US Army Corps
of Engineers®
Buffalo District

RECORD OF DECISION

FOR THE BUILDING 14 OPERABLE UNIT

LINDE SITE, TONAWANDA, NEW YORK

APRIL 2003

I.

DECLARATION FOR THE RECORD OF DECISION

DECLARATION FOR THE RECORD OF DECISION

SITE NAME AND LOCATION

Building 14 Operable Unit, Linde Site
Town of Tonawanda, New York

STATEMENT OF BASIS AND PURPOSE

This Record of Decision (ROD) presents the selected remedial action for the Building 14 Operable Unit (OU) at the Linde Site in the Town of Tonawanda, New York. This remedial action was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act, 42 United States code 9601 et seq., as amended (CERCLA), and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) as directed by Congress in the Energy and Water Appropriation Act for Fiscal Year 2000, PL 106-60, 10 U.S.C. 2701. The information supporting the United States Army Corps of Engineers (USACE) decision as the lead agency on the selected remedy is contained in the Administrative Record file located at the USACE Public Information Center, 1776 Niagara Street, Buffalo, NY 14207 and the Tonawanda Public Library, 333 Main Street, Tonawanda, NY 14150.

Comments on the proposed plan provided by the New York State Department of Environmental Conservation (NYSDEC) were evaluated and considered in selecting the final remedy. USACE also considered comments from the United States Environmental Protection Agency (USEPA). Both the NYSDEC and USEPA support the selected remedial action, removal of Building 14. NYSDEC has expressed reservations regarding the cleanup level for uranium in the soils under Building 14 and the USACE application of 10 Code of Federal Regulations (CFR) Part 40, Appendix A, Criterion 6(6) which was used for the derivation of the cleanup level for uranium in soils at the Linde Site. For this reason NYSDEC has reserved its opinion on the adequacy of cleanup of uranium in Linde Site soils pending review of the final status survey data once remediation is complete.

ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response action selected in this ROD, may present an endangerment to public health, welfare, or the environment in the future.

DESCRIPTION OF THE SELECTED REMEDY

Background on Remedy Selection

During the early to mid-1940's, portions of the property formerly owned by Linde Air Products Corp., a subsidiary of Union Carbide Industrial Gas (Linde), now owned by Praxair, Inc., in the Town of Tonawanda, New York were used for the separation of uranium ores. The separation processing activities, conducted under a Manhattan Engineer District (MED) contract, resulted in elevated radionuclide levels in portions of the Linde property. Subsequent disposal and relocation of the processing wastes from the Linde property resulted in elevated levels of radionuclides at three nearby properties in the Town of Tonawanda: the Ashland 1 property; the Seaway property; and the Ashland 2 property. Together, these three (3) properties, with Linde, have been referred to as the Tonawanda Site.

Under its authority to conduct the Formerly Utilized Sites Remedial Action Program (FUSRAP), the U.S. Department of Energy (DOE) conducted a Remedial Investigation (RI), Baseline Risk Assessment (BRA), and Feasibility Study (FS) of the Tonawanda Site. In November 1993, DOE issued a Proposed

Plan (PP) for public comment for the Tonawanda Site, describing the preferred remedial action alternative for disposal of remedial waste and cleanup plans for each of the Tonawanda Site properties. The 1993 PP recommended that remedial wastes from the Tonawanda Site properties be disposed in an engineered on-site disposal facility to be located at Ashland 1, Ashland 2, or Seaway.

Numerous concerns and comments were raised by the community and their representatives regarding the preferred alternative identified in DOE's 1993 PP and the proposed onsite disposal of remedial action waste. In 1994, DOE suspended the decision-making process on the 1993 PP and re-evaluated the alternatives that were proposed.

On October 13, 1997, the Energy and Water Development Appropriations Act, PL 105-62, was signed into law, transferring responsibility for the administration and execution of FUSRAP from DOE to USACE. As a result, the responsibility for this project was transferred to USACE. As described above, Congress has directed USACE to conduct restoration work on FUSRAP Sites subject to CERCLA. Therefore, USACE is conducting this project in accordance with CERCLA.

In April 1998, USACE issued a ROD for cleanup of Ashland 1, Ashland 2, and Area D of the Seaway Site properties. Remediation of those properties was initiated by USACE in June 1998. USACE is addressing the Seaway Site in separate CERCLA documents.

USACE issued a CERCLA ROD for the Linde Site in March 2000. The March 2000 ROD outlines remedial actions to address Linde Site soils and structures that were radioactively contaminated as a result of the uranium processing that was conducted at the Site under an MED contract in the 1940s. The ROD excludes CERCLA decision-making on Building 14 and groundwater at the Linde Site. Remedial actions in accordance with the March 2000 ROD were initiated in June 2000. Groundwater at the Linde Site is being addressed in separate CERCLA documents.

In October 2002, USACE issued its PP for the Building 14 OU at the Linde Site. The remedial action proposed in the PP and selected in this ROD does not address any contamination which may be present at the site due to activities at the site after the period of MED contract work.

Selected Remedy

The remedy selected for the Building 14 OU at the Linde Site is referred to as Alternative 5, Removal, in the PP issued on October 10, 2002. Implementation of the selected remedy will involve demolishing Building14 and removing the building demolition debris from the Linde Site. The utility tunnel located beneath Building 14 will be relocated to allow for removal of contamination within and around the tunnel structure. Building components and soils under the building will be surveyed to determine the materials and soils that are radioactively contaminated with the contaminants of concern (COCs) (radium, thorium, and uranium) above the cleanup criteria. All materials and soils will be disposed at legally and properly permitted/licensed facilities.

USACE has determined that the cleanup standards found in 40 CFR Part 192, the standards for cleanup of the uranium mill sites designated under the Uranium Mill Tailings Radiation Control Act (UMTRCA) and the Nuclear Regulatory Commission (NRC) standards for decommissioning of licensed uranium and thorium mills, found in 10 CFR Part 40, Appendix A, Criterion 6(6) are relevant and appropriate for cleanup of MED-related contamination at the Linde Site.

In compliance with these standards, USACE will:

(1) Remove MED-related soil so that the concentrations of radium do not exceed background by more than 5 picocuries per gram (pCi/g) in the top 15 centimeters (cm) of soil or 15 pCi/g in any 15 cm layer below the top layer, averaged over an area of 100 square meters (m^2);

(2) Remove Building 14, so that no contaminated occupied or habitable building remains;

(3) Control the releases of radon into the atmosphere resulting from the management of uranium byproduct materials to not exceed an average release rate of 20 pCi/meter^2 second (m^2s);

(4) Remove MED-related soils with residual radionuclide concentrations averaged over a 100 square meter area that exceeds unity for the sum of the ratios of these radionuclide concentrations to the associated concentration limits, above background, of 554 pCi/g for total uranium (U_{total}) (the sum of uranium isotopes at natural abundance), 5 pCi/g for radium-226 (Ra-226) and 14 pCi/g for thorium-230 (Th-230) for surface cleanups and 3,021 pCi/g of U_{total}, 15 pCi/g of Ra-226 and 44 pCi/g of Th-230 for subsurface cleanups;

(5) In addition, consistent with the proposed plan for the Linde Site released for public comment in March 1999 prior to promulgation of the amendment to 10 CFR Part 40, Appendix A, Criterion 6(6) in June 1999, USACE will remediate the Linde Site to insure that no concentration of U_{total} exceeding 600 pCi/g above background will remain in the site soils.

USACE has also determined that the New York State Department of Labor (NYSDOL) Regulations for Ionizing Radiation Protection, 12 New York Codes, Rules and Regulations (NYCRR) Part 38, would be relevant and appropriate to the cleanup of any building or structural surface if such building or structural surfaces were to remain in place after the building is removed. Compliance with these requirements would require that such building or structural surface is remediated in accordance with Table 1 of 12 NYCRR Part 38 or removal of MED-related residual radioactive materials from such surfaces as would be necessary to meet the benchmark dose for surfaces of 8.8 mrem/y in accordance with 10 CFR Part 40, Appendix A, Criterion 6(6), based on the specific location of the surfaces and exposure scenarios, whichever is most stringent. Because the selected remedy involves the entire removal of the building and structural and building surface including the utility tunnel under the building, the application of these surface contamination criteria is not expected to be required. Appropriate as low as reasonably achievable (ALARA) principles will be considered in the detailed site remediation plan.

Verification of compliance with soil cleanup standards and criteria will be demonstrated using surveys developed in accordance with the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) and as may be required by the applicable or relevant and appropriate requirements (ARARs). Methodology to determine radon and gamma radiation levels will be developed in accordance with the ARARs and documented in the work plan for site remediation.

A ROD will be issued in the future that evaluates the Site groundwater and selects any required remedial action.

The selected remedy for the Building 14 OU addresses the principal threat at the site by eliminating radioactive contamination in soils and on building structures that may pose a future threat to the health of persons at the site. This remedy will not result in MED-related hazardous substances remaining at the site above the health-based levels after completion of the scope identified above. Because it is not expected that this remedy will result in hazardous substances, pollutants or contaminants remaining on site above

levels that allow for unlimited use and unrestricted exposure, a five year review will not be required for this remedial action. However, if reviews are necessary, the government will perform such reviews.

The estimated present value cost of the selected remedy is $9,800,000.

STATUTORY DETERMINATIONS

The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are legally applicable or relevant and appropriate to hazardous substances which are the subject of this response action, and is cost-effective.

None of the remedial alternatives identified for the Linde Site provide onsite treatment for the materials to be removed. The selected remedy includes offsite disposal, involving containment at the final disposal location and any treatment, which may be required to meet the standards of the offsite facility. This alternative will, therefore, achieve reduction in mobility, although no treatment is planned which will reduce the toxicity or volume of the disposed materials. The FS evaluated currently available treatment technologies for treatment during the removal and found none that would be economically and technologically feasible at this time. Thus, the selected alternative achieves the best possible result in terms of satisfying the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element.

William E. Ryan III

WILLIAM E. RYAN III
Colonel, Corps of Engineers
Acting Commander
Great Lakes and Ohio River Division

10 April 2003
Date

RECORD OF DECISION
FOR THE BUILDING 14 OPERABLE UNIT
LINDE SITE, TONAWANDA, NEW YORK

TABLE OF CONTENTS

I. DECLARATION FOR THE RECORD OF DECISION i

II. DECISION SUMMARY

1. SITE NAME, LOCATION, AND DESCRIPTION 1

1.1 Linde Site Overview 1
1.2 Site and Vicinity Land Use 1
1.2.1 Linde Site Description 1
1.2.2 Zoning and Future Land Uses 2
1.3 Physical and Environmental Site Characteristics 2
1.3.1 Topography and Surface Water Drainage 2
1.3.2 Geology 3
1.3.2.1 Regional Geology 3
1.3.2.2 Site Bedrock Geology 3
1.3.2.3 Site Soils 3
1.3.3 Groundwater 3
1.3.3.1 Regional Hydrogeology 3
1.3.3.2 Site Hydrogeology 4
1.3.4 Ecological and Cultural Resources 4
1.3.4.1 Terrestrial Biota 4
1.3.4.2 Aquatic Biota 4
1.3.4.3 Floodplains and Wetlands 4
1.3.4.4 Endangered and Threatened Species 5
1.3.4.5 Archaeological, Cultural, and Historical Resources 5

2. SITE HISTORY 5
2.1 Site History Overview 5
2.2 History of the Linde Property 5
2.2.1 Site Ownership 5
2.2.2 Uranium Processing at Linde 6
2.2.3 Subsurface Disposal of Liquid Effluent from Uranium Processing at the Linde Site ... 7
2.3 Building 14 History and Description 7
2.4 Site Investigations and Studies 7
2.5 Proposed Plan and ROD for the Linde Site 7
2.6 Radiological Surveys in Building 14 8
2.6.1 Surveys Conducted in 1976 and 1981 8
2.6.2 Surveys Conducted in 1988 and 1989 8
2.7 Remediation Conducted in Building 14 8
2.7.1 Building 14 Decontamination – 1996 to 1998 9
2.7.1.1 DOE's Cleanup Criteria Used in the Decontamination of Building 14 9
2.7.2 Effectiveness of Building 14 Decontamination 10
2.8 Current Conditions – Building 14 11
2.8.1 Soils 11

Table of Contents (continued)

2.8.2 Building Floors, Walls and Overheads 11
2.8.3 In-Bed Drainlines 12
2.8.4 Process Piping 12

3. HIGHLIGHTS OF COMMUNITY PARTICIPATION 12

4. SCOPE OF REMEDIAL ACTION 13
4.1 Cleanup Criteria and Standards 13
4.1.1 Applicable or Relevant and Appropriate Requirements (ARARs) - Definitions 13
4.1.2 ARARs for Building 14 at the Linde Site 14
4.1.2.1 USEPA Regulations for Cleanup and Control of Uranium Mill Tailings Sites, 40 CFR Part 192 14
4.1.2.2 NRC Regulations Establishing Criteria for License Termination at Uranium Recovery Facilities, 10 CFR Part 40, Appendix A, Criterion 6(6) 15
4.1.2.3 New York State Department of Labor (NYSDOL) Regulations for Ionizing Radiation Protection, 12 New York Codes, Rules and Regulations (NYCRR) Part 38 15
4.1.2.4 Evaluation of 10 CFR Part 40 and 12 NYCRR Part 38 Surface Release Criteria 16
4.2 Summary of Remedial Action Objectives and Cleanup Standards and Guidelines for MED-Contaminated Media at Building 14 16
4.2.1 Introduction and Remedial Action Objectives 16
4.2.2 Health Based Cleanup Criteria and ARARs 17
4.2.3 Groundwater 17

5. SUMMARY OF SITE CHARACTERISTICS 17
5.1 Site Contamination Overview 17
5.2 Building 14 Contamination 18
5.3 Summary of Radiological COCs 18
5.4 Potential Chemical COCs 18

6. SUMMARY OF SITE RISKS 18
6.1 Radiological Health Risk 19
6.2 Dose Calculations for Residual Radioactivity in Building 14 and Risks 19
6.3 Chemical Health Risk 20
6.4 Ecological Risk 20

7. REMEDIAL ACTION ALTERNATIVES FOR BUILDING 14 21

8. SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES 22
8.1 Evaluation Criteria 22
8.2 Comparison of Alternatives 23
8.3 Overall Protection of Human Health and the Environment 23
8.4 Compliance with ARARs 23
8.5 Long-Term Effectiveness and Permanence 24
8.6 Short-Term Effectiveness and Environmental Impact 24
8.7 Reduction in Toxicity, Mobility or Volume Through Treatment 24
8.8 Implementability 24

Table of Contents (continued)

8.9 Cost 25
8.10 State Acceptance 25
8.11 Community Acceptance 25

9. THE SELECTED REMEDY 25

10. STATUTORY DETERMINATIONS 26
10.1 Protection of Human Health and Environment 26
10.2 Attainment of ARARs 26
10.3 Cost Effectiveness 27
10.4 Utilization of Permanent Solutions and Alternative Treatment Technologies or Resource Recovery Technologies to the Maximum Extent Practicable 27

11. EXPLANATION OF SIGNIFICANT CHANGES 28

12. REFERENCES 28

List of Figures

Figure 1-1 Regional Location of the Town of Tonawanda, New York and the Ashland 1, Ashland 2, Seaway, Linde, and the Town of Tonawanda Landfill Sites
Figure 1-2 Vicinity Locations of Ashland 1, Ashland 2, Seaway, Linde, and the Town of Tonawanda Landfill Sites
Figure 1-3 Linde Site Locations
Figure 2-1 Locations – Building 14 – Linde Site
Figure 2-2 Locations Exceeding DOE Criteria – Building 14 Operable Unit – Linde Site

List of Tables

Table 2-1 Applicable Guidelines for Protection Against Radiation Adapted from DOE Order 5400.5 as Reported by ORNL (Limits for Uncontrolled Areas)
Table 2-2 Locations and Volumes of Soils Exceeding Remedial Action Criteria
Table 2-3 Building Locations Exceeding Remedial Action Criteria
Table 4-1 Benchmark Dose DCGL Estimates for Worst-Case Unit – All Surface Areas Considered
Table 4-2 New York State Department of Labor Acceptable Surface Contamination Levels
Table 4-3 Preliminary Acceptable Surface Contamination Release Criteria Based on ARARs
Table 8-1 Comparison of Remedial Action Alternatives – Linde Site – Building 14 OU

List of Appendices

Appendix A - Responsiveness Summary

ACRONYMS, FORMULAS AND SYMBOLS

AEC	Atomic Energy Commission
ALARA	As Low as Reasonably Achievable
ARAR	applicable or relevant and appropriate requirement
BNI	Bechtel National, Inc.
BRA	Baseline Risk Assessment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
Ci	Curie(s)
CFR	Code of Federal Regulations
cm	centimeter(s)
COC	contaminant(s) of concern
Conrail	Consolidated Rail Corporation
CSX	CSX Corporation
cy	cubic yard(s)
DoD	Department of Defense
DOE	Department of Energy
dpm	disintegrations per minute
DCGL	Derived Concentration Guideline Levels
ECIDA	Erie County Industrial Development Authority
EDE	effective dose equivalent
EE/CA	Engineering Evaluation/Cost Analysis
FBDU	Ford Bacon Davis Utah, Inc.
ft	foot/feet
FS	Feasibility Study
FUSRAP	Formerly Utilized Sites Remedial Action Program
g	gram(s)
gpm	gallons per minute
HI	Hazard Index
HQ	Hazard Quotient
ICRP	International Commission of Radiological Protection
IVC	Independent Verification Contractor
L	liter(s)
lb	pound(s)
m	meter(s)
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MED	Manhattan Engineer District
mg	milligram(s)
mrem	millirem(s)
NYCRR	New York Codes, Rules, and Regulations
NYSDOL	New York State Department of Labor
OU	Operable Unit
PRAR	Post Remedial Action Report
μR/hr	microroentgens per hour
NCP	National Contingency Plan
NRC	Nuclear Regulatory Commission
NWI	National Wetlands Inventory
NYSDEC	New York State Department of Environmental Conservation
ORNL	Oak Ridge National Laboratory
pCi	picocurie(s)
PP	Proposed Plan

ACRONYMS, FORMULAS AND SYMBOLS (continued)

Ra	radium
RI	Remedial Investigation
RME	reasonable maximum exposure
ROD	Record of Decision
s	second(s)
SAIC	Science Applications International Corporation
SHPO	State Historical Preservation Office
TEDE	Total Effective Dose Equivalent
Th	thorium
U	uranium
U_3O_8	triuranium octoxide
UMTRCA	Uranium Mill Tailings Radiation Control Act
U.S.	United States
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
U_{total}	total uranium
WL	Working Level
yr	year(s)

II.

DECISION SUMMARY

1. SITE NAME, LOCATION, AND DESCRIPTION

Building 14 OU, Linde Site
Town of Tonawanda, New York

1.1 Linde Site Overview

During the early to mid-1940's, portions of the property formerly owned by Linde Air Products Corp., a subsidiary of Union Carbide Industrial Gas (Linde), now owned by Praxair, Inc., in the Town of Tonawanda, New York, were used for the separation of uranium ores. These processing activities, conducted under a MED contract, resulted in radioactive contamination of portions of the property and buildings. Subsequent disposal and relocation of processing wastes from the Linde property resulted in radioactive contamination of three nearby properties in the Town of Tonawanda: the Ashland 1 property, the Seaway property, and the Ashland 2 property. Together these three properties, with Linde, have been referred to as the Tonawanda Site. The regional and vicinity locations of the four properties that comprise the Tonawanda Site are shown in Figures 1-1 and 1-2. As shown in Figure 1-2, the Linde Site (Linde Center) is located at East Park Drive and Woodward Avenue in Tonawanda. In 1992, the DOE designated two properties, the Town of Tonawanda Landfill and the Mudflats Area, into FUSRAP as a Vicinity Property of the Linde Site due to the discovery of materials that appeared to have similar characteristics to MED materials. USACE has initiated a Remedial Investigation/Feasibility Study (RI/FS) of these properties and decisions on potential FUSRAP actions will be made in the future. The locations of these properties are shown in Figure 1-2. This ROD addresses the Building 14 OU at the Linde Site.

USACE is the lead agency for purposes of selecting and implementing the remedial action pursuant to authority established in CERCLA and Public Law 105-245. The Linde Site is not listed on the USEPA's National Priority List. For purposes of FUSRAP, the Site remedial actions conducted at the Building 14 OU of the Linde Site will address only hazardous substances that were released during the period of MED contract work and related to activities in support of MED and not any earlier or later releases of hazardous substances that may have occurred, except to the extent they may be commingled with the MED-related hazardous substances.

1.2 Site and Vicinity Land Use

1.2.1 Linde Site Description

The Linde Site comprises about 135 acres located at East Park Drive and Woodward Avenue in the Town of Tonawanda. The site is bounded on the north and south by other industry and small businesses, on the east by CSX Corporation (CSX) [formerly Consolidated Rail Corporation (Conrail)] railroad tracks and Niagara Mohawk property and easements, and on the west, by a park owned by Praxair, which is open to the public. The Linde property is generally flat and it is estimated that approximately half of the Linde plant area is covered with impervious surfaces such as roofs, paved areas and sidewalks; the other half is covered with a packed gravel surface and sod that allows infiltration of precipitation. The property is underlain by a series of utility tunnels that interconnect some of the main buildings and by an extensive network of storm and sanitary sewers. Several railroad spurs extend onto the property from the CSX property east of the site. The Linde property is fenced and has a buffer zone of grass and trees around the main buildings (DOE 1993a).

The property contains office buildings, fabrication facilities, warehouse storage areas, material laydown areas, and parking lots. Access to the property is controlled by Praxair. Approximately 1,400 employees work at the Praxair facilities. Figure 1-3 shows Linde Site locations.

The Linde Site is currently used for commercial and industrial purposes, and industrial facilities have been present at the site for more than 60 years. As described above, the site is surrounded by industries and small business on three sides and by a park, which is owned by Praxair, on the fourth side.

Most of the Linde property is owned by Praxair. A small parcel (4.7 acres), located within the Linde property, is owned by the Erie County Industrial Development Agency (ECIDA). The ECIDA purchased the property as an incentive for Linde to expand. The ECIDA is exempt from paying property taxes on the parcel and the parcel is used by Linde as a logistics center (DOE 1993a).

1.2.2 Zoning and Future Land Uses

The Town of Tonawanda has adopted a zoning ordinance that regulates land uses in the Town and zoning districts were established to permit varying degrees of land uses. The Linde property is located in a Performance Standards Zoning District. The purpose of the Performance Standards 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 conditions.

Restrictions in this district permit an institution for human care or treatment or a dwelling unit only if the development abuts a residential zoning district. Other restricted uses include junkyards, waste transfer or disposal, land mining and stockyards. Any proposed uses must follow the acquisition of a Performance Standards use permit. Performance Standards uses are not permitted that exceed New York State regulations or other standards listed in the zoning codes book, such as standards for noise, odor emission, dust emission, and vibrations, as measured at the individual property line.

Zoning in the Linde property vicinity includes a business district to the north, a low-density residential area to the west, and the Performance Standards District to the south and east. Because the west boundary of the site abuts a residential zone, construction of an institution for human health care or treatment or a dwelling unit are not strictly prohibited under the Performance Standard zoning category. However, given the past and current use of the Linde Site for industrial and commercial uses for more than 60 years, including the ownership of part of the property by ECIDA to promote industrial use, USACE has concluded that the reasonably anticipated future land use of the property will be for industrial/commercial purposes (USACE 2000).

1.3 Physical and Environmental Site Characteristics

1.3.1 Topography and Surface Water Drainage

The Linde Site is relatively flat and is situated on a broad lowland east of Two Mile Creek, a tributary of the Niagara River. Two Mile Creek begins south of Linde in a natural channel. Near the southern boundary of the Linde Site flow in Two Mile Creek is directed into twin subsurface box conduits which traverse the Linde Site, underground. Stormwater runoff from Linde is collected in the facility's stormwater sewer system and is discharged to the two conduits. The twin conduits carry Two Mile Creek flows northerly, ultimately discharging through two large flow control gates located on the downstream face of the concrete dam that impounds Sheridan Park Lake. Downstream of the Sheridan Park Dam, the

natural channel of the Two Mile creek conveys flow in a generally northerly direction to the Niagara River, approximately 2 ¼ miles north of the Linde Site (see Figure 1-2).

1.3.2 Geology

The Linde Site is located within the Erie-Ontario Lowland Physiographic Unit of New York (BNI 1993). The Erie-Ontario Lowland has significant relief characterized by two major escarpments—the Niagara and the Onondaga. The elevation of the ground surface is approximately 600 feet (ft) above mean sea level at the Linde Site (BNI 1993).

1.3.2.1 Regional Geology

Mapping of regional bedrock geology indicates that the site area is situated on clayey glacial till. Underlying this glacial till is the Camillus Shale of the Salina Group. This Upper Silurian formation is approximately 400 ft thick in the area and consists predominantly of gray, red, and green thin-bedded shale and massive mudstone. Interbedded with the shale and mudstone are relatively thin beds of gypsum, dolomite, and limestone.

1.3.2.2 Site Bedrock Geology

Boring logs for eight (8) monitoring wells constructed at Linde during the RI show bedrock encountered at depths ranging from approximately 82 to 96 ft (BNI 1993).

The bedrock encountered (shales of the Salina Group) is generally described as a gray shale and mudstone with abundant thin layers and irregularly shaped masses of gypsum. Moderate to extensive fracturing is noted in the upper 6 to 15 feet of bedrock.

1.3.2.3 Site Soils

Based on numerous soil borings, the RI report indicates that the natural soils at Linde appear to be covered by a fill layer ranging in thickness from 0 to 17 ft. The fill contains substantial quantities of slag and fly ash that was apparently brought on-site from local sources for grading purposes during the construction of the Linde facility (BNI 1993).

Undisturbed soils that underlie the site are composed primarily of clay and sandy clay. These soils have low permeabilities precluding significant infiltration of precipitation.

1.3.3 Groundwater

The following briefly summarizes groundwater information available in more detail in the 1993 RI report (BNI 1993). As described above, USACE is addressing groundwater at the Linde Site in separate CERCLA documents.

1.3.3.1 Regional Hydrogeology

The Camillus Shale (shales of the Salina Group) is the most productive bedrock aquifer in the region. Water in this formation is obtained primarily from solution cavities that have formed as the gypsum contained in the rock dissolved. Although the shales of the Salina Group constitute the most productive

bedrock aquifer in the region [well yields as much as 1,200 gallons per minute (gpm)], the shales also contain the poorest quality water. Groundwater from these shales have high concentrations of dissolved solids, calcium, magnesium, sulfate and chloride. In the vicinity of the Linde Site, waters drawn from wells completed in the shale typically have total dissolved solids contents ranging from 2,000 to 6,000 milligrams/liter (mg/L), sulfate contents of 1,000 to 1,500 mg/L, and chloride contents of 1,500 to 2,000 mg/L. These high levels of total dissolved solids and salinity (derived from the evaporates) preclude use of this water for potable consumption without extensive, costly treatment. Its use is restricted to certain industries that can tolerate the high salinity and total dissolved solids.

1.3.3.2 Site Hydrogeology

At the Linde Site, the most productive water-bearing zone is comprised of the coarse-grained basal zone of the unconsolidated deposits and the fractured and jointed upper part of the Salina Group bedrock. This zone is collectively referred to as the contact-zone aquifer. Because bedrock does not occur at uniform depths throughout the area and the favorable water-bearing characteristics of the bedrock portion may not always correspond to the areas of coarsest-grained overburden, differences in the water-bearing properties of the contact zone aquifer may occur within short distances.

Piezometric surface maps for the contact-zone aquifer at the Tonawanda properties indicate fairly flat hydraulic gradients throughout the Tonawanda properties (i.e., gradients ranging from 0.0004 to 0.0005 ft/ft at Ashland 1 and the southeast portion of Ashland 2). At Linde, the piezometric surface appears to slope gently to the southwest.

1.3.4 Ecological and Cultural Resources

1.3.4.1 Terrestrial Biota

The Linde property supports several nearby mature eastern cottonwood, American sycamore, white ash, northern red oak, and shagbark hickory trees that were planted during landscaping activities. Urban lawns with plantings of shrubs were also established and are given periodic maintenance. Original vegetation was destroyed and natural plant succession has been disrupted during the industrial development and use of the Linde facility and surrounding area. Years of continuous industrial activity have left only marginal areas for natural plant communities. The property provides minimal urban wildlife habitats, supporting only the cosmopolitan species of birds and small mammals (DOE 1993a).

1.3.4.2 Aquatic Biota

The pond, located in the northwest corner of the Linde property, is connected to Sheridan Park Lake by a culvert underneath Sheridan Drive. The 1993 RI report indicates that Sheridan Park Lake is stocked annually by NYSDEC with about 2,000 adult calico bass (BNI 1993). An aquatic biota survey conducted of Sheridan Lake by NYSDEC in 1980 indicated the presence of warm water fish such as goldfish and perch.

1.3.4.3 Floodplains and Wetlands

No portion of the Linde property is within the 100-year flood zone of Two Mile Creek since it is contained in twin box culvert conduits along the western boundary of the property (DOE 1993a).

A review of National Wetland Inventory (NWI) maps (Tonawanda West and Buffalo Northwest quadrangles) identified no floodplains or wetlands onsite at Linde. Surface runoff from the site drains into two offsite floodplain and wetland areas to the north and west. West of Linde, a marshy strip lying along the twin conduits situated in the stream bed that runs parallel to the western boundary and empties into Two Mile Creek is mapped as a palustrine emergent floodplain and wetland with persistent narrow-leafed vegetation and temporary water regime. On the northeast corner of Linde, a palustrine forested floodplain and wetland with broad-leaved deciduous vegetation and a temporary water regime was identified on NWI maps. Also, information in the *Soil Survey of Erie County, New York* indicates areas of Linde that meet the criteria for hydric soils (DOE 1993a).

1.3.4.4 Endangered and Threatened Species

Except for occasional transient individuals, no federally-listed or proposed endangered or threatened species under jurisdiction of the United States Fish and Wildlife Service (USFWS) have been sighted in the project impact area. The most likely listed species to appear on or near the sites are the osprey, bald eagle, and peregrine falcon. No listed or suspected critical habitats occur on the Linde Site (DOE 1993b).

1.3.4.5 Archaeological, Cultural, and Historical Resources

A review of New York State records on archaeological, cultural, and historical resources indicates that none of these resources is close to the project area. Specifically, State Historical Preservation Office (SHPO) records do not indicate any known archaeological sites within a mile of the project area. In addition, SHPO records indicate that there are no cultural or historic sites near the project area listed on or eligible for the National Register of Historic Places (DOE 1993a).

2. SITE HISTORY

2.1 Site History Overview

As described in the foregoing sections, during the early to mid-1940s, Linde was contracted by MED to separate uranium from pitchblende uranium ore and domestic ore concentrates. These processing activities resulted in elevated levels of radionuclides in portions of the property and buildings. Subsequent disposal and relocation of processing wastes from Linde resulted in elevated levels of radionuclides at three nearby properties in the Town of Tonawanda: the Ashland 1 property, the Seaway property, and the Ashland 2 property. USACE is also investigating potential MED contamination at the Town of Tonawanda Landfill Site.

The history of the Linde Site is summarized below. (Refer to Figure 1-3 for locations.)

2.2 History of the Linde Property

2.2.1 Site Ownership

Tax mapping property information of the Town of Tonawanda indicates ownership of property at the Linde Site location by Union Carbide, Linde Division, in 1936. While portions of the land at the site were previously owned by the Town of Tonawanda, Excelsior Steel Ball Company, Metropolitan Commercial Corporation, and the Pullman Trolley Land Company, the land was not used by any of these

owners (FBDU 1981). It is likely that at some time in the past, the land was farmed (FBDU 1981). Commercial industrial processes were being conducted at the Linde Site by the Linde Air Products Division of Union Carbide prior to MED operations in the 1940's. Union Carbide operations continued at the Linde Site after the MED-related activities ceased. In the 1990's Praxair acquired the property and continued to perform commercial industrial processes focusing primarily on research and development.

2.2.2 Uranium Processing at Linde

A radiological survey report prepared for the Linde Site by Oak Ridge National Laboratory (ORNL) in 1978 reports that the "site was used for the separation of uranium dioxide from uranium ores and for the conversion of uranium dioxide to uranium tetrafluoride during the period of 1940-1948" (ORNL 1978). The 1978 ORNL report also states that the Linde Air Products Division was under contract to MED to perform uranium separations from 1940 through approximately 1948 (ORNL 1978).

As described in the RI report, five (5) Linde buildings were involved in MED activities: Building 14 (built by Union Carbide in the mid-1930's) and Buildings 30, 31, 37, and 38 (built by MED on land owned by Union Carbide) (BNI 1993). Ownership of Buildings 30, 31, 37, and 38 was transferred to Linde when the MED contract was terminated (BNI 1993). As also discussed in the RI report, there were three phases to the processing conducted at Linde – Phase 1: uranium separation from the ore; Phase 2: conversion of triuranium octoxide (U_3O_8) to uranium dioxide; and Phase 3: conversion of uranium dioxide to uranium tetrafluoride. The RI report states that the contaminants of concern at the Linde Site were primarily associated with the waste streams and residues of the Phase 1 operation and that any residues from the Phase 2 and 3 operations were reprocessed. All phases of operation have been reported to have occurred during the 1942 to 1946 period. A review of historical and recent documents indicates that the operations may have extended to the year 1948, particularly the Phase 2 and 3 operations (DOE 1997). Regardless of the actual duration of operations, the primary activity over most, if not all of the period during which MED-related activities occurred at the Linde Site was the separation of uranium from the ore; and the principal contaminants of concern were from the processing of wastes and residues from that operation since the residues from the other two phases were reported to have been recycled (Aerospace 1981).

Linde was selected for a MED contract because of the company's experience in the ceramics business, which involved processing uranium to produce salts used to color ceramic glazes (BNI 1993). Under the MED contract, uranium ores from seven different sources were processed in Linde: four African ores (three low-grade pitchblendes and torbernite) and three domestic ores (carnotite from Colorado) (BNI 1993).

Laboratory and pilot plant studies were conducted at Linde from 1942 to 1943 and uranium processing began at Linde in 1943 (BNI 1993). From mid-1943 to mid-1946, a total of about 28,000 tons of ore was processed at Linde (Aerospace 1981).

Between 1943 and 1946, approximately 8,000 tons of filter cake from the Phase 1 processing of domestic ores were taken from the temporary tailings pile at Linde and transported to the former Haist property, now known as Ashland 1. These residues contained approximately 0.54 percent uranium oxide [86,100 pounds (lbs) of natural uranium], which corresponds to 26.5 curies (Ci) of natural uranium. Because the residues from the African ore were relatively high in radium content compared with processed domestic ore residues, the African ore supplier required that the African ore residues be stored separately so that the radium could be extracted. Between 1943 and 1946, approximately 18,600 metric tons (20,500 tons) of residues from African ore were shipped to the former Lake Ontario Ordnance Works in Lewiston, New

York, where they could be isolated and stored in a secure area (Aerospace 1981). The production progress reports also showed that approximately 140 metric tons (154 tons) of African ore residues were shipped to Middlesex, New Jersey (Aerospace 1981).

2.2.3 Subsurface Disposal of Liquid Effluent from Uranium Processing at the Linde Site

The 1993 RI report for the Tonawanda Site (BNI 1993) indicated that approximately 55 million gallons of waste effluent containing dissolved uranium oxide was injected into the subsurface at Linde through seven (7) wells over a period of three years beginning in 1944. This ROD does not address the groundwater at the Linde Site. A ROD will be issued in the future that evaluates the Site groundwater and selects any required remedial action.

2.3 Building 14 History and Description

As described above, five Linde Buildings were involved in MED activities between 1942 and 1946: Building 14 (built by Union Carbide in the mid-1930s) and Buildings 30, 31, 37, and 38 (built by MED on land owned by Union Carbide (See Figure 1-3.)

Building 14 was used for laboratory and pilot plant studies for uranium separation in the early part of MED operations. Historical drawings indicate that the MED laboratory and pilot plant studies were initially confined to the south part of the building. It is unclear how extensively the remainder of the building was used for MED operations. However, documents indicate that laboratory and pilot plant operations were continued for the purpose of experimenting and developing more efficient processing methods, and operations appear to have been expanded into most of the building, possibly to support larger pilot studies. The available records do not indicate whether or not the use of Building 14 ceased before the MED/Atomic Energy Commission (AEC) operations were discontinued at Linde. Building 14 is currently used for offices, research laboratories, and fabrication facilities.

Building 14 has a footprint of about 210 feet by 220 feet. It is a single-story structure except for a partial second floor of offices on the west side. The building has three roof levels of 18 feet on the west side, 30 feet on the east side, and 55 feet in the high bay in the southeastern corner. The exterior walls are composed of three courses of brick. Figure 2-1 shows the layout of Building 14. The Linde property is underlain by a series of utility tunnels that interconnect some of the main buildings. A section of one of these tunnels is located under Building 14.

2.4 Site Investigations and Studies

Extensive investigations and studies of the Linde Site and Linde Site conditions were conducted and were relied upon in the preparation of the RI report (BNI 1993), BRA (DOE 1993b), and FS (DOE 1993a) for the Linde Site, which were issued by DOE in 1993. USACE reviewed these DOE documents, conducted additional studies of the Linde Site, and issued the PP and ROD for the Linde Site in 1999 and 2000, as described below. The principal MED-related radiological COCs identified in the investigations conducted at the Linde Site are U_{total}, radium and thorium.

2.5 Proposed Plan and ROD for the Linde Site

In March 1999, USACE issued its PP for the Linde Site (USACE 1999). The PP summarized findings of Linde Site investigations and studies, identified the cleanup criteria for Linde Site remediation, described the remedial action alternatives identified and evaluated by USACE, described the findings of the

evaluation, and proposed a plan for remediation, which involved the excavation and off-site disposal of contaminated soils, decontamination of buildings, and would have included the imposition of institutional controls in Building 14 of the Linde Site, where a minor amount of contamination would have been left after remediation was completed.

The ROD for the Linde Site was finalized by USACE in March 2000 (USACE 2000). The remedy selected in the ROD for the Linde Site includes the residual radioactive material removal and building and slab removal actions described in the March 1999 PP but excludes any remedial action for Building 14 and the soils beneath Building 14. Remediation of the Linde Site in accordance with the March 2000 ROD is underway at Linde.

2.6 Radiological Surveys in Building 14

2.6.1 Surveys Conducted in 1976 and 1981

Radiological surveys of Building 14 were conducted in 1976 by ORNL and in 1981 by Ford, Bacon & Davis Utah, Inc. (FBDU). The 1976 ORNL survey found interior surfaces in Building 14 to be radioactively contaminated (ORNL 1978). In 1980, the property owner removed cement flooring and cement wall surfaces until levels twice the background levels were achieved. The 1981 FBDU survey was a complete radiological survey of Building 14. FBDU considered Building 14 to be free of contamination based on the results of the survey (FBDU 1981) and regulatory guidance in effect in 1981.

2.6.2 Surveys Conducted in 1988 and 1989

The RI of the Linde Site included spot checking (between December 1988 and March 1989) of Building 14 radiological contamination by Bechtel National Incorporated (BNI). The sampling included: samples of dust and dirt from behind stairwells and other areas normally inaccessible for routine cleaning; direct contact alpha and beta-gamma measurements at random locations on the floor and walls; and smear samples on walls and floor to determine potential removable activity (BNI 1993).

The fixed-point beta-gamma measurements ranged from less than 720 to 278,420 disintegrations per minute per square centimeter (dpm/cm^2). All readings that exceeded DOE guidelines were taken in the first floor in the center of the building where the tile and carpet had been removed. (DOE guidelines for radiological contamination are described in Section 3 below.) The highest readings were at the bottom of the staircase between the upper and lower levels of the first floor.

Survey results indicated that most of the first floor contained fixed residual radioactivity exceeding DOE guidelines. The second floor appeared to be free of contamination.

A sample of dust from the basement stairwell contained 590 pCi/g of uranium-238 (U-238), 0.4 pCi/g of Ra-226, and less than 1.0 pCi/g of Th-230. The RI report states that this confirmed the BNI fixed-point beta-gamma measurements and indicated the presence of radioactive contamination in Building 14.

2.7 Remediation Conducted in Building 14

As described above, Building 14 was decontaminated by the owner in 1980, and was determined to be free of contamination in 1981 (FBDU 1981), but was subsequently determined by DOE to be contaminated (BNI 1993).

2.7.1 Building 14 Decontamination – 1996 to 1998

Work on decontamination of Building 14 was initiated in 1996 under DOE direction and was completed in August 1998 by USACE. The details of the investigations and decontamination of Building 14 are provided in the report *Post Remedial Action Report for Building 14 at the Linde Site, Tonawanda, New York* (BNI 1999), (hereinafter also referred to as "the PRAR"). The work included pre-remediation surveys, removal of radioactive contamination from accessible building surfaces, drain pipes, sumps, concrete, and accessible contaminated soil from beneath concrete slabs. The details of the decontamination performed in Building 14 are summarized in the following sections.

2.7.1.1 DOE's Cleanup Criteria Used in the Decontamination of Building 14

USACE is not self-regulating and is not operating as a contractor for DOE, which means that DOE Orders and guidelines are not applicable to USACE. However, the decontamination of Building 14 was in progress when Congress transferred the responsibility for FUSRAP from DOE to USACE in 1997 and the decontamination of Building 14 continued in accordance with DOE Order 5400.5*, Radiation Protection of the Public and the Environment* (DOE 1990) and the guideline for U_{total} in soils developed by DOE described below. DOE Order 5400.5 establishes regulatory guidance on radiation protection of the public and the environment from (1) residual concentrations of radionuclides in soils, (2) concentrations of airborne radon decay products, (3) external gamma radiation, (4) surface contamination, and (5) radionuclide concentrations in air or water resulting from or associated with any of the above. The attainment of these criteria and standards allows DOE to release a property for use without radiological restrictions or allows DOE to determine completion of remedial actions.

