



DEPARTMENT OF THE ARMY
BUFFALO DISTRICT, CORPS OF ENGINEERS
1776 NIAGARA STREET
BUFFALO NY 14207-3199

REPLY TO
ATTENTION OF:

Special Projects Branch

June 20, 2013

SUBJECT:Niagara Falls Storage Site (NFSS) 2012 NESHAP Report

Radiation and Indoor Air Branch
Environmental Protection Agency, Region II
290 Broadway
New York, New York 10007

Dear [REDACTED]

Enclosed please find the 2012 National Emission Standards for Hazardous Air Pollutants (NESHAPs) report for the Niagara Falls Storage Site (NFSS). This report, as it has in the past, will be included in the Corps FUSRAP Niagara Falls Storage Site 2012 Environmental Surveillance Technical Memorandum, which is currently under development. In summary the Corps finds that the NFSS is in compliance with 40 CFR 61, Subpart H and Subpart Q.

Compliance with 40 CFR 61, Subpart H is determined by use of USEPA approved code CAP88-PC Version 3.0. The CAP88-PC hypothetical annual maximum dose to an off-site:

Resident: 5.0 E-04 mrem
Resident Farmer: 3.9 E-04 mrem

The hypothetical annual doses to the nearest off-site worker and school corrected for 2,000 hr of exposure per year are:

Off-site worker: 4.8 E-04 mrem
School: 3.2 E-04 mrem

The hypothetical annual doses to the maximally exposed off-site individual (MEOSI) is therefore 5.0 E-04 mrem to a resident.

The CAP88-PC hypothetical annual effective dose for the population within 80 km of the facility is:

Population: 1.4 E-02 person-rem

Compliance with 40 CFR 61, Subpart Q is demonstrated by the measurement of radon-222 (radon flux). Radon-222 flux at the NFSS site was measured using 180 10-inch diameter activated carbon canisters placed at 15-meter intervals across the Interim Waste Containment

SUBJECT:Niagara Falls Storage Site (NFSS) 2012 NESHAP Report

Structure (IWCS) and sealed to the surface for a 24-hour exposure period (July 30-31, 2012). Individual and average (0.04245 pCi/m²/sec) measurements were well below the NESHAPs standard for radon flux of 20 pCi/m²/sec, with results ranging from non-detect to 0.99170 pCi/m²/s. These results are consistent with radon flux measured in previous years. The results do not exceed the established standard specified in 40 CFR 61, Subpart Q.

[REDACTED] is the technical point of contact for these results. He can be reached at [REDACTED] if you have any questions.

Sincerely,

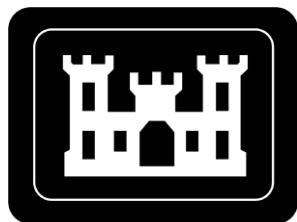
[REDACTED]
Environmental Project Management Team Leader

Enclosure: FUSRAP CY2012 NESHAP ANNUAL REPORT FOR NIAGARA FALLS
STORAGE SITE (NFSS)

FUSRAP CY2012 NESHAP ANNUAL REPORT FOR NIAGARA FALLS STORAGE SITE (NFSS)

LEWISTON, NEW YORK

JUNE 2013



**U.S. Army Corps of Engineers
Buffalo District Office
Formerly Utilized Sites Remedial Action Program**

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ACRONYMS AND ABBREVIATIONS

BNI	Bechtel National, Inc.
CAP88-PC Ver 3	Clean Air Act Assessment Package-1988, Version 3.0
CFR	Code of Federal Regulations
E _w	annual wind erosion emission
FUSRAP	Formerly Utilized Sites Remedial Action Program
ICRP	International Commission on Radiological Protection
IWCS	Interim Waste Containment Structure
m ²	square meter(s)
MEI	maximally exposed individual
ML	Modern Landfill
mph	miles per hour
NOAA	National Oceanic and Atmospheric Administration
NESHAP	National Emission Standards for Hazardous Air Pollutants
NFIA	Niagara Falls International Airport
NFSS	Niagara Falls Storage Site
USAEC	United States Atomic Energy Commission
USACE	United States Army Corps of Engineers
UCL	upper confidence limit
USDOE	United States Department of Energy
USEPA	United States Environmental Protection Agency

1.0 INTRODUCTION

In 1974, the United States Atomic Energy Commission (USAEC), a predecessor to the United States Department of Energy (USDOE), instituted the Formerly Utilized Sites Remedial Action Program (FUSRAP). This program is now managed by United States Army Corps of Engineers (USACE) to identify and clean up, or otherwise control sites where residual radioactivity remains from the early years of the nation's atomic energy program or from commercial operations causing conditions that Congress has authorized USACE to remedy under FUSRAP. The Niagara Falls Storage Site (NFSS) is a federally-owned storage site managed under FUSRAP. In October 1997, Congress transferred the responsibility for FUSRAP to USACE.

1.1 SITE DESCRIPTION

The Niagara Falls Storage Site (NFSS) is located in the Town of Lewiston in northwestern New York State, northeast of Niagara Falls and south of Lake Ontario (page F-1, Attachment F). NFSS is approximately 77 hectare (~191 acre) site which includes: one metal storage building, one office building (Building 429), an equipment shed, and a 4 hectare (9.9 acre) interim waste containment structure (IWCS). The property is fenced, and public access is restricted.

Land use in the region is primarily rural; however, the site is bordered by a chemical waste disposal facility on the north, a solid waste disposal facility on the east and south, and a Niagara Mohawk Power Corporation right-of-way on the west. The nearest residential areas are approximately 1.1-km southwest of the site; the residences are primarily single-family dwellings.

1.2 SOURCE DESCRIPTION

Beginning in 1944, NFSS was used as a storage facility for radioactive residues and wastes. The residues and wastes are the process by-products of uranium extraction from pitchblende (uranium ore). Waste was also generated from remediation of buildings and process equipment used in the uranium extraction process. The residues originated at other sites and were transferred to NFSS for storage in buildings, on-site pits, and surface piles. Table 1 includes a brief history and description of the major radioactive residues and wastes transferred to NFSS. From 1953 to 1959 and 1965 to 1971, the former Building 401 was used as a boron-10 isotope separation plant.

Table 1. History and Description of Wastes Transferred to NFSS

Material	Description	Transferred to NFSS
L-50	Low-activity radioactive residues from the processing of low-grade uranium ores at Linde Air Products, Tonawanda, New York.	1944
R-10	Low-activity radioactive residues from the processing of low-grade uranium ores at Linde Air Products, Tonawanda, New York.	1944
F-32	Low-activity radioactive residues from the processing of high-grade uranium ores at Middlesex, New Jersey.	1944 to early 1950
L-30	Low-activity radioactive residues from the processing of low-grade uranium ores at Linde Air Products, Tonawanda, New York.	1945
K-65	High-activity radioactive residues from the processing of high-grade uranium ores at Mallinckrodt Chemical Works, St. Louis, Missouri.	1949
Middlesex Sands	Sand and abraded material from the sandblasting of buildings and process equipment where the F-32 residue was generated at Middlesex Metal Refinement Plant, Middlesex, New Jersey.	1950

Since 1971, activities at NFSS have been confined to residue and waste storage and remediation. On-site and off-site areas with residual radioactivity exceeding USDOE guidelines were remediated between 1981 and 1992. The materials generated during remedial actions (approximately 195,000 m³) are encapsulated in the IWCS, which is specifically designed to provide interim storage of the materials. Remedial investigation began at the end of 1999 to determine if any areas of the site contained radioactive or chemical contaminants at levels that could pose an unacceptable risk to human health and the environment. The CERCLA remedial investigation of the NFSS was completed in 2007. NFSS is currently in the feasibility study phase of the CERCLA process for the IWCS Operable Unit.

2.0 REGULATORY STANDARDS

The United States Environmental Protection Agency's (USEPA) National Emission Standards for Hazardous Air Pollutants (NESHAP) are compliance standards that require annual reporting of emissions of radionuclides and radon gas from operations at nuclear facilities.

2.1 40 CFR 61, SUBPART H

40 CFR 61, Subpart H provides standards for reporting emissions of radionuclides (excluding radon-222 and radon-220) into the air from USDOE facilities. Although control and maintenance of the site currently rests with USACE, responsibility for NFSS will return to USDOE following completion of remedial actions. This regulation therefore provides an appropriate standard for NFSS. Compliance with Subpart H is verified by applying the USEPA approved code, CAP88-PC. CAP88-PC Version 3.0 (USEPA 2006, revised 2013) was used for this year's calculation. The applicable regulation, 40 CFR 61.92 limits exposure of the public to an annual effective dose equivalent of 10 mrem from radioactive emissions.

2.2 40 CFR 61, SUBPART Q

40 CFR 61, Subpart Q applies to storage and disposal facilities for radium-containing material that emits radon-222 into air. NFSS is specifically identified as one such facility in this subpart (in 40 CFR 61.190). Compliance with Subpart Q is verified by annual monitoring of the IWCS for radon-222 flux. The Subpart Q radon-222 emission limit is 20 pCi/m²/s.

3.0 AIR EMISSION DATA

Table 2 summarizes the sources of air emissions. Attachment A contains the annual wind erosion emission (E_w) calculation. Attachment B contains the radioactive source term calculations and annual air releases.

These calculations use the USEPA air pollution emission factor methodology (AP-42) to estimate the radioactive release from wind erosion, which is then used as the source term in the Clean Air Act Assessment Package (CAP88-PC) model to estimate airborne doses to hypothetically exposed individuals. The annual wind erosion emission estimate uses the most current soil data from the NFSS RI sampling Phases I, II, and III. A 95% upper confidence limit (UCL) without the subtraction of background radioactivity was calculated for each soil nuclide of concern and was used as the soil concentration for the source term estimate. The area of the entire NFSS was assumed to be uniformly contaminated and to contribute to the source term.

Table 2. Air Emission Data - NFSS

Point Sources	Type Control	Efficiency	Distance to Hypothetical Exposed Individual
none	not applicable	not applicable	not applicable
Area (Non-Point) Sources	Type Control	Efficiency	Distance and Direction from Center of Site to Hypothetical Exposed Individual
<i>in situ</i> soil –area source	vegetative cover	90 percent ^a	533 m SE Modern Scale-house Worker 783 m S Greenhouse Worker 914 m SSW Resident 1105 m S Resident (farm) 1250 m WSW Resident 1486 m ESE Resident 2499 m W School 2629 m WNW School
Group Sources	Type Control	Efficiency	Distance to Hypothetical Exposed Individual
none	not applicable	not applicable	not applicable

^a This is the fraction of vegetative cover used to correct emissions (Attachments A,B).

4.0 DOSE ASSESSMENTS

4.1 MODEL SOURCE DESCRIPTION

To determine the dose from airborne particulates potentially released from NFSS during CY2012, the annual wind erosion emission, E_w (Attachment A) is calculated using local climatological data (Attachment F) from the National Oceanic and Atmospheric Administration (NOAA) National Climatic Data Center for the Niagara Falls International Airport (NFIA) in Niagara Falls, NY. E_w is calculated using the USEPA AP-42 methodology for “fugitive emissions” from an “area source” that uses the “fastest mile” wind speed data from local climatological data reports. E_w , in grams emitted, is then applied to the soil nuclide concentration to estimate the source term or annual emissions for each radionuclide. The soil concentration was developed from sample data compiled during Phases I, II, and III of the Remedial Investigation for soil contamination (Attachment B). Contributions from radon gas, in accordance with regulatory guidance, are not considered in this calculation. Annual estimated emissions for each radionuclide were input into the USEPA’s CAP88-PC, Version 3.0 (updated 2013) code to calculate hypothetical receptor doses. The model estimates resultant doses from airborne particulates to hypothetical individuals at the distances to the nearest residence, commercial/industrial facility, school, and farm as measured from a central location on-site. Hypothetical doses are then corrected for occupancy. Commercial/industrial facility and school occupancy is assumed to be 40 hr/week for 50 weeks/yr. Residential and farm occupancy is assumed to be full-time/continuous for 24 hr/day for 365 days/yr. The hypothetical individual receiving the higher of these calculated doses is then identified as the maximally exposed individual (MEI) for airborne particulate dose.

4.2 DESCRIPTION OF DOSE MODEL

4.2.1 CAP88-PC Computer Program

The CAP88-PC model is a set of computer programs, databases, and associated utility programs that estimate the dose and risk from airborne radioactivity emissions. The USEPA NESHAP compliance procedures for airborne radioactivity emissions at USDOE facilities (40 CFR 61.93(a)) require the use of the CAP88-PC model, or other approved procedures to calculate effective dose equivalents to members of the public.

CAP88-PC uses a modified Gaussian plume equation to estimate the average dispersion of radionuclides released from a site. Assessments are performed for a circular grid of distances and directions for a radius of 80 km (50 miles) around the facility. Agricultural arrays for EPA food source scenarios for vegetation, milk and meat, and for milk cattle and beef cattle density and land fraction cultivated are generated automatically. Dose and risk factors for CAP88-PC, Version 3.0 are from Federal Guidance Report 13 and are based on the methods detailed in International Commission on Radiological Protection (ICRP) 72 (ICRP72). The dose calculations presented in this document used the default values for nuclide lung clearance type. These defaults correspond to the recommended values from FGR 13. Deposition velocity and scavenging coefficient are calculated by the code in accordance with USEPA policy. In the CAP88 model nuclides are depleted from the plume by precipitation scavenging, dry deposition and radioactive decay. The default scavenging coefficient is calculated as a function of annual precipitation. The program calculates the effective dose equivalents received by receptors by combining the inhalation and ingestion intake rates and the air and ground surface concentrations using the appropriate dose conversion factors.

4.2.2 CAP88-PC Input

Input parameters for CAP88 include:

Radionuclide emissions (Attachment B),
Weather data (average annual temperature, total annual precipitation) (Attachment E),
Emission source height and area (Section 4.3), and
Distance to nearest resident, off-site worker, school, and farm (Section 4.3).

4.2.3 CAP88-PC Output

The "Dose and Risk Equivalent Summaries" from CAP88-PC contains the resulting effective dose equivalents for each modeled scenario. The effective dose equivalent summary contains results for 16 compass directions around the facility for the nearest resident, off-site worker, school, and farm. CAP88-PC individual receptor and population output summaries are located in Attachment C and D, respectively.

4.3 COMPLIANCE ASSESSMENT

The released activity data from Attachment B is entered into the CAP88-PC modeling program to derive the hypothetical dose to the defined receptors. To derive the dose to the MEI, the CAP88-PC model must have weather data for the appropriate year, information on the emission source, and the distances and directions to the nearest residence, off-site worker, school, and farm. At the time of the writing of this report the Annual Climatological Summary for 2012 was incomplete for December. The monthly LCD for December 2012 was used to

complete the yearly data for mean temperature and total precipitation. The following CY2012 meteorological data were entered into CAP88-PC (see Attachment E):

Average temperature	10.72 °C (51.3 °F) NFIA
Precipitation,	79.58 cm (31.33 inches) ML
Mixing height	1,000 m

The following emission source and nearest receptor distances and direction information were also entered into the program:

Source height	0 m
Source area	780,000 m ²
Resident	914 m SSW
Resident (farm)	1105 m S
Resident	1250 m WSW
Resident	1486 m ESE
Off-site worker	533 m SE
Off-site worker	783 m S
School (building)	2499 m W
School (building)	2629 m WNW

The CAP88-PC annual hypothetical dose to the nearest resident, off-site worker, school, and farm at the corresponding directions and distances taken from page six of the "Dose and Risk Equivalent Summaries" document for individual modeling (Attachment C) are:

Resident	5.0 E-04 mrem, SSW @ 914 m
Off-site worker	2.1 E-03 mrem, SE @ 533 m
School	2.0 E-04 mrem, W @ 2499 m
Farm	3.9 E-04 mrem, S @ 1105 m

The hypothetical doses to the nearest off-site worker and school corrected for an assumed 2,000 hr of exposure per year are:

Off-site worker	4.8 E-04 mrem
School	3.2 E-04 mrem

5.0 SUPPLEMENTAL INFORMATION

5.1 POPULATION DOSE

The CAP88-PC model was also used to estimate the hypothetical airborne particulate dose to the population within 80 km of the site. Population data taken from year 2000 census data for New York State and 2001 census data for Ontario, Canada was used to create a population file for CAP88-PC. The effective dose equivalent for the collective population in person-rem/yr is from the CAP88-PC "Dose and Risk Equivalent Summaries" report.

The CAP88-PC annual effective dose for the population within 80 km of the facility (Attachment D) is:

Population:	1.4 E-02 person-rem
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5.2 RADON-222 FLUX

Measurement of radon-222 flux provides an indication of the rate of radon-222 emission from a surface. Radon-222 flux is measured with activated charcoal canisters placed at 15-m

intervals across the surface of the IWCS for a 24-hr exposure period. Measurements for CY2012 are presented in the radon flux results with measurement locations (site map) in Attachment F.

Measured results for 2012 ranged from non-detect to 0.9917 pCi/m²/s, with an average result including detects and non-detects of 0.0424 pCi/m²/s. As in previous years, these results are well below the 20 pCi/m²/s standard specified in 40 CFR Part 61, Subpart Q, and demonstrate the effectiveness of the containment cell design and construction in mitigating radon-222 migration.

5.3 NON-APPLICABILITY

Requirements from section 61.93(b) of 40 CFR for continuous monitoring from point sources (stacks or vents) are not applicable to NFSS.

6.0 REFERENCES

ANL 2003. CAP88-PC Population Files for NFSS, Argonne National Laboratory, Chicago, Illinois.

Bechtel National, Inc. (BNI), 1997. "1996 Public Inhalation Dose" 14501-158-CV-030, Rev. 0, Oak Ridge, TN.

Environmental Protection Agency (EPA), 1995. *Compilation of Air Pollutant Emission Factors, Fifth Edition*, AP-42, Office of Air Quality Planning and Standards, Research Triangle Park, NC (January).

Environmental Protection Agency (EPA), 2006. CAP88-PC Version 3.0 Computer Code, U.S. Environmental Protection Agency.

Environmental Protection Agency (EPA), 1999. *Federal Guidance Report 13, Cancer Risk Coefficients for Environmental Exposure to Radionuclides*, EPA99 EPA 402-R-99_001, USEPA Office of Radiation and Indoor Air, Washington, DC.

International Commission on Radiological Protection (ICRP72), 1996. *Age Dependent Doses to Members of the Public from Intake of Radionuclides, Part 5, Compilation of Ingestion and Inhalation Dose Coefficients*," ICRP 72, Pergamon Press, Oxford.

40 CFR 61, Subpart H. *National Emission Standards for Emissions of Radionuclides Other Than Radon From Department of Energy Facilities*.

