US Army Corps
of Engineers®
Buffalo District

RECORD OF DECISION

FOR THE MUDFLATS OPERABLE UNIT

TONAWANDA LANDFILL VICINITY PROPERTY

TOWN OF TONAWANDA, NEW YORK

September 2008

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I. DECLARATION FOR THE RECORD OF DECISION

DECLARATION FOR THE RECORD OF DECISION

SITE NAME AND LOCATION

Mudflats Operable Unit
Tonawanda Landfill Vicinity Property Site
Town of Tonawanda, Erie County, New York

STATEMENT OF BASIS AND PURPOSE

This Record of Decision (ROD) presents the United States Army Corps of Engineers (USACE) decision as the lead agency on the final Selected Remedy for the Mudflats Operable Unit (OU) at the Tonawanda Landfill Vicinity Property Site in Erie County, New York, which was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA), and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on the Administrative Record file for this site, located at the following locations:

USACE FUSRAP Public Information Center
1776 Niagara Street
Buffalo, New York
(716) 879-4438
1-800-833-6390 (press "4" at the recorded message)

Tonawanda Public Library
333 Main Street
Tonawanda, New York 14150

Comments on the Proposed Plan provided by the New York State Department of Conservation (NYSDEC); the New York State Department of Health (NYSDOH); and individual members of the New York State Senate, the New York State Assembly, the United States Senate, the Erie County Legislature, the City of Tonawanda, the Town of Tonawanda, and the general public were evaluated; all of the received comments pertained specifically to the Landfill OU itself and none pertained to the Mudflats OU. For this reason, the New York State Department of Environmental Conservation has not indicated whether they concur or do not concur with the No Action decision as it applies to the Mudflats OU. All of the received comments pertaining to the Landfill OU will be addressed in a separate Landfill OU responsiveness summary.

ASSESSMENT OF THE MUDFLATS OU

The USACE, as lead agency, has determined that no action is necessary in the Mudflats OU to protect public health or welfare or the environment.

DESCRIPTION OF THE SELECTED REMEDY

Background

The Tonawanda Landfill Vicinity Property is located approximately 1.5 miles north of the Linde (Praxair) Formerly Utilized Sites Remedial Action Program (FUSRAP) site in the Town of Tonawanda, New York (Figure 1). It is comprised of two operable units (OU) – the Landfill OU and the Mudflats OU area (Figure 2). Both of these properties are owned by the Town of Tonawanda and current zoning of the area is commercial/industrial, except for the bordering residential area to the north of the Tonawanda Landfill Vicinity Property.

The landfill was operated as a municipal landfill by the Town of Tonawanda from the mid-1930s through October 1989. In the early 1900's a quarry was located in the western portion of the Landfill property. In the 1920's, the quarry was reportedly abandoned at a depth of 60 feet when water was encountered. Wastes disposed in the Landfill included ash generated by incinerators (formerly located just west of the Mudflats), construction/demolition debris and yard refuse (leaves, branches, etc.) collected from Town residents. On occasion, the Landfill accepted municipal solid waste and wastewater sludge (formerly incinerated at the incinerators), but only when the incinerators were temporarily inoperable. The incinerators, operated by the Town of Tonawanda between the 1940's and the early 1980's, were used to burn municipal solid waste and sludge generated at the Town of Tonawanda's Waste Water Treatment Plant. The incinerators were located in the western edge of the Mudflats area (see Figure 2) until they were demolished in 2002. Other than the incinerators, the Mudflats have always been vacant.

In the early 1990s the Department of Energy (DOE), while conducting investigations of the nearby Linde FUSRAP Site, detected elevated levels of radium, uranium and thorium in the Town of Tonawanda Landfill and the Mudflats. Although neither the Landfill nor Mudflats were known to be directly involved in past Manhattan Engineer District (MED) activities, the DOE designated the two properties together as a FUSRAP Vicinity Property, due to the similarity between the material found in the Landfill and Mudflats and that found at the Linde Site (DOE 1992).

On October 13, 1997, the Energy and Water Development Appropriations Act, 1998, was signed into law as Public Law 105-62. Pursuant to this law, FUSRAP was transferred from the DOE to the USACE. As a result of this transfer, USACE assumed responsibility for this project. The Energy and Water Development Appropriations Act for Fiscal Year 2000, Public Law 106-60, provides authority to USACE to conduct restoration work on FUSRAP sites subject to the CERCLA, 42 United States Code 9601 et seq., as amended. This USACE authority is limited to remediating contamination related to the nation's early atomic energy program. Other contamination is not eligible under FUSRAP. Therefore, this ROD only addresses FUSRAP-eligible Constituents of Concern (COCs).

The results of the Baseline Risk Assessment (BRA) indicate that no further action is required for the Mudflats OU, as the radium, uranium and thorium in the Mudflats OU do not pose a cancer risk above the threshold presented in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) found at 40 C.F.R Part 300.

The Proposed Plan (PP) for the Tonawanda Landfill Vicinity Property site was issued by USACE in March 2007. This ROD addresses the Mudflats OU at the Tonawanda Landfill Vicinity Property site. This is the final decision regarding any FUSRAP response action for the Tonawanda Landfill Vicinity Property site Mudflats OU.

Decision Summary

USACE has determined that the current and reasonable future site uses are commercial/industrial. USACE has also determined that the radiological risks from the radium, uranium, and thorium present in the Mudflats OU are below the health risk action levels as specified in the NCP. Based on these determinations, and as described in the March 2007 Proposed Plan (PP), no further action for the Tonawanda Landfill Vicinity Property Site Mudflats OU is warranted.

STATUTORY DETERMINATIONS

No CERCLA Section 121 statutory determinations are necessary for this ROD since USACE has determined that no remedial action is necessary under CERCLA. USACE has concluded that the FUSRAP eligible COCs present are below the NCP risk limit. Since no actions are warranted, there is no need for further reviews and monitoring at the Mudflats OU. Although the current and reasonable future use is commercial/industrial, a risk analysis was performed for the more protective residential standard. The results indicated that risks for resident adults and children were within the 10-4 CERCLA risk threshold, and therefore the Corps of Engineers has determined that no 5-year reviews are warranted.

[redacted]

Brigadier General, U.S. Army
Commanding

30 Sept, 2008
Date

RECORD OF DECISION
FOR THE MUDFLATS OPERABLE UNIT
TONAWANDA LANDFILL VICINITY PROPERTY
TOWN OF TONAWANDA, NEW YORK

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ACRONYMS AND ABBREVIATIONS

AEC	U.S. Atomic Energy Commission
ALARA	As low as reasonably achievable
Am-241	americium-241
ANL	Argonne National Laboratory
ARAR	Applicable or relevant and appropriate requirement
bgs	Below ground surface
BNI	Bechtel National Incorporated
BRA	Baseline Risk Assessment
B&W	Babcock and Wilcox
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COCs	Constituents of Concern
COPCs	Constituents of Potential Concern
CY	Cubic yards
DOE	U.S. Department of Energy
ECWA	Erie County Water Authority
ERA	Ecological risk assessment
EU	Exposure Unit
FS	Feasibility Study
FUSRAP	Formerly Utilized Sites Remedial Action Program
FSSP	Final Status Survey Plan
HHA	Human Health Assessment
HHRA	Human health risk assessment
HI	Hazard Index
LLW	low-level radioactive waste
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MED	Manhattan Engineer District
mg/L	milligrams/liter
MOU	Memorandum of Understanding
mrem/yr	millirem per year
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NMPC	Niagara Mohawk Power Corporation
NRC	U.S. Nuclear Regulatory Commission
NUMEC	Nuclear Materials and Equipment Corporation
NYCRR	New York Code of Rules and Regulations
NYSDEC	New York State Department of Conservation
NYSDOH	New York State Department of Health
ORNL	Oak Ridge National Laboratory
OU	Operable Unit
pCi/g	picocuries per gram
P. L.	Public Law

ACRONYMS AND ABBREVIATIONS (continued)

PP	Proposed Plan
PS	Performance Standards
Pu-239	plutonium-239
Pu-241	plutonium-241
QA/QC	Quality Assurance, Quality Control
Ra-226	radium-226
Ra-228	radium-228
RAGS	Risk Assessment Guidance for Superfund
RAO	Remedial Action Objective
RESRAD	RESidual RADioactivity (Computer Code)
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
RME	Reasonable Maximum Exposure
Rn-222	Radon-222
ROC	Radionuclide of Concern
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act
SLERA	Screening Level Ecological Risk Assessment
SMCLs	Secondary Maximum Contaminant Levels
SOR	Sum of ratios
TBC	To be considered
TDS	Total Dissolved Solids
TEDE	Total effective dose equivalent
Th-230	thorium-230
Th-232	thorium-232
U-234	uranium-234
U-235	uranium-235
U-238	uranium-238
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
UTL	upper tolerance limit

II. DECISION SUMMARY FOR THE RECORD OF DECISION

1.0 SITE NAME, LOCATION AND DESCRIPTION

Mudflats Operable Unit
Tonawanda Landfill Vicinity Property Site
Town of Tonawanda, Erie County, New York

1.1 Tonawanda Landfill Vicinity Property site overview

The Tonawanda Landfill Vicinity Property is located approximately 1.5 miles north of the Linde (Praxair) FUSRAP Site in the Town of Tonawanda, New York. It is comprised of two main parcels – the Landfill OU and the Mudflats OU (Figure 2). Both properties are owned by the Town of Tonawanda, NY, and both parcels are zoned as commercial/ industrial.

The Landfill OU parcel comprises approximately 55 acres, is located at the northern end of East Park Drive, and is bounded by residential developments to the north and northwest, a railroad line to the east, and an easement owned by the Niagara Mohawk Power Corporation (NMPC) to the south. The Mudflats OU portion of the property is located on the opposite side (south) of the NMPC easement that borders the Landfill OU. The Mudflats parcel is approximately 115 acres in size and is bordered by the NMPC easement to the north, a railroad line to the east, on the west by the former incinerator access road, and to the south by Interstate 290 (Youngmann Expressway).

A 48-inch diameter Erie County Water Authority (ECWA) water transmission line traverses through the NMPC easement. ECWA also has another easement for a second parallel 48-inch diameter water line through the NMPC easement, for future use. Refer to Figure 3 for details. An abandoned 36-inch diameter sanitary sewer line, as well as a 42-inch diameter sanitary sewer line transects the Mudflats OU, as do a 24-inch diameter water line and several abandoned sewer lines (Figure 2). The 42-inch diameter sanitary sewer line conveys flow to the Town of Tonawanda wastewater treatment plant (WWTP) to the west. During the installation of the 42-inch sanitary sewer line through the Mudflats in 1996, the construction activities appear to have disturbed the MED-like material that was identified during previous investigations (ORNL 1992). The USACE sampling activities conducted after the sewer line construction yielded significantly lower concentrations than the previous DOE investigation.

2.0 SITE HISTORY

2.1 History

The landfill was operated as a municipal landfill by the Town of Tonawanda from the mid-1930s through October 1989. In the early 1900's a quarry was located in the western portion of the Landfill property. In the 1920's, the quarry was reportedly abandoned at a depth of 60 feet when water was encountered. Wastes disposed in the Landfill included ash generated by incinerators (formerly located just west of the Mudflats), construction/demolition debris and yard refuse (leaves, branches, etc.) collected from Town residents. On occasion, the Landfill accepted municipal solid waste and wastewater sludge (formerly incinerated at the incinerators), but only when the incinerators were temporarily inoperable.

The incinerators, operated by the Town of Tonawanda between the 1940's and the early 1980's, were used to burn municipal solid waste and sludge generated at the Town of Tonawanda's Waste Water Treatment Plant. The incinerators were located in the western edge of the Mudflats area (Figure 2) until they were demolished in 2002. Other than the incinerators, the Mudflats have always been vacant.

Although neither the Landfill nor Mudflats were known to be directly involved in past MED activities, the DOE designated the two properties together as the Tonawanda Landfill FUSRAP Vicinity Property, due to the similarity between the material found in the Landfill and Mudflats and that found at the Linde Site (DOE 1992).

2.2 Site Status

The Town of Tonawanda is in the process of closing the Landfill in accordance with the current Title 6 of the New York Code of Rules and Regulations (6 NYCRR) Part 360 and Part 380 (Malcolm Pirnie 1999). This action is being undertaken by the Town of Tonawanda, with regulatory oversight from the NYSDEC. Cover material is being placed in areas of the Landfill (primarily at the eastern end) in preparation for capping and closure. A revised Closure Investigation Plan was prepared for the Town of Tonawanda by Malcolm Pirnie Inc., and submitted to NYSDEC in March 2002. This latest revision addressed NYSDEC comments on the earlier report (Malcolm Pirnie 1999), but did not substantively change the closure plan or the parameters from the earlier report that are utilized in the USACE 2005 RI report.

The Town of Tonawanda's plans for the Mudflats area include industrial development of the area. The demolition of the former incinerator was completed by the Town of Tonawanda in 2002. Portions of the Mudflats area are being used as debris collection locations for the Town of Tonawanda Department of Public Works. Street sweepings, mulch, tree limbs etc., are stored here. Part of the closure plan for the Town of

Tonawanda Landfill calls for the Mudflats being used as the borrow source for much of the final cover material in the Town of Tonawanda Landfill.

2.3 Previous Activities

Prior to the Corps' RI study, several other investigations were performed at the Tonawanda Landfill Vicinity Property. A summary is provided below and more detailed information can be found in the Remedial Investigation Report, Tonawanda Landfill Vicinity Property (USACE 2005).

In 1990, the DOE, while working on the Linde FUSRAP Site Investigation, detected elevated radium, uranium and thorium in the Town of Tonawanda Landfill and Mudflats. Subsequent soil samples collected from the areas inside the Town of Tonawanda Landfill and Mudflats detected elevated levels of uranium-238 (U-238) and radium-226 (Ra-226) and thorium (Th-230). These isotopes are consistent with material expected to be in ore processing byproducts generated at the Linde Site (ORNL 1990).

A limited radiological investigation was conducted by the DOE in September 1991 which included gamma walkover surveys and biased and systematic soil sampling. The max soil sample depth for the event was 2.5 feet. Laboratory results indicated some soil samples exhibited characteristics similar to the product and residues formerly produced at the Linde Site. As a result of these investigations, the impacted area of the Town of Tonawanda Landfill and the Mudflats were designated as a Vicinity Property of the Linde FUSRAP site (DOE 1992).

The DOE conducted additional soil sampling activities at the Landfill and Mudflats in 1994 to determine the vertical extent of the radiological contamination at both parcels. Sample results indicated that radiological contamination was essentially limited to the upper 1.5 feet of soil.

Using data from the DOE's investigations conducted in 1991 and 1994, the USACE completed a screening-level radiological human health assessment (HHA) for the Town of Tonawanda Landfill and Mudflats in February, 1999. The 1999 Radiological Risk Assessment was not a full baseline risk assessment (BRA). The 2005 BRA (discussed in Section 4 of the PP (USACE 2007) supersedes this earlier risk evaluation, by incorporating new and old data and including ecological risk as well as additional receptors.

2.4 USACE Remedial Investigation in 2001

To supplement the available information from prior investigations, USACE conducted a RI of the Tonawanda Landfill Vicinity Property in 2001. The purpose of the 2001 investigation was to further delineate the extent of MED-like contamination present at the Tonawanda Landfill Vicinity Property. A gamma walkover survey was conducted of the

Landfill and the Mudflats and was used to target areas to sample later in the investigation. The sampling portion of the investigation included the collection of over 500 soil samples from borings at varying depths in the Town of Tonawanda Landfill and Mudflats operable units and background samples in non-impacted areas. Surface water and sediment samples were collected and analyzed from the Landfill. Groundwater samples were also collected from existing Town of Tonawanda monitoring wells.

Soil samples were collected by the USACE at 96 locations in the Mudflats OU in 2001. From these 96 sampling locations, including Quality Control/Quality Assurance (QA/QC) samples, a total of 224 soil samples were collected from the Mudflats OU. The sampling event used both random and biased sampling locations. Where large debris piles prevented sampling, samples were taken from the previous DOE borehole location in an attempt to replicate the data. These samples were analyzed primarily for uranium, thorium, radium, and americium. The gamma walkover in the Mudflats OU was modified in areas due to large soil/debris piles. In these areas the surrounding native soils as well as access paths were scanned. The soil fill over the original DOE sample locations was also scanned.

To define the nature and extent of radiologically-impacted material (MED-like material) in the Mudflats OU, screening levels for U-238, Th-230 and Ra-226 were developed based on the Mudflats OU background reference data set. The Mudflats OU reference area was located to the east of the Mudflats OU Class 1 and 2 areas (Figure 3). This area was chosen because there was no historical evidence of MED-like materials present. The background screening levels developed from samples taken in this reference area were 1.51 picocuries per gram (pCi/g) for Th-230, 1.15 pCi/g for U-238, and 1.54 pCi/g for Ra-226.

Of the 224 soil samples that were acquired and analyzed in 2001, concentrations of Th-230, U-238 and/or Ra-226 exceeded the screening criteria in only four soil samples from two locations in the Mudflats OU. Trace amounts of Am-241 were detected in a limited number (11) and were most likely due to physical transfer (on vehicles, etc.) from the landfill.

Analytical results from pre-2001 investigations exceeded screening levels here, but samples taken at corresponding locations in 2001 no longer do so. It is believed that the site property owner conducted significant re-contouring and general disturbance of soils between 1992 and 2001. The USACE sampling activities conducted after the 1996 sewer line construction yielded significantly lower concentrations than the previous DOE investigation.

