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Formerly Utilized Sites Remedial Action Program (FUSRAP)
Contract No. DE-AC05-91OR21949

Health and Safety Plan for the Niagara Falls Storage Site Lewiston, New York

Volume 2: Site-Specific Appendixes

This is not a stand-alone document. This document must be used in conjunction with the generic health and safety plan for FUSRAP sites (document number 191-HSP).



U.S. Department of Energy
Oak Ridge Operations Office
Formerly Utilized Sites Remedial Action Program

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HEALTH AND SAFETY PLAN FOR THE NIAGARA FALLS STORAGE SITE

VOLUME 2: SITE-SPECIFIC APPENDIXES

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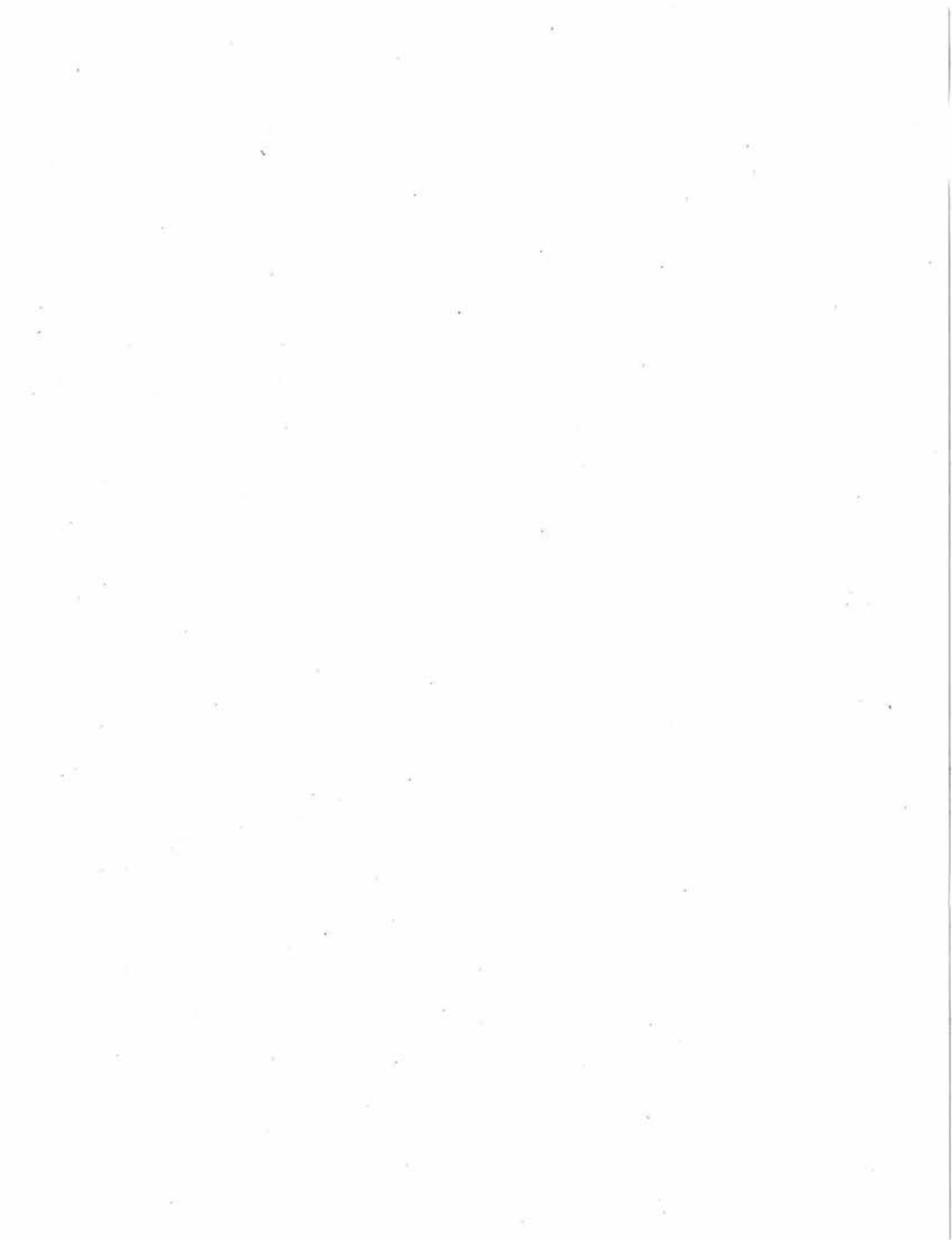
Prepared for

United States Department of Energy
Oak Ridge Operations Office
Under Contract DE-AC05-91OR21949

By

Bechtel National, Inc.
Oak Ridge, Tennessee

Bechtel Job No. [REDACTED]



HEALTH AND SAFETY PLAN FOR THE NIAGARA FALLS STORAGE SITE

VOLUME 2: SITE-SPECIFIC APPENDIXES

Prepared by:



8/14/96
Date

Approved:

8/14/96
Date

Concurrence:

14 Aug 96
Date

EMERGENCY ASSISTANCE SERVICES

LOCAL EMERGENCY ASSISTANCE SERVICES

(on call 24 hours a day)

AMBULANCE:

Frontier Ambulance Service	911 [or (716) 285-3663]
Lewiston Fire Company No. 1 Firehall	(716) 754-4487

FIRE:

Lewiston Fire Company No. 1 Firehall	911 [or (716) 754-4487]
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HOSPITAL

Niagara Falls Memorial Hospital	(716) 278-4000
621 10th Street	(716) 278-4394
Niagara Falls, New York 14302	(Emergency Room)

POLICE:

Sheriff	911 [or (716) 285-5355]
New York State Police	(716) 297-0755
Town Police	(716) 754-8221
(After 5:00 pm and on weekends)	(716) 297-0755

ELECTRIC:

Niagara Mohawk Power	(716) 297-7774
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GAS:

National Fuel Gas	1-800-444-3130
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WATER:

Water Department - Town of Lewiston	(716) 754-8214
(After working hours, weekends and holidays)	(716) 754-8291

INFORMATION SERVICES

CHEMTREC: (800) 424-9300

POISON CONTROL CENTER: (314) 772-5200
Cardinal Glennon Hospital

REAC/TS: 24-h emergency number (423) 576-3098

DIG RITE: (800) DIG-RITE
(underground utilities)

ADMINISTRATIVE PERSONNEL

BECHTEL NATIONAL, INC. CONTACTS:

Bechtel National, Inc. [REDACTED]
Oak Ridge, Tennessee (Monday through Friday,
7:30 a.m. EST to 5:15 p.m. EST)

Program executive secretary [REDACTED]
(business hours only)

FUSRAP switchboard [REDACTED]
(business hours only)

DEPARTMENT OF ENERGY (DOE) CONTACTS:
(to be contacted by the Program Manager ONLY)

Facility Representative [REDACTED]

Facility Representative Designee [REDACTED]

DOE emergency line, Oak Ridge, Tennessee [REDACTED]

BNL SITE PERSONNEL:

Site Superintendent^a

[REDACTED]
Niagara Falls, NY

Alternate

[REDACTED]
Youngstown, NY

PROJECT OFFICE PERSONNEL (Oak Ridge):

Program Manager

[REDACTED]

Deputy Program Manager

[REDACTED]

Project Manager

[REDACTED]

Deputy Project Manager

[REDACTED]

Program Guidance and Assessment Manager

[REDACTED]

Safety and Health Manager

[REDACTED]

Safety and Health Coordinator

[REDACTED]

Industrial Safety Supervisor

[REDACTED]

Emergency Response Coordinator

[REDACTED]



^aTelephone numbers for the site superintendent and the site safety and health representative will change periodically; however, the site superintendent will carry a portable beeper after hours and can be contacted in the event of an emergency. To obtain nonemergency assistance or current phone numbers for site personnel, contact the safety and health manager at the Bechtel National, Inc., office in Oak Ridge, Tennessee [REDACTED]

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ACRONYMS

ALARA	as low as reasonably achievable
BNI	Bechtel National, Inc.
CWM	Chem Waste Management
DOE	U.S. Department of Energy
FUSRAP	Formerly Utilized Sites Remedial Action Program
GFCI	ground-fault circuit interrupter
HWP	hazardous work permit
MED	Manhattan Engineer District
NFSS	Niagara Falls Storage Site
NYSDEC	New York State Department of Environmental Conservation
PI	project instruction
PPE	personal protective equipment
RWA	restricted work area
SSHR	site safety and health representative
TN	Thermo NUtech
WCS	waste containment structure

APPENDIX A

Description and History of the Niagara Falls Storage Site

A1.0 SITE LOCATION AND DESCRIPTION

The Niagara Falls Storage Site (NFSS) occupies approximately 77.4 ha (191 acres) in the Township of Lewiston (Niagara County) in northwestern New York. The site is in a rural area approximately 6.4 km (4 mi) south of Lake Ontario and 16 km (10 mi) north of the City of Niagara Falls. NFSS and its regional setting are shown in Figure A-1. NFSS was developed as a waste storage area for radioactive residues from pitchblende processing and radium-contaminated sand, soil, and building rubble.