40 CFR 61, Subpart Q. *National Emission Standards for Radon Emissions from Department of Energy Facilities*.

ATTACHMENT A
ANNUAL WIND EROSION EMISSION CALCULATION

A.1 ANNUAL WIND EROSION

In 2012, the potential source of airborne emissions from NFSS is assumed to be from wind erosion of in-situ soil from the entire NFSS. The AP-42 model for industrial wind erosion for limited flat sources is used. In this model the potential airborne emissions are a function of the number of disturbances of contaminated soil. The following assumptions and calculations are made:

The air release source is wind erosion of in-situ soil from an area (A) of 780,000 m² of vegetation covered soil.

$$A = 780,000 \text{ m}^2$$

The calculation assumes that 90% of this area is covered by grass or vegetation (V).

$$V = 0.90$$

Weekly grass cutting is assumed for half the year, occurring May through October and in an April spring thaw. The number of estimated disturbances (N) is therefore:

$$N = 27$$

The threshold velocity (U_t) for overburden (USEPA 1995 Table 13.2.5-2) is:

$$U_t = 1.02 \text{ m/s}$$

Anemometer height adjustment is not necessary.

$$Z_r = \text{reference anemometer height} = 10 \text{ m}$$

$$Z_a = \text{actual anemometer height} = 10 \text{ m}$$

The roughness height for overburden is 0.3 cm (USEPA 1995 Table 13.2.5-2).

$$Z_o = 0.3 \text{ cm}$$

The corrected wind speed (U_{rN}) for each period (N) between disturbances (USEPA 1995 Equation 5) is:

$$U_{rN} = U_{aN} [\ln(Z_r / Z_o) / \ln(Z_a / Z_o)], \text{ therefore } U_{rN} = U_{aN}$$

The equivalent friction velocity (U_N) for each period between disturbances (USEPA 1995 Equation 4) is:

$$U_N = 0.053 U_{rN}$$

The fastest mile speeds (maximum 2-minute wind speeds^a) from Local Climatological Data reports from NOAA for Niagara Falls International Airport (NFIA) in mph for the period between each disturbance are:

$U_{a1} = 37$	$U_{a2} = 23$	$U_{a3} = 30$	$U_{a4} = 25$	$U_{a5} = 26$	$U_{a6} = 28$
$U_{a7} = 22$	$U_{a8} = 28$	$U_{a9} = 26$	$U_{a10} = 24$	$U_{a11} = 26$	$U_{a12} = 20$
$U_{a13} = 33$	$U_{a14} = 30$	$U_{a15} = 31$	$U_{a16} = 24$	$U_{a17} = 24$	$U_{a18} = 17$
$U_{a19} = 24$	$U_{a20} = 31$	$U_{a21} = 22$	$U_{a22} = 29$	$U_{a23} = 24$	$U_{a24} = 29$
$U_{a25} = 40$	$U_{a26} = 33$	$U_{a27} = 36$			

^aMaximum 2-minute wind speeds can be used to approximate fastest mile wind speeds (USEPA 2004 Table 7-4), however, this calculation applies an uncertainty correction factor, protective of human health, of 1.3 in order to approximate the fastest mile wind speeds.

The equivalent friction velocity in m/s for each period is:

U ₁	1.14E+00	U ₁₁	8.01E-01	U ₂₁	6.78E-01
U ₂	7.08E-01	U ₁₂	6.16E-01	U ₂₂	8.93E-01
U ₃	9.24E-01	U ₁₃	1.02E+00	U ₂₃	7.39E-01
U ₄	7.70E-01	U ₁₄	9.24E-01	U ₂₄	8.93E-01
U ₅	8.01E-01	U ₁₅	9.55E-01	U ₂₅	1.23E+00
U ₆	8.62E-01	U ₁₆	7.39E-01	U ₂₆	1.02E+00
U ₇	6.78E-01	U ₁₇	7.39E-01	U ₂₇	1.11E+00
U ₈	8.62E-01	U ₁₈	5.24E-01		
U ₉	8.01E-01	U ₁₉	7.39E-01		
U ₁₀	7.39E-01	U ₂₀	9.55E-01		

The erosion potential (P_N) for a dry exposed surface (USEPA 1985 Figure 4-2) is:

$$P_N = 58 (U^* - U_t)^2 + 25(U^* - U_t) = 14.41 \text{ g/m}^2$$

The erosion potentials (P_N) for each period between disturbances are all less than or equal to the threshold friction velocity except for U₁, U₃, U₆, and U₂₃.

The particle size multiplier (k) for 10 μ particles (USEPA 1995 Equation 2) is:

$$k = 0.5$$

The emission factor (P) for dry bare soil for 10 μ particles (USEPA 1995 Equation 2) is:

$$P = k \sum P_N = 7.2 \text{ g/m}^2$$

Thornthwaite's Precipitation Evaporation Index (PE), used as a measure of average soil moisture, is:

$$PE = 110$$

The corrected emission factor (PM_{10}) for 10 μ particles (USEPA 1985 Equation 4-1) is:

$$PM_{10} = P(1-V) / (PE/50)^2 = 0.15 \text{ g/m}^2/\text{yr}$$

The annual wind erosion emission (E) is calculated to be:

$$E = A (PM_{10}) = 116,103 \text{ g soil}$$

A.2 REFERENCES

- EPA 2004. *Methods for Estimating Fugitive Air Emissions of Radionuclides from Diffuse Sources at USDOE Facilities*, Final Report, September 3, 2004.
- EPA 1995. *AP 42 Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources*, Fifth Edition, 1995.
- M. J. Changery, *National Wind Data Index Final Report*, HCO/T1041-01 UC-60, National Climatic Center, Asheville, NC, December 1978.
- EPA 1985. *Rapid Assessment of Exposure to Particulate Emissions from Surface Contaminated Sites*, EPA/600/8-85/002, Office of Health and Environmental Assessment, Washington, DC (February).
- EPA 1985. *AP 42 Compilation of Air Pollution Emission Factors*, Third Edition (including supplements 1-7), August 1977.

ATTACHMENT B

SOURCE TERM DEVELOPMENT AND ANNUAL AIR EMISSIONS

B.1 SOURCE TERM DEVELOPMENT

The source term for NFSS NESHAPS calculations was developed considering the radionuclides in the uranium, thorium, and actinium decay series as shown in Table B-1. Concentration data for these radioisotopes were taken from Phases I, II, and III of the Remedial Investigation and are listed in Table B-2. The Phase I sampling was performed from November 1999 through January 2000. The Phase II was performed from August 2000 through October 2000. The Phase III sampling was performed from May 2001 through October 2003. The dataset has been verified to ensure data quality and includes the analysis of soils from biased high locations (i.e., locations that had elevated gamma survey readings).

The IWCS, completed in 1986 and added to in 1991, is surrounded by sufficient topsoil and compacted clay to consider radionuclide emissions negligible. In 1986, the entire IWCS was covered with 0.9 meters (3 feet) of low-permeability, compacted clay, a 0.3 meter (12 inch)-thick layer of loosely compacted soil, 0.15 meter (6 inches) of topsoil and covered with shallow-rooted grass. A clay cutoff wall and dike measuring 3.35 to 8.84 meters (11 to 29 feet) in thickness formed the perimeter. In 1991 additional soil with residual radioactivity from a vicinity property, along with 60 drums containing radioactive material, were placed over the existing IWCS. Six inches of clay was placed over the waste material and two feet of compacted clay was added on top along with 0.46 meter (1.5 feet) of topsoil material. However, the area of the cap was included in the site area estimate.

Radium-226 was detected at an elevated concentration of 1,140 pCi/g in one area during the Phase I remedial investigation. This was analyzed and determined to come from a stone in the sample. Although release rates are based on dust erosion and not buried stones, this detection was used in the source term calculation.

Soil concentration data, listed in Table B-3, are not available for all the radionuclides in Table B-1. If explicit results for a radionuclide were not available, it was assumed that the radionuclide was present in equilibrium with (i.e., at the same concentration as) the nearest long-lived parent. Branching ratios were used to estimate source term concentrations. Table B-3 lists the source term values used in the CAP-88 modeled scenarios.

Table B-1. Radionuclides Considered in NESHAPS Evaluation

Uranium Series	Thorium Series	Actinium Series
U-238	Th-232	U-235
Th-234	Ra-228	Th-231
Pa-234m	Ac-228	Pa-231
Pa-234 (0.13%)	Th-228	Ac-227
U-234	Ra-224	Th-227 (98.62%)
Th-230	*Rn-220 (thoron)	Fr-223 (1.38%)
Ra-226	Po-216	Ra-223
*Rn-222 (radon)	Pb-212	*Rn-219 (actinon)
Po-218	Bi-212	Po-215
Pb-214 (99.98%)	Po-212 (64.07%)	Pb-211 (\approx 100%)
At-218 (0.02%)	Tl-208 (35.93%)	At-215 (0.00023%)
Bi-214	*Pb-208 (stable)	Bi-211
Po-214 (99.979%)		Po-211 (0.273%)
Tl-210 (0.021%)		Tl-207 (99.73%)
Pb-210		*Pb-207 (stable)
Bi-210		
Po-210 (\approx 100%)		
Tl-206 (0.00013%)		
*Pb-206 (stable)		

Nuclides with asterisks (*) were excluded from dose calculations because radon isotopes, including thoron and actinon, are specifically excluded per the regulation or they are stable nuclides and do not contribute to radiological dose. Nuclides are presented from top to bottom in order of decay starting from the parent radionuclides. Branching fractions are shown, as appropriate, for consideration in source term development. Fractions taken from Shleien, 1992. Because in the year 2013 EPA revised CAP88 Ver 3 the input into the source term was changed to the inclusion of 10 subchains for the three series listed above. The subchains used are indicated in alternating highlight. Subchains were input based upon the decay half-lives significant to a 100-year build-up. Chain length was limited to 10 daughters, the highest number of subchain daughters for the Ac-227 subchain.

Table B-2. Summary of Phases I, II, and III Characterization Data Used in NESHAP Dose Calculations

Analyte	Units	Results	Minimum Detect	Maximum Detect	Average Result	95% UCL of the Mean	Input Exposure Concentration
Radium-226 ^a (pCi/g)		552	0.0607	1140	10.23	26.09	26.09
Thorium-228 (pCi/g)		552	0.0481	2.38	1.06	1.08	1.08
Thorium-230 (pCi/g)		552	0.0906	978	8.68	22.74	22.74
Thorium-232 (pCi/g)		551	0.0149	2.07	0.88	0.89	0.89
Uranium-234 (pCi/g)		552	0.0416	8340	20.57	87.4	87.4
Uranium-235 (pCi/g)		553	-0.16	886	1.94	8.97	8.97
Uranium-238 (pCi/g)		551	0.049	8830	21.59	92.38	92.38

^a Includes previous outlier 1,140 pCi/g (NiagAir1 on 25JUL00 at 15:36 using dataset allradnq)

Table B-3. Soil Concentration and Estimated Emission of Radionuclides from NFSS for CY 2012

Soil Concentration and CAPP88 Input Source Term								
Uranium Series			Thorium Series			Actinium Series		
Nuclide	pCi/g	Ci/y	Nuclide	pCi/g	Ci/y	Nuclide	pCi/g	Ci/y
U-238	92.38	1.07E-05	Th-232	0.89	1.03E-07	U-235	8.97	1.04E-06
Th-234	92.38		Ra-228	0.89	1.03E-07	Th-231	8.97	
Pa-234m	92.38		Ac-228	0.89		Pa-231	8.97	1.04E-06
Pa-234	92.38		Th-228	1.08		Ac-227	8.97	2.93E-06
U-234	87.4	1.01E-05	Ra-224	1.08		Th-227	8.97	
Th-230	22.74	2.64E-06	Rn-220	1.08		Fr-223	8.97	
Ra-226	26.09	3.03E-06	Po-216	1.08		Ra-223	8.97	
Rn-222	26.09		Pb-212	1.08		Rn-219	8.97	
Po-218	26.09		Bi-212	1.08		Po-215	8.97	
Pb-214	26.09		Po-212	1.08		Pb-211	8.97	
At-218	26.09		Tl-208	1.08		At-215	8.97	
Bi-214	26.09		Pb-208 (stable)	1.08	0.00E-00	Bi-211	8.97	
Po-214	26.09					Po-211	8.97	
Tl-210	26.09					Tl-207	8.97	
Pb-210	26.09	3.03E-06				Pb-207 (stable)	8.97	0.00E-00
Bi-210	26.09							
Po-210	26.09							
Tl-206	26.09							
Pb-206 (stable)	26.09	0.00E-00						

B.2 REFERENCES

Shleien, 1992. *The Health Physics and Radiological Health Handbook*, Scinta, Inc., Silver Spring, MD.

ATTACHMENT C
CAPP88-PC REPORTS – INDIVIDUAL

C A P 8 8 - P C

Version 3.0

Clean Air Act Assessment Package - 1988

D O S E A N D R I S K E Q U I V A L E N T S U M M A R I E S

Non-Radon Individual Assessment
Jun 10, 2013 04:35 pm

Facility: Niagara Falls Storage Site
Address: 1397 Pletcher Road
City: Lewiston
State: NY Zip: 14174

Source Category: Area
Source Type: Area
Emission Year: 2012

Comments: NFSS Technical Memo 2012 Year
Individual Dose

Dataset Name: NFSS 2012 Ind
Dataset Date: 6/10/2013 3:38:00 PM
Wind File: . C:\CAP88 V3\program files\CAP88-
PC30\WindLib\IAG0905.WND

Jun 10, 2013 04:35 pm

SUMMARY
Page 1

ORGAN DOSE EQUIVALENT SUMMARY

Organ	Selected Individual (mrem/y)
Adrenals	1.57E-05
B Surfac	3.84E-03
Breasts	1.61E-05
St Wall	1.60E-05
ULI Wall	1.88E-05
Kidneys	1.10E-04
Lungs	4.21E-04
Ovaries	4.33E-05
R Marrow	1.86E-04
Spleen	4.30E-05
Thymus	1.59E-05
Uterus	1.58E-05
Bld Wall	1.60E-05
Brain	1.58E-05
Esophagu	1.30E-04
SI Wall	1.61E-05
LLI Wall	2.49E-05
Liver	2.62E-04
Muscle	1.62E-05
Pancreas	1.57E-05
Skin	7.22E-05
Testes	4.39E-05
Thyroid	1.60E-05
EFFEC	2.80E-03

PATHWAY EFFECTIVE DOSE EQUIVALENT SUMMARY

Pathway	Selected Individual (mrem/y)
INGESTION	3.89E-04
INHALATION	2.41E-03
AIR IMMERSION	3.05E-10
GROUND SURFACE	3.00E-06
INTERNAL	2.79E-03
EXTERNAL	3.00E-06
TOTAL	2.80E-03

NUCLIDE EFFECTIVE DOSE EQUIVALENT SUMMARY

Nuclide	Selected Individual (mrem/y)
U-238	2.85E-04
Th-234	3.05E-08
Pa-234m	4.34E-07
Pa-234	0.00E+00
U-234	3.15E-04
Th-230	3.30E-04
Ra-226	2.06E-04
Rn-222	1.92E-15
Po-218	1.15E-11
Pb-214	3.20E-07
Bi-214	1.92E-06
Po-214	1.05E-10
Pb-210	1.51E-04
Bi-210	4.81E-08
Po-210	3.79E-12
At-218	0.00E+00
Th-232	2.07E-05
Ra-228	2.21E-06
Ac-228	1.57E-10
Th-228	0.00E+00
Ra-224	0.00E+00
Rn-220	0.00E+00
Po-216	0.00E+00
Pb-212	0.00E+00
Bi-212	0.00E+00
Po-212	0.00E+00
Tl-208	0.00E+00
U-235	2.91E-05
Th-231	7.31E-09
Pa-231	8.24E-04
Ac-227	6.33E-04
Th-227	3.81E-08
Ra-223	4.13E-08
Rn-219	0.00E+00
Po-215	5.74E-11
Pb-211	3.24E-08
Bi-211	1.50E-08
Tl-207	1.89E-08
Po-211	0.00E+00
Fr-223	2.83E-10
TOTAL	2.80E-03

CANCER RISK SUMMARY

Cancer	Selected Individual Total Lifetime Fatal Cancer Risk
Esophagus	2.24E-12
Stomach	6.35E-12
Colon	2.97E-11
Liver	6.65E-11
LUNG	8.45E-10
Bone	5.26E-11
Skin	2.24E-13
Breast	3.65E-12
Ovary	7.62E-12
Bladder	5.24E-12
Kidneys	1.31E-11
Thyroid	5.02E-13
Leukemia	1.13E-11
Residual	3.30E-11
Total	1.08E-09
TOTAL	2.15E-09

PATHWAY RISK SUMMARY

Pathway	Selected Individual Total Lifetime Fatal Cancer Risk
INGESTION	1.12E-10
INHALATION	9.63E-10
AIR IMMERSION	1.62E-16
GROUND SURFACE	1.40E-12
INTERNAL	1.08E-09
EXTERNAL	1.40E-12
TOTAL	1.08E-09

NUCLIDE RISK SUMMARY

Nuclide	Selected Individual Total Lifetime Fatal Cancer Risk
U-238	2.23E-10
Th-234	1.59E-14
Pa-234m	6.95E-14
Pa-234	0.00E+00
U-234	2.48E-10
Th-230	1.58E-10
Ra-226	1.13E-10
Rn-222	1.04E-21
Po-218	6.31E-18
Pb-214	1.70E-13
Bi-214	1.02E-12
Po-214	5.77E-17
Pb-210	5.78E-11
Bi-210	6.73E-15
Po-210	2.08E-18
At-218	0.00E+00
Th-232	9.20E-12
Ra-228	1.05E-12
Ac-228	1.00E-16
Th-228	0.00E+00
Ra-224	0.00E+00
Rn-220	0.00E+00
Po-216	0.00E+00
Pb-212	0.00E+00
Bi-212	0.00E+00
Po-212	0.00E+00
Tl-208	0.00E+00
U-235	2.28E-11
Th-231	3.31E-15
Pa-231	7.77E-11
Ac-227	1.65E-10
Th-227	2.06E-14
Ra-223	2.24E-14
Rn-219	0.00E+00
Po-215	3.15E-17
Pb-211	1.08E-14
Bi-211	8.23E-15
Tl-207	2.42E-15
Po-211	0.00E+00
Fr-223	2.39E-16
TOTAL	1.08E-09

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SUMMARY

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INDIVIDUAL EFFECTIVE DOSE EQUIVALENT RATE (mrem/y)
(All Radionuclides and Pathways)

Distance (m)

