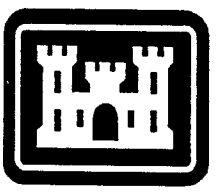
NF-130

Formerly Utilized Sites Remedial Action Program (FUSRAP)

ADMINISTRATIVE RECORD

For the Niagara Falls Site, New York



US Army Corps of Engineers

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158-GAA-GEV-00003

Department of Energy
Germantown, MD 20874-1290

SEP 03 1996

Dr. Robert J. Budnitz, Chair
National Academy of Sciences
Committee on Remediation of Buried and Tank Waste
Future Resources Associates, Incorporated
2000 Center Street, Suite 418
Berkeley, California 94704

Dear Dr. Budnitz:

The purpose of this letter is to summarize the overall objectives of the environmental surveillance and monitoring program at the Niagara Falls Storage Site (NFSS) and to describe the system that will be used in order to meet these objectives. Based on the National Academy of Sciences (NAS) study and discussions held between the Department of Energy (DOE) and NAS in our meeting of July 11, 1996, the Department has evaluated the environmental surveillance and monitoring program at NFSS and has made an assessment that is outlined in this letter and its enclosures. DOE believes this surveillance and monitoring program to be consistent with the recommendations in the NAS report and to be protective of both human health and the environment.

The environmental surveillance and monitoring program documents the effects, if any, of DOE activities on on-site and off-site environmental and natural resources. The program has been designed to achieve the following objectives:

- to ensure that the public and the environment are adequately protected from material present at the site;
- to verify compliance with applicable Federal, State, and local environmental laws and regulations;
- to verify compliance with environmental commitments made by DOE;
- to characterize and define trends in the physical and chemical condition of the environmental media;
- to provide a continuing assessment of pollution abatement programs; and
- to identify and quantify new environmental quality problems.

To meet these objectives, annual environmental surveillance and monitoring activities at NFSS currently include the following activities:

- on-site and off-site measurement of average radon gas concentrations and external gamma radiation doses;
- ground-water sampling up gradient and down gradient of the waste containment structure and analysis for radioactive and

- ground-water sampling up gradient and down gradient of the waste containment structure and analysis for radioactive and chemical contaminants of concern;
- surface water sampling up gradient and down gradient of the site and analysis for radioactive contaminants of concern;
- radon flux monitoring of the surface of the waste containment structure to ensure integrity of the existing cap design;
- civil survey of the waste containment structure to assess the structural integrity of the cell; and
- walkover/inspection of the cap of the waste containment structure to assess the integrity of the cap and its vegetative cover.

The enclosed matrix and figure summarizes the site-specific environmental surveillance and monitoring program for NFSS. The program currently outlined for NFSS is based on over ten years of data collection and evaluation, as well as the evaluation and modeling of the geophysical characteristics of the site. Data collected from the program is evaluated on an annual basis to determine the effectiveness of the containment structure. The program is flexible enough to allow for the addition of monitoring stations or increased frequency of sampling in the event of a potential contaminant release or significant changes in site activities.

In closing, the Department remains committed to protecting human health and the environment from potential releases from its facilities. The NFSS program has been refined over the years to provide a reliable and efficient means to evaluate potential migration pathways from the site and their potential effects on human health and the environment. If you have any questions or need more information, please feel free to call me at (202) 586-6331.

Sincerely,

John C. Lehr
Acting Director
Office of Eastern Area Programs
Office of Environmental Restoration

2 Enclosures

cc: J. Lehr, DOE/HQ/EM-42
A. Johnson, DOE/HQ/EM-42
L. Price, DOE/OR
R. Andrews, NAS

Distribution:
Booz, Allen and Hamilton, Inc.
EM-40 (2)
EM-42 (3)
~~EM-GTN~~
~~EM-FOR~~
~~Pat Suspense~~
Patterson Reader

EM-42:patterson:djn:903-2531:8/26/96:ine5kn7.
8/28
P. Hevner Review: ok 8/29
M. White Review: ____

N/R: We have coordinated with the field on this response.

N/R:
This letter is significant in that it closes the only near-term action stemming from the NAS's report on the NFSS.

