property P

One small area on Property P was decontaminated and backfilled. Results of soil sample analysis indicated that the remedial action guideline was met. The radium-226 concentration was 0.8 pCi/g; thus, the concentration was within the range of background levels.

Property T

Thirty-seven small areas on Property T were decontaminated and backfilled. Because several external radiation measurements taken near some of the excavations indicated that additional contamination might have been present, several samples were taken in unexcavated areas. These samples were analyzed to verify that the concentration of radium-226 in surface soil was lower than the remedial action guideline of 5 pCi/g. Results of soil sample analyses indicated that the remedial action guideline was met. The average radium-226 concentration was 2.5 pCi/g, including a background concentration of 1 pCi/g. Thus, the average concentration was 1.5 pCi/g above background. This was well below the remedial action guideline of 15 pCi/g for radium-226 concentrations in soil more than 6 inches beneath the ground surface.

Property W

Two small areas on Property W were decontaminated and backfilled. Because several external radiation measurements taken near some of the excavations indicated that additional contamination might have been present, several samples were taken in unexcavated areas. These samples were analyzed to verify that the concentration of radium-226 in surface soil was lower than the remedial action guideline of 5 pCi/g. Results of soil sample analyses indicated that the remedial action guideline was met. The average radium-226 concentration was 2.5 pCi/g, including a background concentration of 1 pCi/g. Thus, the average concentration was 1.5 pCi/g above background. This was well below the remedial action guideline of 15 pCi/g for radium-226 concentrations in soil more than 6 inches beneath the ground surface.

Pletcher Road

Twenty-six areas along Pletcher Road were decontaminated and backfilled. Because several external radiation measurements taken near some of the excavations indicated that additional contamination might have been present, several samples were taken in unexcavated areas. These samples were analyzed to verify that the concentration of radium-226 in surface soil was lower than the remedial action guideline of

5 pCi/g. Results of soil sample analyses indicated that the remedial action guideline was met. The average radium-226 concentration was 5.2 pCi/g, including a background concentration of 1 pCi/g. Thus, average concentration was 4.2 pCi/g above background. Although results from three soil samples exceeded 15 pCi/g, a review of the soil samples and near-surface gamma measurements at locations contiguous with these three locations indicated that the average concentrations per 100 m² were each less than 15 pCi/g. For the highest value (21.1 pCi/g), the average concentration in the immediate area was 12.3 pCi/g. This value was the average of two contiguous samples with background subtracted. Thus, the remedial action guideline for subsurface soil has been met throughout the decontaminated area.

Anomaly AA

Five small areas known as Anomaly AA were decontaminated and backfilled. Results of soil sample analyses indicated that the remedial action guideline was met. The average radium-226 concentration was 6.4 pCi/g, including a background concentration of 1 pCi/g. Thus, the average concentration was 5.4 pCi/g above background levels. This was well below the remedial action guideline of 15 pCi/g for radium-226 concentrations in soil more than 6 inches beneath the ground surface.

Results from one sample exceeded the remedial action guideline of 15 pCi/g. A review of the soil samples and near-surface gamma measurements at locations contiguous with this location indicated that the average concentration per 100 m² was less than 15 pCi/g. The average concentration in the immediate area was 13.5 pCi/g (background has been subtracted). Thus, the remedial action guideline for radium-226 has been met in all decontaminated areas.

Anomaly BB

Two small areas known as Anomaly BB were decontaminated and backfilled. Results of soil sample analyses indicated that the remedial action guideline was met. The average radium-226 concentration was 2.8 pCi/g, including a background concentration of 1 pCi/g. Thus, the average concentration was 1.8 pCi/g above background, which was well below the remedial action guideline of 15 pCi/g for radium-226 concentrations in soil more than 6 inches beneath the ground surface.

Anomaly CC

One small area known as Anomaly CC was decontaminated and backfilled. Results of soil sample analyses indicated that the remedial action guideline was met. The average radium-226 concentration was 3.3 pCi/g, including a background concentration of 1 pCi/g. Thus, the average concentration was 2.3 pCi/g above background, which was well below the remedial action guideline of 15 pCi/g for radium-226 concentrations in soil more than 6 inches beneath the ground surface.

Current Site Conditions

Based on all data collected, the NFSS vicinity properties conformed to all applicable DOE radiological guidelines established for release of these properties for future use. DOE has been responsible for long-term stewardship of the NFSS site since 1992. The stewardship requirements and protocols are captured in the Long-Term Stewardship Plan for Completed FUSRAP Sites, which is available on the DOE Office of Legacy Management website (www.energy.gov/lm/niagara-falls-storage-site-vicinity-properties-new-york-site).

The Niagara Falls Storage Site, plus vicinity properties E, E', and G, were not certified clean as part of this remediation effort. Also, in September 2014, vicinity properties H' and X were referred to the U.S. Army Corps of Engineers for further evaluation.



ADDITIONAL INFORMATION

Documents related to FUSRAP activities at the Niagara Falls Storage Site Vicinity Properties, New York, Site are available on the LM website at lmpublicsearch.lm.doe.gov/SitePages/default.aspx?sitename=Niagara_Storage.

For other information on site history or current long-term stewardship activities, please contact us at:

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Thirty-two tables referenced in the NFSS VPs Certification Docket provide the evidence used to certify the site as clean.

The remedial action guideline for radium-226 concentrations in soil more than six inches beneath the ground surface = 15 pCi/g

The ten tables below come from the "1986 PRAR," which is the BNI report "Post-Remedial Action Report for the Niagara Falls Storage Site Vicinity Properties - 1983 and 1984" (December 1986).

Post-Remedial Action Sampling Results for Property A				
Table 2 in 1986 PRAR				
Grid Coordinates		Concentrations (pCi/g ± 1 sigma)		
E,W	N,S	Uranium-238	Radium-226	Thorium-232
E3228	N3708	A	1.4 ± 0.1	0.6 ± 0.1
E3370	N3780	A	1.2 ± 0.1	0.8 ± 0.1
E3388	N3780	A	0.7 ± 0.1	0.5 ± 0.1
E3390	N3770	A	1.9 ± 0.1	0.9 ± 0.2
E3398	N3777	A	0.9 ± 0.1	1.0 ± 0.2

"A" denotes less than detectable activity.

Post-Remedial Action Sampling Results for Property L				
Table 4 in 1986 PRAR				
Grid Coordinates		Concentrations (pCi/g ± 1 sigma)		
E,W	N,S	Uranium-238	Radium-226	Thorium-232
E0880	S2620			
E0880	S2640	A	0.9 ± 0.1	0.3 ± 0.1
E0880	S2660	A	4.3 ± 0.2	1.4 ± 0.2
E0880	S2680	4.8 ± 2.4	6.4 ± 0.2	1.4 ± 0.2
E0880	S2700	8.8 ± 3.2	7.7 ± 0.3	1.1 ± 0.3
E0880	S2720	A	1.2 ± 0.1	0.6 ± 0.2
E0880	S2740	A	1.5 ± 0.1	0.8 ± 0.2
E0880	S2760	4.5 ± 1.8	1.9 ± 0.2	1.4 ± 0.2
E0880	S2780	A	0.8 ± 0.1	0.8 ± 0.1
E0880	S2800	A	1.7 ± 0.1	0.8 ± 0.1
E0880	S2820	A	1.4 ± 0.1	0.7 ± 0.1
E0880	S2840	A	2.1 ± 0.2	2.0 ± 0.1
E0880	S2860	A	1.5 ± 0.1	1.4 ± 0.2
E0880	S2875	A	1.1 ± 0.1	1.4 ± 0.3
E0885	S2336	A	5.8 ± 0.2	0.9 ± 0.2

"A" denotes less than detectable activity.

Post-Remedial Action Sampling Results for Property M				
Table 5 in 1986 PRAR				
Grid Coordinates		Concentrations (pCi/g ± 1 sigma)		
E,W	N,S	Uranium-238	Radium-226	Thorium-232
E0920	S2220	A	21.9 ± 2.1	4.4 ± 1.9
E0920	S2240	A	1.2 ± 0.2	0.3 ± 0.1
E0920	S2260	A	10.6 ± 0.3	A
E0920	S2280	A	9.0 ± 0.3	0.7 ± 0.2
E0920	S2300	A	3.3 ± 0.2	1.0 ± 0.2
E0920	S2520	A	9.2 ± 0.3	0.7 ± 0.2
E0925	S2420	A	2.4 ± 0.2	1.2 ± 0.2
E0925	S2440	A	1.4 ± 0.1	1.2 ± 0.2
E0925	S2460	A	1.9 ± 0.2	0.9 ± 0.2
E0925	S2480	A	1.8 ± 0.2	0.7 ± 0.2
E0925	S2500	A	5.3 ± 0.3	1.4 ± 0.3
E0925	S2540	A	4.0 ± 0.3	A
E0925	S2560	A	1.6 ± 0.1	0.9 ± 0.2
E0925	S2580	1.5 ± 1.4	1.3 ± 0.1	1.4 ± 0.2
E0925	S2600	A	1.2 ± 0.1	1.2 ± 0.2
E0925	S2620	1.1 ± 0.1	1.5 ± 0.1	1.2 ± 0.2
E0925	S2640	A	1.9 ± 0.1	0.9 ± 0.2
E0925	S2660	A	1.2 ± 0.1	A
E0925	S2680	3.3 ± 2.0	2.7 ± 0.2	0.9 ± 0.4
E0925	S2700	A	1.3 ± 0.1	0.9 ± 0.2
E0925	S2720	A	1.0 ± 0.1	0.5 ± 0.2
E0925	S2740	A	2.1 ± 0.2	0.8 ± 0.3
E0925	S2760	1.7 ± 1.2	1.8 ± 0.2	1.2 ± 0.2
E0928	S2150	A	4.2 ± 0.2	A
E0940	S2160	2.9 ± 2.0	1.4 ± 1.3	1.0 ± 0.2
E0940	S2180	A	1.8 ± 0.2	1.2 ± 0.3
E0940	S2220	A	1.9 ± 0.2	1.4 ± 0.2
E0940	S2240	A	1.5 ± 0.1	0.9 ± 0.2
E0940	S2260	2.0 ± 1.4	1.7 ± 0.1	0.9 ± 0.3
E0940	S2280	A	2.6 ± 0.2	1.4 ± 0.2
E0940	S2300	A	1.5 ± 0.1	0.8 ± 0.2

"A" denotes less than detectable activity.