Direction	533	783	914	1105	1250	1486	2499
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N	2.0E-03	8.2E-04	6.3E-04	4.7E-04	3.9E-04	3.1E-04	1.6E-04
NNW	1.6E-03	6.4E-04	4.6E-04	3.2E-04	2.5E-04	1.8E-04	7.7E-05
NW	1.6E-03	5.5E-04	4.2E-04	3.1E-04	2.6E-04	2.0E-04	1.1E-04
WNW	1.7E-03	8.6E-04	6.3E-04	4.5E-04	3.7E-04	2.7E-04	1.3E-04
W	1.9E-03	9.3E-04	7.1E-04	5.4E-04	4.6E-04	3.6E-04	2.0E-04
WSW	1.9E-03	9.2E-04	6.8E-04	4.8E-04	3.9E-04	2.9E-04	1.3E-04
SW	1.7E-03	6.7E-04	5.1E-04	3.8E-04	3.2E-04	2.5E-04	1.3E-04
SSW	1.5E-03	6.9E-04	5.0E-04	3.5E-04	2.9E-04	2.1E-04	9.9E-05
S	1.7E-03	6.8E-04	5.2E-04	3.9E-04	3.3E-04	2.6E-04	1.4E-04
SSE	1.9E-03	8.8E-04	6.5E-04	4.6E-04	3.7E-04	2.8E-04	1.3E-04
SE	2.1E-03	9.6E-04	7.3E-04	5.3E-04	4.5E-04	3.5E-04	1.8E-04
ESE	2.4E-03	1.1E-03	8.3E-04	5.9E-04	4.8E-04	3.6E-04	1.7E-04
E	2.7E-03	1.1E-03	8.5E-04	6.2E-04	5.1E-04	3.9E-04	1.9E-04
ENE	2.8E-03	1.3E-03	9.8E-04	6.9E-04	5.6E-04	4.2E-04	1.8E-04
NE	2.8E-03	1.3E-03	1.0E-03	7.4E-04	6.2E-04	4.9E-04	2.5E-04
NNE	2.5E-03	1.3E-03	9.3E-04	6.6E-04	5.3E-04	4.0E-04	1.8E-04

Distance (m)

Direction	2629
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N	1.5E-04
NNW	7.4E-05
NW	1.0E-04
WNW	1.2E-04
W	1.8E-04
WSW	1.2E-04
SW	1.2E-04
SSW	9.4E-05
S	1.3E-04
SSE	1.2E-04
SE	1.7E-04
ESE	1.5E-04
E	1.8E-04
ENE	1.7E-04
NE	2.3E-04
NNE	1.7E-04

INDIVIDUAL LIFETIME RISK (deaths)
(All Radionuclides and Pathways)

		Distance (m)						
Direction		533	783	914	1105	1250	1486	2499
N		7.7E-10	3.1E-10	2.4E-10	1.8E-10	1.5E-10	1.2E-10	5.9E-11
NNW		6.1E-10	2.4E-10	1.7E-10	1.2E-10	9.3E-11	6.6E-11	2.6E-11
NW		6.1E-10	2.1E-10	1.6E-10	1.2E-10	9.6E-11	7.5E-11	3.8E-11
WNW		6.5E-10	3.3E-10	2.4E-10	1.7E-10	1.4E-10	1.0E-10	4.5E-11
W		7.2E-10	3.5E-10	2.7E-10	2.0E-10	1.7E-10	1.4E-10	7.2E-11
WSW		7.1E-10	3.5E-10	2.6E-10	1.8E-10	1.4E-10	1.1E-10	4.7E-11
SW		6.6E-10	2.6E-10	1.9E-10	1.4E-10	1.2E-10	9.2E-11	4.7E-11
SSW		5.9E-10	2.6E-10	1.9E-10	1.3E-10	1.1E-10	7.9E-11	3.4E-11
S		6.4E-10	2.6E-10	2.0E-10	1.5E-10	1.2E-10	9.6E-11	4.9E-11
SSE		7.2E-10	3.4E-10	2.5E-10	1.7E-10	1.4E-10	1.0E-10	4.5E-11
SE		8.2E-10	3.7E-10	2.8E-10	2.0E-10	1.7E-10	1.3E-10	6.5E-11
ESE		9.1E-10	4.3E-10	3.2E-10	2.2E-10	1.8E-10	1.4E-10	6.0E-11
E		1.0E-09	4.3E-10	3.2E-10	2.3E-10	1.9E-10	1.5E-10	7.0E-11
ENE		1.1E-09	5.1E-10	3.8E-10	2.6E-10	2.1E-10	1.6E-10	6.6E-11
NE		1.1E-09	5.0E-10	3.8E-10	2.8E-10	2.4E-10	1.9E-10	9.3E-11
NNE		9.5E-10	4.8E-10	3.5E-10	2.5E-10	2.0E-10	1.5E-10	6.4E-11

		Distance (m)						
Direction		2629						
N		5.5E-11						
NNW		2.5E-11						
NW		3.6E-11						
WNW		4.3E-11						
W		6.7E-11						
WSW		4.4E-11						
SW		4.4E-11						
SSW		3.3E-11						
S		4.6E-11						
SSE		4.2E-11						
SE		6.0E-11						
ESE		5.6E-11						
E		6.5E-11						
ENE		6.2E-11						
NE		8.6E-11						
NNE		6.0E-11						

ATTACHMENT D
CAPP88-PC REPORTS – POPULATION

C A P 8 8 - P C

Version 3.0

Clean Air Act Assessment Package - 1988

D O S E A N D R I S K E Q U I V A L E N T S U M M A R I E S

Non-Radon Population Assessment
Jun 10, 2013 05:52 pm

Facility: Niagara Falls Storage Site
Address: 1397 Pletcher Road
City: Lewiston
State: NY Zip: 14174

Source Category: Area
Source Type: Area
Emission Year: 2012

Comments: NFSS Technical Memo 2012 Year
Population Dose

Dataset Name: NFSS 2012 Pop
Dataset Date: 6/10/2013 4:53:00 PM
Wind File: . C:\CAP88 V3\program files\CAP88-
PC30\WindLib\IAG0905.WND
Population File: C:\CAP88 V3\program files\CAP88-
PC30\Poplib\NFSS2003.POP

Jun 10, 2013 05:52 pm

SUMMARY
Page 1

ORGAN DOSE EQUIVALENT SUMMARY

Organ	Selected Individual (mrem/y)	Collective Population (person-rem/y)
Adrenals	4.93E-05	8.07E-05
B Surfac	1.28E-02	1.86E-02
Breasts	5.09E-05	8.44E-05
St Wall	5.00E-05	8.25E-05
ULI Wall	5.55E-05	9.23E-05
Kidneys	2.52E-04	4.31E-04
Lungs	1.66E-03	2.29E-03
Ovaries	1.54E-04	2.26E-04
R Marrow	5.59E-04	8.51E-04
Spleen	7.43E-05	1.49E-04
Thymus	4.99E-05	8.21E-05
Uterus	4.97E-05	8.16E-05
Bld Wall	5.03E-05	8.29E-05
Brain	4.99E-05	8.20E-05
Esophagu	5.04E-04	7.04E-04
SI Wall	5.00E-05	8.25E-05
LLI Wall	6.63E-05	1.13E-04
Liver	9.18E-04	1.32E-03
Muscle	5.12E-05	8.50E-05
Pancreas	4.94E-05	8.09E-05
Skin	2.64E-04	5.78E-04
Testes	1.56E-04	2.31E-04
Thyroid	5.03E-05	8.30E-05
EFFEC	9.82E-03	1.40E-02

PATHWAY EFFECTIVE DOSE EQUIVALENT SUMMARY

Pathway	Selected Individual (mrem/y)	Collective Population (person-rem/y)
INGESTION	2.21E-04	8.47E-04
INHALATION	9.59E-03	1.31E-02
AIR IMMERSION	1.22E-09	1.67E-09
GROUND SURFACE	1.14E-05	2.64E-05
INTERNAL	9.81E-03	1.40E-02
EXTERNAL	1.14E-05	2.64E-05
TOTAL	9.82E-03	1.40E-02

NUCLIDE EFFECTIVE DOSE EQUIVALENT SUMMARY

Nuclides	Selected Individual (mrem/y)	Collective Population (person-rem/y)
U-238	1.03E-03	1.46E-03
Th-234	1.15E-07	2.67E-07
Pa-234m	1.65E-06	3.82E-06
Pa-234	0.00E+00	0.00E+00
U-234	1.15E-03	1.63E-03
Th-230	1.21E-03	1.70E-03
Ra-226	4.10E-04	7.49E-04
Rn-222	7.54E-15	1.65E-14
Po-218	4.36E-11	1.01E-10
Pb-214	1.21E-06	2.82E-06
Bi-214	7.27E-06	1.69E-05
Po-214	3.99E-10	9.28E-10
Pb-210	1.78E-04	4.12E-04
Bi-210	1.83E-07	4.17E-07
Po-210	1.44E-11	3.34E-11
At-218	0.00E+00	0.00E+00
Th-232	8.26E-05	1.13E-04
Ra-228	8.79E-06	1.21E-05
Ac-228	6.27E-10	8.60E-10
Th-228	0.00E+00	0.00E+00
Ra-224	0.00E+00	0.00E+00
Rn-220	0.00E+00	0.00E+00
Po-216	0.00E+00	0.00E+00
Pb-212	0.00E+00	0.00E+00
Bi-212	0.00E+00	0.00E+00
Po-212	0.00E+00	0.00E+00
Tl-208	0.00E+00	0.00E+00
U-235	1.06E-04	1.50E-04
Th-231	2.77E-08	6.44E-08
Pa-231	3.16E-03	4.38E-03
Ac-227	2.46E-03	3.40E-03
Th-227	1.44E-07	3.36E-07
Ra-223	1.57E-07	3.64E-07
Rn-219	0.00E+00	0.00E+00
Po-215	2.18E-10	5.06E-10
Pb-211	1.23E-07	2.86E-07
Bi-211	5.70E-08	1.32E-07
Tl-207	7.18E-08	1.67E-07
Po-211	0.00E+00	0.00E+00
Fr-223	1.13E-09	1.54E-09
TOTAL	9.82E-03	1.40E-02

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SUMMARY
Page 3

CANCER RISK SUMMARY

Cancer	Selected Individual Total Lifetime Fatal Cancer Risk	Total Collective Population Fatal Cancer Risk (Deaths/y)
Esophagus	5.80E-12	1.21E-10
Stomach	1.36E-11	3.09E-10
Colon	4.16E-11	1.17E-09
Liver	2.11E-10	4.03E-09
LUNG	3.34E-09	5.95E-08
Bone	1.46E-10	2.94E-09
Skin	6.02E-13	1.50E-11
Breast	7.92E-12	1.82E-10
Ovary	2.56E-11	4.82E-10
Bladder	1.38E-11	2.86E-10
Kidneys	2.19E-11	5.50E-10
Thyroid	1.10E-12	2.47E-11
Leukemia	2.69E-11	5.83E-10
Residual	5.40E-11	1.41E-09
Total	3.91E-09	7.16E-08

PATHWAY RISK SUMMARY

Pathway	Selected Individual Total Lifetime Fatal Cancer Risk	Total Collective Population Fatal Cancer Risk (Deaths/y)
INGESTION	6.44E-11	3.23E-09
INHALATION	3.84E-09	6.82E-08
AIR IMMERSION	6.46E-16	1.15E-14
GROUND SURFACE	5.31E-12	1.60E-10
INTERNAL	3.90E-09	7.14E-08
EXTERNAL	5.31E-12	1.60E-10
TOTAL	3.91E-09	7.16E-08

NUCLIDE RISK SUMMARY

Nuclide	Selected Individual Total Lifetime Fatal Cancer Risk	Total Collective Population Fatal Cancer Risk (Deaths/y)
U-238	8.53E-10	1.53E-08
Th-234	5.95E-14	1.79E-12
Pa-234m	2.64E-13	7.94E-12
Pa-234	0.00E+00	0.00E+00
U-234	9.54E-10	1.71E-08
Th-230	6.19E-10	1.10E-08
Ra-226	3.11E-10	6.36E-09
Rn-222	4.10E-21	1.16E-19
Po-218	2.39E-17	7.21E-16
Pb-214	6.47E-13	1.95E-11
Bi-214	3.86E-12	1.16E-10
Po-214	2.19E-16	6.59E-15
Pb-210	9.02E-11	2.33E-09
Bi-210	2.58E-14	6.98E-13
Po-210	7.89E-18	2.37E-16
At-218	0.00E+00	0.00E+00
Th-232	3.67E-11	6.51E-10
Ra-228	4.20E-12	7.46E-11
Ac-228	4.00E-16	7.10E-15
Th-228	0.00E+00	0.00E+00
Ra-224	0.00E+00	0.00E+00
Rn-220	0.00E+00	0.00E+00
Po-216	0.00E+00	0.00E+00
Pb-212	0.00E+00	0.00E+00
Bi-212	0.00E+00	0.00E+00
Po-212	0.00E+00	0.00E+00
Tl-208	0.00E+00	0.00E+00
U-235	8.72E-11	1.57E-09
Th-231	1.26E-14	3.77E-13
Pa-231	2.99E-10	5.36E-09
Ac-227	6.48E-10	1.16E-08
Th-227	7.81E-14	2.35E-12
Ra-223	8.48E-14	2.55E-12
Rn-219	0.00E+00	0.00E+00
Po-215	1.19E-16	3.59E-15
Pb-211	4.08E-14	1.23E-12
Bi-211	3.12E-14	9.39E-13
Tl-207	9.17E-15	2.76E-13
Po-211	0.00E+00	0.00E+00
Fr-223	9.53E-16	1.69E-14
TOTAL	3.91E-09	7.16E-08

Jun 10, 2013 05:52 pm

SUMMARY

INDIVIDUAL EFFECTIVE DOSE EQUIVALENT RATE (mrem/y)
(All Radionuclides and Pathways)

Direction	Distance (m)						
	250	750	1500	2500	3500	4500	7500
N	9.8E-03	7.6E-04	2.4E-04	1.1E-04	6.3E-05	4.3E-05	2.0E-05
NNW	9.8E-03	5.9E-04	1.2E-04	3.4E-05	1.9E-05	1.3E-05	6.0E-06
NW	9.8E-03	5.0E-04	1.4E-04	6.0E-05	3.5E-05	2.3E-05	1.1E-05
WNW	9.8E-03	8.0E-04	2.1E-04	7.8E-05	4.5E-05	3.0E-05	1.4E-05
W	9.8E-03	8.6E-04	2.8E-04	1.4E-04	7.9E-05	5.4E-05	2.4E-05
WSW	9.8E-03	8.6E-04	2.2E-04	8.0E-05	4.6E-05	3.2E-05	1.4E-05
SW	9.7E-03	6.1E-04	1.8E-04	8.0E-05	4.6E-05	3.2E-05	1.4E-05
SSW	9.8E-03	6.3E-04	1.5E-04	5.2E-05	3.0E-05	2.1E-05	9.3E-06
S	9.8E-03	6.2E-04	1.9E-04	8.6E-05	5.0E-05	3.4E-05	1.5E-05
SSE	9.8E-03	8.2E-04	2.1E-04	7.6E-05	4.4E-05	3.0E-05	1.3E-05
SE	9.8E-03	8.9E-04	2.7E-04	1.2E-04	7.0E-05	4.7E-05	2.1E-05
ESE	9.8E-03	1.0E-03	2.8E-04	1.1E-04	6.4E-05	4.3E-05	2.0E-05
E	9.7E-03	1.1E-03	3.1E-04	1.3E-04	7.7E-05	5.2E-05	2.4E-05
ENE	9.8E-03	1.3E-03	3.3E-04	1.3E-04	7.3E-05	4.9E-05	2.3E-05
NE	9.8E-03	1.2E-03	3.9E-04	1.8E-04	1.1E-04	7.3E-05	3.3E-05
NNE	9.8E-03	1.2E-03	3.1E-04	1.2E-04	7.0E-05	4.8E-05	2.2E-05

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SUMMARY
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COLLECTIVE EFFECTIVE DOSE EQUIVALENT (person rem/y)
(All Radionuclides and Pathways)

Direction	Distance (m)						
	250	750	1500	2500	3500	4500	7500
N	8.8E-05	2.1E-05	2.3E-05	1.5E-05	1.2E-05	1.0E-05	2.7E-05
NNW	8.8E-05	1.6E-05	1.2E-05	4.5E-06	3.6E-06	2.9E-06	9.2E-06
NW	8.8E-05	1.4E-05	1.6E-05	9.1E-06	6.5E-06	6.1E-06	8.7E-05
WNW	8.8E-05	2.2E-05	2.3E-05	1.4E-05	1.1E-05	1.7E-05	5.1E-05
W	8.8E-05	2.4E-05	3.2E-05	2.5E-05	1.3E-04	1.8E-05	2.7E-05
WSW	8.8E-05	2.4E-05	2.4E-05	1.5E-05	7.1E-05	6.1E-05	9.5E-05
SW	8.7E-05	1.7E-05	2.0E-05	1.5E-05	1.5E-05	6.7E-05	1.7E-04
SSW	8.8E-05	1.8E-05	1.7E-05	9.7E-06	8.7E-06	3.2E-05	1.0E-04
S	8.8E-05	1.7E-05	2.1E-05	1.6E-05	1.1E-05	9.9E-06	1.6E-04
SSE	8.8E-05	2.3E-05	2.3E-05	1.4E-05	9.8E-06	8.4E-06	6.2E-05
SE	8.8E-05	2.5E-05	3.0E-05	2.2E-05	1.7E-05	1.3E-05	6.7E-05
ESE	8.8E-05	2.9E-05	3.1E-05	2.0E-05	1.6E-05	1.4E-05	5.0E-05
E	8.8E-05	3.0E-05	3.4E-05	2.5E-05	2.0E-05	1.7E-05	5.7E-05
ENE	8.8E-05	3.5E-05	3.6E-05	2.3E-05	1.4E-05	1.0E-05	7.2E-05
NE	8.8E-05	3.4E-05	4.3E-05	2.3E-05	1.2E-05	1.1E-05	9.0E-05
NNE	8.8E-05	3.3E-05	3.1E-05	1.6E-05	1.3E-05	9.9E-06	3.3E-05

INDIVIDUAL LIFETIME RISK (deaths) (All Radionuclides and Pathways)

