NF-010
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Formerly Utilized Sites Remedial Action Program (FUSRAP)

ADMINISTRATIVE RECORD

for

Niagara Falls Storage Site

4.69 5292.4

U.S. Department of Energy

200-1e

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078164

Bechtel

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Job No. 14501, FUSRAP Project
DOE Contract No. DE-AC05-81OR20722
Code: 7190/WBS: 202
ADMIN RECORD

JUN 4 1991

U.S. Department of Energy
Oak Ridge Operations
P.O. Box 2001
Oak Ridge, TN 37831-8723

Attention: William M. Seay, Deputy Director
Former Sites Restoration Division

Subject: Publication of the Health and Safety Plan for the Waste Consolidation Work at the Niagara Falls Storage Site

Dear Mr. Seay:

Enclosed are two copies of the subject document, which Steve Oldham authorized us to publish (CCN 077485). The document has been revised to incorporate comments on the first draft received from DOE-FSRD, Argonne National Laboratory, and Oak Ridge Associated Universities. This document will be included in the administrative record that will be established prior to the initiation of field work.

If you have any questions, please call me at 576-1677.

Very truly yours,

C. R. Hickey
Project Manager - FUSRAP

CRH:gmh:LR_0239

Enclosure: As stated

cc: L. K. Price w/o enclosure
S. K. Oldham w/enclosure
J. D. Berger
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DOE/OR/20722-291

078164-01
NF-010

Formerly Utilized Sites Remedial Action Program (FUSRAP)
Contract No. DE-AC05-81OR20722

Health and Safety Plan for the Waste Consolidation Work at the Niagara Falls Storage Site

Lewiston, New York

May 1991

4.48 3774.1

DOE/OR/20722-291
Doc. No. 202-HSP-03

HEALTH AND SAFETY PLAN

FOR THE

WASTE CONSOLIDATION WORK AT THE

NIAGARA FALLS STORAGE SITE

MAY 1991

Prepared for

UNITED STATES DEPARTMENT OF ENERGY

OAK RIDGE OPERATIONS OFFICE

Under Contract No. DE-AC05-81OR20722

By

Bechtel National, Inc.

Oak Ridge, Tennessee

Bechtel Job No. 14501

FUSRAP 14501
SITE 202
DOC. NO. 202-HSP-03
05/13/91

TITLE: HEALTH AND SAFETY PLAN FOR THE WASTE CONSOLIDATION WORK AT THE NIAGARA FALLS STORAGE SITE

DOCUMENT NUMBER: 202-HSP-03

REVISION NUMBER: 0

DATE: MAY 1991

PROJECT: FUSRAP
JOB NO. 14501

REVIEWED: Paul R Huber
Project Quality Assurance Supervisor — 5/28/91 Date

APPROVED: W. L. Beck
Environment, Health, and Safety Supervisor — 5/29/91 Date

APPROVED: R. M. Rula
Program Manager — 31 MAY 91 Date

NIAGARA FALLS STORAGE SITE
EMERGENCY ASSISTANCE SERVICES

POLICE	
Sheriff	(716) 754-4211
New York State Police	(716) 285-5355
Town Police	(716) 754-8123
(after 5:00 p.m. and weekends)	(716) 297-0755
AMBULANCE	
Frontier Ambulance Service	(716) 754-4211
Lewiston Fire Company No. 1	(716) 754-4211
FIRE	
Lewiston Village Fire Department	(716) 754-4211
DOCTOR	
Niagara Services, Inc. Occupational Health Care Niagara Falls Memorial Hospital	(716) 278-4621
HOSPITAL	
Niagara Falls Memorial Hospital 621 10th Street Niagara Falls, New York 14302	(716) 278-4000 (716) 278-4394 (Emergency Room)
WATER DEPARTMENT	(716) 754-8214
(after working hours, weekends, and holidays emergency)	(716) 754-8291
NIAGARA MOHAWK POWER CORPORATION	(716) 297-7774
NATIONAL FUEL GAS	(716) 285-6915
(after working hours, weekends and holidays)	(716) 285-7100
U-DIG (Underground Utility Locator Service)	(716) 893-1133

HEALTH INFORMATIONAL SERVICES

Poison Control Center (Cardinal Glennon Hospital)	(314) 772-5200
CHEMTREC	(800) 424-9300
REAC/TS	(615) 576-3098

Site Personnel*

Site Superintendent	(716) 754-4442
Site Safety and Health Officer	(716) 754-4442

Project Office Personnel (Oak Ridge)*

FUSRAP Management Switchboard	(615) 576-1699
Program Manager G. K. Hovey	(615) 576-1699
Deputy Program Manager R. R. Harbert	(615) 576-3998
Project Manager C. R. Hickey	(615) 576-1677 (615) 675-4688 (Home)
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Environmental, Health, and Safety Supervisor W. L. Beck	(615) 576-5031
Safety and Health Supervisor B. S. Houser	(615) 576-1842

Department of Energy

Lester K. Price	(615) 576-0948 (615) 564-4693 (Pager)
James W. Wagoner II	(301) 353-8147

*FUSRAP site and project office personnel will be assigned before initiation of site activities. An updated list of personnel and telephone numbers will be maintained on site when FUSRAP personnel are present. An updated list will also be maintained by the Health and Safety Supervisor, or designee.