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Post-Remedial Action Sampling Results for Property N/N' South				
Table 6 in 1986 PRAR				
Grid Coordinates		Concentrations (pCi/g ± 1 sigma)		
E,W	N,S	Uranium-238	Radium-226	Thorium-232
E2140	S2240	A	11 ± 0.2	0.7 ± 0.2
E2160	S2240	A	1.2 ± 0.2	1.0 ± 0.2
E2160	S2260	A	0.9 ± 0.1	1.8 ± 0.3
E2166	S2242	30.8 ± 10.4	39.3 ± 1.0	A
E2180	S2252	A	11.3 ± 0.5	0.7 ± 0.3
E2180	S2260	A	0.9 ± 0.1	0.6 ± 0.2
E2200	S2260	A	30.3 ± 0.8	A
E3519	S2391	A	11 ± 0.1	1.2 ± 0.3
E3537	S2376	A	1.0 ± 0.2	11 ± 0.4
E3660	S2320	A	0.8 ± 0.1	11 ± 0.1
E3670	S2310	A	1.0 ± 0.1	1.2 ± 0.2
E3670	S2330	A	1.0 ± 0.1	1.4 ± 0.2
E3680	S2300	A	0.7 ± 0.1	0.5 ± 0.2
E3680	S2320	A	0.5 ± 0.1	11 ± 0.2
E3680	S2340	A	1.2 ± 0.1	1.0 ± 0.2
E3690	S2290	2.2 ± 0.1	0.8 ± 0.1	1.2 ± 0.1
E3690	S2310	A	0.8 ± 0.1	0.7 ± 0.1
E3690	S2330	A	0.6 ± 0.1	0.7 ± 0.1
E3700	S2300	5.1 ± 1.4	0.7 ± 0.1	0.6 ± 0.1
E3700	S2320	A	1.3 ± 0.1	1.2 ± 0.2
E3710	S2290	A	0.9 ± 0.1	1.6 ± 0.2
E3710	S2320	A	0.9 ± 0.1	1.2 ± 0.2
E3710	S2330	2.0 ± 1.5	3.0 ± 0.2	A
E3720	S2280	A	0.8 ± 0.1	1.3 ± 0.2
E3720	S2300	A	1.0 ± 0.1	1.2 ± 0.2
E3720	S2320	A	1.4 ± 0.2	11 ± 0.3
E3730	S2270	A	1.8 ± 0.2	A
E3730	S2290	A	0.7 ± 0.1	0.7 ± 0.2
E3730	S2310	A	11 ± 0.1	1.0 ± 0.2
E3740	S2260	A	11 ± 0.2	0.9 ± 0.3
E3740	S2280	A	1.0 ± 0.1	1.2 ± 0.2
E3740	S2300	A	0.9 ± 0.1	1.2 ± 0.2
E3750	S2270	A	1.3 ± 0.2	0.4 ± 0.3
E3750	S2290	A	11 ± 0.1	1.0 ± 0.2
E3760	S2260	A	0.6 ± 0.1	A
E3760	S2280	A	1.2 ± 0.1	1.4 ± 0.2
E3760	S2300	2.6 ± 1.2	1.2 ± 0.1	1.4 ± 0.2
E3770	S2250	A	1.0 ± 0.1	1.0 ± 0.3
E3770	S2270	A	6.1 ± 0.3	1.2 ± 0.2
E3770	S2290	A	1.2 ± 0.1	1.6 ± 0.2
E3780	S2240	A	1.2 ± 0.2	0.4 ± 0.1
E3780	S2260	A	1.2 ± 0.1	1.4 ± 0.2
E3780	S2280	A	0.9 ± 0.1	0.6 ± 0.1
E3790	S2230	A	0.9 ± 0.1	1.2 ± 0.2
E3790	S2250	A	1.0 ± 0.1	1.3 ± 0.2
E3790	S2270	A	1.0 ± 0.1	1.5 ± 0.2
E3800	S2240	A	0.9 ± 0.1	11 ± 0.2
E3800	S2260	A	8.1 ± 0.3	1.4 ± 0.3
E3810	S2230	A	0.7 ± 0.1	1.2 ± 0.3
E3810	S2250	6.4 ± 1.5	11 ± 0.1	1.2 ± 0.2
E3810	S2270	A	1.3 ± 0.2	1.3 ± 0.3
E3820	S2240	A	0.9 ± 0.2	1.3 ± 0.2
E3820	S2260	A	11 ± 0.2	1.2 ± 0.3
E3830	S2200	A	1.0 ± 0.2	1.2 ± 0.3
E3830	S2210	A	0.7 ± 0.1	0.5 ± 0.1
E3830	S2220	A	1.2 ± 0.2	1.6 ± 0.3
E3830	S2230	A	1.4 ± 0.2	1.9 ± 0.2
E3830	S2250	A	1.4 ± 0.2	1.0 ± 0.3
E3830	S2810	A	1.0 ± 0.1	11 ± 0.2
E3840	S2200	A	11 ± 0.1	11 ± 0.2
E3840	S2220	A	0.6 ± 0.1	0.4 ± 0.2
E3840	S2240	A	0.8 ± 0.1	1.3 ± 0.2
E3850	S2250	A	11 ± 0.1	1.3 ± 0.2
E3850	S2200	A	0.9 ± 0.1	0.6 ± 0.3
E3860	S2200	A	1.3 ± 0.1	1.0 ± 0.2
E3860	S2220	A	1.0 ± 0.2	1.2 ± 0.2
E3860	S2240	A	11 ± 0.2	A
E3870	S2190	A	1.8 ± 0.2	0.8 ± 0.3
E3870	S2210	A	0.9 ± 0.1	1.3 ± 0.2
E3870	S2230	A	1.0 ± 0.1	1.0 ± 0.1
E3880	S2220	A	1.0 ± 0.1	11 ± 0.2
E3890	S2210	0.4 ± 0.7	11 ± 0.1	1.4 ± 0.2

*A denotes less than detectable activity.

Post-Remedial Action Sampling Results for Property R				
Table 8 in 1986 PRAR				
Grid Coordinates		Concentrations (pCi/g ± 1 sigma)		
E,W	N,S	Uranium-238	Radium-226	Thorium-232
W0265	S3140	A	1.2 ± 0.2	0.6 ± 0.2
W0285	S3140	A	0.7 ± 0.1	0.7 ± 0.2
W0305	S3140	A	11.7 ± 0.8	A
W0310	S3130	A	1.4 ± 0.1	1.3 ± 0.2
W0367	S3140	A	2.2 ± 0.2	11 ± 0.2
W0387	S3140	A	0.9 ± 0.1	1.2 ± 0.2
W0407	S3140	A	1.7 ± 0.1	0.8 ± 0.2
W0427	S3140	A	1.2 ± 0.1	0.6 ± 0.1
W0447	S3140	A	0.8 ± 0.1	1.1 ± 0.2
W0467	S3140	A	1.2 ± 0.1	1.0 ± 0.1
W0487	S3140	A	1.0 ± 0.1	1.2 ± 0.3
W0507	S3140	A	0.7 ± 0.1	0.9 ± 0.2
W0527	S3140	A	1.3 ± 0.1	A
W0547	S3140	A	1.6 ± 0.2	1.0 ± 0.2
W0567	S3140	A	1.5 ± 0.2	11 ± 0.2
W0587	S3140	A	0.9 ± 0.1	A
W0607	S3140	A	4.0 ± 0.2	1.1 ± 0.3
W0627	S3140	A	4.2 ± 0.2	1.4 ± 0.2
W0645	S3140	A	1.5 ± 0.1	0.9 ± 0.2
W0665	S3140	4.2 ± 1.4	1.4 ± 0.1	1.4 ± 0.2
W0685	S3140	A	1.4 ± 0.1	1.1 ± 0.2

*A denotes less than detectable activity.

Post-Remedial Action Sampling Results for Property U and V				
Table 10 in 1986 PRAR				
Grid Coordinates		Concentrations (pCi/g ± 1 sigma)		
E,W	N,S	Uranium-238	Radium-226	Thorium-232
E0800	N3545	A	1.0 ± 0.1	1.3 ± 0.2
E0810	N3535	A	1.5 ± 0.1	0.9 ± 0.2
E0820	N3545	A	1.7 ± 0.1	0.7 ± 0.1
E0987	N3625	A	1.6 ± 0.1	0.8 ± 0.2
E0997	N3635	A	0.7 ± 0.1	0.6 ± 0.1
E0997	N3655	A	0.9 ± 0.1	1.0 ± 0.2
E1009	N3625	A	0.8 ± 0.1	11 ± 0.1
E1121	N3709	A	11 ± 0.1	1.2 ± 0.2
E1128	N3686	A	0.9 ± 0.1	11 ± 0.2
E1138	N3690	A	0.8 ± 0.1	0.9 ± 0.1
E1138	N3709	A	0.8 ± 0.1	1.1 ± 0.2
E1148	N3709	A	1.2 ± 0.1	1.0 ± 0.2
E1297	N3690	A	1.2 ± 0.1	1.5 ± 0.2
E1317	N3690	A	1.3 ± 0.1	11 ± 0.2
E1320	N3690	A	1.2 ± 0.4	1.4 ± 0.2
E1320	N3710	A	0.8 ± 0.3	0.9 ± 0.2
E1327	N3700	A	5.2 ± 0.3	1.4 ± 0.4
E1330	N3700	A	0.8 ± 0.3	1.2 ± 0.2
E1330	N3720	A	1.4 ± 0.4	0.8 ± 0.2
E1340	N3690	A	0.8 ± 0.3	11 ± 0.2
E1340	N3700	A	3.9 ± 1.2	0.8 ± 0.2
E1350	N3700	A	2.1 ± 0.6	1.3 ± 0.2
E1360	N3710	A	0.6 ± 0.2	1.4 ± 0.2
E1367	N3790	A	0.9 ± 0.1	0.8 ± 0.1
E1370	N3700	A	1.5 ± 0.5	0.9 ± 0.2
E1380	N3710	A	0.9 ± 0.3	11 ± 0.2
E1390	N3700	A	1.0 ± 0.3	0.8 ± 0.2
E1400	N3690	A	0.7 ± 0.2	11 ± 0.2
E1400	N3710	A	0.8 ± 0.2	0.9 ± 0.1
E1410	N3700	A	0.8 ± 0.2	1.0 ± 0.2
E1420	N3710	A	0.6 ± 0.2	1.0 ± 0.2
E1430	N3700	A	0.7 ± 0.2	0.9 ± 0.2
E1430	N3720	A	0.8 ± 0.3	1.7 ± 0.2
E1440	N3690	A	1.2 ± 0.4	1.0 ± 0.2
E1440	N3710	A	0.9 ± 0.3	1.0 ± 0.2
E1450	N3700	A	0.7 ± 0.2	11 ± 0.1
E1460	N3690	2.9 ± 1.6	1.4 ± 0.4	1.5 ± 0.3
E1460	N3700	A	2.0 ± 0.3	1.8 ± 0.6
E1460	N3710	A	3.1 ± 0.9	1.3 ± 0.3

*A denotes less than detectable activity.

