

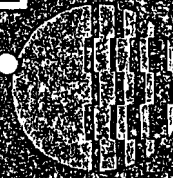
Indian Point Energy Center

Stakeholder Briefing

March 16, 2006

Agenda

- Introduction - Fred Dacimo
- Overview of Investigation Don Mayer
- Indian Point Site Hydrology Matt Barvenik
- Monitoring Program Don Mayer
- Next Steps Don Mayer
- Siren Projects Mike Slobodien
- DEC Perspective Tim Rice



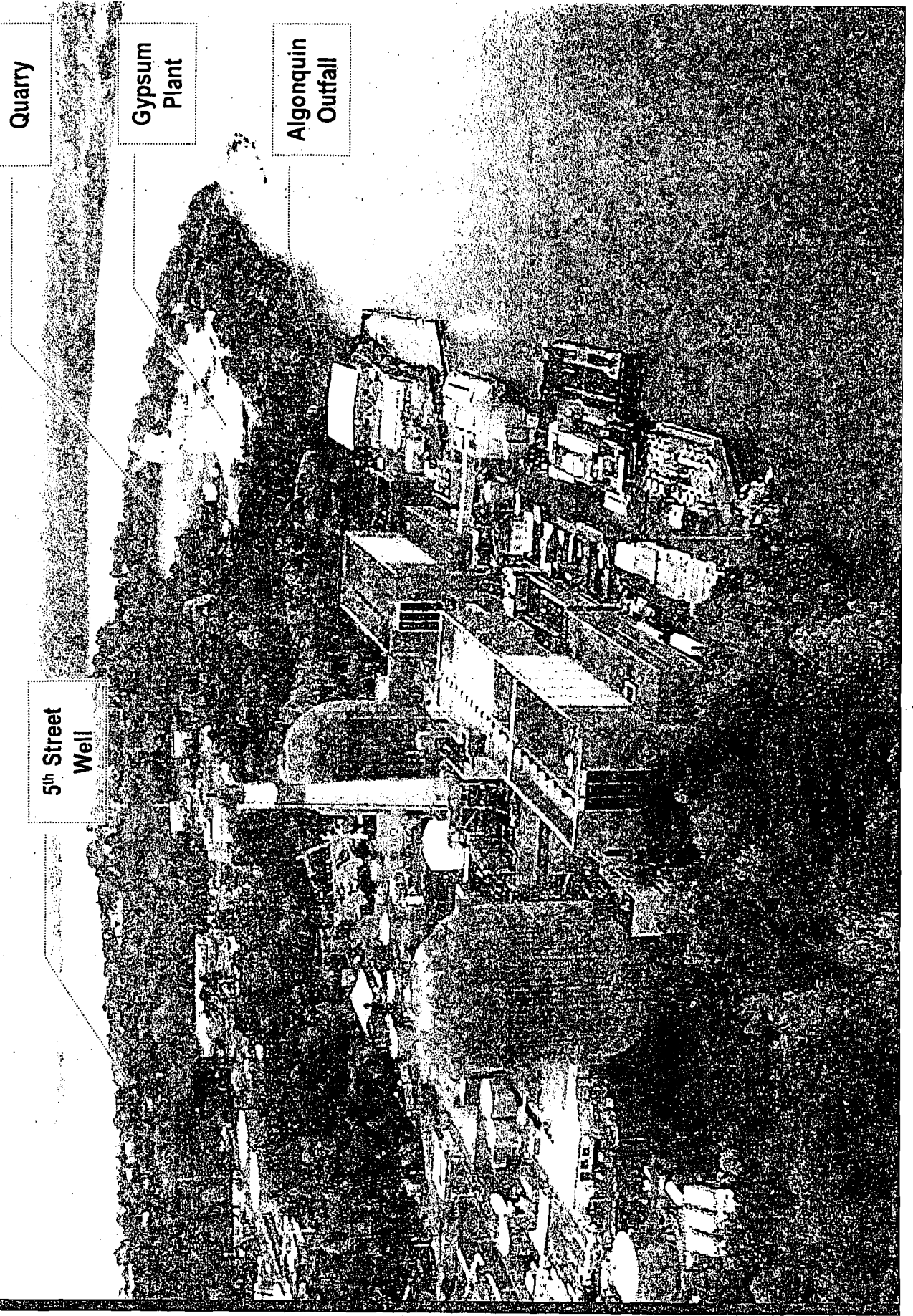
Energy

Radioactivity Investigation

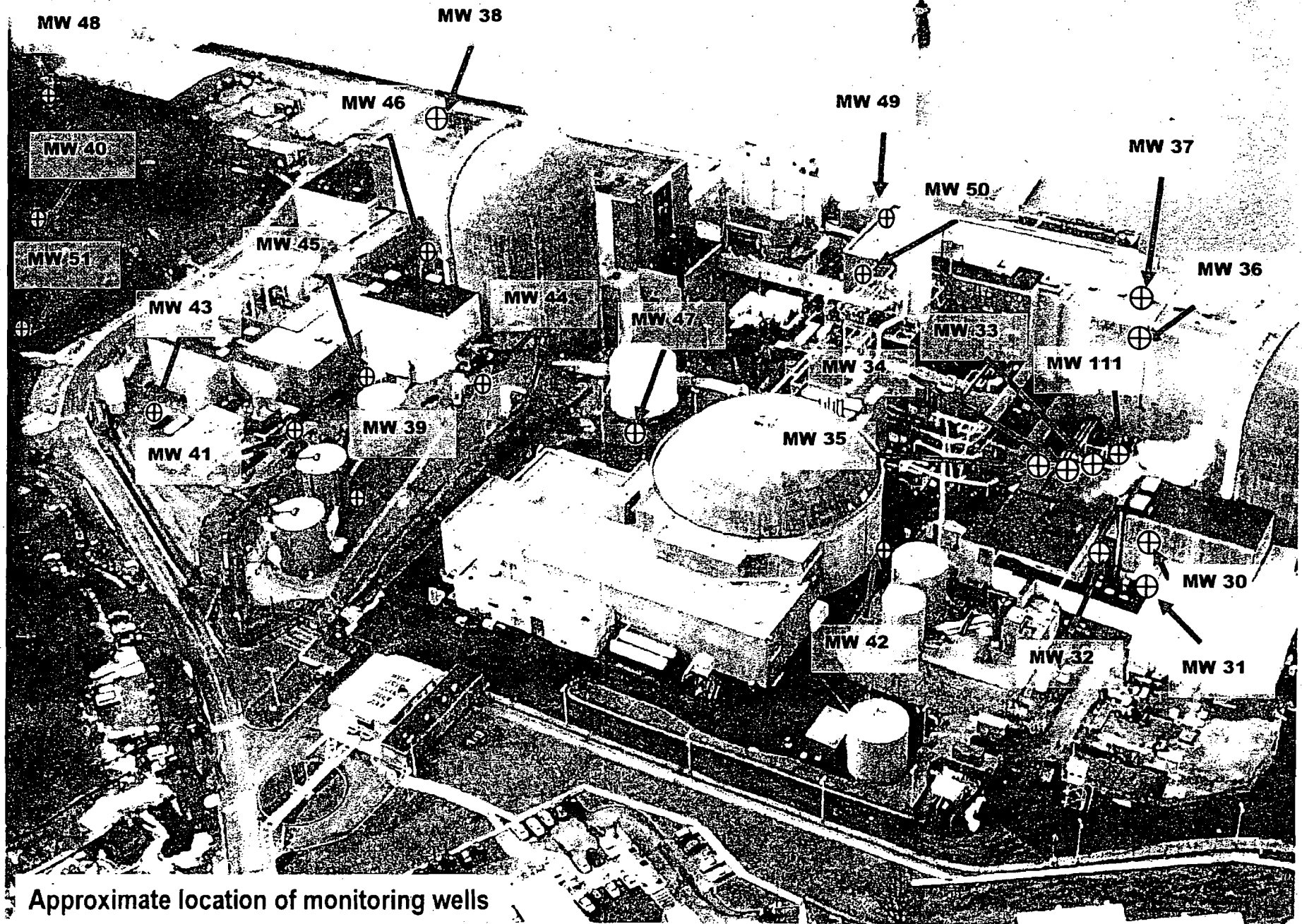
Don Mayer

Director, Special Projects

Indian Point Looking South Along the Hudson River



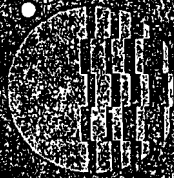
PLANNED MONITORING WELL LOCATIONS AS OF 03/16/06



Radioactivity Investigation Overview

Identification of Leak from IP2 Spent Fuel Pool

- Hairline settlement cracks identified in Fuel Storage Building wall during excavation for new gantry crane
 - Moisture in crack tested for radioactivity
- Radionuclides characteristic of spent fuel pool identified in sample