CONTENTS

FIGURES

TABLES

ACRONYMS

AEC	Atomic Energy Commission
ALARA	as low as reasonably achievable
BNI	Bechtel National, Inc.
DOE	Department of Energy
EH&S	Environmental, Health, and Safety
EPA	Environmental Protection Agency
FUSRAP	Formerly Utilized Sites Remedial Action Program
HSP	health and safety plan
LOOW	Lake Ontario Ordnance Works
MED	Manhattan Engineer District
NFSS	Niagara Falls Storage Site
OSHA	Occupational Safety and Health Administration
OVA	organic vapor analyzer
PMC	project management contractor
PPE	personal protective equipment
RWA	restricted work area
S&H	safety and health
SSHO	site safety and health officer
TCLP	toxicity characteristics leaching procedure
WCS	waste containment structure

1.0 INTRODUCTION

The Health and Safety Plan (HSP) for the Formerly Utilized Sites Remedial Action Program (FUSRAP) provides the practical framework for health and safety in all project operations (Bechtel 1989a). The FUSRAP HSP provides the basic direction for all health and safety activities, and it will be referenced throughout this document.

The HSP for the Niagara Falls Storage Site (NFSS) provides the site-specific information required to implement an effective health and safety program (Bechtel 1989b). The NFSS HSP makes site-specific information readily available to site employees and increases the effectiveness of the site health and safety program; it will be referenced throughout this document.

The purpose of this HSP is to provide work-specific health and safety guidance during a short-term project to consolidate waste from three on-site sources into the main waste containment structure (WCS). The three on-site sources of waste are (1) the contents of approximately sixty 55-gal drums, (2) 3,500 yd^3 contained in two small interim piles northeast of the WCS, and (3) a location to be excavated that contains both radioactive and chemical contamination. The project will be completed in approximately 2 months, after which this HSP will cease to be in force.

1.1 SITE LOCATION AND DESCRIPTION

NFSS occupies approximately 77 ha (191 acres) in northwestern New York in the Township of Lewiston (Niagara County). The site is approximately 6 km (4 mi) south of Lake Ontario, 16 km (10 mi) north of the City of Niagara Falls, and is in a generally rural setting. NFSS and its regional setting are shown in Figure 1-1.

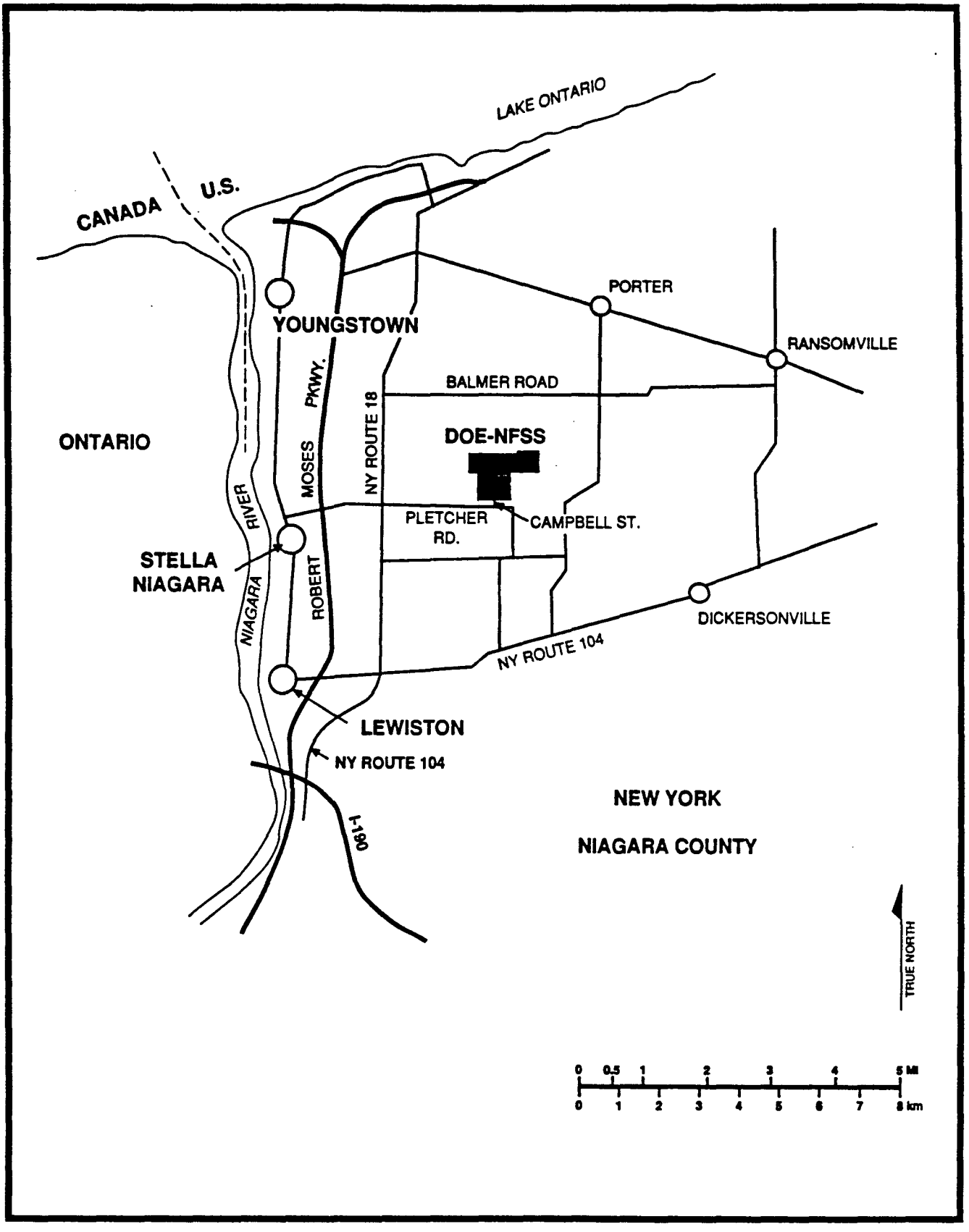

FIGURE 1-1 REGIONAL SETTING OF NFSS

NFSS has been developed as a waste storage area for radioactive residues from pitchblende processing and radium-contaminated sand, soil, and building rubble. Work on the interim WCS was completed in 1986.