The DOE did not propose a plan or sign a ROD that selected a remedial action for Building 14 prior to beginning decontamination activities. Subsequent actions and the cleanup criteria that must be met, if any, at Building 14 by USACE, must be selected and conducted in accordance with CERCLA and the NCP as further discussed in Section 4.

DOE Order 5400.5 generic guidelines for residual concentrations of Ra-226, radium-228 (Ra-228), Th-230 and thorium-232 (Th-232) in soil are:

- 5 pCi/g above background, averaged over the first 15 centimeters (cm) of soil below the surface; and
- 15 pCi/g above background, averaged over 15-cm-thick layers of soil more than 15 cm below the surface.

Soil remediation at Building 14 used these guidelines and also a guideline for U_{total} in soils of 60 pCi/g above background, averaged over 100 square meters (m^2) (ANL 1990) (DOE 1992), all established by DOE. Soil cleanup to DOE's generic guidelines, supplemented by the uranium guideline of 60 pCi/g is hereinafter referred to as cleanup to the 5/15/60 criteria. The soil and building surface cleanup criteria adopted by USACE in the March 2000 ROD for the Linde Site and in this ROD for Building 14, are described in Section 4.

DOE has also established building surface contamination guidelines. DOE considers its surface contamination guidelines applicable to existing structures and equipment and DOE applies these limits to both interior equipment and building components that are potentially recoverable. For the Linde Site, where radionuclides associated with the U-238 chain are the primary radiological constituents of concern, U-238 and other alpha-emitting radionuclides are limited to residual surface contamination levels of

15,000 dpm/cm^2, 5,000 dpm/cm^2, and 1,000 dpm/cm^2 for maximum, average, and removable contamination, respectively. Beta/gamma-emitting radionuclides are limited to the same levels of residual surface contamination, but the limits are implemented independently of alpha-emitting radionuclide levels (BNI 1999).

The DOE criteria also require that the average level of gamma radiation inside a building or habitable structure on a site to be released without radiological restrictions must not exceed the background level by more than 20 microroentgens per hour (μR/hr) and must comply with the basic dose limit when an "appropriate-use" scenario is considered.

2.7.2 Effectiveness of Building 14 Decontamination

Removal of radioactive surface contamination in Building 14 was effective in terms of meeting DOE criteria in most areas. In some limited areas, inaccessible to decontamination equipment, surficial contamination was reported to exceed the DOE surface contamination criteria after decontamination work was completed. Removal of soils beneath the building slab to meet DOE criteria for soils was also effective in most areas. Limited volumes of soils with contamination in excess of the DOE guidelines were left in place under building footers and large equipment structure support areas to ensure building integrity (BNI 1999).

As decontamination work proceeded in Building 14, an independent verification contractor (IVC) conducted post remediation checking of remediated areas to verify whether decontamination was effective under the terms of DOE guidelines for surfaces and soils. ORNL served as the IVC and issued periodic reports on findings, which are summarized in the PRAR. ORNL issued its final IVC report for Building 14 in July 2000 (ORNL 2000). Table 2-1 lists the criteria used by ORNL in determining the effectiveness of Building 14 decontamination efforts in meeting DOE Order 5400.5.

A limited, scoping survey (i.e., 10% of the surface) of the exterior of Building 14 was also conducted during the investigations and decontamination of Building 14. The results of the Building 14 exterior survey are provided in a report entitled *Building 14 Exterior Walls and Roof Survey Results* (BNI 1998). Several areas of radioactive contamination exceeding DOE surface contamination guidelines were identified on the exterior surfaces on the north, east, and west walls and roof of Building 14 (BNI 1999).

As described in the PRAR, DOE Order 5400.5 states that if specific property circumstances indicate that the guidelines or authorized limits for residual activity established for a given property are not appropriate for any portion of that property, then supplemental limits or an exception may be requested. The process for requesting supplemental limits is an in-house DOE procedure requiring documentation that the subject guidelines or authorized limits are not appropriate and that the alternative action selected will provide adequate protection, giving due consideration to health and safety, the environment, costs, and public policy considerations.

For Building 14, the application of supplemental limits was determined on a case-by-case basis and implemented only after careful consideration of the DOE criteria (BNI 1999). The PRAR refers to supplemental limit locations in Building 14 as locations exceeding criteria and excluded any radiological dose from the exposure to residual, contaminated soils. These locations are described in more detail in Section 4, below.

DOE Order 5400.5 also requires the application of the ALARA policy to cleanup and control residual radioactive material. ALARA is an approach used to manage and control exposure and releases of

radioactive material to the environment so that levels are as low as are achievable, taking into account social, technical, economic, practical, and public policy considerations. In applying the ALARA process, the first task is to ensure that the area being remediated is at or below the authorized limit or dose constraint, the second is to determine that the residual radioactive material is reduced to levels that are as low as reasonably achievable below the dose constraint. This approach was applied during each phase of delineation and remediation conducted at Building 14 (BNI 1999).

2.8 Current Conditions – Building 14

The Building 14 PRAR describes, in extensive detail, the pre-remediation surveys and the remediation and post-remediation surveys conducted in Building 14. In addition, potential doses to workers performing building renovations and remediation of Building 14 were also estimated in the PRAR. The estimates excluded any radiological dose from the exposure to residual, contaminated soils.

Except for locations identified for the application of supplemental limits, all surfaces and subsurface soils known to be contaminated were successfully remediated to meet the DOE surface contamination guidelines and site-specific criteria. All areas exceeding these remedial action guidelines were clearly identified and designated for the application of supplemental limits. This designation was made only after evaluating all remedial options and attempting to remediate to the extent possible in keeping with ALARA principles (BNI 1999).

A sampling program for radon was implemented within the building to demonstrate compliance with the DOE regulations (DOE Order 5400.5) regarding airborne concentrations of radon decay products. Sample results for all monitoring locations were well below the applicable guidelines.

Building 14 decontamination efforts and areas of the building where contamination exceeds the DOE criteria are described in the following sections.

Figure 2-1 shows Building 14 locations referenced in the PRAR and this ROD. Figure 2-2 shows Building 14 locations where radioactivity exceeds [DOE Order 5400.5 (DOE 1990)] DOE criteria following the decontamination completed in 1998.

2.8.1 Soils

The Building 14 decontamination effort included subsurface soil investigations at a number of locations in Building 14 and removal of contaminated soil from under the building slabs in several areas. Soil remediation (excavation and removal) was conducted in Areas 12, 13, 14 North and 14 South. These areas were formerly used for the digestion of uranium ore.

Table 2-2 summarizes locations where soil exceeds DOE cleanup guidelines and volumes of contaminated soils remaining after Building 14 decontamination. As shown in Table 2-2, based on information in the PRAR, approximately 11 cubic yards (cy) of soils above DOE's 5/15/60 criteria remain at inaccessible locations under Building 14.

2.8.2 Building Floors, Walls and Overheads

Extensive decontamination was conducted on floors, walls, overhead areas and pipes throughout Building 14. Where detected contamination was inaccessible, supplemental limits were deemed

appropriate. Table 2-3 summarizes locations where floors, walls, overhead areas and pipes have contamination exceeding the DOE criteria.

Many of these areas may be accessed by the property owner during periodic maintenance, repair, and remodeling operations. For instance radiological contamination remaining on difficult to access portions of the overhead crane rails and in building drain lines may be encountered during repairs while contaminated floor sections remaining beneath laboratory fume hoods may be exposed during future remodeling operations. Contamination has also been found on the building roof and exterior. Currently, any access to these areas is controlled administratively by the property owner. Controls are in place to monitor contaminant levels and to specify proper work practices, thus minimizing the risks to workers.

2.8.3 In-Bed Drainlines

When Building 14 was originally constructed, a network of below-grade drainlines was installed to receive runoff flow from the floor drains, floor trenches, and the roof. The total length of the trench drainline system is estimated to be 734 feet based on historical drawings.

Attempts were made to remediate sections of the drainline exceeding DOE's generic surface guidelines. In some cases, sections of the drainline were removed. However, it was not deemed feasible to remediate all of the pipes because of the excessive cost and construction risk associated with excavating the pipes at depths of approximately 8 feet below grade and the difficulty removing pipes beneath load-bearing walls. A total of 191 feet of the trench drainline system were removed, leaving an estimated 543 feet in place (BNI 1999). As noted in Table 2-3, beta-gamma activity measurements ranged from 5,480 to 160,000 dpm/100 cm^2 in the accessible portions of these drainlines. Some of the drainlines are actively being used and are currently discharging to the site's stormwater system. Currently, any access to these areas is controlled administratively by the property owner. Controls are in place to monitor contaminant levels and to specify proper work practices, thus minimizing the risks to workers.

2.8.4 Process Piping

As part of the investigation of the Building 14 interior, an extensive survey was conducted to evaluate radiological conditions of the process piping within the building. No removable contamination was found on the external surfaces. Fixed contamination was detected at various locations, all of which were successfully decontaminated to below DOE generic surface criteria. Contamination was also found within the utility tunnel beneath the building. Decontamination was not conducted on the utility tunnel nor the outside of the building (BNI 1999). Currently, any access to these areas is controlled administratively by the property owner. Controls are in place to monitor contaminant levels and to specify proper work practices, thus minimizing the risks to workers.

3. HIGHLIGHTS OF COMMUNITY PARTICIPATION

Public input was encouraged to ensure that the remedy selected for the Building 14 OU at the Linde 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 the following locations:

U.S. Army Corps of Engineers
Public Information Center
1776 Niagara Street
Buffalo, NY 14207-3199

Tonawanda Public Library
333 Main Street
Tonawanda, NY 14150

On October 18, 2002, a letter announcing the release of the PP was sent to 22 individuals including elected officials. Post cards were sent to individuals on the Site mailing list. Individuals wishing to receive the letter announcing the release of the PP were instructed to return the post cards. Approximately 100 post cards were returned and letters were sent to those individuals.

Legal advertisements announcing the November 19, 2002, public meeting on the Building 14 PP were placed in the Buffalo News, the Ken-Ton-Bee and the Tonawanda news. The legal advertisements appeared in these newspapers on October 27, 2002, October 23, 2002 and October 22, 2002, respectively. A correction to the legal advertisements was placed in these newspapers and this correction appeared in these newspapers on November 3, 2002, November 13, 2002 and November 3, 2002, respectively.

The public meeting was held on November 19, 2002 from 7 p.m. to 9 p.m. in the Holmes Elementary School Auditorium adjacent to the Linde Site. Eleven members of the public indicated that they wanted to speak at the meeting. A court reporter was available at the meeting to record comments. At the meeting USACE explained the history of the Site and Building 14, studies and investigations completed, areas of contamination, CERCLA evaluation criteria, the remedial action alternatives and the schedule. Comments received at the public meeting and written comments are addressed in Appendix A, the Responsiveness Summary. The meeting transcript is included in Appendix A.

4. SCOPE OF REMEDIAL ACTION

The remedial action involves the demolition and removal of Building 14, the removal of contamination from building subsurface structures including a utility tunnel and the removal of MED-related radiologically contaminated soils under Building 14, all in accordance with the ARARs selected for the Site. The building components and soils will be disposed at an appropriately licensed or permitted facility.

4.1 Cleanup Criteria and Standards

The cleanup criteria and standards to be used in remediation of the Building 14 OU at the Linde Site are described in the following sections.

4.1.1 Applicable or Relevant and Appropriate Requirements (ARARs) - Definitions

Applicable requirements are those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal environmental or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location or other circumstance at a CERCLA site. An applicable requirement directly and fully addresses an element of the remedial action.

Relevant and appropriate requirements are those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria or limitations promulgated under federal environmental or state environmental or facility siting laws that, while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is suited to the particular site.

Only those state laws or regulations that are promulgated, are identified by the state in a timely manner, and are more stringent than federal requirements may be applicable or relevant and appropriate.

The lead agency, USACE, has determined that the following are the cleanup ARARs for the remedial activities at Building 14.

4.1.2 ARARs for Building 14 at the Linde Site

The ARARs for Building 14 at the Linde Site are described below.

4.1.2.1 USEPA Regulations for Cleanup and Control of Uranium Mill Tailings Sites, 40 CFR Part 192

The standards found in 40 CFR Part 192 are not considered applicable because the regulation is only applicable to specific sites designated under the UMTRCA. However, USACE has determined that 40 CFR Part 192 is relevant and appropriate to the cleanup of the Linde Site. This determination was made based on the similarity of the ore processing activities to extract uranium and resulting radionuclides found in the waste after processing at Linde to the activities and wastes found at uranium mill sites where the regulation is applicable.

Subpart B of 40 CFR Part 192 addresses cleanup of land and buildings contaminated with residual radioactive material from inactive uranium processing sites, and sets standards for residual concentrations of Ra-226 in soil. It requires that radium concentrations shall not exceed background by more than 5 pCi/g in the top 15 cm of soil or 15 pCi/g in any 15 cm layer below the top layer, averaged over an area of 100 m^2.

These 40 CFR Part 192, Subpart B requirements are considered relevant and appropriate to the cleanup of the Linde Site and buildings.

Subpart A of 40 CFR Part 192 establishes standards for control of residual radioactive materials at UMTRCA Sites and requires, in part, that designs for control must be effective for up to one thousand years, to the extent reasonably achievable, and, in any case, for at least 200 years. Subpart A also includes radon standards for any residual materials remaining at the site. These standards require that control of residual radioactive materials must provide reasonable assurance that releases of radon-222 from residual radioactive material to the atmosphere will not (1) exceed an average release rate of 20 pCi per square meter per second, or (2) increase the annual average concentration of radon-222 in air at or above any location outside the site by more than 0.5 pCi/L.

This Subpart A provision of 40 CFR Part 192 is considered relevant and appropriate for Building 14 remedial alternatives that include leaving residual radioactive contaminants in place within or under the building.

4.1.2.2 NRC Regulations Establishing Criteria for License Termination at Uranium Recovery Facilities, 10 CFR Part 40, Appendix A, Criterion 6(6)

New regulations amending 10 CFR Part 40, Appendix A, Criterion 6(6) were promulgated by NRC and became effective on June 11, 1999. These regulations were evaluated and determined to not be applicable to the Linde Site because NRC has not licensed material at the Linde Site. However, they were found to be relevant and appropriate for the Linde Site since they address residual uranium and other radionuclides present at uranium mill sites, similar to the Linde Site. 10 CFR Part 40, Appendix A, Criterion 6(6) requires that residual radioactive materials remaining after remediation will not result in a total effective dose equivalent (TEDE), considering all radionuclides present (e.g., radium, thorium, and uranium) to the average member of the critical group exceeding a benchmark dose established based on cleanup to the radium standards of 5 pCi/g in the top 15 centimeters and 15 pCi/g in subsequent 15 centimeter layers below the top layer and must be ALARA. This benchmark dose is then used to establish allowable soil and surface concentration levels for the various radionuclides present other than radium. The regulation states that the benchmark dose is the calculation of the potential peak annual TEDE within 1000 years to the average member of the critical group that would result from applying the radium standard (not including radon) on the site.

As described in the ROD for the soils at the Linde Site (USACE 2000), USACE computed the benchmark doses for the cleanup of surface and subsurface soil at the Linde Site. The results of the evaluation found that the surface and subsurface cleanup benchmark doses for a commercial/industrial worker scenario were 8.8 mrem/yr and 4.1 mrem/yr, respectively. The various radionuclide concentration limits, above background, within a 100 square meter area for the surface cleanup benchmark dose were 554 pCi/g of U_{total}, 5 pCi/g of Ra-226 and 14 pCi/g of Th-230. The various radionuclide concentration limits, above background, within a 100 square meter area for the subsurface cleanup benchmark dose were 3,021 pCi/g of U_{total}, 15 pCi/g of Ra-226 and 44 pCi/g of Th-230. These criteria, which are being applied during the ongoing remediation of Linde Site soils in accordance with the ROD for the Linde Site (USACE 2000), would apply to the soils being remediated at Building 14.

Because the selected remedial alternative for Building 14 involves the complete removal of the structure and contaminated portions of the utility tunnel and other subsurface structures under Building 14, application of surface criteria is not anticipated to be required. If building surface criteria were to be required, they would be developed for specific buildings or surfaces based on likely exposure scenarios and meeting the surface cleanup benchmark dose of 8.8 mrem/yr. USACE has generated a preliminary estimate of what the potential surface cleanup criteria would need to be to meet the benchmark dose of 8.8 mrem/yr (USACE 2002). Two exposure scenarios were evaluated, the industrial worker and the renovation worker. Table 4-1 presents a summary of the potential surface release criteria, presented as Derived Concentration Guideline Levels (DCGLs), for the two scenarios for various areas of contamination. The actual surface cleanup criteria to be used, if required, would have to be developed along with consideration of ALARA principles and would be included in the final, approved remediation work plans for Building 14.

4.1.2.3 New York State Department of Labor (NYSDOL) Regulations for Ionizing Radiation Protection, 12 New York Codes, Rules and Regulations (NYCRR) Part 38

12 NYCRR Part 38, is not applicable to the Linde Site and Building 14 since the Linde Site is not licensed by NYSDOL. Table 5 of 12 NYCRR Part 38 is, however, considered by USACE to be relevant and appropriate to the cleanup of Building 14 surface areas. Table 5 of the regulations specifies

acceptable levels of surface radiological contamination when decontamination of a licensed facility is required. While Building 14 is not licensed by NYSDOL, the 12 NYCRR Part 38, Table 5 criteria address cleanup of radiologically contaminated surface areas for the protection of workers. If surface cleanup were to be undertaken, 12 NYCRR Part 38, Table 5 would be considered by USACE to be relevant and appropriate to any radiological cleanup of surfaces. As further described in Section 4.1.2.4, USACE believes that if it were necessary to apply surface cleanup criteria during Building 14 remedial action, criteria developed in accordance with 10 CFR Part 40, Appendix A, Criterion 6(6) would be protective for large areas, however, for small areas cleanup in accordance with 12 NYCRR Part 38 would be more stringent. Therefore, in the interest of ensuring protectiveness, USACE has determined that 12 NYCRR Part 38 should be considered relevant and appropriate to Building 14 remediation. The NYSDOL surface criteria are essentially equivalent to the DOE surface criteria used in the decontamination of Building 14 that was completed in 1998. Table 4-2 of this ROD lists the NYSDOL surface contamination criteria.

4.1.2.4 Evaluation of 10 CFR Part 40 and 12 NYCRR Part 38 Surface Release Criteria

As indicated above, USACE developed a preliminary set of potential surface cleanup criteria that would satisfy the 10 CFR Part 40 benchmark dose of 8.8 mrem/yr to assess whether there were any major differences between the potential criteria and what was used at Building 14, which were equivalent to the surface release criteria stated in Table 5 of 12 NYCRR Part 38. Tables 4-1 and 4-2 summarize the preliminary surface criteria for 10 CFR Part 40 and the surface criteria for 12 NYCRR Part 38, respectively. In comparing these two tables, the surface criteria associated with the benchmark dose are more restrictive than the NYSDOL criteria for larger areas of surface contamination. However, once the area of surface contamination falls below approximately 20 m^2, the NYSDOL surface criteria are more restrictive. Also note that within the larger 100 m^2 area, no single 1 m^2 area can exceed the NYSDOL criteria, which is an average over a 1 m^2 area. Therefore, the final set of surface criteria that would need to be finalized and approved in the remedial action work plans for any decontamination efforts would have to address both ARARs. Table 4-3 is an example of what those potential surface cleanup criteria could be. The need for application of these criteria is not anticipated, since the entire building will be removed and all contaminated portions of the utility tunnel and other subsurface structures will also be removed.

4.2 Summary of Remedial Action Objectives and Cleanup Standards and Guidelines for MED-Contaminated Media at Building 14

USACE's remedial action objectives and cleanup standards and guidelines for Building 14 remedial action and the rationale USACE used in adopting cleanup standards and guidelines are addressed in this section.

4.2.1 Introduction and Remedial Action Objectives

The evaluation of Building 14 was undertaken in accordance with CERCLA and the NCP. In assessing the need for building remediation and options for building remediation, if necessary, USACE first addressed the two threshold criteria that must be met for all remedial actions under CERCLA and the NCP. These threshold criteria are:

- the remedy must be protective of public health and the environment, and
- the remedy must attain ARARs.

USACE has adopted these threshold criteria as the general remedial action objectives for Building 14. How USACE considered these general remedial action objectives in adopting specific cleanup criteria for Building 14 is addressed in the following sections.

4.2.2 Health Based Cleanup Criteria and ARARs

Under the NCP, which establishes USEPA regulations for compliance with CERCLA, acceptable exposure levels for known or suspected carcinogens are expressed in terms of lifetime cancer risk to an individual.

Under Section 300.400(e)(2)(i)(A)(2) of the NCP "acceptable exposure levels are generally concentration levels that represent an excess upper bound life-time cancer risk to an individual of between 10^{-4} and 10^{-6} using information on the relationship between dose and response." "The 10^{-6} risk level shall be used as the point of departure for determining remediation goals for alternatives when ARARs are not available or not sufficiently protective because of the presence of multiple pathways of exposure."

As described above, ARARs are available for cleanup of Building 14 and there are still known areas within Building 14 that exceed the criteria in those ARARs. As further described in Section 6, the risks associated with residual radioactive contamination in Building 14 have been assessed, based on contaminant levels that existed prior to decontamination. The risk to a typical worker, assumed to work 8 hours per day over a period of 30-years in Building 14, was estimated to be 9.8×10^{-5}. Thus, the risk is considered to be within the acceptable range. The risk estimates were based on conditions prior to decontamination efforts completed in 1998. The current risk is considered to be less because extensive decontamination efforts have now been completed.

4.2.3 Groundwater

This ROD does not address the groundwater at the Linde Site. A ROD will be issued in the future that evaluates the Site groundwater and selects any required remedial action.

5. SUMMARY OF SITE CHARACTERISTICS

5.1 Site Contamination Overview

The 1993 DOE RI report (BNI 1993) describes elevated levels of radionuclides at the Linde Site resulting from the processing of uranium ores at the property during the mid-1940s under a MED contract. The MED-related contamination at Linde resulted, for the most part, from three activities associated with uranium processing: the handling of uranium ores, the temporary storage and handling of solid residues before they were shipped offsite for disposal, and the disposal of liquid waste from the uranium processing operations. The 1993 PP (DOE 1993c) identified three sources of radioactive contamination at Linde: the uranium processing buildings, surface and subsurface soils, and sediments in sumps and storm and sanitary sewers. The primary radioactive contaminants in the soils and sediments are U-238, Ra-226, Th-230, and their respective radioactive decay products (DOE 1993c).

Since the RI report was prepared in 1993 Buildings 38 and 30 have been demolished and Buildings 14 and 31 have been decontaminated.

Since June 2000, remediation of the Linde Site has been underway in accordance with the USACE March 2000 ROD (USACE 2000) and remediation under the March 2000 ROD is expected to be complete in 2004.

5.2 Building 14 Contamination

Radiological contamination prior to and after decontamination efforts initiated in 1996 and completed in 1998 are described in detail in Section 4.

Removal of radioactive surface contamination in Building 14 was effective in terms of meeting DOE criteria in most areas. In some limited areas, inaccessible to decontamination equipment, surficial contamination was reported to exceed the DOE surface contamination criteria after decontamination work was completed. Removal of soils beneath the building slab to meet DOE criteria for soils was also effective in most areas. Limited volumes of soils with contamination in excess of the DOE guidelines were left in place under building footers and large equipment structure support areas to ensure building integrity.

5.3 Summary of Radiological COCs

The final list of radiological COCs for soil includes Ra-226, Th-230, U-238 and their associated decay products (DOE 1993b). Although not considered MED-related, the Th-232 and U-235 series were included in the risk assessment conducted by DOE. No elevated levels of radionuclides were detected by the DOE in surface waters or sediments downstream of the Linde Site (DOE 1993a). Th-230 and U-238 were identified as radiological COCs in sediments found on the Linde Site in sumps and sanitary and storm sewers (DOE 1993a).

5.4 Potential Chemical COCs

The chemical data evaluated are those reported in the RI report for the Tonawanda Site (BNI 1993). Chemicals in the RI database were evaluated in accordance with EPA data validation guidance in *Risk Assessment Guidance for Superfund, Volume I* (USEPA 1989). Background samples for soil were used to identify naturally-occurring levels of chemicals and ambient concentrations.

As detailed in the BRA, risks resulting from nonradioactive chemical constituents were found to be within the USEPA acceptable risk range for an industrial use scenario. Therefore, there are no chemical COCs for human health concerns.

6. SUMMARY OF SITE RISKS

The 1993 BRA (DOE 1993b) was prepared to evaluate the risk to human health and the environment from the radioactive and chemical constituents at the site. In accordance with EPA guidance, the primary health risks investigated were cancer and other chemical-related illnesses, as well as the ecological risks. This assessment evaluated the potential risks that could develop in the absence of cleanup and assumes that no controls (e.g., fencing, maintenance, protective clothing, etc.) are, or will be, in place. The purpose of the BRA was to determine the need for cleanup and provide a baseline against which the remedial action alternatives were compared. The complete report is in the administrative record file and a

brief summary of the radiological and chemical health risks, as well as the ecological risks, is provided herein.

The BRA identified the means by which people and the environment may be exposed to constituents present at the Tonawanda Site. Mathematical models were used to predict the possible effects on human health and the environment from exposure to radionuclides and chemicals for both present and future uses at the site. The modeled risk estimates in the BRA were then compared to the NCP's risk criteria. The findings of these comparisons of USACE's updated risk characterization for the site are described below.

6.1 Radiological Health Risk

The 1993 BRA provides risk estimates for average (mean) exposure conditions under hypothetical scenarios for current and projected future land use. These estimated risks were calculated using the average radionuclide concentrations present at the properties. The results predicted that, for the current land uses, no one would be exposed to unacceptable risks. For assumed future land uses, the mean radiological risk, as was reported in the original 1993 PP, was predicted to be within the NCP's range of acceptability at Linde.

USEPA's guidance for risk characterization requires that modeling to estimate risks also include what is called a Reasonable Maximum Exposure (RME) scenario. RME calculations assume that a worker at the site for a longer period of time than the average worker (30 years for the RME worker and 22 years for the average worker), would be exposed to higher concentrations of dust than the average worker, would inhale more air than the average worker, would spend more time each day outside than the average worker, and would ingest more soil each day than the average worker. Using these higher RME exposure assumptions, the BRA reported that RME radiological risks to workers at some Linde Site areas slightly exceed the NCP's target risk range under current conditions. The BRA assumed that future use of the Linde Site will be commercial/industrial.

6.2 Dose Calculations for Residual Radioactivity in Building 14 and Risks

Two assessments, using contaminant levels prior to decontamination, were performed to determine potential radiological doses associated with current ("actual") and future ("likely use") building activities, including hypothetical renovation and building demolition scenarios. The first calculation (129-CV-023) estimated dose from exposure to residual contamination in the building floors, walls, and overheads. A second calculation (129-CV-029) was added when it was found that drainlines beneath the building may be contaminated. This second calculation estimated dose from exposure to residual contamination in the in-bed drainlines during maintenance and remediation/demolition activities.

The dose assessment calculations were performed using computer modeling programs developed by DOE for determining allowable residual concentrations of radionuclides in soil (RESRAD, version 5.61) and evaluating the potential radiological dose incurred by an individual who works or lives in a building contaminated with radioactive material (RESRAD-BUILD, version 1.5).

Preliminary characterization data from surveys taken prior to any remediation (e.g., the 1996-1998 building decontamination effort) were used for the baseline calculations. Thus, since the building has been decontaminated, the dose calculated was believed to be highly conservative.

The details of the radiological dose calculations are provided in the PRAR. One of the calculations (129-CV-023) addresses the potential dose to a typical worker in Building 14. The dose calculations in the

PRAR assume that a typical worker is in the building 8 hours per day, 250 days per year, over a period of 50 years. The BRA for the Tonawanda Site (DOE 1993b) states that, based on current work patterns, an average employee at Linde is assumed to work 22 years and a RME employee is assumed to work for 30 years. Thus, the assumption in the PRAR calculation that an employee in Building 14 would be exposed for a period of 50 years is considered to be highly conservative. USACE believes that use of a 30-year exposure duration is appropriate for a worker in Building 14.

Based on these highly conservative assumptions, the PRAR estimates that the dose to a typical worker in Building 14 would be 5.82 millirem per year (mrem/yr). Based on information from the International Commission on Radiological Protection (ICRP) (ICRP 1990), an adult occupational exposure to radiation at a level of 1 mrem would result in a total risk of 5.6×10^{-7}.[1] Using this relationship, USACE estimates that the cancer risk to a typical worker in Building 14 receiving a conservatively estimated dose of 5.82 mrem/yr over a 30-year period would be 9.8×10^{-5}. A further discussion of risk in CERCLA decision-making is provided in Section 4.2.2 of this ROD.

The dose calculations presented in the PRAR do not consider potential doses to a typical worker due to the presence of radiological contaminated inaccessible soil left in place under the building. Since areas surrounding the inaccessible soils were excavated and covered over by concrete, no exposure to typical workers would be expected due to the presence of these soils (USACE 2001).

Potential doses to workers performing building renovations and remediation of Building 14 were also estimated in the PRAR. The details of these estimates are provided in the PRAR.

6.3 Chemical Health Risk

The 1993 BRA also evaluated cancer and chemical toxicity risks. The risk of developing an incremental increase of cancer over a 70-year lifetime from chemical carcinogens at the site was evaluated for both average (mean) exposure and for RME. The evaluation showed no chemical risks at Linde exceeding the NCP's target risk range for an industrial use scenario.

Potentials for chemical noncarcinogenic health effects were also evaluated in the BRA. These potential effects are expressed as chemical-specific hazard quotients (HQs). HQs were tabulated for chemicals of concern. HQs were summed for each pathway to provide a total hazard index (HI) for the pathway. The calculated HIs for all exposure pathways for all scenarios evaluated at the Tonawanda Site properties, including Linde, are much less than 1, thus indicating that no unacceptable effects would be expected.

6.4 Ecological Risk

The Ecological Risk Assessment included in the 1993 BRA follows USEPA's general procedures for ecological assessments in the Superfund program. The characterization of habitats and biota at risk are semiqualitative, and screening of contaminants and assessment of potential impacts to biota are based on measured environmental concentrations of the constituents and toxicological effects reported in the literature.

[1] As stated in ICRP 60 (ICRP 1990), the normal probability coefficient for the stochastic effects for occupational exposures total 5.6×10^{-2}/Sv (equivalent to 5.6×10^{-7}/mrem). The total risk calculated using this coefficient is conservatively assumed to represent the cancer risk for comparison to the CERCLA risk range.

The Linde Site is located in a highly modified urban, industrial area and provides urban wildlife habitat supporting only cosmopolitan species of birds and small mammals. No critical habitats for threatened or endangered species are present on the Site. No threatened or endangered species exist on the Linde Site and ecological risks are minimal. USACE has concluded that no significant impact has occurred to ecological resources from previous releases of hazardous substances at the Linde Site.

7. REMEDIAL ACTION ALTERNATIVES FOR BUILDING 14

The remedial action alternatives considered by USACE for Building 14 are:

- **No. 1: No Action.** Under the NCP, a no action alternative is required to be considered to serve as a baseline for comparison with other alternatives. Under this alternative, Building 14 would be left alone. No provisions for land use controls[2] would be made and no CERCLA 5-year reviews would be conducted.

- **No. 2: Land Use Controls.** This alternative would leave the Building as is. No sealants or barriers were proposed because they could not be effectively placed in the areas where contamination remains. Implementation of this alternative would include providing appropriate land use controls to ensure that building users and the public are protected from the radiological contamination that is present in and under the building at the locations identified in the PRAR, on the outside of the building and in the utility tunnel that runs under the building. These land use controls assume no transfer of property ownership (i.e., the building remains under private industry control) and would include measures, which would be implemented by 2nd and 3rd parties, not Government, to protect building users and the public from the possibility of encountering radiological contamination at building locations where radiological contamination could be present, but may not have been specifically identified in the PRAR. Because contamination would be left in place in and under the building, a review of site conditions and the effectiveness of the land use controls would be conducted every five years, as required by CERCLA. The land use controls implemented would be designed to be effective for up to 1,000 years to the extent reasonably achievable, and in any case, for at least 200 years in order to meet the Subpart A standards of 40 CFR Part 192, Section 192.02(a).

- **No. 3: Further Decontamination.** The locations (materials and soils) identified in the PRAR as remaining contaminated after completion of Building 14 remediation in 1998, the areas on the outside of the building and the utility tunnel that runs under the building would be decontaminated using cleanup criteria developed by USACE in accordance with CERCLA and ARARs. The utility tunnel located beneath Building 14 would be relocated to allow for removal of contamination within and around the tunnel structure. Appropriate land use controls would be implemented to ensure that any potential future building modifications would include measures to identify and control potential radiological contamination that could be present within building components. As in Alternative 2, the land use controls implemented would be designed to be effective for up to 1,000 years to the extent reasonable achievable, and in any case, for at least 200 years.

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[2] Consistent with Department of Defense (DoD) (DoD 2001) policy, this ROD specifies land use controls rather than institutional controls. Land use controls include any type of physical, legal, or administrative mechanisms that restricts use of, or limits access to, a real property to prevent or reduce risks to human health or the environment. The legal mechanisms used for land use controls are generally the same as those used for institutional controls as discussed in the NCP. Institutional controls are a subset of land use controls and are primarily legal mechanisms imposed to ensure the continued effectiveness of land use restrictions imposed as part of a remedial decision.

- **No. 4: Further Characterization and Further Decontamination.** The locations (materials and soils) identified as remaining contaminated would be decontaminated as in Alternative No. 3. Additionally, further characterization of Building 14 would be conducted to identify, using borings and other techniques, the potential presence of additional contamination in the interior of building components. If further contamination is identified, decontamination would be conducted. The utility tunnel located beneath Building 14 would be relocated to allow for removal of contamination within and around the tunnel structure. After further decontamination, if required, Building 14 would be released for unrestricted use.

- **No. 5: Removal.** This alternative would involve demolishing Building 14 and removing the building demolition debris from the Linde Site. The utility tunnel located beneath Building 14 would be relocated to allow for removal of contamination within and around the tunnel structure. Building components and soils under the building would be surveyed to determine materials and soils radioactively contaminated above the cleanup criteria (ARARs). All materials and soils would be disposed of legally and properly at permitted/licensed waste facilities.

8. SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

The remedial action alternatives for Building 14 described in Section 7 were evaluated using the CERCLA criteria to determine the most favorable action for Building 14. These criteria are described below. The criteria were established to ensure that the remedy is protective of human health and the environment, meets regulatory requirements, is cost effective, and utilizes permanent solutions and treatment to the maximum extent practicable. The evaluation criteria are described in Section 8.1, followed by a summary of the comparative analysis in Sections 8.2 through 8.11.

8.1 Evaluation Criteria

The following two criteria are threshold criteria and must be met.

- *Overall Protection of Human Health and the Environment* - addresses whether an alternative provides adequate protection and describes how exposure to hazardous substances is eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.

- *Compliance with Federal and State Environmental Regulations* - addresses if a remedy would meet all of the federal and state ARARs.

The following criteria are considered balancing criteria and are used to weigh major tradeoffs among alternatives being evaluated.

- *Long-Term Effectiveness and Permanence* - addresses the remaining risk and the ability of an alternative to protect human health and the environment over time, once cleanup goals have been met.

- *Short-Term Effectiveness and Environmental Impacts* - addresses the impacts to the community and site workers during cleanup including the amount of time it takes to complete the action.

- Reduction in Toxicity, Mobility, or Volume Through Treatment - addresses the anticipated performance of treatment that permanently and significantly reduces toxicity, mobility, or volume of waste.

- *Implementability* - addresses the technical and administrative feasibility of an alternative, including the availability of materials and services required for cleanup.

- *Cost* - compares the differences in cost, including capital, operation, and maintenance costs.

The following are considered modifying criteria and are generally taken into account after public comment is received on the PP.

- *State Acceptance* - evaluates whether the State agrees with, opposes, or has no comment on the preferred alternative.

- *Community Acceptance* - addresses the issues and concerns the public may have regarding each of the alternatives as expressed in comments.

8.2 Comparison of Alternatives

The following sections summarize a comparative analysis of the Building 14 remedial alternatives in terms of the CERCLA threshold and balancing evaluation criteria described above.

8.3 Overall Protection of Human Health and the Environment

Of the five (5) alternatives addressed, only Alternative 1, No Action, is considered to be not protective of human health. Alternative 1 is considered not protective because no land use controls would be in place in the short term or longer term under Alternative 1 to limit access to areas of the building and under the building where residual radioactive contamination is known to exist. Thus, potentially unacceptable risks posed by the presence of contaminants are not eliminated, reduced, or controlled under Alternative 1.

The other alternatives are protective of human health. Alternative 2 is protective because it limits access to the contaminants present through land use controls thereby controlling and thus eliminating potential unacceptable exposure. Alternative 3 is protective because it removes the known contaminated materials and soils present and controls access to areas where currently unknown contamination may exist thereby eliminating potential unacceptable exposure. Alternatives 4 and 5 are protective because all contaminated materials and soils exceeding the cleanup levels required by the ARARs will be removed eliminating potential unacceptable exposure.

None of the alternatives pose significant environmental risks.

8.4 Compliance with ARARs

Alternative 1 is not compliant with ARARs because areas of the building would continue to retain radiological surface contamination in excess of the ARARs' surface criteria, soils exceeding soils cleanup criteria would remain in place and no action would be taken to ensure long term control of residual contamination as required by 40 CFR Part 192, Subpart A. Alternative 2 is not compliant with ARARs

because building surface contamination in excess of the ARARs' surface criteria would remain in place. Alternatives 3, 4 and 5 are considered to be compliant with ARARs.

8.5 Long-Term Effectiveness and Permanence

Alternative 1 is not effective in the long term and is not effective in terms of permanence because it is not protective of human health and is not compliant with ARARs. Because Alternative 2 is uncertain with respect to protection of public health in the long term and is not compliant with ARARs, Alternative 2 is considered ineffective in the long term, and therefore, ineffective in terms of permanence. Alternatives 3, 4 and 5 are considered to be effective in the long term and permanent because the remedial actions proposed under each of these alternatives are protective of human health and are compliant with ARARs. Of these three, Alternative 3 is rated lower than Alternatives 4 and 5, because Alternative 3 relies on land use controls to preclude the potential for inadvertent contact with contamination that could exist in the building at locations not yet discovered. Alternative 5 is rated first in terms of effectiveness and permanence because implementation of Alternative 5 would involve removal of all known contamination and any potentially undiscovered contamination from the Site. As noted earlier, Alternative 4 does not provide absolute surety that all contaminated areas would be found and remediated.

8.6 Short-Term Effectiveness and Environmental Impact

Alternative 1 is not effective in the short term because there would be no controls in place to limit access to contaminated building areas and no action would be taken to attain the cleanup ARARs that have been identified for the building and soils under the building. Alternative 2 is effective in the short term in terms of protectiveness of human health because land use controls would be in place to limit access to contaminated areas and land use controls are considered reliable in the short term. Alternative 2 is not effective in the short term in terms of attaining ARARs because no action would be taken to remove contamination to levels complying with the ARARs' surface contamination criteria. The other alternatives are effective in the short term. There are no significant risks to the environment associated with any of the alternatives.

8.7 Reduction in Toxicity, Mobility or Volume Through Treatment

None of the alternatives involve on-site treatment of contamination. For those alternatives involving removal of contaminated soils or materials from the site to an off-site facility, reduction in toxicity, mobility or volume would depend on the selected disposal facility and its operating license/permit.

8.8 Implementability

Alternative 1 is easily implementable because no action is taken. Alternative 2 is relatively easy to implement in the short term, requiring that the building owner ensures that land use controls are in place and utilized to ensure that intrusive work in the building is subject to controls, or eliminates any use of the buildings and avoids the potential for encountering contamination in known or potentially undiscovered areas. In the longer term, the implementability of Alternatives 2 and 3 is considered difficult, because the means to ensure that required land use controls are effective for up to 1,000 years, and in any case, for at least 200 years, are uncertain.

Alternatives 3 and 4 are considered to be difficult and highly difficult, respectively, to implement because of the technical complexity of accessing locations under building support members and equipment, while also ensuring that impacts on Praxair operations are minimized. Alternative 5 is considered to be moderately difficult to implement, requiring acquisition of a temporary work area easement to allow

demolition of Building 14 and close coordination with Praxair to ensure that ongoing Praxair operations are not significantly disrupted as a result of the remediation.

8.9 Cost

The estimated present value costs for implementation of the remedial alternatives considered for Building 14 are:

Alternative	Description	Estimated Present Value ($)*
1	No Action	0
2	Land Use Controls	460,000
3	Further Decontamination	8,300,000
4	Further Characterization and Further Decontamination	8,600,000
5	Removal	9,800,000

*Based on a 7% discount rate. Estimated present value costs represent present values in the year 2000.

Table 8-1 compares the remedial alternatives for Building 14 in terms of CERCLA threshold and balancing criteria. The evaluation in terms of CERCLA modifying criteria are addressed in Sections 8.10 and 8.11, below.

8.10 State Acceptance

The NYSDEC has stated its support for Alternative 5, removal of Building 14, but has reserved its opinion on the adequacy of cleanup of uranium in Linde Site soils pending review of the final status survey data once remediation is complete. A letter from NYSDEC concerning the Proposed Plan for Building 14 is included in Appendix A. The USACE response to the NYSDEC letter is included in Appendix A.

8.11 Community Acceptance

At the public meeting conducted on November 19, 2002, support for the selected remedy, Alternative 5, removal of Building 14, was voiced by the public. The details of comments at the public meeting for the project, written comments and USACE's responses to comments, are included in Appendix A of this ROD.