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Post-Remedial Action Sampling Results for Property Q
Table 7 in 1986 PRAR

Grid Coordinates		Concentrations (pCi/g ± 1 sigma)		
E,W	N,S	Uranium-238	Radium-226	Thorium-232
E1890	S6900	A	1.2 ± 0.1	1.3 ± 0.2
E1890	S6920	0.9 ± 1.3	1.5 ± 0.1	1.0 ± 0.2
E1900	S6910	A	1.3 ± 0.1	1.1 ± 0.2
E1910	S6930	A	0.9 ± 0.1	0.4 ± 0.2
E1910	S6950	A	0.8 ± 0.1	0.7 ± 0.3
E1910	S7060	A	1.4 ± 0.1	1.2 ± 0.2
E1918	S7100	A	12.4 ± 0.6	7.1 ± 0.8
E1920	S6920	A	0.9 ± 0.1	0.7 ± 0.2
E1920	S6940	A	1.0 ± 0.1	1.3 ± 0.2
E1920	S6960	A	1.1 ± 0.1	0.6 ± 0.2
E1920	S6980	A	0.9 ± 0.1	1.1 ± 0.2
E1930	S6920	A	0.9 ± 0.1	1.2 ± 0.2
E1930	S6930	3.6 ± 0.1	0.7 ± 0.1	A
E1930	S6950	A	1.1 ± 0.1	1.6 ± 0.2
E1930	S7070	A	1.3 ± 0.2	A
E1930	S7080	A	1.3 ± 0.1	1.7 ± 0.2
E1930	S7090	A	1.0 ± 0.1	1.2 ± 0.2
E1940	S6920	A	1.0 ± 0.1	0.6 ± 0.1
E1940	S6940	A	1.2 ± 0.2	1.5 ± 0.2
E1940	S6980	A	0.8 ± 0.1	0.7 ± 0.2
E1940	S7000	A	0.7 ± 0.1	0.8 ± 0.2
E1940	S7020	A	0.9 ± 0.1	A
E1940	S7070	A	1.2 ± 0.1	0.7 ± 0.2
E1940	S7080	6.4 ± 2.5	6.6 ± 0.3	4.0 ± 0.3
E1950	S6930	A	2.1 ± 0.1	1.0 ± 0.2
E1950	S6970	2.8 ± 1.3	1.1 ± 0.1	0.9 ± 0.1
E1950	S6990	A	1.2 ± 0.1	1.5 ± 0.2
E1950	S7010	A	0.9 ± 0.1	0.7 ± 0.2
E1950	S7030	3.4 ± 1.6	1.1 ± 0.1	A
E1950	S7070	24.7 ± 4.5	37.4 ± 0.6	16.3 ± 0.8
E1950	S7080	12.7 ± 3.1	6.6 ± 0.3	3.8 ± 0.4
E1950	S7090	A	1.0 ± 0.1	0.8 ± 0.2
E1950	S7100	A	2.3 ± 0.2	1.2 ± 0.2
E1960	S6900	A	1.5 ± 0.1	1.5 ± 0.2
E1960	S6920	A	0.8 ± 0.1	0.5 ± 0.1
E1960	S6940	A	1.4 ± 0.1	1.3 ± 0.2
E1960	S6970	0.8 ± 1.1	0.8 ± 0.1	1.0 ± 0.2
E1960	S7000	A	0.9 ± 0.1	0.9 ± 0.1
E1960	S7020	2.8 ± 1.3	0.7 ± 0.1	1.2 ± 0.2
E1960	S7050	A	1.1 ± 0.3	4.6 ± 0.4
E1960	S7060	4.2 ± 1.7	1.7 ± 0.2	2.0 ± 0.3
E1960	S7070	A	1.1 ± 0.1	0.9 ± 0.2
E1960	S7080	A	1.7 ± 0.1	1.1 ± 0.2
E1970	S6920	A	1.2 ± 0.1	0.6 ± 0.1
E1970	S6930	A	0.8 ± 0.1	0.5 ± 0.1
E1970	S6970	A	1.0 ± 0.1	1.0 ± 0.2
E1970	S6990	A	0.8 ± 0.1	0.9 ± 0.2
E1970	S7010	2.5 ± 1.1	1.1 ± 0.1	0.9 ± 0.1
E1970	S7030	A	1.1 ± 0.2	1.3 ± 0.3
E1970	S7040	A	1.2 ± 0.1	1.3 ± 0.2
E1970	S7050	A	4.5 ± 0.2	3.5 ± 0.3
E1970	S7050	12.2 ± 3.5	1.9 ± 0.4	5.9 ± 0.4
E1970	S7070	A	1.0 ± 0.1	0.7 ± 0.2
E1970	S7090	A	A	1.2 ± 0.2
E1980	S6920	3.6 ± 1.5	1.2 ± 0.1	1.0 ± 0.1
E1980	S6940	A	0.8 ± 0.1	0.9 ± 0.2
E1980	S7020	6.1 ± 2.4	7.1 ± 0.3	3.4 ± 0.4
E1980	S7030	A	0.9 ± 0.1	1.7 ± 0.2
E1980	S7040	A	1.0 ± 0.1	1.0 ± 0.2
E1980	S7050	A	0.9 ± 0.1	1.1 ± 0.2
E1980	S7060	9.4 ± 2.8	19.9 ± 0.5	9.2 ± 0.7
E1980	S7070	3.5 ± 1.5	1.1 ± 0.1	1.4 ± 0.2
E1980	S7080	A	1.9 ± 0.2	1.4 ± 0.3
E1990	S6910	A	1.3 ± 0.1	1.5 ± 0.2
E1990	S6930	A	1.0 ± 0.1	1.2 ± 0.2
E1990	S7030	4.0 ± 1.8	0.7 ± 0.1	0.8 ± 0.3
E1990	S7040	A	1.1 ± 0.1	1.3 ± 0.2
E1990	S7060	A	1.0 ± 0.1	1.1 ± 0.2
E1990	S7070	A	1.0 ± 0.1	1.1 ± 0.2
E1990	S7090	3.0 ± 1.9	3.3 ± 0.2	2.1 ± 0.2
E2000	S7020	A	0.6 ± 0.1	A
E2000	S7040	A	0.6 ± 0.1	0.7 ± 0.2

*A denotes less than detectable activity.

Post-Remedial Action Sampling Results for Property X
Table 11 in 1986 PRAR

Grid Coordinates		Concentrations (pCi/g ± 1 sigma)		
E,W	N,S	Uranium-238	Radium-226	Thorium-232
W0185	N1140	A	1.1 ± 0.1	0.7 ± 0.2
W0185	N1150	A	1.0 ± 0.1	1.3 ± 0.2
W0215	N1165	A	1.6 ± 0.1	0.9 ± 0.2
W0217	N1409	A	5.1 ± 0.2	1.0 ± 0.2
W0225	N1175	A	1.2 ± 0.1	1.0 ± 0.2
W0240	N1160	A	2.6 ± 0.2	0.8 ± 0.2
W0267	N1360	A	0.9 ± 0.1	1.1 ± 0.2
W0283	N1377	A	1.3 ± 0.1	0.9 ± 0.2
W0299	N1377	A	0.8 ± 0.1	1.1 ± 0.2
W0316	N1377	A	1.3 ± 0.1	0.7 ± 0.2
W0328	N1360	A	1.3 ± 0.4	1.4 ± 0.2
W0335	N1355	A	0.6 ± 0.4	1.0 ± 0.2
W0382	N1300	A	2.1 ± 0.1	1.0 ± 0.2
W0388	N1330	1.7 ± 1.3	1.1 ± 0.1	0.8 ± 0.2
W0388	N1350	A	0.8 ± 0.1	0.7 ± 0.2
W0390	N0620	A	1.1 ± 0.1	1.0 ± 0.2
W0390	N0640	A	0.7 ± 0.1	0.8 ± 0.1
W0390	N0660	A	1.1 ± 0.1	0.5 ± 0.2
W0390	N0700	A	0.8 ± 0.1	A
W0390	N0720	A	1.2 ± 0.1	1.1 ± 0.2
W0390	N0740	A	0.7 ± 0.1	0.8 ± 0.2
W0390	N0760	A	0.8 ± 0.1	1.0 ± 0.1
W0398	N1340	A	1.0 ± 0.1	1.2 ± 0.2
W0398	N1360	A	1.5 ± 0.1	0.9 ± 0.2
W0400	N0610	A	1.2 ± 0.1	0.9 ± 0.2
W0400	N0630	2.1 ± 1.4	0.9 ± 0.1	1.1 ± 0.2
W0400	N0670	A	0.9 ± 0.1	1.3 ± 0.2
W0400	N0690	0.8 ± 1.1	0.6 ± 0.1	0.9 ± 0.2
W0400	N0710	A	1.1 ± 0.1	1.3 ± 0.2
W0400	N0730	A	1.3 ± 0.1	1.5 ± 0.2
W0400	N0750	A	0.8 ± 0.1	0.8 ± 0.2
W0400	N0770	A	1.0 ± 0.1	1.0 ± 0.2
W0410	N0620	4.0 ± 1.0	0.5 ± 0.1	0.6 ± 0.1
W0410	N0640	1.3 ± 1.8	1.2 ± 0.1	0.8 ± 0.2
W0410	N0650	A	1.0 ± 0.1	0.5 ± 0.2
W0410	N0660	8.3 ± 1.6	1.1 ± 0.1	0.4 ± 0.2
W0410	N0680	A	2.7 ± 0.2	0.8 ± 0.2
W0410	N0700	3.3 ± 1.5	0.8 ± 0.1	0.7 ± 0.2
W0410	N0720	A	0.5 ± 0.1	0.8 ± 0.1
W0410	N0740	2.9 ± 1.1	1.1 ± 0.1	0.8 ± 0.2
W0410	N0760	A	1.2 ± 0.1	0.8 ± 0.2
W0414	N1370	A	0.8 ± 0.1	0.9 ± 0.1
W0420	N0610	5.4 ± 1.4	0.8 ± 0.1	A
W0420	N0630	4.5 ± 1.3	0.6 ± 0.1	0.7 ± 0.1
W0420	N0650	3.2 ± 1.2	0.9 ± 0.1	0.7 ± 0.1
W0420	N0670	A	0.6 ± 0.1	0.7 ± 0.1
W0420	N0690	A	1.0 ± 0.1	0.7 ± 0.1
W0420	N0710	A	0.5 ± 0.1	0.7 ± 0.2
W0420	N0730	A	0.7 ± 0.1	0.8 ± 0.2
W0420	N0740	A	0.7 ± 0.1	1.0 ± 0.2
W0420	N0750	A	0.6 ± 0.1	0.7 ± 0.1
W0420	N0770	A	0.8 ± 0.1	0.9 ± 0.2
W0430	N0620	9.2 ± 1.7	0.5 ± 0.1	0.9 ± 0.1
W0430	N0640	0.9 ± 2.0	0.8 ± 0.1	A
W0430	N0660	A	0.9 ± 0.1	0.7 ± 0.1
W0430	N0680	2.9 ± 1.4	0.8 ± 0.1	A
W0430	N0700	2.7 ± 1.6	0.7 ± 0.1	0.7 ± 0.1
W0430	N0720	2.0 ± 1.1	0.6 ± 0.1	0.6 ± 0.1
W0430	N0760	7.0 ± 1.5	1.5 ± 0.1	1.2 ± 0.2
W0440	N0610	3.7 ± 1.2	0.9 ± 0.1	0.8 ± 0.1
W0440	N0630	A	0.5 ± 0.1	0.7 ± 0.1
W0440	N0670	1.4 ± 1.0	0.6 ± 0.1	0.7 ± 0.1
W0440	N0690	2.7 ± 1.2	0.6 ± 0.1	0.4 ± 0.1
W0440	N0710	A	0.7 ± 0.1	1.0 ± 0.2
W0440	N0730	2.4 ± 1.1	0.5 ± 0.1	0.6 ± 0.1
W0440	N0750	A	0.6 ± 0.1	0.7 ± 0.1
W0440	N0770	3.0 ± 1.4	0.6 ± 0.2	1.1 ± 0.2
W0490	N0650	A	0.6 ± 0.1	0.7 ± 0.1

*A denotes less than detectable activity.