The dominant feature of NFSS, as shown in Figure 1-2, is the 4-ha (10-acre) WCS. The WCS is enclosed within a dike and a cutoff wall, both of which are constructed of compacted clay. The cutoff wall extends a minimum of 46 cm (18 in.) into an underlying gray clay unit. The dike and cutoff wall, in conjunction with the engineered earthen drainage cover (or cap), enclose the wastes in a clay envelope that provides a barrier to migration of radionuclides into both groundwater and surface water.

In 1988, 77 radioactively contaminated areas on the site were excavated and the soil was placed in interim storage on a concrete pad northeast of the WCS (see Figure 1-2). Excavation was halted at one radioactive area north of the concrete pad because it was found to contain chemical contamination as well.

A more detailed description of the NFSS site can be found in the NFSS HSP (Bechtel 1989b).

1.2 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 the Army Lake Ontario Ordnance Works (LOOW). Except for nonradioactive boron-10 enriching operations conducted from 1954 to 1958 and 1964 to 1971, the major use of the site from 1944 to the present has been to store radioactive residues produced as by-products of uranium production by MED and the Atomic Energy Commission (AEC), predecessors to the Department of Energy (DOE). The weights and volumes of the residues and sands stored at NFSS are summarized in Table 1-1.

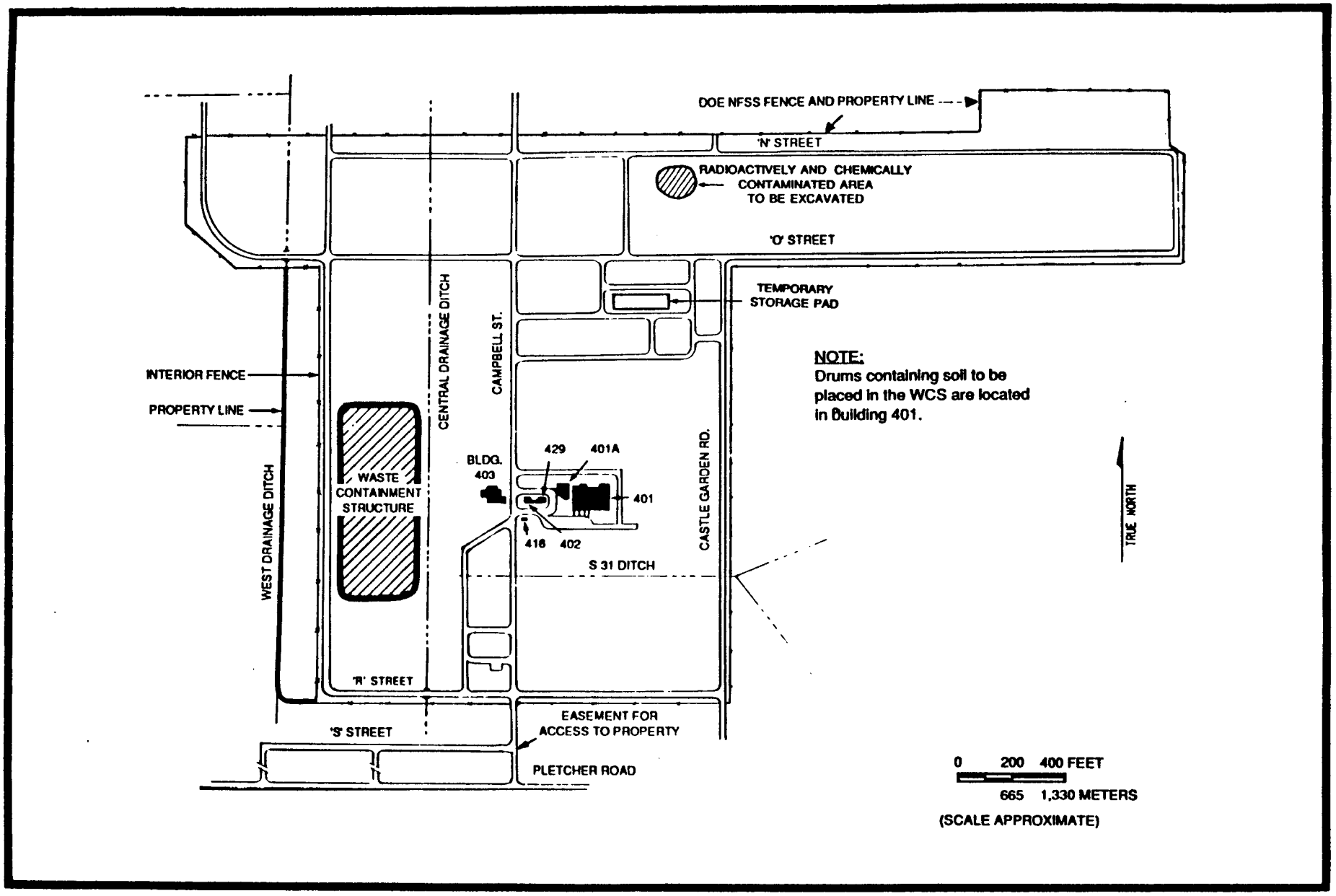

FIGURE 1-2 PLAN VIEW OF NFSS

TABLE 1-1

RESIDUES AND MIDDLESEX SANDS STORED AT NFSS

Waste Type	Weight [metric tons (tons)]		Volume [m^3 (yd^3)]	
Residues				
K-65	3,529	(3,891)	3,100	(4,100)
L-30	7,462	(8,231)	6,100	(8,000)
L-50	1,703	(1,878)	1,500	(2,000)
F-32	125	(138)	380	(500)
R-10	7,469	(8,238)	7,300	(9,500)
Middlesex Sands	1.8	(2.0)	174	(228)

Source: Bechtel 1989b.