- Leakage collected, sampled, and trended
- Permanent leak collection box designed and installed
- Leakage from crack has stopped
- Tested existing wells on site for radioactivity
- Tested off-site well locations for radioactivity—none detected



Energy



Monitoring Well Investigation

Phase 1 Investigation

Installed 9 new wells to determine groundwater characteristics around IP2
All wells drilled and sampled

Phase 2 Investigation

Will install approximately 14 wells in phase 2 to characterize ground water flow on site
9 of 14 wells completed
5 in progress

Expanded sampling program to include storm drains
Conducting split sample program with NRC and DEC



Energy

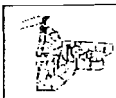


Ground Water Hydrology

Matt Barvenik

Senior Vice President

GZA

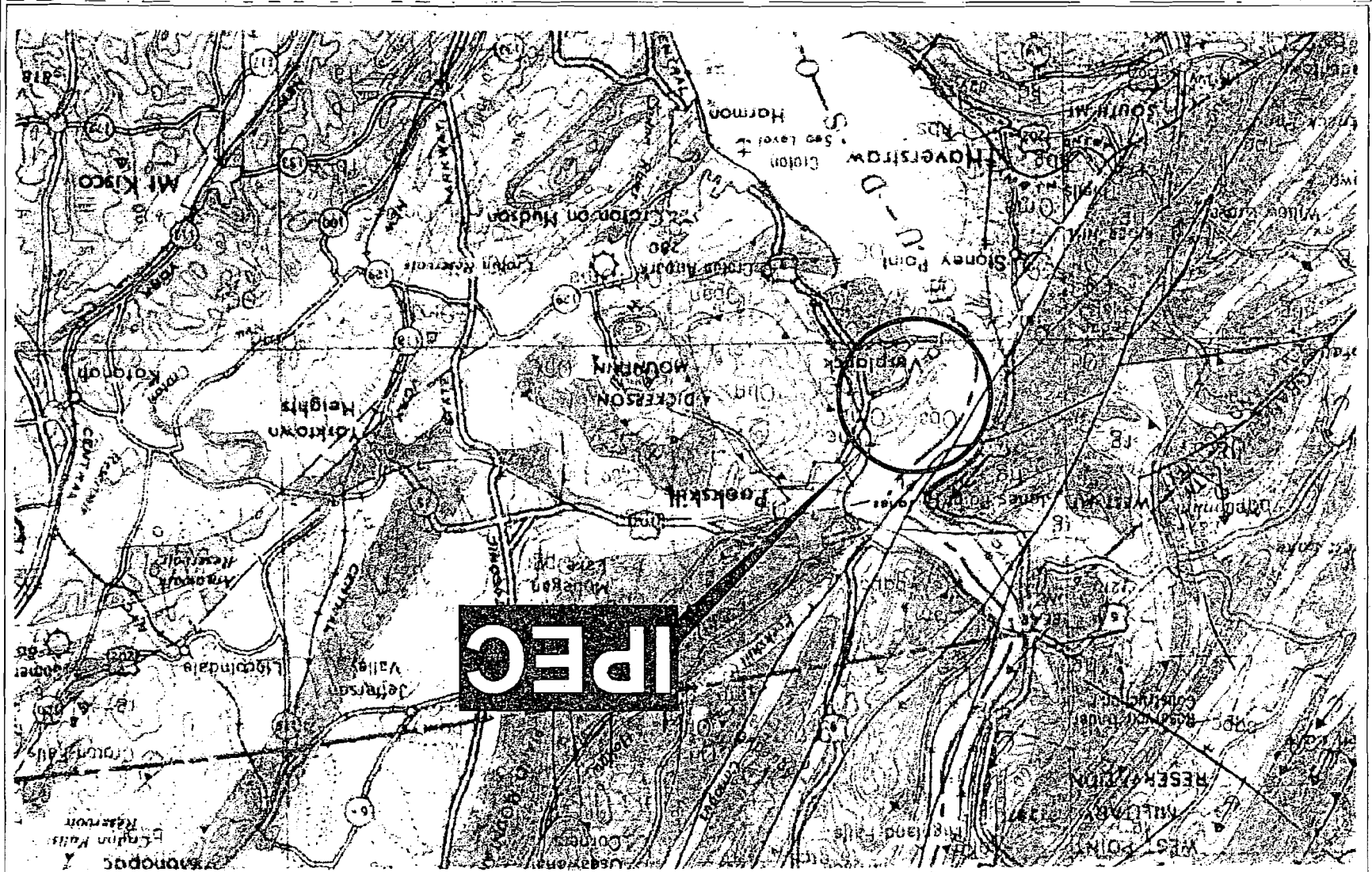


GEOLOGIC MAP OF NEW YORK, LOWER HUDSON SHEET
REPRINTED 1955, NEW YORK STATE MUSEUM AND
SCIENCE SERVICE, MAP AND CHART SERIES NO. 15