3.0 COMMUNITY PARTICIPATION

Public input was encouraged to ensure that the remedy selected for the Mudflats OU site meets the needs of the local community in addition to being an effective solution to the

problem. The administrative record file contains all of the documentation used to support the preferred alternative and is available at:

USACE FUSRAP Public Information Center
1776 Niagara St.
Buffalo, NY 14207-3199
(716) 879-4438
1-800-833-6390 (press "4" at the recorded message)

Tonawanda Public Library
333 Main St.
Tonawanda, NY 14150

On March 26, 2007, the United States Army Corps of Engineers (USACE) issued a Proposed Plan (PP) for the Tonawanda Landfill Vicinity Property in Erie County, New York. A public meeting was held April 25, 2007, during which the USACE presented background information and its recommendation for no action at both the landfill itself and the Mudflats. During the meeting, the public was invited to submit comments and written comments were accepted until October 15th 2007.

The public meeting was held April 25, 2007, from 7 to 9 p.m. at the Tonawanda High School Auditorium, Hinds Street, Tonawanda, New York. Prior to the meeting, representatives of the USACE were present to discuss any comments or concerns from members of the general public, and these discussions continued after the formal public meeting ended. At the meeting USACE explained the history of the combined parcels, studies and investigations completed, CERCLA evaluation criteria and the proposed decision of no action. A stenographer was present at the meeting to record the proceedings and comments. Nineteen public officials and members of the public requested and made oral comments. Comments received at the public meeting and written comments received during the public comment period are responded to in the Responsiveness Summary (appendix A). The meeting transcript and written comments are included with the Responsiveness Summary.

The initial public comment period was extended from the usual 30 days to 90 days starting on March 26, 2007, and ending June 26, 2007. On June 7, 2007, the comment period was extended an additional 30 days to July 24, 2007, due to requests from public officials and members of the public for additional time. Public officials where also seeking additional time in order to receive comments/data from NYSDEC sampling performed on adjacent residences and school before the end of the comment period. On July 13, 2007, the comment period was extended another 30 days to August 23, 2007. The USACE granted an additional extension on August 14, 2007, for 21 days to September 13, 2007, and then another extension on September 12, 2007, for 32 days to end the comment period on October 15, 2007. The total time for comments was 203 days.

4.0 SCOPE AND ROLE OF OPERABLE UNIT

This Record of Decision only addresses radium, uranium, and thorium found in the Mudflats OU of the Tonawanda Landfill vicinity Property. Additional sampling and evaluation are planned for the Tonawanda Landfill operable unit; associated results will be addressed in separate CERCLA documents. As described in the foregoing sections of this ROD, USACE has determined that no CERCLA remedial action is warranted for the Mudflats OU at the Tonawanda Landfill Vicinity Property. This determination was made based on the findings of the BRA in the USACE RI report, which concluded that the human health risks in the Mudflats OU, for the current and reasonable future use, are within the risk limits established in the NCP. Since no actions are warranted, there is no need for further reviews and monitoring at the Mudflats with respect to the Mudflats OU.

5.0 SITE CHARACTERISTICS

5.1 Site Description

The Mudflats OU portion of the Tonawanda Landfill Vicinity Property is located south of the Niagara Mohawk Power Corporation (NMPC) easement that borders the Landfill OU. The Mudflats is approximately 115 acres in size and is bordered by the NMPC to the north, a railroad line to the east, an access road to the west, and to the south by Interstate 290 (I-290).

An abandoned 36-inch diameter sanitary sewer line, as well as a 42-inch diameter sewer line transects the Mudflats, as do a 24-inch diameter water line and several other abandoned sewer lines (Figure 2).

5.2 Site Geology

The Mudflats OU is located within the Erie-Ontario Lowland Physiographic Unit of New York. The Erie-Ontario Lowland has significant relief characterized by two major escarpments – the Niagara and the Onondaga. The Mudflats OU is located between these two escarpments. Additional information concerning geology of the complete Tonawanda Landfill Vicinity Property can be found in the Tonawanda Landfill Vicinity Property RI (USACE 2005).

5.3 Area Hydrogeology

Based on the Remedial Investigation for the Tonawanda Landfill Vicinity Property (USACE, 2005), groundwater in the Tonawanda area may occur in three distinct hydrogeological systems: a perched system, a shallow semi-confined system, and a contact-zone aquifer at the contact between the basal unconsolidated unit and the weathered bedrock. A detailed description of each hydrogeologic unit can be found in

the Tonawanda Landfill Vicinity Property RI (USACE 2005). Groundwater is not used by the local community because they are supplied public water from the Niagara River. Previous investigations of ground water have also shown exceedances of Secondary Maximum Contaminant Levels (SMCLs) for total dissolved solids (TDS), sulfates and chloride. Secondary Maximum Contaminant Levels were developed by the USEPA to address cosmetic and aesthetic effects in drinking water (such as taste, odor, staining, color, etc.). The USEPA SMCLs for chloride are 250 mg/L, sulfate 250 mg/L, and for (TDS) 500 mg/L. Historic groundwater documentation for the Tonawanda area show results ranging from 2,000 – 6000 mg/L for TDS; sulfate from 1,000 – 1,500 mg/L; and chloride from 1,500 – 2000 mg/L (BNI 1993).

The naturally occurring concentrations of TDS, sulfate, and chloride in the groundwater in the Tonawanda area would preclude its use without treatment. The USEPA notes at its web site (http://www.epa.gov/safewater/consumer/2ndstandards.html) (USEPA 2005) that "Nonconventional treatments like distillation, reverse osmosis, and electrodialysis are effective for removal of chloride, nitrates, TDS, and other inorganic substances. However, these are fairly expensive technologies and may be impractical for smaller systems."

Use of the groundwater as drinking water is not probable due to the cost associated with treating the SMCLs exeedances and the ample supply of drinking water from the Niagara River. The presence of highly conductive subsurface strata has not been observed for the area; therefore transport of soluble material from vicinity property groundwater to the Niagara River is not probable. Therefore, USACE concludes that there is no current or future completed drinking water exposure pathway at the Tonawanda Landfill Vicinity Property.

5.4 Surface Water Hydrology

The surface water hydrology at the Tonawanda Landfill Vicinity Property is controlled primarily by man-made features. The Mudflats OU area of the Tonawanda Landfill Vicinity Property is poorly drained and as a consequence surface water typically ponds on the surface of this area. Exposure to surface water is considered not to be a viable pathway because of the shallowness, seasonal, highly turbid nature of what little surface water is present in the Mudflats OU. Additionally, any surface water present has no recreational value is unlikely to be used for recreational or other purposes (USACE, 2005). Additional information concerning the surface water hydrology can be found in the Tonawanda Landfill Vicinity Property RI (USACE 2005).

5.5 Constituents of Potential Concern

Portions of the Tonawanda Landfill Vicinity Property are contaminated with radionuclides from the U-238, U-235, and the Th-232 decay chains, including Ra-226

and Th-230 that may have originated from uranium ore processing that occurred at the Linde Site.

Radium: Radium is a naturally occurring element, found in small concentrations in soil, rocks, surface water, groundwater, plants and animals. Radium can be ingested or inhaled, and although much of the radium is excreted from the body, some of it may remain in the bloodstream or lungs and can be carried throughout the body. Radium is also a source of radon gas, and exposure to radon is known to cause bone and lung cancer. Of the 25 known isotopes of radium, only two – radium-226 and radium-228 – have half-lives greater than one year, therefore these two radium isotopes are the only ones with potential to persist in the environment. Radium-228 poses a long-term hazard only if its parent (thorium-232) is present (ANL, 2005).

Thorium: Thorium is a naturally occurring element, found naturally throughout the world in soil, rocks, surface water, groundwater, and plants. Thorium can be ingested or inhaled, and can cause lung, pancreatic, and hematopoietic cancers. Thorium is also known to attach to the skeletal system and cause bone cancer. Of the 26 known isotopes of thorium, the two of most concern are thorium-232 and thorium-230. Both of these isotopes have very long half-lives and therefore persist in the environment for many years. These isotopes are present in soil and ores in secular equilibrium with radium-228 and radium-226 respectively (ANL, 2005). The Ra-228 and Ra-226 must be added to the health risks for thorium, as the radium isotopes are decay products of the thorium isotopes.

Uranium: Uranium is a radioactive element that occurs naturally in low concentrations in soil, rock, surface water, and ground water. In nature, uranium exists as several isotopes: primarily uranium-238, uranium-235 and a small amount of uranium-234 (by mass). As with the other COPCs, uranium can be ingested or inhaled. The most prevalent human health concerns of uranium exposure occur through ingestion and can lead to bone cancer and kidney damage (ANL, 2005).

5.6 Impacted Soils and Groundwater

The nature and extent of MED-like material detected in surface and subsurface soils, sediment, surface water, and ground water are briefly described in this section. Additional information to the nature and extent of MED-like material can be found in the RI Report Tonawanda Landfill Vicinity Property (USACE 2005). For simplicity's sake the Town of Tonawanda Landfill and the Mudflats were broken out into separate and distinct units noted as the Town of Tonawanda Landfill OU and the Mudflats OU. The area where MED-like material was found in previous investigations was designated as Area C in the Mudflats OU (Figure 3).

5.6.1 Impacted Soils

USACE investigated the soils on site in order to supplement investigations that were done previously. The Mudflats OU was investigated at this time. The investigation only found two sample locations with radiological activity above background screening levels in areas where it had been located previously during investigation conducted by Oak Ridge National Laboratory (ORNL) (USACE 2005). The soil sampling results of the COPC at the Mudflats OU during the USACE 2001 RI are summarized in Table 1. The reason that previously identified areas containing elevated radiological activity are no longer present may be that various construction activities took place in Area C subsequent to the ORNL investigation causing the previous identified soils to be either blended or buried (USACE 2005).

5.6.2 Impacted Ground Water

A total of 4 wells were sampled at the Mudflats Operable unit during the 2001 USACE RI. For screening purposes, groundwater sample results were compared to groundwater standards found in the Uranium and Thorium Mill Tailings Act, 40 CFR 192. A summary of the results is located in Table 2. As stated previously, groundwater is not used as a water source by the local community due to the high dissolved solids, sulfates, chloride levels and the availability of drinking water from the Niagara River. The presence of highly conductive subsurface strata has not been observed for the area; therefore transport of soluble material from vicinity property groundwater to the Niagara River is not probable.

6.0 CURRENT AND POTENTIAL FUTURE LAND USES

Currently, the Mudflats OU is owned by the Town of Tonawanda. The demolition of the former incinerator was completed by the Town of Tonawanda in 2002. Portions of the Mudflats area are being used as debris collection locations for the Town of Tonawanda Department of Public Works. Street sweepings, mulch, tree limbs, etc., are stored on portions of the Mudflats OU. Part of the Town of Tonawanda's closure plan for the Landfill calls for the Mudflats being used as the borrow source for much of the final cover material in the Landfill. The Town's future plans for the Mudflats include industrial development of the area.

The Mudflats OU is located in a Performance Standards (PS) Use District as defined by the Town of Tonawanda Town zoning law. The Tonawanda Town Code defines the purpose of the Performance Standards Use as follows: "The purpose of this district is to encourage and allow the most appropriate use of the land available now as well as

approaching future commercial and industrial uses unhampered by restrictive categorizing, thus extending the desirability of flexible zoning, subject to change with changing condition" (Town of Tonawanda 1990).

There is evidence of recreational use (walking, riding dirt bikes, etc.) in the Mudflats. However, a commercial/industrial future use would also be protective of a recreational future use. Therefore, USACE has determined that the reasonable future site use of the Mudflats OU is commercial/industrial.

7.0 SUMMARY OF SITE RISKS

The Baseline Risk Assessment (BRA) portion of the RI (USACE 2005) provides a quantitative estimate of potential cancer risks to human health and the environment from MED-like constituents. The BRA is comprised of two key elements: a Human Health Assessment (HHA) and a screening Ecological Risk Assessment (ERA). The BRA does not include an evaluation of non-MED-like related radiological constituents and chemicals that have been identified as being present in the Tonawanda Landfill Vicinity Property.

This Baseline Risk Assessment is different from the screening-level Radiological Human Health Assessment performed by USACE (1999) in that the BRA is a full baseline risk assessment performed in accordance with CERCLA guidelines i.e., *Risk Assessment Guidance for Superfund (RAGS)* (USEPA 1989). The BRA incorporates data generated during the RI and considers additional receptors.

7.1 Human Health Assessment

The BRA identifies the primary sources/release mechanisms, environmental transport media, principal exposure point concentrations, principal exposure routes, and likely receptors for the COPCs at the Tonawanda Landfill Vicinity Property. The potential cancer risks and ecological impacts due to radiological contamination have been characterized. The Tonawanda Landfill Vicinity Property was divided into five soil exposure units (EU's) as presented in Figure 4. The exposure units were created so as to maximize exposure to areas of contamination identified in the RI (USACE 2005). Receptors for the BRA were chosen based on the current land use, as well as the reasonable future land use of the property. Exposure scenarios for the Mudflats EU's (EU's 3, 4 and 5) include a recreational user, a construction worker, and an industrial worker, as the Mudflats area may be developed for commercial or industrial use in the future. Residential future use is believed to be unlikely; however, residential scenarios (adult and child) were developed for the Mudflats.

In accordance with RAGS, both the reasonable maximum exposure (RME) and central tendency exposures were evaluated. According to the conceptual site model, the following exposure pathways were evaluated for the receptors described above:

• Inhalation of suspended particulates
• Direct incidental ingestion of soils
• Direct gamma radiation from soils
• Ingestion of contaminated plants (residential only)

This BRA satisfies the CERCLA requirement for a detailed analysis of the no-action alternative.

The HHA was performed using data generated for the 2005 USACE RI report and historical data (USACE 2005). The RESidual RADioactivity (RESRAD) computer code version 6.2.1 (ANL 2001) was used to calculate the cancer risks for this HHA. RESRAD calculated the total excess cancer risk (the risk of persons developing cancer as a result of exposure to site contaminants) from MED-like constituents to a range of receptors or site users representing the current and reasonable future site uses of the Mudflats OU over the next 1,000 years. Table 3 summarizes the RME cancer risk from the radium, uranium and thorium in the Mudflats OU. The results of the HHA indicate that the cancer risks for the Mudflats OU are below the acceptable limits established in the NCP of one in one million (1,000,000) to one in ten thousand (10,000) excess incidences of cancer, averaged over a lifetime, for the current and reasonable future uses of the site, as indicated in Table 3.

During the HHA it was determined that a potential ground water pathway as a potential mechanism for exposure was incomplete. Groundwater is not considered a contaminant source of concern in the BRA due to the high dissolved solids, sulfates, and chloride levels, rendering it not of drinking water quality. Additionally residential water in the area is supplied through public water from the Niagara River, a cheap reliable source of potable water. Exposure to surface water is considered not to be a viable pathway because of the shallowness, seasonal, highly turbid nature of what little surface water is present at the Tonawanda Landfill Vicinity Property. Additionally, any surface water present has no recreational value and is unlikely to be used for recreational or other purposes (USACE, 2005).

7.2 Ecological Risk Assessment

The ecological risk assessment did not identify any areas that pose a threat to terrestrial receptors in the Mudflats OU. The terrestrial and wetland areas here are of poor quality and are not currently managed for ecological purposes, nor are there any plans to manage these areas for ecological purposes in the future. These current and future land uses will allow for minimal habitat for ecological receptors and thus minimal exposure to ecological receptors. Further information concerning the ecological risk assessment can be found in the Remedial Investigation Report, Tonawanda Landfill Vicinity Property (USACE 2005).

7.3 Conclusions

The USACE has concluded that the radiological risks, for all media, of MED-like material present at the Mudflats OU, for the current and reasonable future site uses are below the NCP risk limit. Therefore, USACE has determined that no further action is required at the Mudflats OU, for all media, under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980.

8.0 SELECTED REMEDY

The USACE, as lead agency, has determined that no action is necessary in the Mudflats OU to protect public health or welfare or the environment.

9.0 STATUTORY DETERMINATIONS

No CERCLA 121 statutory determinations are necessary for this ROD since USACE has determined that no remedial action is necessary under CERCLA and no remedy is being selected. Although the current and reasonable future use is commercial/industrial, a risk analysis was performed for the more protective residential standard. The results indicated that risks for resident adults and children were within the 10-4 CERCLA risk threshold, and therefore the Corps of Engineers has determined that no 5-year reviews are warranted.

10.0 DOCUMENTATION OF SIGNIFICANT CHANGE

The PP issued for the Tonawanda Landfill Vicinity Property covered both the Town of Tonawanda Landfill and Mudflats properties. Due to the volume and nature of the public response to the Proposed Plan, USACE has split the Tonawanda Landfill Vicinity Property into two separate operable units. This ROD addresses the Mudflats Operable Unit and follows the PP for no action that originally applied to both operable units of the vicinity property.. The landfill portion of the Tonawanda Landfill Vicinity Property will now be the Landfill Operable Unit. The bulk of public comment addresses the landfill operable unit only. This division of operable units will allow USACE to separately evaluate and respond to the public interest in the Landfill OU.