Access to the site is controlled by a 2-m- (7-ft-) high fence that encloses the property. Since 1981, various steps have been taken by DOE at NFSS to minimize potential radiological risks and prevent migration of residues.

Construction activities in 1985 included completion of the transfer of K-65 residues from Building 434 to the WCS, demolition of Building 434, completion of remedial action on vicinity properties near the site, and continuing installation of the cover over the wastes in the WCS. These activities involved excavating approximately 10,700 m^3 (14,000 yd^3) of contaminated materials from on- and off-site areas and transferring 1,100 m^3 (1,450 yd^3) of building rubble to the WCS. During 1986, the interim cover over the WCS was completed.

1.3 PROJECT ORGANIZATION

Project organization, coordination, and responsibilities will be conducted based on the project management structure currently in effect for FUSRAP (Bechtel 1989a). Personnel assignments to the organization are reviewed and updated monthly.

The Safety and Health Group (S&H) of the Environmental, Health, and Safety (EH&S) Department of FUSRAP is responsible for the development and implementation of all health and safety criteria (Bechtel 1989a). The S&H supervisor, or designee, will assign individuals to fill the site safety and health officer (SSHO) position at the beginning of the project and at the beginning of major tasks. A written list of personnel assigned to the project will be maintained at the site and by the S&H supervisor, or designee.

Responsibilities of the site superintendent and the SSHO are defined in PI 24.001 "FUSRAP Safety and Health Program" (Bechtel 1989c), a copy of which will be available on site.

2.0 HAZARD ANALYSIS

This hazard analysis is for the limited work project covered in this HSP. Other areas at NFSS that are not included in the scope of work (e.g., underground storage tanks) are not covered.

The scope of work for this project is to excavate a chemically contaminated area and to incorporate this excavated soil along with the soil now in temporary storage into the WCS. A portion of the clay cover of the WCS will be removed to within 0.3 m (1.0 ft) of the contained material. Approximately 2,700 m^3 (3,500 yd^3) of soil from two piles on the temporary storage pad, approximately 80 m^3 (100 yd^3) of soil to be excavated from the chemically contaminated area, and the 55-gal drums containing soil will be placed in the WCS, and the cover will be replaced. The hazards associated with the work will be exposure to the radioactive and chemical contaminants in the soil and those hazards associated with the use of heavy equipment.

Exposure to chemical contaminants will be limited by using machines such as backhoes to keep the operators away from the soil. Volatiles in the soil will be allowed to evaporate before the soil is moved to the WCS. The area will be monitored for chemical and radioactive contaminants and the proper level of protection, as determined by the SSHO, will be worn. A list of known or suspected chemical contaminants associated with the work to be performed at NFSS is presented in Table 2-1.

2.1 EXPOSURES TO CONTAMINANTS IN SOILS

The soil to be moved contains both radioactive and chemical contaminants. The sources of radioactive contamination in the soil at NFSS are residues of pitchblende and radium-contaminated sand. The chemical contamination is from activities conducted at the site before 1971, the specifics of which are not known.

TABLE 2-1

CHEMICAL CONTAMINANTS KNOWN OR SUSPECTED TO BE PRESENT IN THE SOIL TO BE EXCAVATED AT NFSS

Contaminants Known to be Present

Boron
Magnesium
Lead
Thallium
Zinc
Toluene
Trichloroethene
Tetrachloroethene
1,2-dichloroethene
Bis(2-ethylhexyl)phthalate

Contaminants Suspected to be Present

Fluoranthene
Pyrene
Chromium

In 1988, radioactively contaminated soil at NFSS was excavated and placed in temporary storage in 55-gal drums and in two interim piles constructed on the concrete pad that remained after the demolition of Building 430. Organic vapor analyzer (OVA) readings showed concentrations of total organic vapors of 300 ppm in close proximity to the soil. During the excavation, one radioactive area was found to contain volatile organics as well (Figure 1-2). Analyses indicated the presence of trichloroethene, toluene, bis(2-ethylhexyl)phthalate, 1,2-dichloroethene, and tetrachloroethene. The analysis also showed that the soil is not a RCRA waste under toxicity characteristics leaching procedure (TCLP) protocols. When chemical contamination was detected, the excavation was discontinued and all excavated soil was put back in place. In 1990, a soil gas survey revealed the presence of tetrachloroethene in the same general area of this excavation. Other contaminants found on site, but not in the area of work, are bis-1,2-dichloroethene, PCBs, boron, magnesium, lead, thallium, zinc, carbon disulfide, fluoranthene, pyrene, and fluoride.

Because the WCS contains a large quantity of radioactive material, the potential exists for exposure to low levels of penetrating radiation. Although biological effects of exposure to low levels of radiation have never been proven (e.g., reduced life span), it is the policy of Bechtel National, Inc., (BNI) and DOE to keep exposures as low as reasonably achievable (ALARA). Exposure to radiation will be reduced by remote handling of the contaminated soil (i.e., by using equipment such as track hoes and dump trucks) and by use of dust control techniques. Personnel will wear thermoluminescent dosimeters to track any exposures. Possible long-term effects of exposure to radiation include, but are not limited to, cancers and eye cataracts.

One radionuclide of possible concern at the site is radon. Radon is an inert, radioactive gas that can be inhaled.