POST MAP-145
DESIGNED BY GSA
REPRODUCED BY GSA
DATE DIVISIONS

SITE GEOLOGY
INDIAN POINT ENERGY CENTER
BUCHANAN, NEW YORK



IPEC

E



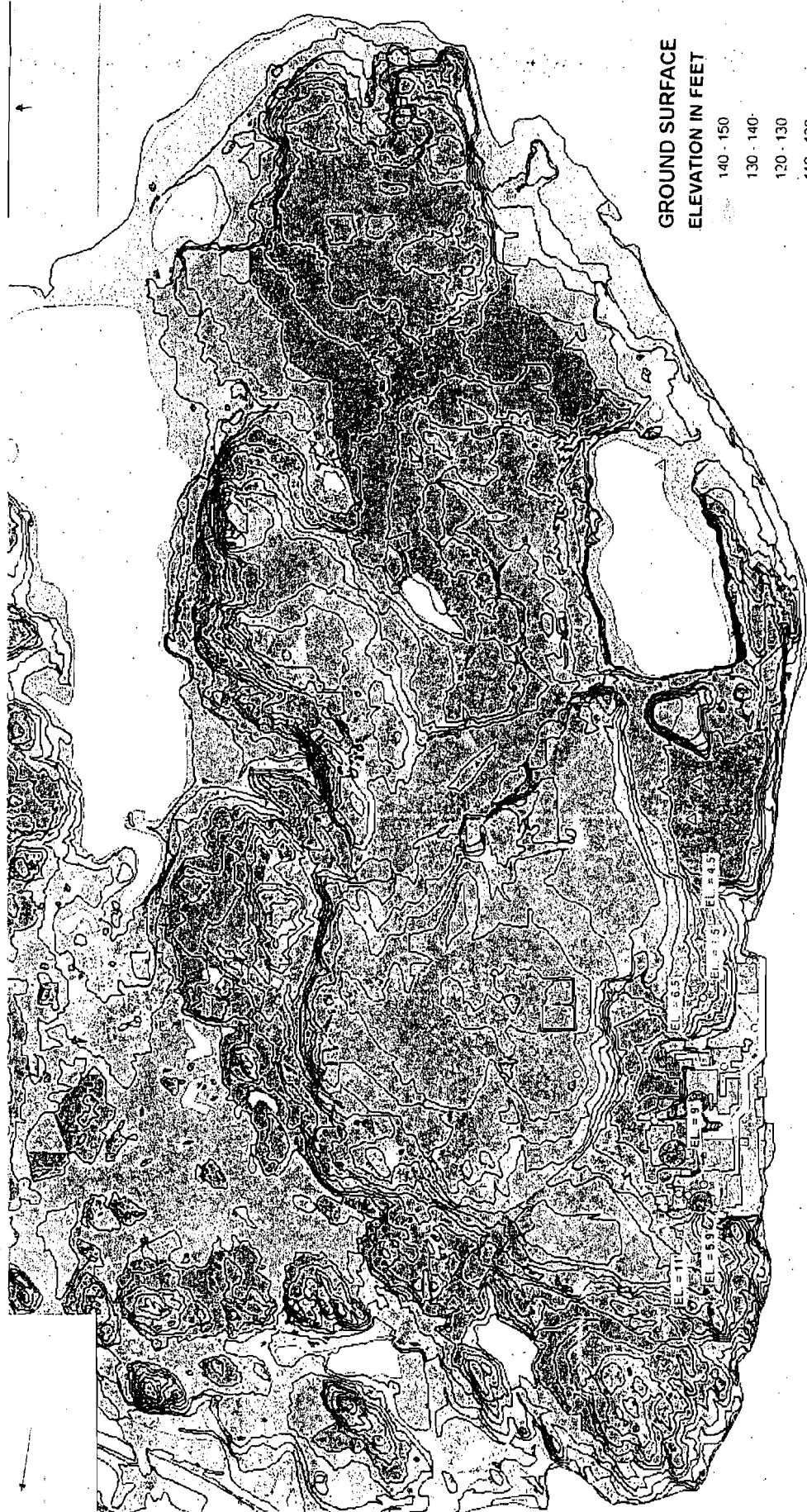
E



GROUND SURFACE
ELEVATION IN FEET

- 140 - 150
- 130 - 140
- 120 - 130
- 110 - 120
- 100 - 110
- 90 - 100
- 80 - 90
- 70 - 80
- 60 - 70
- 50 - 60
- 40 - 50
- 30 - 40
- 20 - 30
- 10 - 20
- 0 - 10