JP 8/29

EM-42
Johnson
8/28/96

EM-42
Nace
8/ /96

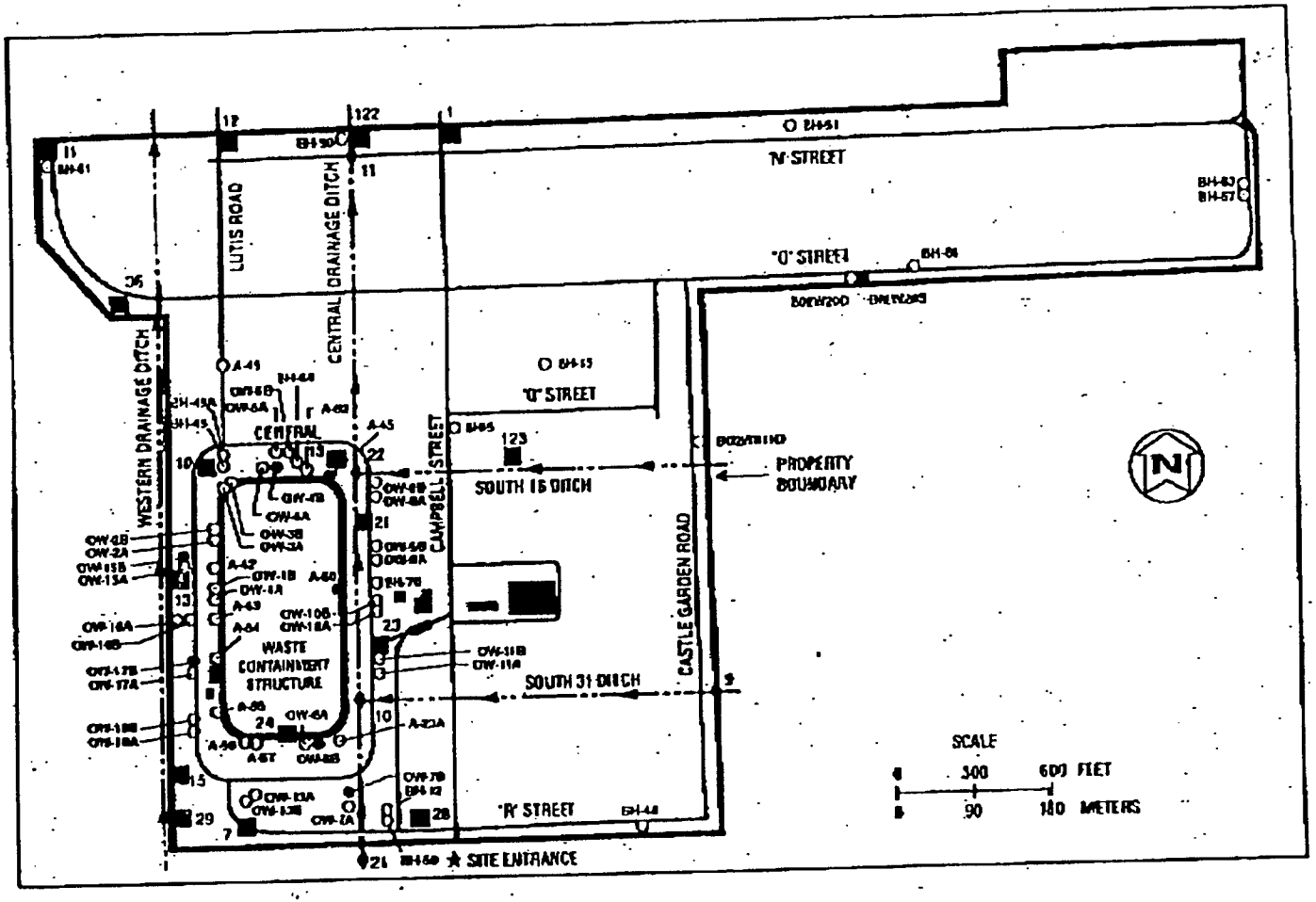
EM-42
Lehr
8/29/96

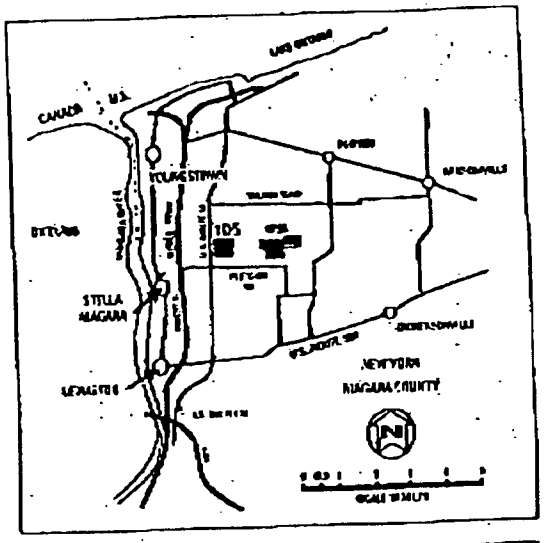
EM-40
Owendoff
8/ /96

Niagara Falls Storage Site
Summary of Environmental Surveillance and Monitoring

Media/Technique	Parameter	Minimum Frequency	Monitoring Area
	ENVIRONMENTAL SURVEILLANCE		
Surface Water and Sediment	Total uranium	Annually	Upgradient and downgradient of the WCS [1]
	Thorium-232	Annually	
	Radium-226	Annually	
Groundwater	Total uranium	Annually	Upper and lower aquifer - onsite at fenceline and at perimeter of WCS
	Thorium-232	Annually	
	Radium-226	Annually	
	Copper	Annually	
	Lead	Annually	
	Vanadium	Annually	
	Calcium	Annually	
	Magnesium	Annually	
	Potassium	Annually	
	Sodium	Annually	
	Chloride	Annually	
	Sulfate	Annually	
	Phosphate - P	Annually	
	Carbonate	Annually	
	Bicarbonate	Annually	
	Nitrate-N	Annually	
	Total dissolved solids	Annually	
Air	External gamma radiation	Annually	Onsite at fenceline and at perimeter of WCS
	Radon-222 / Radon-220	Annually	
	Radon-222 flux	Annually	WCS
	ENVIRONMENTAL MONITORING		
Civil Survey	Structural Integrity	Annually	WCS
Walkover/Inspection	Cap Integrity	Annually	WCS

[1] WCS - waste containment structure





LEGEND

- A-45 ● Groundwater monitoring well location (sampled in site surveillance program)
- OW-17A ○ Groundwater monitoring well location (not sampled)