The dominant feature of NFSS is the waste containment structure (WCS), which was completed in late 1986 (Figure A-2). The WCS is enclosed by a dike and cutoff wall, each constructed of compacted clay. The cutoff wall extends a minimum of 45.7 cm (18 in.) into an underlying gray clay unit. The dike and cutoff wall and an engineered earthen drainage cover enclose the waste material in a clay envelope that provides a barrier to migration of radionuclides into surface water and groundwater. During construction, pollution control measures included the use of prudent engineering controls such as sedimentation barriers in excavation areas and batch discharges of treated, impounded surface water in accordance with New York State Department of Environmental Conservation (NYSDEC) requirements.

The site is generally level but slopes gently to the northwest. Drainage is poor because of soil characteristics and the flatness of the terrain. All surface water from the site discharges through the central drainage ditch and its tributary ditches into Fourmile Creek, located northwest of the site. Groundwater level contours indicate a slope in the primary aquifer to the north-northwest of approximately 10 ft/mi. The groundwater probably discharges into northern reaches of the Niagara River close to Lake Ontario. Lake water and river water are the primary sources of potable water in the area surrounding NFSS; approximately 90 percent of the populations in Niagara and Erie counties use these sources. Groundwater is used to supply approximately 10 percent of the population in Niagara and Erie counties. The primary uses are for small domestic and farm supplies in rural sections.

The primary areas of population near NFSS are the towns of Lewiston, Niagara, Porter, and Niagara Falls City. Almost three-fourths of the people residing in Niagara County live in urban areas. Land uses adjacent to the site are varied and are presented in Figure A-3. The site is bordered by a hazardous waste disposal site, a sanitary landfill, vacant land, and land used for truck farms, orchards, and single-family dwellings. Lewiston-Porter Central Schools are located 2.4 km (1.5 mi) west of the site on Blairville/Creek Road. The nearest residential areas are 1.1 km (0.68 mi) southwest of the site.

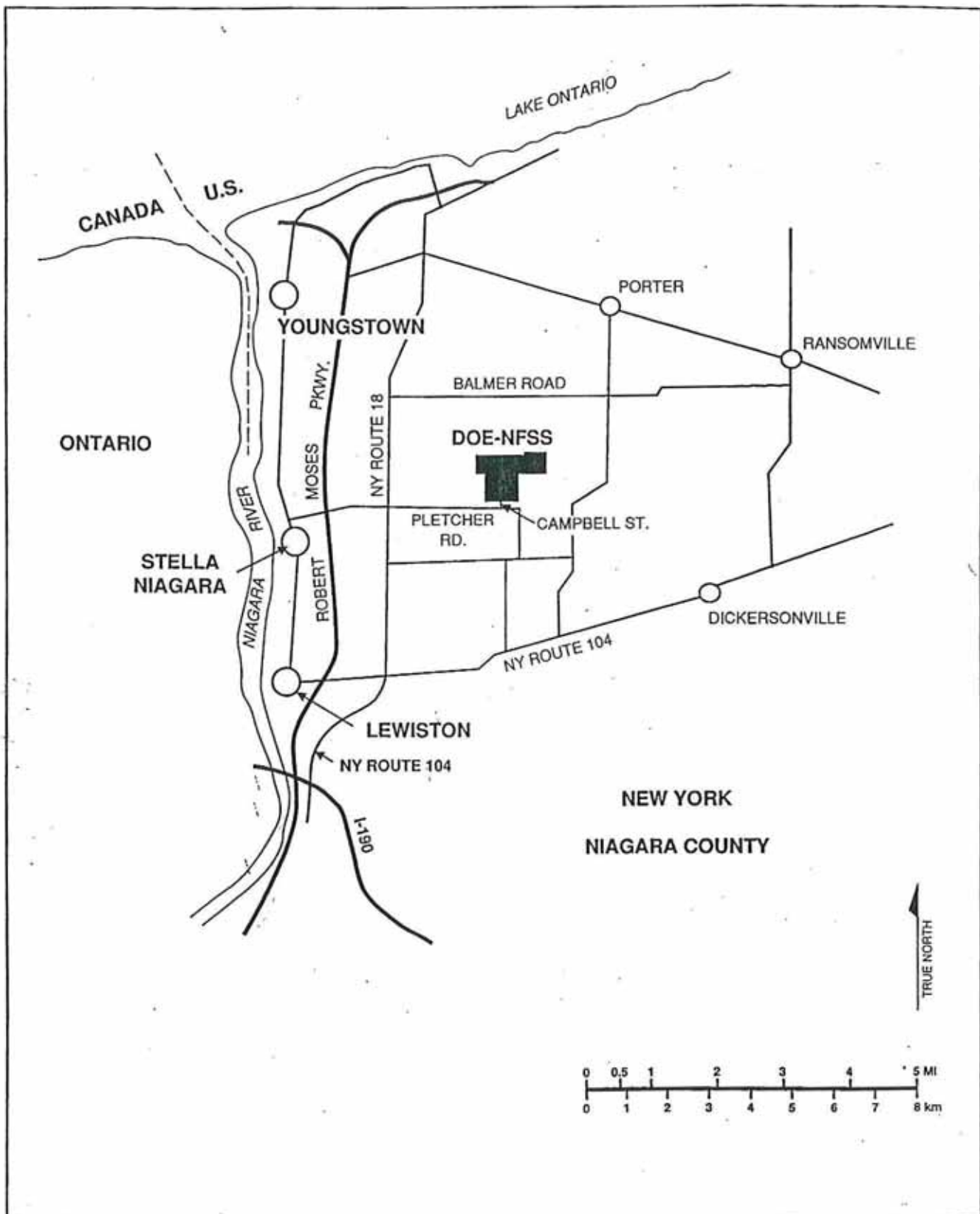
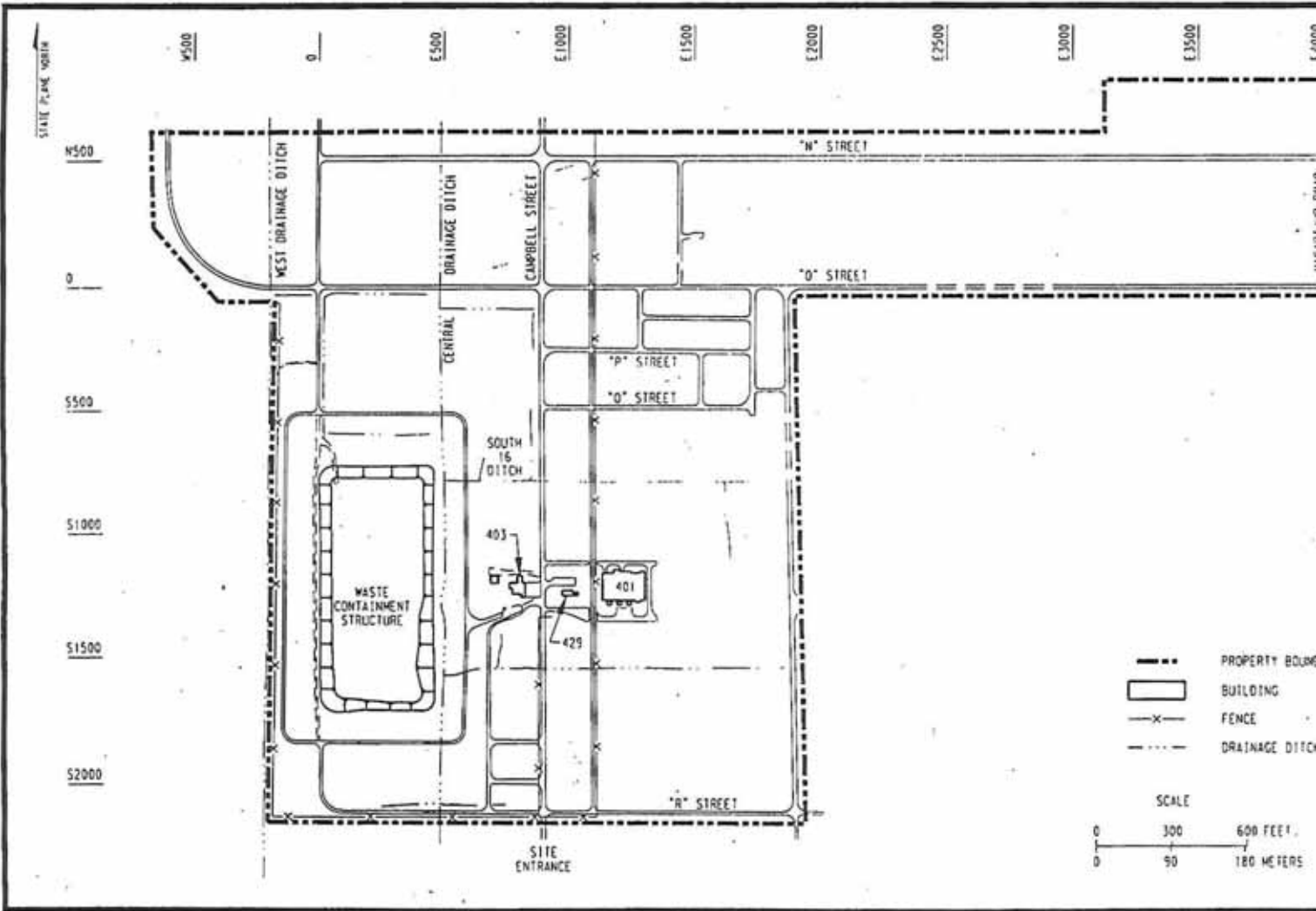
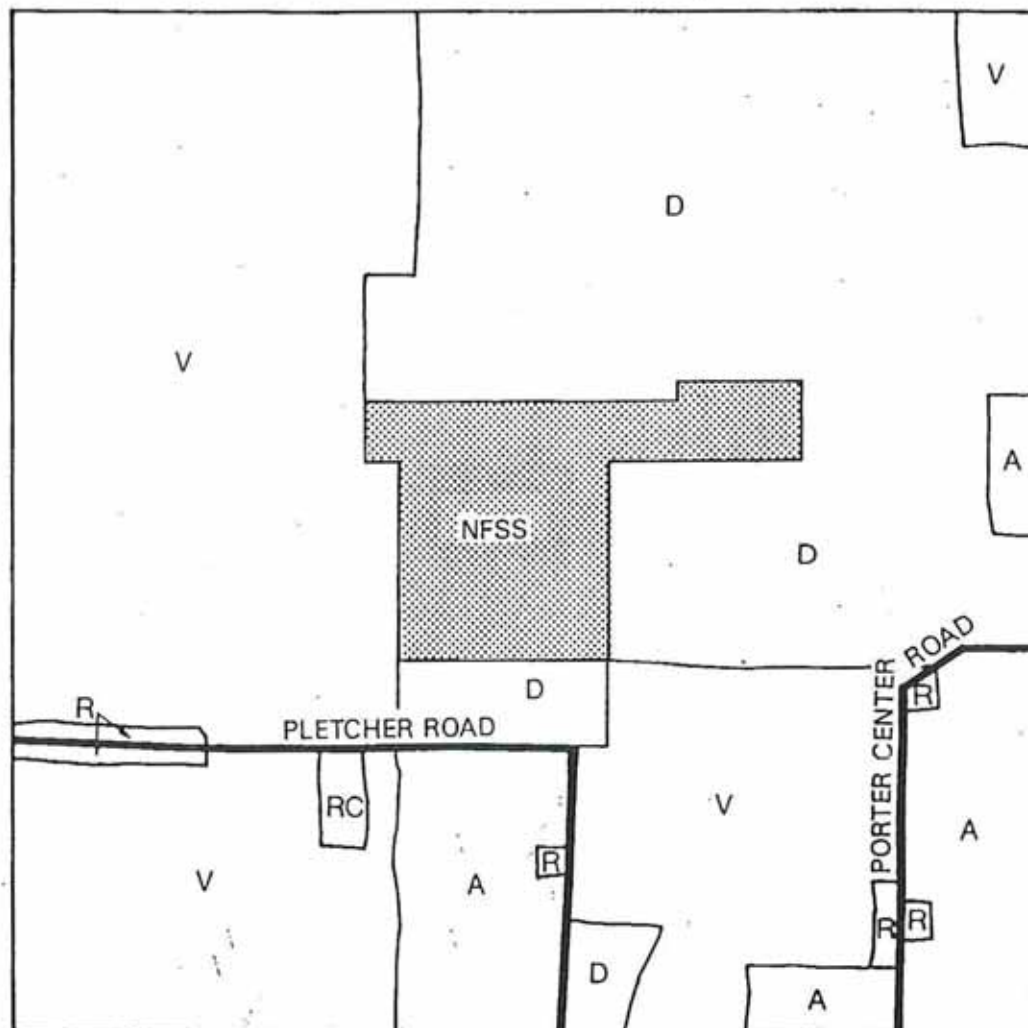