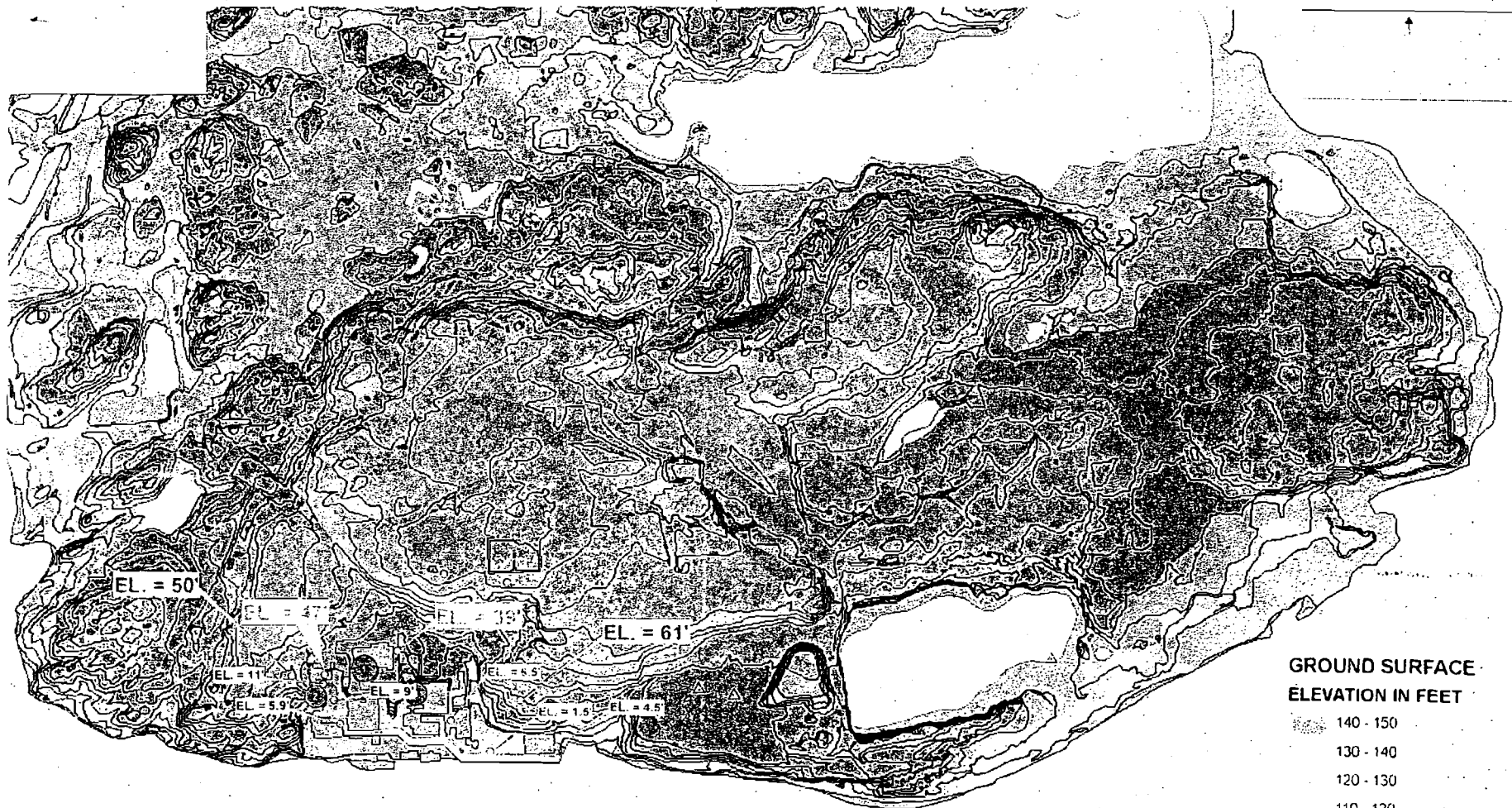
HUDSON RIVER
ELEV. \approx 1.5'



GROUND SURFACE
ELEVATION IN FEET

140 - 150
130 - 140
120 - 130
110 - 120
100 - 110
90 - 100
80 - 90
70 - 80
60 - 70
50 - 60
40 - 50
30 - 40
20 - 30
10 - 20
0 - 10

HUDSON RIVER
ELEV. = 1.5'

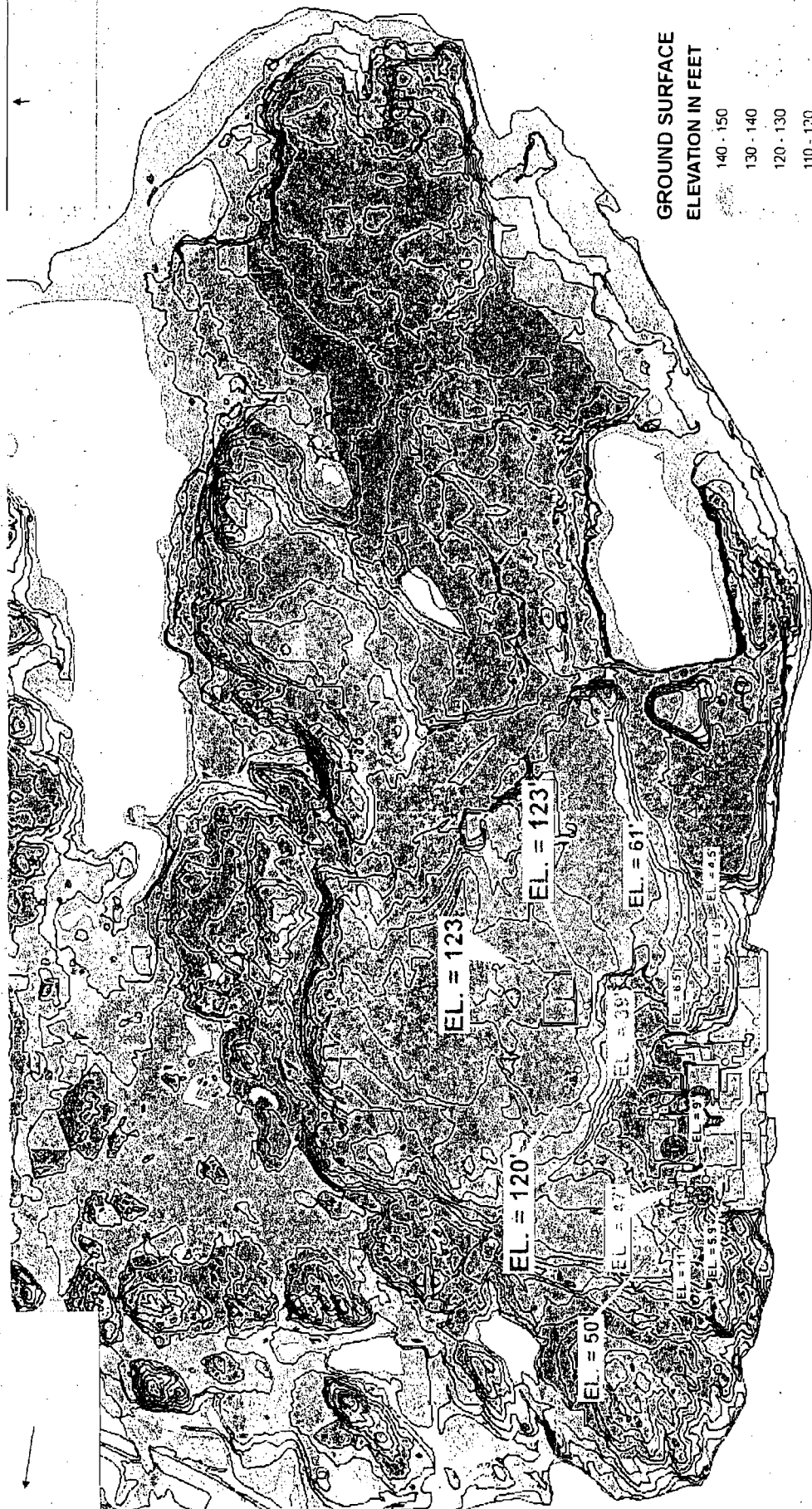


HUDSON RIVER
ELEV. = 1.5'