- 10 ◆ Surface water/sediment sampling location
- 24 ■ Radon-222/radon-220 and external gamma
- Above-ground drainage ditch/stream/culvert

Notes:
1. Monitoring wells installed in the upper groundwater system either have designation "B" or consist of wells A-42, A-43, A-45, A-50, A-52 and BH-49A.
2. Monitoring wells installed in lower groundwater system either have the designation "A" or consist of wells A-21A, A-48, A-54, A-55, A-56, A-57, BH-5, BH-12, BH-15, BH-48, BH-49, BH-50, BH-51, BH-57, BH-60, BH-61, BH-63, and BH-64.
3. Water level measurements are obtained at all wells.

Niagara Falls Storage Site Environmental Surveillance Sampling Locations: Gamma Radiation, Radon-222/Radon-220, Groundwater, and Surface Water/Sediment

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Media/Pathway	Analytes	Minimum Frequency	Monitoring Area
ENVIRONMENTAL SURVEILLANCE			
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	Calcium	Annually	
	Magnesium	Annually	
	Potassium	Annually	
	Sodium	Annually	
	Chloride	Annually	
	Sulfate	Annually	
	Phosphate - P	Annually	
	Carbonate	Annually	
	Bicarbonate	Annually	
	Nitrate-N	Annually	
	Total dissolved solids	Annually	
Air	External gamma radiation	Annually	Onsite at fenceline and at perimeter of WCS
	Radon-222 / Radon-220	Annually	
	Radon-222 flux	Annually	WCS
ENVIRONMENTAL MONITORING			
Civil Survey	Structural Integrity	Annually	WCS
Walkover/Inspection	Cap Integrity	Annually	WCS