Direction	Distance (m)						
	250	750	1500	2500	3500	4500	7500
N	3.9E-09	3.0E-10	9.4E-11	4.3E-11	2.5E-11	1.7E-11	7.7E-12
NNW	3.9E-09	2.3E-10	4.9E-11	1.3E-11	7.7E-12	5.2E-12	2.4E-12
NW	3.9E-09	2.0E-10	5.7E-11	2.4E-11	1.4E-11	9.3E-12	4.2E-12
WNW	3.9E-09	3.2E-10	8.1E-11	3.1E-11	1.8E-11	1.2E-11	5.4E-12
W	3.9E-09	3.4E-10	1.1E-10	5.5E-11	3.1E-11	2.1E-11	9.6E-12
WSW	3.9E-09	3.4E-10	8.6E-11	3.2E-11	1.8E-11	1.3E-11	5.7E-12
SW	3.9E-09	2.4E-10	7.3E-11	3.2E-11	1.8E-11	1.3E-11	5.7E-12
SSW	3.9E-09	2.5E-10	6.0E-11	2.1E-11	1.2E-11	8.1E-12	3.7E-12
S	3.9E-09	2.5E-10	7.6E-11	3.4E-11	2.0E-11	1.3E-11	6.0E-12
SSE	3.9E-09	3.3E-10	8.2E-11	3.0E-11	1.7E-11	1.2E-11	5.3E-12
SE	3.9E-09	3.5E-10	1.1E-10	4.8E-11	2.8E-11	1.9E-11	8.5E-12
ESE	3.9E-09	4.2E-10	1.1E-10	4.4E-11	2.5E-11	1.7E-11	7.8E-12
E	3.9E-09	4.2E-10	1.2E-10	5.3E-11	3.1E-11	2.1E-11	9.5E-12
ENE	3.9E-09	5.0E-10	1.3E-10	5.0E-11	2.9E-11	2.0E-11	9.0E-12
NE	3.9E-09	4.9E-10	1.6E-10	7.3E-11	4.3E-11	2.9E-11	1.3E-11
NNE	3.9E-09	4.7E-10	1.2E-10	4.8E-11	2.8E-11	1.9E-11	8.6E-12

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SUMMARY

COLLECTIVE FATAL CANCER RATE (deaths/y) (All Radionuclides and Pathways)

Distance (m)							
Direction	250	750	1500	2500	3500	4500	7500
N	4.5E-10	1.1E-10	1.2E-10	7.5E-11	6.1E-11	5.2E-11	1.4E-10
NNW	4.5E-10	8.5E-11	6.4E-11	2.3E-11	1.9E-11	1.5E-11	4.7E-11
NW	4.5E-10	7.2E-11	8.1E-11	4.7E-11	3.4E-11	3.1E-11	4.5E-10
WNW	4.5E-10	1.2E-10	1.2E-10	7.4E-11	5.6E-11	9.0E-11	2.6E-10
W	4.5E-10	1.2E-10	1.6E-10	1.3E-10	6.6E-10	9.2E-11	1.4E-10
WSW	4.5E-10	1.2E-10	1.2E-10	7.6E-11	3.6E-10	3.2E-10	4.9E-10
SW	4.5E-10	8.9E-11	1.0E-10	7.7E-11	7.7E-11	3.4E-10	8.9E-10
SSW	4.5E-10	9.1E-11	8.6E-11	5.0E-11	4.5E-11	1.6E-10	5.2E-10
S	4.5E-10	9.0E-11	1.1E-10	8.2E-11	5.7E-11	5.1E-11	8.1E-10
SSE	4.6E-10	1.2E-10	1.2E-10	7.2E-11	5.0E-11	4.3E-11	3.2E-10
SE	4.5E-10	1.3E-10	1.5E-10	1.2E-10	8.7E-11	6.9E-11	3.4E-10
ESE	4.5E-10	1.5E-10	1.6E-10	1.1E-10	8.5E-11	7.3E-11	2.6E-10
E	4.5E-10	1.5E-10	1.8E-10	1.3E-10	1.0E-10	9.0E-11	2.9E-10
ENE	4.5E-10	1.8E-10	1.9E-10	1.2E-10	7.3E-11	5.3E-11	3.7E-10
NE	4.5E-10	1.8E-10	2.2E-10	1.2E-10	6.3E-11	5.4E-11	4.6E-10
NNE	4.5E-10	1.7E-10	1.6E-10	8.3E-11	6.6E-11	5.1E-11	1.7E-10

ATTACHMENT E

NATIONAL CLIMATIC DATA CENTER, NIAGARA FALLS, NEW YORK

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA (final)												Station Location: NIAGARA FALLS INTL AIRPORT (04724) NIAGARA FALLS, NY													
NOAA, National Climatic Data Center Month: 01/2012												Lat. 43.108 Lon. -78.938 Elevation(Ground): 585 ft. above sea level													
Date	Temperature (Fahrenheit)						Degree Days Base 65 Degrees			Sun		Significant Weather	Snow/Ice on Ground(In)		Precipitation (In)		Pressure(inches of Hg)		Wind: Speed=mph Dir=tens of degrees						Date
	Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg Wet Bulb	Heating	Cooling	Sunrise LST	Sunset LST	1200 UTC		1800 UTC	2400 LST	LST	Avg. Station	Avg. Sea Level	Resultant Speed	Res Dir	Avg. Speed	max 5-second Speed	max 2-minute Dir			
	Depth	Water Equiv	Snow Fall	Water Equiv							12		13	14	15	16	17	18	19	20	21	22	23	24	
1	2	3	4	5	6	7	8	9	10	11															
01	47	35	41	M	35	38	24	0	-	-	RA BR	0	M	0.0	0.14	29.11	29.74	11.6	22	15.0	53	230	43	240	01
02	35	19	27	M	20	26	38	0	-	-	SN BR UP	0	M	0.1s	T	29.08	29.78	M	M	16.6	38	260	29	250	02
03	19	1	10	M	3	8	55	0	-	-	SN FG+ FZFG BR UP	1	M	1.8	0.01	29.46	30.19	M	M	9.9	22	320	20	320	03
04	32	3	18	M	17	21	47	0	-	-	SN	0	M	T	T	29.40	30.01	10.3	22	12.4	24s	230	20	260	04
05	35	30	33	M	25	29	32	0	-	-	SN	0	M	0.0	0.00	29.02	29.67	18.8	23	19.2	47	240	35	220	05
06	49	33	41	M	33	39	24	0	-	-	SN	0	M	0.0	0.00	29.12	29.82	11.0	27	12.6	33	280	23	290	07
07	47	34	41	M	31	37	24	0	-	-	SN	0	M	T	T	29.59	30.29	7.1	30	8.2	24	310	21	310	08
08	34	25	30	M	19	27	35	0	-	-	SN	0	M	0.0	0.00	29.46	30.09	12.8	22	13.2	31	240	25	240	09
09	40	27	34	M	25	31	31	0	-	-	RA BR	0	M	0.0	0.00	29.26	29.95	9.1	27	10.0	31	250	24	240	10
10	42	32	37	M	28	33	28	0	-	-	RA DZ BR	M	M	M	0.05	29.20	29.84	5.0	12	5.5	17	150	14	150	11
11	50	27	39	M	29	34	26	0	-	-	RA SN FZFG BR BLSN	0	M	0.0	0.49	28.79	29.41	4.7	15	10.2	23	210	17	220	12
12	43	37	40	M	38	39	25	0	-	-	SN	4	M	4.0	0.12	28.78	29.51	21.3	25	22.8	43	230	35	240	13
13	40	22	31	M	22	26	34	0	-	-	SN	5	M	0.7	0.03	29.35	30.09	7.6	33	8.9	25	290	21	300	14
14	22	0	11	M	7	13	54	0	-	-	RA BR	4	M	0.0	0.00	29.75	30.50	0.5	09	2.0	8	310	7	310	15
15	20	-1*	10*	M	2	8	55	0	-	-	RA DZ BR	4	M	0.0	0.21	29.51	30.14	10.0	19	11.4	31	210	25	210	16
16	41	7	24	M	19	25	41	0	-	-	RA SN BR	0	M	T	0.42	28.95	29.60	12.4	23	14.5	49	270	39	260	17
17	51	30	41*	M	37	39	24	0	-	-	SN	T	M	0.2s	T	29.39	30.11	10.1	30	12.7	43	280	32	280	18
18	30	18	24	M	12	20	41	0	-	-	SN FG+ FZFG BR BLSN	2	M	1.5	0.05	29.25	29.92	14.7	22	18.4	43	200	31	200	19
19	30	12	21	M	14	20	44	0	-	-	RA BR SQ	0	M	0.0	0.36	29.12	29.77	12.1	20	15.5	54	240	48	250	23
20	20	11	16	M	6	13	49	0	-	-	SN BR	2	M	0.2	0.02	29.52	30.25	4.4	26	7.6	22	240	17	250	20
21	25	17	21	M	17	20	44	0	-	-	SN BR	3	M	0.6	0.03	29.49	30.21	3.0	03	4.9	15	080	14	350	21
22	33	16	25	M	16	23	40	0	-	-	RA BR SQ	2	M	0.0	0.00	29.60	30.27	M	M	6.4	16	160	13	160	22
23	49	27	38	M	34	37	27	0	-	-	SN	0	M	M	T	29.31	30.04	18.4	25	18.8	48	240	37	250	24
24	36	31	34	M	26	30	31	0	-	-	SN BR	M	M	M	0.02	29.65	30.33	7.7	26	7.9	24	270	20	270	25
25	33	28	31	M	22	27	34	0	-	-	RA DZ SN BR	0	M	0.2	0.19	29.35	29.96	6.0	09	6.3	16	070	13	080	26
26	35	28	32	M	29	31	33	0	-	-	RA SN FG BR	0	M	0.8	0.62	28.90	29.62	7.8	28	11.1	31	330	24	320	27
27	38	31	35	M	32	34	30	0	-	-	SN FG BR	T	M	0.4	0.04	29.21	29.88	16.7	23	18.3	49	240	37	260	28
28	35	29	32	M	26	30	33	0	-	-	SN FZFG BR	5	M	4.6	0.45	29.31	30.00	12.1	26	13.6	39	260	30	260	29
29	34	21	28	M	23	28	37	0	-	-	SN BR	5	M	0.7	0.02	29.52	30.19	7.5	24	11.2	23	250	20	260	30
30	29	23	26	M	19	24	39	0	-	-	0	M	0.0	T	29.27	29.92	15.2	23	15.5	35	250	26	250	31	
	36.4	21.8	29.1		22.5	27.4	35.6	0.0	<----Monthly Averages Totals---->		M	16.6	3.30s	29.29	29.96	8.0	24	11.9	<Monthly Average						
	M	M	M						<-----Departure From Normal----->		M														
Degree Days Monthly Season to Date												Greatest 24-hr Precipitation: 0.78s Date: 26-27						Sea Level Pressure Date Time (LST)							
Total Departure Total Departure												Greatest 24-hr Snowfall: 0.5 Date: 30						Maximum 30.60 15 2110							
Heating: 1105 M M M												Greatest Snow Depth: 5s Date: 30+						Minimum 29.26 13 0105							
Cooling: 0 M M M												Number of Days with -----> Max Temp >=90: 0						Max Temp <=32: 27							
												Number of Days with -----> Max Temp <=32: 9						Min Temp <=0 : 2							
												Thunderstorms : 0						Heavy Fog : 2							
												Precipitation >=.01 inch: 17s						Snowfall >=1.0 inch : M							
* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.												Data Version: VER2													

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA

(final)

NOAA, National Climatic Data Center

Month: 02/2012

Station Location: NIAGARA FALLS INTL AIRPORT (04724)

NIAGARA FALLS, NY

Lat. 43.108 Lon. -78.938

Elevation(Ground): 585 ft. above sea level

Date	Temperature (Fahrenheit)						Degree Days Base 65 Degrees		Sun		Significant Weather	Snow/Ice on Ground(In)	Precipitation (In)	Pressure(inches of Hg)			Wind: Speed=mph Dir=tens of degrees						Date							
	Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg. Wet Bulb	Heating	Cooling	Sunrise LST	Sunset LST				1200 UTC	1800 UTC	2400 LST	2400 LST	Avg. Station	Avg. Sea Level	Resultant Speed	Res Dir	Avg. Speed	max 5-second		max 2-minute					
														Depth	Water Equiv	Snow Fall	Water Equiv	Speed	Dir	Speed	Dir	Speed	Dir							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	Date				
01	51*	36	44*	M	36	40	21	0	-	-	RA BR	0	M	0.0	0.04	29.26	29.95	14.2	26	15.6	36	240	29	270	01					
02	36	29	33	M	25	29	32	0	-	-	DZ	0	M	0.0	T	29.54	30.24	5.5	36	5.9	16	030	13	020	02					
03	38	29	34	M	28	32	31	0	-	-		0	M	0.0	0.00	29.77	30.45	7.3	25	7.7	17	240	15	240	03					
04	39	25	32	M	25	30	33	0	-	-	BR	0	M	0.0	0.00	29.63	30.29	1.2	02	2.9	13	020	10	020	04					
05	37	30	34	M	24	30	31	0	-	-	SN	0	M	T	T	29.52	30.20	3.6	26	6.3	21	260	16	250	05					
06	42	31	37	M	30	34	28	0	-	-		0	M	0.0	0.00	29.39	30.05	15.8	24	16.4	37	250	29	240	06					
07	36	21	29	M	24	28	36	0	-	-	RA SN PL BR	M	M	M	T	29.51	30.22	5.6	32	7.5	20	360	15	360	07					
08	32	17	25	M	17	23	40	0	-	-		0	M	0.0	0.00	29.59	30.27	5.5	24	5.8	21	240	15	240	08					
09	37	24	31	M	21	27	34	0	-	-	SN BR	0	M	0.0	0.00	29.47	30.14	16.3	24	16.5	37	230	28	230	09					
10	32	29	31	M	22	28	34	0	-	-	SN BR BLSN	0	M	0.3	0.01	29.36	30.01	14.4	23	14.7	35	230	28	240	10					
11	30	9*	20	M	14	18	45	0	-	-	SN BLSN	3	M	0.9	0.13	29.24	29.94	8.9	36	12.9	26	360	22	020	11					
12	25	14	20*	M	13	19	45	0	-	-	SN BLSN	3	M	0.2	0.01	29.31	30.00	16.4	27	17.7	38	250	29	260	12					
13	34	21	28	M	18	25	37	0	-	-	SN BR UP	2	M	0.0	0.00	29.33	30.02	16.1	24	16.2	29	240	24	240	13					
14	34	30	32	M	27	30	33	0	-	-	SN BR HZ	0	M	0.6	0.06	29.30	29.98	7.0	21	7.6	26	230	20	240	14					
15	37	25	31	M	28	31	34	0	-	-	RA DZ BR UP	0	M	0.0s	0.01	29.49	30.19	7.9	24	8.9	25	240	21	240	15					
16	41	27	34	M	33	35	31	0	-	-	RA SN BR	0	M	0.0	0.05	29.37	30.02	5.7	20	8.8	20	220	15	250	16					
17	39	27	33	M	27	31	32	0	-	-	HZ	0	M	T	T	29.36	30.05	11.4	25	12.0	28	270	23	290	17					
18	38	30	34	M	28	31	31	0	-	-	SN GS BR	0	M	0.4	0.04	29.31	30.00	7.0	27	11.6	32	260	26	260	18					
19	30	22	26	M	19	25	39	0	-	-		0	M	0.0	0.00	29.49	30.18	4.9	34	6.4	16	360	13	320	19					
20	36	18	27	M	18	24	38	0	-	-		0	M	0.0	0.00	29.62	30.33	1.8	01	3.6	13	320	9	350	20					
21	47	23	35	M	25	31	30	0	-	-	RA SN BR	0	M	0.3	0.15	29.30	29.90	8.7	19	10.7	31	190	23	230	21					
22	42	32	37	M	32	34	28	0	-	-	RA SN BR	2	M	3.2	0.44	28.92	29.56	12.0	23	12.5	38	230	31	230	22					
23	37	29	33	M	30	32	32	0	-	-	RA SN BR	T	M	T	T	28.92	29.61	6.1	22	7.8	22	230	18	210	23					
24	42	31	37	M	31	33	28	0	-	-	RA SN BR	0	M	0.2	0.34	28.76	29.41	9.3	24	19.2	58	240	46	240	24					
25	33	27	30	M	20	27	35	0	-	-	SN BR UP	0	M	T	T	29.08	29.83	19.8	29	20.5	41	310	32	300	25					
26	32	21	27	M	18	25	38	0	-	-		0	M	T	T	29.69	30.39	1.9	24	5.0	22	300	15	300	26					
27	46	26	36	M	24	32	29	0	-	-	SN	0	M	T	T	29.49	30.17	13.6	24	16.4	45	220	36	230	27					
28	35	30	33	M	22	28	32	0	-	-	SN	0	M	T	T	29.77	30.45	3.3	29	6.9	30	290	23	300	28					
29	37	31	34	M	29	32	31	0	-	-	RA DZ FZRA SN PL BR	0	M	0.2	0.04	29.31	29.89	10.3	09	10.6	26	100	21	090	29					
	37.1	25.7	31.4		24.4	29.1	33.4	0.0			<-----Monthly Averages Totals----->			M	8.0s	1.39s	29.38	30.06	6.6	25	10.8	<Monthly Average								
	M	M	M								<-----Departure From Normal----->			M																

Degree Days Monthly Season to Date

Total Departure Total Departure

Heating: 968 M M M

Cooling: 0 M M M

Greatest 24-hr Precipitation: 0.46s Date: 21-22

Greatest 24-hr Snowfall: 0.3 Date: 23

Greatest Snow Depth: 3s Date: 13+

Sea Level Pressure Date Time (LST)

Maximum 30.54 28 1028

Minimum 29.23 24 1724

Number of Days with ----->
Max Temp >=90: 0
Max Temp <=32: 6
Thunderstorms : 0Min Temp <=32: 28
Min Temp <=0 : 0
Heavy Fog : 0Precipitation >=.01 inch: 12
Precipitation >=.10 inch:
Snowfall >=1.0 inch : M

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.