GROUND SURFACE
ELEVATION IN FEET

- 140 - 150
- 130 - 140
- 120 - 130
- 110 - 120
- 100 - 110
- 90 - 100
- 80 - 90
- 70 - 80
- 60 - 70
- 50 - 60
- 40 - 50
- 30 - 40
- 20 - 30
- 10 - 20
- 0 - 10

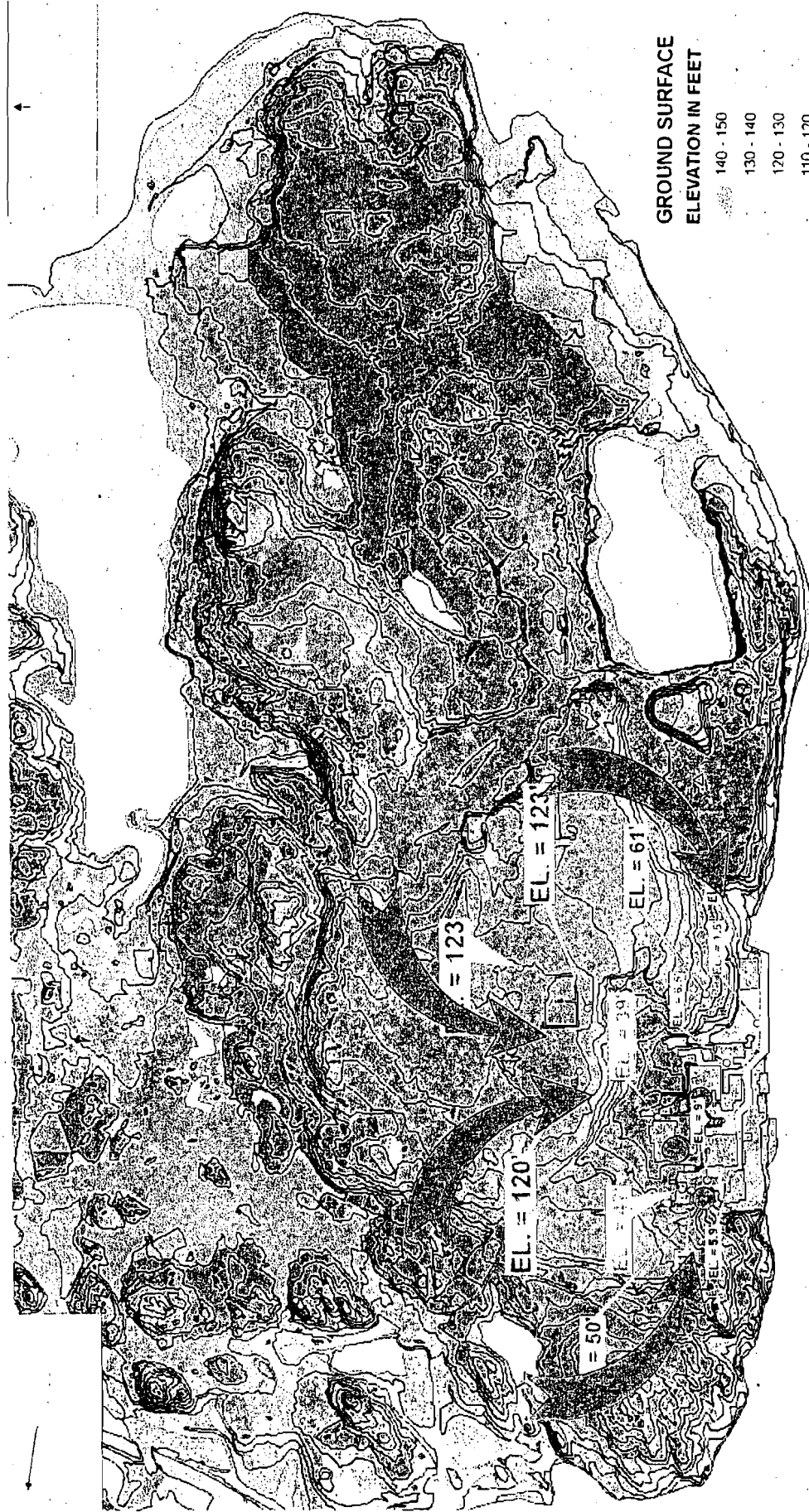




GROUND SURFACE
ELEVATION IN FEET

140 - 150
130 - 140
120 - 130
110 - 120
100 - 110
90 - 100
80 - 90
70 - 80
60 - 70
50 - 60
40 - 50
30 - 40
20 - 30
10 - 20
0 - 10

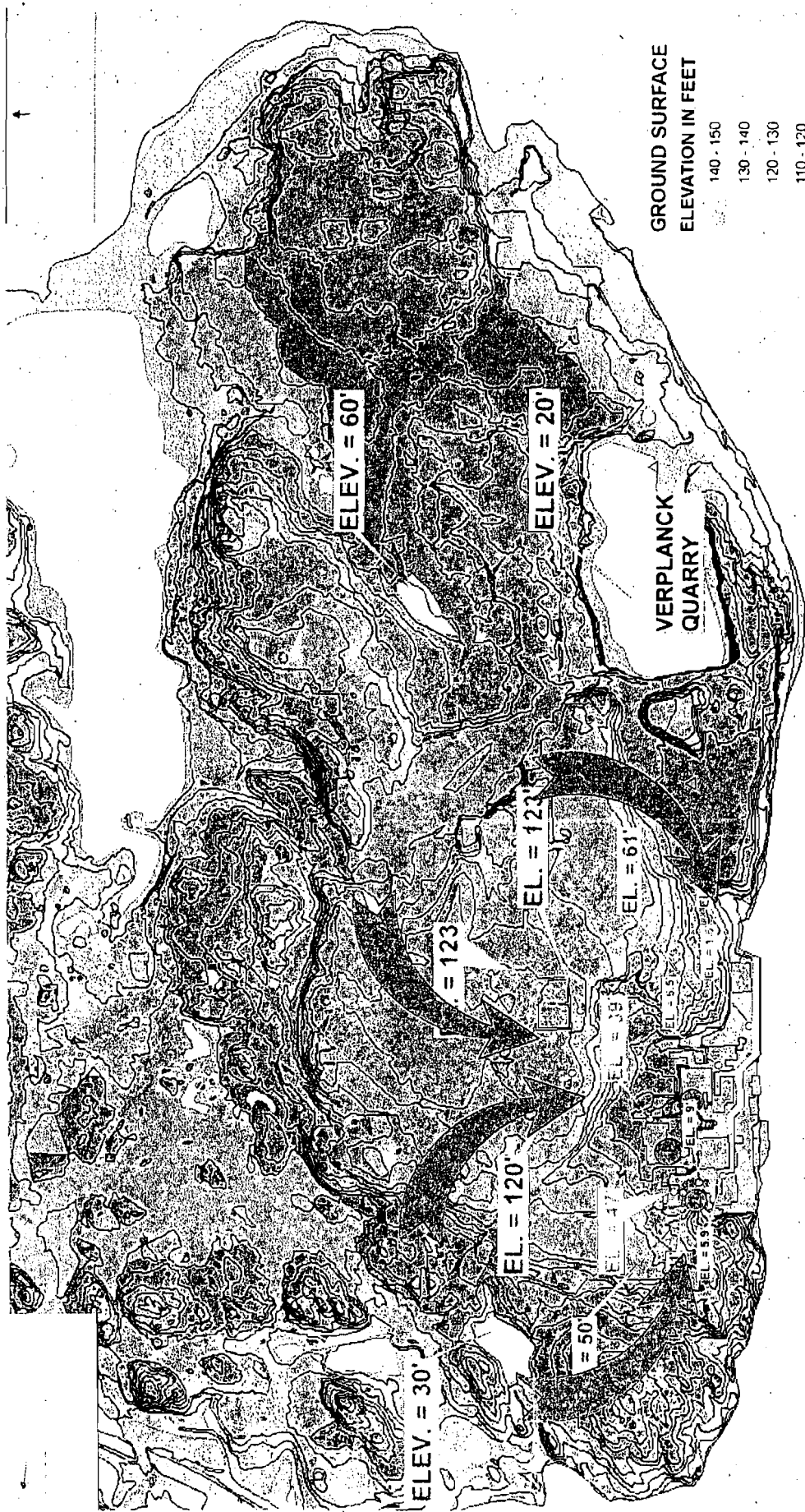
HUDSON RIVER
ELEV. = 1.5'