a. WCS - waste containment structure

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	Bicarbonate	Annually	
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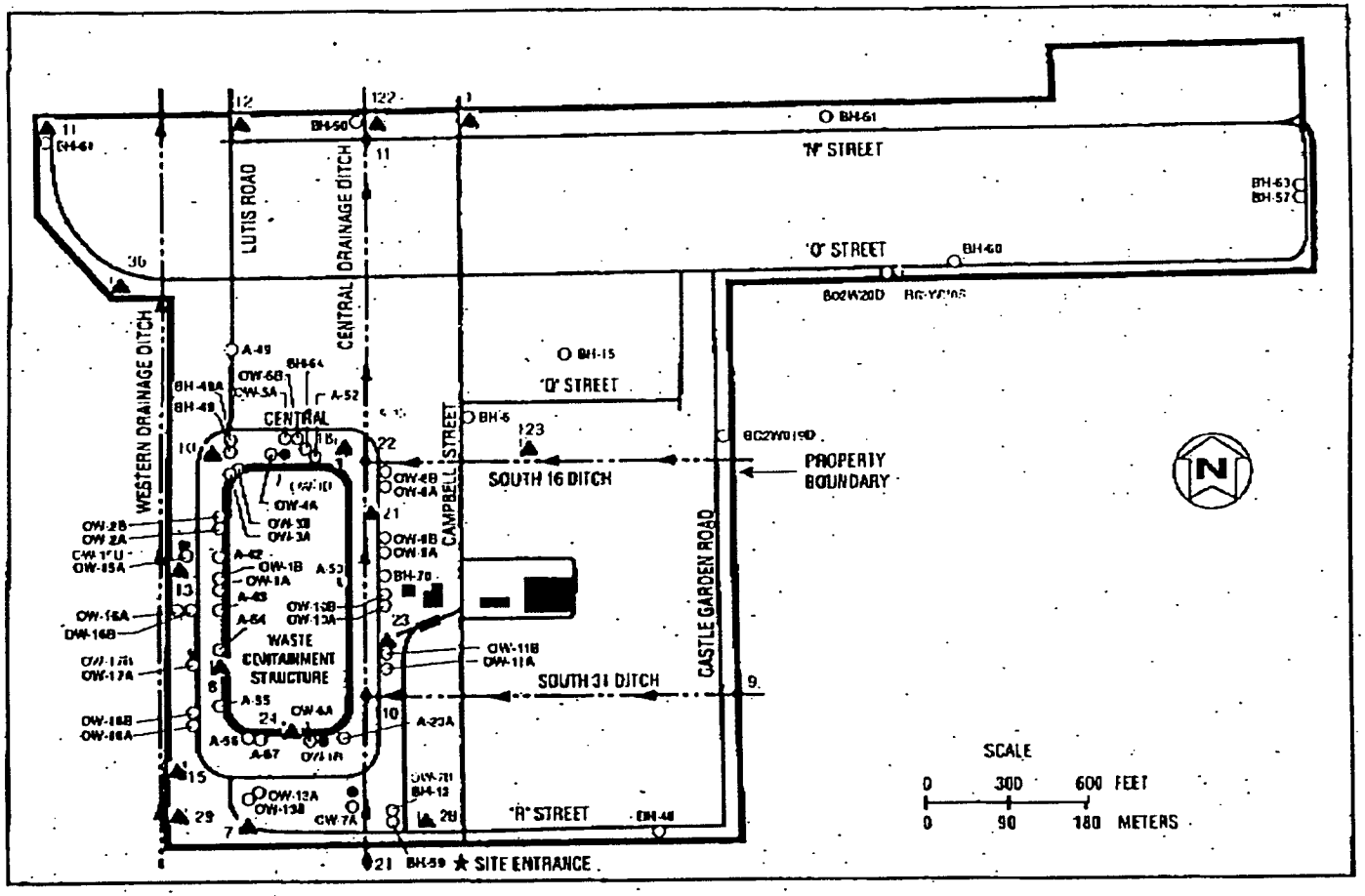
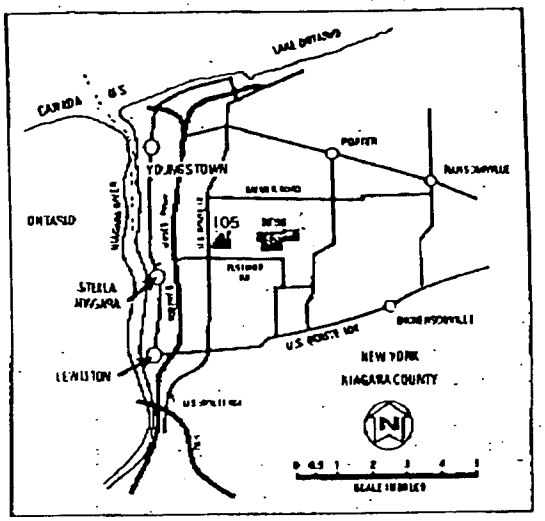