Figure A-1
Location of NFSS



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Figure A-2
Present Configuration of NFSS



BASED ON AERIAL PHOTOGRAPHS, SITE VISITS, AND USGS TOPOGRAPHIC MAP, 1:24000 SCALE, RANSOMVILLE QUADRANGLE, (PHOTO REVISED 1980)

R RESIDENTIAL
RC RECREATIONAL
A AGRICULTURAL

D WASTE DISPOSAL
V VACANT

0 0.5 MI
0 0.8 KM



Figure A-3
Generalized Land Use in the Vicinity of NFSS

A2.0 SITE HISTORY

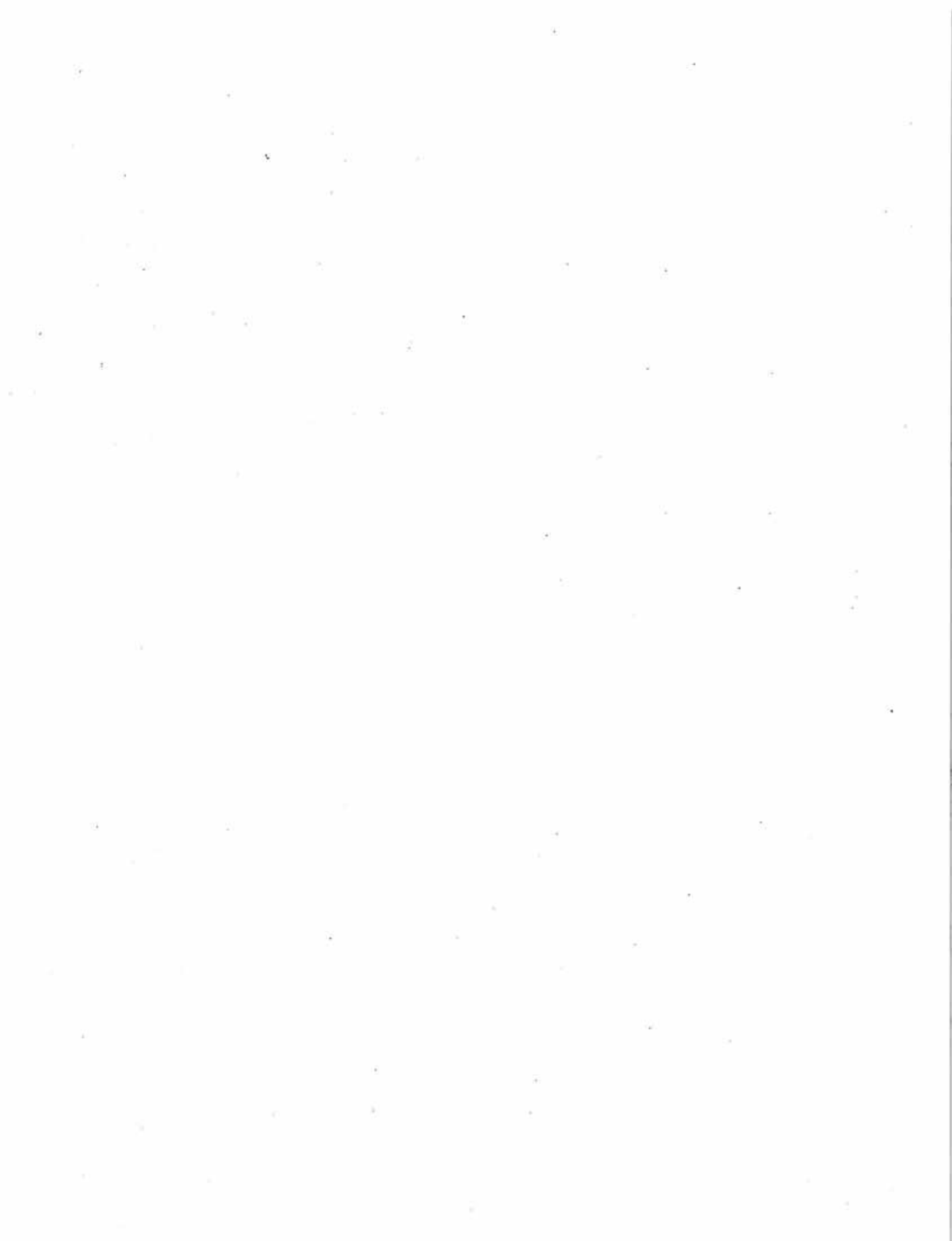
NFSS is a remnant of the original 612-ha (1,511-acre) site that was used during World War II by the Manhattan Engineer District (MED) and was a portion of the Department of Army's Lake Ontario Ordnance Works. Except for nonradioactive boron-10 enriching operations during the periods 1954 to 1958 and 1964 to 1971, the site has been used since 1944 primarily for storage of radioactive by-products from uranium production under MED and subsequent Atomic Energy Commission projects. The site is now managed by the U.S. Department of Energy (DOE) under its Formerly Utilized Sites Remedial Action Program (FUSRAP).