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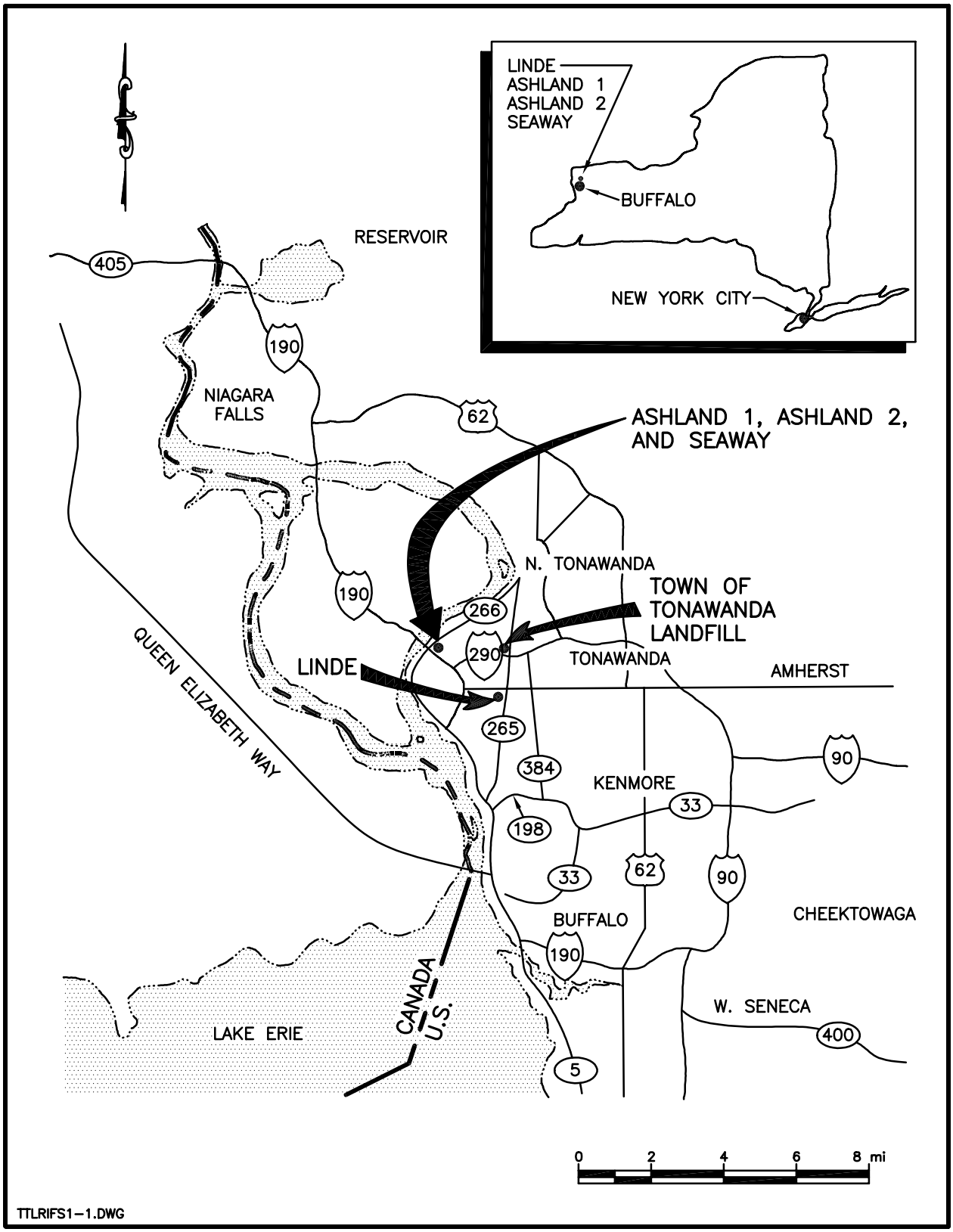
FIGURES

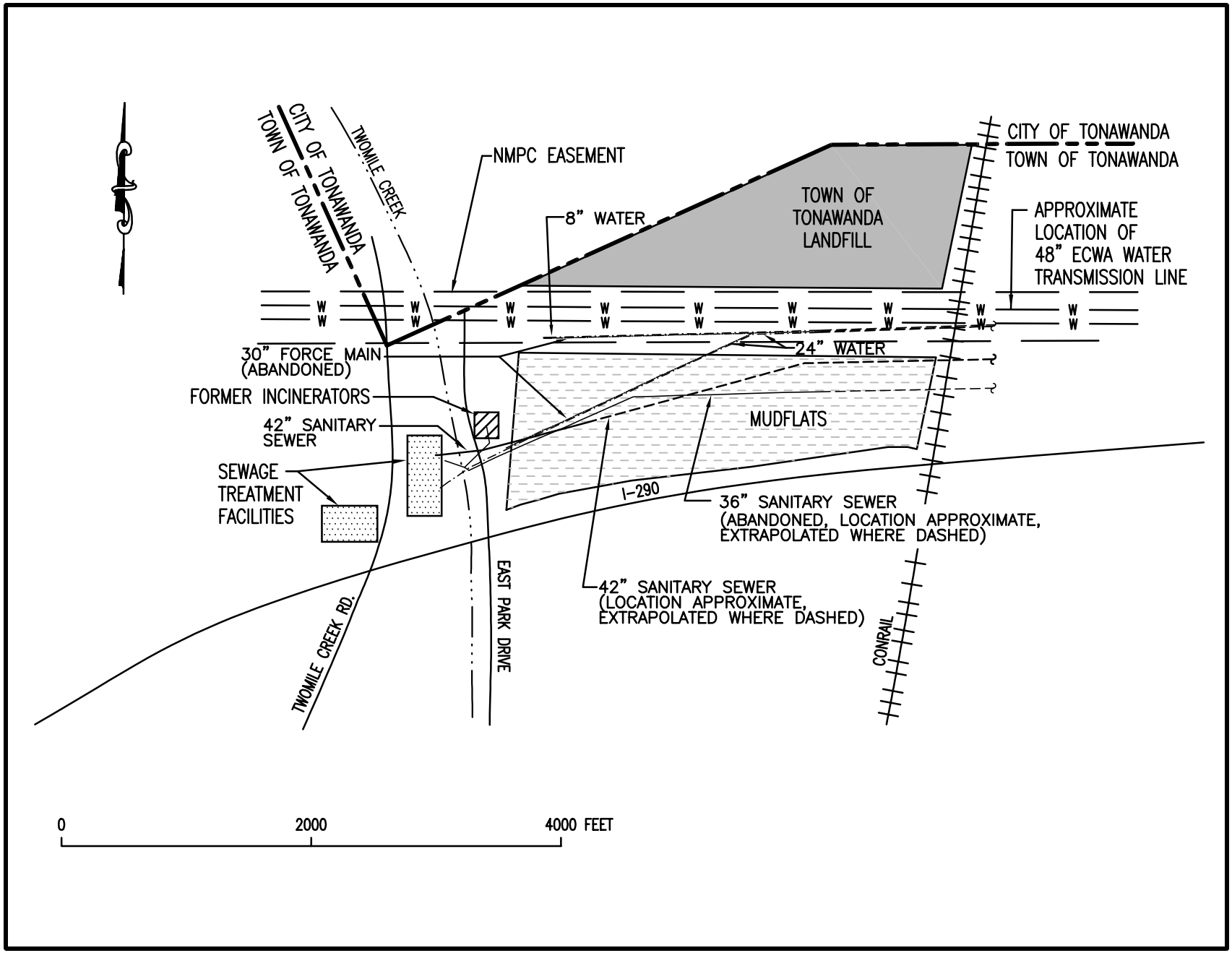
FIGURE 1



Tonawanda_05.09_0001_a

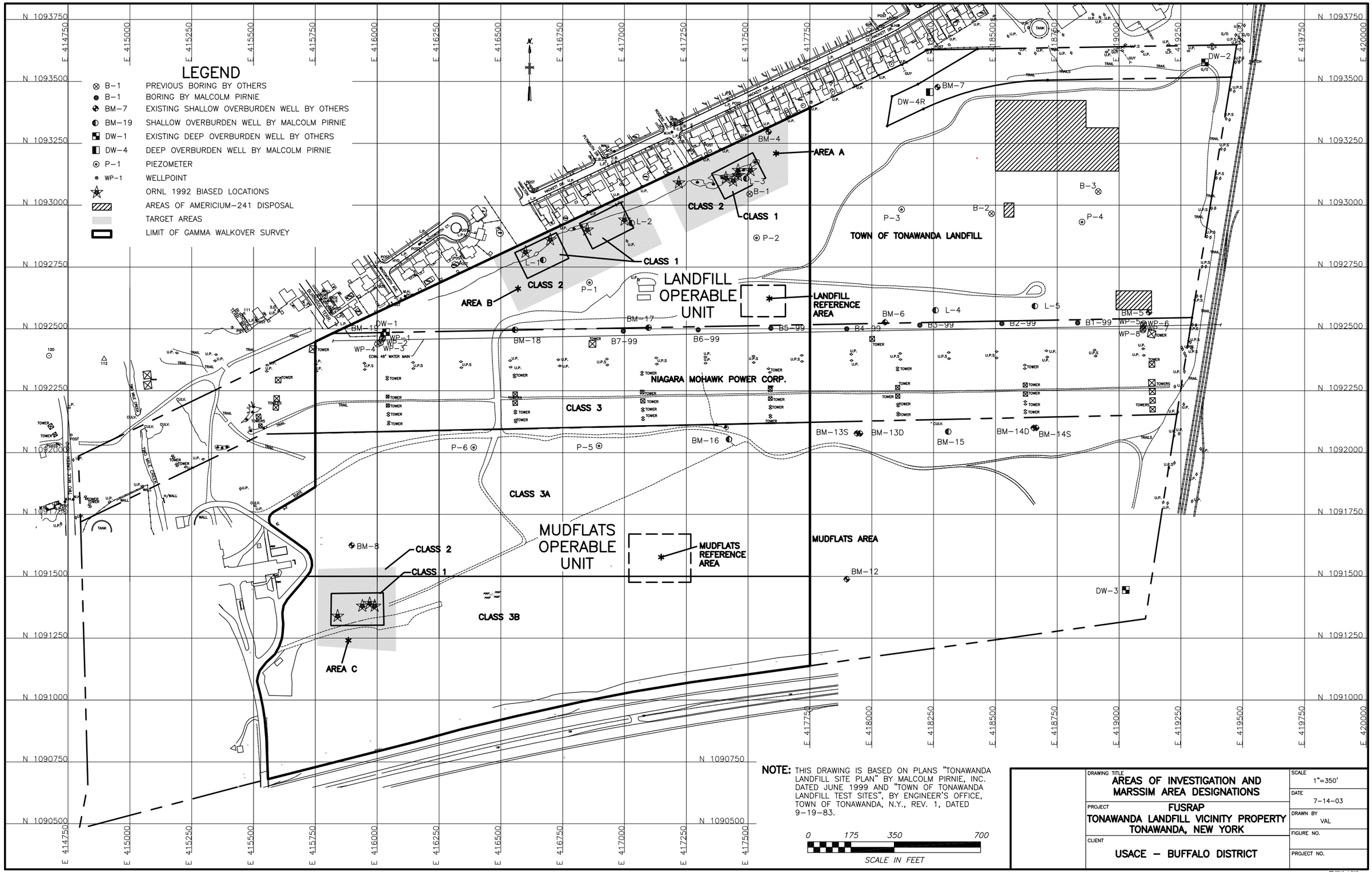
REGIONAL LOCATION OF THE TOWN OF TONAWANDA, NEW YORK AND THE ASHLAND 1, ASHLAND 2, SEAWAY AND LINDE SITES AND TONAWANDA LANDFILL VICINITY PROPERTY

FIGURE 2



TONAWANDA LANDFILL VICINITY PROPERTY APPROXIMATE LOCATIONS

FIGURE 3


LEGEND
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B-1 BORING BY MALCOLM PIRNIE
BM-7 EXISTING SHALLOW OVERBURDEN WELL BY OTHERS
BM-19 SHALLOW OVERBURDEN WELL BY MALCOLM PIRNIE
DW-1 EXISTING DEEP OVERBURDEN WELL BY OTHERS
DW-4 DEEP OVERBURDEN WELL BY MALCOLM PIRNIE
P-1 PIEZOMETER
WP-1 WELLPOINT
ORNL 1992 BIASED LOCATIONS
AREAS OF AMERICIUM-241 DISPOSAL
TARGET AREAS
LIMIT OF GAMMA WALKOVER SURVEY
AREA A
AREA B
AREA C
CLASS 1
CLASS 2
CLASS 3
CLASS 3A
CLASS 3B
LANDFILL OPERABLE UNIT
LANDFILL REFERENCE AREA
MUDFLATS OPERABLE UNIT
MUDFLATS REFERENCE AREA
MUDFLATS AREA
TOWN OF TONAWANDA LANDFILL
NIAGARA MOHAWK POWER CORP.
TWO MILE CREEK
N 1093750
N 1093500
N 1093250
N 1093000
N 1092750
N 1092500
N 1092250
N 1092000
N 1091750
N 1091500
N 1091250
N 1091000
N 1090750
N 1090500
E 414750
E 415000
E 415250
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E 420000
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0 175 350 700
SCALE IN FEET
DRAWING TITLE
AREAS OF INVESTIGATION AND MARSSIM AREA DESIGNATIONS
PROJECT
FUSRAP
TONAWANDA LANDFILL VICINITY PROPERTY
TONAWANDA, NEW YORK
CLIENT
USACE – BUFFALO DISTRICT
SCALE
1"=350'
DATE
7-14-03
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FIGURE NO.
PROJECT NO.
TTLBRA6-1.DWG

FIGURE 4

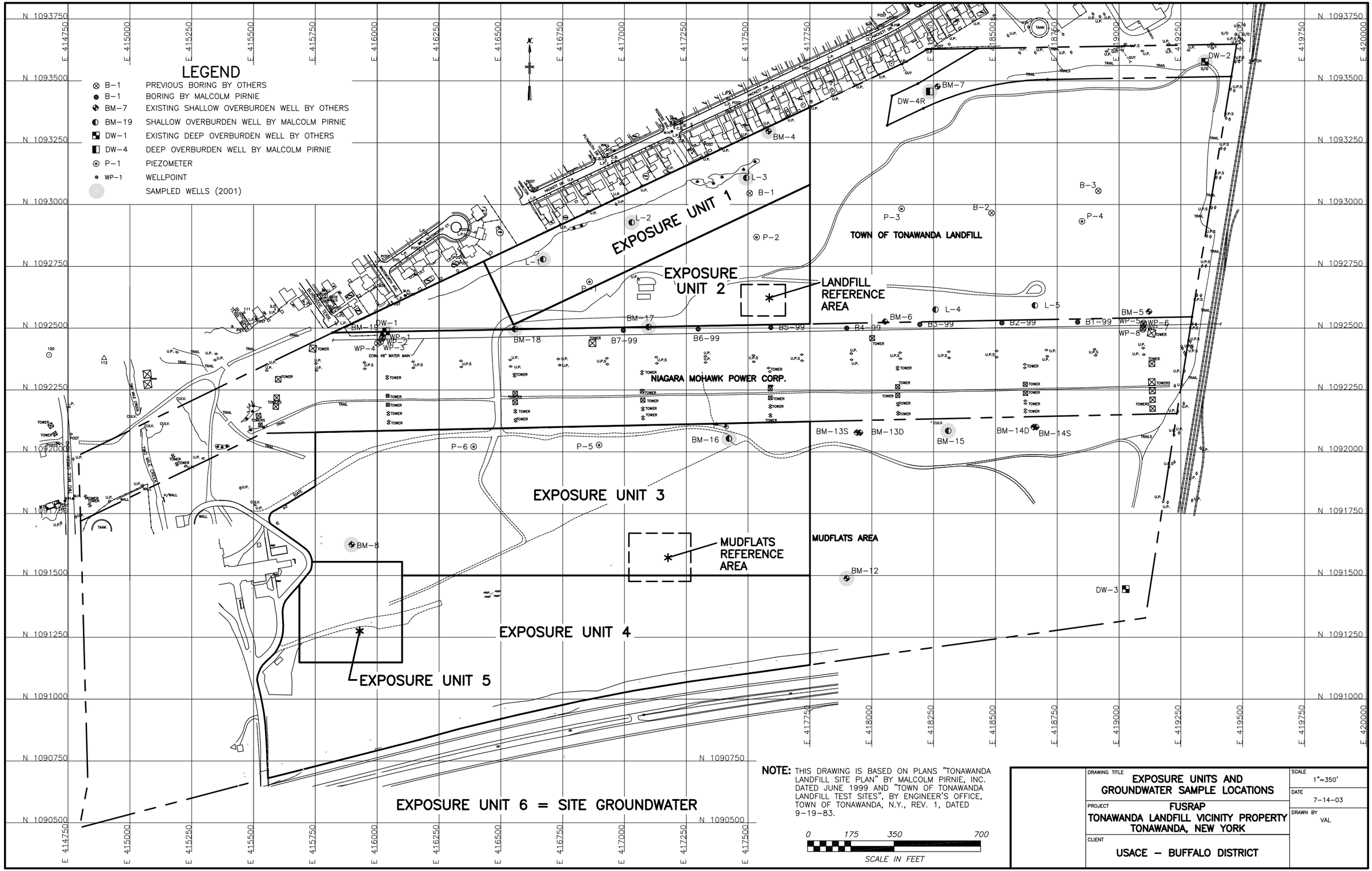
LEGEND
B-1 PREVIOUS BORING BY OTHERS
B-1 BORING BY MALCOLM PIRNIE
BM-7 EXISTING SHALLOW OVERBURDEN WELL BY OTHERS
BM-19 SHALLOW OVERBURDEN WELL BY MALCOLM PIRNIE
DW-1 EXISTING DEEP OVERBURDEN WELL BY OTHERS
DW-4 DEEP OVERBURDEN WELL BY MALCOLM PIRNIE
P-1 PIEZOMETER
WP-1 WELLPOINT
SAMPLED WELLS (2001)
EXPOSURE UNIT 1
EXPOSURE UNIT 2
EXPOSURE UNIT 3
EXPOSURE UNIT 4
EXPOSURE UNIT 5
EXPOSURE UNIT 6 = SITE GROUNDWATER
LANDFILL REFERENCE AREA
MUDFLATS REFERENCE AREA
MUDFLATS AREA
TOWN OF TONAWANDA LANDFILL
NIAGARA MOHAWK POWER CORP.
NOTE: THIS DRAWING IS BASED ON PLANS "TONAWANDA LANDFILL SITE PLAN" BY MALCOLM PIRNIE, INC. DATED JUNE 1999 AND "TOWN OF TONAWANDA LANDFILL TEST SITES", BY ENGINEER'S OFFICE, TOWN OF TONAWANDA, N.Y., REV. 1, DATED 9-19-83.
0 175 350 700
SCALE IN FEET
DRAWING TITLE
EXPOSURE UNITS AND GROUNDWATER SAMPLE LOCATIONS
PROJECT
FUSRAP
TONAWANDA LANDFILL VICINITY PROPERTY
TONAWANDA, NEW YORK
CLIENT
USACE – BUFFALO DISTRICT
SCALE
1"=350'
DATE
7-14-03
DRAWN BY
VAL