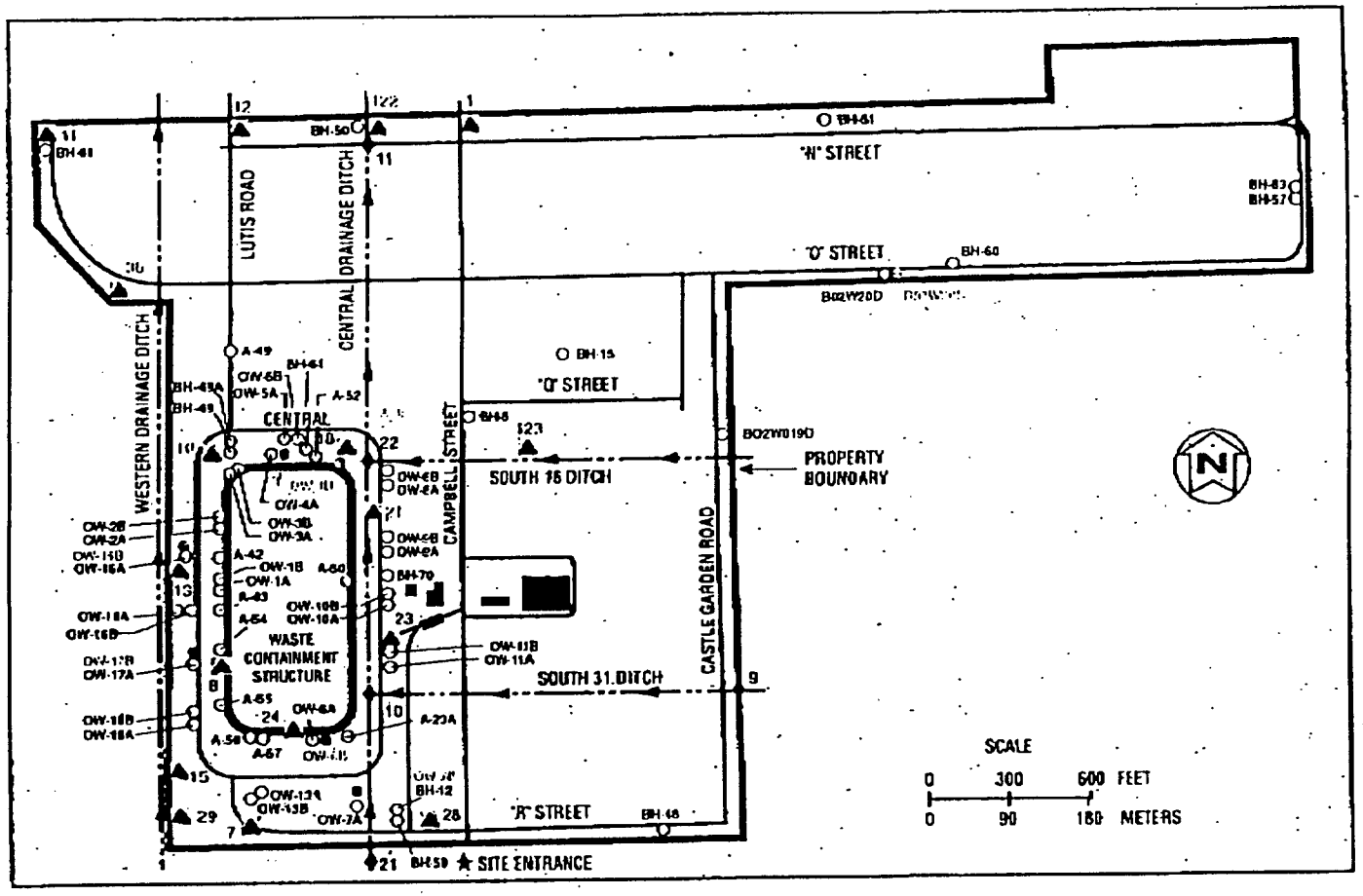


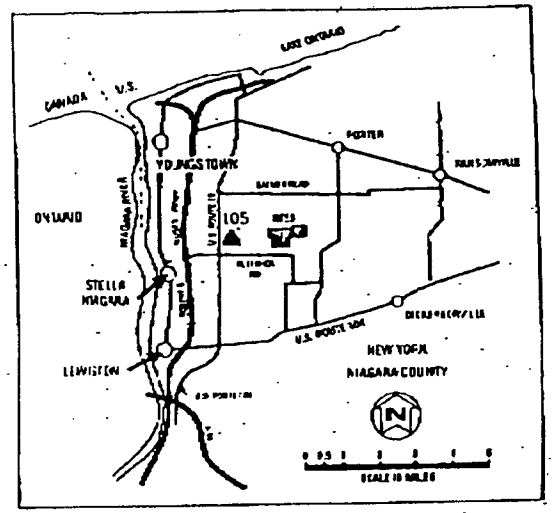
LEGEND

- Groundwater monitoring well location (sampled in site surveillance program)
- Groundwater monitoring well location (not sampled)
- Surface water/sediment sampling location
- Radon-222/radon-220 and external gamma
- Aboveground drainage ditch/stream/culvert