9. THE SELECTED REMEDY

USACE has selected Alternative 5, Removal. Implementation of this alternative will involve demolishing Building 14 and removing the building demolition debris from the Linde Site. The contaminated portions of the utility tunnel located beneath Building 14 and any impacted structures under Building 14 will be removed. Building components and soils under the building will be surveyed to determine material and soils radioactively contaminated above the cleanup criteria (ARARs). Subsurface structures may be encountered that cannot be removed due to logistic difficulties. If uranium, radium, or thorium at concentrations above the surface cleanup criteria are discovered, the surfaces will be decontaminated to meet the more stringent of the NYSDOL standards in effect on the date of the ROD or the standards determined based on 10 CFR 40, Appendix A, including the benchmark dose calculations. All materials and soils will be disposed of legally and properly at permitted/licensed facilities. While Alternative 5 is

more costly than the other alternatives, it is considered to be the most protective both in the short and long term and is permanent because all the building components and subsurface soils that are potentially contaminated would be removed from the Site. It is noted, however, that the estimates at this level of project development may vary from –30% to +50% in accordance with USEPA guidance (USEPA 2000). Accordingly, Alternatives 3, 4 and 5 may be considered to be similar in cost. Alternatives 3 and 4 estimates have more uncertainty than Alternative 5 since there is a degree of uncertainty associated with the amount and location of additional contamination and the degree of difficulty associated with removing it. Alternative 5 is also the most certain in ensuring that cleanup to ARARs is accomplished, since no building components, such as walls or slabs, will remain that may cover potentially contaminated areas despite the best efforts of decontamination. While Alternative 5 may be slightly more costly than the other alternatives, it addresses contamination under the building not thoroughly addressed in the other alternatives and the eventual cost of remediating this material in the future could be greater.

Alternative 5 provides the best balance among the considered alternatives with respect to the evaluation criteria. In addition, implementation of this remedy can be accomplished in compliance with all applicable laws relating to the protection of the public health and the environment. This remedy will not result in MED-related hazardous substances remaining at the site above the health-based levels after completion of the scope identified above.

10. STATUTORY DETERMINATIONS

The selected remedy satisfies the statutory requirements of Section 121 of CERCLA as follows:

- the remedy must be protective of human health and the environment;
- the remedy must attain ARARs or define criteria for invoking a waiver;
- the remedy must be cost effective; and
- the remedy must use permanent solutions and alternative treatment technologies to the maximum extent practicable.

The manner in which the selected remedy satisfies each of these requirements is discussed in the following sections.

10.1 Protection of Human Health and Environment

Upon completion, the selected remedy for the Linde Site will be fully protective of human health and the environment and meet cleanup criteria based on ARARs. During remedial activities, engineering controls during construction will be put in place as required and environmental monitoring and surveillance activities will be maintained to ensure protectiveness, so that no member of the public will receive radiation doses above guidelines from exposure to residual radioactive contaminants.

There are no short-term threats associated with the selected remedy that cannot be readily controlled and mitigated. In addition, no adverse cross-media impacts are expected from the remedy.

10.2 Attainment of ARARs

This remedy requires the removal of MED-related residual radioactive materials so that the standards of the ARARs are met. That will involve the removal of residual radioactive materials so that; (1) the concentrations of radium in remaining soil do not exceed background by more than 5 pCi/g in the top 15

cm of soil or 15 pCi/g in any 15 cm layer below the top layer as averaged over $100m^2$, and (2) the residual radionuclide concentrations remaining in soils averaged within a 100 square meter area that results in unity or less for the sum of the ratios of these radionuclide concentrations to the associated concentration limits, above background, of 554 pCi/g for U_{total}, 5 pCi/g for Ra-226 and 14 pCi/g for Th-230 for surface cleanups and 3,021 pCi/g of U_{total}, 15 pCi/g of Ra-226 and 44 pCi/g of Th-230 for subsurface cleanups, and (3) while it is not anticipated that any building or structural surfaces will remain at the Building 14 location, the remaining residual radioactive materials on structure surfaces meet the benchmark dose for surfaces of 8.8 mrem/yr based on the specific location of the surfaces and exposure scenarios and comply with the surface cleanup criteria of 12 NYCRR Part 38. In addition to meeting this ARAR, USACE will remediate the Linde site to insure that no concentration of total uranium exceeding 600 pCi/g above background will remain in the site soils. The 600 pCi/g limitation will be met in order to ensure that the remediation of the soils under Building 14 is consistent with the cleanup levels for the ongoing remediation of the Linde Site soils as required by the March 2000 ROD (USACE 2000). Adoption of this standard is not expected to impact volumes to be excavated to a significant extent. Subsurface structures may be encountered that cannot be removed due to logistic difficulties. If uranium, radium, or thorium at concentrations above the surface cleanup criteria are discovered, the surfaces will be decontaminated to meet the more stringent of the NYSDOL standards in effect on the date of the ROD or the standards determined based on 10 CFR 40, Appendix A, including the benchmark dose calculations.

10.3 Cost Effectiveness

Cost is evaluated by comparing the costs between alternatives that meet the threshold criteria of protectiveness and compliance with ARARs, and then determining the alternative that provides the best balance of the five balancing criteria, including cost.

The selected remedy is effective because risks are reduced to acceptable levels. Increased short-term risks to workers, the public, and the environment may occur during implementation of the remedy, but these risks will be minimized by appropriate mitigative measures. The selected remedy is the most effective in ensuring the certainty of the remedy in removal of all known and potentially unknown contamination from the Site. Total present value cost in 2000 dollars for the selected remedy is estimated at $9,800,000. In consideration of these factors, the selected remedy provides the best overall effectiveness of all alternatives evaluated relative to its cost, and since the other alternatives do not thoroughly address contamination under the building, the eventual cost of remediating this material in the future could be greater.

10.4 Utilization of Permanent Solutions and Alternative Treatment Technologies or Resource Recovery Technologies to the Maximum Extent Practicable

The selected remedy for the Linde Site provides a permanent solution to contamination that currently exists on this property.

None of the practicable alternatives identified for the Linde Site provides onsite treatment for the materials to be removed. The selected alternative provides for offsite disposal, which may include some treatment as possibly required of the disposal facilities. The selected alternative, thus, may achieve reduction in mobility (through containment), although no treatment which will reduce the toxicity or volume of the disposed materials may be required. The FS evaluated available treatment technologies for treatment in the course of removal and found none were economically and technologically feasible. Thus,

the selected alternative achieves the best possible result in terms of satisfying the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element.

11. EXPLANATION OF SIGNIFICANT CHANGES

There were no significant changes to the Proposed Plan based on comments received. This ROD clarifies, however, that all contaminated portions of the utility tunnel and any structures under Building 14 will be completely removed as part of the remedial action selected.

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FIGURES

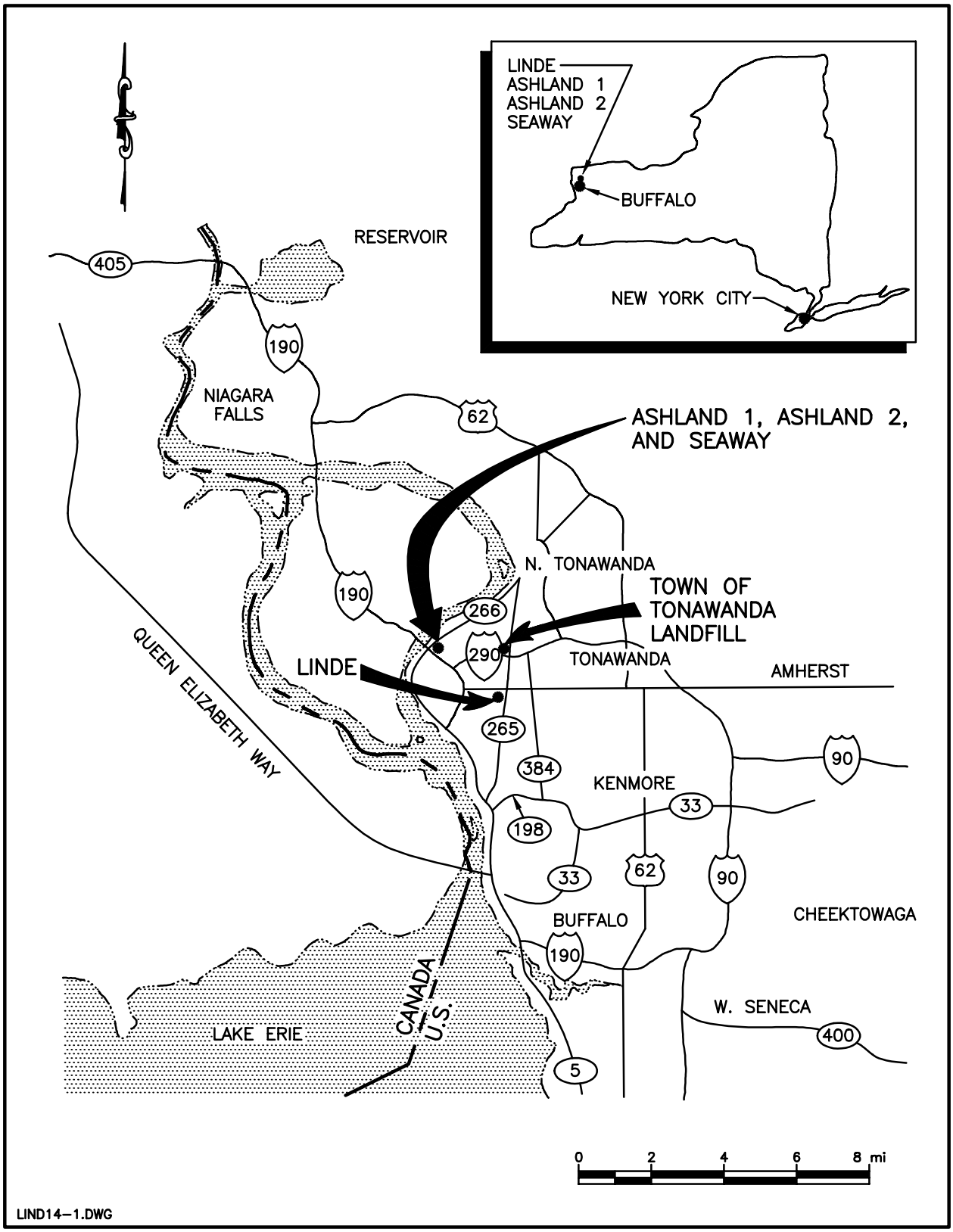


FIGURE 1-1
REGIONAL LOCATION OF THE TOWN OF TONAWANDA, NEW YORK AND THE ASHLAND 1, ASHLAND 2, SEAWAY, LINDE AND THE TOWN OF TONAWANDA LANDFILL SITES

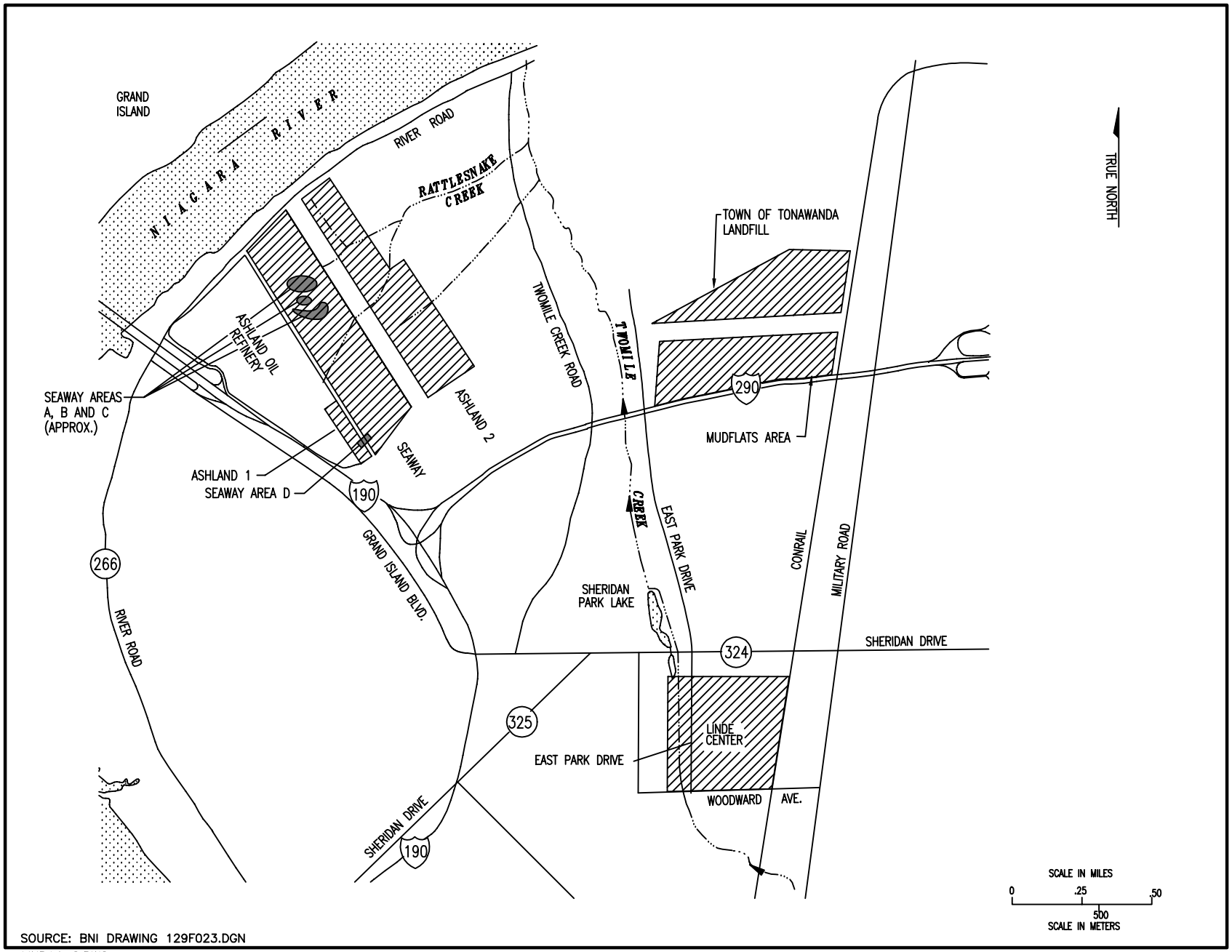
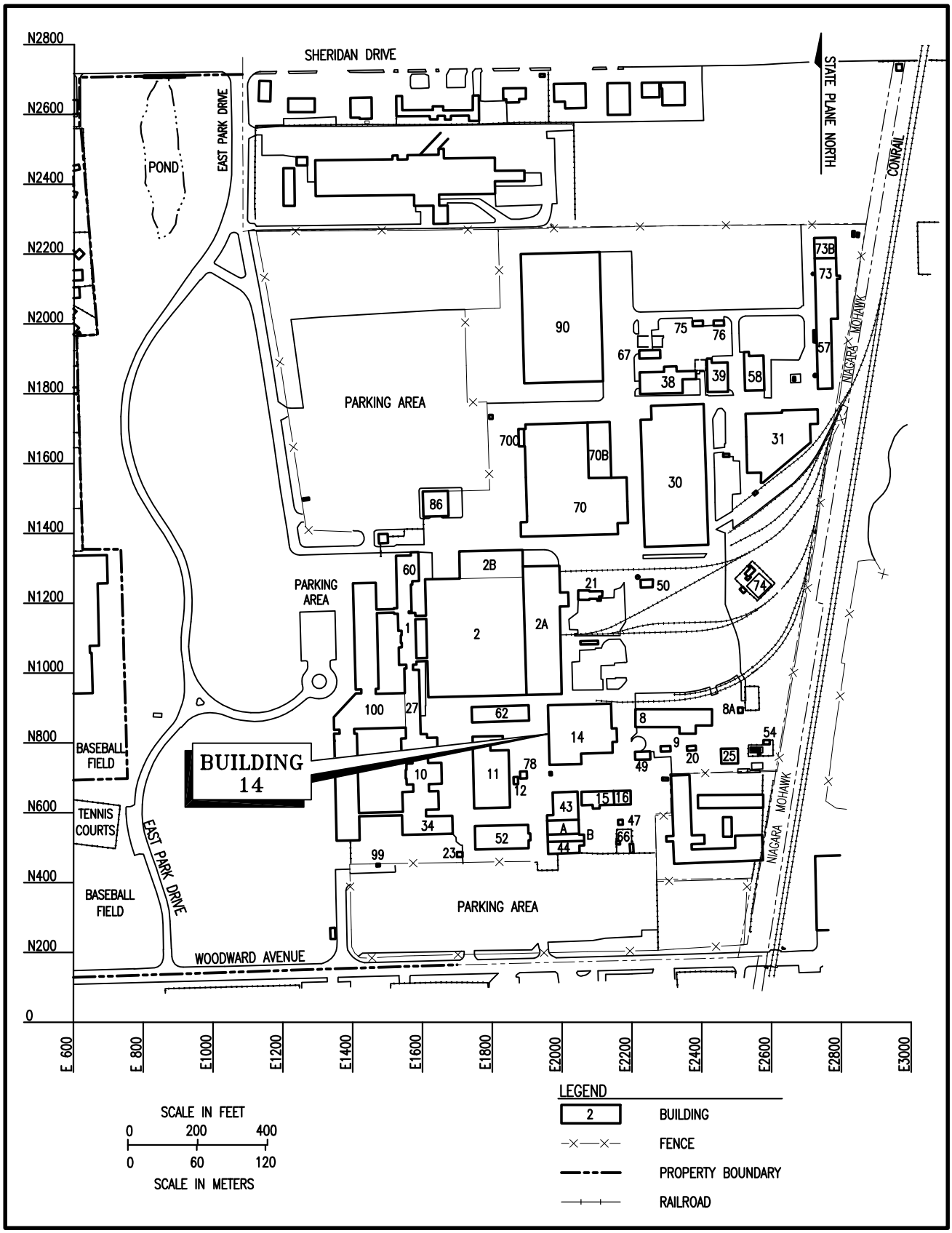
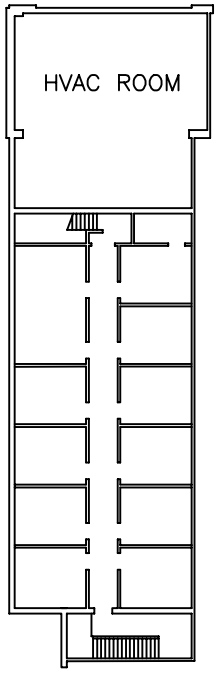


FIGURE 1-2
LOCATIONS OF ASHLAND 1, ASHLAND 2, SEAWAY, LINDE AND TOWN OF TONAWANDA LANDFILL SITES

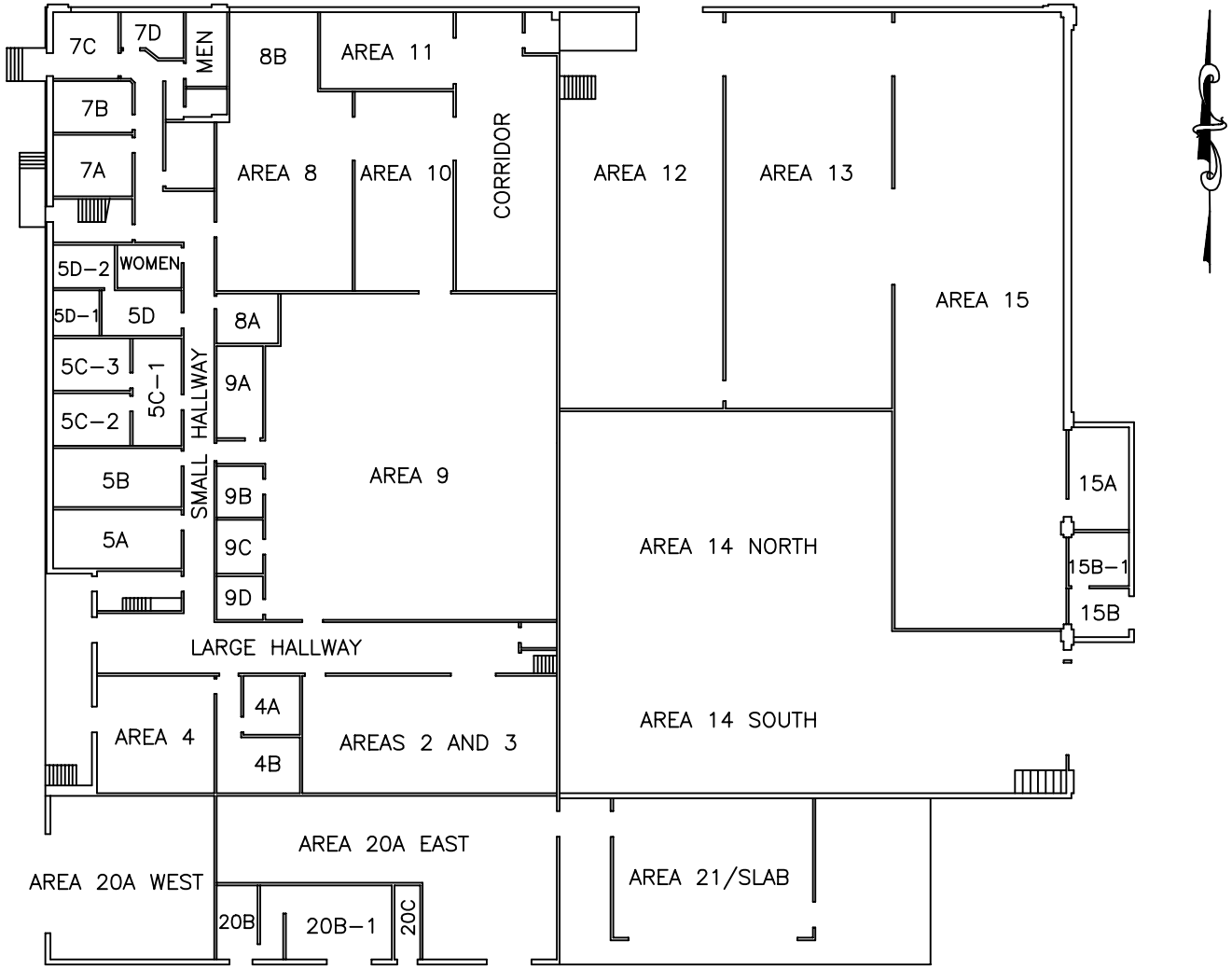


LINDEF-1-3.DWG

FIGURE 1-3
LINDE SITE LOCATIONS



SECOND FLOOR PLAN



FIRST FLOOR PLAN

FIGURE 2-1
LOCATIONS - BUILDING 14 - LINDE SITE

SOURCE: BNI 1999

LIND14-4.DWG

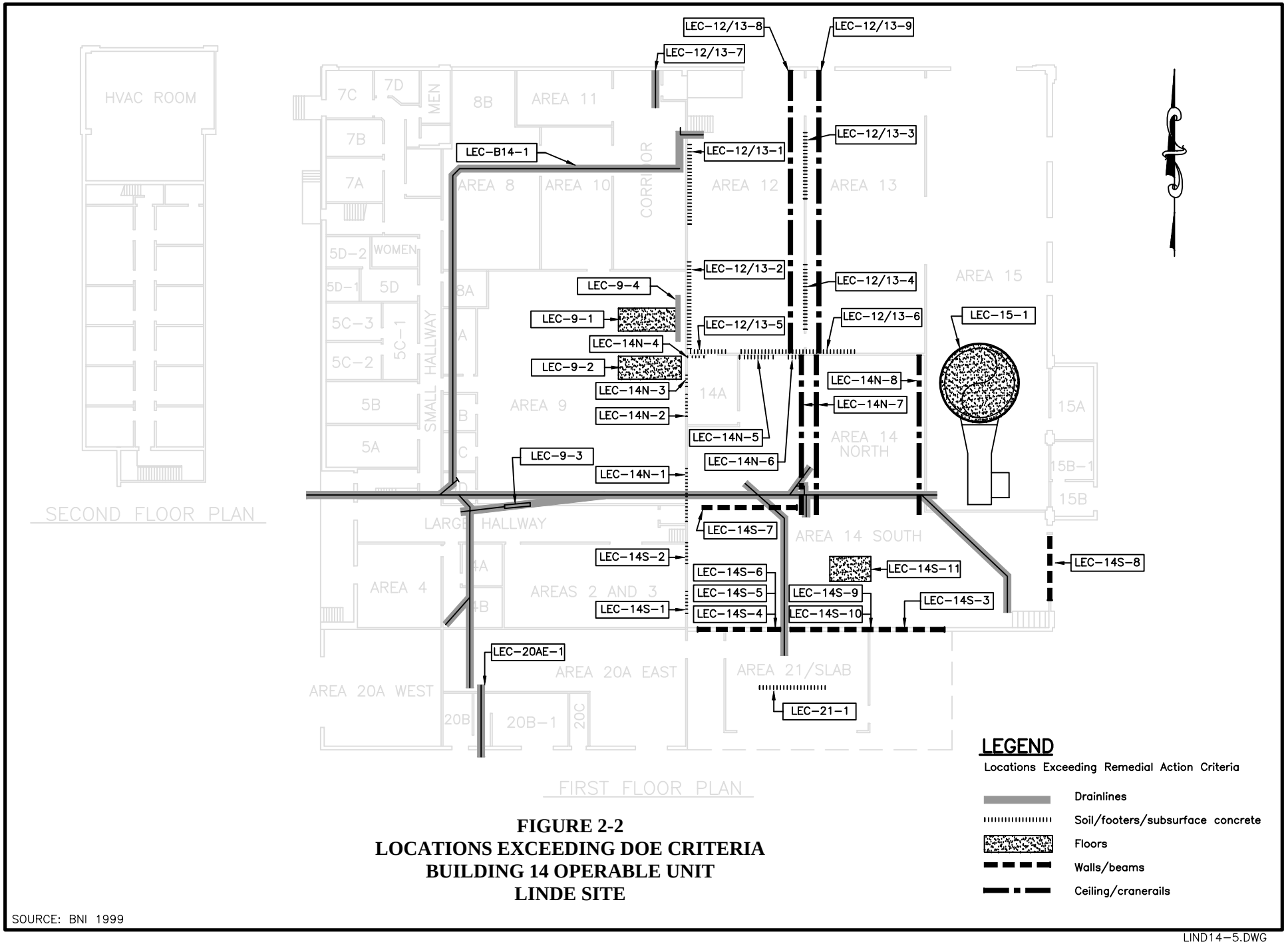


FIGURE 2-2
LOCATIONS EXCEEDING DOE CRITERIA
BUILDING 14 OPERABLE UNIT
LINDE SITE

SOURCE: BNI 1999

LIND14-5.DWG

TABLES

Table 2-1.
Applicable Guidelines for Protection Against Radiation Adapted from DOE Order 5400.5 as Reported by ORNL (Limits for Uncontrolled Areas)

Mode of Exposure	Exposure Conditions	Guideline Value
	Indoor Gamma	
Gamma radiation	Indoor gamma radiation level (above background)	20 μR/H[a]
	Surface Contamination	
Total residual surface contamination[b]	^{238}U, ^{235}U, U-natural (alpha emitters)	
	or	
	Beta-gamma emitters[c]	
	Maximum	15,000 dpm/100 cm^2
	Average	5,000 dpm/100 cm^2
	Removable	1,000 dpm/100 cm^2
	^{232}Th, Th-natural (alpha emitters)	
	or	
	^{90}Sr (beta-gamma emitter)	
	Maximum	3,000 dpm/100 cm^2
	Average	1,000 dpm/100 cm^2
	Removable	200 dpm/100 cm^2
	^{226}Ra, ^{230}Th, transuranics	
	Maximum	300 dpm/100 cm^2
	Average	100 dpm/100 cm^2
	Removable	20 dpm/100 cm^2
	Radionuclides in Soil	
Radionuclide concentrations in soil (generic)	Maximum permissible concentration of the following radionuclides in soil above background levels, averaged over a 100-m^2 area ^{226}Ra ^{232}Th ^{230}Th	5 pCi/g average over the first 15 cm of soil below the surface; 15 pCi/g when averaged over 15-cm-thick soil layers more than 15 cm below the surface
Derived concentrations	Total uranium	60 pCi/g[d]
	Soil Hot Spot Criteria	
Guideline for non-homogeneous contamination (used in addition to the 100-m^2 guideline)[e]	Applicable to locations with an area ≤25 m^2, with significantly elevated concentrations of radionuclides ("hot spots")	$G_A = G_i(100/A)^{1/2}$. where G_A = guideline for "hot spot" of area (A) G_i = guideline averaged over a 100-m^2 area

Table 2-1 (continued)

Notes:

[a] The 20 μR/h shall comply with the basic dose limit (100 mrem/year) when an appropriate-use scenario is considered.

[b] DOE surface contamination guidelines are consistent with *NRC Guidelines for Decontamination at Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for By-Product, Source, or Special Nuclear Material,* May 1987.

[c] Beta-gamma emitters (radionuclides with decay modes other than alpha emission or spontaneous fission) except ^{90}Sr, ^{228}Ra, ^{223}Ra, ^{227}Ac, ^{133}I, ^{129}I, ^{126}I, ^{125}I.

[d] DOE guidelines for uranium are derived on a site-specific basis. A total uranium guideline of 60 pCi/g will be applied at the former Linde Site. This corresponds to a ^{238}U concentration of ~30 pCi/g.

[e] DOE guidelines specify that every reasonable effort shall be made to identify and to remove any source that has a concentration exceeding 30 times the guideline value, irrespective of area (adapted from *Revised Guidelines for Residual Radioactive Material at FUSRAP and Remote SFMP Sites,* April 1987).

Sources: Adapted from U.S. Department of Energy, DOE Order 5400.5, April 1990; U.S. Department of Energy, *Guidelines for Residual Radioactive Material at Formerly Utilized Sites Remedial Action Program and Remote Surplus Facilities Management Program Sites,* Rev. 2, March 1987; and U.S. Department of Energy, *Radiological Control Manual,* DOE/EH-0256T Rev. 1, April 1994.

Source of Table 1: ORNL 2000

Table 2-2.
Locations And Volumes Of Soils Exceeding Remedial Action Criteria*

Location Reference	Location	Media	Contaminant	Concentration (pCi/g)	Volume (cf)	Length (ft)	Width (ft)	Depth (ft)
LEC-12/13-1	Beneath West Wall	Soil	Total Uranium	36 to 17,900	27	18.0	1.0	1.5
LEC-12/13-2	Beneath West Wall	Soil	Total Uranium	36 to 17,900	37	24.4	1.0	1.5
LEC-12/13-3	Beneath Center Wall	Soil	Total Uranium	8 to 4,297	41	16.0	2.5	1.0
LEC-12/13-4	Beneath Center Wall	Soil	Total Uranium	8 to 4,297	41	16.0	2.5	1.0
LEC-12/13-5	Beneath Center Wall	Soil	Total Uranium	38 to 3,614	82	41.0	2.0	1.0
LEC-12/13-6	Beneath Center Wall	Soil	Total Uranium	38 to 3,614	13	6.5	2.0	1.0
LEC-14N-4**	Beneath North Wall	Ash	Total Uranium	15	12			4 inches to 8 inches beneath slab
LEC-14N-5	Beneath North Wall	Ash	Total Uranium	247	12			4 inches to 20 inches
LEC-14N-5	Beneath North Wall	Clay Soil	Total Uranium	247	12			4 inches to 20 inches
LEC-14N-6	Beneath North Wall	Soil	Total Uranium	247	9			4 inches to 8 inches beneath slab
			Total Soil/Ash Volume (cf)		286			
			Total Soil/Ash Volume (cy)		11			

* Remedial Action Criteria as defined in the PRAR (BNI 1999)

** As stated in Table 5-1 of the PRAR, this location was included as a supplemental limit location due to contamination on the Area 12 side of the wall.

Table 2-3.
Building Locations Exceeding Remedial Action Criteria*

Location Reference	Location	1. Description	Contamination	Comments
LEC-9-1 LEC-9-2	Area 9	Floor beneath fume hoods	Beta-gamma activity 15,620 to 19,015 dpm/100cm^2	Floor inaccessible without removal of fume hoods. Estimated cost was approximately $250,000.
LEC-9-3	Area 9	10-foot long section of a 4-inch diameter cast iron drain pipe	Beta-gamma activity 21,000 to 73,000 dpm/100 cm^2 at west end	Removal of remaining drainpipe and subgrade concrete block would affect the structural integrity of the south wall.
LEC-9-4	Area 9	Drainpipe underneath the fume hood designated at LEC-9-1	Beta-gamma activity 21,000 dpm/100 cm^2	Removal of the drainpipe would require removal of the fume hoods which has already been deemed not cost effective.
LEC-12/13-7	Areas 12/13	Stairwell sump north drainline	Beta-gamma activity 9,600 up to 54,000 dpm/100 cm^2	Conventional decontamination methods judged ineffective.
LEC-12/13-8 LEC-12/13-9	Areas 12/13	Center crane rails	Beta-gamma activity 600 to 19,062 dpm/100 cm^2	Removal of contamination is not feasible due to inaccessibility with conventional decontamination equipment.
LEC-14N-1 LEC-14N-2 LEC-14N-3	Area 14N	Concrete on knee wall	Beta-gamma activity 600 to 19,062 dpm/100 cm^2	Further decontamination or removal of the knee wall would affect the structural integrity of the building.
LEC-14N-7 LEC-14N-8	Area 14N	Crane rail cross members	Beta-gamma activity 4,600 to 27,000 dpm/100 cm^2	Removal of contamination is not feasible due to inaccessibility with conventional decontamination equipment.
LEC-14S-1 LEC-14S-2	Area 14S	West wall footer and soil	Beta-gamma activity 600 to 5,215 dpm/100 cm^2	Further decontamination or removal of the knee wall would affect the structural integrity of the building.
LEC-14S-3	Area 14S	South wall concrete footer/brick wall interface	Beta-gamma activity 30,769 dpm/100 cm^2	Further removal of the brick wall would affect the structural integrity of the building.
LEC-14S-4 LEC-14S-5 LEC-14S-6 LEC-14S-7	Area 14S	Horizontal I-beams (south, north and east walls	Beta-gamma activity 3,000 to 36,000 dpm/100 cm^2	Removal of contamination is not feasible due to inaccessibility with conventional decontamination equipment.

Table 2-3. (cont'd)

Location Reference	Location	1. Description	Contamination	Comments
LEC-14S-8				
LEC-14S-9 LEC-14S-10	Area 14S	Former window concrete ledge and brick on south wall	Beta-gamma activity 31,000 to 805,000 dpm/100 cm^2	Further removal of the brick wall would affect the structural integrity of the building.
LEC-14S-11	Area 14S	Floor underneath Column 1	Beta-gamma activity estimated at 5,245 dpm/100 cm^2	Decontamination is not cost effective, as it would require removal of process column.
LEC-15-1	Area 15	Floor under 20-foot diameter process tank	Beta-gamma activity up to 27,000 dpm/100 cm^2	Relocation of tank and two other columns judged not economically feasible at $375,000 and would have impacted owner operations.
LEC-20AE-1	Area 20A East	Abandoned drainpipe	Beta-gamma activity 41,094 dpm/100 cm^2	Removal of pipe would require excavation under north wall of Room 20B-1 and removal of footer of the south wall of the building, which would compromise the structural integrity of the building.
LEC-21-1	Area 21	Settling basin concrete floor beneath pipes	Beta-gamma activity 26,000 to 39,000 dpm/100 cm^2	Removal of concrete and rock supporting water supply pipes may risk damage to the pipes.
LEC-B14-1	Building 14 subsurface	In-bed drainlines	Beta-gamma activity ranged from 5,480 to 160,000 dpm/100 cm^2	Estimated 543 feet of the trench drainline system were left in place (191 feet were removed). Contaminated drainlines remaining in place are inaccessible and remediation is not cost effective.

Source: BNI 1999

* Remedial Action Criteria as defined in the PRAR (BNI 1999)

Table 4-1.
Benchmark Dose DCGL[a] Estimates for Worst-Case Unit –
All Surface Areas Considered

Area	Industrial Worker		Renovation Worker	
	Alpha DCGL	Beta DCGL	Alpha DCGL	Beta DCGL
(m^2)	(dpm/100 cm^2)	(dpm/100 cm^2)	(dpm/100 cm^2)	(dpm/100 cm^2)
100	4,768	3,889	1,044	851
30	15,476	12,621	3,475	2,834
10	44,658	36,418	10,395	8,477
3	142,331	116,068	34,498	28,133
1	414,516	338,028	103,118	84,090
0.01	40,546,443	33,064,690	10,296,600	8,396,640

[a] The values represent averages over the indicated area for both fixed and removable contamination. DCGLs should be applied using no more than two significant digits. The actual surface cleanup criteria to be used, if required, would have to be developed along with consideration of ALARA principles and would be included in the final, approved remediation work plans for Building 14.

Table 4-2.
New York State Department Of Labor
Acceptable Surface Contamination Levels

Nuclides[a]	**Average**[b)(c)(f)]	**Maximum**[b)(d)(f)]	**Removable**[b)(c)(e)(f)]
U-Natural, U-235, U-238, and associated decay products except Ra-226, Th-230, Ac-227, and Pa-231s	5,000 dpm alpha/100 cm^2	15,000 dpm alpha/100 cm^2	1,000 dpm alpha/100 cm^2
Transuranics, Ra-223, Ra-224, Ra-226, Ra-228, Th-nat, Th-228, Th-230, Th-232, U-232, Pa-231, Ac-227, Sr-90, I-125, I-126, I-129, I-131, I-133	1,000 dpm/100 cm^2	3,000 dpm/100 cm^2	200 dpm/100 cm^2
Beta-gamma emitters (nuclides with decay modes other than alpha emission or spontaneous fission) except Sr-90 and others noted above.	5,000 dpm beta, gamma/100 cm^2	15,000 dpm beta, gamma/100 cm^2	1,000 dpm beta, gamma/100 cm^2

Notes:

(a) Where surface contamination by both alpha and beta-gamma emitting nuclides exists, the limits established for alpha and beta-gamma emitting nuclides should apply independently.

(b) As used in this table, dpm (disintegrations per minute) means the rate of emission by radioactive material as determined by correcting the counts per minute observed by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation.

(c) Measurements of average contamination level should not be averaged over more than one square meter. For objects of less surface area, the average should be derived for each object.

(d) The maximum contamination level applies to an area of not more than 100 cm^2 .

(e) The amount of removable radioactive material per 100 cm^2 of surface area should be determined by wiping that area with dry filter or soft absorbent paper, applying moderate pressure, and assessing the amount of radioactive material on the wipe with an appropriate instrument of known efficiency. When removable contamination on objects of less surface area is determined, the pertinent levels should be reduced proportionately and the entire surface should be wiped.

(f) The average and maximum radiation levels associated with surface contamination resulting from beta-gamma emitters should not exceed 0.2 mrad/hr at 1 centimeter and 1.0 mrad/hr at 1 centimeter, respectively, measured through not more than 7 mg/cm^2 of total absorber.

Source: Table 5, 12 NYCRR Part 38, *Ionizing Radiation Protection*.

Table 4-3.
Preliminary Acceptable Surface Contamination Release Criteria Based on ARARs

	Average Result Over the Indicated Surface Area (both fixed and removable)		Maximum Result per 100 cm^2 (both fixed and removable)	
Contaminated Surface Area (m^2)	**Alpha (dpm/100 cm^2)**	**Beta (dpm/100 cm^2)**	**Alpha (dpm/100 cm^2)**	**Beta (dpm/100 cm^2)**
100	1,000[a]	850[a]	15,000[b] 3,000[c] 5,000[b,e] 1,000[c,e]	15,000[d] 5,000[e]
30	3,500[a]	2,800[a]	15,000[b] 3,000[c] 5,000[b,e] 1,000[c,e]	15,000[d] 5,000[e]
20	5,000[a]	4,000[a]	15,000[b] 3,000[c] 5,000[b,e] 1,000[c,e]	15,000[d] 5,000[e]
<20[f]	5,000[b] 1,000[c]	5,000[d]	15,000[b] 3,000[c]	15,000[d]

[a] The result presented is dose-based and represents the total for all radionuclides.
[b] U-Natural, U-235, U-238, and associated decay products except Ra-226, Th-230, Ac-227, and Pa-231s
[c] Transuranics, Ra-223, Ra-224, Ra-226, Ra-228, Th-nat, Th-228, Th-230, Th-232, U-232, Pa-231, Ac-227, Sr-90, I-125, I-126, I-129, I-131, I-133
[d] Beta-gamma emitters (nuclides with decay modes other than alpha emission or spontaneous fission) except Sr-90 and others noted above.
[e] This represents an average over a 1 m^2 area.
[f] For surface areas less than 20 m^2, the average values stated are the average for a 1 m^2 area.
NOTE: Removable surface contamination levels would be per the criteria cited in Table 5.

TABLE 8-1
COMPARISON OF REMEDIAL ACTION ALTERNATIVES - LINDE SITE - BUILDING 14 OU

CERCLA CRITERION	ALTERNATIVE 1 NO ACTION	ALTERNATIVE 2 LAND USE CONTROLS*	ALTERNATIVE 3 FURTHER DECONTAMINATION	ALTERNATIVE 4 FURTHER CHARACTERIZATION AND FURTHER DECONTAMINATION	ALTERNATIVE 5 REMOVAL
Overall Protectiveness of Human Health and the Environment	Not protective because land use controls are not implemented. No significant environmental risks.	Protective, with implementation of land use controls in the short term. Uncertainty in maintaining long term land use controls. No significant environmental risks.	Protective in the short term but there is uncertainty in maintaining long term land use controls. No significant environmental risks.	Protective. No significant environmental risks. Does not provide absolute surety that all contaminated areas would be found and remediated.	Protective. No significant environmental risks.
Compliance with ARARs	Non - compliant	Non-compliant	Compliant	Compliant	Compliant
Long-Term Effectiveness and Permanence	Not effective and not permanent because this alternative is not protective of human health and does not comply with ARARs.	Not effective and not permanent because it is uncertain whether land use controls required for protection of human health under this alternative would be maintained in the long term and this alternative does not comply with ARARs.	Effective and permanent, however the potential still exists for undiscovered contamination to remain in the Building.	Effective and permanent. Does not provide absolute surety that all contaminated areas would be found and remediated.	Effective and permanent
Short-Term Effectiveness and Environmental Impacts	Not effective. No significant environmental impact.	Effective in terms of human health risks. Ineffective in terms of meeting ARARs. No significant environmental impacts.	Effective in the short term. No significant environmental impact.	Effective. No significant environmental impact.	Effective. No significant environmental impact.
Reduction in Toxicity, Mobility, or Volume Through Treatment	No reduction in toxicity, mobility or volume of contaminants present.	No on-site reduction in toxicity, mobility or volume of contaminants present.	No on-site reduction in toxicity, mobility or volume of contaminants present.	No on-site reduction in toxicity, mobility or volume of contaminants present.	No on-site reduction in toxicity, mobility or volume of contaminants present.
Implementability	Easy to implement because no action is taken.	Relatively easy to implement in the short term. Uncertainty in implementing long term land use controls.	Difficult to implement.	Very difficult to implement.	Moderately difficult to implement.
Present Value Cost ($)	0	460,000	8,300,000	8,600,000	9,800,000

* This alternative is identified as "Institutional Controls" in the FS and the FSA.