The first materials to arrive at the site were low-grade residues and by-products from the Linde Air Products division in Tonawanda, New York (the L-30, L-50 and R-10 residues) and the Middlesex Sampling Plant in Middlesex, New Jersey (the F-32 residues). The L-30 and L-50 residues were stored in Buildings 411, 413, and 414, while the F-32 residues were stored in the Recarbonation Pit directly west of Building 411. The R-10 residues and associated iron cake were stored in an open area north of Building 411. Erosion transported contaminants from the residues into the soil and drainage pathways, resulting in the contamination of other portions of the site and offsite drainage pathways.

Property E' is approximately 1 km (0.6 miles) north of NFSS. Property E' is currently owned by Chem Waste Management (CWM) chemical services. During the 1985 and 1986 characterization and remediation activities, CWM activities and site usage precluded access for assessment and cleanup because the area was used to store two storage tanks containing polychlorinated biphenyls within an enclosed berm. This area as well as soil underneath a roadway were inaccessible. Both areas have a potential for residual contamination. Since that activity, the two above-ground storage tanks have been closed and removed from the site. The contaminants of concern for Property E' are uranium-238, radium-226, thorium-230, thorium-232, and polychlorinated biphenyls. The area of the property is approximately 120 × 75 feet.

APPENDIX B

Work Hazards at the Niagara Falls Storage Site



B1.0 HAZARD ASSESSMENT

The site safety and health program takes steps to prevent or mitigate radiological, chemical, or industrial hazards. Hazardous work permits will be obtained where necessary before work activities begin. In addition, weekly safety meetings will be held to notify all workers at the site of expected and potential hazards and to review lessons learned and safety and health requirements. The as-low-as-reasonably achievable (ALARA) program is implemented as part of work planning and pre-task training for workers to ensure knowledge of processes. Pre-job hazard assessments are also performed for critical work and housekeeping and inspection programs (see Table B-1).

Table B-1
Hazard Assessment for Remediation Activities at Niagara Falls Storage Site

TASK	ID #	HAZARD	LOCATION	C O N S E Q ^a	P R O B A B ^b	RATIONALE	A S S E S S ^c	CONTROL MEASURES	M U L T I P L E H W P S	
General personnel safety	1.0	Heat/cold stress	NFSS	S	L	Work will be performed over a wide range of seasons and temperature extremes.	R	Temperatures will be monitored and working conditions and work practices modified to reflect changes in temperature as required per this Health and Safety Plan.		
	1.1	Weather	NFSS	I	L	Potential exists for inclement weather with associated hazards.	R	Weather conditions will be monitored and working conditions and work practices modified to reflect changes in the weather.		
	1.2	Slips, trips, and falls	NFSS	S	L	Failure for workers to be aware of walking/working surfaces can lead to injury during winter months.	R	During site orientation training, workers will be informed of slipping and other hazards. During winter, walkways will be kept clear of snow and salted for ice.		
Housekeeping	2.0	Exposure to chemicals	NFSS	I	L	Spills and contact with chemicals can result in skin contamination.	R	The site superintendent and the site safety and health representative (SSHR) are responsible for ensuring compliance with FUSRAP Project Instruction (PI) S1.5. Material safety data sheets (MSDSs) will be obtained and personal protective equipment (PPE) will be worn in accordance with PI S1.5 HAZCOM program. Spill control materials will be centrally located onsite.		
	2.1	Exposure to radioactively contaminated materials	NFSS	I	L	Release of contaminated materials outside the restricted areas can cause exposures.	R	Thermo NULtech (TN) personnel are responsible for performance and documentation of a radiological survey of all equipment and materials released from the restricted areas onsite. The SSHR is responsible for providing oversight of TN activities.		
	2.2	Fire	NFSS	S	L	Failure to keep work areas clean of debris creates a fire hazard. Improper storage of gas cylinders (propane/oxygen, etc.) is a fire hazard.	R	Work areas must be kept clean. Gas cylinders must be stored with at least 20 feet between different types of gas, or with a fire-resistant barrier at least 5 feet high and with a burn rating of 1/2 hour between the cylinder types.		
	2.3	Explosion	NFSS	S	L	Improper storage of combustibles can result in an explosion hazard.	R	Combustibles will be properly stored in accordance with 29 CFR 1926, Subpart F.		
	2.4	Mowing grass	NFSS Cap Area	S	L	Physical injury can result from improperly operating grass-mowing equipment.	R	Personnel will be trained in the proper operation and maintenance of grass-mowing equipment.		
	2.5	Snow plowing	NFSS Parking Lot and Road Areas	S	L	Physical injury can result from improperly operating snow-plowing equipment.	R	Personnel will be trained in the proper operation and maintenance of snow-plowing equipment.		

Table B-1
(Continued)

TASK	ID #	HAZARD	LOCATION	C O N S E Q ^a	P R O B A B ^b	RATIONALE	A S S E S S ^c	CONTROL MEASURES	M U L T I P L E H W P S	COMMENTS
Equipment decontamination	3.0	Contact with radioactive material	Decontamination pad	I	L	Failure to wear the appropriate PPE can result in exposure and/or skin contamination.	R	Personnel will be required to wear PPE in accordance with FUSRAP PIs S1.2 and S1.6. PPE requirements will be recorded on the task-specific hazardous work permit (HWP).		
Equipment decontamination (continued)	3.1	Rupture of pressure wash system used for decontamination	Decontamination pad	S	L	Failure to inspect the system and inadequate training of personnel using the pressure washing system can lead to equipment failure.	R	The pressure wash system will be inspected before use. Personnel will be trained for working with the high-pressure wash system.		
	3.2	Release of contaminated materials and equipment for radiologically unrestricted use (potential spread of contamination)	Decontamination pad	I	L	Failure to adequately decontaminate and/or failure to survey before release for radiologically unrestricted use after decontamination can spread contamination.	R	BNI and TN personnel will monitor the decontamination efforts. Decontamination must be performed in accordance with FUSRAP PI X2.4C and work instructions. TN will survey all equipment and materials before release for radiologically unrestricted use.		
	3.3	Personnel injury from trips, slips, and falls	Decontamination pad	I	L	Excessive water on the decontamination pad in areas where personnel are working can create slipping hazards.	R	The pressure wash system will be designed to include a water collection system that allows for collection and drainage of the excess water.		
	3.4	Pressure wash system operations	Decontamination pad	S	L	Improper use or operation of pressure wash system may cause physical injury	R	Only trained and qualified personnel will be allowed to operate pressure wash system.		
Waste management	4.0	Lack of waste segregation	Waste storage areas	S	L	<ul style="list-style-type: none"> Contents of containers are unknown. Potential exists for loss of control of radioactive materials. 	R	BNI personnel will monitor remediation efforts to ensure that all waste is collected, containerized, labeled, and stored so that contaminated waste is not mixed with uncontaminated wastes.		
	4.1	Failure of waste container, spill of material	Waste storage areas	S	L	<ul style="list-style-type: none"> Spills can result from Failure to inspect containers for defects Improper handling of containers 	R	Waste containers will be inspected before use to verify their integrity. Defective containers will be replaced. Personnel will be trained in proper handling techniques.		
	4.2	Spills	Waste storage areas	S	L	Improper handling, storage, and/or labeling of containers can lead to spills.	R	BNI personnel will monitor operations. In a spill, emergency decontamination procedures will be implemented in accordance with the site safety and health plan. Spillage, if any, will be cleaned up and the area decontaminated in accordance with FUSRAP NFSS Health and Safety Plan, Volume 1.		

Table B-1
(Continued)

TASK	ID #	HAZARD	LOCATION	C O N S E Q ^a	P R O B A B ^b	RATIONALE	A S S E S ^c	CONTROL MEASURES	M U L T I P L E H W P S
	4.3	Carbon monoxide poisoning during equipment maintenance activities	Building 403	S	L	Heavy equipment (e.g., trucks and tractor) operating inside building can cause carbon monoxide buildup and oxygen deficiency hazards.	S	SSHR, field engineer, or designee will provide for proper building ventilation and monitoring for carbon monoxide levels and oxygen deficiency during equipment/vehicle maintenance activities.	
Transportation	5.0	Load failure	Transport loading areas	S	L	Load failure can result from <ul style="list-style-type: none"> • Uneven distribution of wastes in transport vehicle • Failure to secure shipping containers in transport. 	R	<ul style="list-style-type: none"> • Trucks used by the subcontractors or BNI personnel will be inspected in accordance with the requirements of BNI vehicle inspection program to ensure that vehicles are maintained. • Waste management personnel will oversee truck loading to ensure correct balance, proper placement, and tie-down of the containers. 	
	5.1	Traffic accident	NFSS	S	L	Accidents can be caused by <ul style="list-style-type: none"> • Uneven distribution of wastes in transportation vehicle • Driver error <p>Accidents can result in</p> <ul style="list-style-type: none"> • Injury to pedestrian • Vehicle damage • Injury to vehicle operator 	R	Trucks used by the subcontractor or BNI personnel will be inspected in accordance with the BNI vehicle inspection program to ensure that vehicles are maintained. Speed limits onsite will be obeyed. Seat belts will be worn.	
Waste storage	6.0	Contact with radioactive materials	Waste storage areas	S	L	Contact can result from failure to wear appropriate PPE and work activities that generate dust, causing material to become airborne.	R	Personnel will be required to wear PPE and respiratory protection as required by FUSRAP PIs S1.2 and S1.6. Air monitoring will be performed as required by FUSRAP PI X2.5.	
	6.1	Release of waste to the environment	Waste storage areas	S	L	Poor control of runoff (stormwater) can cause releases.	R	Stormwater control will be required for waste storage areas exterior to all structures.	
Waste packaging	7.0	Contact with radioactive materials	Waste packaging areas	I	L	Failure to wear appropriate PPE can result in contact.	R	Personnel will be required to wear PPE and respiratory protection in accordance with FUSRAP PIs S1.2 and S1.6.	
	7.1	Spill of contaminated materials	Waste packaging areas	S	L	Spills can result from failure of waste packaging and can occur during packaging, package relocation, or package loading for transportation.	R	Spill kit(s) will be located in waste storage area and packaging areas to facilitate rapid response to spills or package failures. If possible, berms or other means of preventing the spread of a spill will be constructed around the waste storage areas.	