Post-Remedial Action Sampling Results for Property S

Table 9 in 1986 PRAR

Grid Coordinates		Concentrations (pCi/g ± 1 sigma)		
E,W	N,S	Uranium-238	Radium-226	Thorium-232
E0885	N1305	A	2.8 ± 0.3	0.9 ± 0.2
E0886	N1285	5.3 ± 0.4	5.3 ± 0.4	1.1 ± 0.2
E0895	N1295	A	5.3 ± 0.4	0.8 ± 0.3

*A denotes less than detectable activity.

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Thirty-two tables referenced in the NFSS VPs Certification Docket provide the evidence used to certify the site as clean.

The remedial action guideline for radium-226 concentrations in soil more than six inches beneath the ground surface = 15 pCi/g

The ten tables below come from the "1989PRAR," which is the BNI report "Post-Remedial Action Report for the Niagara Falls Storage Site Vicinity Properties - 1985 and 1986" (January 1989).

Post-Remedial Action Sampling Results for Property B				
Table 2 in 1989 PRAR				
Grid Coordinates		Concentrations (pCi/g ±/- 1 sigma)		
E,W	N,S	Uranium-238	Radium-226	Thorium-232
E5527	N3293	A	2.0 ± 0.3	1.6 ± 0.5
E5531	N3233	A	1.1 ± 0.3	1.0 ± 0.4
E5537	N3243	A	0.9 ± 0.2	A
E5537	N3283	A	4.1 ± 0.4	2.0 ± 0.4
E5537	N3303	A	1.1 ± 0.3	1.0 ± 0.4
E5538	N3328	A	4.7 ± 0.4	A
E5548	N3339	A	1.6 ± 0.2	3.9 ± 0.2
E5591	N3338	A	2.9 ± 0.4	0.3 ± 0.4
E5624	N3052	A	13.1 ± 0.7	A
E5627	N3042	A	1.0 ± 0.3	1.2 ± 0.4
E5636	N3052	A	0.6 ± 0.2	0.6 ± 0.3
E5663	N3323	A	14.8 ± 1.0	4.3 ± 0.7
E5664	N3236	A	11.8 ± 0.8	2.4 ± 0.5
E5664	N3274	A	13.0 ± 1.1	2.2 ± 0.6
E5669	N3307	A	4.1 ± 0.3	0.4 ± 0.2

"A" denotes less than detectable activity.

Post-Remedial Action Soil Sampling Results for Property D				
Table 4 in 1989 PRAR				
Grid Coordinates		Concentrations (pCi/g ±/- 1 sigma)		
E,W	N,S	Uranium-238	Radium-226	Thorium-232
E1455	N3685	A	1.3 ± 0.6	1.3 ± 0.6
E1460	N3700	A	1.6 ± 0.3	A
E1465	N3685	A	3.3 ± 0.4	1.7 ± 0.4
E1465	N3715	A	8.4 ± 0.7	4.7 ± 0.7
E1653	N3247	A	1.4 ± 0.2	0.9 ± 0.4
E1784	N3145	A	1.4 ± 0.3	A
E1784	N3194	A	1.6 ± 0.3	1.2 ± 0.8
E1810	N3181	A	1.4 ± 0.3	0.6 ± 0.2
E1817	N3181	A	0.7 ± 0.2	0.5 ± 0.3

"A" denotes less than detectable activity.

Post-Remedial Action Sampling Results for Property F				
Table 6 in 1989 PRAR				
Grid Coordinates		Concentrations (pCi/g ±/- 1 sigma)		
E,W	N,S	Uranium-238	Radium-226	Thorium-232
E2936	N1875	1.8 ± 1.6	0.8 ± 0.1	1.3 ± 0.1

"A" denotes less than detectable activity.

Post-Remedial Action Sampling Results for Property C*				
Table 3 in 1989 PRAR				
Grid Coordinates		Concentrations (pCi/g ±/- 1 sigma)		
E,W	N,S	Uranium-238	Radium-226	Thorium-232
E4720	N0160	3.4 ± 2.6	1.8 ± 0.1	0.8 ± 0.2
E4723	N0169	12.6 ± 3.2	6.2 ± 2.5	2.2 ± 3.2
E4729	N0192	10.3 ± 2.5	2.9 ± 0.1	1.3 ± 0.2
E4730	N0170	A	2.1 ± 0.2	1.1 ± 0.2
E4740	N0142	8.9 ± 2.4	2.4 ± 0.2	0.8 ± 0.2
E4740	N0180	A	1.4 ± 0.1	1.1 ± 0.2
E4743	N0107	3.9 ± 1.7	2.9 ± 0.1	0.9 ± 0.2
E4746	N0100	2.3 ± 1.4	1.7 ± 1.1	0.8 ± 0.2
E4746	N0143	10.9 ± 3.0	5.9 ± 0.3	1.4 ± 0.3
E4746	N0150	A	0.6 ± 0.2	0.6 ± 0.3
E4750	N0150	A	0.9 ± 0.1	0.8 ± 0.2
E4750	N0160	7.4 ± 3.3	5.0 ± 0.2	1.4 ± 0.2
E4750	N0170	4.7 ± 2.1	1.3 ± 0.2	1.0 ± 0.2
E4752	N0064	A	1.2 ± 0.1	1.5 ± 0.2
E4752	N0074	9.7 ± 2.5	3.9 ± 0.2	2.0 ± 0.3
E4760	N0140	9.7 ± 2.9	4.3 ± 0.2	1.3 ± 0.2
E4760	N0160	22.0 ± 3.7	6.0 ± 0.3	1.3 ± 0.3
E4760	N0180	7.9 ± 2.7	2.8 ± 0.2	1.4 ± 0.2
E4770	N0150	18.3 ± 2.9	4.7 ± 0.2	1.6 ± 0.2
E4770	N0170	A	1.1 ± 0.1	1.1 ± 0.2
E4780	N0140	A	1.3 ± 0.1	0.9 ± 0.2
E4780	N0160	13.2 ± 2.7	2.2 ± 0.2	1.3 ± 0.2
E4800	N0110	11.0 ± 6.0	1.1 ± 0.4	1.0 ± 0.5
E4815	N0070	A	0.8 ± 0.2	0.4 ± 0.3
E4818	N0061	5.9 ± 2.0	3.4 ± 0.2	1.2 ± 0.2
E4820	N0165	14.0 ± 7.0	1.4 ± 0.5	1.4 ± 0.6
E4824	N0172	25.0 ± 3.1	3.0 ± 1.8	1.5 ± 0.2
E4825	N0165	A	0.7 ± 0.4	A
E4833	N0066	24.2 ± 3.4	4.8 ± 2.3	1.4 ± 0.2
E4840	N0080	A	1.3 ± 0.8	2.4 ± 1.5
E4840	N0100	A	0.8 ± 0.3	0.8 ± 0.4
E4840	N0105	3.7 ± 1.5	1.1 ± 0.1	1.4 ± 0.2
E4842	N0069	A	1.0 ± 0.1	0.9 ± 0.2
E4848	N0084	5.6 ± 2.0	1.0 ± 0.1	1.0 ± 0.2
E4850	N0070	A	0.6 ± 0.2	0.6 ± 0.3
E4850	N0090	A	0.7 ± 0.3	0.7 ± 0.4
E4850	N0100	A	0.7 ± 0.3	0.6 ± 0.4
E4860	N0080	A	1.9 ± 0.4	0.7 ± 0.5
E4860	N0100	A	0.8 ± 0.2	0.8 ± 0.3
E4860	N0105	A	0.8 ± 0.1	0.9 ± 0.2
E4860	N0118	A	0.7 ± 0.3	1.0 ± 0.5
E4861	N0120	A	0.9 ± 0.1	1.3 ± 0.2
E4870	N0070	A	1.5 ± 0.4	A
E4870	N0090	A	2.6 ± 0.5	1.0 ± 0.5
E4870	N0105	2.7 ± 1.5	1.1 ± 0.1	1.4 ± 0.2
E4870	N0110	A	0.7 ± 0.5	0.8 ± 0.4
E4874	N0076	A	0.7 ± 0.2	0.7 ± 0.3
E4875	N0106	A	0.6 ± 0.3	0.7 ± 0.5
E4880	N0071	A	0.8 ± 0.3	0.7 ± 0.4
E4880	N0080	A	0.6 ± 0.3	0.5 ± 0.3
E4880	N0100	A	0.9 ± 0.3	0.8 ± 0.4
E4880	N0110	A	1.0 ± 0.1	1.2 ± 0.2
E4880	N0120	A	0.9 ± 0.4	0.6 ± 0.5
E4885	N0116	10.0 ± 8.0	9.4 ± 1.1	1.2 ± 0.7
E4890	N0010	A	0.7 ± 0.2	0.7 ± 0.3
E4890	N0070	A	1.2 ± 0.4	0.8 ± 0.5
E4890	N0080	A	1.2 ± 0.3	0.9 ± 0.4
E4890	N0090	A	0.8 ± 0.3	0.7 ± 0.4
E4890	N0110	A	0.7 ± 0.3	0.6 ± 0.3
E4891	N0068	A	1.1 ± 0.3	0.8 ± 0.4
E4894	N0094	3.2 ± 1.7	0.7 ± 0.1	1.0 ± 0.2
E4900	N0074	A	1.0 ± 0.4	1.2 ± 0.5
E4900	N0080	A	0.9 ± 0.3	0.9 ± 0.4
E4900	N0100	A	0.9 ± 0.3	0.8 ± 0.4
E4910	N0070	A	1.2 ± 0.3	1.2 ± 0.5
E4910	N0090	A	0.9 ± 0.3	0.9 ± 0.4

"A" denotes less than detectable activity.