RECORD OF DECISION
BUILDING 14 OPERABLE UNIT
LINDE SITE, TONAWANDA, NEW YORK

APPENDIX A
RESPONSIVENESS SUMMARY

RECORD OF DECISION
BUILDING 14 OPERABLE UNIT
LINDE SITE, TONAWANDA, NEW YORK

APPENDIX A
RESPONSIVENESS SUMMARY

Table of Contents

1. INTRODUCTION 1

2. OVERVIEW OF PUBLIC INVOLVEMENT 1

3. RESPONSES TO COMMENTS 1
   - 3.1 Responses to Comments, Public Meeting 2
     - 3.1.1 Mr. Ronald Moline, Supervisor, Town of Tonawanda (meeting transcript, page 23) 2
     - 3.1.2 Mr. Larry Rubin, Commissioner of Environmental Planning (meeting transcript, page 26) 2
     - 3.1.3 Mr. Dennis Conroy, Praxair, Inc. (meeting transcript, page 30) 3
     - 3.1.4 Mr. George Ciancio (meeting transcript, page 32) 3
     - 3.1.5 Mr. Charlie Spencer (meeting transcript, page 33): 3
     - 3.1.6 Mr. Ralph Krieger (meeting transcript, page 36) 3
     - 3.1.7 Mr. Donald Finch (meeting transcript, page 39) 4
     - 3.1.8 Mr. Philip Sweet (meeting transcript, page 43): 5
     - 3.1.9 Mr. Tom Schafer (meeting transcript page 46) 5
     - 3.1.10 Mr. Philip Sweet (meeting transcript page 49) 5
     - 3.1.11 Mr. James Rauch (meeting transcript, page 51) 6
     - 3.1.12 Mr. Chuck Swanick, Erie County Legislator (meeting transcript, page 57): 7
     - 3.1.13 Mr. Donald Finch (meeting transcript, page 64) 7
     - 3.1.14 Mr. James Rauch (meeting transcript, page 65) 8
     - 3.1.15 Mr. Larry Rubin (meeting transcript, page 73) 8
   - 3.2 Responses to Written Comments 9
     - 3.2.1 Response to USEPA Letter 9
     - 3.2.2 Response to NYSDEC Letter 9
     - 3.2.3 Response to G. Bauer Letter 10
     - 3.2.4 Response to A. Roberts Letter 11
     - 3.2.5 Response to C. Kern letter 11
     - 3.2.6 Response to G. Gifford Letter 11

Public Meeting Transcript, following responses to comments.

Attachments: Letters from USEPA, NYSDEC, G. Bauer, A. Roberts, C. Kern, and G. Gifford. Written material submitted by Mr. James Rauch at the public meeting.

1. INTRODUCTION

On October 22, 2002, the Buffalo District, United States Army Corps of Engineers (USACE) issued a Proposed Plan (PP) for the Building 14 Operable Unit (OU) at the Linde Site in Tonawanda, New York. A public meeting was held on November 19, 2002 during which the USACE presented background information and its recommended strategy for Building 14. During the meeting, the public was invited to submit comments and written comments were accepted through November 29, 2002. This Responsiveness Summary addresses the comments received from the public during the public meeting and the comment period.

The preferred cleanup remedy for Building 14 is Alternative 5, which is described on page 16 of the PP. This alternative is fully protective of human health and the environment, complies with all applicable or relevant and appropriate laws and regulations, and provides the best balance among the alternatives that were evaluated for Building 14.

2. OVERVIEW OF PUBLIC INVOLVEMENT

On October 18, 2002, a letter announcing the release of the PP was sent to 22 individuals including elected officials. Post cards were sent to individuals on the Site mailing list. Individuals wishing to receive the letter announcing the release of the PP were instructed to return the post cards. Approximately 100 post cards were returned and letters were sent to those individuals.

Legal advertisements announcing the November 19, 2002, public meeting on the Building 14 PP were placed in the Buffalo News, the Ken-Ton-Bee and the Tonawanda news. The legal advertisements appeared in these newspapers on October 27, 2002, October 23, 2002 and October 22, 2002, respectively. A correction to the legal advertisements was placed in these newspapers and this correction appeared in these newspapers on November 3, 2002, November 13, 2002 and November 3, 2002, respectively.

The public meeting was held on November 19, 2002 from 7 p.m. to 9 p.m. in the Holmes Elementary School Auditorium adjacent to the Linde Site. Eleven members of the public indicated that they wanted to speak at the meeting. A court reporter was available at the meeting to record comments. At the meeting USACE explained the history of the Site and Building 14, studies and investigations completed, areas of contamination, CERCLA evaluation criteria, the remedial action alternatives and the schedule. Comments received at the public meeting and written comments are addressed in Section 3, below. The meeting transcript is included in this Appendix, after the responses to comments.

3. RESPONSES TO COMMENTS

At the public meeting conducted on November 19, 2002, eleven (11) individuals provided comments on the PP. Comments by individuals at the public meeting and USACE responses to comments are addressed in Section 3.1, below. The transcript of the public meeting is provided at the end of this Appendix, for reference.

Written comments received are included as attachments to this Appendix. USACE responses to the written comments are addressed in Section 3.2, below.

USACE encourages those interested in learning more about Building 14 or other FUSRAP projects to review the Administrative Record (which contains reports and other information), or call USACE's toll free number (1-800-833-6390) to ask questions or to be added to the mailing list for future mailings. The

Administrative Record for Building 14 is available for public review at the following locations:

U.S. Army Corps of Engineers
Public Information Center
1776 Niagara Street
Buffalo, New York 14207-3199

Tonawanda Public Library
333 Main Street
Tonawanda, New York 14150

3.1 Responses to Comments, Public Meeting

3.1.1 Mr. Ronald Moline, Supervisor, Town of Tonawanda (meeting transcript, page 23)

Comment: Thank you, Colonel. I thank you for the opportunity to go on record regarding the proposed plan for the former Linde Building 14. As supervisor of the Town of Tonawanda and a member of CANiT, the Coalition Against Nuclear Materials in Tonawanda which you'll hear more about in a few minutes from Commissioner Larry Rubin, I support the preferred alternative number five which would involve demolition and removal of debris from the site. This alternative seems to be the most protective and is permanent because all the building components and subsurface soils that are potentially radiologically contaminated would be removed from the site. The additional cost of continued remediation work on the building cannot be justified when compared to the cost of demolition and complete removal. Most important, the selected remedy has been determined to be fully protective of human health and meets community commitments.

Response: The support for the recommended plan is acknowledged.

3.1.2 Mr. Larry Rubin, Commissioner of Environmental Planning (meeting transcript, page 26)

Thank you. My name is Larry Rubin. I'm the Commissioner of Environmental Planning. I'm here on behalf of the Coalition Against Nuclear Materials in Tonawanda, otherwise known as CANiT which is a bipartisan group of elected officials from all local government representing the residents of the Town of Tonawanda and the surrounding areas. They include Congressman LaFalce, Senator Rath, Assemblyman Schimminger, Legislator Swawick, Supervisor Moline, and County Executive Giambra whose behalf I'm here.

Comment No. 1: It is our understanding that the implementation of Alternative 5 would utilize effective means of fugitive dust control during the demolition process. In addition, the US Army Corps of Engineers must continuously monitor for possible emissions associated with the demolition to eliminate exposure risks for residents and Praxair employees. CANiT expects that every effort will be made to have safe implementation of the project and that documentation will be provided to show that at no time were nearby residents exposed to any release of soil particulates or contaminated dust.

Response No. 1: As indicated by Mr. Pilon at the public meeting, USACE is committed to ensuring that remediation at Building 14 is conducted in a manner protective of the local community and the environment. The results of air quality monitoring at eleven locations at the Site during the ongoing excavation and off-site transport of more than 100,000 tons of contaminated material show no significant

impacts. Dust control measures such as the use of water, used effectively during the ongoing work, will be used during work at Building 14 and monitoring will continue.

Comment No. 2: The coalition has completed a review of the proposed plan and the various alternatives investigated for the final disposition of Building 14. We have concluded that Alternative 5 which calls for the complete removal of Building 14 offers the best possible alternative towards meeting our objective for the Town of Tonawanda free of radioactively contaminated materials. CANiT fully supports the United States Army Corps of Engineers proposed plan Alternative 5 and recommends its expedient implementation. Thank you.

Response No. 2: The support for the recommended plan is acknowledged.

3.1.3 Mr. Dennis Conroy, Praxair, Inc. (meeting transcript, page 30)

Comment: Praxair Incorporated strongly supports the proposed plan and wishes at this time to thank the US Army Corps of Engineers and the Coalition Against Nuclear Materials in Tonawanda for taking this major step towards the final remediation of the Linde FUSRAP site.

Response: The support for the recommended plan is acknowledged.

3.1.4 Mr. George Ciancio (meeting transcript, page 32)

Comment: George Ciancio, retired employee of Union Carbide. I worked on the site for thirty-five years. I agree that Building 14 should be torn down.

I only have one question about the medical study with relationship to the contamination in all the sites and that is has a study been done on the female population with regard to birth defects? Thank you.

Response: The support for the recommended plan is acknowledged. Concerning the question about a medical study, Ms. Sarah Cook of the New York State Department of Health was present at the public meeting on November 19, 2002 and responded to your question, stating that there was a health study conducted, currently the study is concentrating on specific areas of the Tonawanda area, the studies are conducted by the Cancer Surveillance Bureau, and Ms. Cook offered to take the name and number of persons with questions so that she may arrange for contacts with appropriate Department of Health personnel (see meeting record, pages 32 and 33).

3.1.5 Mr. Charlie Spencer (meeting transcript, page 33):

Comment: Yes, my name is Charlie Spencer and I'm a retiree from Union Carbide - Linde.

Mr. Spencer described his medical condition and his claim to the Department of Labor.

Response: As indicated during the public meeting by LTC Hall, the U.S. Department of Labor is the agency responsible for handling claims of the type described.

3.1.6 Mr. Ralph Krieger (meeting transcript, page 36)

Comment: Building 14 is located really close to Building 8. That was the powerhouse. That's within twenty-five feet, thirty feet. The ball factory is within about sixty, seventy feet of Building 14. The

Preston garages are within about forty feet of that area. Are those all clean? There is no contamination? Well, it makes me wonder because there's a well right outside of Building 8 where they used to dump the effluent down. Our guys cleaned up Building 14 back in the '70s going down the stairwells and they said oh, it's just a little surface. Take it off. They put a disqeen up there and they put a coccus blower. A coccus blower is one of those blowers that sits on the ground, put a hose on it and it blows out. Guess where they blew it out? Right out there. They didn't clean it up. They have to tear the building down now. I'm just wondering are you going to do the rest of those buildings? Has anybody ever checked? There is a tunnel there. You're going to have to take the tunnel out because that's contaminated.

Response: As indicated by Mr. Pilon at the public meeting, USACE is addressing the entire Linde Site, including every building. Each area of the Site is being surveyed for the presence of radioactive contamination. If contamination is found exceeding the cleanup criteria, it will be remediated appropriately.

3.1.7 Mr. Donald Finch (meeting transcript, page 39)

Comment No. 1: Mr. Pilon said that there will be no contamination left on the site when you're done cleaning up. Is that misstatement? It's my understanding that there will be contamination left and it will be taken down to a lower level. The public is getting the spin that we are going to have what, have birds and soil when you get done with the clean up. I doubt it. Could you answer that question? And then I have one following.

Response No.1: The cleanup criteria identified by USACE for use at Building 14 include the USEPA standards for uranium mill site cleanup, the Nuclear Regulatory Commission (NRC) benchmark dose regulations and the NYS Department of Labor standards for surface contamination cleanup. The details of these criteria are explained in the Proposed Plan. Cleanup to these criteria will not result in the complete removal of all radioactive materials. However, cleanup to the required levels is considered to be protective of human health and the environment. As indicated by Mr. Pilon at the public meeting, ongoing soils remediation at Linde show residual concentrations remaining after remediation are far lower than levels specified in the cleanup criteria.

Comment No. 2: What's the total amount of money been spent so far just on Building 14 alone? I come up with close to $20 million.

Response No. 2: As indicated by Mr. Pilon at the public meeting, USACE involvement in Building 14 began in 1997 when responsibility was transferred from DOE to USACE. Decontamination of the building by DOE was ongoing at that time. Considering DOE, USACE and contractor cost, Mr. Pilon noted that the total cost is approximately $20 million.

Comment No. 3: One other question came up. What are they using for background? Are they using the hot Linde dirty Linde site or east of the Mississippi? What are they using for background?

Response No. 3: As indicated by Mr. Kenna at the public meeting, the background levels for radionuclides used by USACE in assessing Linde Site contamination are local numbers. These background numbers were developed by DOE and reported in the 1993 Remedial Investigation Report (BNI 1993), based on results of soil sampling in an area on the south side of the Ashland 2 property in Tonawanda, considered by DOE not to be impacted by MED wastes. The background levels are: radium-226, 1.1 picocuries per gram (pCi/g): thorium-230, 1.4 pCi/g: uranium-238, 3.1 pCi/g.

3.1.8 Mr. Philip Sweet (meeting transcript, page 43):

Comment: Mr. Sweet submitted a statement made to the United States Army Corps on November 15th, 2000. The statement addresses cancer rates in the community.

Response: As indicated by LTC Hall at the public meeting, the mission of USACE is to clean up the radioactive contamination and the U.S. Department of Labor is the responsible agency for medical claims. As in the response to Mr. Ciancio's comment above, Ms. Sarah Cook of the New York State Department of Health was present at the public meeting and responded to a question concerning health studies, stating that there was a health study conducted, currently the study is concentrating on specific areas of the Tonawanda area, the studies are conducted by the Cancer Surveillance Bureau, and Ms. Cook offered to take the name and number of persons with questions so that she may arrange for contacts with appropriate Department of Health personnel (see meeting record, pages 32 and 33).

3.1.9 Mr. Tom Schafer (meeting transcript page 46)

Comment: Mr. Schafer described his health condition and his application to the Department of Labor.

Response: As indicated by LTC Hall at the public meeting, the mission of USACE is to clean up the radioactive contamination and the U.S. Department of Labor is the responsible agency for medical claims.

3.1.10 Mr. Philip Sweet (meeting transcript page 49)

Comment No. 1: The kids in this school are at distinct risk.

Response No. 1: As described by Mr. Pilon at the public meeting, USACE has been conducting continuous air monitoring during the ongoing remediation of the Linde Site. One of the air monitoring locations is on the roof of the school. Results of monitoring indicate no elevated readings at the school or any of the other ten monitoring locations. Results of monitoring are posted on the USACE web site.

Comment No. 2: Ray, excuse me, I apologize, if I could just interject. The problem is the kids grow up, they get older, they are in their thirties, thirty-five years of age and they go back to the parents and the ecologists will tell you today, why didn't you come in to see me sooner. I could have helped you. I could have saved you and this is a problem. These kids they grow up. It doesn't happen right away. It doesn't happen until they're thirty-five, forty years of age and all at once, boom, their whole life is thrown away. This is a radiation issue.

As a matter of fact, we are working on what the guidelines really should be. What are they? I mean, there's no way to tell you. There's only one way to tell and that is symptom survey, blood testing, hair sampling, you name it and this is what we're really pushing for and hopefully this will materialize. This will come to be.

Response No. 2: As indicated by LTC Hall at the public meeting, the mission of USACE is to clean up the radioactive contamination. As in the response to Mr. Ciancio's comment above and your earlier comment, Ms. Sarah Cook of the New York State Department of Health was present at the public meeting and responded to a question concerning health studies, stating that there was a health study conducted, currently the study is concentrating on specific areas of the Tonawanda area, the studies are conducted by the Cancer Surveillance Bureau, and Ms. Cook offered to take the name and number of persons with questions so that she may arrange for contacts with appropriate Department of Health personnel (see meeting record, pages 32 and 33).

3.1.11 Mr. James Rauch (meeting transcript, page 51)

My name is James Rauch. I'm from For a Clean Tonawanda Site, Incorporated.

Comment No. 1: The cleanup criteria [in the Linde Site ROD] was set so high that the New York State Department of Environmental Conservation was concerned that they had to license the site because it exceeded the source material license threshold, 372 picocuries per gram of uranium. The Army Corps says trust us, it will better than the ROD criteria. So me for one has witnessed it, the history in this site and the history is missing anything from day one. We don't see any reason for that to change control. I'll try to make this brief as I can.

Response No. 1: USACE is conducting its work at the Linde Site and other FUSRAP sites in accordance with CERCLA as amended and the NCP as directed by Congress in PL 105-245. USACE determined in accordance with CERCLA that the USEPA and NRC standards and the NYS Department of Labor Part 38 surface criteria are relevant and appropriate to the consideration of cleanup of Building 14. The NRC regulations in 10 CFR 40.13 exempt persons from licensing requirements for certain materials containing uranium and thorium, referred to as "unimportant quantities." The exemption is for materials containing source material at levels less than 0.05 percent by weight. For uranium (total) this limit is equivalent to approximately 339 pCi/g and for thorium, this equates to approximately 116 pCi/g. Ongoing remediation work at Linde indicates post-remediation residual concentrations much lower than these levels.

Comment No. 2: The Tonawanda site is an example of regulatory failure, failure to follow laws from the beginning of the environmental review process in the late '80s. This was supposed to be a NEPA/CERCLA review.

Response No. 2: The USACE work at Linde and all FUSRAP sites is being conducted in accordance with CERCLA as amended and the NCP as directed by Congress in PL 105-245.

Comment No. 3: In 1980 Praxair's predecessor Union Carbide Linde did a cleanup. I would like to know where, this is my first question is where did all the heavily contaminated gravel, concrete they removed in that first attempt go? What solid waste landfill in the area is it in?

Response No. 3: The response to this question is provided by Mr. Dennis Conroy of Praxair on page 71 of the meeting transcript included herein. Mr. Conroy stated that the materials in question were stored in Building 30 and were removed for off-site disposal by USACE.

Comment No. 4: This building in 1976 was surveyed by Oak Ridge National Laboratories and their recommendation was because of the findings of high radium and uranium ratios was to use the strict rating site decontamination criteria. These have not been used. They are fifty times more stringent than what the Army Corps has been using and DOE to attempt to decontaminate that. The NRC should have been involved here. NRC and Title Two should be the lead agency. The state license was illegally deleted in 1996 at the request of Praxair. The State of New York should have enforced its Code Rule 38 on that contamination which has stricter cleanup criteria than the Army Corps and the DOE.

Response No. 4: USACE is conducting its work at the Linde Site and other FUSRAP sites in accordance with CERCLA as amended and the NCP as directed by Congress in PL 105-245. USACE determined in accordance with CERCLA that the USEPA and NRC standards and the NYS Department of Labor Part 38 surface criteria are relevant and appropriate to the consideration of cleanup of Building 14. The NRC regulations in 10 CFR 40.13 exempt persons from licensing requirements for certain materials containing uranium and thorium, referred to as "unimportant quantities." The exemption is for materials containing

source material at levels less than 0.05 percent by weight. For uranium (total) this limit is equivalent to approximately 339 pCi/g and for thorium, this equates to approximately 116 pCi/g. Ongoing remediation work at Linde indicates post-remediation residual concentrations much lower than these levels.

Comment No. 5: I have a number of documents that are letters to Commissioner Sweeney, former Commissioner Sweeney and the Department of Labor notifying him of the errors that the state has made in terminating that license prior to proper decommission. We have letters from the NRC indicating the uranium recovery facility rule that Army Corps is using here to benchmark, it's a loophole. The NRC license termination rule was passed specifically to address a few current operating western sites that claim it cannot meet the decommission rule.

Response No. 5: The documents provided by Mr. Rauch are included as attachments to this Appendix.

Comment No. 6: I have the written comments here. I would like to place them in the record again, okay, so that they are in the administrative record and I'll enumerate them here. If you want, you can give other people the opportunity to talk. I would like to have the opportunity to speak again.

Response No. 6: The documents provided by Mr. Rauch are included as attachments to this Appendix.

3.1.12 Mr. Chuck Swanick, Erie County Legislator (meeting transcript, page 57):

Comment No. 1: I would like to add my support and the support of CANiT in a very strong recommendation from all of the elected officials that this building be tore down and that this material be removed from this region and sent, as we have said from the very beginning fifteen years ago, remove it to a secure nuclear facility somewhere in this country.

Response No. 1: The support for the Proposed Plan is acknowledged.

Comment No. 2: We are very much aware of this cancer issue. I mean there's no question about it. We're very much aware of this cancer issue. The New York State Health Department is conducting a study which we have offered our full support, both financial as well as whatever information, documentation, anything we can do to help in this study. We believe it should have been done.

Response No. 2: The support for the New York State Health Department studies is noted.

3.1.13 Mr. Donald Finch (meeting transcript, page 64)

Comment: Don Finch with the F.A.C.T.S. group. On the air monitoring, what happened with for example on tearing Building 30 down, when that thing came crashing to the ground and they said yeah, this dust that blew over the area was hot. Well, what does it prove? In other words, once the action has been done, what then? In other words, once the demolition has been done, the dust is blowing around and the indicators indicate that yes, there is high reading, what's the end result? The damage has been done.

Response: As indicated by Mr. Pilon at the public meeting, effective measures for control of potential dust emission have been employed during the ongoing remediation work at Linde. Results of monitoring show that these efforts are effective and future work will continue to be conducted in a manner protective of the local community and the environment. Monitoring will continue and if monitoring were to show unacceptable levels, work would be stopped until effective means for dust control were established.

3.1.14 Mr. James Rauch (meeting transcript, page 65)

Comment No. 1: I would like to just say and go on record that F.A.C.T.S. is in favor of the demolition.

Response No. 1: The support for the recommended remedial action for Building 14 is acknowledged.

Comment No. 2 (meeting transcript, page 66): CERCLA has failed to protect the public interest and Ray Pilon has admitted we wasted 10 to 20 million dollars here on decontaminating the building that DOE recognized should have been torn down.

Response No. 2: USACE does not believe that previous government expenses associated with previous decontamination efforts at Building 14 were wasted. These previous efforts did minimize any potential worker exposures while decisions were made under CERCLA for the entire site and reduced the amount of contamination that needs to be addressed at this time. The USACE evaluation of options for Building 14 fully considered the cleanup work already conducted in Building 14 and in accordance with CERCLA evaluation procedures, the removal option has been identified as the preferred alternative.

Comment No. 3 (meeting transcript, page 67): The Army Corps is now, in our opinion, using an improper non-applicable uranium recovery rule. What is appropriate and relevant is the NRC 1981 branch technical position on on-site storage and disposal of uranium and thorium. The DOE-recommended 60 picocuries per gram [for uranium as cleanup criterion]. The army set six hundred surface, thousand subsurface. It's ridiculous, you know, to have received national attention as I referred to earlier.

Response No. 3: USACE is conducting its work at the Linde Site and other FUSRAP sites in accordance with CERCLA as amended and the NCP as directed by Congress in PL 105-245. USACE determined in accordance with CERCLA that the USEPA and NRC standards and the NYS Department of Labor Part 38 surface criteria are relevant and appropriate to the consideration of cleanup of Building 14. Ongoing soils remediation at Linde show residual concentrations remaining after remediation are far lower than levels specified in the cleanup criteria.

Comment No. 4 (meeting transcript, page 72): Part 380, New York State DEC Radiation Amendment was put in place to prevent the Army Corps from dumping radioactive material that DEC considered radioactive but the Army Corps considered clean in solid waste landfills.

Response No. 4: USACE will comply with all statutes and regulations that pertain to the transportation and disposal of radioactive materials removed from the Linde Site.

Comment No. 5: Mr. Rauch asked that written materials he had available at the public meeting be included in the meeting record.

Response No. 5: The written materials provided by Mr. Rauch are included as an attachment to this Appendix.

3.1.15 Mr. Larry Rubin (meeting transcript, page 73)

Comment: I'm Larry Rubin, Commissioner of Environmental Planning for Erie County and the chair of CANiT. I really don't want to get into a debate about the science but let me say on behalf of CANiT, the elected officials who are members of that, that in CANiT's opinion relying upon the best legal and scientific advice that we can obtain we are convinced that public health is being protected. This is good

science and good safety procedures which are being used. I'm sure that does not satisfy those who have had personal medical problems, whose friends have had personal medical problems. There is nothing that we can do about what has happened in the past. What we are looking to right now is how to protect the future of the residents and workers here in the Town of Tonawanda. We are trying to do that based upon getting the best advice from the best legal and scientific minds that are at hand. That is our goal. That is what we believe we are accomplishing. Thank you.

Response: These comments are acknowledged.

3.2 Responses to Written Comments

3.2.1 Response to USEPA Letter

The USEPA commented on a draft version of the Proposed Plan for Building 14 in a September 23, 2002 letter to USACE. A copy of the USEPA letter is attached to this Appendix.

The September 23, 2002 letter supports USACE's preferred alternative, Alternative 5, Removal. The letter expresses reservations as to the soils cleanup criteria adopted by USACE, but also notes the ongoing remediation work at Linde appears to be achieving protective levels.

USACE acknowledges USEPA support for the preferred alternative. Any remedial action will be performed to the standards contained in the ARARs, which are fully protective to human health and the environment.

3.2.2 Response to NYSDEC Letter

The NYSDEC provided comments to USACE on the Proposed Plan in a letter dated November 26, 2002. A copy of the letter is attached to this Appendix.

The NYSDEC letter supports USACE's preferred alternative, Alternative 5, Removal. The NYSDEC expresses reservations as to the soils cleanup criteria adopted by USACE.

USACE acknowledges the NYSDEC's reservations concerning the soils cleanup criteria. USACE believes that ongoing remediation of soils across the Linde property in accordance with the stated criteria shows results acceptable to NYSDEC. As noted in prior responses to NYSDEC concerns, the remedial action will be performed to the standards that are fully protective of human health and the environment.

Some specific comments were also included in the November 26, 2002 NYSDEC letter. These comments and USACE's responses are addressed below.

Comment No. 1: Section 3.1.1, DOE's Cleanup Criteria Used in the Decontamination of Building 14, page 7 – It is stated that "Soil remediation at Building 14 used these guidelines and also a guideline for total uranium in soils of 60 pCi/g above background, averaged over 100 square meters (m^2) (ANI, 1990) (DOE 1992), all established by DOE." Along with this statement a discussion should be added that DOE adopted this soil cleanup criteria using RESRAD modeling to meet a 100 mrem/yr maximum dose plus ALARA. The DOE dose was four times higher than the Corps' cleanup dose of 25 mrem/yr, which resulted in the total uranium benchmarked at 554/3021 pCi/g. An explanation is needed in this Section and Section 5.3.2.2 on how one federal agency (USACE) could adopt soil cleanup criteria for total uranium many times less restrictive than those of another federal agency (DOE) to meet the same dose (25 mrem/yr).

Response No. 1: The total uranium cleanup guideline value derived by DOE is based on 100 mrem/yr and a subsistence farmer scenario. The basis for the USACE derivation is an industrial worker and the benchmark dose based on 5/15 pCi/g of Ra-226. The details of the development of the criteria being used are documented in the March 2000 USACE ROD for the Linde Site (USACE 2000) and its supporting documents. It is believed that further descriptions of these criteria are unwarranted.

Comment No. 2: Section 5.3.2 ARARs for Building 14 at the Linde Site – For purposes of the disposal of the building debris upon demolition of this building, the USACE needs to add 6 NYCRR Part 380 as an ARAR.

Response No. 2: The ARARs listed in the Proposed Plan and selected in the Record of Decision specifically address the hazardous substances, pollutants, contaminants, remedial actions, location or other circumstances at the site. The requirements for transportation and waste disposal acceptance criteria will be addressed in the detailed work plans, which will ensure that all disposal of material from Building 14 is done in accordance with current statutes and regulations including 6 NYCRR Part 380 if material is disposed in New York.

Comment No. 3: Section 5.3.2.2, page 14 – This Section discusses the USACE application of 10 CFR Part 40, Appendix A, Criterion 6(6) benchmarking which resulted in the ROD (USACE 2000) adoption of total uranium concentration levels above background of 3,021 pCi/g below 15 cm, and 554 pCi/g between 0-15 cm from surface. (See cover letter for DEC overall position on this.) In addition, the Section needs to discuss the fact that cleanup to these levels would leave source material (greater than 0.05 percent by weight) in an uncontrolled situation or requiring controls on radioactive materials. On August 28, 2002, the Nuclear Regulatory Commission proposed amending 10 CFR Part 40.51 in FEDERAL REGISTER 551755-55179 to ensure that transfers of materials below this level (339 pCi/g) do not pose a health and safety concern, especially to occupational exposure (albeit to a worker at an unlicensed facility receiving a dose greater than 100 mrem/yr).

Response No. 3: As evidenced by the results of ongoing remediation at the Site, the actual residual concentrations of uranium remaining after remediation are far lower than the criteria that NYSDEC believes are appropriate.

USACE is aware of the NRC's August 2002 proposal and NUREG-1717 which provides details of the assessments NRC used in support of the proposal. As stated above, remediation of the Linde Site soils conducted in accordance with the USACE ROD results in uranium levels much lower than the criteria NYSDEC believes are appropriate. The Linde soils radiological assessment technical memorandum also evaluated the potential dose for the industrial worker scenario, based on the expected residual soil concentrations after cleanup to the criteria stated in the ROD and found all to be well below 100 mrem/yr, in fact, they were below 10 mrem/yr (see Table C-3 of *Technical Memorandum: Linde Site Radiological Assessment, Rev. 1*, U.S. Army Corps of Engineers, February 2000).

3.2.3 Response to G. Bauer Letter

Mr. Gary Bauer submitted comments on the Proposed Plan in a letter dated November 7, 2003. A copy of Mr. Bauer's letter is attached to this Appendix.

The support for the preferred alternative, Alternative 5, Removal, is acknowledged.

In response to the comment concerning costs that have already been incurred in Building 14, USACE does not believe that previous government expenses associated with previous decontamination efforts at Building 14 were wasted. These previous efforts did minimize any potential worker exposures while decisions were made under the CERCLA for the entire site and reduced the amount of contamination that needs to be addressed at this time. The USACE evaluation of options for Building 14 fully considered the cleanup work already conducted in Building 14 and in accordance with CERCLA evaluation procedures; the removal option has been identified as the preferred alternative.

In response the comment concerning application of new technologies for site cleanup, USACE is aware of extensive research and development activities underway to apply technologies, such as transmutation, to radioactive wastes such as spent nuclear fuel. Unfortunately, we are aware of no such technology that is currently available for on-site application in a cost effective and safe manner at this time.

3.2.4 Response to A. Roberts Letter

Ms. Ann Roberts submitted comments on the Proposed Plan in a letter dated November 25, 2002. A copy of Ms. Roberts letter is attached to this Appendix.

The support for the preferred alternative, Alternative 5, Removal, is acknowledged.

In response to the comment concerning dust control, as demonstrated by the ongoing remediation of the Linde Site, USACE is committed to ensuring the remediation is conducted in a manner protective of the local community and the environment. Using water for dust control has been used effectively during the excavation and off-site transport of more than 100,000 tons of radiologically contaminated material from the Linde Site. In addition, monitoring of air quality at eleven locations throughout the site during remedial activities show no significant impact on air quality. Results of air monitoring is posed for public viewing on the Buffalo District worldwide website.

As in the past, USACE will continue to periodically issue new releases informing the public of planned activities and project status. We also intend to use similar practices and monitoring during the demolition of Building 14.

3.2.5 Response to C. Kern letter

Ms. Cathy Kern submitted comments on the Proposed Plan in a letter dated November 26, 2002. A copy of Ms. Kern's letter is attached to this Appendix.

USACE has performed investigations in Building 14, and the tunnel beneath the building, and has determined that there is no significant radiological risk existing to workers in the building or tunnel under current conditions. USACE plans to remove the building and remove or remediate the tunnel order to comply with applicable or relevant and appropriate requirements, and the plan does provide long term effectiveness, permanence, and certainty that no future scenario for exposure will occur.

3.2.6 Response to G. Gifford Letter

Ms. Gladys Gifford submitted comments on the Proposed Plan in a letter dated November 26, 2002. A copy of Ms. Gifford's letter is attached to this Appendix.

The support for the preferred alternative, Alternative 5, Removal, is acknowledged.

In response to the comment pertaining to stormwater runoff and impact to the environment, we are aware that stormwater discharges occur from the Building 14 area and other locations at the Linde Site. The Remedial Investigation Report (1993) states that no downstream surface water samples showed radioactive contamination. In addition, the Corps is monitoring stormwater discharges as part of our soils remedial action. We agree that removal of Building 14 will eliminate a potential for discharge of radioactive contaminants from this area.

In response to the comment concerning debris transport and disposal, we are unable to identify the disposal destination or means of transportation for disposal at this time. We need to issue our Record of Decision before we can solicit for these services. Please be assured that USACE will require that any disposal facility meet stringent permitting requirements to accept the materials. In addition, we also coordinate these actions with the USEPA and the State regulatory agency prior to selecting a disposal facility and also require that any material transporter must meet stringent Department of Transportation shipping requirements for the materials.

PUBLIC MEETING TRANSCRIPT

1

2 US ARMY CORPS OF ENGINEERS

3 LINDE BUILDING 14

4 PROPOSED PLAN PUBLIC MEETING

5

6 Proceedings held on Tuesday, November 19, 2002

7 Holmes Elementary School

8 365 Dupont Road

9 Tonawanda, New York

10 commencing at 7:00 p.m.

11

12

13

14 APPEARANCES:

15

16 US ARMY CORPS OF ENGINEERS BUFFALO DISTRICT

17 LIEUTENANT COLONEL JEFFREY M. HALL, Commander

18 RAYMOND PILON, Project Manager

19 MICHELE HOPE, Public Affairs Specialist

20

21 SCIENCE APPLICATIONS INTERNATIONAL CORPORATION

22 ALLEN F. DAVIS, Chief Engineer

23 KENNETH F. GOULDING, Environmental Consultant

1 SPEAKERS IN ORDER OF APPEARANCE

2

3 RONALD H. MOLINE, Town of Tonawanda Supervisor

4 COMMISSIONER LARRY RUBIN, CANiT

5 DENNIS CONROY, Praxair Incorporated Site Manager

6 GEORGE CIANCO, Retired Employee of Union Carbide

7 SARAH COOK, Department of Health

8 CHARLIE SPENCER, UCC - Retired

9 RALPH KRIEGER, F.A.C.T.S., Inc.

10 DONALD FINCH, F.A.C.T.S., Inc.

11 THOMAS CONNORS, Project Engineer

12 PHILIP SWEET

13 THOMAS SCHAFER, F.A.C.T.S., Inc.

14 JAMES RAUCH, F.A.C.T.S., Inc.

15 CHUCK SWAWICK, Erie County Legislator - 10th

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1 LTC JEFFREY HALL: Good evening
2 and welcome. I'm Lieutenant Colonel Jeffrey
3 Hall. I'm a new member here at the Buffalo
4 District United States Corps of Engineers. I
5 want to thank you all for coming out tonight to
6 listen to the presentation on the proposed plan
7 for Linde Building 14. Your participation in
8 this decision making process is extremely
9 welcomed and appreciated. We have the facility
10 tonight from 7:00 to 9:00.
11 Before we get into it, I would like
12 to also recognize some other folks that are here
13 from the state, Erie County, Town of Tonawanda
14 and from Praxair. First from New York State the
15 Department of Environmental Conservation, John
16 Mitchell. From the New York State Department of
17 Health Sarah Cook. From Erie County we have the
18 Commissioner of the Department of Environmental
19 and Planning who is also the chairman of CANiT
20 and that's Larry Rubin. Along with him is Paul
21 Krants. We have from the county legislator's
22 office or the County Legislator, excuse me, Chuck
23 Swawick. From the Town of Tonawanda we have a

1 supervisor, Ronald Moline and the property owner
2 from Praxair is Dennis Conroy who is the Praxair
3 site manager.
4 Here's the purpose of the meeting
5 tonight. It's twofold. One is we're going to
6 present the proposed plan and we would like to
7 obtain your input as part of the decision making
8 process.
9 Before I get into our presentation
10 I would like to lay out a few ground rules we've
11 established to make this meeting organized and
12 fair for everyone that has come out tonight.
13 First, when you came you should have received a
14 sign-in card. If anyone needs a card please
15 raise your hand and we will get you one. Okay.
16 On the card is a box to mark if you wish to make
17 a statement or ask questions which is the second
18 portion. Anyone that wishes to speak should
19 indicate that on the sign-in card and pass them
20 to our assistants.
21 Second, I ask that everyone be
22 courteous and allow us to make our presentation
23 before asking any questions. We will provide

1 everyone an opportunity to ask questions or
2 provide comments after our presentation. To be
3 fair to everyone we will limit the individuals to
4 five minutes in order to ask the questions and
5 provide commends. This will allow everyone to
6 address comments and ask their questions. Your
7 cooperation in this effort is extremely
8 appreciated.
9 Third, please keep in mind we will
10 continue to accept written comments up to the
11 close of business on November the 29th of this
12 year.
13 Without further adieu, I would like
14 to introduce Mr. Ray Pilon. He's the Buffalo
15 district's project manager for the Linde site.
16 MR. RAYMOND PILON: Thank you. I
17 want to thank everybody for coming out tonight
18 for this meeting. Two years ago I stood up on
19 the stage and made a presentation for Linde
20 soils. Two years ago I said it was a great day
21 for Tonawanda because we had a plan to remove
22 radioactive contamination from the area. I'm
23 proud to say that over the past two years we

removed about a hundred and ten thousand tons of material. We're about eighty-five percent complete with our projected quantities and things are going well. We have two other operable units associated with the Linde site. We are taking care of the soils with the record of decision signed in March 2000. The other operable units are Building 14 which is the reason why we're here tonight and groundwater which is being addressed at a later date.

The Corps of Engineers took the Praxair site in October of '97 from the Department of Energy. Since that time we've completed necessary remedial investigations, we've signed records of decision, prepared proposed plans and we have done groundwater sampling three different times and we provided all that data to our federal and state regulators USEPA and USDEC. We have a partnership we are proud of. We are trying to perform our actions in cooperation with those agencies and I'm proud to say to date we have had success.

Tonight I would like to just give

1 you a little briefing on the history of Linde,
2 the history of Building 14 specifically, explain
3 the process that we use to evaluate alternatives,
4 identify the schedule we have and to give you an
5 opportunity to provide comments. As the Colonel
6 stated, we are accepting written comments up
7 through the close of business on November 29th.
8 So if you don't get a chance to address all your
9 comments tonight, we certainly will accept them
10 through the 29th.
11 The Corps mission statement, number
12 one in our mind is protection of human health and
13 the environment. If we can't do something safely
14 we won't do it. We have a safe track record on
15 site since '97. We have not had a lost time
16 incident with any of our workers or any member of
17 the public. We are going to execute the program
18 in a safe and effective manner and we are going
19 to do it in a timely manner. We are proud of
20 what we've accomplished over the last several
21 years. And last but not least, we are going to
22 use the CERCLA process, Comprehensive
23 Environmental Response, Compensation Liability

1 Act process. It's a process that's been laid out
2 and agreed to with the USEPA and everybody
3 understands the process.
4 This is an aerial view of the
5 former Linde site. It's currently owned by
6 Praxair. Praxair employs about fourteen hundred
7 people on the site. They use that as a world
8 class technology center. The entire site is
9 about one hundred thirty-five acres in size. The
10 Corps of Engineers is investigating every acre.
11 In November 2001 Governor George Pataki stood at
12 the auditorium in Praxair and declared that that
13 area was part of the New York State Empire
14 Development Zone. That gives specific incentives
15 for business development, tax breaks for
16 expansion plans and stuff like that. It creates
17 trading opportunities and has tended to create
18 more jobs for the area.
19 The history of the Linde site, the
20 Manhattan Engineering District back in the 1940s
21 contracted with Linde to perform some uranium
22 separation processes. That went on through 1942
23 to 1946. Back in those days the site was

1 considered clean. Environmental standards
2 changed since that time and based on those
3 changes the standards are not met at this time.
4 That's why we are cleaning up. Congress
5 authorized FUSRAP which stands for Formerly Used
6 Sites Remedial Action Program in 1974. The US
7 Department of Energy was the lead agency on that.
8 The Linde site was designated into the program in
9 1980. The Department of Energy has been doing an
10 investigation since that time. In 1997 congress
11 transferred the authority for the FUSRAP
12 execution to the Corps of Engineers Corps. We
13 have been involved since October 13th and we have
14 made significant action. We have demolished
15 several buildings, cleaned up over a hundred and
16 ten thousand tons of material and we moved that
17 out of New York State for the majority of
18 purposes.
19 We are here in 2002 and we are
20 presenting a proposed plan to hopefully close out
21 one of the operable units which is Building 14.
22 We have made some accomplishments.
23 As I mentioned, we've been on site since October.