Table 1
Results Summary for Mudflats OU
Soil Results

Nuclide	Detections/ Results (1)	Maximum Concentration (pCi/g)	Minimum Concentration (pCi/g)	Mean Concentration (pCi/g)	Standard Deviation (pCi/g)	UCL95 Concentration (pCi/g)
Ra-226	160/162	22.6	0.07	1.01	1.72	1.23
Ra-228	162/162	1.36	0.14	0.72	0.18	0.75
Th-228	161/162	1.42	0.14	0.87	0.22	0.9
Th-230	162/162	31.5	0.34	1.11	2.41	1.42
Th-232	162/162	1.29	0.16	0.85	0.21	0.87
U-234	162/162	29	0.36	1.06	2.23	1.35
U-235	149/162	1.72	0.01	0.11	0.15	0.13
U-238	162/162	27.9	0.39	1.04	2.14	1.32
Am-241 *	6/162	0.47	-0.53	0	0.13	0.02

Notes:
(1) Duplicate sample results were compared to the primary sample results and the greater value for each isotope was used in the calculations.
* Am-241 is not a MED–like material. Its potential presence was evaluated because it was detected in the Landfill OU by DOE in 1984; it was necessary to determine whether this contaminant had migrated to the Mudflats OU. The source of Am-241 was a former local radioactive components manufacturing facility.

pCi/g – picocuries per gram
Ra – Radium
Th – Thorium
U – Uranium
Am – Americium

Table 2
Groundwater Sampling Results
Mudflats Operable Unit – September 2001

UNFILTERED SAMPLES (Total)

Analytes	**Ra-226**	**Ra-228**	**Ra-226 + Ra-228**	**U-234**	**U-235**	**U-238**	**U-234 + U-238**	**U Total**	**Gross Alpha**	**Gross Alpha** (2)	**Th-230**	**Th-232**
Standard (1)	NA	NA	**5**	NA	NA	NA	**30**	**44**	NA	**15**	NA	NA
Units	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	ug/L	pCi/L	pCi/L	pCi/L	pCi/L
WELL												
BM-8	0.2	1.9	2.1	2.5	0.2	2.0	4.5	9.4	5.6	0.9	0.1	0.1
BM-12	1.2	0.7	1.9	4.3	0.3	3.1	7.4	5.7	10.3	2.6	0.1	0.2
BM-15	0.6	0.6	1.2	7.4	0.4	6.0	13.4	14.8	17.1	3.3	0.1	0.2
BM-16	0.4	1.0	1.5	13.2	0.6	9.9	23.1	27.0	25.4	1.7	0.0	0.0

FILTERED SAMPLES (Total)

Analytes	**Ra-226**	**Ra-228**	**Ra-226 + Ra-228**	**U-234**	**U-235**	**U-238**	**U-234 + U-238**	**U Total**	**Gross Alpha**	**Gross Alpha** (2)	**Th-230**	**Th-232**
Standard (1)	NA	NA	**5**	NA	NA	NA	**30**	**44**	NA	**15**	NA	NA
Units	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	pCi/L	ug/L	pCi/L	pCi/L	pCi/L	pCi/L
WELL												
BM-8	0.6	-0.7	-0.1	3.9	0.2	2.4	6.3	7.5	6.9	0.4	0.2	0.0
BM-12	0.7	1.5	2.3	4.2	0.1	2.6	6.8	5.4	4.9	-2.0	0.1	0.0
BM-15	0.6	2.1	2.7	6.3	0.4	5.1	11.4	15.4	11.1	-0.7	0.1	0.0
BM-16	0.4	-0.1	0.4	13.3	0.9	9.6	22.9	27.0	19.7	-4.1	0.1	0.0

Notes:
(1) The Standard is the groundwater standard of 40 CFR Part 192 Subpart A.
(2) Excluding radon and uranium. (Radon purged from sample as part of analytical method)
Where results are reported by the laboratory as undetected, the detection limit is reported as a result in this table.

All concentrations are net concentrations, determined by subtracting the average normalized background value from the gross laboratory result. This protocol has resulted in negative concentrations is some instances.

Table 3
Reasonable Maximum Exposure Cancer Risk Summary for Mudflats OU Exposure Units

		Current	Future			Additional
Exposure Unit		**Recreational**	**Recreational**	**Contruction Worker**	**Industrial Worker**	**Residential**
3	Surface[a]	0	0	0	0	
	Subsurface	NA	NA	2.E-07	8.E-06	2.E-05
4	Surface	6.E-07	6.E-07	1.E-07	6.E-06	8.E-06
	Subsurface	NA	NA	4.E-07	2.E-05	3.E-05
5	Surface	1.E-06	1.E-06	2.E-07	9.E-06	2.E-05
	Subsurface	NA	NA	1.E-06	5.E-05	1.E-04

Values reported in the Table reflect maximum risk between year 0 (current) and year 1000 (future)
NA = Not analyzed. The exposure scenario does not include this depth interval.

a. No radionuclides were detected above the background UTL in the surface of EU 3 (Mudflat reference area)

APPENDIX A

MUDFLATS OPERABLE UNIT RESPONSIVENESS SUMMARY

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1. INTRODUCTION

On March 26, 2007, the United States Army Corps of Engineers (USACE) issued a Proposed Plan (PP) for the Tonawanda Landfill Vicinity Property in Erie County, New York. A public meeting was held April 25, 2007, during which the USACE presented background information and its recommendation for no action at the site. During the meeting, the public was invited to submit comments and written comments were accepted until October 15th 2007. This Responsiveness Summary addresses the comments that pertain to the Mudflats Operable Unit received from the public during the public meeting and the comment period.

As described in the Proposed Plan, the Selected Remedy for the Mudflats OU is no action. USACE conducted a Remedial Investigation (RI) and a Baseline Risk Assessment (BRA) of the Tonawanda Landfill Vicinity Property in 2001. This effort was in addition to previous investigations by the Department of Energy (DOE) and Oak Ridge National Laboratory (ORNL) in the early 1990's. The Proposed Plan explains USACE's position that a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) response action is not warranted for any media (soil, groundwater, and surface water) in the vicinity of the Mudflats OU that contain low concentrations of radionuclides similar to Manhattan Engineer District (MED) materials found at the Linde Site. The results of the BRA indicate that no further action is required, as the MED-like materials at the Mudflats OU do not pose a cancer risk above the threshold presented in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) found at 40 C.F.R Part 300. The NCP provides the guidelines and procedures needed to respond to releases of hazardous substances under CERCLA.

2. OVERVIEW OF PUBLIC INVOLVEMENT

On March 26, 2007, a press statement announcing the release of the Proposed Plan for Remediation of the Tonawanda Landfill Vicinity Property was released to the public. Display advertisements announcing the availability of the Proposed Plan for public review and comment, and the date and location of the April 25, 2007, public meeting were placed in local newspapers.

The public meeting was held April 25, 2007, from 7:00 to 9:00 p.m. at the Tonawanda High School Auditorium, Hinds Street, Tonawanda New York. Prior to the meeting, representatives of the USACE were present to discuss any comments or concerns from members of the general public, and these discussions continued after the formal public meeting ended. At the meeting, USACE explained the history of the site, studies and completed investigations, CERCLA evaluation criteria, and the decision of no action. A stenographer was present at the meeting to Although nineteen public officials and members of the public requested and made oral comments, only three were specifically in regards to the Mudflats OU. Comments received at the public meeting and written comments received during the public comment period are responded to in this Responsiveness Summary. The meeting transcript is included as Attachment 1.

The initial public comment period was extended from the usual 30 days to 90 days starting on March 26, 2007 and ending June 26, 2007. On June 7, 2007 the comment period was extended an additional 30 days to July 24, 2007 due to requests from public officials and members of the public for additional time. On July 13, 2007 the comment period was extended another 30 days to August 23, 2007. The USACE granted an additional extension on August 14, 2007 for 21 days

to September 13, 2007 and then another extension on September 12, 2007 for 32 days to end the comment period on October 15, 2007. The total time for comments was 203 days.

3. RESPONSES TO COMMENTS

At the public meeting conducted on April 25, 2007, 19 individuals provided comments on the PP. Only three comments were specific to the Mudflats OU. Responses to these comments are provided below. The transcript of the public meeting is provided at the end of this Appendix, for reference. The comments made in reference to the Landfill OU will be responded to in a separate Responsiveness Summary.

Twenty two written comments were received throughout the comment period from State agencies, Federal and local public officials and area residents. However, none were specific to the Mudflats OU. The twenty two comments that address the Landfill OU will be responded to in a separate Responsiveness Summary.

3.1 Responses to Comments, Public Meeting

3.1.1 [redacted] (meeting transcript, page 57)

Comment: Nobody has addressed the flats. The flats were created by Schwab Brothers to fill the land from Delaware Avenue to Niagara Falls Boulevard. Evidently they didn't get all the nuclear waste out of there. So we got a nuclear highway from Delaware to the Falls Boulevard. Why isn't that addressed?

Response: The mudflats were evaluated for the presence of possible MED-like waste in both the 1991 DOE investigation and the 2001 USACE remedial investigation. The results of the USACE investigation indicate that construction (sewer pipe) activities and the use of the Mudflats for storage of debris/soil has significantly moved soils within the Mudflats OU. Because our authority under FUSRAP is limited to addressing the Landfill and Mudflats, and not off-site properties associated with road construction, we have limited our sampling to only the Landfill and Mudflats. The risks posed by the current level of contamination found by USACE in the Mudflats OU are all below levels deemed acceptable by the NCP, and so no further action is warranted to address the Mudflats OU.

3.1.2 [redacted] (meeting transcript, page 65)

Comment: Also, on the slides this evening, industrial residential use is listed in the mudflats area, and the industrial redevelopment of the mudflats it's anywhere on 40 hours but no more than 6.6 years, so I'm sure as any of our careers would go, I'm sure someone wouldn't want to work for a job 6.6 years and then have to be let go based upon contamination. The reason I'm focusing on that part of the slide is, you're dealing with homeowners that live here 24/7. If you clearly have notated that in a mudflat area which is not that far off the property as well as the capped closure landfill that there's limited time frames there, it really doesn't have conclusive meat and potatoes in regards to what we deal with on a 24 hour basis.

Response: The exposure duration for time spent with one employer in the Mudflat OU risk assessment (6.6 years) is an average value recommended by the EPA. However, it is also appropriate to use a reasonable maximum exposure duration, which would be 25 years, as recommended by the EPA. Therefore, for the industrial worker risk assessment in the Mudflats,

the exposure duration should be revised to 25 years instead of 6.6, consistent with USEPA guidance for conducting risk assessments (1997 Exposure Factors Handbook). Increasing the exposure duration from 6.6 to 25 years increases the projected hypothetical cancer risk for the industrial worker in the Mudflats from a maximum of approximately 1 in one hundred thousand for EU 5, subsurface soils, to approximately five in one hundred thousand. This revised cancer risk is still below the acceptable cancer risk limit established by the EPA in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (of up to 1 in ten thousand), so no further action is necessary to protect human health under future use of the Mudflats for industrial or commercial use. In addition, other comments were made on the Proposed Plan which questioned some of the exposure assumptions used for the risk assessment for the Landfill (please see the table at the end of the responsiveness summary). Based on those comments, we believe it is also appropriate to revise the risks for two of the other receptors on the Mudflats. The exposure duration for the recreational user or trespasser was increased from 30 years to 42 years, commensurate with the length of time that a resident might own a home in the neighborhood, and the amount of time spent outdoors on the Mudflats was increased from 2 hours per week to 2 hours per day for a youth. While residential use of the Mudflats is not a likely future land use, residential exposure directly on the Mudflats was modeled by increasing the exposure duration from 30 to 42 years, and these risks are still within the acceptable excess cancer risks as established by the EPA in the NCP.

3.1.3 [redacted] (meeting transcript, page 85)

Comment: The question I have is, when you took your boring samples, I believe you were over what they call the flats. The area where in 1959 and in the early 60s where they hauled all the dirt off to build the 290. They probably took, and I don't know for sure but I'm going to say maybe anywhere around nine to 15 foot of soil out of there. You're sampling right now the land that is missing 15 foot of soil, that you took the soil and dragged down the 290. We just don't know whereabouts on the 290 that soil would all be from the top where uranium would be. But what really bothers me is, was there at one time uranium there? I don't think your soil tests today would show that there was any there unless through ground seepage.

Response: The mudflats were evaluated for the presence of possible MED-like waste in both the 1991 DOE investigation and the 2001 USACE remedial investigation. Because our authority under FUSRAP is limited to addressing the Landfill and Mudflats, and not off-site properties associated with road construction, we have limited our sampling to only the Landfill and Mudflats. The results of the USACE investigation indicate that construction (sewer pipe) activities and the use of the Mudflats for storage of debris/soil has significantly moved soils within the Mudflats OU. The risks posed by the current level of contamination found by the USACE in the Mudflats OU are all below levels deemed acceptable by the NCP, and so no further action is warranted to address the Mudflats OU.

3.1.4 Comments on the Proposed Plan that Affect the Risk Assessment

Several comments were received by local persons, which indicated that the exposure durations for both residents and recreational users should be longer than those used in the human health risk assessment. USACE has carefully considered these comments and has lengthened the exposure times in a revised risk assessment as expressed in the following table of questions and responses pertaining to the issue.

COMMENTER/ AFFILIATION	COMMENT	PROPOSED RESPONSE
Resident, [redacted] (Comment submitted in writing on USACE supplied comment form)	"My family and I have lived in Tonawanda for the past 36 ½ years."	These 3 comments by residents neighboring the landfill indicate that one of the exposure assessment parameter values used for the baseline risk assessment, that of exposure duration (or residence time in one location), could be made more site-specific. A value of 30 years was used in the risk assessment supporting the PP, as recommended by EPA guidance (USEPA 1997, Exposures Factor Handbook, Table 1-2, Summary of Exposure Factor Recommendations). It is the upper 95th percentile for residence time in one home, based on surveys of the population of the United States of America. In response to these comments, the USACE Buffalo District examined the dates of deeds or years the houses were built in the neighborhood of the Tonawanda Landfill. (These are publically available documents.) We identified 300 homes in the immediate vicinity of the landfill. In this neighborhood, 64 households have owned their homes for over 30 years. The upper 90th percentile of time in one home in that neighborhood is 42 years. Therefore, in the baseline risk assessment for the Mudflats, we have increased the exposure duration from 30 years to 42 years as the time at one residence for the recreational user of the Mudflats operable unit, as well as for the hypothetical residential exposure scenario. Choosing an upper 90th percentile value of this site-specific data set is consistent with EPA guidance concerning choice of reasonable maximum exposure values for the baseline risk assessment. In addition to increasing the total length of time that a recreational or residential user of the Mudflats is assumed to have potential exposures at the site (from 30 years to 42 years), the amount of time that a recreational visitor might spend on the site on a weekly or daily basis (exposure frequency) has also been increased, according to the next set of comments, below. In summary, the recreational site user is assumed to have a total of 42 years of potential exposure to the site, comprised of 12 years of more intense exposure (i.e., akin to how a child or youth might be exposed) at 2 hours per day, plus 30 years at approximately 2 hours per week. These changes in the exposure duration and exposure frequency are reflected in the cancer risk summary presented in Table 3 of the Mudflats ROD. Risks for all receptors in the Mudflats are still within the acceptable excess cancer risks as established by the EPA in the NCP.
Resident, [redacted] t submitted in writing on USACE supplied comment form)	"Lived and owned [redacted] since 1956 – 2003 (47 years)."	
Resident, [redacted] Meeting transcript, p. 58 – 59)	"My name is [redacted]. Since 1962 I've been on Hackett… I can tell you everybody that died of cancer on our street, 65 homes, 65 homes. Now we're lucky we got approximately 18 original owners still there."	