Data Version:
VER2

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL**DATA****(final)****NOAA, National Climatic Data Center****Month: 03/2012****Station Location: NIAGARA FALLS INTL AIRPORT (04724)****NIAGARA FALLS, NY**

Lat. 43.108 Lon. -78.938

Elevation(Ground): 585 ft. above sea level

Date	Temperature (Fahrenheit)						Degree Days Base 65 Degrees		Sun		Significant Weather	Snow/Ice on Ground(In)		Precipitation (In)		Pressure(inches of Hg)		Wind: Speed=mph Dir=tens of degrees						Date	
	Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg. Wet Bulb	Heating	Cooling	Sunrise LST	Sunset LST		1200 UTC	1800 UTC	2400 LST	2400 LST	Avg. Station	Avg. Sea Level	Resultant Speed	Res Dir	Avg. Speed	max 5-second Speed	Dir	max 2-minute Speed	Dir	
												Depth	Water Equiv	Snow Fall	Water Equiv										
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
01	41	35	38	M	33	35	27	0	-	-	RA BR	0	M	0.0	0.08	29.01	29.72	9.2	25	11.0	32	250	25	260	01
02	50	34	42	M	34	39	23	0	-	-	RA BR	0	M	0.0	0.08	29.15	29.73	7.3	15	8.6	39	190	29	180	02
03	51	32	42	M	28	34	23	0	-	-	RA SN	0	M	T	0.01	28.77	29.47	32.4	24	32.8	69	240	53	240	03
04	33	18	26	M	18	24	39	0	-	-	SN	T	M	T	T	29.06	29.76	13.6	29	15.2	29	250	23	310	04
05	27	13*	20*	M	8	17	45	0	-	-	SN	0	M	T	T	29.47	30.22	9.1	31	10.6	22	300	18	280	05
06	44	17	31	M	17	27	34	0	-	-	SN	0	M	T	T	29.75	30.41	8.3	19	9.0	24	190	18	190	06
07	63	41	52	M	29	43	13	0	-	-		0	M	0.0	0.00	29.51	30.14	18.1	22	18.4	46	220	33	230	07
08	58	32	45	M	38	43	20	0	-	-	RA SN PL BR	0	M	T	0.37	29.23	29.89	16.1	24	19.5	44	220	33	210	08
09	35	23	29	M	20	26	36	0	-	-	SN FG+FZFG BLSN	T	M	1.4	0.14	29.49	30.21	13.1	29	14.6	41	260	32	290	09
10	35	19	27	M	15	23	38	0	-	-		0	M	0.0	0.00	29.79	30.48	2.1	19	8.0	22	300	16	330	10
11	56	33	45	M	27	38	20	0	-	-		0	M	0.0	0.00	29.62	30.29	M	M	14.4	33	220	25	220	11
12	66	33	50	M	38	44	15	0	-	-	RA BR	0	M	0.0	0.06	29.49	30.11	7.9	18	9.4	26	190	21	200	12
13	60	39	50	M	46	49	15	0	-	-	RA BR	0	M	0.0	0.05	29.26	29.93	12.5	23	13.7	39	240	29	230	13
14	61	32	47	M	29	40	18	0	-	-	BR	0	M	0.0	0.00	29.49	30.15	4.3	23	5.8	18	220	15	220	14
15	72	41	57	M	42	48	8	0	-	-		0	M	0.0	0.05	29.43	30.07	2.7	22	4.1	23	220	18	220	15
16	67	49	58	M	51	54	7	0	-	-	FG+FG BR	0	M	0.0	0.02	29.42	30.10	5.2	23	7.7	20	210	16	210	16
17	69	43	56	M	51	53	9	0	-	-	FG+FG BR HZ	0	M	0.0	0.00	29.57	30.21	0.8	31	3.0	13	260	9	320	17
18	74	40	57	M	49	53	8	0	-	-	BR	0	M	0.0	0.00	29.49	30.13	4.5	22	4.8	21	220	17	210	18
19	75	48	62	M	53	56	3	0	-	-	FG BR HZ	M	M	M	0.00	29.49	30.13	0.7	18	2.3	18	310	16	310	19
20	77	46	62	M	51	55	3	0	-	-	BR	0	M	0.0	0.00	29.54	30.19	1.6	06	3.1	13	320	10	320	20
21	81*	48	65	M	52	57	0	0	-	-	BR	0	M	0.0	0.00	29.57	30.21	1.4	07	3.5	17	030	15	030	21
22	80	52	66*	M	52	57	0	1	-	-		0	M	0.0	0.00	29.52	30.14	1.7	24	4.2	13	320	10	330	22
23	69	55	62	M	44	52	3	0	-	-		0	M	0.0	0.00	29.46	30.08	15.3	08	15.5	30	080	25	080	23
24	56	44	50	M	41	46	15	0	-	-	RA BR	0	M	0.0	0.52	29.28	29.90	10.2	08	11.3	26	080	21	080	24
25	59	41	50	M	42	45	15	0	-	-	RA FG+FG BR HZ	0	M	0.0	0.02	29.21	29.87	7.2	26	9.1	25	300	18	300	25
26	42	28	35	M	18	29	30	0	-	-		0	M	0.0	0.00	29.54	30.25	13.9	34	14.4	29	330	23	320	26
27	45	19	32	M	11	M	33	0	-	-		0	M	0.0	0.00	29.61	M	0.5	15	4.6	18	180	12	170	27
28	69	40	55	M	37	46	10	0	-	-	RA	0	M	0.0	0.01	29.05	29.69	13.0	26	16.9	33	310	28	310	28
29	42	35	39	M	28	34	26	0	-	-		0	M	0.0	0.01	29.35	30.05	12.1	32	12.5	29	310	23	300	29
30	48	47	38	M	25	32	27	0	-	-	SN BR UP	T	M	1.2	0.17	29.40	30.04	10.8	07	11.3	30	070	24	070	30
31	46	32	39	M	31	34	26	0	-	-	BR	0	M	T	T	29.28	29.95	6.8	05	9.3	25	040	18	050	31
	M	M	M		34.1	41.1	19.0	0.0	<-----Monthly Averages Totals----->		M	M	1.59	M	M	3.7	25	10.6	<Monthly Average						
	M	M	M		<-----Departure From Normal----->										M										

Degree Days Monthly Season to Date

Total Departure Total Departure

Heating: 589 M M M

Cooling: 1 M M M

Greatest 24-hr Precipitation: M Date: M

Greatest 24-hr Snowfall: M Date: M

Greatest Snow Depth: M Date: M

Sea Level Pressure Date Time

(LST) Maximum M M M

Minimum M M M

Max Temp >=90: M Min Temp <=32: M Number of Days with -----> Max Temp <=32: M Thunderstorms : 0 Heavy Fog : 4

Precipitation >=.01 inch: M Precipitation >=.10 inch: Snowfall >=1.0 inch : M

**Data Version:
VER2**

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.

**QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA
(final)**

NOAA, National Climatic Data Center

Month: 04/2012

Station Location: NIAGARA FALLS INTL AIRPORT (04724)**NIAGARA FALLS, NY**

Lat. 43.108 Lon. -78.938

Elevation(Ground): 585 ft. above sea level

Date	Temperature (Fahrenheit)						Degree Days Base 65 Degrees		Sun		Significant Weather	Snow/Ice on Ground(In)	Precipitation (In)	Pressure(inches of Hg)		Wind: Speed=mph Dir=tens of degrees						Date				
	Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg Wet Bulb	Heating	Cooling	Sunrise LST	Sunset LST		1200 UTC	1800 UTC	2400 LST	2400 LST	Avg. Station	Avg. Sea Level	Resultant Speed	Res Dir	Avg. Speed	max 5-second Speed	max 2-minute Speed	25			
	1	2	3	4	5	6	7	8	9	10	11	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
01	41	32	37	M	35	37	28	0	-	-	RA DZ PL BR	M	M	M	0.40	29.16	29.82	3.5	25	6.2	18	240	13	250	01	
02	52	33	43	M	27	M	22	0	-	-	BR	M	M	M	0.00	M	M	6.6	33	8.1	20	320	16	320	02	
03	54	26	40	M	25	35	25	0	-	-		M	M	M	0.00	29.33	29.97	0.1	31	2.6	14	140	10	130	03	
04	55	36	46	M	29	38	19	0	-	-		M	M	M	0.00	29.18	29.84	10.4	31	11.5	31	340	25	330	04	
05	45	32	39	M	25	33	26	0	-	-		M	M	M	0.00	29.33	30.02	8.2	36	8.6	23	360	18	010	05	
06	51	32	42	M	22	34	23	0	-	-		M	M	M	0.00	29.50	30.18	7.8	34	8.2	29	340	16	330	06	
07	58	28	43	M	24	36	22	0	-	-		M	M	M	0.00	29.56	30.22	4.5	28	6.5	23	260	17	310	07	
08	60	28	44	M	29	38	21	0	-	-		M	M	T	0.00	29.33	29.96	8.4	27	9.9	41	290	33	300	08	
09	56	37	47	M	23	37	18	0	-	-		M	M	M	0.00	29.13	29.77	18.3	28	18.7	47	290	37	290	09	
10	49	36	43	M	28	36	22	0	-	-	RA	M	M	M	0.01	29.10	29.78	15.0	29	15.3	38	300	30	300	10	
11	47	35	41	M	33	38	24	0	-	-	RA PL BR	M	M	M	0.11	29.33	30.02	9.5	33	10.4	29	360	23	360	11	
12	53	31	42	M	29	37	23	0	-	-		M	M	M	0.00	29.52	30.19	5.1	29	7.6	22	220	17	220	12	
13	57	28	43	M	29	38	22	0	-	-		M	M	M	0.00	29.58	30.25	5.2	23	5.9	20	220	15	230	13	
14	65	38	52	M	37	45	13	0	-	-	RA BR	M	M	M	T	29.43	30.06	9.1	21	9.4	33	230	26	230	14	
15	69	53	61	M	53	56	4	0	-	-	RA DZ BR	M	M	M	0.14	29.26	29.89	8.0	22	8.7	26	230	21	240	15	
16	82*	54	68*	M	50	58	0	3	-	-		M	M	M	0.00	29.17	29.82	17.2	23	18.5	45	250	33	250	16	
17	54	34	44	M	31	40	21	0	-	-		M	M	M	0.00	29.59	30.28	9.6	30	12.3	36	260	29	260	17	
18	55	30	43	M	30	37	22	0	-	-		M	M	M	0.00	29.62	30.25	3.2	06	4.9	22	010	14	340	18	
19	68	40	54	M	41	49	11	0	-	-		M	M	M	T	29.34	29.97	9.7	22	10.0	26	230	21	210	19	
20	78	49	64	M	45	53	1	0	-	-	RA HZ	M	M	M	0.01	29.15	29.76	5.4	25	8.0	33	310	28	300	20	
21	54	40	47	M	38	40	18	0	-	-	RA DZ BR	M	M	M	0.33	29.21	29.89	7.5	36	8.2	21	320	17	310	21	
22	46	37	42	M	34	38	23	0	-	-	RA DZ	M	M	M	0.02	29.30	29.94	11.3	05	11.6	29	040	22	040	22	
23	42	35	39	M	33	36	26	0	-	-	RA SN BR UP	M	M	M	1.82	28.87	29.48	15.3	35	17.2	36	310	28	330	23	
24	44	34	39	M	32	36	26	0	-	-	RA SN BR UP	M	M	M	0.17	28.75	29.44	14.7	27	15.4	39	270	32	270	24	
25	55	33	44	M	28	38	21	0	-	-		M	M	M	0.00	29.15	29.81	5.9	28	8.1	28	290	22	280	25	
26	59	36	48	M	33	40	17	0	-	-	RA	M	M	M	0.03	29.08	29.73	4.7	31	8.5	33	320	26	320	26	
27	47	32	40	M	24	33	25	0	-	-	SN	M	M	T	29.41	30.12	11.6	32	12.4	33	310	28	310	27		
28	48	25*	37*	M	19	32	28	0	-	-		M	M	M	0.00	29.59	30.27	2.6	33	3.2	16	360	10	350	28	
29	57	28	43	M	19	34	22	0	-	-		M	M	M	0.00	29.62	30.29	4.6	31	5.2	23	310	20	310	29	
30	53	30	42	M	33	40	23	0	-	-	RA BR	M	M	M	0.42	29.51	30.13	4.4	10	6.1	23	130	15	150	30	
	55.1	34.7	44.9		31.3	39.4	19.9	0.1	<----Monthly Averages Totals----->						M	M	3.46	29.31	29.97	5.1	29	9.6	<Monthly Average			
	M	M	M		<-----Departure From Normal----->												M									

Degree Days Monthly Season to Date

Total Departure Total Departure

Heating: 596 M M M

Cooling: 3 M M M

Greatest 24-hr Precipitation: 1.90 Date: 23-24

Greatest 24-hr Snowfall: M Date: M

Greatest Snow Depth: M Date: M

Sea Level Pressure Date Time (LST)

Maximum 30.39 18 0632

Minimum 29.29 24 0509

Number of Days with -----> Max Temp >=90: 0 Min Temp <=32: 13

Max Temp <=32: 0 Min Temp <=0 : 0

Thunderstorms : 0 Heavy Fog : 0

Precipitation >=.01 inch: 11

Precipitation >=.10 inch:

Snowfall >=1.0 inch : M

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.

Data Version: VER3

**QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA
(final)**

NOAA, National Climatic Data Center

Month: 05/2012

Station Location: NIAGARA FALLS INTL AIRPORT (04724)**NIAGARA FALLS, NY**

Lat. 43.108 Lon. -78.938

Elevation(Ground): 585 ft. above sea level

Date	Temperature (Fahrenheit)							Degree Days Base 65 Degrees		Sun		Significant Weather	Snow/Ice on Ground(In)	Precipitation (In)	Pressure(inches of Hg)		Wind: Speed=mph Dir=tens of degrees						Date			
	Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg Wet Bulb	Heating	Cooling	Sunrise LST	Sunset LST	1200 UTC	1800 UTC	2400 LST	2400 LST	Avg. Station	Avg. Sea Level	Resultant Speed	Res Dir	Avg. Speed	max 5-second Speed	max 2-minute Speed	Dir	Dir			
	1	2	3	4	5	6	7	8	9	10	11	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
01	55	43	49*	M	46	48	16	0	-	-	RA BR HZ	M	M	M	0.11	29.34	30.02	3.7	24	5.7	17	220	14	230	01	
02	73	45	59	M	51	54	6	0	-	-	RA BR HZ VCTS	M	M	M	T	29.33	29.97	1.7	12	5.0	20	330	16	330	02	
03	82	47	65	M	56	59	0	0	-	-	RA FG+ BR HZ	M	M	M	0.01	29.34	29.97	1.5	21	5.3	29	330	23	320	03	
04	74	56	65	M	57	60	0	0	-	-	BR	M	M	M	0.02	29.31	29.94	3.0	26	9.2	22	230	17	230	04	
05	62	46	54	M	39	47	11	0	-	-	RA	M	M	M	0.00	29.44	30.08	11.0	06	11.2	24	070	20	050	05	
06	67	39	53	M	33	46	12	0	-	-	RA BR	M	M	M	0.00	29.46	30.11	5.8	06	6.1	22	070	17	060	06	
07	65	52	59	M	48	53	6	0	-	-	RA DZ BR HZ	M	M	M	0.27	29.32	29.92	4.6	09	5.6	17	080	12	080	07	
08	65	50	58	M	55	57	7	0	-	-	RA BR	M	M	M	1.41	29.11	29.75	4.3	24	6.0	15	220	10	330	08	
09	67	49	58	M	46	51	7	0	-	-	RA	M	M	M	0.01	29.09	29.72	8.9	27	11.5	41	290	30	310	09	
10	61	47	54	M	35	44	11	0	-	-	RA	M	M	M	0.00	29.13	29.80	13.2	31	13.7	30	320	23	310	10	
11	70	46	58	M	36	47	7	0	-	-	RA	M	M	M	0.00	29.39	30.06	9.7	28	11.2	24	290	20	310	11	
12	76	48	62	M	44	53	3	0	-	-	RA	M	M	M	T	29.53	30.17	10.1	23	10.4	35	250	26	240	12	
13	67	54	61	M	46	53	4	0	-	-	BR	M	M	M	T	29.52	30.16	3.1	35	4.2	15	360	12	350	13	
14	73	49	61	M	49	55	4	0	-	-	BR HZ	M	M	M	0.00	29.41	30.05	1.6	05	3.2	15	340	13	350	14	
15	76	49	63	M	46	54	2	0	-	-	RA	M	M	M	0.00	29.31	29.93	5.4	21	5.5	20	220	15	200	15	
16	68	43	56	M	42	49	9	0	-	-	RA	M	M	M	0.11	29.27	29.94	8.8	29	11.1	33	300	25	290	16	
17	63	37*	50	M	34	44	15	0	-	-	RA	M	M	M	0.00	29.52	30.18	0.9	34	3.6	16	040	12	360	17	
18	73	40	57	M	40	49	8	0	-	-	RA	M	M	M	0.00	29.52	30.17	2.8	05	3.7	17	040	13	020	18	
19	83	49	66	M	46	56	0	1	-	-	RA	M	M	M	0.00	29.51	30.14	1.6	22	1.9	13	240	10	210	19	
20	87	53	70	M	51	60	0	5	-	-	HZ	M	M	M	0.00	29.52	30.13	2.8	06	3.6	16	030	13	020	20	
21	82	62	72	M	56	62	0	7	-	-	VCTS	M	M	M	0.00	29.38	29.98	2.3	18	6.7	20	070	17	070	21	
22	75	59	67	M	56	60	0	2	-	-	RA	M	M	M	0.00	29.26	29.88	2.8	29	5.3	15	290	10	220	22	
23	80	58	69	M	57	62	0	4	-	-	BR HZ	M	M	M	0.00	29.29	29.93	4.2	12	5.4	18	110	14	090	23	
24	85	59	72	M	58	64	0	7	-	-	HZ	M	M	M	0.00	29.33	29.95	7.2	18	8.1	23	200	17	180	24	
25	86	66	76*	M	61	67	0	11	-	-	RA	M	M	M	T	29.33	29.95	11.0	22	13.6	36	250	26	240	25	
26	78	60	69	M	50	59	0	4	-	-	RA	M	M	M	0.00	29.52	30.15	3.2	01	3.9	15	330	13	330	26	
27	82	56	69	M	52	58	0	4	-	-	RA	M	M	M	T	29.47	30.08	0.6	02	4.5	25	180	21	170	27	
28	88*	60	74	M	63	67	0	9	-	-	BR	M	M	M	0.00	29.26	29.86	8.2	22	8.5	28	250	21	230	28	
29	84	63	74	M	64	68	0	9	-	-	BR HZ VCTS	M	M	M	T	29.10	29.70	11.9	23	12.8	33	290	28	290	29	
30	72	56	64	M	50	57	1	0	-	-	BR	M	M	M	0.00	29.13	29.77	3.5	32	5.5	17	220	14	240	30	
31	67	49	58	M	42	50	7	0	-	-	RA	M	M	M	0.00	29.29	29.95	4.0	36	6.4	17	320	14	010	31	
	73.7	51.3	62.5		48.7	55.3	4.4	2.0	<----Monthly Averages Totals----->					M	M	1.94	29.35	29.98	1.8	26	7.0	<Monthly Average				
	M	M	M		<-----Departure From Normal----->											M										

Degree Days Monthly Season to Date

Total Departure Total Departure

Heating: 136 M M M

Cooling: 63 M M M

Greatest 24-hr Precipitation: 1.68 Date: 07-08

Greatest 24-hr Snowfall: M Date: M

Greatest Snow Depth: M Date: M

Sea Level Pressure Date Time (LST)