Table B-1
(Continued)

TASK	ID #	HAZARD	LOCATION	C O N S E Q ^a	P R O B A B ^b	RATIONALE	A S S E S S ^c	CONTROL MEASURES	M U L T I P L E H W P S	CON
	7.2	Personnel injury	Waste packaging areas	S	L	Use of heavy equipment to load and unload trucks can result in injuries.	R	<ul style="list-style-type: none"> Heavy equipment will be used in accordance with FUSRAP PI S9.5 and 29 CFR 1926.600-602. Designated walkways and work areas will be established. Machine guards and swing/crush areas will be established and clearly marked. The SSHR will ensure that backup alarms are installed on heavy equipment and are operable. 		
Waste packaging (continued)	7.3	Noise	Waste packaging areas	S	L	Use of heavy equipment can generate a noise hazard greater than 85 dBA.	R	Personnel will be trained in hearing conservation and the need to wear hearing protection. Appropriate hearing protection will be provided onsite. The SSHR will be responsible for ensuring the performance of sound level testing in areas where a noise hazard is expected.		
	7.4	Falls	Waste packaging areas	S	L	Fall from transportation vehicle can occur while personnel are loading material or placing liner.	R	Personnel will be trained in the proper use of ladders or scaffolding if used to provide access to transportation vehicle. If work is performed at elevations greater than 6 feet, fall protection is required.		
Radiological walkover survey of NFSS cap	8.0	Contact with radioactive materials	NFSS cap area	I	L	Failure to wear appropriate PPE can result in contact.	R	Personnel will be required to wear PPE as required by Pts S1.2 and S1.5.		
	8.1	Spread of contamination	NFSS cap area	S	L	Use of poor contamination control practices can result in spread of contamination.	R	Contamination control practices will be in place. These controls will be consistent with the guidance provided in the Radiation Safety Manual project instructions.		
	8.2	Airborne radioactive materials (dust generation)	NFSS cap area	I	L	Failure of grass covered cap could cause release of airborne radioactive materials.	R	Air sampling will be performed to determine the amount of airborne materials present, in accordance with PI X2.5. If necessary, a sufficient water mist will be used to eliminate visible dust in the air.		
Interior building decontamination	9.0	Lifting	Buildings 401 and 403	S	L	During decontamination, heavy equipment may be used, and lifting of such equipment to clean overhead may result in back injury.	R	Back protection program is in effect for the site. Workers will be trained in the use of the heavy equipment selected for decontamination. Lifting techniques will be discussed during weekly toolbox meetings.		

Table B-1
(Continued)

TASK	ID #	HAZARD	LOCATION	C O N S E Q ^a	P R O B A B ^b	RATIONALE	A S S E S S ^c	CONTROL MEASURES	M U L T I P L E H W P S	
Interior building decontamination (continued)	9.1	Contact with radioactive material	Buildings 401 and 403	S	L	Dust generated during ceiling and overhead decontamination may become airborne and create an inhalation, ingestion, and/or skin contact hazard.	R	Appropriate PPE will be worn to preclude skin contamination. If possible, dust control measures will be used to keep dust from becoming airborne. If air monitoring indicates airborne levels at 50 percent of the derived air concentration, respiratory protection will be worn. Before initiation of overhead decontamination work, prejob training will be given on appropriate methods to use to perform the decontamination while controlling the generation of dust.		
	9.2	Eye hazard from flying debris	Buildings 401 and 403	S	L	Decontamination using equipment produces flying debris.	R	Eye protection such as safety glasses, face shield, or goggles must be worn to protect the eyes from flying debris.		
	9.3	Spread of contamination outside building	Environment outside Buildings 401 and 403	S	L	Airflow patterns cause airborne contamination to escape from the building during decontamination.	R	Local area ventilation units (HEPA vacuums) will be operated in the area where decontamination is being performed to limit the spread of airborne contamination.		
	9.4	Noise	Buildings 401 and 403	S	L	Use of equipment for decontamination may create a noise hazard.	R	Noise will be monitored when the heavy equipment is in use. Personnel will be provided with hearing protection if noise levels reach 85 dBA.		
	9.5	Electrical shock	Buildings 401 and 403	S	L	Failure to use ground-fault circuit interrupter (GFCI)-protected equipment during decontamination, improper isolation of equipment, and failure to lock out equipment that cannot be removed from the building can result in electrical shock.	R	The SSHR and the responsible field engineer will ensure that the lockout/tagout procedure S7.5 is followed and that a prejob electrical inspection is performed before the start of decontamination. All hand abrasive electric power tools will use GFCI outlets or adapters. Portable generators will be used to power electrical decontamination tools and portable lighting.		
	9.6	Chemical exposure (decontamination solutions)	Building 401 and 403	I	L	Contact with chemicals used for decontamination can occur.	R	Chemicals to be used will be approved in accordance with PI S5.1. PPE will be required as determined appropriate by the SSHR based on review of the MSDSs for the chemicals.		
	9.7	Fire	Buildings 401 and 403	S	L	Use of electrical abrasive tools may cause electrical shorts and/or fires.	R	Fire extinguishers with a 10 BC rating will be available for use in the building decontamination. Staff will be trained in their use and other appropriate fire fighting and prevention issues. Fire emergency escape routes will be discussed during prejob briefings, and these routes will be coordinated with site personnel.		

Table B-1
(Continued)

TASK	ID #	HAZARD	LOCATION	C O N S E Q ^a	P R O B A B ^b	RATIONALE	A S S E S S ^c	CONTROL MEASURES	M U L T I P L E H W P S	C
	9.8	Falls	Buildings 401 and 403	S	L	Decontamination of the ceiling and other overheads will require manlifts or other means of working at elevation.	R	Fall protection consistent with the requirements of 29 CFR 1926 Subpart M will be required for all work at elevations above 6 feet. Scaffolds will be used in accordance with FUSRAP PI S9.4.		
	9.9	Lighting	Buildings 401 and 403	S	L	Poor lighting can cause physical injuries.	R	Temporary lighting will be arranged during decontamination. Temporary lights will be powered by portable generators. Employees will be trained to work under a temporary lighting system.		
	9.10	Poor building structural condition	Buildings 401 and 403	S	L	Poor building structure can lead to physical injuries.	R	Workers will perform decontamination tasks in authorized locations only. Workers will access only these immediate work areas. They will access and egress these areas directly and will not be allowed to access roof areas. A building structural integrity walkdown was performed in July 1993, and the building was found to be structurally sound. Room 216 will be barricaded. No access will be allowed to this room per Bechtel Engineering Drawing No. 158-DD463-C03.		
	9.11	Emergency conditions	Buildings 401 and 403	S	L	Emergency situation may require workers to evacuate the work areas.	R	Workers will be trained in site emergency evacuation procedures. An emergency notification horn, two-way radios, use of the buddy system, and direct path egress to assembly points will be discussed during prejob briefing.		
	9.12	Asbestos	Building 401	S	L	Workers may be exposed to asbestos-containing materials during work process.	R	Workers will not handle and/or work with any asbestos-containing materials during decontamination task. Experienced, trained workers will perform decontamination activities, and they will be instructed not to handle these materials.		
Fence installation and repair	10.0	Personnel injury	NFSS perimeter fence line	S	L	Use of hand tools and fence installation equipment could cause personnel injury.	R	Hand tools and fence installation equipment will be used in accordance with manufacturer's instructions. Appropriate PPE must be worn (e.g., leather work gloves, hard hat, safety glasses).		
	10.1	Noise	NFSS perimeter fence line	S	L	Use of installation equipment could generate noise greater than 85 dBA.		Personnel will be trained in hearing conservation and in wearing hearing protection. The SSHR will be responsible for ensuring that sound level monitoring takes place in areas where noise hazards are expected.		