[redacted], Tonawanda Schools board of education / resident / CURE member	"In your proposed plan you speak, a range of recreational exposures to the landfill was considered from two hours per day for six months a year, for a six year-old juvenile, to 15 minutes per weekday, plus 23 minutes per weekend day for 30 year-old adults. Gentlemen, ladies, we have people in Riverview Elementary School which has not been mentioned tonight at all. We have children in that school at 8:30 in the morning for breakfast. Our extended day program goes to 4:15. The school is officially open to 9:00 o'clock for different activities for our children. That exceeds what you people are saying is safe. What are you thinking? You haven't thought far enough. You need to go back and do further risk assessment. We are talking about 250 school children that are in there every day, Monday through Friday, for that many hours. They're there for their extracurricular after school, from the high school, so you're also attracting other students from other parts of our city to that school. Cheerleaders, soccer players."	We agree that it is reasonable and plausible that school children may spend more time traversing the Landfill and Mudflats than what was assumed in the original risk assessment. In response to these comments, as well as comments from NYSDEC, NYSDOH, and others on the Landfill Operable Unit, USACE proposes to re-evaluate the recreational user on the Mudflats by increasing the exposure frequency to 2 hours per day, every day, year round, for the portion of the total exposure duration (42 years in one residence) that might be occupied as a child (12 years as a child/youth). This is consistent with more recent EPA guidance on child-specific exposure factors recommended for use in baseline risk assessments (USEPA 2002, Child-specific Exposure Factors Handbook, Table 9-62, Recommended values for activity patterns, mean total time outdoors for ages 6 - 17). As discussed in Section 6.5.4.2 of the 2005 RIR (baseline risk assessment: uncertainty in the exposure assessment), this exposure frequency value should encompass a more reasonable maximum exposure frequency for a juvenile receptor. These changes in the exposure duration and exposure frequency are reflected in the cancer risk summary presented in Table 3 of the Mudflats ROD. Risks for all receptors in the Mudflats are still within the acceptable excess cancer risks as established by the EPA in the NCP.
Tonawanda School Superintendent, Dr. Barbara Peters	"My concern is obviously for the children in the school area. When I read the report and saw how many minutes safely we could stay if the landfill is not re-mediated, the concern immediately was for the school area, not understanding how far away -- if you come to the school you can actually see the landfill from the school site. There's a playground immediately adjacent to the school. We have 250 children that walk to and from school. They don't understand when we say, stay away from something. Children are adventurous. And for the most part they love to play. And we can see them even now, even though there are fences, they climb and they move. And 15 minutes to them is nothing. They do not understand staying away from things that may be dangerous; to them it's fun, and they see themselves as infallible, and it really frightens me to think that there could be some area where they're supposed to be staying for less than 15 minutes a day, but to them, they're not going to get hurt. That's a very serious concern of mine."	

PUBLIC MEETING TRANSCRIPT

US. ARMY CORPS OF ENGINEERS
Buffalo District
1776 Niagara Street
Buffalo, New York 14207-3199

In the Matter of: Public Meeting on
The Tonawanda Landfill Vicinity Property
Proposed Plan.

April 25, 2007

Transcript of proceedings held in the above-entitled matter at The Tonawanda High School Auditorium, Hinds Street Tonawanda, New York on Wednesday, April 25, 2007 commencing at 7:00 p.m. pursuant to notice.

PRESENTATION BY: LIEUTENANT COLONEL JOHN S. HURLEY
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P R O C E E D I N G

[redacted]: Good evening and welcome to this public comment meeting regarding the proposed plan for the Tonawanda Landfill vicinity property. My name is [redacted] and I am the Commander of the Buffalo District, United States Army Corps of Engineers.

The Buffalo District has been investigating the Tonawanda Landfill under the Formerly Utilized Sites Remedial Action Program or FUSRAP, and we are here to present our findings and our recommendation on what action needs to be taken for this site.

I would like to take a minute before we begin to acknowledge several key stakeholders who have been involved with the investigation at the site. First, and most importantly, the local residents who live near and next to the Tonawanda Landfill, the concerned parents, faculty and staff from Riverview Elementary School, the representatives from the Cleanup Riverview's Environment, representatives from a Clean Tonawanda Site,

the Honorable Charles Schumer, the Honorable Hillary Clinton, the Honorable Louise Slaughter, represented tonight by Ms. Kathy Lenihan, the Honorable Antoine Thompson, the Honorable Mary Lou Rath, the Honorable Robin Schimminger, represented tonight by Ms. Terry Wegler, Ms. Michelle Iannello, Mr. Carl Zeisz, Mr. Ron Pilozzi, Mr. Ron Moline, Mr. John Camilleri, Mr. Rick Davis, Mr. Michael Raab, Mr. Paul Kranz, Mr. Drew Eszak and Mr. Tom Hersen from the Erie County Department of Environment and Planning, Ms. Abby Snyder from the New York State Department of Environmental Conservation, Mr. Dan David, Mr. Dennis Weiss and Mr. Mark Hans, all from the New York State Department of Environmental Conservation Region 9, Mr. John Mitchell from the Department of Environmental Conservation Radiation Program in Albany, and Mr. Steven Gavitt, Director of the Bureau of Environmental Radiation Protection and Mr. Robin Snyder from the New York State Department of Health.

I would also like to take a moment to recognize a member of the Corps of Engineers

team that has been working on this, Mr. Jim Karsten, our FUSRAP program coordinator. Jim. Jim is in the back. Mr. Steve Buechi, our Project Manager for the Tonawanda Landfill. Steve. Ms. Joan Morrissey, our community outreach specialist. She's also in the back. Mr. Steve Buske, our health physicist sitting up front. Ms. Karen Kyle, our risk assessor. Karen is in the back as well. And Mr. Bruce Sanders, our Public Affairs Officer.

Our purpose here tonight is twofold. First we want to present the proposed plan for the Tonawanda Landfill vicinity property. The proposed plan describes the Corps' recommendation to address the FUSRAP portion of the Tonawanda Landfill. That is, this proposal addresses only those materials associated with the early atomic energy program.

Second, we want to obtain your input on the proposed plan, which we factored into the final decision of action at the Tonawanda Landfill.

We will record your comments for the

record and we will prepare formal written responses to each of these comments after the close of the public comment period on June 26th. I would ask you to save your comments until the end of the presentation so that they may be accurately recorded.

We understand that there are many concerns regarding the Tonawanda Landfill and not all of them are related to FUSRAP. For example, I know there are concerns with the odor issues and with the final design of the landfill cap, and while we will not be able to address all of these concerns tonight, we will continue to work with the other agencies and local elected officials to make sure those concerns are properly addressed. We have a fact sheet available tonight that was jointly prepared by the Corps, the Town of Tonawanda, the New York State Department of Environmental Conservation and the New York State Department of Health which describes the area's involvement of each of these agencies has for the landfill.

Here is the agenda for our meeting tonight. I will continue with the

introduction, after which I will turn the presentation over to our Project Manager, Mr. Steve Buechi. Mr. Buechi will then give some background information on the site, describe the results of the investigation conducted and the risk assessment we developed, and then present the proposed plan for addressing the FUSRAP portion of the site.

We will then open up the floor to record any comments you have regarding the proposed plan and what you have heard tonight.

As I mentioned earlier FUSRAP stands for the Formerly Utilized Sites Remedial Action Program and it is a Federal program whose mission is to investigate and if necessary clean up sites that were contaminated by past activities of the Federal government related to the nation's early atomic energy programs. While executing that mission, our number one priority is to insure protection of human health and the environment. As I mentioned in my letters to the editors of several local papers, I take this responsibility seriously and I am completely dedicated to this mission.

We are also required by law to comply with the Comprehensive Environmental Response, Compensation and Liability Act, or CERCLA in executing our mission. CERCLA is a Federal law that governs the process we must follow in investigating and cleaning up sites. I will discuss CERCLA in a little more detail in a minute.

The Buffalo District is charged with managing 14 FUSRAP sites so we are well experienced with these types of investigations. We have successfully cleaned up and completed three sites since 1997 when the program was first transferred to the Corps of Engineers. We have an excellent safety record with respect to the workers on the job and the surrounding community. We use an experienced multidisciplinary team including environment engineers, health physicists, risk assessors, chemists and construction managers.

The reports and plans we prepare go through an extensive technical review process including review by our National Center of Expertise and others within the industry. We

work with and provide information to the State regulatory agencies and local stakeholders. And last, but certainly not least, we provide information to and make our investigation reports available to the public.

As I mentioned earlier, we follow CERCLA. CERCLA is essentially a framework that allows us to address hazardous waste sites. It insures that we take a rational, methodical approach when we study, investigate and where necessary remediate sites. It also insures that we have transparency in our work and allows for maximum public comment. The slide outlines the steps in the site investigation and cleanup process that we are required to follow.

When management of this site was transferred to us from the Department of Energy it was essentially in the site inspection phase. The Corps proceeded forward with completing a remedial investigation of the site which determined the nature and extent of potential FUSRAP contamination and evaluated the health risks

to people using the site now and in the future.

We are here tonight to present the proposed plan which describes the Corps' recommendation for addressing the uranium, radium and thorium found at the site. There is a 90-day public review and comment period for the proposed plan during which the public may submit any comments on the plan to the Corps of Engineers. The public comment period ends on June 26th.

Following the public review of the proposed plan we will evaluate and respond to all comments received and then prepare the record of decision which formally documents the final decision on FUSRAP activities at the site. Next.

I want to emphasize that public input during the formal comment period is very important. This is your chance to make your opinions on the project and the proposed plan known and have them recorded in the public record. You also have the opportunity to send us written comments on the proposed plan. We openly welcome and solicit such

comments.

I also want to emphasize that the proposed plan is not a final decision on the FUSRAP action at the site. It is the Corps' recommendation based upon our investigations of the site. While many of you are focusing on the word plan, for me the most important part is proposed. This proposal can change. A final decision on the site will not be made until after all the public comments have been considered and responded to.

Finally, I would just suggest to everyone that when you submit your comments, please make them as specific as possible. For example, if you have comments regarding our risk assessment, let us know exactly what your concerns are or what additional information you think we need to incorporate.

If you think our assumptions are flawed, let us know. If you think our methodology was incorrect, let us know why and how we can improve it. Viewpoints and opinions are important. However, specific concerns and information will result in a more effective comment evaluation period and ultimately a

more accurate decision.

I will now turn the presentation over to our Project Manager, Mr. Steve Buechi. I just would ask everyone again to please allow us to finish our presentation. Save your comments until the end and then we can record them. Thank you.

MR. BUECHI: Thank you, sir. I'm going to start off my portion of the presentation tonight with a little bit on the site history of the Tonawanda Landfill. This image here, as you can see, is an aerial photo of the site from 1942 and it looks a little different than the way it looks today.

The Tonawanda Landfill consists actually of two parcels of property that we have investigated, one being the Town of Tonawanda Landfill itself, and the second being the mudflats area, which is a parcel of property south of the landfill.

The Town of Tonawanda Landfill was operated as a municipal landfill by the Town of Tonawanda from the 1930's to 1989 and accepted a variety of material including ash generated by the Town's incinerators,

construction demolition debris, some yard refuse, and occasionally some small amounts of municipal waste and wastewater sludge when the Town's incinerators were temporarily inoperable.

The mudflats area, on the other hand, has essentially been a vacant piece of property over the years, with the exception of former Town incinerators which had been located on the western edge of the mudflats but have since been inactivated and demolished.

This slide just shows a more recent aerial photo. You can see now where the residential development of the City of Tonawanda has filled in along the northern edge of the landfill. You can see down the middle separating the mudflats and the landfill is now a Niagara Mohawk Power Company right of way with transmission lines, and with the mudflats area south of the Niagara Mohawk right of way.

As far as FUSRAP investigations at the landfill, they started in the early 1990's when actually the Department of Energy, who was executing the FUSRAP program before the

Corps of Engineers, conducted some preliminary investigations of the site as part of investigations at the nearby Linde FUSRAP site. And during those investigations they found some isolated locations within the landfill that contained uranium, radium and thorium which are three radioactive elements that are typically detected at FUSRAP sites that have been investigated.

Based on these preliminary investigations, the Department of Energy designated the Tonawanda Landfill and mudflats properties into FUSRAP in 1992 for further investigation.

In 1997 FUSRAP was transferred from the Department of Energy to the Corps of Engineers and the Buffalo District assumed responsibility for continuing the investigations at the Tonawanda Landfill.

Our first step in 1999 was to complete a document that had actually been started by the Department of Energy before the program was transferred, and that was a radiological health assessment based on the data that had previously been collected by the Department

of Energy. This radiological health assessment looked at risks to human health to anyone coming onto the landfill or mudflats area, and that preliminary health assessment concluded the risks to human health were within the established U.S. EPA limits.

In 2001, in order to build on some of the information that the Department of Energy had collected previously, the Corps conducted additional sampling at the site as part of a remedial investigation to determine the extent of the material found previously by the Department of Energy.

The remedial investigation report was released to the public in 2006 and this included the results of the sampling conducted by the Corps of Engineers as well as a full baseline risk assessment incorporating both the data collected previously by the Department of Energy and the additional data collected by the Corps of Engineers.

Before I talk on the results of our remedial investigation I just wanted to take a minute to describe some of the rationale

that went into how we conducted the investigations at the landfill, and the key thing is that, even though the landfill is an inactive landfill and has been inactive since 1989, we considered the presence of the residents as adjacent to the landfill and the indications that we had seen that some residents or other people in the vicinity of the site were coming onto the landfill and mudflats area for recreational type purposes.

We, in order to look at the potential risks to people coming onto the site, we conducted walkover surveys and collected additional sampling around the areas that had previously been identified by the Department of Energy as containing uranium, radium and thorium, to insure that those materials were not spread out over large areas of the site.

We also collected samples all along the residential fence line to look for any indication that material on the landfill was extending or migrating off the landfill onto the adjacent residents -- onto the neighboring properties.

And in our baseline risk assessment we

looked at the potential human health risks to anyone coming onto the landfill or mudflats as those, as people coming onto the landfill would be the users with the highest potential risk at the landfill.

We provided information to the public through public information meetings both before and after our 2001 sampling, and we also provided communications to the nearby residents before our sampling regarding our upcoming sampling activities and providing the opportunity to meet one on one with Corps personnel before the sampling to answer any questions.

The sampling conducted at the landfill and mudflats by the Department of Energy and the Corps of Engineers was extensive and that a total of 600 samples were collected from 202 locations in the landfill and 117 locations in the mudflats, including 23 samples directly on the fence line separating the landfill from the adjacent properties.

We also collected groundwater samples from 14 wells located in and around the landfill and mudflats, and all these samples

were analyzed for the three radioactive elements I mentioned earlier, the uranium, radium and thorium, which are found typically -- have typically been found at FUSRAP sites in the past, including the Linde site.

Talk a little bit about the results from our sampling, because I mentioned before we collected groundwater samples from 14 wells at the site. All the wells around the perimeter of the landfill were within the Federal drinking water limits for the uranium, radium and thorium that we were looking for, including the wells closest to the residential area.

Of the wells sampled, only one well which is located in the interior of the landfill adjacent to where the Department of Energy had previously found their highest levels of uranium, radium and thorium at the site, exceeded the Federal drinking water limit for uranium. However, groundwater at the site and in the area is not a public water source as public water is drawn from the Niagara River, and there are no private wells within three miles of the site.

Twelve sampling results in the landfill and mudflats, also samples collected within 50 feet of the property boundary on the north, had results at normal background levels for the area. In the landfill out of the 202 sample locations 40 locations had results above the normal background levels. However, the majority of those locations were just slightly above background.

In the mudflats area, out of 117 sample locations, only two locations had results slightly above the normal background levels. This map shows all the locations where soil samples were collected in the Tonawanda Landfill. I'd just point out that the dots on the map are made larger for visual purposes. However, each sample represents a single soil coring location, and those soil cores are typically about four inches in diameter.

All the green sample locations were the samples that had results at normal background levels for uranium, radium and thorium. The yellow sample locations had levels above normal background levels. The highest

concentrations were found at a location about 150 feet away from the residential fence line. This is a similar map for the mudflats area and as you can see, all the samples in the mudflats area except two were at normal background levels for the area. Again, the yellow samples are, the soil is above background levels, and the green are at normal background levels. You can also see on the northern edge the two blue triangles which were groundwater wells sampled at the mudflats.

I'd like to take a few moments to talk a little bit about risk assessment because that is an important part of the CERCLA investigation process that we follow in investigating these sites.

The first question you might be wondering is, why do we do a risk assessment at these sites? Well, the first reason is that risk assessments are a mandated part of the CERCLA process and it's mandated by a Federal regulation called the National Oil and Hazardous Substances Pollution Contingency Plan, or the National Contingency Plan for

short.

But really the purpose of the risk assessment is, it is used to determine if some sort of action is required to protect human health and the environment based on the level of risk or health hazard at a particular site. And as a contingency plan sets risk limits that if exceeded require that action be taken at the site to protect human health and the environment. The risk in the NCP is expressed as an added chance for someone to contract cancer from a hazardous substance over and above the normal lifetime chance of contracting cancer as documented by the American Cancer Society.

The risk limit that is established in the National Contingency Plan is one additional incidence of cancer in a population of 10,000 people or basically an additional one in 10,000 chance of contracting cancer from a hazardous substance over and above the normal average lifetime chance of contracting cancer.