Notes:
1. Monitoring wells installed in the upper groundwater system either have designation "B" or consist of wells A-42, A-43, A-45, A-50, A-52 and BH-49A.
2. Monitoring wells installed in lower groundwater system either have the designation "A" or consist of wells A-23A, A-49, A-54, A-55, A-56, A-57, BH-5, BH-12, BH-15, BH-48, BH-49, BH-50, BH-51, BH-57, BH-60, BH-61, BH-63, and BH-64.
3. Water level measurements are obtained at all wells.

Niagara Falls Storage Site Environmental Surveillance Sampling Locations:
Gamma Radiation, Radon-222/Radon-220, Groundwater, and Surface Water/Sediment





LEGEND

- A-45 — Groundwater monitoring well location (sampled in site surveillance program)
- OW-17A — Groundwater monitoring well location (not sampled)
- 10 — Surface water/sediment sampling location
- 2-1 — Radon-222/radon-220 and external gamma
- Aboveground drainage ditch/stream/culvert

Notes:
1. Monitoring wells installed in the upper groundwater system either have designation "B" or consist of wells A-42, A-43, A-45, A-50, A-52 and BH-49A.
2. Monitoring wells installed in lower groundwater system either have the designation "A" or consist of wells A-23A, A-49, A-54, A-55, A-68, A-57, BH-5, BH-12, BH-15, BH-48, BH-49, BH-50, BH-51, BH-57, BH-60, BH-61, BH-63, and BH-64.
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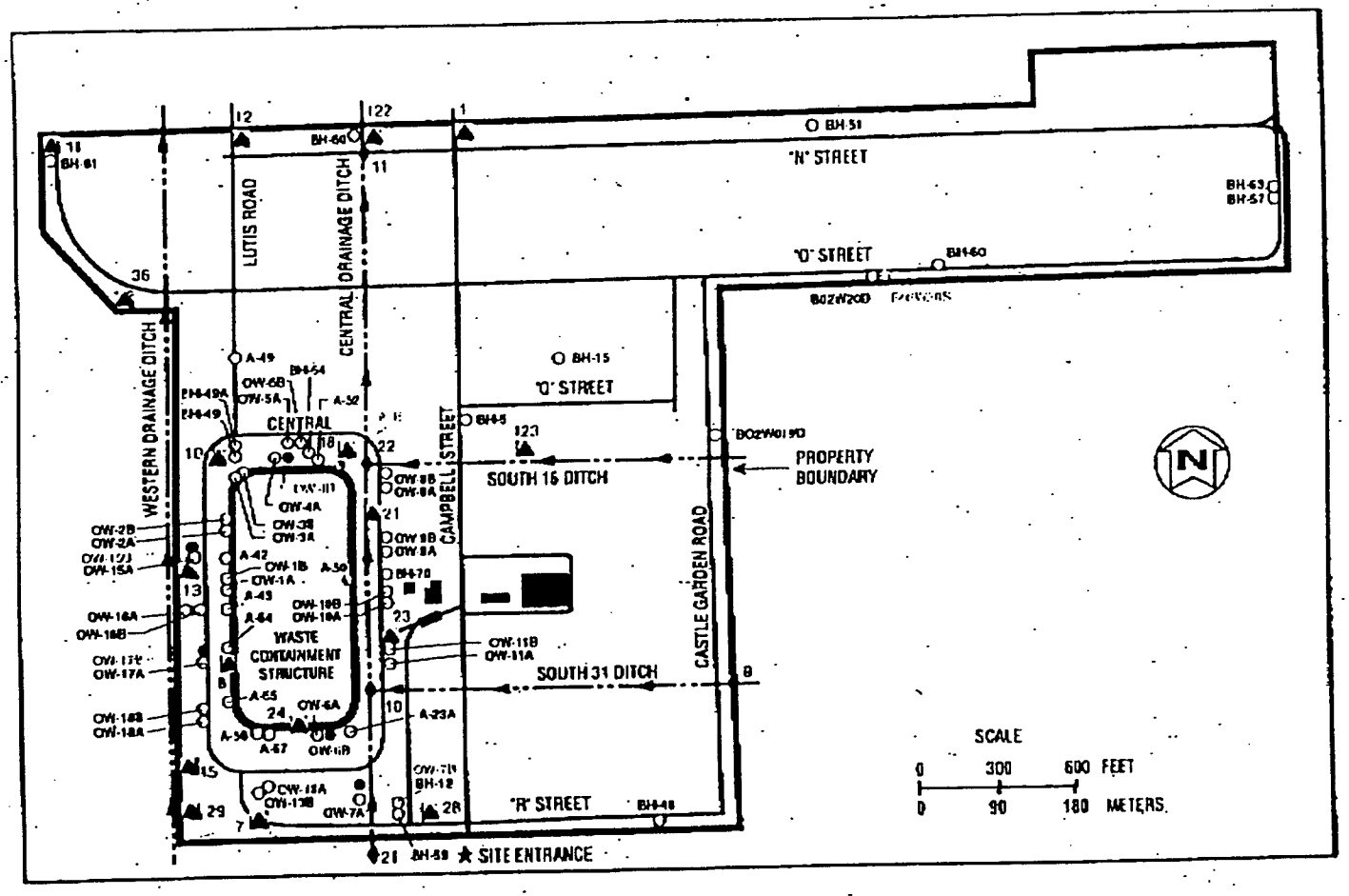