1 We've completed the decontamination effort that
2 the Department of Energy started in Building 14.
3 They started in 1996 and we came on board in '97.
4 We sought to have a safe closure, accessible
5 breaking point. We stopped that work in 1998.
6 Since that time we continued evaluating the
7 building to see what has to be done or if
8 anything has to be done. We demolished Building
9 30, 57, 58, 67 and 73 and we moved over a hundred
10 and ten thousand tons of material.
11 We have a couple of photos to show
12 you what the site looks like. The picture up in
13 front is an excavation that's within former
14 Building 30 pad. There is a large warehouse
15 building on that site. We excavated that
16 material and we backfilled over fifty thousand
17 tons to date. We started backfilling in April.
18 The lower picture is an example of one our
19 building demolitions. That's Building 57. We
20 use innermobile containers to ship our material.
21 They are special steel containers with -- some
22 have hard tops and others have canvass tops.
23 They have a special loading device, a locking

1 device on each end. The gentleman in the bottom
2 corner is supervising the movement of the train
3 with materials taken to two sites. We have a
4 site in Texas and a site in Utah where the
5 disposal is occurring.
6 Over a year ago we have achieved a
7 milestone in the Tonawanda area. As you can see,
8 Mr. Moline and Dennis Conroy, our contractors
9 there, they're celebrating a quarter million tons
10 of material moved out between the Ashland and
11 Linde sites. That was one of our proud moments.
12 We're probably approaching four hundred tons
13 today.
14 This is a picture of Building 14.
15 That building was used by Manhattan Engineering
16 District to do lab pilot scale testing
17 experiments, that type of stuff. Praxair
18 currently uses the building for research and
19 development. It's very important to their
20 complex in Tonawanda. Because of the nature of
21 research and development, part of our challenge
22 is to constantly have to change the interior
23 landscape of the building. You take walls down

1 and move equipment around. It's just a
2 continuous change and the flexibility is sort of
3 restricted because there is contamination in that
4 building that has not been removed. We have
5 since we have been on site, the Corps has
6 provided a health physics support to Praxair for
7 anything they do in that building. If they want
8 to put a nail on the wall to hang a picture, we
9 send a health physicist over and he scans the
10 walls to make sure there is no release. We
11 agreed to provide this as a short-term commitment
12 to Praxair. Short-term being until the Corps of
13 Engineers comes up with a proposed plan which we
14 are announcing in October and hopefully we can
15 come to a resolution in the next couple of years.
16 We will continue to provide that support to them
17 to ensure the safety of the workers there.
18 This is kind of a history. The
19 building was used in the '40s. It was
20 decontaminated back in the '80s by others. The
21 Department of Energy did propose a plan in '93
22 that was not socially acceptable. That was
23 pretty much thrown out and we went back to the

1 drawing board. They came up with separating the
2 Ashland sites, Linde sites, the Seaway site, to
3 try to combine all three. It wasn't acceptable
4 to the public.
5 Current conditions. This is
6 probably the most important thing I think on
7 everybody's mind: Is it safe to work in that
8 building? And I stand you before you and say
9 yes, it is. There is no current risk to workers
10 in that building. There has been previous
11 decontamination that removed a lot of material.
12 The material that is remaining is in accessible
13 areas such as load bearing walls, beneath that,
14 inside the interior walls. Some of those walls
15 are three bricks thick so there is a shielding
16 effect there. It's in overhead cranes that are
17 high up about forty feet or so, in the drain
18 lines, inaccessible drain lines and basically
19 it's not a problem.
20 Why do we need to take any action
21 at all? Well, we know there is contamination
22 remaining in that building above regulatory
23 guidelines. The potential exists for exposure.

1 That's why we are concerned. We are making a
2 prudent approach to it to eliminate that
3 exposure. The probability is low that anybody
4 will be exposed because most of these areas are
5 inaccessible. It's still not acceptable to the
6 -- according to the standards, that building is
7 contaminated and something has to be done.
8 I'll go back to the main points of
9 how we are going to do this. Protection of human
10 health and the environment is number one. We
11 want to remove the contamination or control it.
12 That was one of our options. We have to comply
13 with the Comprehensive Environmental Response,
14 Compensation Liability Act which is CERCLA.
15 The CERCLA process, this is a
16 process that the scientific community has bought
17 into. The USEPA endorses it. Site designation
18 on Linde was designated in 1980. Since that time
19 there has been a preliminary assessment, site
20 investigations and remedial investigations,
21 feasibility studies were done on the site. The
22 proposed plan was the next step which is where we
23 are at now and that is the step before a record

of decision. We are asking for comments by the 29th of November. After that we will address each comment and our plan is to prepare a record of decision for issuance and once the record of decision is made the Corps will be committed to perform whatever the selected alternative is.

CERCLA requires nine criteria be met. It's broken down into three different categories. One is threshold criteria which must be met. The second is balancing criteria and the third is modifying criteria. The threshold must be met. The balancing criteria is used to weigh trade-offs between different alternatives that are considered. And the modifying criteria is one of the reasons why we are here today is to get community and -- community acceptance.

Threshold criteria which must be met requires that the selected plan provide protection of human health and the environment and comply with applicable and relevant and appropriate requirements. What those are is those are legal drivers that are laws that have been codified and we have to meet them.

1 The next, the balancing criteria,
2 we look at the long-term effectiveness and
3 permanence. We reduce the toxicity. We look at
4 short-term effectiveness, implementability, and
5 last on this list is cost. We are all concerned
6 about costs. The Corps of Engineers has
7 addressed the Linde problem and we are committed
8 to do it no matter what it costs to make it safe.
9 We want everybody to be aware that we are not
10 recommending the cheapest alternative and I will
11 bring that up as we go along.
12 Modifying criteria. I mentioned we
13 want to get state acceptance. New York State DEC
14 is our cooperating agency in the state. We ask
15 for community acceptance which is the reason why
16 you're here tonight.
17 The ARARs, legal requirements. We
18 identified federal requirements and 40 CFR Part
19 192. You'll notice subpart A, the second bullet
20 on this requires that effective controls should
21 be considered for at least two hundred years.
22 When we take and we look at Building 14 and we
23 think what we have to do over the next two

1 hundred years, we take that into consideration in
2 our decision making process.
3 10 CFR Part 40 is relevant and
4 establishes cleanup criteria for soils and
5 buildings and establishes a benchmark dose. We
6 have a benchmark dose established for soils and
7 we are doing the same cleanup standards there.
8 They have been determined to be effective.
9 We also looked at state
10 requirements. We identified New York State ARAR
11 12 New York Code Part 38. That also requires
12 certain criteria for services to protect workers
13 and for the interior surface of the building.
14 We've taken that into consideration.
15 We've identified five different
16 alternatives that we're using for evaluation
17 purposes. Our first point is no action. We use
18 that as a baseline to compare if we did nothing,
19 what happens and we compare the next alternative
20 and so on compared to no action. No action would
21 cost us nothing and we don't have to do anything.
22 We walk away and we would be guilty of having a
23 contaminated building and nothing would be done.

1 The land use controls. We looked
2 at deed restrictions and determined that it
3 really wouldn't solve the problem in two hundred
4 years. There's really no effective way to do it.
5 We would have to put control on Praxair and ask
6 them to enforce it. We didn't envision any kind
7 of government oversight up to a five year review.
8 We looked at going back and doing
9 additional decontamination. As we mentioned
10 before, the Department of Energy had
11 decontamination going on in 1996. We stopped it
12 in 1998. I would say that it was a prudent
13 decision. They just kept going finding more
14 contamination as they went and there was really
15 no answer in the time we looked at it so we
16 closed it up in a safe manner. We decided to
17 reevaluate it and that's where we are today.
18 Removal. This would require
19 demolition of the building. We take the debris
20 and soils in the building that's contaminated and
21 take it to a permitted disposal facility. If you
22 remember what I talked about costs, you'll see
23 that the removal is the most expensive

1 alternative. However, this provides long-term
2 permanency. It provides CERCLA that there will
3 be no contamination left on site.
4 We compared the five alternatives
5 to the criteria mentioned in CERCLA and
6 compliance with the ARARs. These are legal
7 requirements. We determined that the first two,
8 land use controls and no action does not comply.
9 There is legal requirements that makes us do
10 something. We looked at the next three,
11 decontamination, additional characterization and
12 removal. Then we looked at the ease and
13 implementability.
14 Further characterization. We have
15 two years experience in doing decon work there.
16 It just has a lot of uncertainties associated
17 with it. If I was a betting man, I would think
18 that we are going to find more contamination as
19 we go along. The one that presents the most
20 effective solution and most certainty is the
21 removal.
22 Alternative five is removal. It's
23 protective of the human health environment. It

1 complies with all the ARARs. It provides
2 permanence. The building is going to be gone.
3 There will be nothing to worry about once it's
4 removed. It provides the greatest degree of
5 certainty. We can implement it in a timely
6 manner which is one of the requirement. It leads
7 to closure, FUSRAP closure of the site in the
8 future. As I mentioned, we have soils that we
9 have scheduled to be completed by 2004. If I
10 approach Building 14, that's two of the three
11 operable units taken care of and we believe we
12 can probably close the site by 2005.
13 We will respond to comments. If
14 you send us a comment I will ensure that we
15 respond by letter to you. You're comment will
16 become part of the official record. There will
17 be a responsiveness summary prepared as part of
18 our record of decision. That record of decision
19 will be put in the record in the town library on
20 333 Main Street. We also have an administrative
21 record established at 1776 Niagara Street. Your
22 record will be known, your comment will be known
23 to everybody and everybody will be able to see it

1 and you will see our response to it.
2 Our schedule. The current
3 schedule, October 2002 is we release the proposed
4 plan, and the 30-day review period which is the
5 box to the left. We're scheduled to have our
6 record of decision next year, early next year in
7 2003. Once the record of decision is signed we
8 will begin acquisition of the building. We don't
9 have to condemn it. We plan on providing fair
10 market value to Praxair for the lost use of that
11 building. Right now we plan on giving Praxair
12 about a year to vacate the building once we sign
13 the record of decision. If they get out by 2004
14 we will begin demolition and be complete in 2005.
15 I would like to turn this back over
16 to Colonel Hall. He would like to address your
17 comments.
18 LTC JEFFREY HALL: I have an
19 administrative announcement before we get into
20 the comments and question period. There is a
21 blue Ford license plate APC 1345, your lights are
22 on. I don't know if that's anyone from the
23 audience or not.

Again, here's the protocol for this segment of tonight's meeting. I've asked that everyone be courteous. Please state your name and affiliation, if any, for the record. Please limit your remarks to five minutes. We want to give everybody an opportunity to speak so we need your cooperation. When called upon please raise your hand and my assistant will come to you with a microphone so everybody can hear your comments. I will call based on the cards. Once I get done with the card then we can open it up for everybody else that didn't fill out a card. Again, we will accept written comments up through the close of business on the 29th of November. I ask that when you speak into the microphone please speak clearly so that the recorder can accurately capture your comments and your questions. I have several members of the Linde team from the Buffalo District here which will help address and entertain your questions.

The first card I have is Mr. Ronald Moline. He's the supervisor from the Town of Tonawanda. Please raise your hand, Ronald

1 Moline.

2 MR. RONALD MOLINE: Thank you,

3 Colonel. I thank you for the opportunity to go

4 on record regarding the proposed plan for the

5 former Linde Building 14. As supervisor of the

6 Town of Tonawanda and a member of CANiT, the

7 Coalition Against Nuclear Materials in Tonawanda

8 which you'll here more about in a few minutes

9 from Commissioner Larry Rubin, I support the

10 preferred alternative number five which would

11 involve demolition and removal of debris from the

12 site. This alternative seems to be the most

13 protective and is permanent because all the

14 building components and subsurface soils that are

15 potentially radiologically contaminated would be

16 removed from the site. The additional cost of

17 continued remediation work on the building cannot

18 be justified when compared to the cost of

19 demolition and complete removal. Most important,

20 the selected remedy has been determined to be

21 fully protective of human health and meets

22 community commitments. The preferred alternative

23 also complies with all federal and state

1 requirements that are legally applicable or
2 relevant and appropriate to this response action.
3 This alternative is also consistent with the
4 objective of the Town of Tonawanda and CANiT to
5 cleanup and remove contaminated material
6 remaining from the Manhattan Project and all
7 FUSRAP sites in the Town of Tonawanda so that we
8 can plan for the future with confidence.
9 Finally the owner of this property,
10 Praxair, Incorporated is a good neighbor in the
11 Town of Tonawanda. This proposed action will
12 give the corporation security and stability
13 needed to grow right here in our town. The
14 employees of Praxair follow the lead of Dennis
15 Conroy and his predecessors by taking an active
16 role in our community supporting the school
17 district, particularly this school, donating
18 thousands of trees over the last ten years for
19 the beautification of our town and county, by
20 supporting the Chamber of Commerce in the Town of
21 Tonawanda Development Corporation, by
22 contributing to charities and worthwhile causes
23 and encouraging employees to do the same and

1 recognizing them for doing so.
2 In conclusion, we need to complete
3 this project. I think it's interesting that we
4 sit here in 2002, approximately sixty years after
5 that research was being done on property close to
6 where we are tonight, still waiting for the
7 cleanup to be completed and for the piece of mind
8 that goes with the completion of that cleanup
9 process. We want this decontamination procedure
10 at all sites in our town to continue so that the
11 development of our waterfront can move forward
12 and so that new opportunities can be created
13 throughout this community and Erie and Niagara
14 counties. I want to thank the Corps of Engineers
15 for the tremendous progress made in the last
16 several years since you took jurisdiction over
17 the FUSRAP program.
18 LTC JEFFREY HALL: Thank you for
19 your comments. Actually the team deserves a lot
20 of thanks. They have been doing a lot of hard
21 work and we appreciate the community's
22 involvement and again, thank you for your
23 comments.

1 The next card I have is
2 Commissioner Larry Rubin who is from Erie County
3 and the chairman of CANiT.
4 COMMISSIONER LARRY RUBIN: Thank
5 you. My name is Larry Rubin. I'm the
6 Commissioner of Environmental Planning. I'm here
7 on behalf of the Coalition Against Nuclear
8 Materials in Tonawanda, otherwise known as CANiT
9 which is a bipartisan group of elected officials
10 from all local government representing the
11 residents of the Town of Tonawanda and the
12 surrounding areas. They include Congressman
13 LaFalce, Senator Rath, Assemblyman Schimminger,
14 Legislator Swawick, Supervisor Moline, and County
15 Executive Giambra whose behalf I'm here.
16 CANiT's mission is to advocate the
17 safe and effective removal of radioactively
18 contaminated materials that remain in the town
19 from operations associated with Manhattan
20 Engineering District Atomic Bomb Research and
21 Development. The area within the town most
22 significantly impacted by residual radioactive
23 material is the Praxair property formerly the

1 Linde Division of Union Carbide located on
2 Sheridan Drive. The site includes Building 14
3 which was utilized for Manhattan Engineering
4 Direct radioactive material research between 1942
5 and 1946. The initial investigation of the site
6 dates back to 1976 when it is determined that
7 significant radioactively contamination could be
8 found on interior building surfaces. Cleanup
9 efforts at Building 14 date back to 1980 when
10 Praxair took the initiative to remove
11 contaminated building materials to meet remedial
12 requirements in effect at that time. Surveys,
13 investigations and remedial actions continued
14 throughout the 1980s and 1990s in an attempt to
15 achieve a level of radiation -- a remediation
16 that would allow unrestricted use of the building
17 for Praxair research and development activities.
18 The culmination of all these efforts was
19 summarized in the proposed plan. The preferred
20 alternative, number 5, ultimately recommends the
21 complete demolition and off site disposal of
22 Building 14. Reports state that alternative 5 is
23 "Considered to be the most protective of human

1 health since the entire building and contaminated
2 soils are removed from the site." Alternative 5
3 also provides the best solution for both short
4 and long-term environmental remediation -- or
5 environmental protection effectiveness. It is
6 our understanding that the implementation of
7 Alternative 5 would utilize effective means of
8 fugitive dust control during the demolition
9 process. In addition, the US Army Corps of
10 Engineers must continuously monitor for possible
11 emissions associated with the demolition to
12 eliminate exposure risks for residents and
13 Praxair employees. CANiT expects that every
14 effort will be made to have safe implementation
15 of the project and that documentation will be
16 provided to show that at no time were nearby
17 residents exposed to any release of soil
18 particulates or contaminated dust.
19 The coalition has completed a
20 review of the proposed plan and the various
21 alternatives investigated for the final
22 disposition of Building 14. We have concluded
23 that Alternative 5 which calls for the complete

removal of Building 14 offers the best possible alternative towards meeting our objective for the Town of Tonawanda free of radioactively contaminated materials. CANiT fully supports the Untied States Army Corps of Engineers proposed plan Alternative 5 and recommends its expedient implementation. Thank you.

LTC JEFFREY HALL: Thank you for your comments. What I would like to do is have Mr. Ray Pilon just quickly address your concerns about dust control and the continued monitoring process.

MR. RAYMOND PILON: We have been, since we started, we have been monitoring the air. We have eleven air monitors surrounding the site. There's one on top of the roof of the school. We have demolished Building 30. When we did that we set up monitors around the building, plus we maintain the eleven surrounding sites. We expect to continue to do that. As part of our soil remediation we have water control, dusting of roads, dusting the excavations. We're pretty experienced in doing that and I can guarantee to

1 you, at least commit to you that we will continue
2 to do that.
3 LTC JEFFREY HALL: The next card I
4 have is for Dennis Conroy. He's the site manager
5 for Praxair, Incorporated.
6 MR. DENNIS CONROY: Praxair
7 Incorporated strongly supports the proposed plan
8 and wishes at this time to thank the US Army
9 Corps of Engineers and the Coalition Against
10 Nuclear Materials in Tonawanda for taking this
11 major step towards the final remediation of the
12 Linde FUSRAP site. For the record, Praxair
13 wishes to state that for more than sixty years we
14 have been intensely interested in the well-being
15 of our employees and our neighbors in Tonawanda.
16 We know that Praxair is absolutely safe to work
17 in under current conditions. We are also
18 absolutely convinced that neither Building 14 nor
19 any other area of the site poses the slightest
20 risk to human health or the environment. We have
21 this confidence because five authoritative
22 medical studies documenting that people who have
23 worked at the Linde site from 1943 to 1999 have

1 not experienced any adverse health effects
2 related to radiation. And secondly, because
3 measurements of radiological exposure from the
4 site are well within the parameters of normal
5 background radiation.
6 In fact, both Praxair and the Corps
7 of Engineers have been asked the question by both
8 employee and public forums if the residual
9 radiation is of such a low level why incur the
10 cost in federal funding and disrupt the
11 operations to clean it up. And the answer is
12 simply that removal of all contaminated materials
13 and soil from the Tonawanda site will provide the
14 final margin of insurance that employees and the
15 community will be protected from potential
16 radiological exposure.
17 This is important to both you and
18 to me since I have not only worked at the Praxair
19 site for close to seventeen years, but my fiancee
20 and I live in a home in the Town of Kenmore about
21 four blocks removed from Building 14. Thank you.
22 LTC JEFFREY HALL: Thank you for
23 your comments. The next card I have is Geo

1 Ciancio. Ciancio. Sir, I apologize if I
2 mispronounced your name.
3 MR. GEORGE CIANCIO: That's all
4 right. George Ciancio, retired employee of Union
5 Carbide. I worked on the site for thirty-five
6 years. I agree that Building 14 should be torn
7 down.
8 I only have one question about the
9 medical study with relationship to the
10 contamination in all the sites and that is has a
11 study been done on the female population with
12 regard to birth defects? Thank you.
13 LTC JEFFREY HALL: The New York
14 State Department of Health, can they help us
15 answer that question?
16 MS. SARAH COOK: I'm Sarah Cook
17 from the New York State Department of Health.
18 There was a study, as you know, recently done and
19 we are currently -- it was not specifically on
20 birth defects. The female population was
21 included for various problems that they had. As
22 far as I know, we are currently taking that study
23 and we are concentrating it into specific areas

1 of the Tonawanda area. It was open for public
2 comment and they are currently setting up the
3 parameters for that study. I am not part of that
4 bureau. It's the Cancer Surveillance Bureau so
5 if you do have any specific questions I can take
6 your name and number and get you in contact with
7 the person. Okay.
8 LTC JEFFREY HALL: The next card
9 or name I have is Charlie Spencer. Looks like
10 UCC - retired.
11 MR. CHARLIE SPENCER: Yes, my name
12 is Charlie Spencer and I'm a retiree from Union
13 Carbide - Linde. I went to work there in 1956
14 and I retired in 1991. In 1981 during a routine
15 company physical they discovered a spot on my
16 lung which turned out to be lung cancer and I had
17 my left lung taken out. Within the last five
18 years I've had two seizures which required
19 hospitalization and the neurologist can't explain
20 why. I had submitted a claim in September of
21 last year to the Department of Labor for
22 compensation and after a great deal of paperwork
23 in which I had to supply complete medical records

1 from the company, medical records from my own
2 physician, a complete employment history, it took
3 about a year when I got this notice a few weeks
4 ago that my claim has been denied and the reason
5 was I did not work there from 1940 to 1950.
6 Now, there was an article that came
7 out in the November 7th issue of the Buffalo
8 Evening News and the second paragraph says,
9 "Stubborn radioactive contamination has led to
10 federal government to recommend demolishing
11 Building 14." When I we want to work for Linde
12 the first ten years I worked there my office was
13 in Building 14. Myself and fellow retirees are
14 getting a runaround as far as some kind of
15 compensation from the government. We have a
16 group of individuals that get together usually
17 for breakfast once a week and it's like going to
18 a medical convention. You would be surprised at
19 the number of cancer patients and heart troubles
20 that we have in our group. I think that
21 somewhere along the line somebody's got to speak
22 up for us retirees. Thank you.
23 LTC JEFFREY HALL: Sir, I'm

1 terribly sorry to hear about your medical
2 condition. The Department of Labor is the
3 responsible agency that's supposed to deal with
4 the claims. I can ask Michele Barsak our legal
5 counsel in the district if she can expound on
6 that. They are ultimately the organization that
7 is required to handle those issues.
8 MR. CHARLIE SPENCER: We have also
9 had some contact with our congressman and she is
10 aware of the situation and hopefully she's going
11 to try to help us out.
12 LTC JEFFREY HALL: Is it
13 Congressman Slaughter?
14 MR. CHARLIE SPENCER: Yes.
15 LTC JEFFREY HALL: Yes, sir. She
16 has inquired about all the FUSRAP sites here in
17 Western New York because based on redistricting
18 she will pick up a lot of these sites. We are
19 scheduled to go see her and talk to her and brief
20 her on them as well as other folks from within
21 the Corps of Engineers will go and see her. We
22 will also shed light on the FUSRAP sites.
23 MR. CHARLIE SPENCER: Thank you.

1 LTC JEFFREY HALL: The next card I
2 have is Mr. Ralph Krieger.
3 MR. RALPH KRIEGER: Right here. I
4 don't need the mic. Everybody can hear me. I'm
5 certainly glad and appreciate Dennis Conroy's
6 comments. You know, fortunately I was a union
7 president over there for over thirty-three years.
8 I count the cancer cases. I go to the funerals.
9 This year I went to five funerals, all cancer. I
10 have one more terminal. I have two possible
11 terminals. I have ten other cancers I just
12 learned about. That's this year alone.
13 I appreciate Dennis' comments that
14 there is no cancer at Linde. I've asked many
15 times what would be the expected cancer rate for
16 what we did at Linde if you took the equation of
17 the Manhattan Project out, just what we did,
18 research and development and air separation. No
19 one has yet to give me that answer. No public
20 health, no state, no federal has ever come up
21 with an answer to that question. It's a simple
22 question. Building 14 should have been
23 demolished years ago. We told them that from day

one. CANiT knows it. It's on our web site. That building was only assessed for a little over 300 and some odd thousand dollars and it was ridiculous to pour the amount of money they poured into it. Now they are going to tear it down. Well, it's about time. They weren't going to tear it down until the EPA stopped them. Now, that building is associated really close to Building 8. That was the powerhouse. That's within twenty-five feet, thirty feet. The ball factory is within about sixty, seventy feet of Building 14. The Preston garages are within about forty feet of that area. Are those all clean? There is no contamination? Well, it makes me wonder because there's a well right outside of Building 8 where they used to dump the effluent down. Our guys cleaned up Building 14 back in the '70s going down the stairwells and they said oh, it's just a little surface. Take it off. They put a disqeen up there and they put a coccus blower. A coccus blower is one of those blowers that sits on the ground, put a hose on it and it blows out. Guess where they blew it out?

1 Right out there. They didn't clean it up. They
2 have to tear the building down now. I'm just
3 wondering are you going to do the rest of those
4 buildings? Has anybody ever checked? There is
5 a tunnel there. You're going to have to take the
6 tunnel out because that's contaminated. Don't
7 anybody go out of here thinking that the Linde
8 employees aren't sick because they are. You got
9 my solemn oath on that. I give the bibles out.
10 LTC JEFFERY HALL: Thank you for
11 your comment. I would like to ask Mr. Ray Pilon
12 to address the other buildings that you
13 mentioned.
14 MR. RAYMOND PILON: I think I
15 mentioned during my discussion that we are going
16 to clear the hundred thirty-five acre site which
17 includes the structures on the facility which
18 includes every building. We've broken the site
19 down to three areas, class A to class one and
20 class two and class three areas. Each area will
21 be surveyed according to the Marson process and
22 we will declare the site clean based on that
23 process. If we find any contamination as we go

1 along we will remediate it and that includes the
2 buildings and the tunnels. As I mentioned
3 before, we're also investigating the groundwater.
4 We've done three rounds of groundwater sampling
5 and that's going to be done with the state within
6 a month or so. Thank you.
7 LTC JEFFREY HALL: The next card I
8 have is Mr. Donald Finch also from For a Clean
9 Tonawanda Site.
10 MR. DONALD FINCH: Yes, I can
11 speak without a mic. I just have two questions.
12 Mr. Pilon said that there will be no
13 contamination left on the site when you're done
14 cleaning up. Is that misstatement? It's my
15 understanding that there will be contamination
16 left and it will be taken down to a lower level.
17 The public is getting the spin that we are going
18 to have what, have birds and soil when you get
19 done with the clean up. I doubt it. Could you
20 answer that question? And then I have one
21 following.
22 LTC JEFFREY HALL: Could I have
23 your second question and then we'll have the

1 people to address them.
2 MR. DONALD FINCH: Okay. What's
3 the total amount of money been spent so far just
4 on Building 14 alone? I come up with close to
5 20 million.
6 LTC JEFFREY HALL: I'll let Mr.
7 Ray Pilon answer both of those.
8 MR. DONALD FINCH: Thank you.
9 MR. RAYMOND PILON: In response to
10 your question, we are going to clean up to the
11 specific requirements identified in the record of
12 decision; that is we would have the soils cleaned
13 up so that no greater dose is equivalent to 8.8
14 millirem per year level. There will be residual
15 contamination, if that's what you want to call
16 it, left behind. Those levels are considered
17 protective to human health and the environment.
18 It's not background but it's not above any action
19 item. We have identified the 8.8 millirem. That
20 was our benchmark dose. I have -- I'm proud to
21 say that we have closed out probably fourteen
22 units so far and each of those units are in the
23 single digits of the millirem. We have exceeded

1 our expectations. We are not at background but
2 we're close to it. We are going to progress
3 along in that manner or we expect to be pretty
4 close to background but it won't be at
5 background. It will be above that but it will be
6 protective.
7 The second question was?
8 LTC JEFFERY HALL: The total amount
9 of money you spend on cleaning up Building 14.
10 MR. RAY PILON: You're probably
11 close to 20 million. I don't have the figure off
12 the top of my head but there's probably been 20
13 million dollars expended on Building 14 between
14 the Department of Energy and the Corps of
15 Engineers.
16 As I mentioned, the Corps came in
17 in '97. The Department of Energy had
18 decontamination efforts going on when they
19 started. I don't have those exact figures. I
20 know I think the contract cost was 5.8 million
21 and then administrative costs on top of that so I
22 wouldn't be surprised to be in the 20 million
23 ball park.

1 MR. DONALD FINCH: Could I -- my
2 time isn't up yet? One other question came up.
3 What are they using for background? Are they
4 using the hot Linde dirty Linde site or east of
5 the Mississippi? What are they using for
6 background?
7 MR. RAYMOND PILON: We're going to
8 ask Mr. Tom Connors. He's our project engineer
9 to explain that.
10 MR. THOMAS CONNORS: Thank you.
11 Those levels are identified in the soils ROD and
12 I believe they're also identified in the Building
13 14 proposed plan. I don't recall the numbers off
14 the top of my head. I think radium and thorium
15 are single digit numbers and uranium I think is
16 on the order of ten picocuries per gram and those
17 are local backgrounds conditions. They are not
18 on the site.
19 MR. DONALD FINCH: Thank you.
20 LTC JEFFREY HALL: The next
21 question or comment I have is Mr. Philip.
22 MR. PHILIP SWEET: Sweet.
23 LTC JEFFREY HALL: Sweet, thank

1 you, sir.

2 MR. PHILIP SWEET: I really think

3 Mr. Krieger should have got a little more

4 response and I think having said that, I think

5 more of our political leaders should be present

6 tonight. I don't know how many there are. I

7 would like to submit this copy to you. If I

8 could approach you and submit this as direct

9 evidence to be used later. What it is, it's A

10 statement made to the United States Army Corps on

11 November 15th, 2000. If I could just put it up

12 there. You can take this directly to Ray. Would

13 you give that to the Colonel, a copy to him.

14 Thank you, Ray.

15 LTC JEFFREY HALL: Do you have

16 some for everybody or at least describe what this

17 is.

18 MR. PHILIP SWEET: If I could pass

19 these out to the residents, I will make copies

20 available to everybody. This has to do with the

21 statement that Ralph made, the high rates of

22 cancer. It has to do with the publication from

23 the report from the Buffalo News. And I'm going

1 to put him at issue tonight because he has been
2 in the community and taking a response from the
3 residents, a symptom survey. So apparently this
4 gentleman over here has the data. There is a big
5 problem in this community. People are dying
6 early on. This building you're talking about
7 taking it down, let's take it down. Get rid of
8 it. Some have the tendency to disagree because
9 it's going into someone else's backyard. But
10 going back to clean up in this area, the Army
11 Corps has consistently watered down the area, not
12 taking into consideration the real airborne risk
13 that has occurred. This has occurred over the
14 past years and years and years. The community
15 has been -- people are sick. You have to
16 realize some day you have to take issue with
17 this. The people are sick. People are dying.
18 I do have a bit of good news. I
19 have been in contact with the Department of
20 Health and the Centers for Disease Control. The
21 issue is a door to door symptom survey in an
22 affluent area, zip code symptom survey. This
23 hopefully will come about and it's not going to

1 come about because of the political leaders in
2 this area or the United States Army Corps of
3 Engineers because the Corps of Engineers speaks
4 specifically -- it's concerned only with the
5 technical aspects. But we do have concerned
6 politicians in Albany, in New York. In reference
7 to one, Mr. Schumer has taken an interest in this
8 and Mrs. Clinton has taken a big interest in this
9 and hopefully our new congressman in Rochester
10 will follow up on this. I thank you very much.
11 LTC JEFFREY HALL: Sir, thank you
12 for your comments. Let me address the one.
13 You're absolutely right. Our mission
14 requirements is to clean out the radiation. The
15 Department of Labor is the responsible agency for
16 all the medical claims and so forth to be
17 presented. Obviously you understand that's not
18 our charter. Our charter is to help clean up the
19 sites.
20 MR. PHILIP SWEET: I'm asking our
21 political community, our political
22 representatives and Ron Moline is one of the few
23 that has come forward and I'm asking the rest of

1 our guys to come forward. Thank you.
2 LTC JEFFREY HALL: Thank you for
3 your comments, sir. The next card I have is from
4 Mr. Tom Schafer.
5 MR. TOM SCHAFER: I'm Tom Schafer,
6 a member of F.A.C.T.S., Incorporated. I worked
7 at Linde Air from 1974 to 1989. My father also
8 worked there and also my grandfather worked there
9 on Chandler Street. At the beginning of this
10 meeting I heard somebody say up on the stage
11 there when you drive a nail or put a screw
12 anywhere in Building 14 it's checked now. My
13 first job when I was eighteen years old was
14 working in Building 14 and I drilled in the
15 concrete, the walls, worked in the tunnel, ran
16 computer lines in the tunnel and drilled through
17 all of those buildings you already ripped down
18 and I know I breathed radioactive dust. In 1990
19 they thought I had leukemia because my white
20 blood cells went right through the roof. I also
21 applied for the Labor Department Program and have
22 been denied. My case is still open. I'm still
23 working on it. My father also worked there and

1 where his desk sat was contaminated. When my
2 father turned sixty-five years old, four hours
3 later we buried him. And I'm convinced there's
4 no doubt in my mind that it was the Linde site,
5 you know.
6 I see a lot of politicians came
7 here tonight, the owner of the company. You
8 know, he wasn't around when all this stuff went
9 on. I understand he's protecting his best
10 interest, his money, you know. Didn't all my
11 union brothers that worked there pump money into
12 this community when we had jobs here and help pay
13 for some of these politicians to get in office
14 like LaFalce which is no longer in office. You
15 know, I don't know what happened to the other
16 town supervisor, he's gone. We have no a new
17 Colonel. Colonel Frierstien at the first meeting
18 was here. It just seems like delusion is the
19 solution here. I've been to Washington, D.C.
20 and we get nowhere. Why? You know what I
21 think, it's time that maybe I run for office and
22 get rid of Moline and these other jerks. That's
23 my opinion. And I'm entitled to my opinion. And

1 I've been to a lot of these funerals with Ralph.
2 And I'm talking there's hundreds and hundreds of
3 people that I have worked with are dead of cancer
4 and the same type of cancer, brain tumors,
5 bladder cancer, lower intestinal cancer and this
6 gentleman says there's no health problems there.
7 What kind of things are we smoking up here? You
8 know? I'm asking our town supervisor tonight in
9 this public foram to help us people that are
10 ex-workers. Are you going to help us, Mr. Moline
11 or are we going to be ignored over and over and
12 over? I'm talking years. That's all I got to
13 say.
14 MR. RONALD MOLINE: I certainly
15 hear your message and I think it's extremely
16 important to know who's responsible for what when
17 it comes to addressing these concerns. If we
18 don't focus and define the problems and determine
19 who can help us deal with those problems we are
20 not going to get anywhere. Your position is well
21 understood.
22 We have heard several people
23 mention the health related concerns of past. My

1 father worked in industries in this area. That's
2 what this town is about. It's basically a
3 blue-collar town. We appreciate the
4 contributions you made throughout the years. But
5 in order to get these problems addressed they
6 have to be identified, and we have to determine
7 who is responsible for listening and doing
8 something about it. I'm pleased to hear that
9 Senators Schumer and Clinton are taking an
10 interest in the health relate matters. Is that
11 what I heard here tonight?
12 MR. PHILIP SWEET: That's what I
13 said. The kids in this school are at distinct
14 risk.
15 MR. RONALD MOLINE: That's why I go
16 back to my original comment that the problems
17 have to be identified and we have to determine
18 who is responsible for handling what. If we have
19 that type of blueprint we can move forward.
20 Anything I can do to help anybody with their
21 efforts to do that I will be pleased to do it but
22 obviously my jurisdiction is limited too. Thank
23 you.

1 LTC JEFFERY HALL: Thank you, Mr.
2 Moline and thank you, Mr. Schafer. I would like
3 to have Ray Pilon address the issue now about the
4 kids in the school here.
5 MR. RAYMOND PILON: As I mentioned
6 before, the Corps has been providing continuous
7 air monitoring around the site. We have an air
8 monitor on the roof of the school. To date there
9 has been no elevated readings to cause anybody
10 any concern. We do collect data on a monthly
11 basis and post that data on our web site. If
12 anybody wants to come on our web site you're
13 welcome to so you can see what the data is. I
14 believe this is monitored five I believe, five.
15 It's five. So the data is there. We have been
16 doing it for several years and there has been
17 no --
18 MR. PHILIP SWEET: Ray, excuse me,
19 I apologize, if I could just interject. The
20 problem is the kids grow up, they get older, they
21 are in their thirties, thirty-five years of age
22 and they go back to the parents and the
23 ecologists will tell you today, why didn't you

1 come in to see me sooner. I could have helped
2 you. I could have saved you and this is a
3 problem. These kids they grow up. It doesn't
4 happen right away. It doesn't happen until
5 they're thirty-five, forty years of age and all
6 at once, boom, their whole life is thrown away.
7 This is a radiation issue.
8 As a matter of fact, we are working
9 on what the guidelines really should be. What
10 are they? I mean, there's no way to tell you.
11 There's only one way to tell and that is symptom
12 survey, blood testing, hair sampling, you name it
13 and this is what we're really pushing for and
14 hopefully this will materialize. This will come
15 to be.
16 MR. RAYMOND PILON: Thank you, Mr.
17 Sweet.
18 LTC JEFFREY HALL: The last card I
19 have is from Mr. James Rauch.
20 MR. JAMES RAUCH: My name is James
21 Rauch. I'm from For a Clean Tonawanda Site,
22 Incorporated. I'm a technical consultant to the
23 group. I'm also a pharmacist and I've been

1 involved in Western New York sites since 1983
2 starting at the Lewiston site. I don't know if I
3 can say what I have to say in five minutes. I'll
4 try the best I can. I have a number of comments
5 that I have prepared and I would like to respond
6 to some of the things that have already been
7 said.
8 I think the public really, unless
9 they are really paying attention for a number of
10 years, they're only getting media. They're not
11 getting cleanup. As you pointed out, the Linde
12 site ROD for soils made national attention. It
13 made the Washington Post. The cleanup criteria
14 was set so high that the New York State
15 Department of Environmental Conservation was
16 concerned that they had to license the site
17 because it exceeded the source material license
18 threshold, 372 picocuries per gram of uranium.
19 The Army Corps says trust us, it will better than
20 the ROD criteria. So me for one has witnessed
21 it, the history in this site and the history is
22 missing anything from day one. We don't see any
23 reason for that to change control. I'll try to

1 make this brief as I can.
2 The Tonawanda site is an example of
3 regulatory failure, failure to follow laws from
4 the beginning of the environmental review process
5 in the late '80s. This was supposed to be a
6 NEPA/CERCLA review. NEPA provides protection to
7 the public and CERCLA has not. Parties sued to
8 prevent limitation of cleanup criteria but when
9 congress changed program to the Army Corps in
10 1998 they directed them to implement the program
11 over to CERCLA superfund which prevents citizens'
12 suits until after the cleanup is complete so our
13 suit was thrown out of court. The simple fact is
14 that that change was made to prevent the best
15 watchdog group in the country on FUSRAP sites
16 from seeing to it that Tonawanda got a
17 legitimate, proper cleanup. That's a simple
18 fact. So we are seeing regulatory failure and
19 non-observance of the laws. NEPA, the National
20 Environmental Policy Act which was passed in 1978
21 to deal with these types of sites. Linde was not
22 designated into that program because right before
23 that act was passed by congress the Department of

1 Labor, a radioactive materials control license
2 was put on materials. It was put on to control
3 the materials. It's only purpose of the licence
4 was to control materials and protect the workers
5 and public. That license meant that if the Linde
6 site did not go under title one it would be
7 immediately cleaned up. It was deferred and it
8 was deferred year after year after year. Now we
9 learn in 1980 at that Praxair's predecessor Union
10 Carbide Linde did a cleanup. I would like to
11 know where, this is my first question is where
12 did all the heavily contaminated gravel, concrete
13 they removed in that first attempt go? What
14 solid waste landfill in the area is it in?
15 Let's remember, folks, this building processed
16 K65 ores, the highest rating containing ores that
17 were possessed by the Manhattan Project. This
18 building in 1976 was surveyed by Oakridge
19 National Laboratories and their recommendation
20 was because of the findings of high radium and
21 uranium ratios was to use the strict rating site
22 decontamination criteria. These have not been
23 used. They are fifty times more stringent than

1 what the Army Corps has been using and DOE to
2 attempt to decontaminate that. The NRC should
3 have been involved here. NRC and Title Two
4 should be the lead agency. The state license was
5 illegally deleted in 1996 at the request of
6 Praxair. The State of New York should have
7 enforced its Code Rule 38 on that contamination
8 which has stricter cleanup criteria than the Army
9 Corps and the DOE.
10 I heard I'm going to have ten
11 seconds so if people would like to hear me just
12 make it known to the Commander. I have a number
13 of documents that are letters to Commissioner
14 Sweeney, former Commissioner Sweeney and the
15 Department of Labor notifying him of the errors
16 that the state has made in terminating that
17 license prior to proper decommission. We have
18 letters from the NRC indicating the uranium
19 recovery facility rule that Army Corps is using
20 here to benchmark, it's a loophole. The NRC
21 license termination rule was passed specifically
22 to address a few current operating western sites
23 that claim it cannot meet the decommission rule.

1 For everybody else --

2 LTC JEFFREY HALL: Sir --

3 THE WITNESS: The letter from the

4 NRC indicates that this rule is not applicable to

5 Tonawanda. It is not appropriate for Tonawanda.

6 LTC JEFFREY HALL: Sir, what I'm

7 going to have to ask you to do is in the interest

8 of time, you have a lot of data there that you

9 want to present to us, please submit the written

10 comments.

11 MR. JAMES RAUCH: I have the

12 written comments here. I'm not personally going

13 spend the time submitting the lengthy written

14 comments again to the Army Corps. The Army Corps

15 is well aware of them. I have the comments. I

16 would like to place them in the record again,

17 okay, so that they are in the administrative

18 record and I'll enumerate them here. If you

19 want, you can give other people the opportunity

20 to talk. I would like to have the opportunity to

21 speak again.

22 LTC JEFFREY HALL: Okay. Let me

23 work through the other card that I have and we

1 will open it up to the rest of the people in the
2 audience to see whether they have any questions
3 or comments to make as well.
4 The next card I have is from Mr.
5 Chuck Swawick. He's the Erie County Legislator.
6 MR. CHUCK SWAWICK: First it's an
7 honor and a pleasure to be here this evening,
8 sir, to have an opportunity to comment on an
9 issue that has concerned all of us for at least
10 twenty-two years. This issue came to light in a
11 newspaper article in 1980 when the New York State
12 Assembly announced that we had radioactive
13 material here in the Town of Tonawanda that was
14 left from the Manhattan Project. From that time
15 on many of us on the elected side have been
16 trying to get this material removed from our
17 region. We are a firm believer that while this
18 project was important for the national movement
19 in World War II, this material should have never
20 remained in the Town of Tonawanda for over fifty
21 years and it's an obligation of the Federal
22 Government to remove this material from this
23 region, certainly to remove it to a secure

1 facility. While we have assisted in the war
2 movement, our community did, to ensure our
3 success, we did not and would not ever accept
4 this material to remain here for eternity.
5 About fifteen years ago there were
6 a number of proposals by the Department of Energy
7 to keep this material in our region to build a
8 nuclear depository right next to the BFI landfill
9 to put all the radioactive material there and to
10 leave it for eternity in our Town of Tonawanda.
11 That was the formation of CANiT which is a group
12 of all elected officials in our region when we
13 realized that there was an agency that wanted to
14 keep this material in our community. The goal of
15 CANiT and it was very simple and it's not changed
16 today, is that this material that was brought
17 here under the auspices of the United States
18 Government, all of that material should be
19 removed. We have worked with the Army Corps of
20 Engineers in a removal project that has set
21 records, record removals of material from this
22 region going to a secure landfill in the west.
23 We now have an opportunity to step up to the

table again.