Environmental monitoring at NFSS has never detected radon emissions through the WCS cover at levels above background. To determine whether the removal of a portion of the cover will degrade its radon attenuation capability, initial flux monitoring will be performed after part of the cover has been removed. During the work, radon levels will be monitored using a real-time direct reading radon detector.

Exposure to inorganic and organic contamination can damage the lungs, kidneys, nervous system, and skin. Some of the contaminants are believed to cause cancer. Exposure to contaminants in the soil will be reduced by using engineering controls, such as misting with water to reduce airborne contaminants. Because the work will be performed outdoors and over a wide area, localized exhaust ventilation will not be practical. To determine whether worker exposure to dust is nearing allowable limits, a direct reading dust monitor will be used to measure worker exposure. The SSHO will determine which worker is most likely to be exposed and will place the monitor accordingly. Workers will use machines such as trackhoes to handle the soil from a distance, thereby reducing exposure to organic contamination. Industrial hygiene monitoring will be conducted to determine concentrations of organics. Workers may be required to wear respiratory protection.

2.2 HAZARDS ASSOCIATED WITH HEAVY EQUIPMENT

Possible hazards during this project include exposure to noise, hazards associated with working near utilities, hazards from shifting soil if the excavation is deep enough, and mechanical hazards from the equipment itself.

2.2.1 Noise

Noise hazards are associated with machinery such as excavators and trucks. These hazards will be reduced by requiring workers to use hearing protection while working on this project when necessary. All employees will be enrolled in a hearing conservation program. Further, exposure to noise will be monitored using noise dosimeters.

2.2.2 Utilities

The area to be excavated has been previously excavated to a depth of 2 ft, and the excavated soil was put back in place when chemical contamination was found. The excavation for this project is not expected to be much deeper than 2 ft, and the hazards associated with underground utilities, therefore, are expected to be minimal. However, a utility locator service will be contacted in accordance with New York State law, and a pipe and cable locator, such as the Metrotech™ device, will be used in accordance with PI 3.5.1, "Field Construction Manual," and PI 24.103, "Excavations and Trenches" (Bechtel 1990a; 1990b).

2.2.3 Excavations

Although the planned excavation is not expected to extend much deeper than 2 ft, it will be conducted in accordance with PI 3.5.1, "Field Construction Manual," and PI 24.103, "Excavations and Trenches" (Bechtel 1990a; 1990b). These PIs provide guidance for complying with Occupational Safety and Health Administration (OSHA) regulations, such as, but not limited to, grounding of electrical tools, minimum distances for storing equipment near an excavation, and daily inspections.

2.2.4 Mechanical Hazards

Potential hazards associated with using heavy equipment include death, severe injuries, and loss of limbs. To prevent such losses, equipment will be maintained and operated in accordance with established procedures and standards. All equipment will be inspected before each work shift, and any deficiencies will be corrected before the equipment is used. Operators will be trained in the proper use of the equipment. If the SSHO determines it is appropriate, the area around any hazardous equipment will be roped off during its operation.

3.0 MEDICAL SURVEILLANCE

The medical surveillance program described in the FUSRAP HSP will be in effect for personnel working at NFSS (Bechtel 1989a). No special tests or surveillances will be required for this project.

4.0 BIOASSAY PROGRAM

Routine bioassay samples will be collected in accordance with FUSRAP safety and health project instructions from all employees before they start work in restricted areas, at quarterly intervals, and at termination of the project. Urinalyses will be conducted to identify the presence of total uranium, thorium-230, and radium-226. Special urine samples will be collected as soon as possible from any individual suspected of sustaining an intake of radioactive contaminants. These special samples will be taken at the direction of the S&H supervisor, or designee.

5.0 PERSONAL PROTECTIVE APPAREL AND EQUIPMENT

Personal protective apparel and equipment requirements for protection against airborne contamination, skin absorption, skin contact, impact hazards, and industrial hazards are contained in the FUSRAP HSP (Bechtel 1989a).

Level C protection will be used for most of this work. Level C protection includes use of the following equipment:

- Hard hat
- Full face, air-purifying respirator, respirators may be removed at the direction of the SSHO
- Polyethylene-coated Tyvek™ with hood
- Rubber boots or rubber shoe covers
- Inner surgical gloves and outer chemical-resistant gloves

At the beginning of the excavation work, an air sample will be taken in the excavated area and analyzed using gas chromatography. Because of the high levels of organic vapors detected in the initial excavation in 1988, the level of protection for the excavation work will be Level B. Level B protection includes use of the following equipment:

- Hard hat
- Positive pressure, pressure demand self-contained breathing apparatus (SCBA)
- Polyethylene-coated Tyvek™ with hood
- Rubber boots or shoe covers
- Inner surgical gloves and outer chemical-resistant gloves

All connecting points on the Tyvek™ suit will be taped using duct tape (e.g., respirator face piece to hood; arm sleeves to gloves; leg bottoms to boots or shoe covers). Levels of protection will be assessed during the work using direct reading instruments such as OVAs, HNu™ photoionization detectors, Exotox™ explosimeters, Pylon AB-5™ radon monitors, and other radiation detection instruments.

If site conditions change, the required levels of protection may change based on those conditions. Any change in level of protection will be made and approved by the SSHO.

6.0 RESTRICTED WORK AREAS

The restricted work areas (RWAs) will be around the interim piles, the area to be excavated, and the area of the WCS to be opened. RWAs will be clearly marked off with ropes, barrier tape, or other means. The SSHO will determine the areal extent of the RWA before work begins and will create a drawing that shows the RWAs. If site conditions in the RWAs change, the SSHO will stop work until the site workers are informed of the change. The drawing will be updated in a timely manner to reflect any changes to the RWAs.