So how do we determine risk? The risk from a certain substance is based on the

toxicity of the substance and the level of exposure to that substance. The toxicity is a measure of how harmful a particular substance is. And the US Environmental Protections Agency through research has developed toxicity numbers for various hazardous substances and they publish that information and provide it for use in risk assessments on these types of sites. Exposure is a measure of how much of a particular substance someone may come into contact with. The US Environmental Protection Agency has developed a methodology that is used to calculate exposure levels based on site information and sampling data.

To follow up a little bit on exposure, basically three things that determine a person's level of exposure to a certain substance.

The first is a pathway, or how someone comes in contact with a hazardous substance. In order for an exposure and a risk to occur, there must be some way to come in contact with that hazardous substance. If there is no pathway or no way for someone to contact

the substance then there is no risk from it.

The second item is concentration, or basically how much of a substance someone could possibly come into contact with. That's based primarily on the sampling data that is collected at these sites. The lower the concentration or amount of hazardous substance the lower the level of exposure and the lower the risk.

Finally, a combination of terms, are frequency and duration, and that basically is how often and how long and how long a duration someone is exposed to or comes in contact with that hazardous substance. Again, similar to concentration, the lower the frequency or duration, the lower the level of exposure and the lower the risk to someone.

When we calculate the level of exposure we're required to look at a reasonable maximum exposure, using as much site specific information as possible. And that includes sampling data, information on the site conditions and information on the current and possible future uses of a particular site.

At the landfill the pathways that we examined include three main pathways that someone could come into contact with hazardous material at the landfill. The first is eating contaminated dirt, ingestion. It is typically an accidental ingestion that occurs while someone is doing other activities on the site. And this requires direct contact with the contaminated soil, so you have to be on the landfill or on a particular site in order to come into contact to cause an ingestion pathway to be completed.

The second pathway is breathing in contaminated dust. Potentially contamination that is in the surface soils at a site could become airborne and be breathed in by someone on the site.

At the Tonawanda Landfill in the areas where we found the uranium, radium and thorium, the heavy vegetation limits the potential for soil to become airborne which limits the potential for exposure to contaminated dust and definitely limits the potential for any contaminated dust to move

off of the landfill property. And also, the majority of the radioactive elements, the uranium, radium and thorium, were found at the site, not in the surface soils but below the surface soils, at a one foot depth and below, so there is a lower chance for those to become airborne.

Finally, the last pathway is direct exposure to external gamma emissions. Radioactive elements give off what is called gamma radiation. It's a direct exposure that someone near a radioactive element could be exposed to. The highest level of exposure is someone directly on the source in the landfill and as you move away from the source of gamma radiation, the level of exposure drops rapidly.

The last thing I'll mention as far as what we looked at in our risk assessment on the landfill site is the frequency and duration that someone could come into contact or be exposed to the uranium, radium and thorium at the site. When we look at frequency during duration we look at, what is the current use of the site, and what are the

reasonable anticipated future uses of a site. And based on those site uses, the U.S. Environmental Protection Agency provides guidance on how to determine frequency and duration for different types of site uses.

First, in the landfill and the mudflats we looked at a recreational use. Although the landfill is not being used anymore, as I mentioned previously, we have seen indications that people are coming onto the landfill and onto the mudflats area for limited time frames and for apparent recreational purposes.

The U.S. EPA guidance equates a limited type of site use to a recreational type use. And that also fits with what we know of the potential future use of the landfill after it is capped by the Town of Tonawanda. So we looked at both an adult and a youth recreational user using U.S. EPA guidance and other information for determining the frequency and duration someone might be exposed to at the site, and you can see those levels of frequency, which is the number of hours per week someone is on the site, and

duration, which is the total amount of time that someone is in the area and on the site.

For the adult, you can see we used a two hour duration per week over a 30 year -- or a two hour frequency per week over a 30 year duration, and for a youth we looked at a seven hour frequency per week over a six year duration.

Second scenario we looked at was a construction worker in both the landfill and the mudflats. Because work is being conducted to close the landfill and because there is potential for future development of the mudflats area, we realize there is going likely to be some type of construction work in these areas. The construction worker exposure was mild, to look at someone that could be working in the soil containing the uranium, radium and thorium, and it looks at a full work week and it looks over a full construction year.

In the mudflats, the landfill as we know is under order by the DEC to be capped. So that limits any potential future development after it is capped. However, the mudflats is

available for possible development in the future.

Then we looked at two separate scenarios in the mudflats. First is an industrial or commercial development of the mudflats as there have been indications that the Town of Tonawanda is looking to conduct some commercial development there.

This looks like -- this scenario looks at a worker working at the future development for a 40-hour work week, or a six, slightly over six years.

And finally, even though there are no plans that we know of for future residential development in the mudflats we looked at that as a protective, another protective scenario, and you can see the frequency and duration used there. It's obviously the highest frequency for someone at a site and the longest duration. And we also looked at an adult and a youth for residential use on the mudflats.

Now just briefly I'll present the results of our risk assessment. I mentioned previously when we calculate the risk we

compare it to the limits that are established in the National Contingency Plan, and in the landfill for about the current conditions, or uncapped conditions, both the recreational use and the construction worker use were within the limits established in the National Contingency Plan. We also looked at future recreational use after, assuming the Town puts a cap on the landfill, and that scenario is also within the National Contingency Plan limits.

In the mudflats as I mentioned we again looked at a recreational and construction worker use, and we also looked at possible future development for industrial and commercial purposes or residential purposes, and all those uses, all those scenarios, the risk was within the limits established in the National Contingency Plan.

So just in summary on risk assessment, as I mentioned before risk is dependent on two things, the toxicity, which is a measure of how harmful a certain substance is, and the exposure, which is how much someone could possibly come into contact with a substance.

And it's calculated following Federal guidance. If there is not an exposure or if their exposure is low, then the risk is low.

And as I mentioned previously, our baseline risk assessment concluded that the risks to someone coming onto the Tonawanda Landfill or the mudflats area from the uranium, radium and thorium that were detected at the site are within the limits established in the National Contingency Plan, both for the current conditions at the site and for potential future uses.

Based on the conclusions of the remedial investigation report and the baseline risk assessment, soils at the Tonawanda Landfill and mudflats area that do contain uranium, radium and thorium may safely remain in their current condition without exceeding the risk limits established in the National Contingency Plan. Therefore, our current proposed plan based on this information is, the Corps of Engineers is recommending that no action is necessary for those soils at the site that do contain levels of uranium, radium and thorium above normal background

levels.

I will now turn the meeting back over to Lieutenant Colonel Hurley, who will go over the next steps in the proposed plan process and preside over the oral comment period.

LT. COL. HURLEY: Next slide, Steve. The proposed plan has been made available in the local library for review as well as on a public website for downloading. Extra copies have also been sent to the City of Tonawanda and the Tonawanda City School District for public availability. While the normal review period is 30 days, you have asked for a longer period of review and we are happy to comply with this request.

We are required to respond to all of the oral and written comments received on the proposed plan. We will make the responsive of this summary available to the public along with a transcript of this meeting. Once all of the comments on the proposed plan have been evaluated and addressed, an authorized official from the Corps of Engineers will make the final decision on what action will be taken at the Tonawanda Landfill and

vicinity property. This decision will be documented in a record of decision which will be placed in the administrative record file and made available to the public.

We now have come to the portion of the meeting where we will record your comments on the Tonawanda Landfill proposed plan. I just have a couple more slides before we open the floor so please bear with me.

I know there are probably a large number of you who would like to make a comment on the proposal, and there are was least nine who have signed up before the meeting, and perhaps many of you want to make a comment now that you have heard the briefing. So in order to give everyone this opportunity to make a comment, we have some ground rules that we're asking you to follow.

We would like to have only one person speaking at a time. Please do not interrupt when someone else is making a comment. Please state your name and affiliation at the beginning of your comment. Please speak into one of the microphones so that everyone, including our court recorders, can hear your

comments. There are two microphones stationed up front and we have a microphone available to come to you if you cannot make it up to one of our two microphones. Comments are limited to five minutes in length in order to provide ample opportunity for everyone who wishes to make a comment.

In order to maximize the number of people who can make a public comment tonight, we will not address your comments or questions here. Quite frankly, some of the answers to your great questions would require lengthy and detailed responses, and as such may deprive others the opportunity to make a comment. We do have a court recorder here though to record your comments, and which will be entered into the public record, and we will respond to each comment in writing in a responsiveness summary. The responsive summary will be issued some time after the 90 day public comment period is complete.

We will first ask any of our elected officials if they would like to make a comment to come up first. Following that we will call on those people who indicated on

the sign-up sheet that they wish to make a comment, and then we'll open the floor up to all others who wish to make a comment.

Although the meeting was originally scheduled from 7:00 to 9:00 and we started a few minutes late and there are a number of people in the audience, we will gladly record oral comments until 10:00 o'clock. Following the meeting, my staff will be available, either in the auditorium or by the displays, if you would like to make additional comments or to have an answer to a particular question.

Additionally, if you do not have the opportunity or choose not to make an oral comment tonight, we will be accepting written comments on the proposed plan up until the end of the public comment period on June 26th. Written comments should be mailed to the address on the slide, which is also listed in the proposed plan and on the proposed plan fact sheet that are available tonight. Again, I would suggest that any comments that you submit, be as specific as possible, because this will result in a more effective

comment evaluation period.

As I mentioned earlier, we're driven by CERCLA in this process and CERCLA requires us to respond to all of your comments, and we will do that once the public comment period is closed. When the responses are ready, they will be made available in the administrative record file listed here as well as on our public website.

Finally, if you would like any more information on FUSRAP investigation at the Tonawanda Landfill vicinity property, you can contact the Buffalo District in several ways. We will also place a copy of tonight's presentation in the Tonawanda Landfill public website. We'll now open the floor to any comments. At this point, are there any elected officials who would like to make a comment? I'd ask you to please come forward.

MR. DAVIS: My name is Rick Davis. I'm 4th Ward Councilman in the City of Tonawanda and also a co-chair for the, for CURE. I want to thank the residents for taking time out of their busy schedules in order to voice their comments and concerns over the Army

Corps' proposed plan for the Tonawanda Landfill. I also want to thank everyone that's associated with CURE for all their tireless efforts to date.

This plan falls miserably short of the Army Corps and our Federal government's responsibility to take care of the mess left behind from Linde and the Manhattan Project. You have stated for years --

(Applause.)

MR. DAVIS: You have stated for years that the nuclear waste isn't your problem because you have no documentation to show that Linde illegally dumped at the landfill. In the plan you state the nuclear waste you did find was, quote, consistent with material generated at the Linde site, end quote.

You insult the intelligence of my constituents if we are to believe that Linde and the Federal government weren't responsible for what's buried in our backyards. We're not talking about the usual household waste from back in the 40s and 50s. We're talking about radioactive isotopes that were closely regulated back then, and no one

else in the area had the authorization to house these materials except for Linde.

During the February 8th fiasco, as you're quoted in the Tonawanda News, you said that the test wells went down to a depth of 20 feet. In the plan you state that in the 1920s a quarry was located in the landfill and abandoned at a depth of 60 feet.

If you do the simple math, it seems like you only went a third of the way down. I ask that you conduct further testing at the appropriate 60 feet boring depth to insure the quality of samples retrieved.

Back in 2001 the Army Corps came into Riverview Elementary School and told residents that the landfill would be fully remediated of all nuclear waste per Department of Energy guidelines.

Now, six years later, you want to hang your hats on looser EPA guidelines instead of the more stringent Department of Energy guidelines. Our residents deserve the highest, most stringent standards for testing and cleanup.

You have stated numerous times that the

nuclear waste hasn't migrated onto residents' properties along Hackett Drive. I have yet to see any soil test results that you conducted on properties along Hackett Drive, Wadsworth Court, Wadsworth Avenue, Brookside Terrace and Brookside Terrace West to back up your statement. If anything, the government has provided figures that rebut it.

Figure 7. That's from the Department of Energy, indicates nuclear waste, the radium and thorium, leaching onto properties on Wadsworth Court. This was something that was released back in 1994. It specifically shows radium and thorium leaching onto residents' properties on Wadsworth Court. Now, one property adjacent to where that is leaching in, there was a beautiful nine year-old girl who passed away from leukemia. I hope for your sake that her untimely passing is not connected to what's buried in the landfill and possibly leached onto a nearby property.

You also stated in the plan that the risk of 1.3 in 10,000 excess cancer risks would still be considered within the acceptable risk range. This statement is immoral and

criminal. Any increase in risk is absolutely unacceptable to the 700 plus homes within a quarter mile of the landfill and the students and faculty of Riverview Elementary School. Furthermore, tell that to the family that has a loved one that contracts cancer because you felt the risk was, quote, within the acceptable risk range.

This evening also you have indicated that the exposure is within NCP guidelines for the FUSRAP area after capping. You will not get a cap over that FUSRAP area because in some cases it abuts residents' properties. The Federal government has spent over a hundred million dollars to clean up the former Linde site where no one lives, but now you want to close the checkbook when it deals with a more densely populated area. What the residents of the 4th Ward of the City of Tonawanda want is not to be treated like second class citizens.

What they deserve is testing of the properties, proper testing of the landfill and full re-mediation of all radioactive waste from the Tonawanda Landfill. Thank you

for your time.

(Applause.)

LT. COL. HURLEY: Thank you for your comments and we'll insure that we address those in our responsible summary. Are there any other elected officials that --

MS. IANNELLO: Thank you. Erie County legislator Michelle Iannello. I would like to begin by thanking the Army Corps and the DEC for the collaborative effort that has been put forth so far in this landfill process, together with the residents and the elected officials. I feel that we have made some progress regarding this problem.

As for the proposed plan I have to say that I am very disappointed that the report does not call for the removal of the medlike materials before the closure of the landfill, okay. Although recently we have been told that there will be testing done in the backyards of the residents, I am requesting that there be additional testing done on the opposite side of the fence, I guess it would be retesting, inside the area that was already tested, along the same fence line as

there is near the residents.

I am appreciative that the comment period was extended to 90 days, as per my request, but I also am requesting at this time publicly that if need be, that we extend the comment period longer than 90 days. Looking at the facts that we're going to have more testing done, hopefully on both sides of the fence, we may need that extra time to get the results of the testing, and so I don't want there to be a finality of the day that we can have comments made until we get those results.

One of the concerns that was brought to my attention by the residents, which is now the look of the landfill and what it's going to look like at the time of the closure. I believe that you need to include all of the residents that live along Hackett Drive and in that vicinity in the planning of the final look of the closure, and again, as Councilman Davis stated, knowing that there are some spots close to the fence, it would be hard not to have that landfill right on their backyards of their houses.

So in closing I would like to remind everybody if they didn't see it in the paper, and invite you to an informational meeting that I have requested through the Energy and Environment Committee of the Erie County Legislature that will be held on Tuesday, May 8th, 3:30 in the afternoon, 4th floor of County Hall, so that there can be more public comment made at that time that could be included in this public comment. And I would also like to say that I give you all my word that I will remain active in this process until the cleanup is completed and the medlike materials are removed. Thank you.

(Applause.)

LT. COL. HURLEY: Thank you, ma'am.

MR. PILOZZI: Good evening. My name is Ron Pilozzi. I'm the Mayor of the City of Tonawanda and I would like to extend my appreciation to the Corps of Engineers, the DEC, Department of Health, all the members of government, from Federal, state and local, all the way up and down the chain, and obviously all the residents that are here tonight. It's very important that they be

here, obviously.

My remarks will be brief because I believe the time tonight will be best spent listening to the comments and concerns from the public present. Also, the City will be submitting in writing comments to the Army Corps of Engineers and that will be specifically from our engineering department regarding our concerns about the proposed plan in writing.

First of all, the City of Tonawanda officials disagree with the Army Corps proposed plan for the radioactive materials in the Town's landfill. The City's position is that FUSRAP for medlike material at the landfill should be removed from the site for the health, safety and welfare of the surrounding residents and future users of the site. CANIT of which the City is a member, has advocated for the removal of radioactive material from the Tonawanda since 1988. I personally have advocated this position since March of 2006 when, as Mayor, I received my first report from the Army Corps on the landfill. Since then the City has contacted

numerous local, state and Federal representatives and agencies through letters, phone calls, emails and meetings, to intensify our efforts to advocate for the removal of the radioactive materials.

Secondly, the government of the City of Tonawanda supports additional testing on private property on Hackett Drive. We need to establish that the radioactive material has not migrated from the landfill onto private property.

We also need to give some peace of mind to the homeowners who live next to the landfill so they can feel that they and their children are living in a safe environment. Again, the walkover that will be conducted shortly by the New York State Department of Environmental Conservation is a good start, but I believe and will continue to advocate for the full bore sampling of residential properties.

Finally, we will continue to work with all levels of government to attain our goal. That goal is to protect the health, safety and welfare of our residents. This goal can

best be accomplished by the removal of the radioactive material by the Army Corps and by additional testing on the private residents and school that abut the landfill. Thank you.

LT. COL. HURLEY: Thank you, sir. Are there any other elected officials? Yes, sir.

MR. MOLINE: My name is Ron Moline. I'm Supervisor of the Town of Tonawanda. I would like to make public comments based on a letter to you, Colonel, that I will then provide you with. But thank you for this opportunity to comment on the proposed plan for the Tonawanda Landfill vicinity property site located in the Town of Tonawanda.