Table B-1
(Continued)

TASK	ID #	HAZARD	LOCATION	C O N S E Q ^a	P R O B A B ^b	RATIONALE	A S S E S S ^c	CONTROL MEASURES	M U L T I P L E H W P S
Fence installation and repair (continued)	10.2	Lifting	NFSS perimeter fence line	S	L	Lifting tools, materials and equipment may result in back injury.	R	Back protection program is in effect for the site. Lifting technique will be covered as part of tool box training meetings along with the proper use of heavy equipment to assist in lifting/moving fence materials.	
	10.3	Eye hazards from flying debris	NFSS perimeter fence line	S	L	Cutting fence materials produces flying debris that can result in an eye injury.	R	Eye protection such as safety glasses, face shield, or goggles must be worn to protect the eyes from flying debris.	
	10.4	Electronic shock	NFSS perimeter fence line	S	L	Failure to use GFCI equipment may cause electric shock.	R	GFCI equipment must be used. All portable electric generators will be grounded.	
	10.5	Contact with radioactive material	NFSS perimeter fence line	S	L	Potential exists for radioactive contamination to be at NFSS fence line and to cause skin contamination.	R	The site superintendent and SSHR are responsible for ensuring that all work inside NFSS fence line is performed in accordance with FUSRAP radiation safety manual.	
	10.6	Underground utilities	NFSS perimeter fence line	S	L	Fence installation equipment can strike underground utility lines, causing property damage and/or injury.	R	Before using fence excavation equipment, employees will search for underground utility lines. Hand-operated post-hole diggers may be required for fence installation work.	
Soil/core/well sampling	11.0	Physical lifting	NFSS	S	L	During sampling activities, lifting can cause back or other physical injuries.	R	Back protection program is in effect. Lifting techniques will be covered as part of toolbox training meeting.	
	11.1	Contact with radioactive materials	NFSS	S	L	Dust generated during sampling activities may become airborne and create inhalation and skin contact hazards.	R	Appropriate PPE will be worn to preclude skin contamination. Dust control measures will be used to keep dust from becoming airborne. Respiratory protection will be worn if airborne levels are indicated at 50 percent or higher of the derived air concentration. Work will be performed in accordance with FUSRAP radiation safety manual.	
	11.2	Eye hazard from flying debris	NFSS	S	L	Sampling activities may generate flying debris.	R	Eye protection such as safety glasses, face shield, or goggles must be worn to protect the eyes from flying debris.	
	11.3	Spread of contamination outside control areas	NFSS	S	L	Contamination from remediation areas can spread offsite.	R	All areas will be controlled by using proper posting, PPE, personnel monitoring, and health physics surveillances.	
	11.4	Electric shock	NFSS	S	L	Use of electric operated core machine can cause electric shock to personnel operating equipment.	R	GFCI equipment will be used to control electric shock. The SSHR and the responsible field engineer will train employees in the use of coring equipment and the use of GFCI with electrical power sampling equipment.	

Table B-1
(Continued)

TASK	ID #	HAZARD	LOCATION	CONSEQUENCE ^a	PROBABILITY ^b	RATIONALE	ASSESSMENT ^c	CONTROL MEASURES	MULTIPLE HAZARDS	COMMENTS
Soil/core/well sampling (continued)	11.5	Noise	NFSS	S	L	Use of coring machine motor operated pump may generate a noise hazard.	R	Noise monitoring will be performed when equipment generates noise above 85 dBA. Personnel will be provided with hearing protection if noise levels equal or exceed 85 dBA.		
	11.6	Improper use of hand/sampling tools	NFSS	S	L	Improper use of hand tools may cause physical injury to site personnel.	R	Tools will be used for tasks they are designed for. Personnel must be qualified in the use of hand/sampling tools. Appropriate PPE will be worn when handling hand/sampling tools (i.e., leather, cotton workgloves).		
Fuel tanks closure	12.0	Combustible liquids stored inside fuel tanks	NFSS	S	L	Ignition sources used around tanks could cause an explosion or fire causing property damage and/or personnel injury.	R	Fuel storage tanks will be emptied, flushed, and purged clean before any tank dismantlement, which will be performed in accordance with project work instructions and API Publication 2015. Area will be posted as a "No Smoking" area. A 10 BC rated fire extinguisher will be located at fuel pump station.		
	12.1	Fuel spill	NFSS	S	L	Fuel spill during refueling of vehicles or equipment could cause an environmental release.	R	A spill control kit will be accessible to personnel refueling project vehicles and/or emptying fuel tanks for dismantlement.		
	12.2	Use of cutting torches to dismantle fuel storage tanks	NFSS	S	L	Ignition sources could cause explosion or fire if fuel tanks have not been properly cleaned and purged.	R	The SSHR, field engineer, or designee will verify that all tanks have been cleaned and purged by project work instructions before tank dismantlement. Burning, cutting operations will be covered in HWP/burning permit, with fire watch and 10 BC fire extinguisher present.		
	12.3	Contact with fuel products	NFSS	I	L	Transferring fuel to vehicles or equipment may cause personnel contact with petroleum product.	R	Personnel transferring fuel products will be required to wear appropriate PPE during transfer process.		
	12.4	Electric shock	NFSS	S	L	Electric pumps can cause electric shock or injuries to site personnel.	R	Fuel pumps are currently grounded. Lockout/tagout must be in place before fuel tank dismantlement.		
	12.5	Material lifting	NFSS	S	L	Improper lifting techniques can cause serious injury to project personnel.	R	Materials will be properly lifted onto transport vehicles. Forklift vehicle or small crane may be used. Equipment must be rated for the load that it is lifting. The operator must be qualified in operating this equipment. Employees must stand clear of the swing radius of the lifting operation.		

^aCONSEQ = Consequences of failure: I - insignificant, S - significant, U - unknown, X - unacceptable.

^bPROBAB = Probability of failure: L - low, H - high, U - unknown.

^cASSESS = Assessment of classification: R - routine, S - special.

Table B-2

TASK	I D #	HAZARD	LOCATION	RATIONALE	CONTROL MEASURES	COMMENTS
Transportation using the AMT 626 (off-road vehicle)	16.1	Equipment rollover	Praxair site, Ashland 1 and 2	Vehicle will be used to transport equipment and supplies, for sampling activities, and for site inspections.	Employees are to be trained in the proper operation of the AMT 626 per the Operator's Manual. The Operator's Manual will be available at each site so employees can review it. No personnel may ride in the cargo box of the vehicle. The AMT 626 will not enter excavation areas. The driver must travel over surfaces that meet the manufacturer's requirements. The driver must avoid sharp turns to prevent vehicle rollover, and must keep hands, arms, and legs inside the vehicle during transport operations.	

APPENDIX C

Physical Examination and Bioassay Requirements for the Niagara Falls Storage Site

C1.0 PHYSICAL EXAMINATION REQUIREMENTS

All employees who work in restricted work areas (RWAs) must participate in the medical surveillance program, which was developed by Bechtel National, Inc. (BNI) in compliance with 29 CFR 1910.120, "Hazardous Waste Operations and Emergency Response."

Before beginning work onsite, each employee must have a BNI-approved physical examination, from which a baseline health assessment will be formed. Baseline health assessments of all workers will include

- a complete medical and occupational history;
- a physical examination;
- laboratory tests, including a complete blood count;
- blood lead analysis;
- urinalysis;
- a chemistry panel;
- pulmonary-function testing;
- audiometry and visual screening;
- chest X-ray or electrocardiogram;
- a qualitative and/or quantitative respiratory fit-test; and
- special urine and blood tests as appropriate for the anticipated hazards onsite.

On termination of employment, any worker who has worked at a FUSRAP site for more than six consecutive months will have an exit physical examination equivalent to the entrance baseline physical. Personnel who terminate employment within six months will be examined on the basis of their exposure to hazardous materials onsite; the BNI-approved examining physician and the safety and health supervisor will determine whether additional tests should be conducted.

The medical program at NFSS is performed in accordance with FUSRAP Project Instruction (PI) S1.9, "Medical Surveillance Program."

The medical support organization for site personnel is

Niagara Services, Inc.
Occupational Health Care
Niagara Falls Memorial Hospital
621 10th Street
Niagara Falls, New York
(716) 278-4621

The site-based medical facility will forward the required information to the medical consultant for BNI site personnel.