Maximum 30.23 17 1053

Minimum 29.66 29 1653

Max Temp >=90: 0 Min Temp <=32: 0

Number of Days with -----> Max Temp <=32: 0 Min Temp <=0 : 0

Thunderstorms : 0 Heavy Fog : 1

Precipitation >=.01 inch: 7

Precipitation >=.10 inch:

Snowfall >=1.0 inch : M

Data Version: VER3*** EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.**

**QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA
(final)**

NOAA, National Climatic Data Center

Month: 06/2012

Station Location: NIAGARA FALLS INTL AIRPORT (04724)

NIAGARA FALLS, NY

Lat. 43.108 Lon. -78.938

Elevation(Ground): 585 ft. above sea level

D a t e	Temperature (Fahrenheit)							Degree Days Base 65 Degrees		Sun		Significant Weather	Snow/Ice on Ground(In)	Precipitation (In)	Pressure(inches of Hg)		Wind: Speed=mph Dir=tens of degrees								D a t e	
	Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg Wet Bulb	Heating	Cooling	Sunrise LST	Sunset LST	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
	01	62	52	57*	M	52	54	8	0	-	-	RA BR	M	M	M	0.63	29.14	29.73	9.5	11	14.3	31	230	25	230	01
02	67	52	60	M	47	53	5	0	-	-	RA	M	M	M	T	29.03	29.67	15.4	23	15.6	35	230	26	230	02	
03	M	M	M	M	M	M	M	M	-	-	RA	M	M	M	0.29	29.04	M	M	M	M	24	230	17	230	03	
04	M	M	M	M	M	M	M	M	-	-	RA BR	M	M	M	T	29.15	M	M	M	9.8	22	360	16	030	04	
05	70	50	60	M	47	53	5	0	-	-	RA	M	M	M	0.00	29.32	29.97	6.4	04	6.8	24	010	15	020	05	
06	74	49	62	M	51	56	3	0	-	-	RA	M	M	M	0.04	29.34	29.97	4.9	22	6.3	23	290	18	290	06	
07	77	51	64	M	51	57	1	0	-	-	RA	M	M	M	0.01	29.34	29.97	5.1	25	6.6	24	270	21	270	07	
08	80	54	67	M	52	59	0	2	-	-	RA	M	M	M	0.00	29.29	29.91	9.1	24	10.8	26	300	20	230	08	
09	72	61	67	M	59	61	0	2	-	-	RA BR	M	M	M	0.14	29.26	29.90	6.9	22	7.2	20	210	15	230	09	
10	86	60	73	M	58	64	0	8	-	-	RA	M	M	M	0.00	29.39	30.02	4.4	21	4.5	17	220	13	220	10	
11	88	63	76	M	61	66	0	11	-	-	RA BR HZ	M	M	M	0.08	29.38	29.98	7.6	20	8.2	26	240	22	240	11	
12	82	58	70	M	62	65	0	5	-	-	RA BR HZ	M	M	M	0.23	29.23	29.85	6.5	25	11.4	35	340	28	290	12	
13	69	48*	59	M	45	52	6	0	-	-	RA	M	M	M	0.00	29.49	30.14	5.6	33	6.8	26	320	21	310	13	
14	77	50	64	M	49	56	1	0	-	-	RA	M	M	M	0.00	29.59	30.23	5.6	07	6.5	22	010	17	060	14	
15	84	55	70	M	54	61	0	5	-	-	RA	M	M	M	0.00	29.59	30.22	2.8	10	5.8	18	050	16	030	15	
16	85	64	75	M	57	64	0	10	-	-	RA	M	M	M	0.00	29.55	30.16	4.5	20	5.6	17	170	13	110	16	
17	85	66	76	M	60	65	0	11	-	-	RA	M	M	M	0.03	29.33	29.93	9.5	19	10.1	23	190	18	230	17	
18	82	66	74	M	61	66	0	9	-	-	TS TSRA HZ	M	M	M	0.07	29.26	29.88	10.4	20	10.7	23	210	18	220	18	
19	86	70	78	M	65	70	0	13	-	-	RA	M	M	M	0.01	29.34	29.96	13.1	22	13.5	29	240	23	230	19	
20	91*	73	82*	M	64	70	0	17	-	-	RA	M	M	M	0.00	29.40	30.01	10.9	22	11.2	31	230	24	230	20	
21	90	70	80	M	63	69	0	15	-	-	RA	M	M	M	0.02	29.27	29.86	10.6	24	12.5	37	230	26	240	21	
22	80	64	72	M	59	64	0	7	-	-	RA	M	M	M	0.01	29.26	29.88	5.5	29	7.6	21	330	16	250	22	
23	80	55	68	M	54	60	0	3	-	-	TSRA RA BR	M	M	M	0.00	29.36	29.99	3.4	27	5.7	17	320	14	240	23	
24	78	61	70	M	55	61	0	5	-	-	TSRA RA BR	M	M	M	0.02	29.34	29.94	4.7	21	6.6	M	11	210	24		
25	70	61	66	M	49	56	0	1	-	-	RA	M	M	M	0.00	29.26	29.89	14.0	34	14.2	33	340	25	330	25	
26	78	53	66	M	48	56	0	1	-	-	RA	M	M	M	0.00	29.26	29.88	9.5	33	10.1	30	310	22	320	26	
27	76	55	66	M	54	60	0	1	-	-	RA	M	M	M	T	29.25	29.87	6.4	27	7.7	29	280	22	290	27	
28	88	64	76	M	60	66	0	11	-	-	BR	M	M	M	0.00	29.14	29.73	8.2	22	8.4	25	240	20	240	28	
29	89	68	79	M	60	67	0	14	-	-	BR	M	M	M	0.00	29.10	29.71	8.8	25	9.9	31	220	24	230	29	
30	86	64	75	M	61	67	0	10	-	-	BR	M	M	M	0.00	29.11	29.73	10.0	22	10.4	29	230	23	220	30	
	79.7	59.2	69.5		55.6	61.4	M	M	<----Monthly Averages Totals----->		M	M	M	1.58	29.29	29.93	4.6	23	9.1	<Monthly Average						
	M	M	M		<-----Departure From Normal----->												M									

Degree Days Monthly Season to Date
 Total Departure Total Departure

Heating: M M M M
 Cooling: M M M M

Greatest 24-hr Precipitation: 0.63 Date: 01
 Greatest 24-hr Snowfall: M Date: M
 Greatest Snow Depth: M Date: M

Sea Level Pressure Date Time (LST)
 Maximum 30.27 14 0953
 Minimum 29.52 01 1953

Number of Days with -----> Max Temp >=90: 2
 Max Temp <=32: 0
 Thunderstorms : 3

Min Temp <=32: 0
 Min Temp <=0 : 0
 Heavy Fog : 0

Precipitation >=.01 inch: 13
 Precipitation >=.10 inch:
 Snowfall >=1.0 inch : M

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.

Data Version: VER3

**QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA
(final)**

NOAA, National Climatic Data Center

Month: 07/2012

Station Location: NIAGARA FALLS INTL AIRPORT (04724)

NIAGARA FALLS, NY

Lat. 43.108 Lon. -78.938

Elevation(Ground): 585 ft. above sea level

Date	Temperature (Fahrenheit)						Degree Days Base 65 Degrees		Sun		Significant Weather	Snow/Ice on Ground(In)	Precipitation (In)	Pressure(inches of Hg)		Wind: Speed=mph Dir=tens of degrees								Date	
	Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg Wet Bulb	Heating	Cooling	Sunrise LST	Sunset LST		1200 UTC	1800 UTC	2400 LST	LST	Avg. Station	Avg. Sea Level	Resultant Speed	Res Dir	Avg. Speed	max 5-second Speed	Dir	max 2-minute Speed	Dir	
	1	2	3	4	5	6	7	8	9	10		13	14	15	16	17	18	19	20	21	22	23	24	25	
	01	88	63	76	M	53	62	0	11	-		M	M	M	0.00	29.23	29.87	9.7	31	10.3	28	280	23	320	01
02	88	58	73	M	54	62	0	8	-	-		M	M	M	0.00	29.35	29.97	3.8	25	5.7	25	320	17	330	02
03	85	60	73	M	63	66	0	8	-	-	TSRA RA BR	M	M	M	0.16	29.27	29.87	7.0	21	7.7	33	250	26	240	03
04	89	69	79	M	68	72	0	14	-	-		M	M	M	0.00	29.18	29.79	8.5	23	10.7	28	250	22	230	04
05	87	67	77	M	64	69	0	12	-	-		M	M	M	0.00	29.24	29.87	1.4	01	4.4	18	010	12	350	05
06	94	71	83	M	69	73	0	18	-	-		M	M	M	0.00	29.27	29.89	5.4	23	6.6	25	280	17	240	06
07	80	67	74	M	65	68	0	9	-	-	BR	M	M	M	0.29	29.26	29.88	2.9	02	4.6	30	350	22	350	07
08	84	64	74	M	60	65	0	9	-	-		M	M	M	0.00	29.31	29.94	5.1	36	5.9	25	020	14	010	08
09	81	59	70	M	53	61	0	5	-	-		M	M	M	T	29.37	30.00	2.7	02	4.3	22	340	17	340	09
10	82	59	71	M	50	60	0	6	-	-		M	M	M	0.00	29.41	30.05	4.1	01	4.7	20	030	14	350	10
11	85	58	72	M	51	60	0	7	-	-	HZ	M	M	M	0.00	29.51	30.13	3.2	05	4.5	20	350	16	350	11
12	90	62	76	M	53	63	0	11	-	-		M	M	M	0.00	29.49	30.11	1.7	05	3.9	20	020	14	010	12
13	89	64	77	M	61	67	0	12	-	-		M	M	M	0.00	29.50	30.12	6.3	22	6.9	21	220	15	240	13
14	89	69	79	M	62	68	0	14	-	-		M	M	M	0.00	29.49	30.09	2.6	18	5.6	18	020	14	030	14
15	85	73	79	M	67	70	0	14	-	-	RA HZ	M	M	M	0.02	29.38	29.98	8.6	22	8.9	21	220	17	210	15
16	91	69	80	M	63	69	0	15	-	-		M	M	M	0.00	29.28	29.89	6.1	25	8.5	23	230	20	230	16
17	94*	77	86*	M	68	73	0	21	-	-		M	M	M	T	29.13	29.74	13.5	23	14.9	35	240	26	230	17
18	85	67	76	M	61	67	0	11	-	-		M	M	M	0.00	29.26	29.89	5.3	02	6.8	17	030	13	040	18
19	78	64	71	M	58	63	0	6	-	-	RA	M	M	M	T	29.35	29.97	7.6	07	7.8	23	080	18	060	19
20	77	62	70	M	55	60	0	5	-	-		M	M	M	0.04	29.39	30.02	8.3	06	8.7	24	070	21	070	20
21	83	57	70*	M	58	63	0	5	-	-		M	M	M	0.00	29.42	30.05	6.3	20	6.7	23	310	18	280	21
22	87	68	78	M	66	69	0	13	-	-		M	M	M	0.37	29.41	30.03	9.1	21	9.5	30	240	22	240	22
23	89	72	81	M	67	72	0	16	-	-	VCTS	M	M	M	0.02	29.26	29.85	13.6	23	14.4	44	230	33	250	23
24	84	63	74	M	58	65	0	9	-	-		M	M	M	0.00	29.18	29.80	12.4	32	13.1	32	360	25	350	24
25	84	59	72	M	54	62	0	7	-	-		M	M	M	0.13	29.26	29.86	2.9	22	5.7	22	220	17	210	25
26	81	67	74	M	68	70	0	9	-	-		M	M	M	0.30	29.00	29.62	7.5	23	9.9	38	290	30	300	26
27	81	68	75	M	63	66	0	10	-	-	TSRA RA BR	M	M	M	0.01	29.18	29.82	6.4	03	6.9	22	140	14	030	27
28	83	62	73	M	59	65	0	8	-	-		M	M	M	T	29.33	29.96	4.6	05	5.2	22	020	16	020	28
29	85	57*	71	M	56	63	0	6	-	-		M	M	M	0.00	29.40	30.02	2.1	26	3.9	17	310	14	320	29
30	85	64	75	M	57	64	0	10	-	-		M	M	M	0.00	29.38	29.99	5.3	21	6.2	21	210	15	220	30
31	89	66	78	M	63	68	0	13	-	-	RA	M	M	M	T	29.24	29.85	5.2	20	8.1	24	320	18	320	31
	85.5	64.7	75.1		60.2	66.0	0.0	10.4	<----Monthly Averages Totals----->			M	M	1.34		29.31	29.93	2.1	25	7.5	<Monthly Average				
	M	M	M						<-----Departure From Normal----->			M													

Degree Days Monthly Season to Date

Total Departure Total Departure

Heating: 0 M M M

Cooling: 322 M M M

Greatest 24-hr Precipitation: 0.39 Date: 25-26

Greatest 24-hr Snowfall: M Date: M

Greatest Snow Depth: M Date: M

Sea Level Pressure Date Time (LST)

Maximum 30.16 11 1153

Minimum 29.57 26 0353

Number of Days with -----> Max Temp >=90: 4 Min Temp <=32: 0

Max Temp <=32: 0 Min Temp <=0 : 0

Thunderstorms : 3 Heavy Fog : 0

Precipitation >=.01 inch: 9

Precipitation >=.10 inch:

Snowfall >=1.0 inch : M

Data Version: VER3

**QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA
(final)**

NOAA, National Climatic Data Center

Month: 08/2012

Station Location: NIAGARA FALLS INTL AIRPORT (04724)**NIAGARA FALLS, NY**

Lat. 43.108 Lon. -78.938

Elevation(Ground): 585 ft. above sea level

Date	Temperature (Fahrenheit)						Degree Days Base 65 Degrees		Sun		Significant Weather	Snow/Ice on Ground(In)	Precipitation (In)	Pressure(inches of Hg)		Wind: Speed=mph Dir=tens of degrees						Date			
	Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg Wet Bulb	Heating	Cooling	Sunrise LST	Sunset LST		1200 UTC	1800 UTC	2400 LST	2400 LST	Avg. Station	Avg. Sea Level	Resultant Speed	Res Dir	Avg. Speed	max 5-second Speed	max 2-minute Speed	23	24	25
	1	2	3	4	5	6	7	8	9	10	11	13	14	15	16	17	18	19	20	21	22	23	24	25	26
01	85	65	75	M	63	67	0	10	-	-	BR	M	M	M	0.00	29.23	29.85	3.7	30	6.5	20	310	14	330	01
02	85	66	76	M	62	67	0	11	-	-		M	M	M	0.00	29.24	29.86	7.0	22	8.1	22	230	17	230	02
03	92	71	82	M	66	71	0	17	-	-	RA HZ	M	M	M	T	29.33	29.95	1.6	10	5.3	20	030	16	030	03
04	95*	69	82*	M	67	72	0	17	-	-	TSRA BR HZ	M	M	M	0.13	29.38	29.97	7.3	20	8.5	23	180	18	180	04
05	83	68	76	M	67	70	0	11	-	-	TSRA RA BR	M	M	M	0.34	29.26	29.89	11.5	24	14.6	40	220	31	230	05
06	79	58	69	M	53	60	0	4	-	-		M	M	M	0.00	29.44	30.07	5.9	29	8.6	20	330	16	330	06
07	84	58	71	M	56	63	0	6	-	-		M	M	M	0.00	29.34	29.95	8.7	22	9.2	28	240	22	220	07
08	87	63	75	M	64	68	0	10	-	-	VCTS	M	M	M	T	29.29	29.90	4.2	21	5.6	23	220	18	220	08
09	77	67	72	M	65	67	0	7	-	-	RA BR	M	M	M	0.01	29.26	29.86	3.5	33	5.7	15	280	12	290	09
10	79	67	73	M	62	66	0	8	-	-	RA BR	M	M	M	T	29.10	29.70	3.0	19	5.6	14	220	12	260	10
11	71	63	67	M	60	63	0	2	-	-	RA BR	M	M	M	0.20	29.13	29.77	11.0	20	11.2	36	220	24	220	11
12	77	62	70	M	62	64	0	5	-	-	RA BR	M	M	M	0.93	29.26	29.90	7.7	24	8.1	26	310	20	320	12
13	81	65	73	M	58	64	0	8	-	-	RA	M	M	M	0.02	29.34	29.96	5.9	24	6.3	24	100	15	240	13
14	78	62	70	M	62	64	0	5	-	-	RA BR	M	M	M	0.07	29.27	29.89	1.5	02	2.8	20	350	16	340	14
15	80	58	69	M	59	63	0	4	-	-	BR VCTS	M	M	M	0.00	29.28	29.92	1.6	27	2.9	28	090	12	260	15
16	83	58	71	M	59	64	0	6	-	-	BR	M	M	M	0.00	29.28	29.88	6.3	22	7.3	25	220	21	230	16
17	76	56	66	M	56	62	0	1	-	-	RA	M	M	M	0.03	29.18	29.81	9.4	28	11.1	29	220	24	290	17
18	73	51	62*	M	47	54	3	0	-	-		M	M	M	0.00	29.33	29.97	3.3	30	4.4	20	290	14	320	18
19	78	52	65	M	48	56	0	0	-	-		M	M	M	0.00	29.30	29.92	0.7	12	2.7	14	350	10	360	19
20	75	55	65	M	50	57	0	0	-	-		M	M	M	0.00	29.28	29.92	3.9	34	4.6	20	310	15	330	20
21	78	49*	64	M	48	56	1	0	-	-		M	M	M	0.00	29.41	30.05	4.8	22	5.4	25	230	14	220	21
22	80	55	68	M	55	61	0	3	-	-		M	M	M	0.00	29.47	30.10	5.4	23	5.6	21	250	17	220	22
23	85	55	70	M	55	62	0	5	-	-	BR	M	M	M	0.00	29.49	30.12	5.3	22	5.7	21	240	16	240	23
24	88	57	73	M	56	63	0	8	-	-	BR HZ	M	M	M	0.00	29.50	30.13	2.7	22	3.9	21	250	14	250	24
25	90	62	76	M	57	65	0	11	-	-	HZ	M	M	M	0.00	29.52	30.15	1.6	17	3.6	18	160	13	180	25
26	85	64	75	M	60	66	0	10	-	-		M	M	M	0.00	29.54	30.15	5.9	19	6.4	22	190	17	180	26
27	74	69	72	M	66	68	0	7	-	-	RA BR	M	M	M	0.21	29.36	29.98	9.1	21	9.7	21	220	17	210	27
28	78	58	68	M	M	M	0	3	-	-		M	M	M	0.00	29.34	M	M	9.7	23	290	17	010	28	
29	74	51	63	M	48	56	2	0	-	-		M	M	M	0.00	29.42	30.05	3.4	30	5.8	20	320	13	320	29
30	81	54	68	M	55	61	0	3	-	-		M	M	M	0.00	29.41	30.04	9.8	22	10.0	28	220	23	220	30
31	88	65	77	M	61	67	0	12	-	-		M	M	M	0.00	29.33	29.94	11.0	23	12.7	31	220	24	240	31
	81.3	60.4	70.9		58.2	63.6	0.2	6.3	<----Monthly Averages Totals----->			M	M	1.94	29.33	29.96	4.3	23	7.0	<Monthly Average					
	M	M	M		<-----Departure From Normal----->											M									