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Post-Remedial Action Soil Sampling Results for Property G
Table 7 in 1989 PRAR

Grid Coordinates		Concentrations (pCi/g ±/ 1 sigma)		
E,W	N,S	Uranium-238	Radium-226	Thorium-232
E0907	N1348	A	5.3 ± 1.2	2.3 ± 1.2
E0908	N1296	A	3.5 ± 1.2	1.7 ± 1.2
E0930	N1409	A	2.6 ± 1.0	1.3 ± 1.1
E0941	N1291	A	1.0 ± 0.1	1.1 ± 0.2
E0954	N1048	A	1.3 ± 0.8	A
E0962	N1626	A	1.2 ± 0.3	0.8 ± 0.4
E0978	N1389	A	0.9 ± 0.3	0.6 ± 0.5
E0980	N1331	A	1.1 ± 0.8	A
E0992	N1585	A	1.8 ± 0.4	0.7 ± 0.4
E0993	N0930	A	1.1 ± 1.0	1.7 ± 1.5
E0993	N0950	A	1.8 ± 1.2	1.4 ± 0.3
E1016	N0930	A	2.0 ± 1.0	A
E1016	N1409	A	0.9 ± 0.1	0.5 ± 0.1
E1020	N0950	A	0.7 ± 0.3	0.6 ± 0.1
E1020	N0960	A	1.0 ± 0.3	0.8 ± 0.6
E1020	N1574	A	2.3 ± 0.5	0.9 ± 0.4
E1030	N0940	1.5 ± 0.2	3.6 ± 0.3	0.7 ± 0.2
E1030	N0960	A	0.8 ± 0.1	0.5 ± 0.4
E1040	N0950	A	1.0 ± 0.1	0.8 ± 0.2
E1040	N0970	A	1.7 ± 0.3	0.8 ± 0.6
E1049	N0948	A	3.7 ± 0.6	A
E1050	N0787	A	0.9 ± 0.3	1.2 ± 0.5
E1050	N0950	3.0 ± 3.0	7.0 ± 1.0	0.9 ± 0.7
E1050	N0970	A	1.0 ± 0.5	2.0 ± 0.8
E1056	N0954	A	1.3 ± 0.7	1.5 ± 0.9
E1056	N0964	7.2 ± 0.9	0.7 ± 0.2	0.8 ± 0.3
E1060	N0760	A	1.2 ± 0.1	0.8 ± 0.2
E1070	N0950	A	1.2 ± 0.5	1.6 ± 0.7
E1070	N0960	3.5 ± 1.9	2.5 ± 0.4	0.9 ± 0.8
E1070	N0970	A	2.9 ± 0.7	3.0 ± 1.0
E1076	N1740	A	1.2 ± 0.4	1.2 ± 0.4
E1077	N0955	5.2 ± 2.5	1.0 ± 0.3	0.8 ± 0.2
E1086	N0751	A	5.2 ± 0.6	A
E1090	N0950	A	1.3 ± 0.6	2.6 ± 0.8
E1090	N0970	A	1.9 ± 0.6	A
E1100	N0960	A	0.8 ± 0.4	1.8 ± 0.7
E1107	N0959	7.6 ± 3.3	4.7 ± 0.4	0.7 ± 0.5
E1110	N0950	A	1.7 ± 0.6	A
E1110	N0970	A	2.2 ± 0.6	1.3 ± 0.6
E1120	N0960	31.0 ± 8.0	2.4 ± 0.6	A
E1125	N0753	1.9 ± 1.6	1.1 ± 0.1	1.2 ± 0.5
E1126	N0873	A	0.6 ± 0.4	0.8 ± 0.5
E1149	N1050	A	1.0 ± 0.4	1.3 ± 0.5
E1150	N1190	A	0.9 ± 0.3	0.7 ± 0.4
E1160	N0960	A	2.6 ± 0.7	1.3 ± 0.6
E1160	N0980	A	1.4 ± 0.4	1.1 ± 0.6
E1160	N1000	A	1.0 ± 0.5	1.7 ± 0.8
E1160	N1068	12.0 ± 4.0	0.9 ± 0.3	0.5 ± 0.3
E1160	N1180	A	0.8 ± 0.4	0.9 ± 0.4
E1160	N1200	A	A	1.0 ± 0.5
E1166	N0964	A	1.3 ± 0.8	1.8 ± 0.8
E1170	N0950	A	3.2 ± 0.8	1.0 ± 0.7
E1170	N0970	2.3 ± 0.6	1.7 ± 0.4	0.8 ± 0.2
E1170	N0990	A	3.9 ± 0.2	0.9 ± 0.5
E1170	N1190	d	0.9 ± 0.3	0.9 ± 0.5
E1180	N0950	A	1.2 ± 0.6	2.9 ± 1.1
E1180	N0980	1.6 ± 0.3	1.9 ± 0.2	1.0 ± 0.1
E1180	N1000	A	1.4 ± 0.1	0.7 ± 0.5
E1180	N1180	A	0.8 ± 0.4	0.9 ± 0.5
E1180	N1700	A	0.9 ± 0.3	1.3 ± 0.4
E1190	N0960	A	3.1 ± 0.8	A
E1190	N0970	2.0 ± 1.4	0.9 ± 0.1	1.1 ± 0.5
E1190	N0990	2.3 ± 0.8	1.0 ± 0.2	1.0 ± 0.3
E1190	N1000	A	1.7 ± 0.6	2.8 ± 0.9
E1200	N0970	A	2.4 ± 0.7	1.3 ± 0.7
E1200	N0980	A	0.9 ± 0.1	1.3 ± 0.4
E1200	N0990	A	1.0 ± 0.5	1.7 ± 0.7
E1201	N1540	A	1.0 ± 0.4	A
E1210	N0960	A	1.5 ± 0.6	A
E1210	N0970	2.1 ± 0.4	0.8 ± 0.2	0.9 ± 0.3
E1210	N0980	A	1.9 ± 0.7	1.5 ± 0.8
E1210	N1000	A	1.5 ± 0.5	1.7 ± 0.7
E1220	N0950	A	2.8 ± 0.7	1.4 ± 0.7
E1220	N0970	8.0 ± 5.0	7.0 ± 1.0	1.2 ± 0.7
E1220	N0990	A	3.0 ± 0.8	A
E1230	N0960	A	2.0 ± 0.6	1.5 ± 0.6
E1230	N0980	A	2.4 ± 0.8	1.5 ± 0.8

Grid Coordinates		Concentrations (pCi/g ±/ 1 sigma)		
E,W	N,S	Uranium-238	Radium-226	Thorium-232
E1230	N1000	A	1.5 ± 0.5	0.5 ± 0.4
E1240	N0950	A	1.2 ± 0.4	2.3 ± 0.7
E1240	N0970	A	1.6 ± 0.6	1.1 ± 0.6
R1240	N0990	A	1.5 ± 0.5	1.3 ± 0.8
E1247	N1024	A	2.3 ± 0.8	1.7 ± 1.1
E1250	N0960	A	0.8 ± 0.4	1.3 ± 0.6
E1250	N0980	A	2.0 ± 0.9	1.8 ± 1.0
E1250	N1000	A	2.6 ± 0.7	1.1 ± 0.6
E1250	N1010	A	1.7 ± 0.6	1.7 ± 0.8
E1250	N1020	A	2.2 ± 0.7	1.6 ± 0.8
E1250	N1040	A	1.8 ± 0.7	2.2 ± 0.7
E1257	N1024	5.1 ± 4.8	2.0 ± 0.4	0.8 ± 0.8
E1260	N0990	A	7.0 ± 1.0	1.5 ± 1.1
E1260	N1010	6.0 ± 3.0	2.8 ± 0.7	A
E1260	N1014	A	5.7 ± 1.7	1.3 ± 0.9
E1260	N1030	A	1.6 ± 0.7	1.4 ± 1.0
E1260	N1040	A	1.8 ± 0.6	3.0 ± 1.0
E1264	N1014	16.1 ± 6.3	14.7 ± 1.6	0.9 ± 0.6
E1265	N0988	1.5 ± 0.1	1.0 ± 0.1	1.1 ± 0.3
E1270	N0980	A	2.8 ± 0.7	2.3 ± 0.6
E1270	N1000	A	3.2 ± 0.8	1.2 ± 0.7
E1270	N1020	10.1 ± 0.4	3.1 ± 0.6	0.8 ± 0.2
E1270	N1214	22.0 ± 14.0	5.9 ± 1.8	3.0 ± 1.5
E1275	N0974	2.6 ± 0.7	2.1 ± 0.3	0.7 ± 0.2
E1278	N0997	2.9 ± 1.5	0.9 ± 0.1	1.0 ± 0.2
E1280	N0990	A	2.1 ± 0.6	2.3 ± 0.8
E1280	N1010	10.7 ± 3.8	4.0 ± 0.3	0.5 ± 0.3
E1280	N1300	11.0 ± 6.0	2.4 ± 0.6	A
E1285	N0987	5.7 ± 0.3	2.3 ± 0.5	1.0 ± 0.4
E1290	N1300	50.0 ± 11.0	9.3 ± 1.0	1.1 ± 0.7
E1295	N0977	2.6 ± 1.5	0.7 ± 0.1	0.9 ± 0.6
E1295	N0987	A	2.6 ± 1.1	A
E1300	N1010	A	1.8 ± 0.6	1.0 ± 0.5
E1300	N1030	A	0.8 ± 0.5	1.4 ± 0.7
E1300	N1050	A	1.3 ± 0.5	1.9 ± 0.8
E1300	N1320	28.0 ± 6.0	0.9 ± 0.3	A
E1300	N1340	A	0.8 ± 0.3	1.1 ± 0.4
E1310	N0980	A	1.1 ± 0.5	1.1 ± 0.7
E1310	N1000	A	1.2 ± 0.5	1.8 ± 0.8
E1310	N1020	A	1.2 ± 0.6	3.3 ± 1.0
E1310	N1040	A	1.3 ± 0.5	1.1 ± 0.7
E1310	N1060	A	1.2 ± 0.5	1.0 ± 0.6
E1310	N1310	12.0 ± 3.0	0.6 ± 0.2	0.6 ± 0.3
E1310	N1330	16.0 ± 5.0	1.1 ± 0.3	0.6 ± 0.4
E1310	N1350	6.0 ± 2.0	0.6 ± 0.2	0.7 ± 0.4
E1320	N1320	10.0 ± 4.0	1.2 ± 0.4	1.1 ± 0.4
E1330	N1310	A	0.9 ± 0.3	0.6 ± 0.3
E1330	N1330	7.0 ± 3.0	1.0 ± 0.3	1.1 ± 0.4
E1340	N1320	26.0 ± 7.0	0.8 ± 0.4	1.1 ± 0.6
E1340	N1340	22.0 ± 5.0	1.2 ± 0.3	0.6 ± 0.5
E1350	N1310	A	0.8 ± 0.4	1.0 ± 0.6
E1350	N1330	24.0 ± 6.0	0.8 ± 0.4	1.0 ± 0.5
E1350	N1350	8.0 ± 5.0	1.9 ± 0.5	1.4 ± 0.5
E1350	N1530	11.0 ± 4.0	0.7 ± 0.2	0.8 ± 0.3
E1353	N1055	A	1.1 ± 0.1	0.7 ± 0.2
E1356	N1407	30.0 ± 13.0	15.0 ± 1.0	0.9 ± 0.7
E1360	N1320	A	0.7 ± 0.4	1.3 ± 0.5
E1360	N1340	28.0 ± 7.0	0.9 ± 0.3	0.8 ± 0.4
E1367	N1062	A	0.6 ± 0.3	A
E1370	N1310	31.0 ± 8.0	5.8 ± 0.8	0.6 ± 0.5
E1370	N1330	11.0 ± 6.0	7.7 ± 0.8	A
E1377	N0973	52.0 ± 9.0	0.7 ± 0.3	0.5 ± 0.4
E1380	N1300	A	0.4 ± 0.3	1.4 ± 0.5
E1380	N1320	12.0 ± 4.0	1.4 ± 0.3	0.6 ± 0.3
E1384	N1120	A	0.7 ± 0.1	0.7 ± 0.2
E1390	N1310	A	0.4 ± 0.3	0.6 ± 0.4
E1415	N0900	A	1.1 ± 0.4	0.6 ± 0.4
E1424	N0913	4.6 ± 0.4	0.9 ± 0.3	0.8 ± 0.2
E1425	N1170	A	1.1 ± 0.2	1.0 ± 0.9
E1426	N0973	A	1.7 ± 0.9	2.1 ± 1.2
E1430	N1360	14.0 ± 5.0	3.9 ± 0.6	0.9 ± 0.4
E1430	N1410	A	1.0 ± 0.4	1.0 ± 0.5
E1430	N1420	23.0 ± 7.0	0.5 ± 0.3	0.4 ± 0.3
E1440	N1360	A	1.2 ± 0.3	0.8 ± 0.4
E1440	N1420	40.0 ± 8.0	0.6 ± 0.3	1.0 ± 0.5