Work areas will be monitored with direct reading instruments for levels of volatile organics, lower explosion limits, oxygen, aerosol dust, and radon. Monitoring instruments include, but are not limited to, OVAs, HNu™ detectors, Exotox™ explosimeters, aerosol dust monitor, and real-time direct reading radon monitors. The SSHO will determine the boundaries of the RWAs using direct reading instruments and the action limits listed in Table 6-1.

The action limits, as shown in Table 6-1, can be increased if the volatile organic vapors can be identified and quantified. A portable gas chromatograph will be used to identify and determine concentrations of the contaminants. After an air sample is collected and analyzed, all compounds will be identified and quantified before determining the action limit. If all of the contaminants are identified, the action limit will be determined considering the permissible exposure limit (PEL) for each contaminant, threshold limits for mixture, the protection factor for a full face respirator with a safety factor included, and the maximum use limit for the respirator cartridge. Contaminants previously found in the area to be excavated were toluene, tetrachloroethylene, trichloroethylene, 1-2 dichloroethene, and bis(2-ethylhelyl)phthalate. The following information is used to change the action limit:

TABLE 6-1

ACTION LEVELS AT NFSS BASED ON DIRECT READING MEASUREMENTS

Hazard	Measurement	Action	Level of Protection
A. Gases and Vapors	PPM[1] Above Background		
1. Volatile Organics	Background to <5 ppm above background level	Monitor contaminant in or near breathing zone of workers	Level C or modified Level C protection
	>5 ppm to 500 ppm	Obtain further information; use GC/MS[2] to analyze sorbent samples	Upgrade protection to level B
	>500 ppm to 1,000 ppm	Obtain further information; GC/MS to analyze sorbent samples	Upgrade protection to Level A
	>1,000 ppm	Stop work activities	N/A[3]
2. Combustible Gases[4,5]	Percent LEL[6]		
	<10%	Requires continuous, as practical, monitoring	N/A
	≥10% - >20%	Limit activities in area to those that do not generate sparks; use non-sparking tools and gear; investigate source of combustible gas	N/A
	≥20%	Limit all activities in area; stop work activities	N/A
3. Radon Gas	pCi/L		
	Background to <3pCi/L	Monitor contaminant in or near breathing zone	Modified Level C protection
	≥3 pCi/L to 30 pCi/L	Monitor contaminant in or near breathing zone	Level B protection
	≥30 pCi/L	Stop work activities	N/A

TABLE 6-1

(continued)

Hazard	Measurement	Action	Level of Protection
4. Oxygen Level	Percent		
	<19.5%	Monitor while wearing self-contained breathing apparatus	N/A
	≥19.5% - <25%	Continue measurements and use of respiratory protection equipment based on other factors such as the presence of toxic air contaminants	N/A
	≥25%	Fire hazard potential exists; stop work activities	N/A
B. Particulates (Respirable Dust Monitor)	mg/m³		
	≤2	Air-purifying respirator should be equipped with high efficiency/organic vapor/acid gas combination cartridges. Basic dust control techniques will be used for all intrusive activities	Level C or modified Level C
	>2 to ≤10	Continue work and upgrade respirator protection; collect air sample information	Upgrade to Level B
	>10 to <20	Continue work and upgrade level of respirator protection; collect air sample information	Upgrade to Level A
	≥20	Stop work activities	

[1]PPM - parts per million.
[2]GC/MS - gas chromatography/mass spectroscopy.
[3]N/A - Not applicable.
[4]Readings in the immediate vicinity of the borehole or other intrusive activity.
[5]Low oxygen concentrations may affect the validity of combustible gas measurements.
[6]LEL - lower explosive limit.

Mixture Rule	1990-1991 values as set by the American Conference of Governmental Industrial Hygienists
Protection Factor	25 (including a safety factor of 2)
Respirator Cartridge	MSA GMC-H maximum use limit of 1,000 ppm
PEL	29 CFR 1910.1000, "Air Contaminants" (OSHA 1989b)

To evaluate exposure to respirable dust (dust particles smaller than 5 μm), dust will be monitored with personal sampling pumps equipped with cyclones (devices to separate respirable dust from nonrespirable dust) or with filters to determine the exposure to radioactively contaminated dust.

6.1 APPAREL DECONTAMINATION

All personnel exiting an RWA will be scanned with appropriate radiation measuring instruments. Radioactively contaminated personal protective equipment (PPE) will be double-bagged and disposed of as radioactively contaminated waste. Because there are no direct reading instruments to determine chemical contamination of PPE, a wet chemical decontamination station will be established (see Figure 6-1) where workers will be chemically decontaminated, if directed by the SSHO. Potentially chemically contaminated PPE will be assessed at the site by the SSHO to determine whether it must be disposed of as contaminated trash. Used PPE that is neither radioactively nor chemically contaminated will be disposed of as industrial waste. All decontamination procedures will be performed in accordance with PI 24.065, "Decontamination of Personnel, Vehicles, and Equipment" (Bechtel 1989d).