GROUND SURFACE
ELEVATION IN FEET

- 140 - 150
- 130 - 140
- 120 - 130
- 110 - 120
- 100 - 110
- 90 - 100
- 80 - 90
- 70 - 80
- 60 - 70
- 50 - 60
- 40 - 50
- 30 - 40
- 20 - 30
- 10 - 20
- 0 - 10

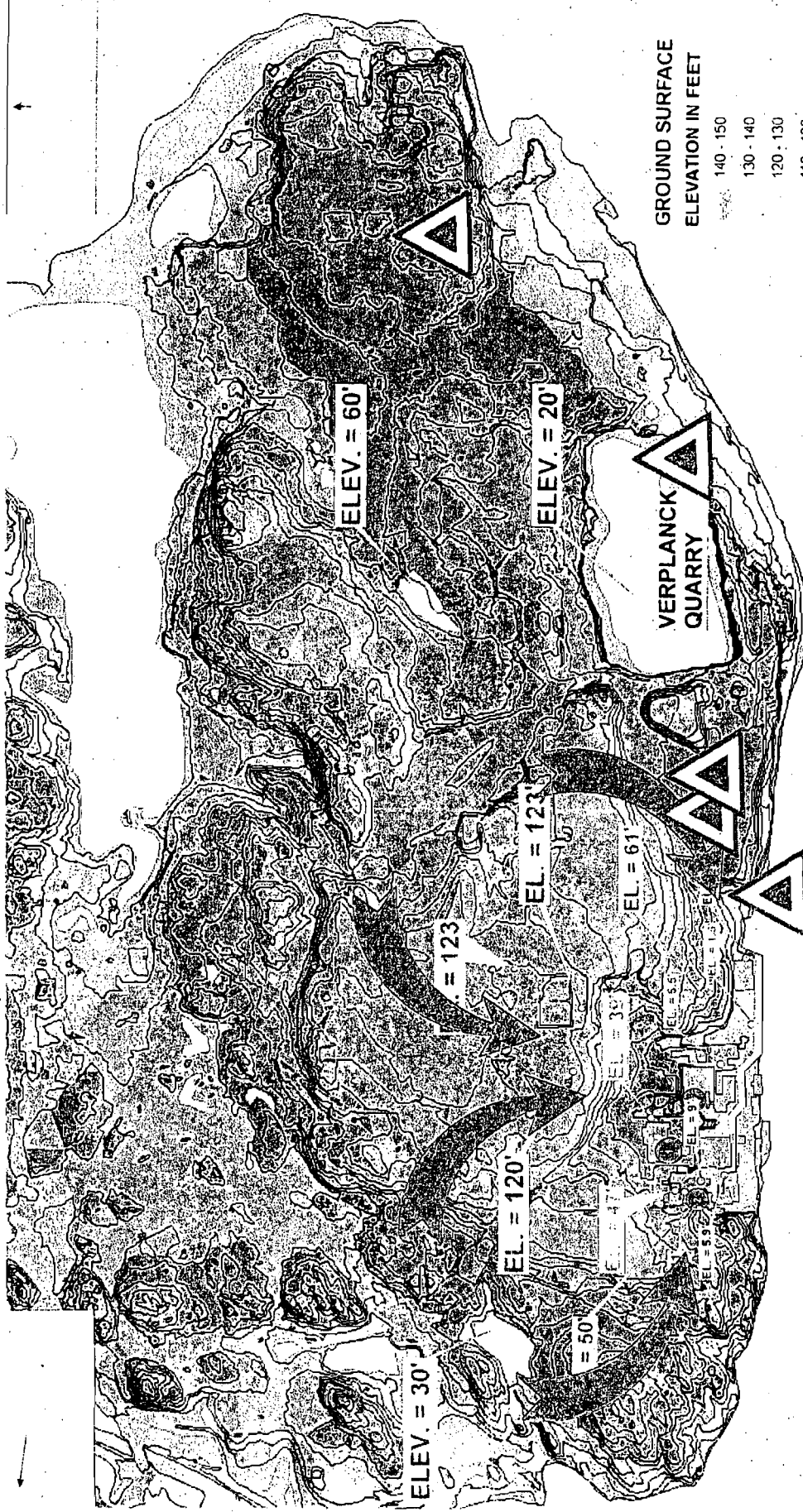
HUDSON RIVER
ELEV. = 1.5'



GROUND SURFACE
ELEVATION IN FEET

140 - 150
130 - 140
120 - 130
110 - 120
100 - 110
90 - 100
80 - 90
70 - 80
60 - 70
50 - 60
40 - 50
30 - 40
20 - 30
10 - 20
0 - 10

HUDSON RIVER
ELEV. = 1.5'