Degree Days Monthly Season to Date

Total Departure Total Departure

Heating: 6 M M M

Cooling: 194 M M M

Greatest 24-hr Precipitation: 1.12 Date: 11-12

Greatest 24-hr Snowfall: M Date: M

Greatest Snow Depth: M Date: M

Sea Level Pressure Date Time (LST)

Maximum 30.23 26 0948

Minimum 29.65 10 1817

Max Temp >=90: 3 Min Temp <=32: 0

Number of Days with -----> Max Temp <=32: 0 Min Temp <=0 : 0

Thunderstorms : 2 Heavy Fog : 0

Precipitation >=.01 inch: 9

Precipitation >=.10 inch:

Snowfall >=1.0 inch : M

Data Version: VER3

**QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA
(final)**

NOAA, National Climatic Data Center

Month: 09/2012

Station Location: NIAGARA FALLS INTL AIRPORT (04724)

NIAGARA FALLS, NY

Lat. 43.108 Lon. -78.938

Elevation(Ground): 585 ft. above sea level

Date	Temperature (Fahrenheit)							Degree Days Base 65 Degrees		Sun		Significant Weather	Snow/Ice on Ground(In)	Precipitation (In)	Pressure(inches of Hg)		Wind: Speed=mph Dir=tens of degrees							Date	
	Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg Wet Bulb	Heating	Cooling	Sunrise LST	Sunset LST		1200 UTC	1800 UTC	2400 LST	2400 LST	Avg. Station	Avg. Sea Level	Resultant Speed	Res Dir	Avg. Speed	max 5-second		max 2-minute		
												Depth	Water Equiv	Snow Fall	Water Equiv						Dir	Speed	Dir	Speed	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
01	85	62	74*	M	55	62	0	9	-	-		M	M	M	0.00	29.44	30.06	3.2	04	4.5	21	020	18	020	01
02	84	56	70	M	55	61	0	5	-	-		M	M	M	0.00	29.41	30.04	4.8	04	5.4	20	030	16	050	02
03	88*	58	73	M	63	67	0	8	-	-		M	M	M	0.00	29.35	29.97	1.7	09	4.7	18	020	15	010	03
04	80	65	73	M	67	69	0	8	-	-	RA BR VCTS	M	M	M	1.46	29.24	29.85	1.3	31	6.5	29	010	22	010	04
05	82	62	72	M	64	67	0	7	-	-	FG+ FG BR	M	M	M	0.00	29.23	29.85	1.1	24	2.2	13	250	10	250	05
06	80	62	71	M	63	67	0	6	-	-	BR	M	M	M	0.00	29.21	29.84	1.4	29	3.7	15	340	12	330	06
07	82	59	71	M	61	65	0	6	-	-	BR	M	M	M	0.00	29.23	29.82	5.8	20	6.6	22	210	17	220	07
08	73	55	64	M	57	60	1	0	-	-	TSRA RA BR VCTS	M	M	M	1.98	28.98	29.61	7.5	28	10.4	40	340	31	340	08
09	68	50	59	M	47	54	6	0	-	-		M	M	M	0.00	29.25	29.91	6.1	32	7.4	18	320	16	340	09
10	69	49	59	M	43	51	6	0	-	-		M	M	M	0.00	29.48	30.13	5.5	33	5.9	24	280	17	290	10
11	74	46	60	M	49	55	5	0	-	-		M	M	M	0.00	29.57	30.22	6.7	23	7.0	24	220	18	250	11
12	79	58	69	M	54	60	0	4	-	-		M	M	M	0.00	29.60	30.24	7.9	20	8.1	26	310	18	240	12
13	82	56	69	M	57	63	0	4	-	-	FU	M	M	M	0.00	29.60	30.22	7.5	21	7.8	22	220	17	230	13
14	75	50	63	M	57	59	2	0	-	-	RA BR	M	M	M	0.28	29.52	30.15	5.1	31	6.7	29	300	22	300	14
15	68	47	58	M	49	53	7	0	-	-		M	M	M	0.00	29.56	30.20	6.2	29	6.8	24	290	15	330	15
16	73	46	60	M	50	55	5	0	-	-		M	M	M	0.00	29.47	30.09	7.2	23	7.3	26	220	21	240	16
17	74	56	65	M	51	57	0	0	-	-		M	M	M	0.00	29.34	29.95	5.9	20	6.5	24	230	17	230	17
18	67	47	57	M	55	57	8	0	-	-	RA BR	M	M	M	0.19	29.00	29.64	6.2	24	11.2	32	310	25	300	18
19	60	44	52	M	40	46	13	0	-	-		M	M	M	0.00	29.40	30.08	5.4	24	8.0	21	220	17	300	19
20	70	45	58	M	42	51	7	0	-	-		M	M	M	0.00	29.37	29.98	9.5	18	10.4	29	210	23	210	20
21	69	57	63	M	51	57	2	0	-	-	RA BR	M	M	T	29.26	29.88	4.9	23	6.4	28	250	22	250	21	
22	63	47	55	M	47	52	10	0	-	-	RA BR	M	M	M	0.69	29.14	29.79	7.5	26	9.0	25	290	20	290	22
23	59	43	51	M	39	45	14	0	-	-		M	M	M	0.00	29.41	30.08	10.5	27	11.1	26	270	21	270	23
24	60	38*	49*	M	38	46	16	0	-	-		M	M	M	0.00	29.44	30.08	12.1	23	12.7	35	240	29	240	24
25	71	58	65	M	46	54	0	0	-	-		M	M	M	0.00	29.32	29.95	15.3	22	15.5	31	210	24	220	25
26	66	53	60	M	53	57	5	0	-	-	DZ BR	M	M	T	29.33	29.99	3.6	25	7.6	29	230	20	220	26	
27	65	43	54	M	42	47	11	0	-	-		M	M	M	0.00	29.56	30.21	5.0	05	5.8	20	040	16	030	27
28	62	45	54	M	43	48	11	0	-	-		M	M	M	0.00	29.47	30.10	3.9	03	4.7	21	360	16	050	28
29	63	41	52	M	45	49	13	0	-	-	RA	M	M	M	0.00	29.37	30.01	2.1	01	3.5	16	060	14	060	29
30	61	50	56	M	47	51	9	0	-	-	RA	M	M	M	0.06	29.26	29.90	5.0	33	6.3	17	350	13	290	30
	71.7	51.6	61.7		51.0	56.2	5.0	1.9	<----Monthly Averages Totals----->					M	M	4.66	29.36	29.99	3.3	25	7.3	<Monthly Average			
	M	M	M						<-----Departure From Normal----->					M											

Degree Days Monthly Season to Date

Total Departure Total Departure

Heating: 151 M M M

Cooling: 57 M M M

Greatest 24-hr Precipitation: 1.98 Date: 08

Greatest 24-hr Snowfall: M Date: M

Greatest Snow Depth: M Date: M

Sea Level Pressure Date Time (LST)

Maximum 30.27 13 1053

Minimum 29.42 08 0753

Number of Days with -----> Max Temp >=90: 0 Min Temp <=32: 0

Max Temp <=32: 0 Min Temp <=0 : 0 Thunderstorms : 1 Heavy Fog : 1

Precipitation >=.01 inch: 6

Precipitation >=.10 inch:

Snowfall >=1.0 inch : M

Heavy Fog : 1

Data Version: VER3

**QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA
(final)**

NOAA, National Climatic Data Center

Month: 11/2012

Station Location: NIAGARA FALLS INTL AIRPORT (04724)

NIAGARA FALLS, NY

Lat. 43.108 Lon. -78.938

Elevation(Ground): 585 ft. above sea level

Date	Temperature (Fahrenheit)						Degree Days Base 65 Degrees		Sun		Significant Weather	Snow/Ice on Ground(In)	Precipitation (In)	Pressure(inches of Hg)		Wind: Speed=mph Dir=tens of degrees						Date				
	Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg Wet Bulb	Heating	Cooling	Sunrise LST	Sunset LST		1200 UTC	1800 UTC	2400 LST	2400 LST	Avg. Station	Avg. Sea Level	Resultant Speed	Res Dir	Avg. Speed	max 5-second Speed	max 2-minute Speed				
	1	2	3	4	5	6	7	8	9	10	11	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
01	44	40	42	M	38	41	23	0	-	-	RA BR	M	M	M	0.15	28.90	29.57	13.3	26	13.4	29	250	23	260	01	
02	41	36	39	M	32	36	26	0	-	-	RA DZ BR	M	M	M	0.14	29.10	29.80	11.7	30	12.3	25	310	20	310	02	
03	42	36	39	M	29	35	26	0	-	-	RA	M	M	T	29.38	30.06	13.0	32	13.5	28	320	22	320	03		
04	36	34	35	M	26	31	30	0	-	-	SN	M	M	T	29.46	30.14	7.6	33	8.0	16	300	14	320	04		
05	36	33	35	M	23	30	30	0	-	-	SN	M	M	T	29.51	30.20	5.3	35	5.5	14	340	12	350	05		
06	42	30	36	M	22	30	29	0	-	-		M	M	M	0.00	29.50	30.17	4.4	10	6.2	20	110	14	080	06	
07	43	25	34	M	23	30	31	0	-	-		M	M	M	0.00	29.42	30.11	6.8	06	7.4	21	060	18	050	07	
08	40	22*	31	M	21	28	34	0	-	-		M	M	M	0.00	29.47	30.15	2.7	33	3.3	16	330	13	340	08	
09	48	27	38	M	34	38	27	0	-	-	RA BR HZ	M	M	M	0.01	29.50	30.18	6.5	25	6.7	21	250	16	250	09	
10	53	40	47	M	40	44	18	0	-	-	BR HZ	M	M	T	29.57	30.23	4.8	10	5.8	16	070	14	070	10		
11	67	48	58*	M	38	49	7	0	-	-		M	M	M	0.00	29.54	30.18	10.0	20	10.8	32	220	24	220	11	
12	70*	40	55	M	42	50	10	0	-	-	RA BR	M	M	M	0.35	29.40	30.05	15.0	21	17.6	36	240	29	260	12	
13	40	34	37	M	23	31	28	0	-	-	SN	M	M	T	29.70	30.42	10.2	28	10.8	37	260	29	260	13		
14	41	30	36	M	26	32	29	0	-	-		M	M	M	0.00	29.91	30.58	2.4	06	2.8	13	030	10	030	14	
15	47	26	37	M	26	32	28	0	-	-		M	M	M	0.00	29.74	30.41	1.9	05	2.4	12	040	10	030	15	
16	48	26	37	M	29	33	28	0	-	-	BR	M	M	M	0.00	29.75	30.46	0.2	01	0.5	8	190	7	250	16	
17	48	27	38	M	32	35	27	0	-	-	FG+ FZFG MIFG BR HZ	M	M	M	0.00	29.93	30.63	0.9	06	1.9	9	010	8	020	17	
18	53	28	41	M	31	35	24	0	-	-	BR	M	M	M	0.00	29.91	30.58	3.4	08	3.6	13	060	10	070	18	
19	52	26	39	M	31	35	26	0	-	-	BR	M	M	M	0.00	29.75	30.39	1.2	07	1.8	9	020	8	010	19	
20	52	30	41	M	33	37	24	0	-	-	FZFG BR HZ	M	M	M	0.00	29.52	30.19	1.4	05	1.8	8	080	7	360	20	
21	52	25	39	M	31	34	26	0	-	-	FG+ FZFG BR HZ	M	M	M	0.00	29.55	30.24	M	M	0.6	9	260	7	320	21	
22	57	28	43	M	34	39	22	0	-	-	FG+ FZFG BR	M	M	M	0.00	29.48	30.13	5.9	21	6.2	23	220	18	220	22	
23	53	33	43	M	34	41	22	0	-	-	RA SN BR	M	M	M	0.02	29.11	29.75	18.0	23	20.2	43	230	33	240	23	
24	38	31	35	M	22	29	30	0	-	-		M	M	T	29.21	29.90	M	M	18.6	35	300	29	300	24		
25	34	29	32	M	23	29	33	0	-	-	SN BR	M	M	M	0.01	29.23	29.90	12.3	26	12.5	29	250	21	250	25	
26	38	27	33	M	22	29	32	0	-	-		M	M	M	0.00	29.41	30.13	12.8	26	12.9	26	260	21	260	26	
27	37	24	31*	M	19	26	34	0	-	-		M	M	T	29.60	30.29	4.6	27	5.1	15	280	13	300	27		
28	38	26	32	M	22	29	33	0	-	-	SN	M	M	M	0.00	29.55	30.24	10.9	26	11.0	30	260	24	250	28	
29	46	27	37	M	26	33	28	0	-	-	SN BR BLSN	M	M	M	0.03	29.58	30.26	11.7	25	13.6	33	250	26	240	29	
30	36	28	32	M	24	28	33	0	-	-		M	M	M	0.03	29.68	30.37	14.8	08	15.1	26	080	21	080	30	
	45.7	30.5	38.1		28.5	34.3	26.6	0.0	<----Monthly Averages Totals----->						M	M	0.71	29.51	30.19	3.4	26	8.4	<Monthly Average			
	M	M	M		<-----Departure From Normal----->											M										

Degree Days Monthly Season to Date

Total Departure Total Departure

Heating: 798 M M M

Cooling: 0 M M M

Greatest 24-hr Precipitation: 0.35 Date: 12

Greatest 24-hr Snowfall: M Date: M

Greatest Snow Depth: M Date: M

Sea Level Pressure Date Time (LST)

Maximum 30.66 17 2153

Minimum 29.47 01 0309

Number of Days with -----> Max Temp >=90: 0 Min Temp <=32: 20

Max Temp <=32: 0 Min Temp <=0 : 0 Thunderstorms : 0 Heavy Fog : 3

Precipitation >=.01 inch: 7

Precipitation >=.10 inch:

Snowfall >=1.0 inch : M

Data Version: VER3

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA
(final)
NOAA, National Climatic Data Center
Month: 12/2012

Station Location: NIAGARA FALLS INTL AIRPORT (04724)

NIAGARA FALLS, NY

Lat. 43.108 Lon. -78.938

Elevation(Ground): 585 ft. above sea level

Date	Temperature (Fahrenheit)						Degree Days Base 65 Degrees		Sun		Significant Weather	Snow/Ice on Ground(In)	Precipitation (In)	Pressure(inches of Hg)		Wind: Speed=mph Dir=tens of degrees								Date		
	Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg Wet Bulb	Heating	Cooling	Sunrise LST	Sunset LST		1200 UTC	1800 UTC	2400 LST	LST	Avg. Station	Avg. Sea Level	Resultant Speed	Res Dir	Avg. Speed	max 5-second Speed	max 2-minute Dir				
	1	2	3	4	5	6	7	8	9	10	11	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
01	51	27	39	M	30	34	26	0	-	-	BR HZ	M	M	M	0.00	29.62	30.29	4.7	10	6.4	21	080	16	070	01	
02	52	46	49	M	44	47	16	0	-	-	RA DZ BR	M	M	M	0.31	29.36	30.02	11.4	22	13.5	32	250	24	220	02	
03	56	39	48	M	42	45	17	0	-	-	BR HZ	M	M	M	0.00	29.51	30.16	1.9	15	4.5	16	290	13	290	03	
04	63*	44	54*	M	49	52	11	0	-	-	RA BR	M	M	M	0.18	29.32	29.96	13.1	22	13.8	35	240	28	240	04	
05	44	25	35	M	24	30	30	0	-	-	SN	M	M	M	T	29.54	30.26	10.4	30	11.9	35	290	30	290	05	
06	39	21	30	M	21	27	35	0	-	-	RA BR	M	M	M	0.00	29.61	30.26	3.1	10	3.5	17	110	14	120	06	
07	47	36	42	M	34	39	23	0	-	-	RA FG+ BR	M	M	M	T	29.32	29.98	5.5	21	5.8	20	230	16	240	07	
08	44	34	39	M	37	39	26	0	-	-	RA DZ PL BR	M	M	M	0.16	29.23	29.92	5.7	33	7.3	23	320	18	320	08	
09	41	28	35	M	27	31	30	0	-	-	RA DZ BR	M	M	M	0.32	29.49	30.12	8.3	08	10.2	30	100	22	090	09	
10	52	33	43	M	38	40	22	0	-	-	SN BR	M	M	M	0.24	28.97	29.63	8.2	25	12.5	29	240	23	240	10	
11	33	26	30	M	23	28	35	0	-	-	BR	M	M	M	T	29.31	30.03	2.9	33	4.3	23	330	18	330	11	
12	40	27	34	M	26	31	31	0	-	-	BR	M	M	M	T	29.63	30.34	9.1	24	9.5	29	240	23	240	12	
13	43	25	34	M	25	31	31	0	-	-	BR	M	M	M	0.00	29.70	30.36	7.4	21	7.8	24	220	18	220	13	
14	44	27	36	M	28	34	29	0	-	-	BR	M	M	M	0.00	29.54	30.23	7.1	25	8.1	23	230	17	230	14	
15	38	24	31	M	28	31	34	0	-	-	RA FZFG BR HZ	M	M	M	T	29.53	30.18	7.1	09	7.2	21	080	16	080	15	
16	56	37	47	M	38	43	18	0	-	-	RA BR	M	M	M	0.03	29.13	29.75	8.8	17	9.5	25	180	20	190	16	
17	48	41	45	M	39	43	20	0	-	-	RA BR	M	M	M	0.19	29.04	29.68	4.0	22	7.2	18	240	14	230	17	
18	43	34	39	M	36	39	26	0	-	-	RA BR	M	M	M	0.36	28.94	29.62	10.9	30	12.0	28	300	21	280	18	
19	41	30	36	M	30	33	29	0	-	-	BR	M	M	M	0.00	29.28	30.00	4.0	29	5.3	16	270	12	260	19	
20	44	29	37	M	28	33	28	0	-	-	RA BR	M	M	M	0.28	29.25	29.85	10.5	12	11.6	31	180	23	100	20	
21	44	31	38	M	31	34	27	0	-	-	RA DZ SN BR	M	M	M	0.41	28.64	29.32	9.8	27	13.5	45	310	36	320	21	
22	33	29	31	M	22	28	34	0	-	-	SN	M	M	M	T	29.08	29.81	20.1	29	21.1	44	310	30	310	22	
23	35	29	32	M	23	28	33	0	-	-	SN UP	M	M	M	T	29.23	29.92	13.2	26	14.2	30	290	24	290	23	
24	32	28	30	M	20	26	35	0	-	-	SN BR	M	M	M	0.01	29.33	29.99	4.2	13	8.1	21	080	17	070	24	
25	34	26	30	M	25	28	35	0	-	-	SN BR	M	M	M	0.01	29.47	30.21	M	M	4.3	10	060	8	050	25	
26	30	24	27	M	22	25	38	0	-	-	SN FZFG BR	M	M	M	0.24	29.47	30.10	M	M	16.7	35	040	28	040	26	
27	26	24	25	M	21	23	40	0	-	-	FZDZ SN BR UP HZ	M	M	M	0.06	29.21	29.93	10.1	35	12.0	26	050	21	330	27	
28	28	15*	22*	M	19	21	43	0	-	-	FZDZ SN BR	M	M	M	T	29.44	30.13	3.9	27	5.7	21	320	17	310	28	
29	29	21	25	M	22	25	40	0	-	-	SN FZFG BR BLSN	M	M	M	0.15	29.19	29.86	5.7	02	9.6	21	330	17	330	29	
30	29	20	25	M	17	23	40	0	-	-	SN	M	M	M	T	29.44	30.17	12.5	28	13.8	31	240	25	250	30	
31	35	27	31	M	25	29	34	0	-	-	SN	M	M	M	T	29.35	30.00	18.9	24	19.7	41	240	30	240	31	
	41.1	29.3	35.2		28.8	32.9	29.5	0.0	<----Monthly Averages Totals----->								M	M	2.95	29.33	30.00	3.9	26	10.0	<Monthly Average	
	M	M	M		<-----Departure From Normal----->												M									