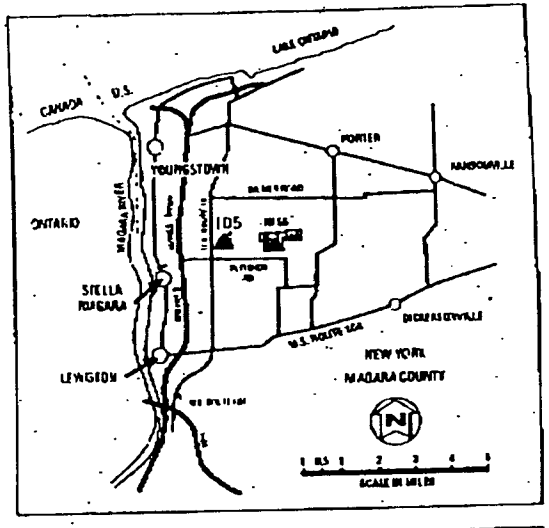

LEGEND

- A-45 — Groundwater monitoring well location (sampled in site surveillance program)
- OW-17A — Groundwater monitoring well location (not sampled)
- 10 — Surface water/sediment sampling location
- 24 — Radon-222/radon-220 and external gamma
- Aboveground drainage ditch/stream/culvert

Notes:
1. Monitoring wells installed in the upper groundwater system either have designation "B" or consist of wells A-42, A-43, A-45, A-50, A-52 and BH-49A.
2. Monitoring wells installed in lower groundwater system either have the designation "A" or consist of wells A-23A, A-49, A-54, A-55, A-58, A-57, BH-5, BH-12, BH-15, BH-48, BH-49, BH-50, BH-51, BH-57, BH-60, BH-61, BH-63, and BH-64.
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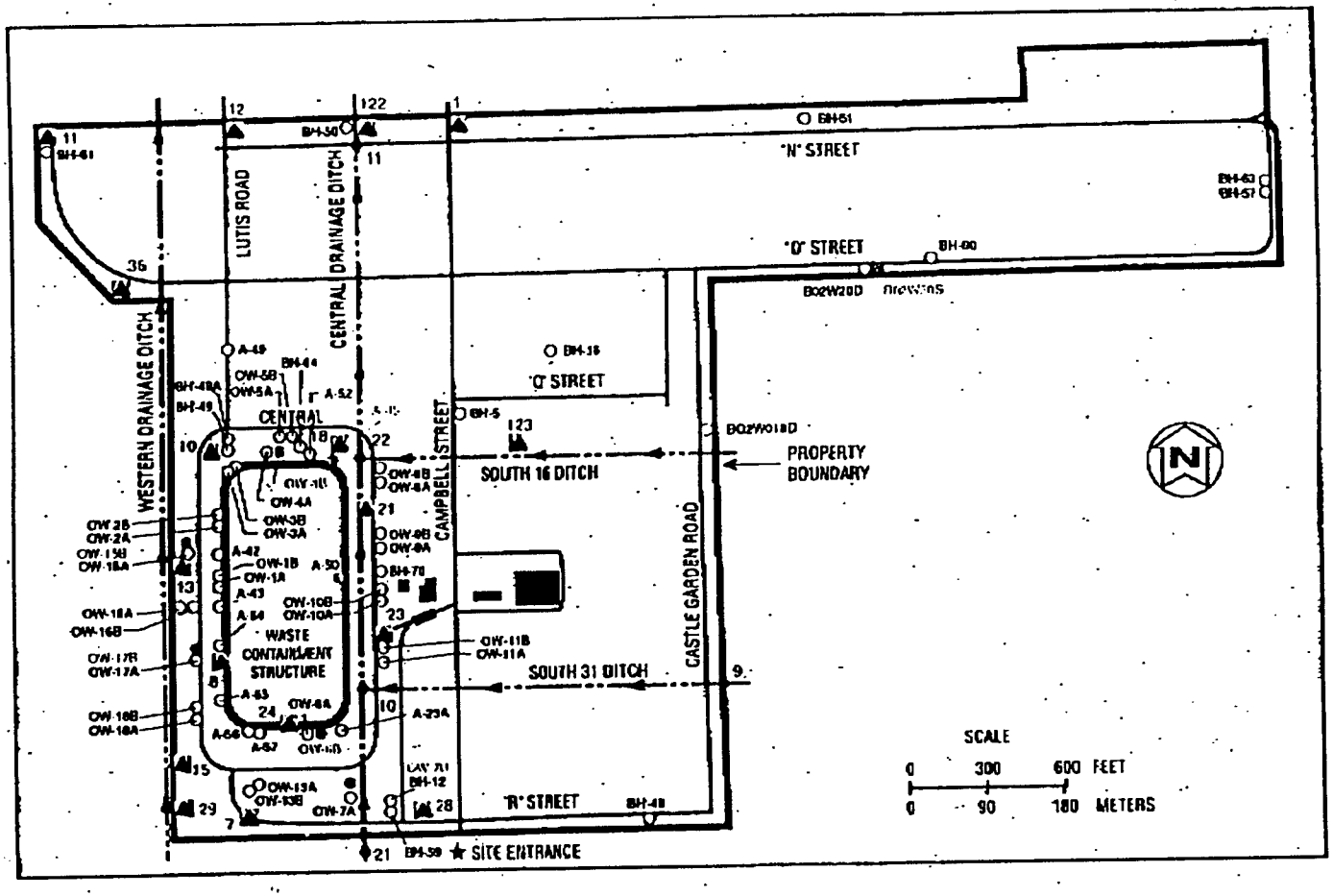