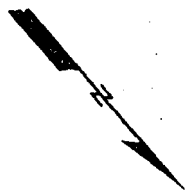
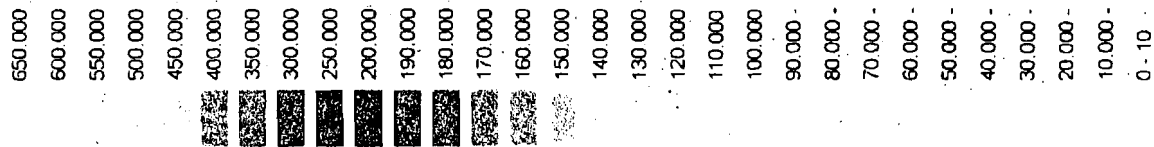


GROUND SURFACE
ELEVATION IN FEET

- 140 - 150
- 130 - 140
- 120 - 130
- 110 - 120
- 100 - 110
- 90 - 100
- 80 - 90
- 70 - 80
- 60 - 70
- 50 - 60
- 40 - 50
- 30 - 40
- 20 - 30
- 10 - 20
- 0 - 10

HUDSON RIVER
ELEV. = 1.5'

GROUND
ELEVATION



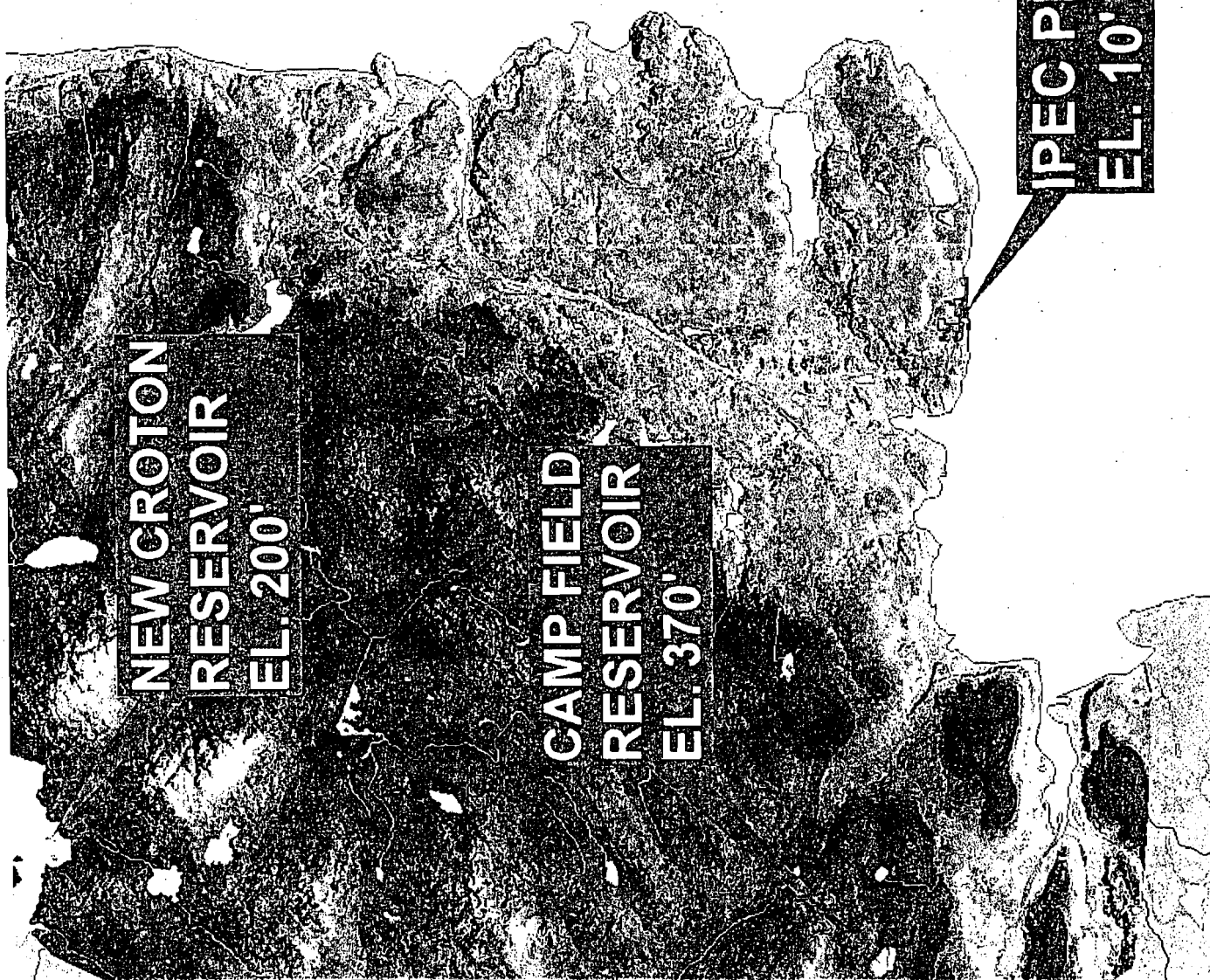
HUDSON

RIVER

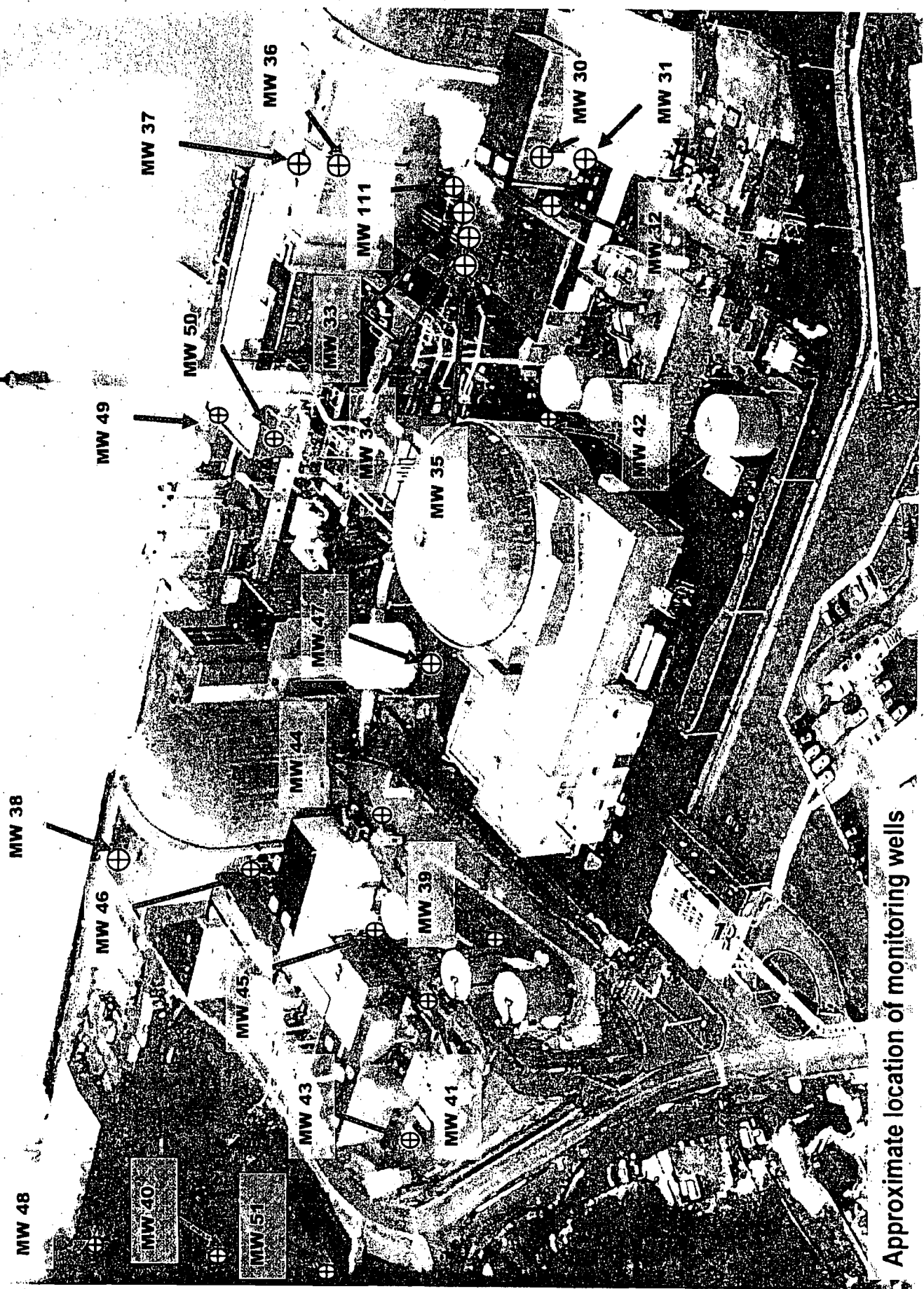