Linde/Praxair is a very large employer of this region and they have more than an opportunity to leave this area and one of the reasons is because of what happened back in the '40s with this material and that some of that material remained on their property. We have worked with Linde in an effort to get that facility cleaned up to ensure the prosperity and success of that company in the Town of Tonawanda. They too participated in a war effort to keep our country free. Through all of the review process and all the cleanup process this building has been talked about because it's one of the last buildings in this region that is contaminated with radioactive material.

You have, the Army the Corps of Engineers has a proposal in front of you that offers alternatives. One alternative is to do nothing and the other alternative, one of the other alternatives is to remove it. I would like to add my support and the support of CANiT in a very strong recommendation from all of the

1 elected officials that this building be tore down
2 and that this material be removed from this
3 region and sent, as we have said from the very
4 beginning fifteen years ago, remove it to a
5 secure nuclear facility somewhere in this
6 country. It makes no sense to us to keep a
7 building that's located in a prime industrial
8 expanding company that represents fifty-two
9 years of the past, it's time to end the past,
10 it's time to have the Federal Government fulfill
11 its commitment to remove the material from this
12 region and it's time for us to move forward with
13 expansion at the Praxair facility.
14 What the Army Corps of Engineers is
15 proposing is something that we want to see
16 happen. We have worked with you to get
17 additional dollars from Washington to have these
18 sites cleaned up and we want to continue with
19 this working relationship because the Army Corps
20 of Engineers after fifteen years is the only one
21 that's removed anything from this area, removed
22 anything from this area is the Army Corps of
23 Engineers and so we support your efforts in the

1 removal of this material and this building. We
2 support your efforts to clean up Praxair and then
3 to continue to move as we look at the other two
4 remaining sites, the mud flats in the Town of
5 Tonawanda and the landfill which abuts the City
6 of Tonawanda. This is what we've hoped for for
7 fifty-two years and we don't want the progress to
8 stop. I fully support your efforts. I
9 wholeheartedly support what you're trying to do
10 and we will be there to help you get this thing
11 done. Thank you very much.
12 LTC JEFFREY HALL: Thank you, sir,
13 for your comments.
14 UNIDENTIFIED SPEAKER: When are you
15 going to address the high rates of cancer?
16 UNIDENTIFIED SPEAKER: The New York
17 State Health Department is doing that.
18 MR. CHUCK SWAWICK: Can I just
19 have a minute?
20 LTC JEFFREY HALL: Yes, sir, you
21 may.
22 MR. CHUCK SWAWICK: Let me just --
23 not to take over this meeting because we have a

1 lot of people.
2 MR. PHILIP SWEET: Our school kids
3 --
4 MR. CHUCK SWAWICK: We are very
5 much aware of this cancer issue. I mean there's
6 no question about it. We're very much aware of
7 this cancer issue. The New York State Health
8 Department is conducting a study which we have
9 offered our full support, both financial as well
10 as whatever information, documentation, anything
11 we can do to help in this study. We believe it
12 should have been done. We believe it should be
13 done and we support their efforts and have done
14 that by resolution and Ron and I have personally
15 met with the New York State Health Department on
16 a number of occasions to have this thing
17 complete. It takes a long time. It's an issue
18 that's real and we support that review
19 wholeheartedly and whatever the results come from
20 that, we will help in bringing some conclusion to
21 that as well. But again, it's under review right
22 now. There's nothing out and all I can tell you
23 is when it comes out we'll be there to be

1 helpful. We want this issue to be resolved not
2 only from the removal of it because that's one
3 thing that we can, as human rights control, get
4 it out of here but also to find out what is going
5 on with the cancer issue. Absolutely no one
6 wants that not to be resolved and be settled and
7 to come up with a conclusion to it. Thank you.
8 UNIDENTIFIED SPEAKER: I'd like to
9 make a point of order. The reason this cancer
10 study is being done is due to the fact that I
11 sent a letter to the Department of Health in 1996
12 and that's why this study started. I don't want
13 anyone getting any other ideas on that. Thank
14 you.
15 LTC JEFFREY HALL: Thank you, sir.
16 Before we turn it back over to Mr. Jim Rauch to
17 hear a few more words from him, is there anyone
18 else in the audience that would like to make some
19 comments or ask questions?
20 MR. DONALD FINCH: I'd like to ask
21 one question.
22 LTC JEFFREY HALL: Yes, sir.
23 Please state your name again.

1 MR. DONALD FINCH: Don Finch with
2 the F.A.C.T.S. group. On the air monitoring,
3 what happened with for example on tearing
4 Building 30 down, when that thing came crashing
5 to the ground and they said yeah, this dust that
6 blew over the area was hot. Well, what does it
7 prove? In other words, once the action has been
8 done, what then? In other words, once the
9 demolition has been done, the dust is blowing
10 around and the indicators indicate that yes,
11 there is high reading, what's the end result?
12 The damage has been done.
13 MR. RAYMOND PILON: When we
14 demolished Building 30 we had water control, dust
15 control, suppression in place. We had fire hoses
16 hosing down sections of the building that were
17 being torn down to minimize the dust. With did
18 have air monitoring going on at the time and we
19 reviewed that data and there was no elevated
20 readings above any kind of action level. If
21 there was -- if hypothetically the data indicated
22 there was something that occurred, we would have
23 stop work right away, taken a step back and

1 figured out what was going wrong, but that was
2 not the case. We looked at the data and we
3 continued our work in a safe manner. That's what
4 we were expected to do. I can assure you if the
5 data indicated there was any spikes, we would
6 have stopped.
7 LTC JEFFREY HALL: Anyone else
8 have any other questions or comments? If not,
9 then, Jim, why don't you take another ten minutes
10 please and if you can, please summarize your
11 comments for us. Please move closer to the mic.
12 MR. JAMES RAUCH: I apologize. I
13 have asthma. It started in the summer. I would
14 like to just say and go on record that F.A.C.T.S.
15 is in favor of the demolition. When the DOE
16 released the environmental impact statement in
17 1993, the NEPA statement that was subsequently
18 suspended, NEPA process that was suspended by the
19 Department of Energy. They argue illegally that
20 this is a very major federal action and NEPA is
21 there to protect the public interest, pure and
22 simple. CERCLA does not do that. This is a
23 clear case example of why CERCLA has failed to

1 protect the public interest. They failed for any
2 number of reasons depending on your viewpoint.
3 Maybe the most common one is what Ray Pilon
4 admitted we wasted 10 to 20 million dollars here
5 on decontaminating the building that DOE
6 recognized should have been torn down. A
7 building that's heavily contaminated with K65
8 residues deep into the structure, deep into the
9 ground. I mean I'm a member of the West Valley
10 Coalition and it's the same situation with these
11 plants, this material and you've got operating
12 plants and waste seeping into the ground, soaking
13 into the concrete. It's just a foolish waste, a
14 terrible waste of taxpayer money. One of the
15 problems with the way this process has been
16 conducted, in our view illegally, is that the law
17 is there for a purpose and that is to prevent
18 this kind of waste and it would have done so and
19 it would been followed had the politicians kept
20 their hand off the process. That hasn't been the
21 case. The politicians have called the shots
22 here. This CANiT group is an ex officio group
23 that claims to speak as elected representatives

1 and then meets secretly to determine what the
2 course of action is going to be and that's been
3 the history of this process from day one and it's
4 very problematic. It's very troubling to us and
5 we tried to participate on a legitimate basis.
6 So you know, I'll let that speak there but, you
7 know, this decontamination began as an interim
8 action which we objected to because we didn't
9 have a ROD specifying site criteria, final
10 cleanup criteria. It began as an interim action.
11 That means there was no final ROD on what the
12 cleanup would be. So millions and millions were
13 spent and now we coming to a point where the Army
14 Corps is now, in our opinion, using an improper
15 non-applicable uranium recovery facility rule,
16 and what we are talking about here is
17 benchmarking, to a rating standard. This is a
18 loophole, folks. This uranium recovery rule was
19 developed for a few western uranium mill sites
20 that are still operating and on economic grounds
21 couldn't meet the decommission rule, couldn't
22 clean up sufficiently. It has no place in being
23 applied to an urban environment like this with

1 fourteen hundred employees in a building and a
2 site that has a lot of potential future reuse.
3 It would be much more intense if is was currently
4 used. This eight millirem we are talking about
5 is an exposure in a very restrictive industrial
6 use in there. If that site was employed at this
7 cleanup level in a more intensive use it would
8 exceed reasonable radiation protection standards.
9 The NRC, we are talking about ARARs here which
10 are applicable or relevant and appropriate lingo
11 from superfund requirements. Well, the uranium
12 recovery rule is not applicable and by any
13 rationale scientific examination is not
14 appropriate or relevant. What is appropriate and
15 relevant are the NRC 1981 branch technical
16 position on on-site storage and disposal of
17 uranium and thorium and that is on the F.A.C.T.S.
18 web site and those criteria for unrestricted
19 future use is what the FUSRAP programs punitively
20 is designed to provide, unrestricted future use
21 which means residents, residential use, not
22 limited use the Army Corps was talking about here
23 which can change at any time. DEC pointed that

1 out to us.

2 Their cleanup criteria, NRC, these

3 are the applicable cleanup criteria in our view

4 from a careful legal analysis by our attorney.

5 This is in 1991 which calls for unrestricted use

6 cleanup to ten picocuries per gram total uranium

7 content and that is not being done. The Army

8 Corps -- the DOE recommended sixty. The Army

9 Corps has set six hundred surface, three thousand

10 subsurface and that's what's in the ROD. It's

11 ridiculous, you know, to have received national

12 public attention as I referred to earlier.

13 In 1976 Oakridge National

14 Laboratory experts recommend -- I'm glad this is

15 amusing, Mr. Moline because it's not amusing to

16 the public. They recommended that the site be

17 declared a uranium site and that means more

18 stringent uranium surface decontamination be

19 applied. These are DOE's own Oakridge experts.

20 Now, we've obtained documents from the first

21 go-around in decontamination on DOE. The scope

22 of work with the contractors were to use and that

23 showed that the question from one of the

1 contractors bidding on decontamination work asked
2 was this a uranium site and the answer was no,
3 it's not been declared a uranium site. It was
4 our interpretation that the intent was to use the
5 fifty fold west cleanup criteria. Had the proper
6 cleanup criteria been selected, perhaps
7 decontamination would not have been chosen, no
8 efforts would have been made. By the way, the
9 proper surface decontamination criteria are one
10 hundred, average three hundred, maximum twenty
11 removal for alpha meters including radium 226
12 thorium 230. Those are the applicable NRC
13 regulatory guide line of 1.86.
14 I don't know if the public knows
15 some of the detail behind the scenes that have
16 gone on. We hear from Praxair, you know, they're
17 supposedly good citizens. I would like to ask
18 Dennis Conroy where, the corporate citizen, where
19 the decontamination from the 1980 cleanup went.
20 What landfill is it in? Can you find out for us
21 if you do not know, sir?
22 MR. DENNIS CONROY: No
23 contamination went in a New York State landfill.

MR. JAMES RAUCH: The decontamination materials from that potentially remain on site.

MR. DENNIS CONROY: That's correct. They have been removed by the Corps of Engineers by a licensed nuclear waste depository.

MR. JAMES RAUCH: Can you tell us where they were stored?

MR. DENNIS CONROY: Building 30.

MR. JAMES RAUCH: They were stored in Building 30 since 1980?

MR. DENNIS CONROY: Yes. We're talking very small quantities, Jim.

MR. JAMES RAUCH: Well, it just says in the plan that there was stacking of concrete done. I don't know, you know, concrete removal, concrete can be slabs. It says concrete removal?

MR. DENNIS CONROY: Small samples, Jim, contained and removed by the Corps of Engineers at a later date.

MR. JAMES RAUCH: So concrete materials were stored in building 30?

1 MR. DENNIS CONROY: Yes, concrete
2 material samples.
3 MR. JAMES RAUCH: Well, this was
4 supposedly a thorough decontamination in 1980.
5 Apparently Praxair paid for a study by Ford Baker
6 Davis Utah (phonetic) that claimed that the site
7 was clean. In fact, the site contained source
8 material -- source material licensing threshold
9 so this Ford Baker Davis study was either a scam
10 or some kind of science that's not proper here.
11 LTC JEFFREY HALL: Mr. Rauch, I
12 said I'd give you ten minutes. You got one
13 minute left. Please bring it to a close and you
14 can submit all your requirements in accordance
15 with the process and we will responding to you
16 and it will be put on the web site issued to
17 libraries as public record.
18 MR. JAMES RAUCH: My final comment,
19 the politicians, you know, have come across in
20 the media as getting the site cleaned up when in
21 fact they have argued publicly against the Part
22 380 New York State DEC Radiation Amendment
23 controlling that was put in place to prevent Army

1 Corps from dumping radioactive material that DEC
2 considered radioactive but the Army Corps cleanup
3 pictures considered clean in local solid waste
4 landfills. The reason being is it's cheaper to
5 dispose of solid landfill than a properly
6 licensed control facility, waste control
7 facility.
8 Also, the politicians have seen to
9 it that Erie County Industrial Development Agency
10 has purchased five acres of the Praxair facility
11 to afford Praxair a tax initiative. These are
12 all little details that the public isn't aware of
13 that are being actively done to promote Praxair
14 but not to clean the site up properly for future
15 use. These materials will be hazardous for five
16 hundred thousand years or longer. This site will
17 be reused. Praxair will not be there forever.
18 Thank you.
19 LTC JEFFREY HALL: Thank you for
20 your comments. Yes, sir, you may.
21 MR. LARRY RUBIN: I'm Larry Rubin,
22 Commissioner of Environmental Planning for Erie
23 County and the chair of CANiT. I really don't

1 want to get into a debate about the science but
2 let me say on behalf of CANiT, the elected
3 officials who are members of that, that in
4 CANiT's opinion relying upon the best legal and
5 scientific advice that we can obtain we are
6 convinced that public health is being protected.
7 This is good science and good safety procedures
8 which are being used. I'm sure that does not
9 satisfy those who have had personal medical
10 problems, whose friends have had personal medical
11 problems. There is nothing that we can do about
12 what has happened in the past. What we are
13 looking to right now is how to protect the future
14 of the residents and workers here in the Town of
15 Tonawanda. We are trying to do that based upon
16 getting the best advice from the best legal and
17 scientific minds that are at hand. That is our
18 goal. That is what we believe we are
19 accomplishing. Thank you.
20 LTC JEFFREY HALL: Any other
21 questions or comments? If not, I would like to
22 thank everyone for coming out and providing your
23 comments and input and listening to our plan.

1 Again, you can submit written comments up until
2 the 29th of November close of business. Your
3 comments will be responded to and they will go in
4 as a matter of public record and the final
5 document will be posted on the web site and in
6 the public libraries. Again, thank you for
7 coming and have a safe trip home.
8
9 (Whereupon, the hearing concluded at 8:30 p.m.)
10
11 * * *
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17
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21
22
23

1 STATE OF NEW YORK)

2 SS:

3 COUNTY OF ERIE)

4

5 I, MICHELE ALEKSANDROVS, a Notary

6 Public in and for the State of New York, County

7 of Erie, DO HEREBY CERTIFY that the above

8 proceedings were taken down by me in a verbatim

9 manner by means of Machine Shorthand on November

10 19, 2002; that the proceedings were taken to be

11 used in the above-entitled action.

12

13 I further CERTIFY that the

14 above-described transcript constitutes a true,

15 accurate and complete transcript of the

16 testimony.

17

18

19

20

21 MICHELE ALEKSANDROVS,
Notary Public

22

23

ATTACHMENTS

USEPA Letter
NYSDEC Letter
G. Bauer Letter
A. Roberts Letter
C. Kern Letter
G. Gifford letter

Written material submitted by J. Rauch

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

SEP 23 2002

Mr. Raymond L. Pilon
Project Manager
Department of Army
Buffalo District, Corps of Engineers
1776 Niagara Street
Buffalo, New York 14207-3199

Dear Mr. Pilon:

Thank you for providing the U.S. Environmental Protection Agency with an advance copy of the Proposed Plan for Linde Building 14. We appreciate the Corps's efforts to obtain stakeholder input as you implement the Formerly Utilized Sites Remedial Action Program (FUSRAP).

We strongly agree with the Corps's preferred alternative, Alternative 5, the removal of Building 14 and the contaminated materials and soils. This Alternative would eliminate the need for centuries of land/building use controls caused by the uncertainty with leaving long-lived radionuclides in place.

With respect to the Proposed Plan's discussion of the cleanup standards and guidelines for Building 14, our disagreement with the cleanup criteria in the Linde Record of Decision (ROD) has been provided to you in previous correspondences. A copy of the January 12, 2000, correspondence is enclosed. Notwithstanding this, the ongoing Linde remediation appears to be achieving residual radionuclide concentration levels in the excavation areas that are consistent with cleanup levels for other radiation sites remediated under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), and which are protective. Given that history, we believe that the proper implementation of Alternative 5 to cleanup levels represented in our January 12, 2002, letter and subsequent communications can achieve similar results.

Sincerely,

Paul A. Giardina

Enclosure

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

JAN 12 2000

Lt. Col. Mark D. Feierstein
Department of Army
Buffalo District, Corps of Engineers
1776 Niagara Street
Buffalo, NY 14207-3199

Dear Colonel Feierstein:

The purpose of this letter is to thank you for arranging the December 21, 1999, meeting concerning the proposed remedial action for the Linde Site and to confirm the understanding which we reached at that meeting. We understand that the proposed remedial action for the Linde facility, a facility in the Formerly Utilized Sites Remedial Action Program (FUSRAP), is one which the Buffalo District of the United States Army Corps of Engineers (USACE) is seeking to implement pursuant to a soon-to-be issued Record of Decision (ROD). Clearly, the USACE, the New York State Department of Environmental Conservation (DEC), and the U.S. Environmental Protection Agency (EPA) agree that the proposed remedial action at the Linde Site, in order to be consistent with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), needs to be protective of human health and the environment, and it is with this common objective that I believe we have reached an understanding and resolution regarding your proposed remedial action.

Nature and Resolution of ROD-Related Issues

CERCLA and its implementing regulations, the National Contingency Plan (NCP), set forth the process for the selection of CERCLA remedies. At sites where there is contamination with radionuclides and a risk which requires some action to be taken, CERCLA requires an evaluation of those risks and a determination as to what are the appropriate clean-up standards. For such a remedy to be appropriately protective, the applicable or relevant and appropriate requirements (ARARs) and the risk posed by the site must be considered. While I believe USACE, DEC, and EPA would agree on these preceding statements, it is the application of the steps in this process which was the crux of our disagreement prior to the meeting. EPA believes that in order for a

remedy at the Linde Site to be consistent with CERCLA, certain ARARs must be considered[1], and any remedy must result in a clean-up that is within an acceptable risk range under CERCLA. You calculated clean-up levels for total uranium of 554 picocuries per gram (pCi/g) for surface contamination and 3,021 pCi/g for subsurface contamination. These calculated uranium clean-up numbers do not include groundwater considerations and reflect a use of benchmarking against a subsurface radium clean-up level that EPA does not find pertinent to this site. Hence, based on EPA's calculations, we believe the risks associated with your calculation of clean-up levels for total uranium at the Linde Site exceed the established CERCLA risk range of 10^{-4} - 10^{-6}. To describe this in some further detail, EPA disagrees with the interpretation of the appropriateness of the use of 15 pCi/g as a subsurface radium clean-up limit, especially in light of the fact that your subsequent benchmarking of the dose from this radium concentration is used to derive the equivalent subsurface uranium concentration of 3,021 pCi/g as a limit. We do not recognize that the 15 pCi/g radium level is an ARAR, and, therefore, do not accept that the technique of benchmarking is applicable in this circumstance. We note that USACE has not considered groundwater in its calculations of what it considers to be the appropriate soil clean-up levels, nor has it yet obtained any groundwater well data for the purpose of evaluating the impact of soil contamination on groundwater. (EPA and USACE agree that a subsequent groundwater operable unit is needed.)

However, after our discussions on these concerns, USACE has stated that it anticipates that after remediation of the Linde Site, the maximum limits for average radionuclide concentrations will be 2.0 pCi/g for radium-226, 3.5 pCi/g for thorium-230, and 60.8 pCi/g for total uranium. These levels are within the concentration levels that are consistent with clean-up levels at other CERCLA radiation sites. Therefore, if you achieve these levels at the Linde Site, levels which we would agree are protective, we can support the Linde Site remedial action.

Summary of Mutual Understanding

At the December 21 meeting, EPA agreed that if USACE performs the remedial action and it results in a clean-up that will achieve levels of radium at 5 pCi/g, of thorium at 5 pCi/g, and of uranium at 60 pCi/g [2], EPA will be satisfied that the remedial action is consistent with CERCLA

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[1] For example, with regard to the soils excavation and disposal, an ARAR analysis must be performed for the National Emission Standards for Hazardous Air Pollutants (40 C.F.R. 61) related to radioactive materials, or rad-NESHAPs, and the off-site policy for waste disposal as contained in the National Contingency Plan; and for groundwater, an ARAR analysis must be performed for the Safe Drinking Water Act (40 C.F.R. 141 and 142) and the Uranium Mill Tailings Radiation Control Act (40 C.F.R. 192) Maximum Contaminant Levels (MCLs).

[2] These levels must be achieved by calculating the limits using the limit as the sum of the fractions of each radionuclide and with confirmation being provided through the use of the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM), using a 95% confidence level.

and protective of human health and the environment, subject to the results of the groundwater study which USACE has agreed it will perform in the future.

A clean-up which meets the levels set forth immediately above is protective. With respect to groundwater, because of the limited number of groundwater monitoring wells and related data, our position on protectiveness is contingent on USACE's performance of necessary groundwater studies in a future groundwater operable unit and, if necessary, the performance of remedial action to protect groundwater to meet ARARs. USACE has acknowledged that the proposed ROD, when finalized, will reflect this fact, and that groundwater will be the subject of a subsequent ROD.

USACE has indicated that during the Linde Site clean-up operations to date and in future cleanup actions, it has met, and will meet, the substantive equivalent of the radiation portion of the National Emission Standards for Hazardous Air Pollutants (NESHAPs). You agree to share all existing data in this regard and plans for future site perimeter air monitoring. When we receive these materials we can discuss any remaining concern vis a vis whether this perimeter monitoring is sufficient to meet the substantive requirements of the rad-NESHAP rule, as set forth at 40 C.F.R. §61.

It is our understanding that at the national level the USACE has acknowledged that when waste disposal will take place at a site different from that of the remedial action, the USACE will follow the substantive requirements for "off-site" disposal as contained in the National Contingency Plan (NCP). We offer to work with the Buffalo District of the USACE in its efforts to meet the substantive requirements of the "off-site" policy when disposing of wastes generated during the Linde remedial action.

We have agreed to pursue a Memorandum of Understanding between USACE and EPA to assist our respective Agencies in communicating at the Linde Site and for remedial actions for future FUSRAP clean-ups in the Buffalo District area.

Other Commitments

During our meeting you also made the commitment to provide the data you have accumulated during USACE's previous clean-up actions at the Linde Site. This commitment is most welcome, and we look forward to receiving this information.

Attached is a list of other data we have requested as it relates to the Linde Site FUSRAP clean-up. We would appreciate receiving these data or a status update on when they will be available for release by the end of January 2000.

Conclusion

I believe our meeting was a positive step toward a productive and constructive working relationship. We will be pleased to work with you to develop a Memorandum of Understanding so we can work as effectively as possible on the Linde Site remedial action as well as the remediation process at the other sites you will be addressing under the FUSRAP program.

During the December 21 meeting, a commitment was made to address the agenda items which were not covered that day at a future meeting in New York City or Albany. We propose that a meeting be scheduled in late January or early February in New York City for this purpose. I look forward to our further discussions and receiving reports of progress on the Linde site.

Sincerely,

Kathleen C. Callahan, Director
Division of Environmental Planning and Protection

cc: S. Hammond, NYSDEC

Attachment (list of data requested)

ATTACHMENT

Uranium cleanup levels

List of all parameters and values used in deriving surface and subsurface soil thorium and uranium concentration levels for the Linde site. Identify those values that are site-specific and provide the technical confirmation to support the values selected.

Copy of the input and output data from the modeling runs.

NESHAP

Reports, dose calculations, environmental monitoring plan, quality assurance plan, air monitoring data, and analyses for compliance with 40 C.F.R. § 61, Subpart I, for remediation activities at Linde site for calendar years 1997, 1998 and 1999.

Linde Building 30

Final Report on the demolition, transportation and disposal of Linde Building 30 material.

Documentation on the 26 laboratory samples taken from Building 30 including methodology of sampling and data calculation/analysis of all samples/results including treatment of "outliers."

"Chemical/Radiological Sampling and Analysis Plan, Demolition and Debris Removal, Former Linde Building 30," prepared by Radian International.

Waste Classification Decision flow chart shown at the meeting of the Low-Level Waste Forum in Jackson, Wyoming, on June 3, 1999, by Ms. Julie Peterson of ACE.

"Soil Pile Segregation for the Linde/Praxair Site," dated June 12, 1996, from Griffin at Bechtel, to Kirk at U.S. Department of Energy.

"USACE legal analysis" concerning regulatory status of Building 30 waste.

New York State Department of Environmental Conservation
Division of Solid and Hazardous Materials, 9th Floor
625 Broadway, Albany, New York 12233-7250
Phone: (518) 402-8651 • **FAX:** (518) 402-9024
Website: www.dec.state.ny.us

Erin M. Crotty
Commissioner

NOV 26 2002

Mr. Raymond Pilon
U.S. Army Engineering District, Buffalo District
1776 Niagara Street
Buffalo, New York 14207-3199

Dear Mr. Pilon:

Re: Linde Site, Tonawanda, New York
Comments on the Proposed Plan for the Linde Building 14 Operable Unit
October 2002

This letter transmits the New York State Department of Environmental Conservation's (NYSDEC) comments on the Proposed Plan for the Linde Building 14 Operable Unit, Linde Site, Tonawanda, New York (August 2002), which was delivered to our offices on October 24, 2002.

This Department supports the proposal to remove Building 14, as this is the only alternative that will allow for remediation of all of the contaminated soils beneath the building. However, we do not support the statement in Section 5.3.2.2 of the Proposed Plan that the "criteria, which are being applied during the ongoing remediation of Linde Site soils in accordance with the ROD for the Linde Site (USACE 2000), would apply to the soils being remediated at Building 14." Neither this Department, the New York State Department of Health, nor the United States Environmental Protection Agency concurred with those criteria when they were developed in 1999. The New York State Department of Health concluded that the proposed criteria were not protective of public health. The State is evaluating the ongoing Linde Site remediation in accordance with the criteria outlined in our February 18, 2000 letter to the Corps of Engineers (copy enclosed). We will apply the same criteria when evaluating the remediation of the soils beneath Building 14.

Thank you for the opportunity to comment on this document. If you have any questions or need further information, please contact John Mitchell, of my staff, at (518) 402-8573.

Sincerely,

Stephen Hammond, P.E.
Director
Division of Solid & Hazardous Materials

Enclosures

cc: w/encls. - Lt. Col. J. M. Hall, USACE
P. Giardina, US EPA
A. Salame-Alfie, NYSDOH
P. Kranz, Erie Co.

New York State Department of Environmental Conservation
Division of Solid & Hazardous Materials
Bureau of Radiation

Comments on the
Draft Proposed Plan for the Linde Building 14 Operable Unit, Linde Site
Tonawanda, New York
(October 2002)

November 26, 2002

Comment 1: Section 3.1.1, DOE's Cleanup Criteria Used in the Decontamination of Building 14, page 7 - It is stated that "Soil remediation at Building 14 used these guidelines and also a guideline for total uranium in soils of 60 pCi/g above background, averaged over 100 square meters (m^2) (ANL 1990) (DOE 1992), all established by DOE." Along with this statement a discussion should be added that DOE adopted this soil cleanup criteria using RESRAD modeling to meet a 100 mrem/yr maximum dose plus ALARA. The DOE dose was four times higher than that the Corps' cleanup dose of 25 mrem/yr, which resulted in the total uranium benchmarked at 554/3021 pCi/g. An explanation is needed in this Section and Section 5.3.2.2 on how one federal agency (USACE) could adopt soil cleanup criteria for total uranium many times less restrictive than those of another federal agency (DOE) to meet the same dose (25 mrem/yr).

Comment 2 Section 5.3.2 ARARs for Building 14 at the Linde Site - For purposes of the disposal of the building debris upon demolition of this building, the USACE needs to add 6 NYCRR Part 380 as an ARAR.

Comment 3: Section 5.3.2.2, page 14 - This Section discusses the USACE application of 10 CFR Part 40, Appendix A, Criterion 6(6) benchmarking which resulted in the ROD (USACE 2000) adoption of total uranium concentration levels above background of 3,021 pCi/g below 15 cm, and 554 pCi/g between 0-15 cm from surface. (See cover letter for DEC overall position on this.) In addition, the Section needs to discuss the fact that cleanup to these levels would leave source material (greater than 0.05 percent by weight) in an uncontrolled situation or requiring controls on radioactive materials. On August 28, 2002, the Nuclear Regulatory Commission proposed amending 10 CFR Part 40.51 in FEDERAL REGISTER 551755-55179 to ensure that transfers of materials below this level (339 pCi/g) do not pose a health and safety concern, especially to occupational exposure (albeit to a worker at an unlicensed facility receiving a dose greater than 100 mrem/yr).

New York State Department of Environmental Conservation
Executive Office, Room 608
50 Wolf Road, Albany, New York 12233-1010
Phone: (518) 457-3446 • **FAX:** (518) 457-7744
Website: www.dec.state.ny.us

John P. Cahill
Commissioner

February 18, 2000

Lieutenant Colonel Mark D. Feierstein
Department of the Army
Buffalo District Corps of Engineers
1776 Niagara Street
Buffalo, New York 14207-3199

Re: Linde FUSRAP Site

Dear Colonel Feierstein:

This will provide the Department of Environmental Conservation's position to the US Army Corps of Engineers (Corps) concerning its February 2000 draft Record of Decision (ROD) regarding the remediation of the Linde Site in Tonawanda, New York. These comments are based upon a review of the draft ROD, supporting information and the discussions from several meetings. The Corps is tasked with remediating the site under the federal government's Formerly Utilized Sites Remedial Action Program (FUSRAP) pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). The Department met with you and others on February 15, 2000, at the offices of Praxair, the successor to Linde and current occupant of the site. At the meeting, the Department agreed to send the Corps a letter providing its position on the draft ROD and the Corps' proposed plans for the remediation of the Linde Site.

You stated at the meeting that the Buffalo District of the Corps would not undertake the remediation of the Linde Site without the State's support that it should go forward. It remains the State's position that every FUSRAP site in New York State should be remediated by the responsible federal agency. However, the State has concerns with the draft ROD that the Corps has provided for our review. In an effort to move forward, the Department does not intend to repeat our comments issued in our letters of August 23, 1999 and November 8, 1999. We trust that these letters have been placed in the formal record for the final ROD.

Initially, as we discussed on February 15, 2000, we suggest you provide additional public comment on the draft ROD. Additionally, the Department understands, based on our meeting on February 15, 2000, that the Corps has committed to performing 5 year reviews and the draft ROD reflects this commitment.

If the Corps' decision is to proceed with remediation of the Linde Site as proposed in the ROD, the State will review the final status survey data from the site with respect to the review criteria attached hereto. If the final status survey data are consistent with these criteria, then we would agree that the remediation of the radioactive material is protective and we would be able to support the Linde site remedial action. However, in the event that these criteria are not satisfied, then the remediation of the radioactive materials may not be adequate for unrestricted use of the site, and the State (DEC and NYS Department of Health) would have to evaluate the appropriate steps to be taken in the event the remedy is not protective of the public health and the environment.

Thank you for the opportunity to contribute to this process.

Sincerely,

Frank V. Bifera
General Counsel

Enclosure
cc: D. Conroy
K. Callahan
R. Tramontano
P. Lehner
D. Munro
S. Hammond
G. Mikol

Criteria for Final Status Survey Data from Linde FUSRAP Site

NYSDEC will use the following criteria in reviewing the final status survey results and any data DEC staff collect:

1. Except where stated otherwise in these criteria, the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) written by the US Department of Defense, the US Department of Energy, the US Department of Environmental Protection, and the US Nuclear Regulatory Commission will be followed.

2. Average concentrations of the radioactive contaminants will be calculated over an area of 100 square meters or less and a depth of 15 centimeters or less [10 CFR 40, Appendix A, criterion 6(6) and 40 CFR 192.12]

3. The Working Derived Concentration Guideline Limits ($DCGL_W$) will be 60 pCi/g for total uranium, 5 pCi/g for radium-226, and 5 pCi/g for thorium-230 [identified as protective levels in January 12, 2000 letter from EPA to Corps; see also 40 CFR 192 and EPA Directive No. 9200.4-25].

4. The sum of ratios, as defined in 10 CFR 20, Appendix B, Note 4, and 6 NYCRR Part 380-11.7, Note 4, will be applied.

5. In Class 2 areas, the elevated measurement comparison DCGL ($DCGL_{EMC}$) will be performed in accordance with MARSSIM. In Class 1 areas, the $DCGL_{EMC}$ for uranium and thorium shall not exceed 0.05 percent by weight [10 CFR 40.3 and 40.13(a) and 10 NYCRR 16.2(a)(12) and Table 1, Appendix 16-A, item(g)].

(TYPED FROM HANDWRITTEN LETTER)

Thursday, November 7, 2002
USACE – Buffalo District
ATTN: CELRB – P.M.
1776 Niagara St.
Buffalo, New York 14207-3199

Gary H. Bauer
7282 Balla Dr.
Wheatfield, New York
14120
(716) 694-0393

Dear USACE – Buffalo District

I strongly agree with the USACE proposal to demolish the Linde/Praxaire Building #14 and transport the contaminated debris to a licensed, governmental storage site.

My only question regarding Building #14 is, why were millions of hard-earned taxpayer dollars wasted to de-contaminate Building #14 in the first place. When it should have been obvious at least eight years ago, that demolishing Building #14 was the only right decision to make?

Wasting millions of hard-earned taxpayer dollars and risking further exposure to those still working at the Linde/Praxaire Site, is not good government management.

Regardless of the varying PhD opinion on the exposure risks of man-made radiation. I would strongly argue that there is "no" level of man-made radiation exposure that does not pose a risk to human health. In addition, since transportation and storage of radioactive wastes also pose a risk to human health and are "short term" rather than "long term" solutions. I would strongly argue that the clean-up of existing radioactive wastes and the further production of radioactive wastes, should focus on the on-site elimination of these radioactive wastes, immediately after they are cleaned up or produced. This focus would concentrate on utilizing the Roy Transmutation Process, or similar other processes, to render radioactive wastes harmless to the environment. This focus and a strategy to do so, would totally eliminate "short term" transportation and storage issues from radioactive waste discussions all together!

Sincerely,
Gary H. Bauer

431, Riverview Drive,
Youngstown,
NY 14174.

Tel: 716 745-1032.
November 25, 2002.

U.S. Army Corps of Engineers,
Buffalo District,
FUSRAP Information Center,
1776 Niagara Street,
Buffalo, NY 14207-3199.

Dear Sir,

I would like to register my support for alternative 5, reference the proposed plan for the building 14 operable unit, Linde site, Tonawanda, New York. The demolition and removal of this building from the Linde site would seem the best option.

However, I think consideration should be given to the fears of the local community regarding the protection of human health and the environment. An information sheet, giving details of the proposed steps to safeguard the public during demolition of building 14 would be useful. Mr. Raymond Pilon indicated, at the November19, 2002 public meeting, that water would be used to control dust; this seemed a rather primitive method, given the close proximity of the general public.

I feel that whatever time the Army Corps of Engineers can spend providing information on environmental monitoring at the Linde site and liasing with the public on this important issue will be time well spent.

Yours sincerely,

J. A. Roberts

Ann Roberts.

CATHY KERN
1248 Greenbrier Lane
North Tonawanda, NY 14120
(716) 694-0105

November 26, 2002

U.S. Army Corps of Engineers
1776 Niagara Street
Buffalo, New York 14207

ATTN: Mr. Ray Pilon, Project Manager

SUBJECT: Linde Site

Dear Mr. Pilon,

I attended the public meeting at the Holmes School on November 19, 2002 to learn about the proposal to demolish Building 14 on the Praxair site. I found the meeting to be very information and controversial.

I worked at the Linde/Praxair site from 1968 to 1999 in a secretarial position. I also worked in Building 14 from 1970 to 1974. Below are my thoughts and observations from my 31 years of work experience at the site.

Building 14, as a research and development facility, is an old cinder block building with labs and machinery as well as offices. I was shocked to learn that the contaminants were found in load bearing walls, crane rails, beneath the concrete floor, drain lines, exterior brick, and roof. There is a tunnel under Building 14 that goes to Building 10. Tunnels are like wicks and everything travels rapid through them. Has contaminated material traveled through to Building 10 and other buildings? Does the Health Physicist assigned to Building 14 monitor and check the tunnels on a periodic basis. I too pounded nails into the wall to hang pictures and calendars. One of the departments, High Flux Tubing production outgrew the space in Building 14 and subsequently converted Buildings 57 and 73 into one building and moved all equipment and materials. Those buildings have also been demolished.

In 1980, the new construction of Buildings 100N, 100S and the Commons (Building 100C) was completed and occupancy occurred. The first floor of these buildings is half in the ground. I worked on the first floor of Building 100N for 12 years and was sick most of the time with unexplained migraine headaches, respiratory problems and flu-like symptoms. During the first couple of years of working in Building 100N, 8 co-workers developed cancer (colon, brain and lung). Only 3 are still alive. One was 39 and the others in their late 40's and early 50's. That is one floor of one building. Another employee was hospitalized with an unexplained illness and the CDC was called in. He lost part of a lung and was treated with tuberculin drugs for one year

though tuberculosis was not the final diagnosis. These 3 buildings are occupied by engineers, technicians, and clerical personnel. The cafeteria , lobby, conference rooms and library are housed in Building 100C. When I inquired about these cancer related incidences to the company nurse, I was told that "the number of cancer cases at this site are no greater than any other company in the area and that I was at the age where I was noticing these illnesses in people." (I was in my early 30's). This answer never set well with me. Employees with neurological problems came to light as well employees with leukemia, and multiple sclerosis.

When the first floor was dug, what was disrupted in the ground or dispersed in dirt removal that caused that many people of one floor of one building to develop cancer? Or was it just a case of "sick building syndrome?" (As was the case with the Love Canal, the outer ring residents received contamination as a result of the construction of the LaSalle Expressway that exits onto Williams Road. The contamination migrated under the expressway and into basements of houses on River Road).

Agent Orange was safe for the destruction of foliage, but now 35 years later, we are loosing a generation of Viet Nam Vets with cancer and early deaths in their 50's. Is this the case for the workers at the Linde site?

I was unaware that there were 5 health studies done on employees. I only know of one study that was done many years ago. Since the majority of death certificates say cause of death as cardiac arrest, then no one died of any illness caused by radiation or anything else for that matter. Their hearts just stopped.

In conclusion, I know that there are many employees who have cancer, both hourly and salaried. The cause of all the cancer cases I leave up to the experts.

Respectfully submitted,

Catherine A. Kern

Catherine A. Kern

174 Capen Boulevard
Amherst, NY 14226
November 26, 2002

Raymond L. Pilon, Project Manager
U.S. Army Corps of Engineers, Buffalo District
FUSRAP Information Center
1776 Niagara Street
Buffalo, NY 14207-3199

Dear Mr. Pilon:

Thank you for sending me a copy of the Proposed Plan, for study. Please enter my comments in the record, concerning the Proposed Plan for Building 14 at the former Linde Site, now owned by Praxair, Inc.

I concur with the recommendation by the USACE, to proceed with Alternative Five, complete demolition of Building 14. No other alternative solves the problem of dangerous contamination on a site that is located in a highly-populated and constantly used area. These radioactive wastes must be removed, and the property decontaminated to a level consistent with industrial zoning.

Therefore, I recommend that the USACE, as far as is possible, strongly encourage the Town of Tonawanda to revise its zoning of this particular parcel, to ensure that it will always be designated as passive land or industrial land. It should never, as far as humanly possible, be considered for residential use, or for parkland. The USACE will clean it up as much as possible, but no cleanup is ever perfect. Better that it be overlaid with concrete and steel, not homes and ball fields.
The Town is able to take such action, and should be urged to do so.

My only criticism of the Proposed Plan is in its logic regarding "environmental impact." Clearly, the Proposed Plan is carefully written to conform to the bureaucratic language of the regulations. Each alternative is described as having "no" environmental impact. Perhaps not, if by "environment" you are only considering the 210x220 footprint of Building 14, itself. The activities you discuss formally only concern that location. However, you detail, on p. 9, the discharge to stormwater of various contaminants through the drainage system. Surely, this means that the current and continuing situation at Building 14 makes a definite impact on the environment! The stormwater flowing through the property flows into the underground streams and onward to Lake Erie. This environmental impact is real, and should be addressed, even in the context of your Plan.

Please make clear, before a ROD is completed, as to the destination and means of transport of the debris from Building 14. The public needs to be assured that these materials will, in fact, be safely transported off-site to a location that will have its own adequate controls for hundreds of years.

You do well to recommend Alternative Five, despite its higher cost. You could emphasize that the cost for removal is a one-time expense, which would leave the land ready for industrial use with no further expense charged to the taxpayers. The other actions would require continual monitoring, at government expense.