The objective of the Town Board and other Town officials is to close the landfill based on a plan that is protective of public health and the environment and takes into consideration appropriate and acceptable post closure activities on the site. The key questions that Town officials have raised throughout the last 20 years on FUSRAP related programs and activities have always been based on concerns for the public health

and the environment and also apply to the proposed plan for the landfill. Because these issues have also been important to our neighboring municipalities and the elected officials at the County, State and Federal levels, the Coalition Against Nuclear Material in Tonawanda, CANIT was formed about 20 years ago to provide direct input into the decision making process. We certainly appreciate what the Corps of Engineers has accomplished at the Linde, Ashland I and Ashland II sites and more recently Rattlesnake Creek, since taking jurisdiction over the FUSRAP cleanup activities 10 years ago.

We would like to take this opportunity to support residents and officials of the City of Tonawanda who are requesting additional efforts with risk assessment evaluations before a record or decision is issued by the Corps of Engineers. While the remedial investigation and proposed plan did examine health related issues under certain scenarios, we feel that more attention should be given to a scenario that we know exists.

There are residents whose properties are adjacent to the landfill and before any permanent closure plan is approved by the DEC, these individuals should have the greatest comfort and confidence with the final solution.

We would like to see the resources of the County and State Health Departments utilized along with appropriate Federal resources to accomplish this objective. We expect that you will also be receiving comments from CANIT on this concern. Again, thank you for your efforts to date and for your commitment to protecting public health and the environment in our community.

With all due respect, Colonel, I'd like to point out that arguably frequency could be 24 hours and duration a lifetime. So we do need the comfort of additional risk assessment. Thank you very much.

LT. COL. HURLEY: Sir, thank you for your comments. Yes, sir.

MR. ZEISZ: Carl Zeisz, Common Council President. As an elected official, I'm charged with the responsibility to protect

the health and safety of our community, and also as a homeowner, the safety of my own family, and given the information that's presented tonight and that has been presented in the past, it's totally unacceptable to myself and also to all these residents who are part of our community.

(Applause.)

MR. ZEISZ: I really only have one question. It's not a question of whether or not I agree with the Corps numbers or what's acceptable or whatever. My one question is this, millions of dollars have been invested to clean up other sites totally not adjacent to human life, and when we have one that is adjacent to many homes in our community it's going to be left to sit there. That's my question.

(Applause.)

MR. ZEISZ: I do thank you for the time that's been put in, but I do respectfully ask, along with many other officials including many officials much higher in stature than myself, that the Army Corps re-look at this, and myself, Mayor Ron Pilozzi,

Rick Davis at the rest of the Council is going to continue to push for full remediation. Thank you.

(Applause.)

LT. COL. HURLEY: Sir, thank you for your comments. We'll do our best to answer that question. Please.

MR. KRANZ: Good evening, everyone. My name is Paul Kranz. I'm an associate engineer with the Erie County Department of Environment and Planning, and I am speaking on behalf of my commissioner, Andrew Eszak, who serves as chairman for the Coalition Against Nuclear Materials in Tonawanda, better known as CANIT. I'd first of all like to start by thanking the Army Corps of Engineers, Lieutenant Colonel Hurley, and the staff for their presentation and the opportunity to speak tonight. I was requested to attend and provide these comments, which are contained in a letter from Commissioner Eszak to the Lieutenant Colonel on behalf of the local CANIT membership. That would include our State Senators, State Assemblymen, County Executor,

County Legislator, and the Mayor and Supervisor in the City and the Town of Tonawanda. We understand that our Federal delegation is monitoring the issue and will be submitting comments independently.

Dear Lieutenant Colonel Hurley, as chairman of the Coalition Against Nuclear Materials in Tonawanda, I am writing to you regarding the above referenced proposed plan for the Tonawanda Landfill. CANIT is a bipartisan coalition of elected officials that seek action at the Federal level to insure the safe and efficient removal and offsite disposal of radioactive waste originating from the Manhattan Engineering District activities associated with the World War II atomic bomb development. To date the Army Corps of Engineers has successfully implemented and completed remedial efforts toward the cleanup of radioactive waste at sites in the Town of Tonawanda. This includes Ashland I, Ashland II and Rattlesnake Creek.

The Corps is to be recognized for its continued efforts at the Linde Praxair and

COA landfill sites. The Corps implemented a remedial investigation of the waste in 2001 at the Tonawanda Landfill. A final report on the investigation was issued in 2006. The above referenced proposed plan for the landfill is based upon results of that investigation and a baseline risk assessment which states that risks associated with the waste materials are within CERCLA guidelines for expected future use of the landfill. The plan proposes leaving the waste in place, given the assumed construction of a proper landfill cap for the ultimate landfill closure.

In a meeting held April 24th, 2007 the CANIT membership discussed the proposed plan, existing sampling data, the risk assessment information. The concerns expressed by residents living on properties abutting the northerly property line of the landfill and projections for time lines for the closure of the landfill were also discussed.

A consensus was reached by local members of CANIT that the proposed plan as presented is premature. The membership feels that

additional investigation is warranted particularly along the fence line of abutting residential properties to first fill the gaps in the overland gamma survey data missing from the 2001 remedial investigation report, and secondly, to perform any additional soil sampling to further determine the extent of radioactive waste materials near this residential area.

In consideration of additional efforts proposed by the New York State Department of Environment Conservation to investigate potential impacts to private property adjacent to the landfill, additional time is required to determine the appropriate action or actions to address this issue. The U.S. ACE, the Corps and the New York State DEC should coordinate sampling protocols, schedules and results to provide a uniform and comprehensive understanding of the radio material impacts and risks.

CANIT therefore requests the postponement of the finalization of the proposed plan for the Tonawanda Landfill and any issuance of any record decision for the radioactive waste

materials. Very truly yours, Andrew M. Eszak, Chairman of CANIT. Thank you.

(Applause.)

LT. COL. HURLEY: Thank you. Yes, please.

MS. HOFFMAN-HOGENKAMP: My name is Joyce Hoffman-Hogenkamp, City of Tonawanda Board of Education. Also, gentlemen, I'd like you to take a good look at my face. I am first generation to grow up on that landfill. I still live there.

You people need to understand, you put a lot of time into this. I understand 18 plus years. Your plan is absolutely appalling and disgusting to somebody that has lived there their whole life.

I grew up in an idyllic family situation, lived there, had my son there. My whole idea was to raise him the way I was raised. With what I have found out, reading your documents, reading everything that you people have put into it, disgusts me, totally disgusts me, as a board member.

(Applause.)

MS. HOFFMAN-HOGENKAMP: In your proposed

plan you speak, a range of recreational exposures to the landfill was considered from two hours per day for six months a year, for a six year-old juvenile, to 15 minutes per weekday, plus 23 minutes per weekend day for 30 year-old adults. Gentlemen, ladies, we have people in Riverview Elementary School which has not been mentioned tonight at all.

(Applause.)

MS. HOFFMAN-HOGENKAMP: We have children in that school at 8:30 in the morning for breakfast. Our extended day program goes to 4:15. The school is officially open to 9:00 o'clock for different activities for our children. That exceeds what you people are saying is safe. What are you thinking? You haven't thought far enough. You need to go back and do further risk assessment.

We are talking about 250 school children that are in there every day, Monday through Friday, for that many hours. They're there for their extracurriculars after school, from the high school, so you're also attracting other students from other parts of our city to that school. Cheerleaders, soccer

players.

The other thing that has been addressed, there has been no testing on the soil for the school next to the school, any of the air around the school, and nothing done in our school, yet you're telling us, this is safe. This is safe for our children. I tried to have more than the one child. I have had fertility problems. No explanations. Many of my friends that I grew up with had the same problems. Yet I have not heard from one person with risk assessment why. Why haven't you come to the residents that have been living next to it, that played back there when there wasn't a fence?

You also state that you're going to use your standards, the EPA standards, and now we have a letter from Mrs. Clinton that is asking for the strictest governmental standards. They are not the standards that you have in this proposed plan. I would like to know, when are you going to change your standards? When are you going to clean up these sites properly? You're toting that you cleaned up Ashland I and II to a standard,

and then I turn around and do my research and find out it's below the standards of what was cleaned up on other sites across the country, mainly sites out in California? There's sites out in San Francisco that have been cleaned up better than that one, and now we're looking to put people to work there nine hour days. If this is how you people are cleaning up, you really need to go back and rethink it.

I am one of the members of CURE and I am not going to put up with the stuff being left there. As a board we passed a resolution requesting full re-mediation of that landfill. We want the nuclear stuff out of here. It is the only safe avenue for our children that are attending school.

I am also asking you as a private citizen, please, please go back, rethink what you've done. I am not the only person that has been hurt by what's back there. October I lost my mom. She died knowing what was going on back there.

You people have no idea the amount of stress that was put on my mom, and now sits

on my dad. You have no idea how this has impacted my family. You need to get up on Hackett and start talking to the residents. Go house to house. Find out the cancer rates. Find out how many children have gotten sick. Find out the infertility rates. Find out how this truly has impacted the people that live next to it and have lived next to it for years. Thank you.

(Applause.)

LT. COL. HURLEY: Thank you for your comments. At this point are there other elected officials?

MALE VOICE: Thank you, Joyce, and God bless you.

(Applause.)

LT. COL. HURLEY: At this point we'll proceed with open comments and we'll start with those people who signed in before the presentation began. Joan is going to call folks forward to make a comment. If you can't come forward, we'll gladly send the mike out to you and make your comment. Joan.

MR. HOFFMAN: I said I'd make a comment.

JOAN: I was just going down the list

from who signed in.

MR. HOFFMAN: I don't care. You just talked to my daughter. My name is Hoffman. Since 1962 I've been on Hackett, seen everything, took pictures of everything, and now I don't know what you people are talking about. Two things you show me up there. Up against the houses and the flats, two things, but they're combined.

Nobody has addressed the flats. The flats were created by Schwab Brothers to fill the land from Delaware Avenue to Niagara Falls Boulevard. Evidently they didn't get all the nuclear waste out of there. So we got a nuclear highway from Delaware to the Falls Boulevard. Why isn't that addressed? Are you aware of that, sir?

LT. COL. HURLEY: Sir, we'll go back and look at that.

MR. HOFFMAN: Go back where? It's there. You tell me it can't go away. There is more death than you people realize. The City of Tonawanda has an ordinance, if we sell the house, we have to put a sump pump in. I'm in the highest house in the city. I

haven't sold my house. I'm an original.

Next door to me they sold the house. Sump pump's in there. The kid's sick all the time. What's going on with you people? Nobody will address the health issues that are on the properties. You're going to walk on the border of Hackett Drive. Seven people across the street from me have died of cancer. I don't want to take up any more time, but like Phil Sweet said, I got a photographic memory. I can tell you everybody that died of cancer on our street, 65 homes, 65 homes. Now we're lucky we got approximately 18 original owners still there. And this is called either widowers hill or widows hill, that's what's left up there. Borderline to this, you call it a landfill, since '62, I called it the dump. It's a shame that we have to have the Army to clean it up. My daughter brought pictures, Hiroshima, Nagasaki, beautiful metropolitan cities. We cleaned it out, when I was in the service. Navy had a base in Japan, but we can't get nothing out of you people. You say we got a plan. You haven't formulated a

plan. You say we won't formulate it until we talk to everybody. Again, we got the, what we call Federal Texas two step. You're not facing the issues. Atomic Energy Commission, the DEC, the EPA, whatever you want to call it, it's always pass the buck to the other department. People are being fed up with this. You've got to come on line with us and understand what is happening up there.

When the people start dying off, you say you want a survey. They conduct their survey at Kenmore Mercy. What about the other hospitals? Roswell, Buffalo General, Gates Circle. Nobody has said any word about that. There is a lot more, Colonel, a lot more, and you better get into it, deep. You better found out about the great nuclear highway.

(Applause.)

LT. COL. HURLEY: Thank you. Joan.

JOAN MORRISSEY: Okay. I'm going to go through the list starting with page 1. And the first individual I have here is a Mr. John Plyler. Mr. Plyler, would you like to come up and provide comment.

MR. PLYLER: This to me was a replay of

the last meeting basically. It was the same information. Everything was given to us last time, there's no change. But what I've learned with the help of the other people from CURE is all this information was heard and what none of us knew about this before. What's back there and everything else. I see a map out there with test sites with yellow dots. The next time I see from you people I'd like to see another map with the houses with yellow dots of who you've talked to, cancer rates and everything else.

Show us this information. We already know it because we live there. Show us that you know it. And also, treat all this information not by Federal standards, by personal standards, of how you'd do this if it was your land and your property, and throw away the government standards. Thank you.

(Applause.)

LT. COL. HURLEY: Thank you, sir.

JOAN MORRISSEY: Okay. The next name I have is a Mr. Edward, and I'm sorry if I get this wrong, it's either Gehara or Gebera.

MR. GEBERA: Edward Gebera, 157 Brookside

Terrace West. I'd like to know how you could guarantee the water coming off of the site doesn't contaminate the water underneath our homes.

That's what I'd really like to know. To start off with, you said they only went down 24 feet. Well, the pit was a lot deeper than 24 feet. And I'd like to know if you took tests below 24 feet offsite as well as onsite. Thank you.

(Applause.)

LT. COL. HURLEY: Thank you, sir. We'll definitely ask those questions.

JOAN MORRISSEY: The next person that indicated they would like to make comment is a Mr. Eugene Parks.

MR. PARKS: Hello. I am Eugene Parks. I live at 68 Bellanger. I'm here to comment. Actually I have more questions than I have comments.

Sir, I'd like to know how many times the standards have changed that your risk assessment is based on, over the years, over the past 40 years. How many times have these standards changed?

And why hasn't there been a health study done up on the hill which affects everybody who lives up there to find out; before you do any final assessment of what's going on here there should be a health study done. You need to look at your map and go further into the city because if you look at the dots along that line on Hackett Drive, I find it hard to believe that those trucks stopped at that border and didn't go further into the City of Tonawanda. No testing has been done any further than right at those people's backyards.

I'm not talking about just their backyards. I'm talking about further into the City of Tonawanda, did you test it, to give people peace of mind? Before this process of capping the landfill started, were there any monitoring stations set up, as far as monitoring the air quality or anything that's going on, the water migration, other than the one -- some ground wells?

For air quality, was anything done? And please allow us to have some input as to how this landfill is closed. The people that

border this landfill should have the right to have some input into the closing process. And finally, the benefit of removal should have no price tag, for all our health.

(Applause.)

LT. COL. HURLEY: Thank you for your comment, sir.

JOAN MORRISSEY: The next person I see it marked here, and it might mean a yes, Diane Eshelmen, would you like to provide comment?

MS. ESHELMEN: I have questions too. But I guess I could say, I was born in 1945. I got in on the beginning of it. I grew up downstream of the Niagara River, and guess what, I had thyroid cancer when I was 25. But I can’t say it was definitely from whatever, you know. Who’s to say.

But anyway, I corresponded with my brother who happens to be a nuclear physicist, and he wanted to know if any radon testing could just be done in homes. I mean, that would be a really simple thing. You have to have your home tested for radon before you sell it. I would think that maybe you could do something like that, and since

radon gas is released as a decayed product of uranium it would make sense to do that, you know, to these homes that are surrounding the landfill. I guess that's all I have to say. Thank you.

LT. COL. HURLEY: Thank you, ma'am.

(Applause.)

JOAN MORRISSEY: The next person I have to give comment, and I think perhaps you already have; a Ms. Joyce Hogenkamp? Okay. Next is Mr. Chris Thomas.

MR. THOMAS: Good evening, Christopher Thomas. A resident of 65 Hackett. Also helped create CURE. I'm basically doing this on the fly. I thought I was going to come in with questions or comments but I wanted to take the information provided this evening and formulate some of the things that I found. The first thing is, Lieutenant Colonel Hurley, I would like to personally put on record, I'm inviting you over to my house for a cup of coffee. I would like you to see truly what I see in my backyard on a day to day basis.

Some of the things that I am definitely

questioning is the wording of, heavy vegetations that would be blocking dust. I'm sure as you can tell, behind our homes, and I don't know if you've been to the site or not yet, but there truly is not a lot of heavy vegetation. There's a few trees here and there. Some of them are damaged from the October storm. And some of the vegetation as referred to hasn't grown yet due to the climate has prevented it to grow -- or hasn't allowed it to grow. So how is that limiting dust when that hasn't really presented itself to be the case yet?

Also, the Army Corps, background levels are lower every year in regards to what the Army Corps looks at in regard to the background levels. So yet, how does that relate to the half life remains of the elements that we're dealing with? They do not.

Also, the groundwater may not be a source for the city and town residents, but it is, groundwater is used for Lockport, Niagara Falls, Lewiston and North Tonawanda, as a closed down stream. Also, as was referred

to, and of all the information I've researched nothing has been mentioned in regards to the sump pumps. As clearly stated in your records that there is surface and subsurface contamination, why were not the sump pumps lists on private properties listed in your reports?

Let's see. Extensive independent review, 25 pages on proposed plan. In the 2005 remediation report that book is over 300 plus pages, yet the proposed plan is only 25 pages long.

I would just like to comment that if you're going to put a proposed plan together out to the general public, it should have a little more meat and potatoes to it.

What else do I have here? Also, on the slides this evening, industrial residential use is listed in the mudflats area, and the industrial redevelopment of the mudflats it's anywhere on 40 hours but no more than 6.6 years, so I'm sure as any of our careers would go, I'm sure someone wouldn't want to work for a job 6.6 years and then have to be let go based upon contamination.