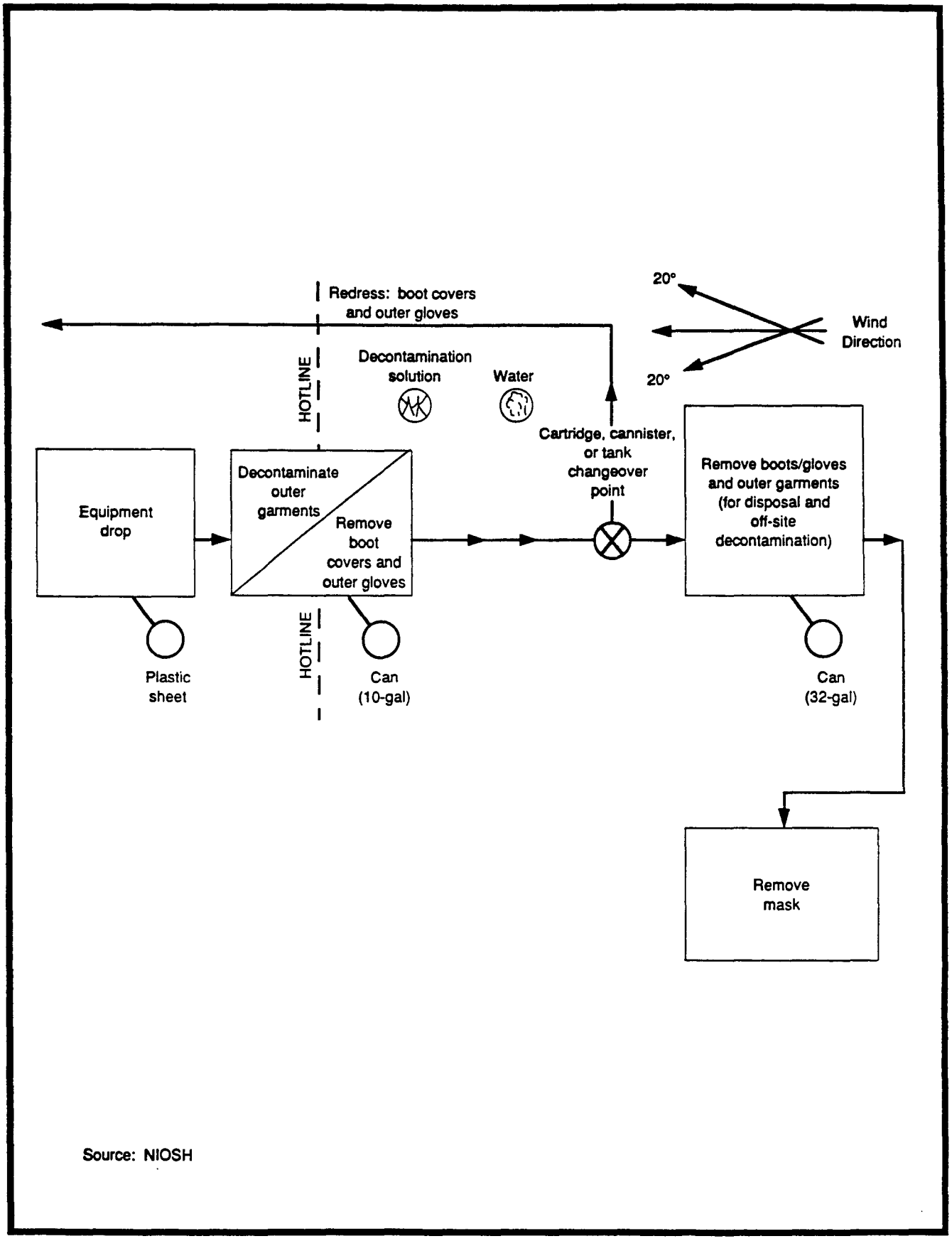

FIGURE 6-1 LAYOUT OF CHEMICAL DECONTAMINATION STATION

6.2 PERSONNEL DECONTAMINATION AND PERSONAL HYGIENE

Personnel will adhere to the standards set forth in the FUSRAP HSP (Bechtel 1989a).