Thank you for your attention to my comments,

Sincerely,

Gladys Gifford

Gladys Gifford

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COMMENTS ON "ENGINEERING EVALUATION/COST ANALYSIS (EE/CA) FOR PRAXAIR INTERIM ACTIONS, JANUARY 1996"

James M. Rauch March 12, 1996

a) Since last October the Department of Energy (DOE) has been conducting an "interim" action at the Linde/Praxair property of the Tonawanda Site. This "interim" action consists of an expensive, labor-intensive, partial decontamination of Buildings 31, 14, and 30, in spite of the community's overwhelming preference for EIS Alternative 2 which calls for the less costly demolition and offsite disposal of all four buildings (three of which were built by the Manhattan Project at taxpayer expense) including an estimated 5,000 cubic yards of contaminated soil under the buildings. DOE claims this action qualifies for a NEPA Categorical Exclusion from public environmental review. We disagree and have objected to this costly building decontamination action for two reasons:

1) DOE has maintained that "too-high" cost is the primary obstacle to implementing EIS Alternative 2. Yet, DOE claims that this more costly "interim" decontamination action will not prejudice the selection of a sitewide "final remediation" plan. These two statements are clearly incompatible. On October 23, 1995 at Congressman LaFalce's Niagara Falls office, DOE Assistant Secretary Thomas Grumbly made a commitment to us to disclose the extra cost of building decontamination over the cost of demolition. He has failed to do so. Are we to conclude that lack of money will not be a factor in the selection of a sitewide "final remediation" plan?

2) The buildings are being cleaned to meet the DOE's basic radiation dose guideline of 100 millirems per year above background assuming the current limited-use exposure scenario--industrial use. This dose level corresponds to a 33% increase in fatal cancers. We do not believe this is sufficiently protective of workers' health. It also does not seem to meet the surface decontamination requirements for release of facilities specified in the NYS Department of Health regulation NYCRR Part 16, Appendix A, Table 7.

b) Now the DOE has issued (on January 29, 1996) a draft "Engineering Evaluation/Cost Analysis (EE/CA) for Praxair Interim Actions" covering only: 1) the demolition of Building 38, and 2) removal of the radioactive debris and soils that exceed DOE's cleanup criteria from the onsite soil pile. At the request of FACTS and CANiT, the comment period has been extended to March 15, 1996, a 45 day period as previously prescribed. While the "suspended" EIS documents (Remedial Investigation [RI], Baseline Risk Assessment [BRA], Feasibility Study [FS] and Proposed Plan [PP]) are mentioned, DOE apparently believes the twenty page EE/CA itself to be a sufficient environmental impact review for this "interim" removal action. We disagree and we object to this proposal for the following reasons:

1) On page 9, DOE claims "It is reasonable to expect any site-wide remedy to include controls [restrictions on access to the site, deed limitations on residential use, etc.] to prevent exposures resulting from future activities at the site." We do not know where DOE got this idea; certainly not at any public meetings. Both the community and the private property owners expect a thorough cleanup that will remove radioactive contaminants down to a level which will allow unrestricted, safe use of the Site in the future. This is the stated goal of DOE's Formerly Utilized Remedial Action Program (FUSRAP). And with good reason, since these radioactive wastes have a hazardous life of over 500,000 years. Also, the US Nuclear Regulatory Commission (NRC), in an open public rulemaking (10CFR61), has decided that institutional control measures to reduce public exposure at radioactive waste disposal sites can only be relied upon for a period of up to 100 years.

In addition, the statement seems to imply that the proposed "interim" action will constitute "final remediation" for this portion of the Site. If so, the proposal clearly violates the prescribed, and still "suspended", sitewide full EIS/ROD process. Admiral Guimond's commitment (for DOE) that any final cleanup plan must have the community's full acceptance and NEPA/CERCLA law both clearly require that the sitewide EIS process must be completed and the sitewide Record of Decision be must issued before any cleanup work at any part of the site can be considered "final remediation".

2) The DOE's basic dose guideline (following cleanup) of 100 millirems per year above background is too high to adequately protect future generations either working (limited use exposure scenario) or living (unrestricted use exposure scenario) at the Site; it would allow a 33% to over 200% increase, respectively, in radiation-induced fatal cancers for the next 500,000 years. EPA is currently proposing (at 40CFR196) a dose limit of 15 millirems per year above background after cleanup. The New York State Department of Environmental Conservation's (NYSDEC) guideline, TAGM-4003, calls for cleanup to 10 millirems per year above background, which corresponds to an increase of 3.3% in fatal cancers.

The cleanup criteria for soils which DOE has selected for Tonawanda will not allow unrestricted use of the Site following cleanup. After cleanup to the DOE's site-specific uranium criterion for Tonawanda's soils, DOE uranium remaining at the Site would produce 40 millirems per year of radiation dose above background, according to DOE's own model for unrestricted use--the resident farmer scenario (page 8 of EE/CA). The criteria for radium and thorium are taken from the US EPA's Uranium Mill Tailings Radiation Control Act guidelines (40CFR192) which were developed for remote western uranium mill tailings sites. Cleanup to these criteria will impose an additional 600 millirems per year of dose above background, which corresponds to a 200% increase in radiation-induced fatal cancer, on unrestricted future users of the Site (see pp 24-26 of GAO report, attached). Thus, an unrestricted future user of the Site could be exposed to more than a 200% increased risk of premature fatal cancer.

DOE's cleanup criteria are sufficient to meet DOE's basic dose guideline (100 millirems per year above background) following cleanup <u>only</u> under a very restrictive industrial use exposure scenario. Both Praxair workers and the community expect any cleanup, whether "interim" actions or "final remediation", to clean the Site more thoroughly, i.e. to meet the State dose guideline of 10 millirems per year above background, using an unrestricted use exposure scenario. As indicated above, cleanup to a level that will allow unrestricted use is the stated goal of DOE's FUSRAP.

Also, DOE's assessment of risk considers only fatal cancer. Residual contamination will also subject Site users to correspondingly elevated rates of non-fatal cancers, inheritable mutations, and birth defects--radiation health effects which DOE has ignored in their risk assessment, but which nonetheless will also impose additional high costs on the community.

3) On page 11 of the EE/CA, it is stated that "Clean material [some of the debris from demolition of Building 38 or some of the soil from the pile] will be disposed at solid waste landfills or recycled." As used here, "clean" includes contaminated materials at or just below the DOE's outdated cleanup criteria described above. These criteria are inappropriate for densely populated, heavily used areas. This means that DOE is planning to dispose of radioactive materials, with concentrations that deliver many times the State dose guideline, in local solid waste landfills which are not suitable for long-term storage of these long-lived wastes. This is totally unacceptable to us.

In 1981, Building 37 was demolished by Linde (Union Carbide). "Debris from Building 37, having radioactivity exceeding twice the background level, was placed with the tailings [contaminated soil pile]." (page 6 of EE/CA) At that time, "clean" debris was probably material which surveyed at less than 20 uR/hr or about 160 millirems per year; this means some of it was up to 100 millirems

per year above background. While not stated here, this material was deposited in an [unkown] area of the Town of Tonawanda Landfill, according to page 1-18 of the Remedial Investigation. Thus, according to the current State guideline some of this material is radioactive waste and does not belong in that landfill.

4) According to page 3-53 of the Baseline Risk Assessment (BRA), surface soil under Building 38 is contaminated above DOE cleanup criteria. The removal of this contaminated soil is not included in the proposed action. However, site restoration activities are included under number (7) on page 18 of the EE/CA. This means that contaminated soils under Building 38 which should be removed, even by DOE's inadequate criteria, may be mixed and re-graded with clean fill during site restoration activities, such that the concentrations of radioactive contaminants is reduced below DOE criteria. This would be an illegal activity and we are firmly opposed to such a result.

DOE has a record in this regard. At the Niagara Falls Storage Site at Lewiston, NY, the concentrated radioactivity in the original R-10 residue pile was diluted by similar mismanagement. DOE subsequently re-classified the R-10 residues as "wastes" (contaminated soils) and now DOE wants to keep these residues--now higher-volume, lower-concentration "wastes"--at Lewiston. Under this formula, DOE mismanagement equals more radiation dose for Lewiston (see pp 5-8 of 8-24-94 ROLE letter to DOE Secretary O'Leary, attached).

5) The EE/CA states on pages 7-8 that a sample of dust from a ceiling beam contained 42,000 pCi/g U-238 and 26 pCi/g Ra-226, while "fixed" contamination ranged to 13,409 pCi/100 square centimeters for alpha particle radiation, and 172,881 pCi/100 square centimeters for beta-gamma radiation. This is heavy contamination. Yet the EE/CA gives only a sketchy description, on pages 13, 15 and 17, of how dispersal of heavily contaminated particles will be prevented during demolition: "Once uncovered, the stored soil would be susceptible to wind and water erosion. Dust from demolition and crushing activities could also be released to the air. ... but these effects will be minimized or eliminated by the use of dust suppression measures and barriers to erosion during rain events. ...Plastic sheeting will be used during the construction activities ... As necessary, the stored soil and rubble will be misted with water to reduce the potential for spread of radioactive materials by the wind."

We do not believe the EE/CA gives an adequate description of the proposed action or the risks posed by it. The demolition area will apparently not be totally enclosed in plastic. Since the material may be stored onsite for some time before removal to a licensed disposal facility, a Birdair style temporary total enclosure is desirable to assure containment both during demolition and subsequent temporary storage.

Federal Radiation Exposure Limits

Standard or guideline/ agency	Type/effective date	Limit	Estimated lifetime risk of premature cancer death[a]
General standards/guidelines			
1. General public/NRC	Regulation (10 C.F.R 20), 1993	0.1 rem/yr.	1 in 300
2. General public/EPA	Guidance, 1960	0.5 rem/yr.	1 in 60
3. General public/EPA (draft)	Proposed guidance	0.1 rem/yr.	1 in 300
4. General public/DOE (draft)	Proposed regulation (10 C.F.R. 834)	0.1 rem/yr.	1 in 300
Source-specific standards/guidelines			
5. Uranium mill tailings/ NRC	Regulation (10 C.F.R. 40), 1985		
		Radium 226: 5 pCi/g	1 in 50[b]
		Radon: 20 pCi/m^{2}s	1 in 14,000[c]
6. Reactor effluent design/NRC	Regulation (10 C.F.R. 50, App. I), 1975		
		Liquid: 0.003 rem/yr. total body	1 in 10,000
		Gaseous: 0.005 rem/yr. total body	1 in 6,000
7. High-level waste repository operations/ NRC	Regulation (10 C.F.R. 60), 1983	0.1 rem/yr.	1 in 300
8. Low-level waste/NRC	Regulation (10 C.F.R. 61), 1983	0.025 rem/yr.	1 in 1,000
9. Air pollution/EPA	Regulation (40 C.F.R. 61), 1989, 1991	0.01 rem/yr.	1 in 3,000
10. Drinking water (interim)/ EPA	Regulation (40 C.F.R. 141), 1977	Beta/photon[d]: 0.004 rem/yr.	1 in 7,000
10a. Drinking water (draft)/EPA	Proposed regulation (40 C.F.R. 141)		
		Radium: 20 pCi/l	1 in 14,000
		Radon: 300 pCi/l	1 in 5,000
		Beta/photon[d]: 0.004 rem/yr.	1 in 7,000
11. Uranium fuel cycle/EPA	Regulation (40 C.F.R. 190), 1979-83	0.025 rem/yr.	1 in 1,000
12. Spent fuel, high-level, transuranic waste disposal/ EPA	Regulation (40 C.F.R. 191), 1994		
		All pathway: 0.015 rem/yr.	1 in 2,000
		Ground water: 0.004 rem/yr.[d]	1 in 7,000
		Containment: 1,000 deaths in 10,000 yrs.	1 in 36,000[e]
13. Uranium mill tailings/ EPA	Regulation (40 C.F.R. 192), 1983		
		Radium 226: 5 pCi/g	1 in 50[b]
		Radon: 20 pCi/m^{2}s	1 in 14,000[c]

(continued)

[a]For purposes of comparison, the estimated risks in the table are derived from commonly used assumptions (e.g., a cancer death risk of 5×10^{-4} per rem to an individual continuously exposed over a 70-year lifetime; for workers, 50-year exposure). The estimated risks may differ from those derived by agencies, which used various assumptions in setting standards and guidelines. Some estimated risks are to individuals, and others are to larger defined populations. Risks are rounded.

[b]Based on exposure to an individual residing on site after cleanup. The estimated risk to an individual off-site could be considerably less.

[c]Based on average population exposure. According to EPA and DOE, the estimated risk to a maximally exposed individual could be considerably greater.

[d]Beta particle and photon radioactivity from man-made radionuclides in community water systems.

[e]Based on an NRC assumption of a population of 250,000.

[f]10^{-4} to 10^{-6} = 1 in 10,000 to 1 in 1,000,000 risk of cancer incidence. The goals in the risk column have been converted to express cancer mortality risk. The dose limit is determined on a site-specific basis, depending upon exposure pathways, radionuclide, total inventory, and site characteristics.

[g]Based on a 50-year working lifetime.

[h]WLM = working level month, equivalent to about 100 picocuries per liter of radon in equilibrium with its progeny for 170 hours of worker exposure.

Source: Derived by GAO in part from CIRRPC, NRC, EPA, and DOE data. A principal source is "A Compendium of Major U.S. Radiation Protection Standards and Guides: Legal and Technical Facts," prepared for CIRRPC by W. A. Mills, D. S. Flack, F. J. Arsenault, and E. F. Conti (Oak Ridge Associated Universities, ORAU 88/F-111, July 1988).

F.A.C.T.S.

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COMMENTS ON "ENGINEERING EVALUATION/COST ANALYSIS (EE/CA) FOR BUILDING 30 AT PRAXAIR", NOVEMBER 1996, U.S. DEPT. OF ENERGY

James M. Rauch December 20, 1996

1) Since DOE's release of the Tonawanda Site Environmental Impact Statement (EIS) review documents and the cleanup plan alternatives in 1993, the Tonawanda community has demonstrated overwhelming support for Alternative #2, i.e. the complete removal of the 371,000 cubic yards of radioactive wastes identified by DOE in those documents to a suitable off-site long-term storage location. F.A.C.T.S., a DOE-recognized stakeholder group representing health, environmental, worker and resident interests in the Tonawanda community, has actively and consistently supported this thorough cleanup plan.

The DOE established the FUSRAP (Formerly Utilized Sites Remedial Action Program) in 1974 for the stated purpose of cleaning up properties contaminated by nuclear weapons production operations of the U.S. Army's Manhattan Project and the Atomic Energy Commission (DOE predecessors) to a level of residual contamination that would enable DOE "to certify the sites for unrestricted use following decontamination, to the extent possible." (page 3, "Remedial Actions at Four FUSRAP Sites in New York: Notice of Intent to Prepare an Environmental Impact Statement", February 22, 1988, DOE) It <u>is</u> possible to fully decontaminate the Tonawanda Site for unrestricted use (see EIS Alternative #2).

As used in the phrase "to certify for unrestricted use", the term "unrestricted use" has a specific meaning: that pattern of human use which results in the greatest radiation dose to the site user, generally accepted to be a "resident farmer" use scenario. It does <u>not</u> include patterns of limited use, for example industrial use scenarios or open space use scenarios, where substantial limitations on both the time of exposure and the possible pathways of radiation exposure are assumed, allowing the derivation of lesser cleanup levels. Such uses are restricted uses.

It is evident that DOE desires to limit cleanup of its contamination at the Tonawanda Site properties as much as possible.

DOE hopes the property owners and the community will accept a very limited cleanup of these properties based on their existing limited use or current Town of Tonawanda zoning plans. Anyone who follows local zoning board actions knows that they are subject to political vagaries and special interest influence. It is unrealistic to expect that they will maintain restrictions on use of the FUSRAP-contaminated properties. For this reason, following an open and extensive public discussion pursuant to an Environmental Impact Statement process, the U. S. Nuclear Regulatory Commission (NRC) developed a regulation (10 CFR Part 61.59) specifying that land use restrictions can be considered to remain effective, and therefore be employed as a radioactive waste management tool, for a time period not to exceed 100 years.

Given the indefinite duration of the radioactive hazard (500,000 years), the expectation of continued high population density in the Tonawanda area for the foreseeable future and corresponding pressures to more intensively re-use the properties, the likely inability or unwillingness of future governments to place or to maintain restrictions on the use of the contaminated private properties, and the availability of much better physical sites where the long-term isolation of the wastes is both better assured and more cost-effective, we believe the original FUSRAP goal of cleanup for unrestricted use makes sense and is essential if we are to adequately protect many future generations of site users from elevated rates of radiation-induced death and injury.

Alternative #2 is the only EIS alternative that will fully discharge DOE's congressionally-mandated responsibility under the FUSRAP.

Why, then, does this EE/CA list as its objective: "to certify sites for appropriate [DOE doublespeak for restricted] future use", instead of the FUSRAP's stated goal, as set out in the Notice of Intent, "to certify for unrestricted use"? What has changed (other than the current crop of management at DOE)? Has the hazardous nature of the radioactive material changed? Were the licensing and regulatory requirements prescribed in Title 10 of the Code of Federal Regulations Part 40 (pursuant to the Atomic Energy Act of 1954 and subsequent statutes) and applicable to Tonawanda's "byproduct" materials (formerly included under "source" materials) somehow magically suspended in the 1950s?

2) In our comment (a)(2) on DOE's January 1996 "EE/CA for Praxair Interim Actions" (demolition of Building 38 and removal of the soil pile), we pointed out that the surface decontamination requirements for release of facilities specified in the NYS Department of Health regulation NYCRR Part 16, Appendix A, Table 7 are more stringent than the guidelines selected by DOE (Order 5400.5). In its May 1996 "Responsiveness Summary" to comments on that EE/CA, DOE states on page 10 that "(t)he DOE and Nuclear Regulatory Commission (NRC) surface contamination guidelines (shown in Appendix C) are similar to the NYCRR Table 7 values".

In fact, the NRC Regulatory Guide 1.86 provides guidelines for a subset of alpha-emitters including radium-226 and thorium-230: 100 dpm/100 cm^2 average, 300 dpm/100 cm^2 maximum, and 20 dpm/100 cm^2 removable, that are, in all three cases, 50 times more stringent than the DOE-selected Order 5400.5 guidelines (5000, 15000, and 1000). In addition, the NRC Guide specifies that "where surface contamination by both alpha- and beta-gamma-emitting nuclides exists, the limits established for alpha- and beta-gamma-emitting nuclides should apply independently." The NY Part 16, Table 7 regulations limit alpha-emitters to 500, 2500 and 100 dpm/100 cm^2, average, maximum and removable, respectively.

How then can DOE claim that "(i)t is expected that use of the DOE and NRC surface contamination guidelines will result in cleanup of surfaces to levels which will meet the NYCRR Appendix 16-A, Table 7 criteria" (page 11, "Responsiveness Summary"), or the even more stringent NRC criteria? A review of the count data ranges and averages presented in Figure 4 of this EE/CA shows, for example, that readings of the average fixed alpha-emitter contamination in the walls and floor exceed the NRC criteria but not the DOE guidelines. For DOE's claim to be true, all of the surveyed areas that are radioactive waste by the more stringent NRC alpha-emitter criteria must also coincide with those areas determined by DOE's beta-gamma criteria to be waste. This is highly unlikely.

Instead, it is possible that significant quantities of Building 30 material, material that is radioactive according to NRC and NYS criteria, could be disposed of in local solid waste landfills by DOE as "clean" material. We say this because page 9 of DOE's "Responsiveness Summary" states "(i)f building materials meet the uranium surface release criteria (1,000 disintegrations per minute (dpm)/100 cm^2 removable, 5,000 dpm/100 cm^2 total), then the materials could be disposed in a licensed landfill." By "licensed" we assume DOE means a licensed solid waste landfill. Have any such Building 38 materials been disposed of in a solid waste landfill?

On page 11 of this EE/CA it is stated that "clean material could be disposed at solid waste landfills or recycled." We have repeatedly reminded DOE that, prior to an agreement by stakeholders on cleanup criteria that is set down in a final remediation plan and Record of Decision (ROD), any such disposition of FUSRAP-contaminated material will violate the NEPA/CERCLA review process prescribed for the Tonawanda Site. We have done this most recently in a September 28 letter to Mr. James Owendoff, Deputy Assistant Secretary for Environmental Restoration (attached).

3) During the demolition and volume reduction of Building 38 we received reports suggesting that radioactive dust may have been released directly exposing workers and perhaps nearby residents. Were continuous worker and site perimeter air monitoring data collected for the duration of the demolition period? Where are they available for public inspection?

We do not believe this EE/CA gives an adequate description of the proposed action or the risks posed by it. As was the case with Building 38, will the demolition area not be enclosed? From the limited data presented, it appears that the contamination of Building 30 may be considerably greater than that of Building 38. For example, the maximum fixed alpha contamination on the walls in Building 38 was reported as 29,500 dpm/100 cm^2, less than a tenth that reported in Building 30. Building 30 also contains considerable wood and is much larger than Building 38. Since the contamination is quite heavy and the building substrate is likely to release dust during demolition and volume reduction (crushing and grinding), we do not believe watering, portrayed in DOE's August 1996 "Tonawanda Site FUSRAP Update" (attached), to be an adequate measure to control the release of radioactive dust. We request that a Birdair style temporary total enclosure be utilized to assure containment both during demolition and subsequent storage of material pending agreement on final cleanup criteria.

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March 3, 1997

John E. Sweeney
Commissioner
NYS Department of Labor
Building 12
State Office Building Campus
Albany, NY 12240

Subject: State regulation of radioactive materials resulting from MED/AEC operations at the Linde/Praxair property

Dear Commissioner Sweeney:

This letter is to inform you of mistakes which we believe the NYS Department of Labor (NYSDOL) has made in its regulation of radioactive materials licensee Linde/Praxair, Tonawanda, NY.

Background

The Linde/Praxair property was designated for decontamination by the U.S. Department of Energy (DOE) as a result of a radiological survey performed by Oak Ridge National Laboratory (ORNL) late in 1976 (see "Radiological Survey of the Former Linde Uranium Refinery, Tonawanda, New York, May 1978", DOE/EV 0005-5). This survey (summary section enclosed) found uranium contamination in quantities well in excess of both the license-exempt amounts and the release limits for unrestricted use. Specifically:

> "radioactive contaminants on the indoor and outdoor surfaces in the area of former uranium operations include U-238 and Ra-226. Concentrations of U-238 in soil samples were as high as 12,000 pCi/g (3.6% uranium), and Ra-226 concentrations up to 813 pCi/g were measured. ... Alpha contamination levels exceeded the NRC [U.S. Nuclear Regulatory Commission] limits for surfaces contaminated with Ra-226 in several areas in each of Buildings 14, 30, and 38, and in small, isolated areas of Building 31. Transferable beta contamination exceeded the NRC limit of 1000 dpm/100 cm^2 at some locations in Building 30. Beta-gamma dose rates exceeded the NRC limits in several areas in each of Buildings 14,30, and 38, and in one large area on a wall in Building 37."

At that time, this uranium refinery contamination was defined as "source materials". Such materials, containing 0.05 percent or more by weight of uranium (170 pCi or more of U-238 per gram),

thorium, or any combination thereof, required a license to possess, transfer or deliver. The NRC surface limits referred to are the federal limits on residual radioactive contamination that must be met before a radioactive materials license may be terminated or property subject to a license released for unrestricted use. The authors of this report recommended cleanup to the fiftyfold more stringent alpha contamination limits for Ra-226 because in many of the samples with elevated activities the activity of the Ra-226 approximated that of the U-238. Over 20 years ago, these experts regarded these buildings as a "radium site".

On June 18, 1996 we wrote to Dr. Karim Rimawi of the NYS Department of Health expressing concern that the building decontamination "interim actions" being performed by the DOE at the Linde/Praxair property, a part of DOE's Tonawanda, NY Formerly Utilized MED/AEC (U.S. Army Manhattan Engineer District/U.S. Atomic Energy Commission) Sites Remedial Action Program Site, did not meet Health Department cleanup regulations. Our letter was referred to NYSDOL's Principal Radiophysicist, Ms. Rita Aldrich who replied on July 11, 1996 that Praxair does have a NYSDOL radioactive materials license covering the DOE contamination, but that "legally, New York State lacks jurisdiction over the contamination" and so "our regulatory limits for residual contamination would not apply."

Information recently provided to us by NYSDOL in response to our December 6, 1996 FOIL request (your File No. 96-0695):

1) seems to contradict this: Following the ORNL survey, the U.S. Energy Research and Development Administration (DOE's predecessor) called a meeting with Linde and NYSDOL which was held on July 27, 1977 at the Linde plant in Tonawanda, according to a July 29, 1977 letter from USERDA's William T. Thornton to NYSDOL's Dr. Francis J. Bradley. In that letter (enclosed) Mr. Thornton states that NYSDOL "has regulatory jurisdiction under agreement with USNRC for current Linde industrial operations involving radioactive materials", that Dr. Bradley stated the State's preference that all contaminated areas be cleaned by USERDA to unrestricted use levels, but that recognizing this might not be immediately possible for USERDA to accomplish, Dr. Bradley then requested that Linde amend its existing license to include the contaminated buildings and the outdoor areas where uranium or radium concentrations in the soil exceeded the exempt levels described in State Code Rule 38 (0.05% by weight of uranium). After a discussion of the types of controls required (not described in the letter), Linde agreed to control of the contaminated areas, which later took the form of amendment No.4, issued on June 9, 1978, to NYSDOL License No. 1983-0143;

and yet,

2) also discloses that on July 11, 1996 NYSDOL issued Praxair an amendment to License No. 1983-0143 deleting amendment No. 4 from the license. Ms. Aldrich's letter of the same date to Praxair's Mr. T. M. Dugan explains that since remediation has begun, it is not appropriate to continue listing the buildings on a Department license.

AEC and New York State, gave NY State agencies the authority and responsibility to control the MED/AEC wastes now contaminating several additional Tonawanda properties, initially as "source material" and subsequently as "byproduct material" after the enactment of the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA). After November 8, 1981, the continuation of such State authority requires that the State programs meet requirements listed at 10 CFR 150.31. If the State fails to meet these requirements, 10 CFR 40.2(b) clearly requires NRC to regulate these materials.

So, the pertinent question is: did NYSDOL establish and maintain a program to meet these requirements?

Ms. Aldrich firmly maintains that NYSDOL does not have "jurisdiction" over these MED/AEC materials, we assume because New York State did not meet the new procedural licensing and rulemaking requirements of 10 CFR 150.31(b), in particular, NYS did not establish and enforce standards for the protection of the public health, safety, and the environment from hazards associated with byproduct material which are equivalent, to the extent practicable, or more stringent than, standards in the new Appendix A of 10 CFR 40. This certainly appears to be the case (supported by points 2 and 3 directly above, and the information supplied by NYSDOL if it is in fact fully responsive to our December 6, 1996 FOIL request).

However, we continue to lack a reply to this question from NRC (see our December 27, 1996 letter to Mr. Richard Bangart on this matter, copied to Ms. Aldrich with enclosures: our comments on DOE's two EE/CAs for "interim actions" at Praxair, and our September 28, 1996 letter to DOE's James Owendoff).

On February 19, 1997, during the writing of this letter, the new DOE Site Manager informed us that so-called "clean" debris from the demolition of Building 38 had been "disposed" in a local solid waste landfill, apparently with NYSDEC's approval. We were appalled by this news. We believe that such "disposal" is illegal. We do not know the particulars: where, when, what. We are preparing a letter to DOE to get confirmation and answers.

And so, until NRC assumes its lawful regulatory responsibilities, we must consider NYSDOL's deletion of amendment No. 4 from the Praxair license to be an illegal act. We say this because the removal of the amendment constitutes a termination of the portion of the license covering the MED/AEC contaminated buildings and soils. Prior to any such termination, compliance with the requirements of 12 NYCRR Part 38.23 must be certified.

Therefore, in view of the foregoing, we ask NYSDOL to:

1) take immediate steps to reinstate license control of all MED/AEC materials at the Linde/Praxair property, including those previously covered by amendment No. 4 to License No. 1983-0143,

2) ensure that all DOE cleanup actions, including "interim

This information causes us to make the following points:

1) It is clear to us that the intended purpose of 10 CFR 20, 10 CFR 40, and State Code Rule 38 was (and is) to protect workers and others from exposure to ionizing radiation above then-current limits. Presumably this was the reason that USERDA called the July 27, 1977 meeting, resulting in the licensing of the MED/AEC contamination at the Linde property. [However, in retrospect, considering the in-the-works legislative and regulatory developments -- The Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA) and the UMTRCA amendments, NRC's strict new (November 1980) 10 CFR Part 40 and Part 40 Appendix A regs, and the role given the DOE Secretary in designating Title I sites -- coupled with the apparent later failure of NYS to retain regulatory authority over these materials (see below), why the NRC was not invited and involved in this regulatory matter may raise questions about one or more of the parties' intent. It appears that Linde's State license gave DOE an excuse not to designate Tonawanda into Title I.)

2) Whether these lawful regulatory purposes were actually achieved, as was claimed in DOE's November 1996 EE/CA (pages 6, 13, 14) is doubtful. Conversations with longtime plant employees suggest that the requirements of Sections 38.12(4), 38.17, 38.27, 38.13 and 38.23 of State Code Rule 38 were not met.

3) In our March 12, 1996 comments on the January 1996 EE/CA we protested the decontamination of buildings according to DOE's [non-promulgated] Order 5400.5 criteria. We noted that state regulations were more stringent [as provided for in 42 USC Section 2021.(o)]. We also strenuously objected to the proposed recycling, or disposal at solid waste landfills, of so-called "clean" (again, by DOE's proposed criteria) materials from the demolition of Building 38. We repeated this protest in comment (2) of our December 20, 1996 comments on the November 1996 EE/CA, where we cautioned that any such final disposition of any so-called "clean" material prior to agreement by all stakeholders on final cleanup criteria would be a violation of the prescribed NEPA/CERCLA EIS public review process.

We have also continuously raised this issue at the public meetings held since DOE first publicly issued these proposals, the last such meeting being on June 18, 1996 with DOE's Ron Kirk and NYSDEC's Paul Merges present. There have been no public meetings to discuss site remediation since that date. To our knowledge, NYSDOL has not been in attendance at any of these public meetings, nor has NYSDOL commented upon either EE/CA. This, despite the existence, only discovered as a result of our recent FOIL request, of License No. 1983-0143 covering the radioactive materials involved in the subject "interim" cleanup actions. We note that at several of these public meetings last spring our inquiries concerning the state's regulatory role were brushed aside by both Mr. Kirk and local politicians, with assurances that these were only "interim actions", not final remediation.

4) We believe the October 15, 1962 State Agreement between the

actions", at the Linde/Praxair property conform to the requirements of Title 12 NYCRR Part 38, and

3) obtain assurance from DOE that it will not proceed with any further final disposition of so-called "clean" material resulting from ongoing DOE "interim actions" at the Linde/Praxair property until after final cleanup criteria are agreed upon.

We would appreciate a response outlining NYSDOL's intentions in this matter as soon as possible.

Sincerely,

James Rauch

James Rauch

cc: w/enclosures: G. Pataki
R. Bangart, USNRC
J. Owendoff, USDOE
J. Cahill, NYSDEC

Enclosures: pp 18-21 of "Radiological Survey of the Former Linde Uranium Refinery, Tonawanda, New York, May 1978", DOE/EV 0005-5

July 29, 1977 letter w/enclosure from USERDA's William T. Thornton to NYSDOL's Dr. Francis J. Bradley

Re: COL#DL77-234

UNITED STATES
ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION

OAK RIDGE OPERATIONS
P. O. BOX E
OAK RIDGE, TENNESSEE 37830

AREA CODE 615
TELEPHONE 482-8611

July 29, 1977

RECEIVED
AUG 2 1977
DIVISION OF
INDUSTRIAL HYGIENE

Dr. Francis J. Bradley
Principal Radiophysicist
Division of Safety & Health
New York State Department of
Labor
World Trade Center
New York, N. Y. 10047

Dear Dr. Bradley:

Enclosed is a summary of understandings reached at our meeting at Linde on July 27, 1977. If this is inconsistent with your understanding, please let me know.

Sincerely,

William T. Thornton

William T. Thornton
Health Physicist
Health Protection Branch
Safety & Environmental Control Div.

OSH:WTT

Enclosure:
As stated

COL#DL77-227

UNITED STATES
ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION

OAK RIDGE OPERATIONS
P. O. BOX E
OAK RIDGE, TENNESSEE 37830

AREA CODE 615
TELEPHONE 483-8611

July 29, 1977

R. H. Kennedy, Acting Chief, Surveillance Projects Branch, DOES, HQ

LINDE FOLLOW-UP STATUS

On July 27, 1977, a meeting was held at the Linde Plant in Tanawanda, New York to discuss findings of the ERDA radiological survey of the Linde site with company and State regulatory officials. Pursuant to HQ concurrence with our recommendations as stated in my memo to you dated April 7, 1977, the draft survey report was transmitted to Linde by the attached letter dated May 10, 1977, and to the State of New York subsequently on May 18, 1977.

Attending the meeting for the State were Dr. F. J. Bradley and R. F. Kelly of the Department of Labor which has regulatory jurisdiction under agreement with USNRC for current Linde industrial operations involving radioactive materials. Attending for Linde were J. P. Green, Operations Manager, Ted Smist, Adam Malek and L. R. Andrews, Industrial Hygienist. R. E. Allen, HQ-DOES and William T. Thornton, OR, represented ERDA.

Neither the State nor the company voiced any criticism of the report. We indicated the report would now be finalized and printed as an official ERDA document and would be available to the public upon request. The State plans to make measurements of its own on July 28-29 so as to be in a position to comment on the validity of the ERDA findings if queried.

Dr. Bradley indicated the State preference that all contaminated areas be cleaned to unrestricted levels; however, he recognized that this may not be a feasible alternative at least in the immediate future. The State, therefore, requested that Linde submit a request for modification of its existing license to cover buildings 14, 30, 37 and 38 and those outside areas where uranium or radium concentrations in the soil exceed exempt levels in State Code Rule 38. Linde representatives, after general discussion of the types of controls which would be required, indicated a willingness to include these areas under State license.

It was indicated that ERDA is developing plans to make engineering assessments of remedial action alternatives at all sites found to exceed current unrestricted use guidelines. We could not predict the timing on completion of these studies for the Linde site but estimated something on the order of two years or more. Everyone appeared to agree that licensing the area was the only feasible alternative in the interim.

Regarding public information aspects, it was noted that ERDA plans to issue within the next few days a summary status update on the overall program. Linde appeared satisfied with the remarks to be included on the Linde site; i.e., that the survey had been completed and the report is in preparation.

A tour of the contaminated areas was made to acquaint State representatives with areas found to have the higher radiation levels.

The company indicated plans for substantial modificat ons in Building 30 in the near future and will conduct these activities subject to State radiation control requirements.

Summary

The results of the meeting can be summarized as follows:

Company Actions:	Linde will request modification of existing State license to cover areas contaminated from AEC/MED contract work.
State Actions:	Department of Labor will amend license to control contaminated areas pending final remedial action decisions.
ERDA Actions:	ERDA will make engineering assessment of feasible remedial action alternatives assuming funding is approved as presently anticipated.

William T. Thornton
Health Physicist
Health Protection Branch
Safety & Environmental Control Division

OSH:WTT

Attachment:
As stated

cc's w/o attach.

F. J. Bradley, DOL
J. P. Green, Linde
T. K. DeBoer, New York Energy Office
C. A. Keller, OR
W. H. Travis, OR

reported in Table 13. Recommended concentrations in water[6] (CG_w's) of these isotopes are also provided in Table 13. These are the non-occupational CG_w's and are based on continuous exposure (168 hr/week). In every sample except W2, the concentration of each isotope tested was at least an order of magnitude below the CG_w for that isotope. In sample W2, the concentration of ^{226}Ra was approximately twice the non-occupational CG_w; the concentrations of ^{234}U, ^{238}U, and ^{230}Th in this sample were well below the CG_w's for those isotopes.

Results of a High-Volume Air Sample in Building 30

Results of a high-volume air sample taken in the survey square M1 (Fig. 10) in Building 30 are given in Table 14. The non-occupational recommended concentration in air[6] (CG_a's) for the isotopes tested are also provided in Table 14. The measured concentrations of ^{226}Ra, ^{230}Th, and natural uranium in the sample were at least an order of magnitude below the CG_a's.

SUMMARY

Five buildings on the Linde property were used in uranium operations during 1940 through 1948. Measurements and sample analyses indicate that the radioactive contaminants on the indoor and outdoor surfaces in the area of former uranium operations include ^{238}U and ^{226}Ra. Concentrations of ^{238}U in soil samples were as high as 12,000 pCi/g (3.6% uranium), and ^{226}Ra concentrations up to 813 pCi/g were measured.

In samples with elevated activities of ^{238}U and/or ^{226}Ra, the ratio of ^{226}Ra (in pCi/g) to ^{238}U (in pCi/g) varied from less than 0.01 to greater than 1.0. Since NRC limits* for alpha contamination levels

*These limits apply to the release of property for unrestricted use.

are 50 times stricter for ^{226}Ra than for ^{238}U, it appears that the guidelines for ^{226}Ra should be applied to this site (see Appendix V).

Alpha contamination levels exceeded the NRC limits for surfaces contaminated with ^{226}Ra in several areas in each of Buildings 14, 30, and 38, and in small, isolated areas of Building 31. Transferable beta contamination exceeded the NRC limit of 1000 dpm/100 cm^2 at some locations in Building 30. Beta-gamma dose rates exceeded the NRC limits in several areas in each of Buildings 14, 30, and 38, and in one large area on a wall in Building 37.

Elevated external gamma radiation levels were measured in Buildings 14, 30, and 38, with highest levels (up to 63 μR/hr) being recorded in Building 30. Outdoors, elevated external gamma radiation levels were measured at several isolated points in the northwest and northeast corners of the property. The highest recorded external gamma reading was 250 μR/hr, near the northeast boundary of the Linde property.

Measurements of instantaneous radon daughter concentrations in Buildings 14, 30, 31, 37, and 38 did not exceed 0.01 WL. According to guidelines written by the Surgeon General and adopted by ERDA as the basis for the Grand Junction Remedial Action Criteria[4] (see Appendix V), radon daughter concentrations in air below 0.03 WL do not require remedial action in structures other than dwellings and schools. It should be pointed out, however, that these guidelines state that indoor radon daughter concentrations be determined by "(1) averaging the results of six air samples each of at least 100 hours duration and taken at a minimum of four-week intervals throught the year in a habitable area of

a structure, or (2) utilizing some other procedure approved by the Commission." In the time span covered by the present survey, only limited, exploratory radon daughter measurements were possible. Since radon daughter measurements may vary significantly during short periods of time (particularly when the buildings are well ventilated), the measurements taken at Linde may not accurately reflect average annual conditions.

In a high-volume air sample taken in Building 30, concentrations of ^{226}Ra, ^{230}Th, and natural uranium were at least an order of magnitude below the CG_a's for those isotopes. In water samples taken on and near the Linde site, concentrations of radium, uranium, and thorium were below the non-occupational CG_w for those isotopes, except for one sample taken from an old conveyor pit in Building 30. In that sample, the concentration of ^{226}Ra was approximately twice the non-occupational CG_w.

ACKNOWLEDGMENT

The authors wish to thank D. J. Christian, R. W. Doane, B. S. Ellis, D. L. Anderson, and W. M. Johnson for their excellent technical assistance.

REFERENCES

1. G. D. Kerr, Measurement of Radon Progeny Concentrations in Air by Alpha-Particle Spectroscopy, ORNL/TM-4924, 1975.

2. Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct Source, or Special Nuclear Material, U. S. Nuclear Regulatory Commission, November, 1976.

3. Proposed American National Standard, ANSI N 328-197, Control of Radiative Surface Contamination of Materials, Equipment, and Facilities to be Released for Uncontrolled Use, 1976.

4. Code of Federal Regulations, Title 10, Part 712, "Grand Junction Remedial Action Criteria," Federal Register, Vol 41-No. 252, December 30, 1976.

5. Department of Health, Education, and Welfare, "Recommendations of Action for Radiation Exposure Levels in Dwellings Constructed on or With Uranium Mill Tailings," Letter from P. Peterson, acting Surgeon General, to R. L. Cleere, Executive Director, Colorado State Department of Health, July 27, 1970.

6. Code of Federal Regulations, Title 10, Part 20, "Standards for Protection Against Radiation," Appendix B.

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John E. Sweeney
Commissioner
NYS Department of Labor
State Office Building Campus
Albany, NY 12240

March 23, 1997

Dear Mr. Sweeney:

We have received your March 17, 1997 response to our March 4, 1997 letter in which we identify mistakes which we believe were made by the NYS Department of Labor (NYSDOL) in its regulation of licensee Linde/Praxair, Tonawanda, NY.

Your response is not helpful in that it provides no new information regarding NYSDOL's historic role as the Agreement State regulator responsible for controlling the licensable Manhattan Engineer District (MED) radioactive materials (initially as "source material" and, after passage of the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA), as "byproduct material") which contaminate soils and buildings at the Linde facility.

To briefly recap our letter in part, we made the following points:

1) Under the terms of the October 15, 1962 State Agreement between NYS and the federal government, NYSDOL, not the NRC, had the authority and responsibility: a) to license the MED materials found by the 1976 ORNL survey to be present in Linde facility soils and buildings at levels above both the license-exempt quantities and the concentration limits for unrestricted use areas, and b) to apply the provisions of State Industrial Code Rule 38 (12 NYCRR Part 38), the purpose of which Rule is to control human exposure to these materials.

2) This responsibility was exercised in the form of Amendment No. 4, issued June 9, 1978, to Linde's DOL License No. 1983-0143. This action (taken almost two years after the survey results were known) followed a July 27, 1977 meeting of representatives of USERDA, NYSDOL, and Linde; the output of this meeting, summarized by USERDA's Wm. Thornton, called for "State Actions: Department of Labor will amend [Linde] license to control contaminated areas pending final remedial action decisions."