A' denotes less than detectable activity.

Niagara Falls Storage Site Vicinity Properties, New York, Site Certification Data Summary Worksheet

Post-Remedial Action Sampling Results for Property N/N' North

Table 8 in 1989 PRAR

Grid Coordinates		Concentrations (pCi/g ±/- 1 sigma)			Grid Coordinates		Concentrations (pCi/g ±/- 1 sigma)		
E/W	N/S	Uranium-238	Radium-226	Thorium-232	E/W	N/S	Uranium-238	Radium-226	Thorium-232
E1914	S1254	A	13.1 ± 0.7	2.2 ± 0.7	E4750	S1710	A	1.3 ± 0.3	1.3 ± 0.4
E1930	S1240	A	1.2 ± 0.3	1.2 ± 0.5	E4750	S1730	4.0 ± 2.0	0.8 ± 0.3	0.7 ± 0.4
E1932	S1187	A	0.8 ± 0.2	0.7 ± 0.2	E4760	S1650	A	0.8 ± 0.3	1.0 ± 0.4
E4144	S2083	A	1.5 ± 0.4	1.0 ± 0.5	E4760	S1660	A	1.9 ± 0.2	1.1 ± 0.2
E4210	S2012	A	1.0 ± 0.3	1.0 ± 0.4	E4760	S1670	A	1.0 ± 0.3	1.2 ± 0.4
E4212	S1973	A	0.9 ± 0.4	0.9 ± 0.5	E4760	S1720	A	0.9 ± 0.3	A
E4215	S2089	A	0.8 ± 0.3	0.6 ± 0.4	E4760	S1740	A	1.0 ± 0.3	1.0 ± 0.4
E4224	S1976	A	1.0 ± 0.3	1.2 ± 0.5	E4770	S1660	A	0.7 ± 0.3	1.0 ± 0.4
E4225	S2089	A	1.3 ± 0.4	0.8 ± 0.5	E4770	S1680	4.9 ± 2.7	3.4 ± 0.2	1.3 ± 0.2
E4240	S2020	11.0 ± 4.0	0.8 ± 0.3	1.0 ± 0.5	E4770	S1710	A	1.1 ± 0.3	0.8 ± 0.5
E4245	S1961	A	1.0 ± 0.1	1.1 ± 0.3	E4770	S1730	A	0.7 ± 0.3	0.9 ± 0.4
E4250	S1972	4.5 ± 2.3	1.3 ± 0.2	1.6 ± 0.6	E4774	S1631	A	1.0 ± 0.1	1.0 ± 0.4
E4250	S2010	A	0.9 ± 0.3	0.6 ± 0.4	E4780	S1640	8.0 ± 3.0	1.2 ± 0.3	1.0 ± 0.4
E4260	S2000	A	0.5 ± 0.3	0.6 ± 0.4	E4780	S1660	A	1.0 ± 0.3	1.4 ± 0.5
E4260	S2020	A	1.4 ± 0.1	1.1 ± 0.2	E4780	S1700	A	0.7 ± 0.3	1.1 ± 0.5
E4270	S1990	18.0 ± 5.0	1.0 ± 0.3	0.8 ± 0.4	E4780	S1720	A	0.9 ± 0.3	0.5 ± 0.4
E4270	S2010	A	0.7 ± 0.2	1.0 ± 0.4	E4790	S1650	A	1.3 ± 0.4	0.8 ± 0.5
E4280	S1980	16.0 ± 6.0	1.4 ± 0.4	1.0 ± 0.5	E4790	S1670	A	2.7 ± 0.5	0.8 ± 0.5
E4280	S2000	A	1.2 ± 0.1	1.4 ± 0.2	E4790	S1690	A	0.9 ± 0.3	0.9 ± 0.4
E4290	S1990	15.0 ± 5.0	1.3 ± 0.3	1.1 ± 0.4	E4790	S1710	A	0.9 ± 0.3	0.8 ± 0.4
E4300	S2000	A	0.7 ± 0.3	0.6 ± 0.4	E4790	S1730	A	1.4 ± 0.1	1.3 ± 0.2
E4465	S1800	A	0.8 ± 0.3	0.5 ± 0.3	E4794	S1612	12.4 ± 2.5	1.5 ± 0.1	1.7 ± 0.6
E4469	S1897	A	0.5 ± 0.3	0.5 ± 0.3	E4800	S1620	A	0.9 ± 0.3	1.0 ± 0.5
E4480	S1860	A	A	A	E4800	S1640	A	1.0 ± 0.3	0.9 ± 0.4
E4480	S1893	A	0.8 ± 0.4	0.8 ± 0.6	E4800	S1660	A	1.3 ± 0.4	1.4 ± 0.5
E4500	S1830	A	7.7 ± 0.9	0.9 ± 0.5	E4800	S1680	A	1.3 ± 0.3	0.6 ± 0.4
E4500	S1860	A	0.5 ± 0.3	0.7 ± 0.3	E4800	S1700	A	2.0 ± 0.4	1.1 ± 0.4
E4500	S1880	A	0.9 ± 0.3	0.9 ± 0.4	E4800	S1720	A	0.5 ± 0.2	0.5 ± 0.3
E4510	S1870	A	0.7 ± 0.3	0.9 ± 0.5	E4810	S1630	A	0.8 ± 0.3	1.1 ± 0.5
E4520	S1830	A	0.8 ± 0.2	0.7 ± 0.3	E4810	S1650	A	0.9 ± 0.3	1.4 ± 0.4
E4520	S1860	A	0.5 ± 0.2	0.5 ± 0.3	E4810	S1670	A	2.0 ± 0.1	1.3 ± 0.3
E4530	S1850	A	0.8 ± 0.1	0.9 ± 0.2	E4810	S1690	A	1.3 ± 0.4	0.5 ± 0.4
E4530	S1860	A	1.1 ± 0.3	0.4 ± 0.3	E4810	S1710	A	0.7 ± 0.4	0.8 ± 0.6
E4540	S1840	A	2.9 ± 0.6	1.2 ± 0.6	E4820	S1620	A	1.5 ± 0.4	1.8 ± 0.6
E4540	S1860	A	1.1 ± 0.4	0.7 ± 0.4	E4820	S1640	11.0 ± 5.0	2.2 ± 0.4	0.7 ± 0.4
E4550	S1830	8.8 ± 3.4	8.1 ± 0.3	1.1 ± 0.3	E4820	S1660	A	1.2 ± 0.3	1.0 ± 0.4
E4550	S1850	A	1.7 ± 0.6	0.8 ± 0.5	E4820	S1680	A	0.7 ± 0.3	0.7 ± 0.4
E4560	S1840	A	5.6 ± 0.6	2.2 ± 0.6	E4820	S1700	A	0.6 ± 0.2	0.7 ± 0.3
E4570	S1830	A	1.0 ± 0.3	0.6 ± 0.4	E4830	S1630	A	5.5 ± 0.4	A
E4580	S1820	A	1.0 ± 0.3	1.1 ± 0.5	E4830	S1650	A	0.7 ± 0.2	0.6 ± 0.3
E4600	S1780	9.0 ± 4.0	3.0 ± 0.5	1.1 ± 0.4	E4830	S1670	A	4.9 ± 0.6	A
E4600	S1790	A	0.9 ± 0.3	0.8 ± 0.5	E4840	S1606	A	1.4 ± 0.2	1.6 ± 0.5
E4610	S1790	A	0.8 ± 0.3	0.8 ± 0.4	E4840	S1640	A	0.8 ± 0.2	0.5 ± 0.2
E4630	S1760	A	1.0 ± 0.3	0.8 ± 0.4	E4840	S1680	A	0.6 ± 0.3	0.8 ± 0.4
E4630	S1780	A	1.0 ± 0.2	A	E4850	S1670	A	1.0 ± 0.3	0.9 ± 0.4
E4640	S1740	A	6.2 ± 0.4	A	E4856	S1603	A	2.1 ± 0.2	1.6 ± 0.5
E4640	S1760	3.3 ± 2.1	0.5 ± 0.1	0.8 ± 0.2	E4860	S1600	A	1.1 ± 0.4	1.4 ± 0.5
E4640	S1770	A	1.0 ± 0.3	1.3 ± 0.5	E4870	S1590	8.0 ± 3.0	6.7 ± 0.9	A
E4640	S1790	A	1.2 ± 0.4	0.8 ± 0.5	E4870	S1610	A	8.0 ± 0.8	0.9 ± 0.5
E4650	S1740	A	1.6 ± 0.4	1.3 ± 0.5	E4870	S1660	A	0.8 ± 0.3	1.3 ± 0.4
E4650	S1760	A	2.8 ± 0.5	1.2 ± 0.4	E4880	S1600	9.0 ± 4.0	7.2 ± 0.9	1.2 ± 0.6
E4650	S1780	A	1.1 ± 0.3	1.2 ± 0.5	E4880	S1620	A	1.1 ± 0.3	0.9 ± 0.3
E4650	S1800	A	1.2 ± 0.3	0.7 ± 0.5	E4880	S1640	A	3.1 ± 0.3	A
E4660	S1750	A	1.4 ± 0.4	1.1 ± 0.4	E4890	S1590	A	4.1 ± 0.7	1.6 ± 0.6
E4660	S1770	A	0.5 ± 0.3	1.0 ± 0.4	E4890	S1610	A	0.4 ± 0.3	0.6 ± 0.5
E4660	S1790	A	0.8 ± 0.3	0.6 ± 0.4	E4890	S1650	A	1.2 ± 0.3	0.8 ± 0.4
E4670	S1780	A	1.6 ± 0.3	1.0 ± 0.4	E4980	S1580	A	17.0 ± 2.0	1.5 ± 1.1
E4680	S1730	A	1.4 ± 0.4	1.0 ± 0.5	E4900	S1600	A	1.8 ± 0.4	1.1 ± 0.4
E4680	S1750	A	1.3 ± 0.3	0.8 ± 0.3	E4900	S1640	A	1.1 ± 0.4	1.4 ± 0.5
E4680	S1770	A	0.8 ± 0.3	1.0 ± 0.5	E4910	S1590	A	7.3 ± 0.9	0.8 ± 0.5
E4680	S1780	A	0.6 ± 0.3	0.9 ± 0.5	E4910	S1630	A	2.3 ± 0.4	1.2 ± 0.4
E4690	S1700	33.0 ± 10.0	8.2 ± 0.9	0.8 ± 0.5	E4910	S1650	A	1.2 ± 0.4	1.2 ± 0.6
E4690	S1720	A	4.3 ± 0.5	1.1 ± 0.6	E4914	S1558	3.8 ± 2.0	1.8 ± 0.2	1.3 ± 0.4
E4690	S1740	A	1.4 ± 0.3	0.6 ± 0.4	E4920	S1580	A	2.1 ± 0.6	A
E4690	S1760	5.0 ± 3.0	0.5 ± 0.2	0.7 ± 0.3	E4930	S1570	A	0.8 ± 0.5	1.3 ± 0.6
E4700	S1740	A	0.9 ± 0.3	0.7 ± 0.4	E4930	S1590	A	2.3 ± 0.5	1.3 ± 0.5
E4700	S1760	A	0.9 ± 0.3	1.3 ± 0.5	E4940	S1580	A	1.2 ± 0.7	1.5 ± 0.9
E4700	S1770	A	1.5 ± 0.1	1.3 ± 0.2	E4940	S1620	A	0.9 ± 0.3	0.7 ± 0.5
E4710	S1710	11.0 ± 5.0	1.0 ± 0.3	0.8 ± 0.4	E4950	S1550	A	0.9 ± 0.5	A
E4710	S1730	A	0.8 ± 0.4	1.0 ± 0.5	E4950	S1570	35.0 ± 7.0	1.2 ± 0.4	0.9 ± 0.6
E4710	S1750	A	1.9 ± 0.4	0.9 ± 0.4	E4950	S1590	A	0.8 ± 0.3	1.1 ± 0.6
E4720	S1700	A	0.8 ± 0.3	0.6 ± 0.4	E4950	S1610	9.0 ± 4.0	0.8 ± 0.3	1.6 ± 0.4
E4720	S1720	A	1.2 ± 0.4	1.0 ± 0.4	E4960	S1560	A	3.1 ± 0.6	1.3 ± 0.6
E4720	S1740	A	1.1 ± 0.3	0.6 ± 0.4	E4960	S1580	7.0 ± 3.0	1.1 ± 0.4	0.6 ± 0.5
E4730	S1690	20.0 ± 6.0	1.4 ± 0.4	1.4 ± 0.5	E4960	S1600	A	1.0 ± 0.3	1.2 ± 0.4
E4730	S1710	A	0.9 ± 0.3	1.1 ± 0.4	E4970	S1570	238.0 ± 14.0	1.3 ± 0.3	0.6 ± 0.4
E4730	S1730	A	1.2 ± 0.3	1.0 ± 0.4	E4970	S1590	A	1.0 ± 0.3	0.9 ± 0.5
E4740	S1680	6.0 ± 4.0	1.3 ± 0.4	0.7 ± 0.5	E4980	S1560	A	1.3 ± 0.4	A
E4740	S1700	A	1.3 ± 0.1	1.0 ± 0.2	E4980	S1580	A	0.8 ± 0.4	1.0 ± 0.4
E4740	S1720	A	0.3 ± 0.4	1.5 ± 0.5	E4990	S1570	A	1.1 ± 0.4	1.6 ± 0.6
E4740	S1740	A	1.6 ± 0.5	1.7 ± 0.6	E4990	S1590	A	2.9 ± 0.4	0.7 ± 0.4
E4750	S1670	A	0.9 ± 0.3	1.1 ± 0.4	E5000	S1580	A	8.8 ± 0.7	A
E4750	S1690	22.0 ± 5.0	1.0 ± 0.3	0.9 ± 0.4	E5010	S1570	A	1.3 ± 0.4	1.0 ± 0.5