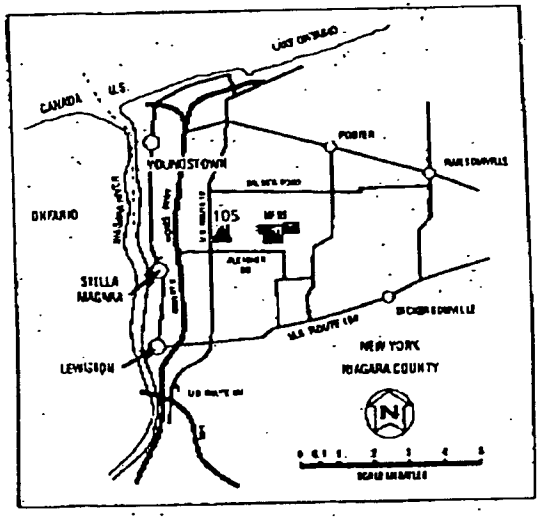

LEGEND

- A-15 — Groundwater monitoring well location (sampled in site surveillance program)
- OW-17A — Groundwater monitoring well location (not sampled)
- 10 — Surface water/sediment sampling location
- 24 — Radon-222/radon-220 and external gamma
- Aboveground drainage ditch/stream/culvert

Notes:
1. Monitoring wells installed in the upper groundwater system either have designation "B" or consist of wells A-42, A-43, A-45, A-50, A-52 and BH-48A.
2. Monitoring wells installed in lower groundwater system either have the designation "A" or consist of wells A-23A, A-49, A-54, A-55, A-56, A-57, BH-5, BH-12, BH-15, BH-48, BH-49, BH-50, BH-51, BH-57, BH-60, BH-61, BH-63, and BH-64.
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