Degree Days Monthly Season to Date
 Total Departure Total Departure
 Heating: 916 M M M
 Cooling: 0 M M M

Greatest 24-hr Precipitation: 0.59 Date: 20-21

Greatest 24-hr Snowfall: M Date: M

Greatest Snow Depth: M Date: M

Sea Level Pressure Date Time (LST)

Maximum 30.45 13 0753

Minimum 29.23 21 1437

Max Temp >=90: 0	Min Temp <=32: 22
Number of Days with ----->	Max Temp <=32: 6
Thunderstorms : 0	Min Temp <=0 : 0
Heavy Fog : 1	Snowfall >=1.0 inch : M

Data Version: VER3

U.S. Department of Commerce
 National Oceanic & Atmospheric Administration
 National Environmental Satellite, Data, and Information Service

Annual Climatological Summary (2012)

National Climatic Data Center
 Federal Building
 151 Patton Avenue
 Asheville, North Carolina 28801
www.ncdc.noaa.gov

Station: NIAGARA FALLS INTERNATIONAL AIRPORT, NY US

COOP:305841

Elev: 584 ft. Lat: 43.108° N Lon: 78.938° W

Date	Temperature (°F)												Precipitation (inches)												
	Elem->	MMXT	MMNT	MNTM	DPNT	HTDD	CLDD	EMXT		EMNT		DT90	DX32	DT32	DT00	TPCP	DPNP	EMXP		TSNW	MXSD		DP01	DP05	DP10
Month	Mean Max.	Mean Min.	Mean	Depart. from Normal	Heating Degree Days	Cooling Degree Days	Highest	High Date	Lowest	Low Date	Number Of Days				Total	Depart. from Normal	Greatest Observed		Snow, Sleet			Number Of Days			
											Max >=90°	Max <=32°	Min <=32°	Min <=0°			Day	Date	Total Fall	Max Depth	Max Date	>=.10	>=.50	>=1.0	
1	36.4	21.8	29.1		1105	0	53	31	-1	15	0	9	27	2	3.27		0.62	27	0.0			9	1	0	
2	37.1	25.7	31.4		968	0	51	01	9	11	0	6	28	0	1.32		0.44	22	0.0			4	0	0	
3	56.5	35.1	45.8		589	1	81	21	13	05	0	1	12	0	1.59		0.52	24	0.0			4	1	0	
4	55.1	34.7	44.9		596	3	82	16	25	28	0	0	13	0	3.46		1.82	23	0.0			7	1	1	
5	73.7	51.3	62.5		136	63	88	28	37	17	0	0	0	0	1.94		1.41	08	0.0			4	1	1	
6	79.7X	59.2X	69.5X				91	20	48	13	2	0	0	0	1.58		0.63	01	0.0			4	1	0	
7	85.5	64.7	75.1			0	322	94	17	57	29	4	0	0	0	1.34		0.37	22	0.0		5	0	0	
8	81.3	60.4	70.9			6	194	95	04	49	21	3	0	0	0	1.94		0.93	12	0.0		5	1	0	
9	71.7	51.6	61.7			151	57	88	03	38	24	0	0	0	0	4.66		1.98	08	0.0		5	3	2	
10	59.3	43.5	51.4			415	0	78	25	26	13	0	0	2	0	6.57		1.46	29	0.0		13	4	1	
11	45.7	30.5	38.1			798	0	70	12	22	08	0	0	20	0	0.71		0.35	12	0.0		3	0	0	
12																									
Annual	62.0*	43.5*	52.8*			4764*	640*	95*	Aug	-1*	Jan	9*	16*	102*	2*	28.38*		1.98*	Sep	0.0*			63*	13*	5*

Notes

(blank) Data element not reported or missing.

+ Occurred on one or more previous dates during the month. The date in the Date field is the last day of occurrence. Used through December 1983 only.

A Accumulated amount. This value is a total that may include data from a previous month or months or year (for annual value).

B Adjusted total. Monthly value totals based on proportional available data across the entire month.

E An estimated monthly or annual total.

X Monthly means or totals based on incomplete time series. 1 to 9 days are missing. Annual means or totals include one or more months which had 1 to 9 days that were missing.

T Trace of precipitation, snowfall, or snowdepth. The precipitation data value will equal zero.

Elem Element types are included to provide cross-reference for users of the NCDC CDO system.

Station Station is identified by: COOP ID, Station Name, State

S Precipitation amount is continuing to be accumulated. Total will be included in a subsequent monthly or yearly value. Example: Days 1-20 had 1.35 inches of precipitation, then a period of accumulation began. The element TPCP would then be 00135S and the total accumulated amount value appears in a subsequent monthly value.

* Annual value missing; summary value computed from available month values.

Attachment F

2011 NIAGARA FALLS STORAGE SITE

- **Radon Flux Results**
- **Site Map**

2012 Radon Flux Monitoring Results^a

Niagara Falls Storage Site

NFSS Sample ID	Qualifier ^d	Radon-222 Flux			NFSS Sample ID	Qualifier ^d	Radon-222 Flux		
		(pCi/m ² /s)		MDA			(pCi/m ² /s)		MDA
1	U	0.04427	± 0.03548	0.08151	51	U	-0.001725	± 0.02595	0.05445
2	U	0.04767	± 0.02604	0.06987	52	U	0.07699	± 0.03754	0.09918
3	U	0.05067	± 0.02874	0.07845	53	U	0.01204	± 0.0207	0.0525
4	U	0.04201	± 0.02705	0.06896	54	U	0.07274	± 0.03887	0.09683
5	U	0.0283	± 0.02806	0.05773	55	U	0.03087	± 0.02148	0.05463
6	U	0.06388	± 0.03589	0.08468	56	U	0.01383	± 0.02336	0.05691
7	U	0.06422	± 0.03311	0.08397	57	U	0.01482	± 0.02424	0.06227
8		0.07632	± 0.02113	0.0259	58	U	0.014	± 0.02808	0.06298
9	U	0.05629	± 0.03116	0.08451	59	U	0.04575	± 0.0247	0.06698
10	U	0.05468	± 0.02895	0.07701	60	U	0.03631	± 0.02558	0.07057
10-DUP ^b	U	0.04808	± 0.03163	0.07565	60-DUP ^b	U	0.01086	± 0.02311	0.05926
11	U	0.049	± 0.03967	0.07917	61	U	0.0441	± 0.02828	0.07556
12	U	0.05944	± 0.02984	0.07975	62	U	0.002822	± 0.02171	0.04925
13	U	0.0453	± 0.02516	0.06824	63	U	0.002336	± 0.01748	0.04377
14	U	0.04219	± 0.02824	0.06797	64	U	0.03681	± 0.02222	0.06379
15	U	0.04135	± 0.02624	0.0709	65		0.9917	± 0.07141	0.0791
16	U	0.03061	± 0.02198	0.05694	66	U	0.002871	± 0.02242	0.05136
17	U	0.07145	± 0.03433	0.08724	67	U	-0.000587	± 0.01813	0.0454
18	U	0.07931	± 0.04449	0.1062	68	U	0.03008	± 0.01907	0.05397
19	U	0.0593	± 0.03083	0.07743	69	U	0.03062	± 0.02406	0.05964
20	U	-0.0008439	± 0.02608	0.05495	70	U	0.05715	± 0.03253	0.08092
20-DUP ^b	U	0.03126	± 0.02464	0.06264	70-DUP ^b	U	0.01454	± 0.0214	0.05834
21	U	0.0345	± 0.02908	0.06543	71	U	0.03463	± 0.02525	0.06356
22	U	0.02072	± 0.02355	0.06358	72	U	0.05283	± 0.02887	0.0768
23	U	0.03685	± 0.02788	0.06516	73	U	0.2699	± 0.1501	0.4027
24	U	0.03472	± 0.03412	0.07077	74	U	0.06313	± 0.0303	0.08002
25	U	0.08858	± 0.04056	0.1052	75	U	0.01066	± 0.02269	0.05819
26		0.0503	± 0.01965	0.04252	76	U	0.002915	± 0.02516	0.05437
27		0.0624	± 0.01905	0.009847	77	U	0.05301	± 0.02692	0.07168
28	U	0.05355	± 0.03651	0.09097	78	U	-0.006051	± 0.0223	0.04887
29	U	0.04946	± 0.02979	0.06891	79	U	0.0496	± 0.02748	0.07372
30	U	0.08241	± 0.03955	0.09909	80		0.07882	± 0.02198	0.05028
30-DUP ^b		0.08545	± 0.02237	0.04263	80-DUP ^b	U	0.06902	± 0.03535	0.09176
31	U	0.05957	± 0.03142	0.08522	81		0.116	± 0.02992	0.04273
32	U	0.06252	± 0.03264	0.0797	82	U	0.04247	± 0.03029	0.06601
33	U	0.03446	± 0.02644	0.07329	83	U	0.05933	± 0.03299	0.08262
34	U	0.03236	± 0.02309	0.05967	84	U	0.04951	± 0.0305	0.07374
35	U	0.0572	± 0.04147	0.08469	85	U	0.02002	± 0.02657	0.06828
36	U	0.004358	± 0.01645	0.04563	86	U	0.02918	± 0.02939	0.06954
37	U	0.02731	± 0.02266	0.05696	87	U	0.009483	± 0.01999	0.05061
38	U	0.009334	± 0.01968	0.04982	88	U	0.0179	± 0.0279	0.06888
39	U	0.01057	± 0.0225	0.05769	89	U	0.03794	± 0.03713	0.06668
40	U	0.03462	± 0.01883	0.05328	90	U	0.04874	± 0.02889	0.06895
40-DUP ^b	U	0.01274	± 0.02226	0.05401	90-DUP ^b	U	0.03804	± 0.02394	0.06483
41	U	0.04153	± 0.02662	0.07379	91	U	0.05781	± 0.04102	0.08076
42	U	0.002609	± 0.02015	0.04786	92	U	0.002991	± 0.01653	0.04121
43	U	0.05104	± 0.03319	0.08255	93	U	0.01458	± 0.02146	0.0585
44	U	0.02179	± 0.02568	0.06293	94	U	0.05454	± 0.02601	0.07013
45	U	0.03822	± 0.03368	0.07486	95	U	0.01255	± 0.0233	0.05666
46	U	0.05002	± 0.027	0.07483	96	U	-0.01062	± 0.02042	0.04227
47	U	0.001622	± 0.02114	0.04767	97	U	0.008713	± 0.02156	0.05184
48	U	0.04999	± 0.04321	0.08042	98	U	0.06195	± 0.04663	0.08848
49	U	0.0523	± 0.03723	0.07648	99	U	0.01489	± 0.02192	0.05974
50	U	0.008392	± 0.02076	0.04993	100	U	0.04146	± 0.02941	0.067
50-DUP ^b	U	0.04974	± 0.0256	0.06903	100-DUP ^b	U	0.02245	± 0.02821	0.06732

2012 Radon Flux Monitoring Results^a

Niagara Falls Storage Site

NFSS Sample ID	Qualifier ^d	Radon-222 Flux			NFSS Sample ID	Qualifier ^d	Radon-222 Flux						
		(pCi/m ² /s)		MDA			(pCi/m ² /s)		MDA				
		Mean	SD	MDA			Mean	SD	MDA				
101	U	0.05902	± 0.03423	0.09035	151	U	0.005865	± 0.02074	0.05224				
102	U	0.01263	± 0.02143	0.05435	152	U	0.02089	± 0.02267	0.06624				
103	U	0.01152	± 0.02616	0.06409	153	U	0.04279	± 0.03069	0.07639				
104	U	0.03764	± 0.02179	0.06037	154	U	0.05575	± 0.0335	0.09142				
105	U	-0.001028	± 0.01849	0.04318	155	U	0.06978	± 0.03366	0.0874				
106	U	0.01552	± 0.02191	0.05965	156	U	0.05883	± 0.03543	0.08114				
107	U	0.05645	± 0.04096	0.08947	157	U	0.003006	± 0.02192	0.05556				
108	U	0.02679	± 0.02048	0.05729	158	U	0.009919	± 0.02621	0.06086				
109	U	0.01465	± 0.02155	0.05874	159	U	0.03473	± 0.03862	0.06931				
110	U	0.00467	± 0.01731	0.04338	160	U	0.03437	± 0.03324	0.08527				
110-DUP ^b	U	0.004674	± 0.01732	0.04342	160-DUP ^b	U	0.00636	± 0.01952	0.05404				
111	U	0.02847	± 0.02606	0.0615	161	U	0.05099	± 0.04052	0.08567				
112	U	0.008357	± 0.02188	0.056	162	U	0.04099	± 0.03044	0.07121				
113	U	0.04743	± 0.02612	0.06986	163	U	0.03636	± 0.03829	0.0779				
114	U	0.001209	± 0.01514	0.04216	164	U	0.02459	± 0.03534	0.08494				
115	U	0.01912	± 0.02058	0.05501	165	U	0.03506	± 0.0245	0.06789				
116	U	0.04449	± 0.02441	0.06612	166	U	0.01858	± 0.02285	0.06104				
117	U	0.01487	± 0.02188	0.05963	167	U	0.04152	± 0.02698	0.07638				
118	U	0.04518	± 0.02523	0.06646	168	U	0.01875	± 0.01918	0.05556				
119	U	0.005617	± 0.02333	0.05396	169	U	0.033	± 0.03353	0.08493				
120	U	0.07483	± 0.03731	0.09891	170	U	0.0109	± 0.01779	0.05502				
120-DUP ^b	U	0.04327	± 0.02719	0.07535	170-DUP ^b	U	0.0146	± 0.02706	0.06947				
121	U	0.02982	± 0.03169	0.06203	171	U	0.07547	± 0.03683	0.095				
122	U	0.0171	± 0.02749	0.06339	172	U	0.04037	± 0.02473	0.06852				
123	U	0.01548	± 0.01981	0.05299	173		0.09917	± 0.0287	0.06642				
124	U	0.01467	± 0.02159	0.05885	174	U	0.06963	± 0.03739	0.09628				
125	U	0.0135	± 0.02073	0.05257	175	U	0.107	± 0.05536	0.1257				
126	U	0.03228	± 0.02054	0.05747	176	U	0.06285	± 0.03799	0.09099				
127	U	0.02126	± 0.02909	0.07199	177	U	0.06235	± 0.0453	0.0979				
128	U	0.03206	± 0.02931	0.07747	178	U	0.07086	± 0.04497	0.1141				
129	U	-0.02856	± 0.02002	0.01952	179	U	0.1047	± 0.04569	0.1119				
130	U	0.03913	± 0.02776	0.07129	180	U	0.05221	± 0.04002	0.08811				
130-DUP ^b	U	0.05585	± 0.03108	0.08257	180-DUP ^b	U	0.01485	± 0.03493	0.07707				
131	U	0.007666	± 0.02696	0.06547	181 ^c	U	0.03854	± 0.02834	0.07097				
132	U	0.02722	± 0.01988	0.05706	182 ^c	U	0.05149	± 0.03314	0.08903				
133	U	0.04053	± 0.02847	0.07744	183 ^c	-	-	± -	-				
134	U	0.04519	± 0.02566	0.07052	Average background	U	0.04502 (pCi/m ² /s)						
135	U	0.0608	± 0.04352	0.09247									
136	U	0.05896	± 0.03344	0.09128									
137	U	0.09424	± 0.04627	0.09705									
138	U	0.03283	± 0.0309	0.07435									
139	U	0.03656	± 0.03026	0.08278									
140	U	0.03611	± 0.0229	0.06407									
140-DUP ^b	U	0.009592	± 0.02373	0.05707									
141	U	0.01628	± 0.02396	0.06553									
142	U	0.03664	± 0.02817	0.06997									
143	U	0.0179	± 0.02779	0.07139									
144	U	0.04998	± 0.02679	0.07311									
145	U	0.0254	± 0.02496	0.06616									
146	U	0.02135	± 0.02606	0.07055									
147	U	0.03874	± 0.0292	0.07297									
148	U	0.03445	± 0.02896	0.06277									
149	U	0.04274	± 0.02655	0.07515									
150	U	0.00959	± 0.02372	0.05705									
150-DUP ^b	U	0.04824	± 0.03449	0.08087									

IWCS	Value	Units
Average ^e	0.04245	(pCi/m ² /s)
High ^f	0.99170	(pCi/m ² /s)
Low	-0.02856	(pCi/m ² /s)

UTE: The EPA Standard for Radon-222 Flux is 20 pCi/m²/sec

a. Radon-222 flux was performed on July 30-31st, 2012

b. Every 10th canister is counted twice as a quality control (QC) duplicate to evaluate analytical precision.

c. Background: 181-Lewiston-Porter Central School
 182-Balmer Rd. (CWM Secondary Gate)
 183-Lewiston Water Pollution Control Center

d. Validated Qualifier: U - indicates that U analyte was detected (non-Detect).

e. Average of all values (detects and non-detects)

f. Highest detectable finding.