A denotes less than detectable activity.

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Post-Remedial Action Sampling Results for Property P				
Table 9 in 1989 PRAR				
Grid Coordinates		Concentrations (pCi/g ±/- 1 sigma)		
E,W	N,S	Uranium-238	Radium-226	Thorium-232
E0140	N3565	A	0.8 ± 0.3	1.9 ± 1.2

"A" denotes less than detectable activity.

Post-Remedial Action Sampling Results for Property W				
Table 11 in 1989 PRAR				
Grid Coordinates		Concentrations(pCi/g±/-1sigma)		
E,W	N,S	Uranium-238	Radium-226	Thorium-232
W0010	N2300	A	4.3 ± 0.2	1.0 ± 0.2
W0010	N2310	A	1.2 ± 0.1	1.7 ± 0.2
W0021	N2280	3.6 ± 1.3	1.0 ± 0.1	1.5 ± 0.2
W0022	N2230	A	1.8 ± 0.4	2.0 ± 0.4
W0026	N2277	A	4.1 ± 0.2	0.8 ± 0.2

"A" denotes less than detectable activity.

Post-Remedial Action Sampling Results for Property T				
Table 10 in 1989 PRAR				
Grid Coordinates		Concentrations (pCi/g ±/- 1 sigma)		
E,W	N,S	Uranium-238	Radium-226	Thorium-232
E0077	N2445	A	1.2 ± 0.3	0.7 ± 0.4
E0077	N2485	A	0.9 ± 0.3	0.6 ± 0.4
E0088	N2502	A	3.1 ± 0.5	2.0 ± 0.8
E0129	N2567	A	4.4 ± 0.4	A
E0153	N2620	A	0.9 ± 0.5	0.8 ± 0.8
E0320	N2940	A	1.0 ± 0.1	0.9 ± 0.2
E0335	N3007	A	1.0 ± 0.1	1.3 ± 0.2
E0345	N2906	A	3.9 ± 0.2	0.9 ± 0.2
E0347	N3247	A	1.0 ± 0.1	1.3 ± 0.2
E0350	N3022	A	0.8 ± 0.1	0.8 ± 0.2
E0351	N3187	7.0 ± 1.5	1.1 ± 0.1	0.9 ± 0.2
E0352	N3205	A	0.9 ± 0.1	1.4 ± 0.2
E0354	N3059	A	1.1 ± 0.1	1.5 ± 0.3
E0356	N3196	A	4.4 ± 0.2	1.3 ± 0.3
E0357	N2880	A	3.7 ± 0.2	1.1 ± 0.2
E0357	N2890	A	1.5 ± 0.1	1.2 ± 0.3
E0357	N3002	A	1.2 ± 0.1	1.1 ± 0.2
E0357	N3213	A	3.1 ± 0.2	1.4 ± 0.4
E0357	N3256	A	5.3 ± 0.4	A
E0357	N3262	A	4.9 ± 0.3	1.5 ± 0.3
E0360	N2765	A	7.8 ± 0.3	1.3 ± 0.3
E0360	N2775	A	2.4 ± 0.2	1.2 ± 0.2
E0360	N2785	A	1.4 ± 0.1	1.8 ± 0.2
E0360	N3095	A	5.4 ± 0.3	1.5 ± 0.4
E0360	N3105	A	2.9 ± 0.2	1.2 ± 0.2
E0360	N3115	A	2.9 ± 0.3	1.7 ± 0.4
E0360	N3125	A	0.9 ± 0.2	1.1 ± 0.2
E0360	N3135	A	1.1 ± 0.5	1.7 ± 0.4
E0360	N3152	A	1.3 ± 0.1	0.8 ± 0.2
E0364	N2807	A	2.1 ± 0.2	0.9 ± 0.2
E0364	N3164	A	1.0 ± 0.1	1.6 ± 0.3
E0365	N3021	A	0.9 ± 0.1	1.0 ± 0.2
E0366	N2835	A	5.1 ± 0.2	0.8 ± 0.2
E0370	N2703	A	1.0 ± 0.1	1.1 ± 0.1
E0370	N2725	A	1.0 ± 0.1	1.0 ± 0.1
E0370	N2747	A	0.8 ± 0.1	1.2 ± 0.2
E0370	N2765	A	8.1 ± 0.3	1.3 ± 0.3
E0370	N2775	A	1.0 ± 0.1	1.0 ± 0.2
E0370	N2785	A	1.0 ± 0.1	1.1 ± 0.3
E0390	N2905	A	5.2 ± 0.2	0.7 ± 0.2
E0430	N2877	A	5.3 ± 0.2	1.2 ± 0.2
E0431	N2910	A	2.9 ± 0.2	0.9 ± 0.2
E0438	N2833	5.5 ± 2.9	8.0 ± 0.4	1.2 ± 0.3
E0440	N2775	4.9 ± 1.6	1.6 ± 0.2	0.9 ± 0.2
E0440	N2785	A	7.5 ± 0.3	1.8 ± 0.3
E0440	N2795	A	1.2 ± 0.1	1.4 ± 0.2
E0440	N2805	A	7.4 ± 0.1	0.8 ± 0.2
E0445	N3070	6.5 ± 3.1	1.1 ± 0.3	1.0 ± 0.2
E0445	N3125	A	0.7 ± 0.1	0.9 ± 0.1
E0446	N3084	2.8 ± 1.4	1.0 ± 0.1	1.4 ± 0.2
E0450	N3105	1.3 ± 1.5	1.4 ± 0.1	1.0 ± 0.2
E0450	N3115	A	2.2 ± 0.2	1.4 ± 0.3
E0458	N3179	A	0.8 ± 0.1	1.2 ± 0.2
E0465	N2560	A	4.4 ± 0.2	1.4 ± 0.2
E0465	N2570	A	3.9 ± 0.2	1.5 ± 0.3
E0465	N2580	A	2.4 ± 0.2	1.1 ± 0.1
E0469	N3182	A	6.9 ± 0.3	1.6 ± 0.2
E0500	N2470	7.5 ± 1.4	1.5 ± 0.1	A
E0500	N2490	A	0.9 ± 0.1	1.4 ± 0.2
E0505	N2510	A	1.1 ± 0.1	1.1 ± 0.2
E0510	N2480	A	0.8 ± 0.1	1.3 ± 0.2
E0520	N2470	A	1.0 ± 0.1	1.2 ± 0.2
E0520	N2493	5.3 ± 1.5	1.3 ± 0.1	1.0 ± 0.2
E0530	N2480	A	1.0 ± 0.1	1.3 ± 0.2
E0674	N2044	A	0.7 ± 0.3	1.0 ± 0.5
E0674	N2071	A	1.2 ± 0.4	A

"A" denotes less than detectable activity.