3) Because NYS failed to meet the additional Agreement State radiation control program requirements prescribed by UMTRCA and listed at 10 CFR 150.31, on November 8, 1981, NYSDOL lost its authority over and responsibility to regulate Linde's MED contamination.

We ask NYSDOL either to confirm the accuracy of these three statements or to identify specifically any disagreement that it might have with these three statements and to explain thoroughly the reason(s) for such disagreement.

Please understand that we do not necessarily disagree with NYSDOL's statement that it now does not have "jurisdiction" over the MED materials. However, UMTRCA was clear in requiring that no regulatory gap occur in the control of these materials: Section 204 provides for the transfer back to NRC of any Agreement State's authority over these materials should the state not meet the new regulatory program requirements set down by UMTRCA. Therefore, we request that NYSDOL provide us with a copy of the documentation which effected the discontinuance of New York State's Agreement State authority over these MED materials after November 8, 1981.

Also, in your letter you say that you have been advised that the U.S. Department of Energy (DOE) "has both the responsibility for and authority over the contaminants at the site as it does for eight other similar sites in New York State." Was it DOE that provided this advice to you, or Department of Labor counsel?

It should interest you to know that DOE has told the stakeholders at its FUSRAP sites essentially just the opposite: "issues dealing with releases of material and monitoring of the properties are the responsibility of owners of the properties and/or the applicable state regulators." (see 3-8-95 DOE memo from James Wagoner to L. Price, enclosed.)

We look forward to a prompt reply to our requests and question.

Sincerely,

James Rauch

James Rauch

cc: w/enc.: G. Pataki
R. Bangart, USNRC
J. Owendoff, USDOE
J. Cahill, NYSDEC

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Comments on U.S. Nuclear Regulatory Commission's Proposed Rule (62 FR 39093) "Radiological Criteria for License Termination: Uranium Recovery Facilities"

James M. Rauch February 9, 1998

1) As described (section II. Discussion), the proposed rule is unacceptable because the proposed criteria will result in doses in excess of the 100 millirem per year dose standard for protection of the public established in 10 CFR Part 20.

2) The statement is made (section II. Discussion) that "per UMTRCA, the authority to set such cleanup standards for uranium mills rests with EPA." This statement is not completely correct. UMTRCA created a shared responsibility by both EPA and NRC for the management of 11.e.(2) byproduct materials. Section 84.a. of UMTRCA states, in part, "The Commission shall insure that the management of any such byproduct material, as defined in section 11e.(2), is carried out in such manner as -- (1) the Commission deems appropriate to protect the public health an safety and the environment from radiological and non-radiological hazards associated with the processing **and with the possession and transfer of such material.**" [emphasis added] This section of UMTRCA (Title II) resulted in NRC's promulgation of new 10 CFR 40 Section 40.2a (45 FR 65531, Oct. 3, 1980), subsection (b) of which states, in part, "The Commission will regulate byproduct material as defined in this part that is located at a site where milling operations are no longer active, if such site is not covered by the remedial action program of title I of the Uranium Mill Tailings Radiation Control Act of 1978." The fact that NRC has failed to regulate 11.e.(2) materials at many of these sites provides no justification for the currently proposed non-protective rule.

3) UMTRCA was enacted by Congress as a direct result of serious radiation exposure problems which had developed in western communities at or near uranium processing operations. The acute problems identified were radon doses associated with the radium component of exposures to poorly managed uranium processing wastes. As a result, Title I of UMTRCA specifically designated twenty such sites for cleanup, and resulted in the EPA's 40 CFR 192 Title I radium standard [48 FR 602, Jan 5, 1983] (later duplicated for Title II sites [48 FR 45946, Oct 7, 1983]). The

stated dose basis for this radium standard is given as approximately 500 millirems per year, or a lifetime cancer risk of 0.02, or 1 in 50 (NRC's November 1992 "A Summary of NRC's Interim Radiological Cleanup Criteria and Current Dose Bases"). This document also lists a RESRAD (default parameter) dose estimate of 260 mrem/yr. This is not a protective standard compared to the current 10 CFR 20's 100 millirem standard. In addition, EPA addressed only the radium component of these wastes, and neglected the uranium decay chains' other members, notably U-238, U-234, and Th-230, in effect creating a major regulatory gap for the significant doses from these other materials. In their comments on the proposed cleanup rule, members of the non-regulated community said that uranium/thorium mill disposal areas and soil cleanup at such sites should logically be included in the final rule, thereby closing this regulatory gap. Instead, NRC bowed to the wishes of the regulated community. NRC now seems intent upon further codifying these deficiencies.

4) NRC had previously (October, 1981) adopted a "Branch Technical Position (BTP) on Disposal or Onsite Storage of Thorium or Uranium Wastes from Past Operations" (46 FR 52061), which addresses **all uranium decay chain members** and provides several management options. This 17 year-old BTP has been consistently applied at those sites listed in the SDMP. Option 1, the only currently available option for uranium sites (following the April 6, 1992 SRM), provides a 10 pCi/g total uranium guideline, equivalent to a 5 pCi/g level for Ra-226, Th-230, U-234, and U-238. In addition, NRC has consistently applied the Office of Nuclear Material Safety and Safeguards' Policy and Guidance Directive FC 83-23, which was released as a final rule on November 4, 1983 and which contains surface decontamination criteria and the BTP's soil cleanup guidelines. The provisions of the BTP and FC 83-23 should constitute NRC's **minimum requirements** for this proposed cleanup rule.

5) The statement is made that "Calculations done by EPA in support of 40 CFR part 192 indicated that the dose from radium, excluding radon, was approximately 0.6 mSv.yr (60 mrem/yr) (the final cleanup rule notes that doses from radon would be controlled by cleanup of radium which is the principal precursor to radon)." First, this 60 mrem/yr estimate is not in agreement with the stated dose basis or NRC RESRAD calculations noted above (comment 3). It is also not in agreement with an NRC staffers' calculations showing 200 mrem/yr using only the first 6 inches of soil at 5 pCi/g radium only (not a conservative assessment since significant dose may result from 15 pCi/g at deeper layers) and excluding radon dose. Please fully explain this discrepancy, if possible. Second, where does the final cleanup rule ("Radiological Criteria for License Termination") specifically state that radon doses will be included in demonstrating compliance with the dose standard? We have heard recent statements to the contrary.

6) Radon doses are a major part of total dose from uranium processing materials. Radon doses attributable to 11.e.(2) materials should be included as a required element of complying with the 10 CFR 20 dose standard. If NRC disagrees, it must fully justify the exclusion of such radon doses. We are unaware that radon is specifically exempted from NRC regulation, please cite statute and section if NRC knows otherwise. The problem of radium ingrowth from parent chain members must be addressed, as the BTP approach does. The minimum timeframe for dose analysis should be 10,000 years since the longevity of the hazard from radium parents is virtually indefinite. Recognizing this duration of hazard issue, the Hanford EIS and the HLW repository EIS have adopted a 10,000 year timeframe. Even so, 10,000 years will only cover ingrowth from Th-230 (which will peak at approximately 9000 years in the future).

7) The proposed approach for this rule is unclear. It seems that the allowable dose from radionuclides other than radium must not exceed the dose from radium (using the 40 CFR 192 radium standard, which may be 200 mrem/yr or more, not including radon dose), but does not include the radium dose. Therefore, the total allowable dose would be twice the radium dose. Is this correct? Therefore, the total dose may exceed 400 mrem/yr, not including radon dose. See comment 1.

8) NRC says that based on comments received on the proposed cleanup rule ("Radiological Criteria for License Termination") it decided to pursue this separate rulemaking for "uranium recovery facilities". What NRC does not say is that many comments were received from public interest groups and other regulators objecting to exempting facilities from the proposed cleanup rule. The comments favoring this alternate rulemaking came from the regulated community. Why did NRC choose to give this historically poorly-regulated community special treatment? NRC cites "unique decommissioning problems", but does not give any valid reasons for this special treatment other than to obliquely refer to the historic regulatory problems noted in our previous comments. This is no defense for this attempt to promulgate a rule that will not be protective of public health, i.e. that will not meet the 10 CFR Part 20 100 millirem dose standard.

9) According to NRC staff there have been no comments from the public on this proposed rule. There have been only ten comments in all, two each from EPA and Illinois, and six from the regulated community. One reason for this may be that those who objected to special treatment for these facilities may have felt this rulemaking was a fait accompli, and therefore, that further comment was futile. Some may question NRC's usefulness as a regulator in this sphere, viewing this rulemaking as an example of NRC's willingness to participate in de facto self-regulation by these facilities.

10) The specific areas of "uranium recovery facilities" which are to be covered by this rulemaking are identified in the notice

as "areas under mill buildings, in a yellow cake storage area, under/around an ore pad, and at ISLs [in situ leach] in soils where spray irrigation has occurred as a means of disposal". An NRC staffer has indicated that other areas, such as "windblown areas", may be included in the final rule. Any inclusion of areas other than as noticed would be an enlargement of scope and would require additional notice and review.

F.A.C.T.S.
(For A Clean Tonawanda Site)
"PUTTING THE PIECES TOGETHER"

Box 566
Kenmore, NY 14217-0566

Phone: (716) 876-9552
Fax: (716) 876-9552

May 26, 1999

Shirley Ann Jackson, Chairman
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Non-applicability of new rule, "Radiological Criteria for License Termination of Uranium Recovery Facilities" [69 FR 17506, April 12, 1999], to FUSRAP sites

Dear Chairman Jackson:

The purpose of this letter is to briefly outline to the Commission our position on the new rule "Radiological Criteria for License Termination of Uranium Recovery Facilities" [69 FR 17506, April 12, 1999]. We commented on the text of the original notice which requested comments on this rulemaking [62 FR 39093, July 21, 1997, appended to publication of the LTR] on February 9, 1998 (copy enclosed); we were not made aware of or given the opportunity to comment on SECY 98-084, April 15, 1998 (for details, refer to April 2, 1999 telcon with Steven Crockett and follow-up).

Our position is that this rule can not be considered as an applicable regulation or an appropriate and relevant requirement for the cleanup of Formerly Utilized Sites Remedial Action Program (FUSRAP) sites. We say this because:

1) as a part of this rulemaking, a NEPA Finding of No Significant Impact (FONSI) was issued. This FONSI claims a limited scope for the rule, specifically: a) the rule is stated to affect only four mill facilities and seven ISLs, b) the affected sites are located in the West (New Mexico, Wyoming, Utah) and in Nebraska, c) these sites are typically located in high desert, areas with low precipitation and low population density, where ranching and mining are the predominant land uses (even so, staff admits a wide range of possible doses at the various sites to be covered by the rule, that some doses may exceed the 10 CFR Part 20 standard of 100 millirem per year);

2) in contrast, major impacts have been associated with conditions at and cleanup of the FUSRAP sites (as an example, see DOE's 1993 DEIS for the Tonawanda Site). The FUSRAP includes at least 46 sites with over 2.3 million cubic yards of contamination (according to DOE documents); most of these sites are located in the East (the largest is at St. Louis, comprising several properties) in areas with both high population density and high precipitation; these are areas where application of the new rule, using plausible future use scenarios (residential, including, but not limited to, resident farmer) is likely to result in unrestricted use doses exceeding the 100 mrem per year standard.

In summary, the FONSI for this new rule clearly does not support its application to FUSRAP sites. We do not expect the Commission to disagree with this position. If the Commission does disagree, we request a timely reply outlining the Commission's position.

Sincerely,

James Rauch

James Rauch

REMOVAL/RELOCATION OF EQUIPMENT AND DECONTAMINATION OF BUILDING 14

AT PRAXAIR, TONAWANDA, NEW YORK

SUBCONTRACT 14501-129-SC-563

RESPONSES TO BIDDERS' QUESTIONS

A pre-bid meeting for Subcontract 14501-129-SC-563, Removal/Relocation of Equipment and Decontamination of Building 14 at Praxair, was held on October 22, 1996. Bidders were asked to submit questions in writing by 12:00 noon EST on November 11,1996. Following are the questions submitted and BNI's responses:

Q1. Clause 62 G of the Special Conditions states that the Contractor shall prepare manifests. This does not make sense where the Contractor merely packages waste. Could you clarify who prepares manifests and, more importantly, please confirm that either the DOE or the Customer will sign manifests?

A. The Scope of Work does not include the transportation and disposal of contaminated wastes. Clause 62 of Part II, Special Conditions, will be deleted.

Q2. Scope of Work Section 1.2 says the Contractor must treat Mixed Waste generated during the decontamination activities. Is it correct that this requirement does not apply to preexisting mixed waste present at the site; and further, that it is the responsibility of the Customer to deal with such mixed waste?

A. The Subcontractor shall ONLY be responsible for any mixed waste generated during the decontamination activities performed under this Subcontract. The Subcontractor will not be required to treat pre-existing mixed waste.

Q3. Scope of Work Section 2.8 says the Contractor shall "treat contaminated waste to meet applicable disposal criteria". Does the Customer mean this in the general sense that waste must be packaged so as to meet disposal criteria of the disposal site license, or does this mean that the Contractor must obtain a waste treater's license to process the waste to change its form such that it can meet a disposal site license?

A. The Subcontractor shall be required to treat contaminated waste so that it meets the waste acceptance criteria established by the disposal facility. If state, federal, or local regulations require, the Subcontractor shall obtain necessary permit(s)/license(s) to treat and/or condition the contaminated waste. The Subcontractor shall certify that the packaged waste meets the waste acceptance criteria of the disposal facility. The scope of work will be revised to incorporate this requirement.

Q11. Has the building been declared a Radium site? What acceptance criteria will be required, uranium or radium?

A. The site has not been declared a Radium site.

Q12. In the Pre-bid Meeting Attachment 2, Information to Bidders, paragraph 3.0 Project Description, is the following statement, "The Manhattan Engineering District (MED) and it's immediate successor, AEC, conducted several programs.... involving research, development, and processing of uranium and thorium...." This statement implies thorium is a contaminant at this site.

However, Part IV, Scope of Work, paragraph 1.1, Description of Site and Waste and paragraph 2.0, Work Included clearly does not identify thorium in the list of contaminants (for characterization and decontamination).

Please identify your requirements concerning thorium. Will the Subcontractor be required to characterize and remediate thorium contamination?

A. Thorium was detected in sub-slab soils in the building. BNI will revise the SOW to include thorium as a contaminant at site. The Subcontractor shall be responsible for delineation and remediation of thorium contamination in accordance with Attachment 1 of the SOW, "Acceptance Criteria for Surface Decontamination."

Q13. Part III, Pricing and Data, section b, Schedule of Quantities and Prices, List of Pay Items And Prices, are bid item Nos. 2.12.3 and 2.12.4 for Sampling and Analysis in the estimated quantities of 100 each and 20 each respectively.

Analytical costs can vary from $10 to $2,000 or more per sample depending on analysis. Please identify the sample matrices and parameters needed for the lab analysis in this project effort.

A. Sampling and analysis will be deleted from the SOW and Pay Item No. 2.12.

NRC FORM 386
(12-92)

U.S. NUCLEAR REGULATORY COMMISSION

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

June 11, 1999

Mr. James Rauch
F.A.C.T.S. Newsletter
Box 566
Kenmore, NY 14217-0566

SUBJECT: NON-APPLICABILITY OF NEW RULE, RADIOLOGICAL CRITERIA FOR LICENSE TERMINATION OF URANIUM RECOVERY FACILITIES" [69 FR 17506, APRIL 12, 1999] TO FUSRAP SITES

Dear Mr. Rauch:

I am responding to your letter to Chairman Jackson dated May 26, 1999, in which you indicated that the new rule, "Radiological Criteria for License Termination of Uranium Recovery Facilities," [69 FR 17506, April 12,1999], does not apply to Formerly Utilized Remedial Action Program (FUSRAP) sites. The new rule which you referenced establishes a benchmark standard for uranium and thorium, based on the existing standard for radium currently contained in 10 CFR Part 40, Appendix A, Criterion 6(6). The existing standard requires that the concentration of radium at uranium mills after decommissioning may not exceed the background level by more than 5 picocuries per gram in the first 15 cm (6 inches) of soil, and 15 picocuries for every subsequent 15 cm (6-inch) layer. The new rule requires licensees to remediate their sites so that the NRC-regulated uranium and thorium remaining on site after decommissioning will not exceed the dose resulting from radium. In addition, licensees must demonstrate that radiation doses from NRC-materials are as low as is reasonably achievable.

You are correct that the new rule does not apply to the FUSRAP sites. Under the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA), NRC does not have the statutory authority to determine the disposition of waste or tailings from ore processed primarily for its source material content at a site not licensed by the NRC on or after 1978. Briefly stated, UMTRCA, enacted in 1978, amended the Atomic Energy Act of 1954 (AEA), and provided the NRC with jurisdiction over the byproduct material generated by the processing of ore at NRC-licensed sites. Section 83a. of the AEA was added by UMTRCA. Section 83a. provides that any NRC license issued pursuant to Section 62[1] or Section 81[2] of the AEA must include conditions and terms related to the final disposition of all byproduct material created by the activity at such sites, as well as the sites themselves. The critical factor in determining the NRC jurisdiction over byproduct material in question is whether the site at which the processing took place was licensed by the NRC on or after November 8, 1978, the date Section 83a. became effective, not when the material was generated. As such, there are sites with the material in question that are not under the NRC's

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99.106

[1] This section addresses the licensing of activities regarding source material.

[2] This section addresses the licensing of activities regarding byproduct material.

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authority because these sites were not licensed by the NRC at or after the time UMTRCA was passed. However, the material not regulated under UMTRCA by the NRC is under the jurisdiction of other Federal and State agencies, including the Department of Transportation and the Environmental Protection Agency.

I trust this reply clarifies our position and responds to your concerns.

Sincerely,

[Joseph J. Holonich for]

John T. Greeves, Director
Division of Waste Management,
Office of Nuclear Material Safety
and Safeguards

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Sincerely,

Carl J. Paperiello, Director
Office of Nuclear Material Safety
and Safeguards

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Sincerely,

Carl J. Paperiello, Director
Office of Nuclear Material Safety
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I trust this reply clarifies our position and responds to your concerns.

Sincerely,

John T. Greeves, Director
Division of Waste Management,
Office of Nuclear Material Safety
and Safeguards

1981 NRC BTP [46 FR 52061-2] (See TNSI website for full policy! bfn.org/nuclear/radcrit.ht

II. Branch Technical Position

There are **five acceptable options** for disposal or onsite storage of thorium and uranium contaminated wastes. Applications for disposal or storage will be approved if the guidelines discussed under any option are met. Applications for other methods of disposal may be submitted and these will be evaluated on their own merits.

1. Disposal of acceptably low concentrations (which meet EPA cleanup standiards) of natural thorium with daughters in secular equilibrium, depleted or enriched uranium, and uranium ores with daughters in secular equilibrium with no restriction on burial method.

   Under this option, the concentrations of natural thorium and depleted or enriched uranium wastes are set sufficiently low that no member of the public is expected to receive a radiation dose commitment from the disposed materials in excess of 1 millirad per year to the lung or 3 millirads per year to the bone from inhalation and ingestion, under any foreseeable use of the material or property. These radiation dose guidelines were recommended by the Environmental Protection Agency (EPA) for protection against transuranium elements present in the environment as a result of unplanned contamination (42 FR 60956-60959). In addition, the concentrations are sufficiently low so that no individual may receive an external dose in excess

of 10 microroentgens per hour above background. This is compatible with guidelines EPA proposed as cleanup standards for inactive uranium processing sites (46 FR 2556-2563.

For natural uranium ores having daughters in equilibrium, the concentration limit is equal to that set by the EPA (46 FR 2556-2563) for radium-226 (i.e., 5 pCi/gm, including background) and its decay products.

The concentrations specified below are believed appropriate to apply. It is expected, however, that currently licensed operations will be conducted in such a manner as to minimize the possibility of soil contamination and when such occurs the contamination will be reduced to levels as low as reasonably achievable.

Kind of Material	Concentration (pCi/gm)
Natural thorium (Th-232 plus Th-228) if all daughters are present and in equilibrium	10
Depleted Uranium	35
Enriched Uranium	30
Natural Uranium Ores (U-238 plus U-234) if all daughters are present and in equilibrium	10

The analysis upon which the Branch Technical Position is based is available for inspection at the Commission's Public Document Room at 1717 H St., N.W., Washington, D.C.

The concentrations specified under this option may be compared with naturally occurring thorium and uranium ore concentrations of 1.3 pCi/gm in igneous rock and uranium concentrations of 120 pCi/gm in Florida phosphate rock and 50-80 pCi/gm in Tennessee bituminous shale. Concentration limits for natural thorium and natural uranium ore wastes containing daughters not at secular equilibrium can be calculated on a case-by-case basis using the applicable isotopic activities data.

2. Disposal of certain low concentrations of natural thorium with daughters in secular equilibrium and depleted or enriched uranium with no daughters present when buried under prescribed conditions with no subsequent land use restrictions and no continuing NRC licensing of the material.

   Under this option the concentrations of natural thorium and uranium are set sufficiently low so that no member of the public will receive a radiation dose exceeeding those discussed under option 1 when the wastes are buried in an approved manner absent intrusion into the burial grounds. This option will require establishing prescribed conditions for disposal in the license, such as depth and distribution of material, to minimize the likelehood of intrusion. Burial will be permitted only if it can be demonstrated that the buried materials will be stabilized in place and not be transported away from the site.

Acceptability of the site for disposal will depend on topographical, geological, hydrological and meteorological characteristics of the site. At a minimum, burial depth will be at least four feet below the surface. In the event that there is an intrusion into the burial ground, no member of the public will likely receive a dose in excess of 170 millirems to a critical organ. An average dose not exceeding 170 millirems to the whole body for all members of a general population is recommended by international and national radiation expert bodies to limit population doses. With respect to limiting doses to individual body organs, the concentrations are sufficiently low that no individual will receive a dose in excess of 170 millirems to any organ from exposure to natural thorium, depleted uranium or enriched uranium.

The average activity concentration of radioactive material that may be buried under this option in the case of natural thorium (Th-232 plus Th-228) is 50 pCi/gm, if all daughters are present and in equilibrium; for enriched uranium it is 100 pCi/gm if the uranium is soluble and 250 pCi/gm if insoluble; for depleted uranium it is 100 pCi/gm if the uranium is soluble and 300 pCi/gm if insoluble. Natural uranium ores containing radium 226 and its daughters are not included under this option, because of possible radon 222 emanations and resultant higher than acceptable exposure of individuals in private residences.

if houses were built over buried materials.

3. Disposal of low concentrations of natural uranium ores, with all daughters in equilibrium, when buried under prescribed conditions in areas zoned for industrial use and the recorded title documents are amended to state that the specified land contains buried radioactive materials and are conditioned in a manner acceptable under state law to impose a covenant running with the land that the specified land may not be used for residential building. (There is no continuing NRC licensing of the material.)

   Disposal wilI be approved if the burial criteria outlined in option 2 (including burial at a minimum of 4 feet) are met. Depending upon local soil characteristics, burials at depths greater than 4 feet may be required. In order to assure protection against radon 222 releases (daughter in decay chain of uranium 238 and uranium 234), it is necessary that the recorded title documents be amended to state in the permanent land records that no residential building should be permitted over specified areas of land where natural uranium ore residues (U-238 plus U-234) in concentrations exceeding 10 pCi/gm has been buried. Industrial building is acceptable so long as the concentration of buried material does not exceed **40 pCi/gm of uranium** (i.e., Ra-226 shall not exceed 20 pCi/gm).

COALITION AGAINST NUCLEAR MATERIALS in TONAWANDA (CANiT)
POSITION STATEMENT
PROPOSED PLAN FOR THE BUILDING 14 OPERABLE UNIT
LINDE SITE, TONAWANDA, NEW YORK
Presented: November 19, 2002

The Coalition Against Nuclear Materials in Tonawanda (CANiT) is a bipartisan group of elected officials from all levels of government representing the residents of the Town of Tonawanda. Its mission is to advocate the safe and effective removal of radioactively contaminated materials that remain in the Town from operations associated with the Manhattan Engineering District (MED) atomic bomb research and development.

The area within the Town most significantly impacted by residual radioactive material is the Praxair property, formerly the Linde Division of Union Carbide, located on Sheridan Drive. The site includes Building 14, which was utilized for MED radioactive material research between 1942 and 1946.

Initial investigations of the site date back to 1976 when it was determined that significant radioactive contamination could be found on interior building surfaces. Cleanup efforts at Building 14 date back to 1980 when Praxair took the initiative to remove contaminated building materials to meet remedial requirements in effect at that time.

Surveys, investigations, and remedial actions continued throughout the 1980's and 1990's in an attempt to achieve a level of remediation that would allow for unrestricted use of the building for Praxair research and development activities. The culmination of all these efforts is summarized in this Proposed Plan. The preferred alternative (No. 5) ultimately recommends the complete demolition and off-site disposal of Building 14.

The report states that Alternative 5 is "considered to be the most protective (of human health) since the entire building and contaminated soils are removed from the site." Alternative 5 also provides the best solution for both short and long term environmental protection effectiveness. It is our understanding that the implementation of Alternative 5 would utilize effective means of fugitive dust control during the demolition process. In addition, the USACE must continuously monitor for possible emissions associated with the demolition to eliminate exposure risk for residents and Praxair employees. CANiT expects that every effort will be made for the safe implementation of the project and that documentation will be provided to show that at no time were nearby residents exposed to any release of soil particulates or contaminated dust.

CANiT has completed a review of this Proposed Plan and the various alternatives investigated for the final disposition of Building 14. We have concluded that Alternative 5, which calls for the complete removal of Building 14, offers the best possible alternative toward meeting our objective for a Town of Tonawanda free of radioactively contaminated materials. CANiT fully supports the USACE Proposed an, Alternative 5, and recommends its expedient implementation.

The Buffalo News

PHILIP F. SWEYT.
• PROVIDED A COPY TO
CORPS AT PUBLIC MEETING

FOCUS: ENVIRONMENT

'This neighborhood is killing us. There's death all around us'

SUNDAY, JANUARY 13, 2002

DEREK GEE/Buffalo News

On and around Dunlop Avenue in the Town of Tonawanda, residents are fearful that high rates of illness are related to the former Linde plant, which worked on development of the nuclear bomb. Among those expressing concern are, from left, Don Finch, Ed Connette, Tom Czerwinski and Dayton Kane.

As state investigates, a neighborhood in fear

Toxic in Tonawanda?

By T.J. PIGNATARO
News Staff Reporter

Gwen Connette had bladder cancer.

Judith Fox survived breast cancer.

Rebecca Czerwinski has a thyroid condition and a list of other ills that force her to swallow a pile of medications every day.

The stories of these three families living on Dunlop Avenue in the Town of Tonawanda are only the beginning.

In the tight-knit neighborhood surrounding what once was a site for the Manhattan Project — which helped build the first nuclear bomb — people have often whispered that something just wasn't right.

But now, the state Department of Health has confirmed what many feared for a long time: Unusually high cancer rates in this post-World War II working-class community — with its own neighborhood school and even town golf course — surrounded by industrial properties just west of Military Road.

The cancer rates, the state found, are at least 10 percent higher than normal.

And with that, fear grows among those closest to the former Linde Plant, where radioactive uranium was processed during the 1940s as the first step toward developing nuclear bombs.

"This neighborhood is killing us," said Czerwinski, 55, of 117 Dunlop. "There's death all around us. None of this should be happening."

Czerwinski, who has lived in the area since 1964, doesn't have cancer. But she believes her neighborhood is responsible for her husband, Thomas', heart disease as well as her many ailments. They include a thyroid condition, autoimmune disease, osteoarthritis and deterioration of the lining of her ribs.

Czerwinski and others in this neighborhood say they recall that, as children, they used to fish golf balls out of a murky creek near the Linde site, or play in sandboxes at a nearby park containing what some now suspect was mercury.

"Most of the boys used to play in the creek," Czerwinski said. "I used to play in the park, in the sand. There was mercury there. I was probably 10 or 11 at the time."

Now the Czerwinskis, like some others in the community, say they just want "the hell out" of the only neighborhood they've known for four decades. They're moving to the quiet Adirondacks community of Lake Placid.

"I love my home," she said. "I have a beautiful home, but we live on a toxic dump. We have to get away."

State health officials last month announced results of a yearlong investigation into cancer incidences in two ZIP codes,

See Linde Page A8

DEPARTMENT OF THE ARMY
BUFFALO DISTRICT, U.S. ARMY CORPS OF ENGINEERS
1776 NIAGARA STREET
BUFFALO, NEW YORK 14207-3199

REPLY TO
ATTENTION OF

JAN 0 5 2001

Project Management

SUBJECT: Former Lake Ontario Ordnance Works Site Restoration Advisory Board

Dear Interested Citizen:

I have enclosed a copy of the minutes and a summary of the questions and comments from the November 15, 2000, former Lake Ontario Ordnance Works Restoration Advisory Board meeting.

Our next meeting will be held on March 7, 2001, from 7 - 9 p.m. We will be meeting in the boardroom of the Lewiston-Porter Central School District's Primary Building, located at 4061 Creek Road in Youngstown, New York. An agenda for the March meeting will be mailed at a later date.

If you need any additional information, please feel free to contact our public affairs office at (716) 879-4438.

Sincerely,

M.K. Foley

Mary Kay Foley, P.E.
Project Manager

Enclosure

MEETING MINUTES – November 15, 2000
FORMER LAKE ONTARIO ORDNANCE WORKS SITE (LOOW)
RESTORATION ADVISORY BOARD

To: Restoration Advisory Board Members and Interested Parties
From: May Kay Foley, U.S. Army Corps of Engineers, Project Manager
SUBJECT: Minutes of November 15, 2000 RAB Meeting

RAB Members Present:	**Affiliation:**
William Roger Angus	Community Member
Mike Basile	USEPA
Paul Dicky	Niagara County Health Department
Thomas Freck	Community Member
Tim Henderson	Community Member
Kent Johnson	NYS Department of Environmental Conservation
Charles Lamb	Town of Porter
Bruce Mero	U.S. Air Force
Nona McQuay	Community Member
Dan Rappold for Walter Polka	Community Member
Stephen Yaksich, Government Co-Chair	US Army Corps of Engineers, Buffalo District
Rebecca Zayatz	Chemical Waste Management, Inc.
RAB Members Absent:	
Lawrence Brennen	Community Member
Martin Hodgins	Community Member
Clyde Johnston, Jr.	Community Member
Darwin James Langlois	Town of Lewiston
Edward Lilly	Community Member
Andrew Mess	Community Member
Dr. Nils Olsen, Jr.	Community Member
Neil Patterson	Community Member
Daniel Serrianni, Jr.	Community Member
Gary Smith	Community Member
John Syms	Somerset Group

Introduction and Welcome - Call Meeting to Order at 7:10 P.M. by Ms. Arleen Kreusch

- The meeting was called to order and began by having the RAB members and guests introduce themselves.
- The minutes from the last meeting were approved.
- Action Items from the last meeting were reviewed.
- The Corps is still addressing the issue of the status of the buildings at the LOOW Site. This will remain an Open Action Item.
- Mr. Syms to bring in map showing areas where wastes were buried on the NFSS.
- There is no new information available yet regarding the Health Studies. This will remain an open Action Item.
- Documentation regarding the restraining orders on NFSS is available. The Corps is still addressing this issue and it will remain an open Action Item.

Guests Present:	Affiliation:
Norma Hanny	Self
Mary Kay Foley	USACE
Mary Battaglia	USACE, CT
Tara Colangelo	USACE
Arleen Kreusch	USACE, CT
Alexander W. Kravitz	Self
Michelle Kenny	Self
Joan Broderick	Self
Ron Kuis	Somerset Group
Elizabeth Jordan	Self
Lydia Rappold	Congressman LaFalce
Judy Leithner	USACE
Tom Leithner	Self
Lorraine Miller	Self
Irene Murawski	Self
Marn Weld	Self
James Wilson	Self
William Kowalski	Self
Mary Ann Rolland	Town of Porter Brownfields
Philip Sweet	Self
Kristin Sebastian	Citizens Environmental Coalition
Ed McGreery	Self
Chet Bridger	Buffalo News
Michelle Rehmann	International Uranium Corporation
Jim Darnall	IT Corporation
Linda Shaw	Somerset Group
Steve Mikolaichik	Self
Roberta Mikolaichik	Self
Gary Wood	Rame Research Site
Sandra Stiagerwald	EA Engineering
Steven Stumpf	Self
Janet Hinkel	Citizens Environmental Coalition
Bill Kowalewski	USACE
Dave Frothingham	USACE

Questions and Answers from Members of the Audience
Regarding the Lake Ontario Ordnance Works Site

COMMENT	RESPONSE
Marn Weld: Was the town of Lewiston notified in writing about your findings of unsafe buildings on their property. You were saying that you were evaluating potential of demolishing the building.	Bill Kowalewski: It's the Town's property. We have not had any cause to write or notify the Town of the condition. They are the ones who give us access to the property. I believe that Town is well aware of the condition of the building. What we are doing is the Town requested our assistance to see if there is any way the Corps could fund and execute the demolition of those buildings and we are looking into that right now.
Audience Member: I live in the Town of Tonawanda area, by your Ashland site. I think some of the radioactive waste has come up here. There are bases for keeping the radioactive waste right where it is, and build newer technology so that this can be addressed. Right now, in the Town of Tonawanda, in the Brookside Terrace area we have an extreme rate of cancer increase. It really has to be addressed. You guys go out there in your white suits and respirators and you walk along the lines, a good case is in Woodlawn around Lake Erie where we had swimmers and right across the fence we've got people from the Corps of Engineers with respirators and white suits on. The thing of it is we have people dying, big time. If you come up to the Town of Tonawanda, house after house, it has to be addressed.	Arleen Kreusch: We do have a separate mailing list for the Town of Tonawanda sites, and we will put you on that list.
I would like the body here to know. We are talking about a hazardous area, but not one place in these brochures do you talk about cancer, premature cancer, we have young people dying, four stages of cancer right here at Roswell in Buffalo. Just come in and see the people that are in Roswell, it will open your eyes.	Paul Dicky: The State Health Department has a cancer surveillance initiative, where they are statistically looking at cancer across the state, comparing it on a zip code by zip code basis. It is coming out, first it was on a county by county comparison, that information was released. I don't believe that Niagara or Erie county was flagged as being an exceptionally high cancerous area. They are reducing the resolution by zip code, we are going to compare zip code by zip code in eight bases, and they have released the breast cancer data back in April. As I mentioned we will soon have lung cancer and colorectal cancer, it will go further to prostate cancer and non-hodgins lymphomas, and I can't think of the other ones now. That data will keep coming out. There was a statistically elevated area flagged for Tonawanda, North Tonawanda as a regional zone of a couple of zip codes put together. The State Health Department hasn't really decided how they are going to interpret this and what the next step will be.

Questions and Answers from Members of the Audience Regarding the Lake Ontario Ordnance Works Site (Continued)

COMMENT	RESPONSE
Audience Member: I can answer for you. I am working directly with the trades. What we have is 30% of the retirees have moved out of the state, and they really don't show up unless we contact the people. People just do not want to raise a family in this area. I think the Corps of Engineers is really doing a good job in what they are trying to do, but I think we need more funds, I think we need to get Congressman LaFalce to come up to the plate and say hey listen we have to bring the money in here.	
Ron Kuis (Somerset Group): Does the Corps have any idea where the RDX came from at LOOW or on the Somerset Group property? Are you familiar with RDX?	Bill Kowalewski: It was one sample that showed up positive for RDX. I can't speculate were it might have come from. RDX is an explosive that's used in blasting caps and high energy explosives.
Ron Kuis: There are 15 wells on the Somerset Group property at this time. Will all those wells be sampled and results presented in the remediation report we were talking about for 2001?	Sandra Stiagerwald (EA Engineering): The preexisting wells that were put in nine or ten years ago, those have been redeveloped and sampled. The samples have been sent off to a laboratory and we expect results in several weeks. Then there were some wells we installed this year, and those will also be sampled. All of the wells are in, but they haven't been developed for samples. The results will be in the report.
Tim Henderson: Pending the demolition of the Town of Lewiston buildings, can something simple be done to make them more inaccessible or less of an attractive nuisance?	Bill Kowalewski: You would think with a barb wire fence that would deter people from going in there. If people are bound and determined to really try to get in there, I really don't know how you would stop them, short of taking the buildings down, filling the holes with dirt and grading it all out. You might flag it and try to warn someone of the hazard a little more.
Al Kravitz: When did they determine the status for Erie and Niagara Counties? In other words where people are dying, do they take this and compile it into the whole county so that it is eliminating high rates that you have?	Paul Dicky: Cancer is a reportable disease by law. Whenever a person is diagnosed with cancer or the cause of death on the death certificate implicates cancer, that information is placed on a state database, and that is what the state is pouring through to bring out the statistical math component. There are limitations, if you move out of the area before you are diagnosed, you might not be flagged for that study. Conversely, if you grew up in another part of the country and moved here recently and were just diagnosed, you would be part of the study, so it is not perfect but it is the best data they can work with.

Questions and Answers from Members of the Audience Regarding the Lake Ontario Ordnance Works Site (Continued)

COMMENT	RESPONSE
Al Kravitz: Do they compile where the people have cancer and put it into the whole county. So in other words, you haven't got an urgency for cancer in that area?	Paul Dicky: They have done county by county comparisons, and that information has already been released. But now they are also doing zip code by zip code comparisons so they are using the same data but refining it more by zip code. So it will be more specific.
Steven Stumpf: You hear everyone talking here, I think anybody who has more than a third grade education knows this area, knows the cancer rates in this are. These studies will be done forever. We have lost almost 30,000 people in the last few years just out of Niagara Falls alone. I heard one of the board members say last time that 6 families were affected in 1,400 foot of neighborhood. My yard is 100 by 100, and out of my family of 8 I have buried three of us, and the fourth has been diagnosed with cancer, pancreas, liver, brain, breast, lymphoma. We all know it is here. My biggest concern is when are we going to get it out of here? Sooner or later this buck has to stop and we have to clean it up. We keep talking about it, but we don't see much getting done.	

Questions and Answers from Restoration Advisory Board Members and Members of the Public Regarding the Niagara Falls Storage Site (Continued)

COMMENT	RESPONSE
Thomas Freck: In your report to Congress it gives until the year 2028.	Judy Leithner: If we had funding we couldn't start right away, because we would be in that situation where we could go out and clean up what we know is there, but you don't know everything that is there yet, so you do half a job. Last year I spent $5.6 million on this cleanup, this year I am spending $7.5 million, and that is just to make sure that we don't miss anything. In case you are thinking this is something that is cost restrained and we are doing something less than we should be doing just because we don't have the money, not true on this project.
Audience Member: They spent $58 million to investigate Whitewater. We are spending our money not as wisely as we should I guess. We are not holding our elected officials to the responsibility that they promised us. $58 million was spent foolishly to do nothing, my money, your money. When you talk $6 million for this area here it's a drop in the bucket.	Judy Leithner: I really can't speak about that issus, but what I am talking about here is 191 acres and a waste site. Acreage has something to do with it, types of compounds that would be there would have something to do with it. There are some things that if you were looking for explosives for example would cost a lot more to look for than some of what we are doing. So it is not as simple as "Hey, here is a site and we spent X, and here is a site and we spent Y." What was there, and how much of a hazard does it pose to people. But I still worry about it because I am a tax payer like you, so I will be very careful.
Philip Sweet: You know you talk about a threat to your workers, but you don't talk about the immediate threat to the public in this area. Can you state to the Buffalo News that there is no immediate threat to the public? How do you address the high cancer rates? We have all these people moving out of the state, and that have to be brought into the overall picture of the statistics.	Judy Leithner: Yes, but I couldn't have said that 40 years ago when that stuff was sitting in a silo. 40 years ago when it was sitting in a silo I would have probably told you there is almost certainly a threat to the general public. Right now what I can do since all I am is an engineer, and not a medical person, is clean this up as carefully and as fast as I can. That is all I can do, in terms of cancer rates. I worry about you, I worry about myself, this is something that is not a joke, and it something that we know in Western New York, it appears that there are high cancer rates for a number of things. I can't say that at some point that site didn't cause a problem. All I can do is clean it up.

Questions and Answers from Restoration Advisory Board Members and Members of the Public Regarding the Niagara Falls Storage Site (Continued)

COMMENT	RESPONSE
Philip Sweet: Would you be willing to work with the medical community?	Judy Leithner: Well actually we have suggested that if people have concerns they call the medical people and they are always able to call us. The problem I do have is if some of you say what's the incidence of cancer so many feet from here, I don't know.
The thing that hit me hard is you are talking about your workers out there. You are overly concerned about the workers in the field.	They are much closer than people in the community.
This air brings it in, the predominant wind.	Fortunately what you are concerned about has been covered over now, but I would have been very worried about how the wind took it when it sat on the surface.
I have a standing offer for you right now with the Buffalo News if you would be willing to work with the medical community, that is all I am asking, I could set it up.	Actually what I had just said, if they want to call us we will answer any questions that we are able to answer. They can call me and ask for site information and I can give it, they can call and ask for medical information and I am not qualified to give it. Bill Kowalewski: The Corps is limited in what it is authorized to do, and that is engineering.
Mary Ann Rolland: Since Mr. Syms is not here, he was going to bring a map, is that correct, of locations. DO you happen to have that information?	Judy Leithner: He didn't bring it because his wife is ill, so he can bring that they next time he is able to come. Since we are investigating the entire property anyway, it really isn't going to hold us up. For instance, when we talk about this geophysical study and looking subsurface for buried drums, it's just a nice check point because if we see buried drums and his map shows us there are buried drums, then it agrees. If we were a few feet off, then we would start looking at surveys, but we would be looking for a one to one correspondence with what he has on his maps and what we see with out studies. But whatever we see we are going to clean it up, it doesn't matter if it isn't on his map, we will clean it up.
You haven't started that yet.	No, they are writing the work plans now, they have until the 22nd to get them to us.
Linda Shaw (Somerset Group): I was always under the impression that the NFSS was 10 acres, but you just mentioned 191, what does that consist of?	Judy Leithner: The 10 acres is the buried material itself, the 191 acres is the entire site and this 10 acres sits on the South West portion of that property.