The medical consultant for BNI is

PEER Occupational Medical Services
140 East Division Road
Oak Ridge, TN 37830
(423) 481-3013
(423) 482-1843 Fax

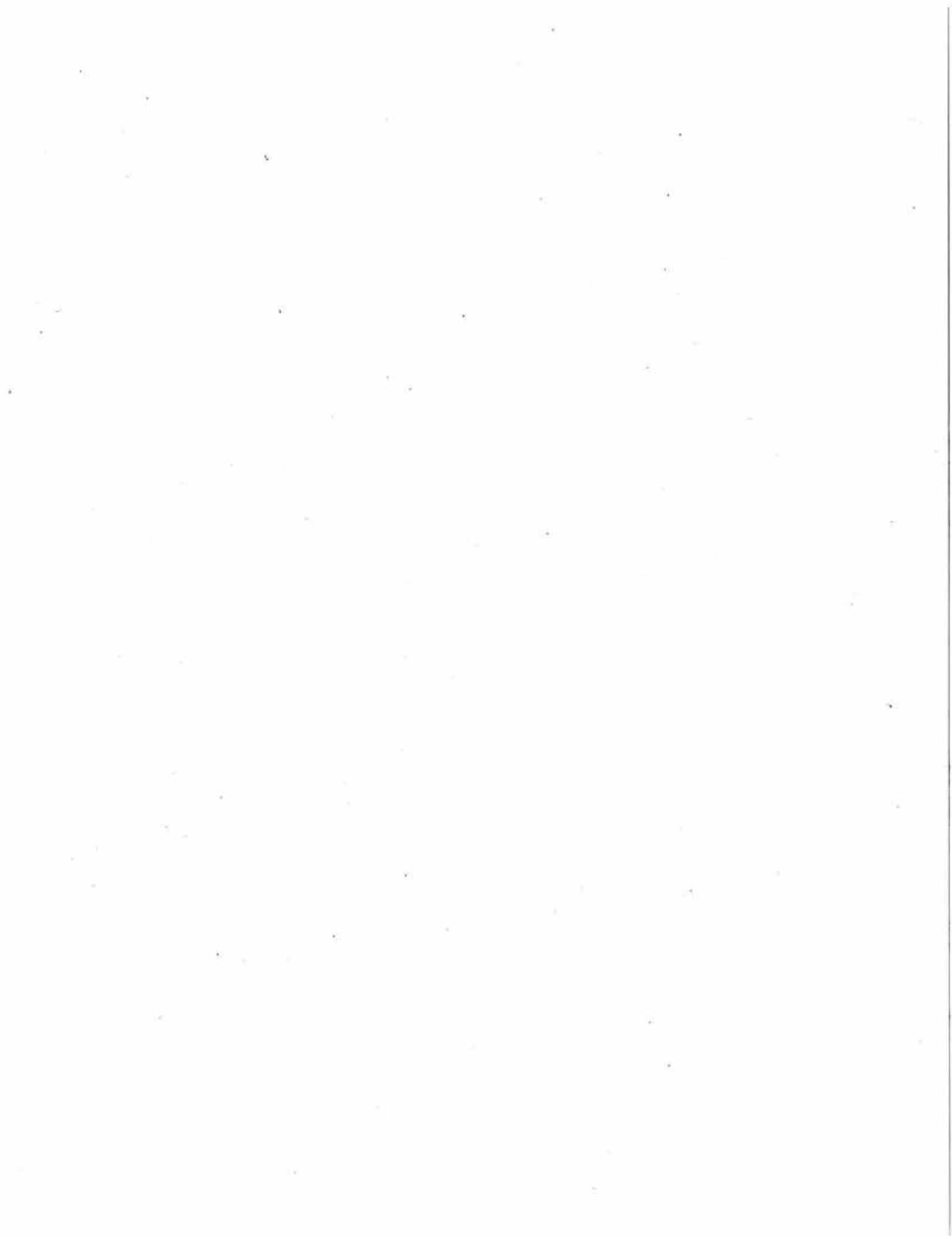
C2.0 BIOASSAY PROGRAM

Baseline assessments for employees who have not previously worked at a FUSRAP site will be established from the required entrance bioassay analyses. Baseline assessments for employees who have worked at FUSRAP sites will be established from those employees' exit examinations.

All employees must submit urine samples before working in RWAs; the samples will be analyzed for uranium, thorium, and radium. The site safety and health representative (SSHR) may require additional bioassays for employees who are particularly at risk of inhaling or ingesting radioactive contaminants, and the SSHR may direct that urine samples be collected immediately from any individual suspected to have done so. Bioassays will also be conducted for each worker who terminates onsite employment; the results will be compared with the worker's baseline assessment.

APPENDIX D

Personal Protective Equipment Requirements at the Niagara Falls Storage Site



D1.0 PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS

There are no site-specific personal protective equipment requirements at NFSS beyond those specified in Volume 1, Section 5.0 of this health and safety plan.

APPENDIX E

Restricted Work Area Requirements at the Niagara Falls Storage Site

E1.0 RESTRICTED WORK AREA REQUIREMENTS

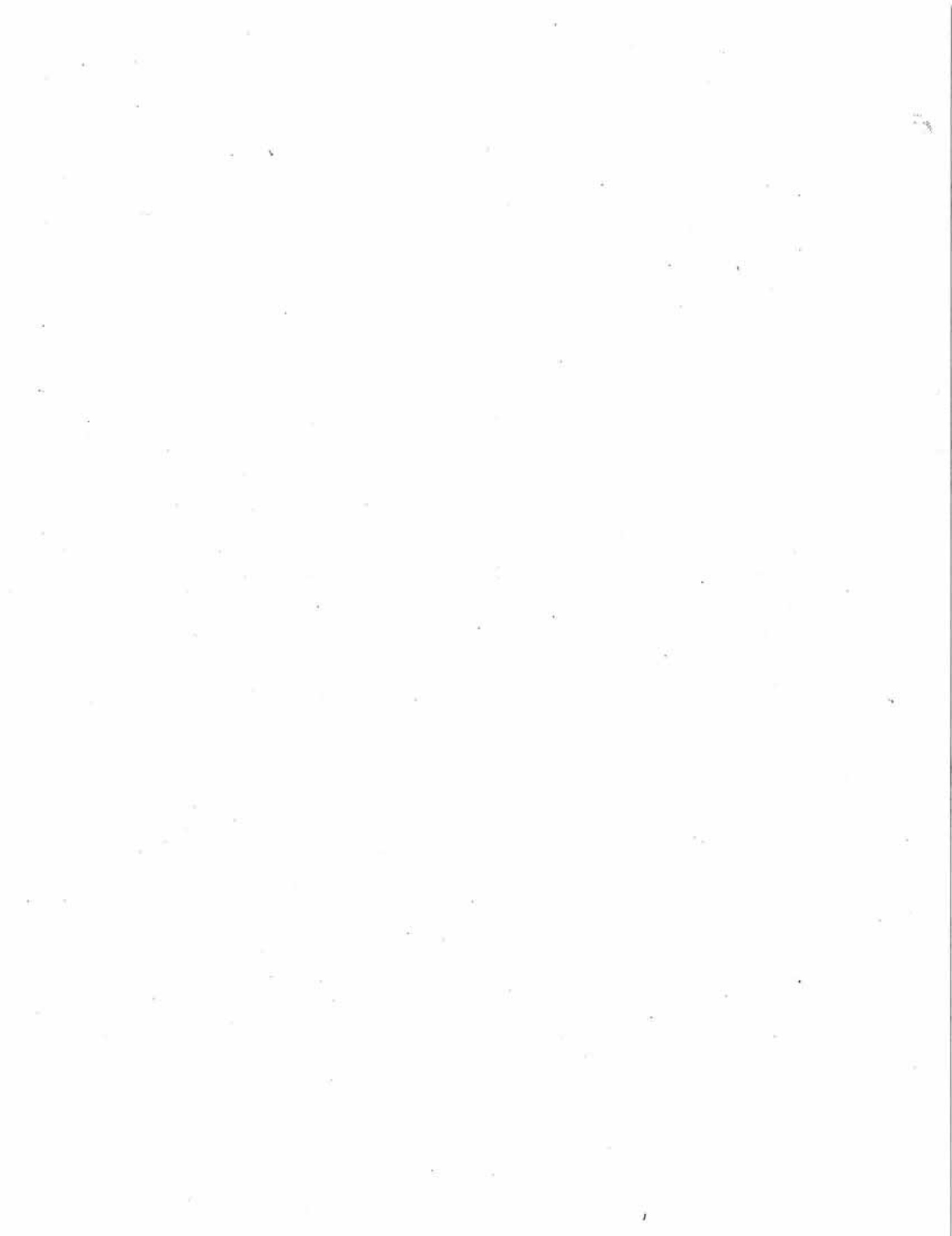
There are no RWA requirements for NFSS beyond those discussed in Volume 1, Section 6.0 of this health and safety plan.

APPENDIX F

Training Requirements at the Niagara Falls Storage Site

F1.0 TRAINING REQUIREMENTS

There are no site-specific training requirements for NFSS other than those identified in Volume 1, Section 7.0 of this health and safety plan.



APPENDIX G

Emergency Response and Notification Requirements at the Niagara Falls Storage Site

G1.0 NOTIFICATIONS

Workers who discover an emergency condition will immediately notify the BNI field office and the personnel at the access control point. Site personnel can communicate with the office using two-way radios, which are assigned to the following people and locations as appropriate to work requirements:

- site superintendent,
- site supervisor,
- SSHR,
- access control points, and
- elsewhere as directed by the site superintendent.