The reason I'm focusing on that part of the slide is, you're dealing with homeowners that live here 24/7. If you clearly have notated that in a mudflat area which is not that far off the property as well as the capped closure landfill that there's limited time frames there, it really doesn't have conclusive meat and potatoes in regards to what we deal with on a 24 hour basis.

And also, the last comment I have is, there are sewers that are tied in to Rogers and Hackett. Again we're talking about groundwater contamination, leaching. These things have been proven in regards to the documentation of the Department of Energy and the Army Corps.

So in conclusion, I hope to see you at my house for a cup of coffee.

LT. COL. HURLEY: Thank you for the comments, sir, and thank you for the invitation.

(Applause.)

JOAN MORRISSEY: The next person I have listed is a Ms. Corina Berman.

MS. BERMAN: Hello. Can you hear me?

LT. COL. HURLEY: Yes.

MS. BERMAN: I see lots of studies that say that X amount of thorium is safe, ad nauseam, and I'd like you to site studies that explore the risk posed by the cocktail of contaminants, which is to say, what is their combined effect on human health?

And though I know we are talking only about this specific FUSRAP site tonight, we must consider the combined effect of all nearby FUSRAP sites on overall exposure levels. In my opinion, no self-respecting scientist would ever sign off on a plan of total inaction, when the Riverview section is reporting 26 residents out of 35, that's 77% with cancer. Regardless of what studies say, you should feel compelled to conduct different, more thorough, more intuitive tests. You're humans, not machines, so you're capable of thinking beyond studies and statistics. Asking us to believe illness -- other illnesses and not just cancer, suffered in this area are coincidental. I just don't feel that that's plausible and I don't feel that that's science.

LT. COL. HURLEY: Thank you.

(Applause.)

JOAN MORRISSEY: The next person is Casper Hoffman. I'm sorry if I got -- the last person I have listed that indicated they -- oh, no, this is second to last, I'm sorry, is Mr. Philip Sweet.

MR. SWEET: Good evening. I got to get this mike up here.

LT. COL. HURLEY: Take your time.

MR. SWEET: About three foot higher. Thank you for allowing me to speak. My name is Philip Sweet. I live in the Town of Tonawanda, 165 Oakvale Boulevard. Why am I here from the Town? I was a former resident of the City of Tonawanda, got sick, had to sell my house, and I moved out.

I worked in a lot of really seriously bad places. Niagara Falls construction electrician. I have no plans for litigation. I'm here to support the new, the new group in the Tonawanda's.

I'm in total favor of removing the landfill. However, I would like to submit one thing to you. I would like to submit a

document to you at this time. Would that be possible?

LT. COL. HURLEY: Yes, sir.

MR. SWEET: Okay. Could I come forward? Is Mrs. Lenihan still here? Kathy. There's a call for a congressional investigation of what's been going on here in this community. This, what has occurred, is beyond belief. What you have done to this community, these residents, is beyond belief.

There has been clandestine dumping in the landfill reports from years ago, going back to when my wife was a member of the Tonawanda Garden Club.

You have -- the United States Army has totally destroyed this community, and let me tell you something, I am pro Army. I am pro defense of this country. What this United States Army is doing today, absolving themselves of what is happening to this community, especially the children, emphasis added, is a tragedy. What I'm calling for is a mandatory blood urinalysis for the children attending Riverview Community School.

The needs of these children must be met.

These radio nuclides, if they're disturbed, they are insidious. They go into the air. They're breathed in, and the bone structure of the child looks at this as calcium. The body is -- the radio nuclides are taken in, small fine particles, and the child is unaware of what is going on until the child gets into their 20s, 30s, and then all at once we hear, we have to have a benefit, we hear of reports of early-on cancer.

This has happened door to door, house to house, all over our whole community. It has permeated this whole area. Congress really needs to be involved.

One of the articles, the documents that I submitted to you, has to do with the NRC Commission that met in Austin, Texas in 1999, and in that document, the document specifically calls for a Congressional investigation. The very possibility. And here we are today. We're looking at a scenario that is very hard to back away from. The human tragedy is beyond belief. I also refer, in my handout I passed out, Major Doug Rock, who has been speaking out about the

bleeded uranium on Armed Forces in Iraq. We have totally inundated, destroyed the country of Iraq with depleted uranium. The United States Army, ladies and gentlemen, looks at depleted uranium as play doh, children's play doh. They look at this happening in our community as play doh, like the kids, it's completely safe for our children to play in it.

I refer to a Sister Rosalie, Dr. Rosalie Bertell, who was generous enough, a world's authority on low and high level radiation, has agreed to come out and help this community. Un-apologetically, the Buffalo News has distanced themselves from reporting to the serious condition we have in this community. The Tonawanda News has to date never specifically reported the human tragedy that has taken place. Doug Rock, Major Rock cites Army regulation and I would appreciate if you would take note of this, AR748.

It requires that where uranium weapons were manufactured or tested, including Vasquez Puerto Rico, Colonie, New York, and Jefferson Proving Grounds, Indiana, the

medical care must be provided by the United States DOD. You are the DOD, by the way. Testing of uranium munitions for all concerned residents that require and ask for medical attention. At this time I am asking you specifically to test me for americium 241.

At one time not too many years ago, 20, 30 years ago, I can't be specific, I worked in a building that I don't know if Ron was the Mayor at that time, or the Supervisor at that time, was inundated with americium 241. I was not told of the dangers, what it was at that time, and I'm asking you sir, at this time, I would like for you to allow me to be tested by your medical team at the earliest possible convenience. The other thing I would like to bring out to you is that the children that are attending this school, they are right atop one of the most contaminated areas in the United States.

The DOE states that the levels of contaminants in this site are 30 times over acceptable limits, at this time. You have a school that's within walking distance. The

children cannot go out to play during the day simply because the teachers are telling the kids, you may ingest radio nuclides. This is total irresponsibility.

I as an adult am asking you right now, I need to be tested, blood monitoring. The other thing, if I could address to the people that are here, if you have kids, you could go to your pediatrician. I mean, all of us give a CBC count.

Every time we go to the doctor, the doctor says to us, well, you need this type of blood count. Ask them under your present insurance policy, Dr. Bertell, Dr. Bertell purveyed this, that you are, may be eligible for blood screening, blood testing for heavy metals. Now --

JOAN MORRISSEY: Mr. Sweet?

MR. SWEET: Okay. Now, just one other thing, I'll let it go, just one other thing.

JOAN MORRISSEY: We can come back to you as soon as the other --

MR. SWEET: Just one other thing, if I may. If upon your request, your doctor may allow you to have a blood sampling, upon your

request. This would have to be voluntary. Having said that, the total result of this test may enhance the life of your child later on in years, and you won't have to hear from the doctor, the oncologist says very frequently, why did you not come to me sooner.

The other thing, I'm here this evening to change hearts. I'm asking you to look at the human tragedy that's taking place. I'm asking you to look at the children, and I'm asking you to test the kids, test the residents. I am totally in favor of getting rid of this landfill. Take it out, I don't know where you're going to take it. Take it in somebody else's backyard. Having said that, you need, if your plan is to re-mediate, take it away, you need to get the kids out of the area. You need to get them out of the area.

And the other thing, and I'll just leave you with this, is that it was brought out, a golfer, Ron Moline wants to put a golf course there. The golfer can stay 15 minutes, he's got to get off. How crazy is this. The

other thing, if he excessively exercises, he is more so in peril because of the intake of the contaminants of the radio nuclides.

But what I am asking you tonight, this is a chance for you to change your heart, to agree to test the people, blood monitoring, urinalysis. This is what is put before you. The kids, the children, the people that have lost their lives that should be here now with us and are not. They're in heaven. They're looking down on us. They're looking down on you right away.

If you are a religious person and you believe in a judgment day, what will you say upon that judgment day, what did you do this for the security of the United States that you had to do this, you had -- this is a common trait, philosophy today.

We had to sacrifice a few to save the most. Is this what you are saying to this community? Thank you for allowing me to speak this evening. Thank you very much.

(Applause).

LT. COL. HURLEY: Thank you, sir.

JOAN MORRISSEY: The next person is Ms.

Barbara Peters.

MS. PETERS: Thank you. I'm Dr. Barbara Peters, Superintendent of Schools, Tonawanda City School District. I'd like to thank the Army Corps of Engineers and the DEC for arranging this meeting tonight.

I appreciate being able to hear the public comments from all of the -- actually being able to hear the report and being able to allow the community the opportunity to be able to speak to you and give their time, some air time with you.

My concern is obviously for the children in the school area. When I read the report and saw how many minutes safely we could stay if the landfill is not re-mediated, the concern immediately was for the school area, not understanding how far away -- if you come to the school you can actually see the landfill from the school site.

There's a playground immediately adjacent to the school. We have 250 children that walk to and from school. They don't understand when we say, stay away from something. Children are adventurous. And

for the most part they love to play. And we can see them even now, even though there are fences, they climb and they move. And 15 minutes to them is nothing. They do not understand staying away from things that may be dangerous; to them it's fun, and they see themselves as infallible, and it really frightens me to think that there could be some area where they're supposed to be staying for less than 15 minutes a day, but to them, they're not going to get hurt. That's a very serious concern of mine.

To me, I'm listening to the residents. I think anything less than full re-mediation is foolhardy.

(Applause.)

MS. PETERS: I look at the future of Tonawanda. In my eyes it's the children and I'm here to protect the children and I appreciate you listening. So thank you.

LT. COL. HURLEY: Thank you, ma'am.

(Applause.)

JOAN MORRISSEY: The next person I have listed is a Mr. David Moran.

MR. MORAN: Hi. My name is David Moran,

61 Hackett. Just to start off with a couple of things, I grew up on Parkedge which was directly in line with Linde. My aunt worked at Linde. I went to Holmes Elementary School. I was born in '59. I swam in the creek back there. I fished golf balls out of there. I was there watching them burn the contaminants off that creek several times. Now that same creek runs through our backyard and through the dump.

A couple of questions I have that I need some clarification on. A slide that you showed said that you dig -- you were testing soil down to the depth of 24 feet. We've read some of your reports. We read the papers and how deep the soil sampling was, and also you have told us that you would dig until you found something, then you would stop digging. Most of the soil samples were between six, 10, 14 inches, according to what we saw in the books of the -- how many books was that, Chris?

CHRIS: 45.

MR. MORAN: Out of the 45 books. The other thing I have to ask is, when you were

testing the samples you said that the soil samples were of safe levels. Quite a few meetings ago they told us that there was some elevated levels in some of the soil samples. Well, that hasn't even been addressed. We're talking about the safe levels.

What about the elevated ones? You know, are we just glossing over them, are we ignoring these? They don't exist like the nuclear waste didn't exist when this all started. We don't know it was there. It's not supposed to be dumped there, but it's there. Now we need to deal with it.

And the other question I have is, one of the slides mentioned earlier that the dump has been closed since 1997. Well, looking at the paper from the New York State DEC, their answer to that very question was, it was never officially closed because they didn't get the permits to close it.

So is it closed, isn't it closed? They've been dumping back there for three years that I know of, and Mr. Hoffman's got pictures that they've been dumping back there since early days. So to tell me that the

dump is closed and then find out that we never filed for permits, or they were never issued, and that there's spot dumping going on, I'd like to know, do we have any kind of manifest as far as what trucks dumped what back there? How much was dumped? These trucks need to be weighed. They got to travel over the highway. Where are they getting this junk from? There's got to be a manifest somewhere. I work construction, I understand that any time you dump anything, what are you dumping, how much do you have to dump, and here's what we're charging you to dump. So I'd like to see the manifest. I've seen nothing and I've asked for it several times.

Another thing, looking back at the past, that has been absolutely steeped in lies and bad numbers, all the facts aren't adding up. We found discrepancies in all the information that has been given, but yet every meeting we have, everybody keeps saying, trust us, trust us, trust us, we're doing the right thing for you, but yet you're talking common neighbors and common folk out here that are finding all

these lies and bad numbers in your project. So you either need to lie better, you need to come up and tell the truth, or you need to fire whoever's coming up with the numbers and find somebody who can count, because your numbers are bad, and we can't possibly trust you --

(Applause.)

MR. MORAN: -- if you've been lying to us for years. Also, you said that the work exposure back there, so far from what I've been able to count, anywhere between 10 and 12 hours a day, five to six days a week for about three years now, there's been people working back there. Have they ever been tested? Have they ever been told what the risks of working back there are? And what's being done with these trucks? They're driving over our highways littered with the soil they're stirring up back there, and they're just driving the stuff down the highway. So we're spreading this out.

Sir, you know, you're in the military. You take NBC. You know how you deal with it. You can't spread it. It's got to stop there.

Okay. One other thing I do have to say, sir, is I'm a combat veteran as yourself. I notice by your uniform, I see your Ranger tab, I see 101st Airborne, which is a combat patch. I want to commend you for your service. And I just, I just have to ask you, I also notice you have leadership tabs. With your rank you obviously led soldiers at one point, correct?

LT. COL. HURLEY: Yes.

MR. MORAN: Okay. So every mission you went on you did a risk analysis on your mission, correct?

LT. COL. HURLEY: Yes.

MR. MORAN: Would you accept minimal standards on those risks? Would you accept people changing the numbers on it constantly? Don't you want to know what kind of risk you're putting your soldiers into?

LT. COL. HURLEY: Of course.

MR. MORAN: Okay. So what we're saying here is, we want to know the facts. We don't want these numbers to constantly change. We don't want to go by different standards every time we look at this thing. And we want to

go by absolute minimal risk, not on, it's close enough, because close enough doesn't count when you have children dying and adults dying. And by the way, most of my friends have died from Parkedge, and most of the families I grew up with, most of them have gotten cancer and died. And the 14150 zip code is an elevated area of cancer. Just so you get your numbers straight. I want to thank you very much for your time.

(Applause.)

LT. COL. HURLEY: Thank you, sir.

(Applause.)

JOAN MORRISSEY: I think what we need to do now, I've exhausted the names of the people who said they wanted to make a comment, but I'm sure some of you may have changed your minds and would like to come up now. So, sir. Please state your name.

MR. DAWTON: Richard Dawton. I live at 49 Murray Terrace. I grew up over on James Street, 15 years I lived there. I played on the flats and over there in the dumps when I was young. The question I have is, when you took your boring samples, I believe you were

over what they call the flats. The area where in 1959, in the early 60s where they hauled all the dirt off to build the 290. They probably took, and I don't know for sure but I'm going to say maybe anywhere around nine to 15 foot of soil out of there. You're sampling right now the land that is missing 15 foot of soil, that you took the soil and dragged down the 290. We just don't know whereabouts on the 290 that soil would all be from the top where uranium would be. But what really bothers me is, was there at one time uranium there? I don't think your soil tests today would show that there was any there unless through ground seepage. And that's my question for today. Thank you.

LT. COL. HURLEY: Thank you, sir.

JOAN MORRISSEY: Would anyone else like to make a comment at this time?

MS. TEMPEST: Yes. I would like to say that I grew up at 123 Hackett Drive. I lived there my whole life.

JOAN MORRISSEY: Miss, could I have your name, please?

MS. TEMPEST: My name is Susan Tempest.

I just recently moved back into that house to take care of my father because of the fact that I lost my mother from cancer, not even two years ago. You people are saying that there is no risk back there? Go down Hackett Drive and know how many families and how many people have died from cancer on that street alone. My mother, one of my best friends.

My best friend in the whole wide world died from cancer. My parents bought that house when I was two years old. They had a perfect right. They lived together through thick and thin, and my father, I have to see him every day missing my mother like my other five brothers and sisters. You have to look and say, oh, my God, these are real people living on this street. These are people that have lost their loved ones. Not your freaking numbers saying that this and this and it's safe to live there. Excuse me. Come and live at that house. My daughter is now in that basement, and I need to know if it's safe for her to sleep in that basement or not. Is she going to also die from the same cancer my mother died from? Are you

going to be able to answer me that, sir? No. Are your numbers going to be able to answer that? No. I want that stuff moved from that land as soon as possible, not no, we got to do more tests, more tests, more tests. That's bull. Excuse me, but I want that stuff gone and I want it gone now, before I have to lose another family member. Thank you.

(Applause.)

LT. COL. HURLEY: Thank you.

MR. SANDERS: Would anyone else care to make a comment? Okay. If not, I'll turn the mike back over to Colonel Hurley.

LT. COL. HURLEY: Thank you, Bruce. Next slide please, Steve. I just want to take a moment here to thank everyone for your time tonight.

I appreciate your patience and your attentiveness as we have tried to explain our proposed plan and how we came up with that proposed plan. But I'd really like to thank you for the sincere concerns that you've expressed to us tonight. As I spoke earlier, and I'll say it again, we will address each

one of those questions and comments that were made tonight so if you've addressed a question or a comment we will answer that before we come to any sort of final decision. And you have my guarantee on that.

I'd just like to say one more thing, and that is that the Corps team, the members of the PDT our health physicists, risk assessors, will be available after the meeting if you have a specific question you'd like to ask us. We'll be up here and we'll stay and answer your questions. Thank you again for your time tonight.

(Applause.)

(Public Meeting concluded at 9:00 p.m.)

CERTIFICATE

I, [redacted], certify that the foregoing transcript of proceedings in the Proposed plan for the Tonawanda Landfill Vicinity Property, Tonawanda, New York. Public Meeting, was recorded utilizing a Sony BM-246, and transcribed via a Sony BM-246 transcribing and recording machine, and is a true and accurate record of the proceedings herein.

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