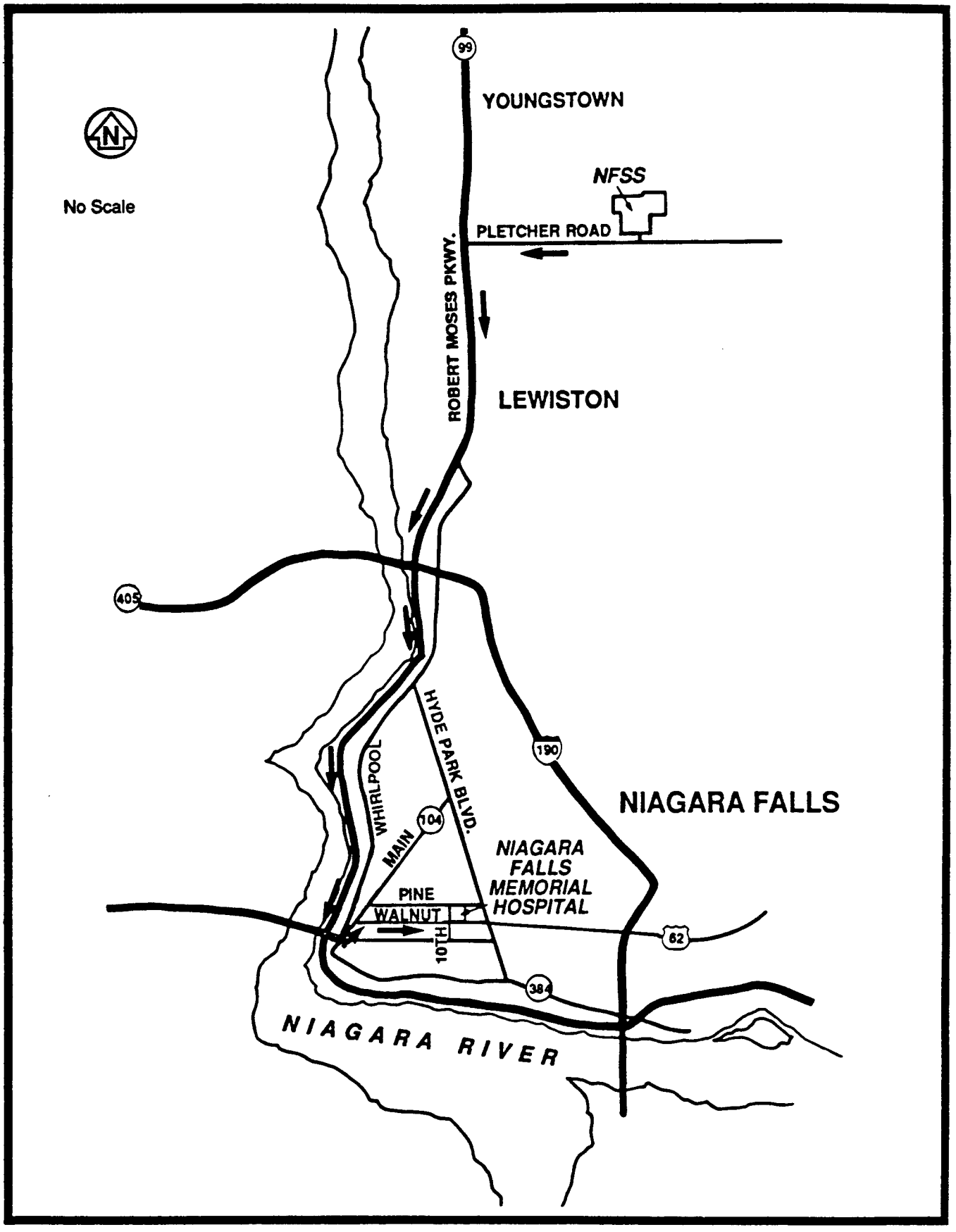

FIGURE 8-1 ROUTE TO LOCAL HOSPITAL FROM NFSS

8.3 FIRE EMERGENCY

Fire extinguishers will be supplied as required by DOE, OSHA, FUSRAP, or the Department of Transportation. In the event of a small, developing fire, trained personnel will attempt to extinguish the fire with portable fire extinguishers. If a fire cannot be extinguished with portable extinguishers, personnel will immediately evacuate the area, and notify the local fire department at once.

The senior BNI representative or designee will meet the fire department as it arrives on the scene and will provide all pertinent information, including potential hazards, missing personnel and their last known work locations, and location and size of the fire.

8.4 EVACUATION PLAN

Personnel may be required to evacuate any work location in the event of a fire; spill; toxic, flammable, or explosive atmosphere; or other hazardous conditions. Personnel will be shown the evacuation routes on the site maps during site-specific training. Evacuation will continue until normal working conditions have been restored and permission to return to work is granted by authorized personnel. During any evacuation, all personnel should remain calm and follow prescribed procedures for an orderly exit. Evacuation procedures are described in the following paragraphs.

8.4.1 Evacuation from Outdoor Locations

Evacuations will be conducted along escape routes that are crosswind from the problem source and that will lead to a safe location. The predominant wind direction in the Youngstown area is

Occupational Safety and Health Administration (OSHA), 1989a. 29 CFR 1926.652, "Specific Trenching Requirements," Washington, D.C. (July).

Occupational Safety and Health Administration (OSHA), 1989b. 29 CFR 1910.1000, "Air Contaminants," Washington, D.C. (July).

from the south. A wind sock or similar device will be installed to inform personnel of wind direction at all work locations. All persons will meet at the site entrance or at a location specified by the SSHO or site superintendent. Following an evacuation, the SSHO and site superintendent will account for all personnel.

8.4.2 Evacuation from Buildings

Evacuation of any NFSS building could be required in the event of fire, a safety-threatening structural deficiency, or a release of radioactive or chemical contamination. The SSHO will ensure that evacuation routes are designated and that any evacuation is performed in an orderly manner.

No personnel will reenter an evacuated building, except for trained personnel attempting a rescue. Workers will not reenter an evacuated area until the emergency conditions have been corrected. The SSHO and site superintendent will determine when the area is safe for reentry.

8.5 SITE SECURITY

Site security and responsibilities have been defined in FUSRAP PI 8.9.7, "Niagara Falls Storage Site Security Plan" (Bechtel 1989e).

8.6 EMERGENCY ASSISTANCE SERVICES

Refer to pages iii and iv of this HSP for the list of emergency assistance services.

REFERENCES

Bechtel National, Inc., 1989a. Health and Safety Plan for the Formerly Utilized Sites Remedial Action Program, DOE/OR/20722-213 (Rev. 1), Oak Ridge, Tenn. (April).

Bechtel National, Inc., 1989b. Health and Safety Plan for the Niagara Falls Storage Site, DOE/OR/20722-221, Oak Ridge, Tenn. (February).

Bechtel National, Inc. 1989c. "FUSRAP Safety and Health Program," FUSRAP Project Instruction 24.001 (Rev. 2) (August).

Bechtel National, Inc. 1989d. "Decontamination of Personnel, Vehicles, and Equipment," FUSRAP Project Instruction 24.065 (Rev. 1) Oak Ridge, Tenn. (September).

Bechtel National, Inc., 1989e. FUSRAP Project Instruction 8.9.7, "Niagara Falls Storage Site Security Plan," Oak Ridge, Tenn. (September 30).

Bechtel National, Inc., 1990a. "Field Construction Manual," FUSRAP Project Instruction 3.5.1, Oak Ridge, Tenn. (May 7).

Bechtel National, Inc., 1990b. "Excavations and Trenches," FUSRAP Project Instruction 24.103 (Rev. 1), Oak Ridge, Tenn. (October).

Occupational Safety and Health Administration (OSHA), 1987a. 29 CFR 1910.1200, "Hazard Communication," Washington, D.C. (July).

Occupational Safety and Health Administration (OSHA), 1987b. 29 CFR 1910.120, "Hazardous Waste Operations and Emergency Response," Washington, D.C. (July).