Niagara Falls Storage Site Vicinity Properties, New York, Site Certification Data Summary Worksheet

Thirty-two tables referenced in the NFSS VPs Certification Docket provide the evidence used to certify the site as clean.

The four tables below come from the "1989 PRAR", which is the BNI report "Post-Remedial Action Report for the Niagara Falls Storage Site Vicinity Properties - 1985 and 1986" (January 1989).

The remedial action guideline for radium-226 concentrations in soil more than six inches beneath the ground surface = 15 pCi/g

Post-Remedial Action Sampling Results for Anomaly AA				
Table 13 in 1989 PRAR				
Grid Coordinates		Concentrations (pCi/g ± 1 sigma)		
E,W	N,S	Uranium-238	Radium-226	Thorium-232
W020	S092	A	1.2 ± 0.1	0.8 ± 0.2
W030	S095	A	11.9 ± 0.3	1.6 ± 0.3
W031	S091	A	4.7 ± 0.9	A
W034	S091	A	7.1 ± 0.9	A
W034	S095	A	2.5 ± 0.2	1.4 ± 0.3
W035	S102	A	3.1 ± 0.1	0.9 ± 0.5
W037	S099	A	5.4 ± 0.8	A
W039	S092	A	3.2 ± 0.2	1.6 ± 0.4
W045	S091	A	4.0 ± 0.5	1.2 ± 0.4
W046	S096	A	2.0 ± 0.5	1.6 ± 0.4
W047	S089	A	11.4 ± 0.3	1.0 ± 0.3
W050	S090	A	5.4 ± 0.4	A
W055	S079	A	17.5 ± 0.2	1.2 ± 0.2
W056	S049	A	10.3 ± 0.3	0.8 ± 0.2

"A" denotes less than detectable activity.

Post-Remedial Action Sampling Results for Anomaly BB				
Table 14 in 1989 PRAR				
Grid Coordinates		Concentrations (pCi/g ± 1 sigma)		
E,W	N,S	Uranium-238	Radium-226	Thorium-232
E035	S105	A	3.3 ± 0.3	1.3 ± 0.3
E035	S115	A	2.9 ± 0.2	1.7 ± 0.2
E040	S110	A	3.6 ± 0.3	0.9 ± 0.2
E045	S105	A	2.4 ± 0.2	0.9 ± 0.2
E045	S115	A	1.6 ± 0.2	1.9 ± 0.3
E050	S100	A	2.2 ± 1.9	1.4 ± 0.3
E050	S110	A	4.5 ± 0.3	1.3 ± 0.3
E050	S115	4.4 ± 2.9	3.2 ± 0.2	1.4 ± 0.4
E055	S105	A	1.8 ± 0.2	1.5 ± 0.2
E055	S115	A	2.0 ± 0.2	1.4 ± 0.3
E060	S110	A	1.7 ± 0.2	1.1 ± 0.3
W018	S040	1.9 ± 1.7	4.9 ± 0.3	0.8 ± 0.3

"A" denotes less than detectable activity.

Post-Remedial Action Sampling Results for Anomaly CC				
Table 15 in 1989 PRAR				
Grid Coordinates		Concentrations (pCi/g ± 1 sigma)		
E,W	N,S	Uranium-238	Radium-226	Thorium-232
E077	N002	A	1.6 ± 0.1	1.2 ± 0.2
E082	N002	2.6 ± 1.7	1.2 ± 0.1	1.4 ± 0.2
E087	N002	A	7.1 ± 0.3	0.7 ± 0.2

"A" denotes less than detectable activity.

Post-Remedial Action Sampling Results for Pletcher Road				
Table 12 in 1989 PRAR				
Grid Coordinates		Concentrations (pCi/g ± 1 sigma)		
E,W	N,S	Uranium-238	Radium-226	Thorium-232
E0046	S342	A	8.4 ± 0.3	1.2 ± 0.2
E0076	S348	A	9.3 ± 0.3	1.0 ± 0.3
E0096	S348	A	8.3 ± 0.3	A
E0116	S348	A	4.7 ± 0.8	A
E0136	S348	A	4.3 ± 0.8	A
E0156	S348	A	5.3 ± 0.3	1.8 ± 0.3
E0176	S348	A	4.7 ± 0.2	1.1 ± 0.2
E0273	S3209	A	5.0 ± 0.8	2.4 ± 0.9
E0864	S3211	A	12.1 ± 0.3	0.9 ± 0.2
E0930	S3210	A	10.3 ± 0.4	1.4 ± 0.4
E0940	S3200	A	6.6 ± 0.3	1.5 ± 0.3
E0950	S3210	A	12.7 ± 0.4	1.3 ± 0.3
W0032	S3146	A	0.9 ± 0.1	0.8 ± 0.2
W0040	S3228	A	1.8 ± 0.2	1.7 ± 0.3
W0060	S3228	4.0 ± 2.6	1.5 ± 0.2	1.2 ± 0.2
W0062	S3175	A	3.1 ± 0.2	1.2 ± 0.2
W0072	S3146	A	3.3 ± 0.1	1.3 ± 0.2
W0080	S3228	6.1 ± 2.4	5.3 ± 0.3	1.7 ± 0.5
W0092	S3146	A	3.5 ± 0.1	0.9 ± 0.2
W0100	S3228	A	4.0 ± 0.3	1.4 ± 0.3
W0112	S3146	A	3.3 ± 0.1	1.3 ± 0.2
W0116	S3148	A	2.8 ± 0.1	0.9 ± 0.2
W0120	S3228	A	2.9 ± 0.2	1.9 ± 0.3
W0136	S3148	A	6.5 ± 0.2	1.0 ± 0.2
W0140	S3228	A	6.3 ± 0.3	1.0 ± 0.3
W0160	S3228	A	1.8 ± 0.2	1.2 ± 0.3
W0175	S3145	A	6.7 ± 0.3	1.2 ± 0.2
W0180	S3228	A	1.4 ± 0.2	1.6 ± 0.3
W0228	S3149	A	7.8 ± 0.3	1.2 ± 0.2
W0265	S3140	A	1.2 ± 0.2	0.6 ± 0.2
W0285	S3140	A	0.7 ± 0.1	0.7 ± 0.2
W0305	S3140	A	11.7 ± 0.8	A
W0305	S3172	A	3.0 ± 0.2	1.3 ± 0.2
W0310	S3130	A	1.4 ± 0.1	1.3 ± 0.2
W0325	S3176	A	10.0 ± 0.3	1.1 ± 0.2
W0367	S3140	A	2.2 ± 0.2	1.1 ± 0.2
W0387	S3140	A	0.9 ± 0.1	1.2 ± 0.2
W0407	S3140	A	1.7 ± 0.1	0.8 ± 0.2
W0427	S3140	A	1.2 ± 0.1	0.6 ± 0.1
W0447	S3140	A	0.8 ± 0.1	1.1 ± 0.2
W0467	S3140	A	1.2 ± 0.1	1.0 ± 0.1
W0487	S3140	A	1.0 ± 0.1	1.2 ± 0.3
W0507	S3140	A	0.7 ± 0.1	0.9 ± 0.2
W0527	S3140	A	1.3 ± 0.1	A
W0547	S3140	A	1.6 ± 0.2	1.0 ± 0.2
W0567	S3140	A	1.5 ± 0.2	1.1 ± 0.2
W0587	S3140	A	0.9 ± 0.1	A
W0607	S3140	A	4.0 ± 0.2	1.1 ± 0.3
W0627	S3140	A	4.2 ± 0.2	1.4 ± 0.2
W0645	S3140	A	1.5 ± 0.1	0.9 ± 0.2
W0665	S3140	4.2 ± 1.4	1.4 ± 0.1	1.4 ± 0.2
W0685	S3140	A	1.4 ± 0.1	1.1 ± 0.2
W0690	S3165	A	1.8 ± 0.1	1.3 ± 0.2
W0710	S3165	A	3.1 ± 0.2	1.1 ± 0.3
W0720	S3141	A	1.2 ± 0.1	0.8 ± 0.2
W0730	S3165	A	1.7 ± 0.1	1.3 ± 0.2
W0740	S3141	A	2.0 ± 0.1	0.9 ± 0.2
W0750	S3165	A	2.0 ± 0.1	1.4 ± 0.3
W0760	S3141	A	5.9 ± 0.2	1.4 ± 0.2
W0770	S3165	A	1.4 ± 0.1	1.1 ± 0.2
W0780	S3141	A	0.7 ± 0.2	0.8 ± 0.2
W3180	S3135	A	12.3 ± 0.3	1.5 ± 0.3
W3740	S3121	A	3.5 ± 0.7	1.9 ± 0.9
W3760	S3121	A	9.3 ± 1.0	A
W3880	S3117	A	17.8 ± 0.4	1.5 ± 0.3
W3890	S3117	A	1.6 ± 0.4	A
W3990	S3115	A	8.4 ± 0.2	1.4 ± 0.2
W4010	S3115	A	10.4 ± 0.3	1.3 ± 0.3
W4030	S3115	A	9.6 ± 1.0	A
W4050	S3115	A	11.2 ± 0.3	1.8 ± 0.1
W4070	S3115	A	12.3 ± 0.3	1.3 ± 0.4
W4090	S3115	A	8.0 ± 1.0	0.9 ± 0.2
W4110	S3115	A	2.6 ± 0.2	1.2 ± 0.2
W5090	S3097	A	8.8 ± 0.3	A
W5132	S3097	A	13.2 ± 0.4	1.2 ± 0.4
W5152	S3097	A	2.1 ± 0.5	0.9 ± 0.4
W5172	S3097	A	5.5 ± 0.2	1.2 ± 0.2
W5192	S3097	A	19.0 ± 0.5	1.3 ± 0.4
W7148	S3050	A	5.9 ± 0.3	1.8 ± 0.3
W7168	S3050	A	5.1 ± 0.2	1.1 ± 0.3
W7454	S3046	A	12.8 ± 0.4	1.8 ± 0.3
W7878	S3040	A	2.5 ± 0.2	1.5 ± 0.2
W7896	S3040	A	2.6 ± 0.2	1.4 ± 0.2
W7928	S3044	2.1 ± 1.6	3.4 ± 0.2	1.1 ± 0.2
W8085	S2989	A	5.4 ± 0.2	1.5 ± 0.2

"A" denotes less than detectable activity.

Niagara Falls Storage Site Vicinity Properties, New York, Site Map