If the emergency presents a danger to life or health, personnel in the vicinity will immediately evacuate to a safe area and warn other personnel. The site superintendent or designee will decide whether personnel must evacuate the building. If the site superintendent or designee activates the emergency response and notification plan and puts the emergency response team into action, the following emergency steps will be taken:

- Site workers will be alerted by the alarm system. All individuals will report to the front parking lot near the front gate to be accounted for and given further instructions.
- The field radios will also serve as a backup emergency communication system to alert the emergency response team and site workers that the emergency response and notification plan has been activated and that personnel are to report to the designated assembly point.

The site superintendent will refer to the Emergency Response and Notification Handbook for guidance on classification of an occurrence. The emergency coordinator (or the site superintendent) will call the project manager using the notification numbers listed in the front of this volume of the health and safety plan. If the project manager cannot be reached, the deputy project manager will be contacted, followed by personnel listed for health and safety, until a BNI representative is located. If an emergency requires local involvement such as fire departments, ambulance, and/or police, the site superintendent makes these notifications. The route to the nearest hospital is shown in Figure G-1. Local emergency numbers are listed in the front pages of this volume.

The project manager or designee is responsible for determining the required notifications and initiating notifications to the state, the Environmental Protection Agency, and DOE.

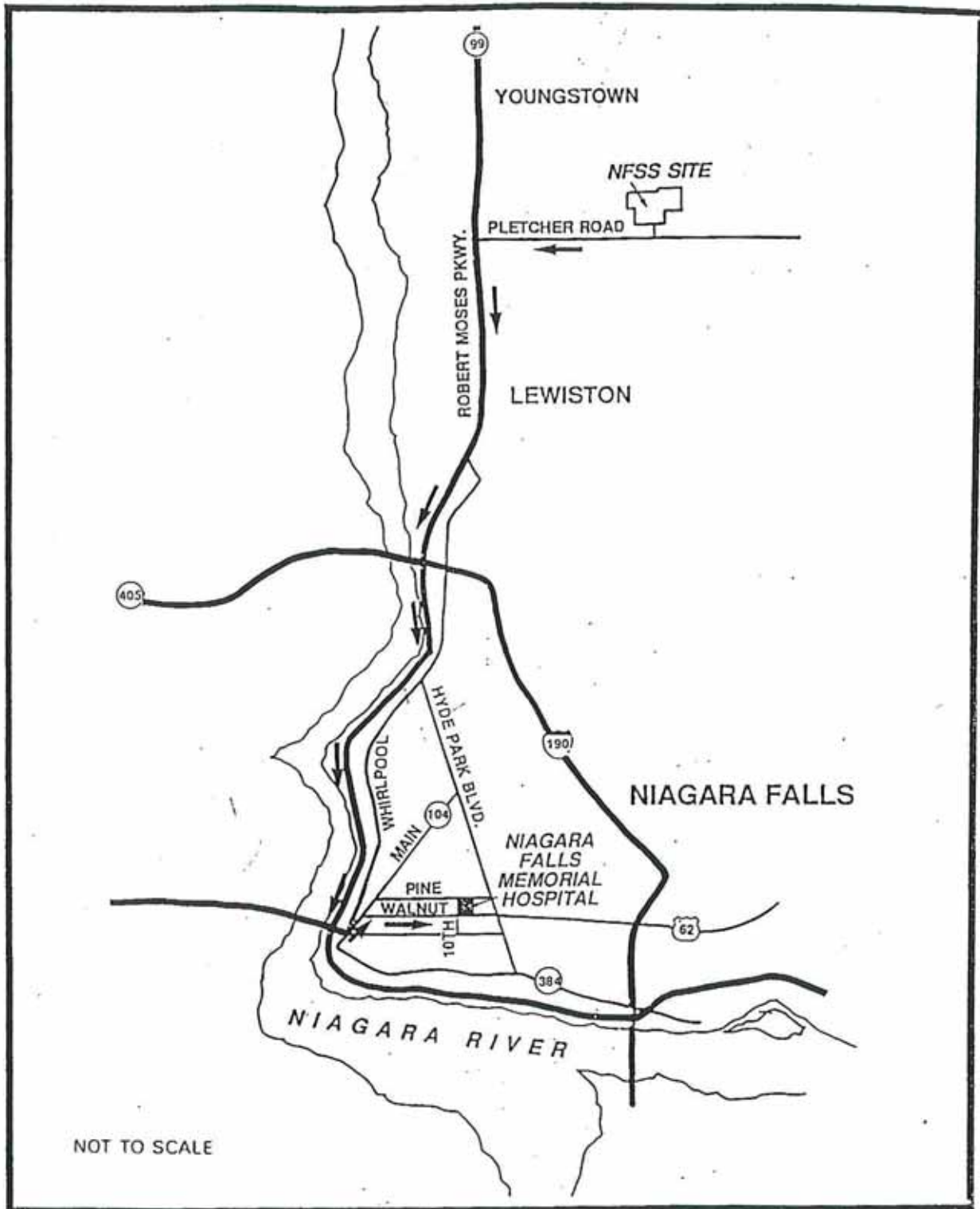


Figure G-1
Route to the Local Hospital from NFSS

If the site superintendent determines that the emergency could threaten the health and safety of the general public or the environment outside the facility, he must report the findings immediately to the FUSRAP Oak Ridge office. FUSRAP project personnel will notify the New York state 24-hour oil and hazardous materials spill notification number, the National Response Center, and DOE in accordance with the requirements of DOE Order 232.1-1 and project instructions.

G2.0 EMERGENCY EQUIPMENT

The site is equipped with spill response equipment, monitoring equipment, and fire fighting equipment to handle most emergencies. The following is a brief description of the equipment onsite and its capabilities.

G2.1 FIRE RESPONSE

Fire extinguishers are located throughout the site as shown on the site status map maintained at the site. Emergency exits are clearly marked and are inspected regularly to ensure that they are not locked or blocked. In a fire, the procedures outlined below will be followed.

If there is reasonable assurance of success, trained individuals will attempt to extinguish small fires with portable fire extinguishers. If a fire cannot be controlled immediately or personnel trained in the use of portable fire extinguishers are not available, the fire will be reported to the local fire department (see notification list in the front of this volume). If the fire is not extinguished with a portable extinguisher, personnel must immediately evacuate the area.

Any fire, no matter how insignificant, must be reported to the site superintendent. A fire that does not appear to be extinguishable must be reported to the fire department, and primary attention will be focused on evacuating the area and preventing the fire from spreading to other areas.

Upon arrival of the fire/rescue department, the site superintendent or designee will provide necessary information such as a description of relevant hazards, the identities of missing personnel and their last known locations, and fire location and size. At no time may anyone other than fire department personnel reenter a building to locate missing personnel.

The SSHR or designee is responsible for contacting local fire department personnel to notify them of ongoing work processes at the jobsite.

G2.2 SPILL RESPONSE

Spill response equipment will be placed in a central location. The location will change as the remediation proceeds, and the spill equipment location will be noted on the site status map. The spill response equipment kit is intended to control spills from solid and liquid waste containers stored at NFSS as well as any minor spills of fuel, motor oil, and other materials. The spill response kit consists of the following items:

- broom,
- dust pan,
- Speedidry™ absorbent,
- oil boom,
- flat shovel, and
- empty drums and overpack drums for repacking spilled material.

The following materials will be onsite but do not need to be kept in the building or to be specifically dedicated to spill response:

- industrial hygiene and health physics instrumentation,
- flagging tape,
- PPE,
- barrier tape/rope (200 ft),
- extension cord with ground-fault circuit interrupter,
- gray tape,
- all-purpose markers,
- black pen,
- pad of writing paper,
- plastic bags for trash,
- first-aid kit (located at access control point),
- wet or dry vacuum cleaners, and
- emergency eyewash.

Other equipment will be obtained as required in response to changes in work efforts.

G2.3 DECONTAMINATION EQUIPMENT

Decontamination of equipment used during an emergency will be accomplished as soon as possible after the emergency has ended. The waste decontamination water will be contained until it can be sampled to determine the proper disposal requirements. Decontamination will consist primarily of soap and water. If oily material is encountered, isopropyl alcohol will be used as a decontamination agent.

Decontamination equipment includes

- buckets for the decontamination agents,
- Alconox™,
- soft bristle brushes,
- isopropyl alcohol, and
- absorbent sheets.

G2.4 PERSONAL PROTECTIVE EQUIPMENT

The site will maintain a supply of PPE at the access control point for personnel responding to an emergency. The equipment includes

- full-face MSA™ respirators with gas mist cartridge-high-efficiency particulate air cartridges;
- self-contained breathing apparatus maintained at the primary access control point;
- poly-coated Tyvek™ with hood and with all joints taped;
- chemical-resistant gloves;
- disposable boots;
- rubber overshoes; and
- hard hats.

When responding to an emergency, emergency personnel will wear PPE items deemed appropriate by the SSHR or designee on the basis of air monitoring results and/or recommendations for emergency response provided in material safety data sheets.