NEW CROTON
RESERVOIR
EL. 200'

CAMP FIELD
RESERVOIR
EL. 370'

IPEC PLUME
EL. 10'

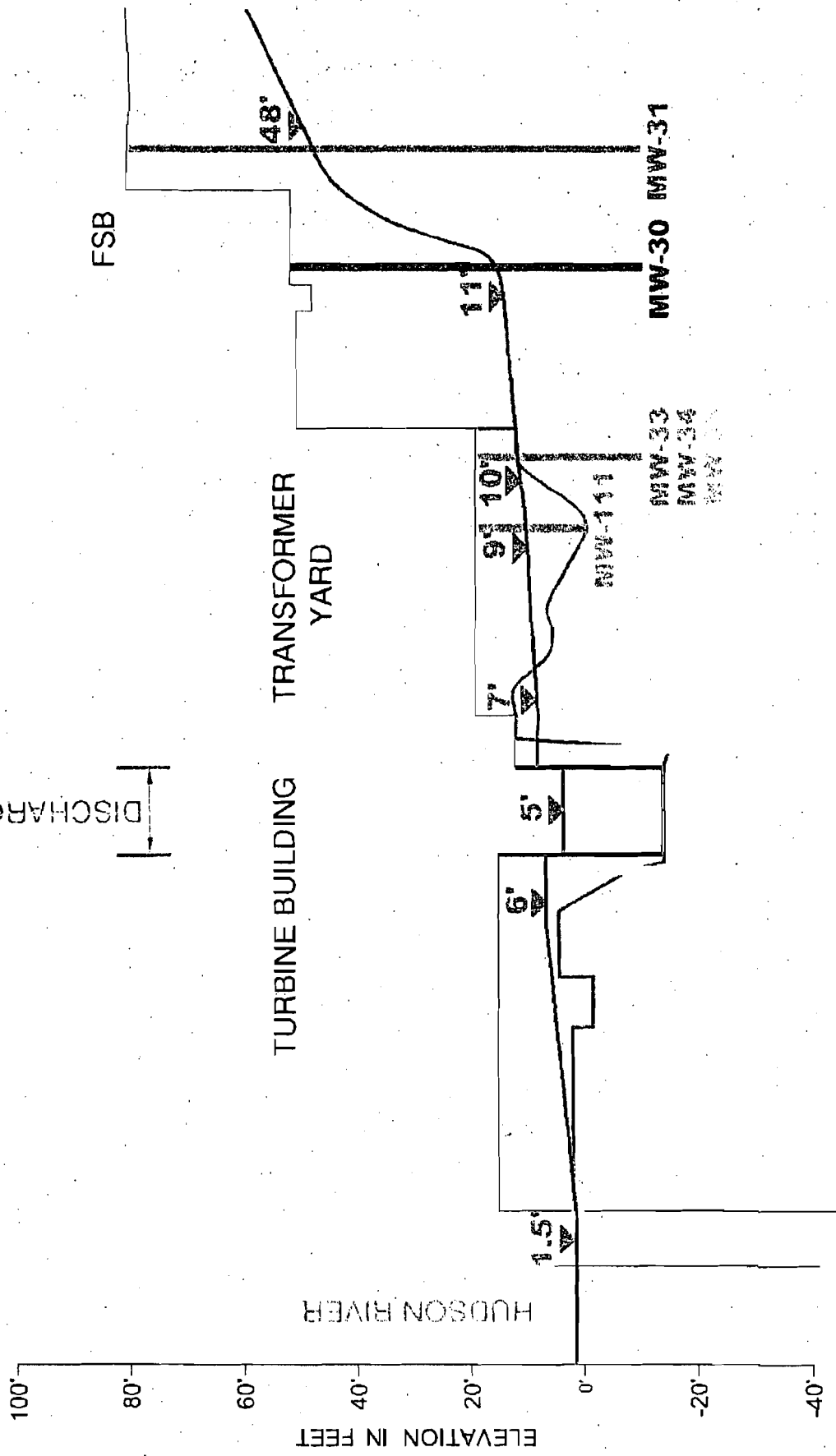


PLANNED MONITORING WELL LOCATIONS AS OF 03/16/06



Approximate location of monitoring wells

DISCHARGE CANAL



PLANNED MONITORING WELL LOCATIONS AS OF 03/16/06

MW 38

MW 48

MW 49

MW 46

MW 40

MW 51

MW 43

MW 45

MW 39

MW 44

MW 47

MW 34

MW 35

MW 111

MW 37

MW 36

MW 50

MW 33

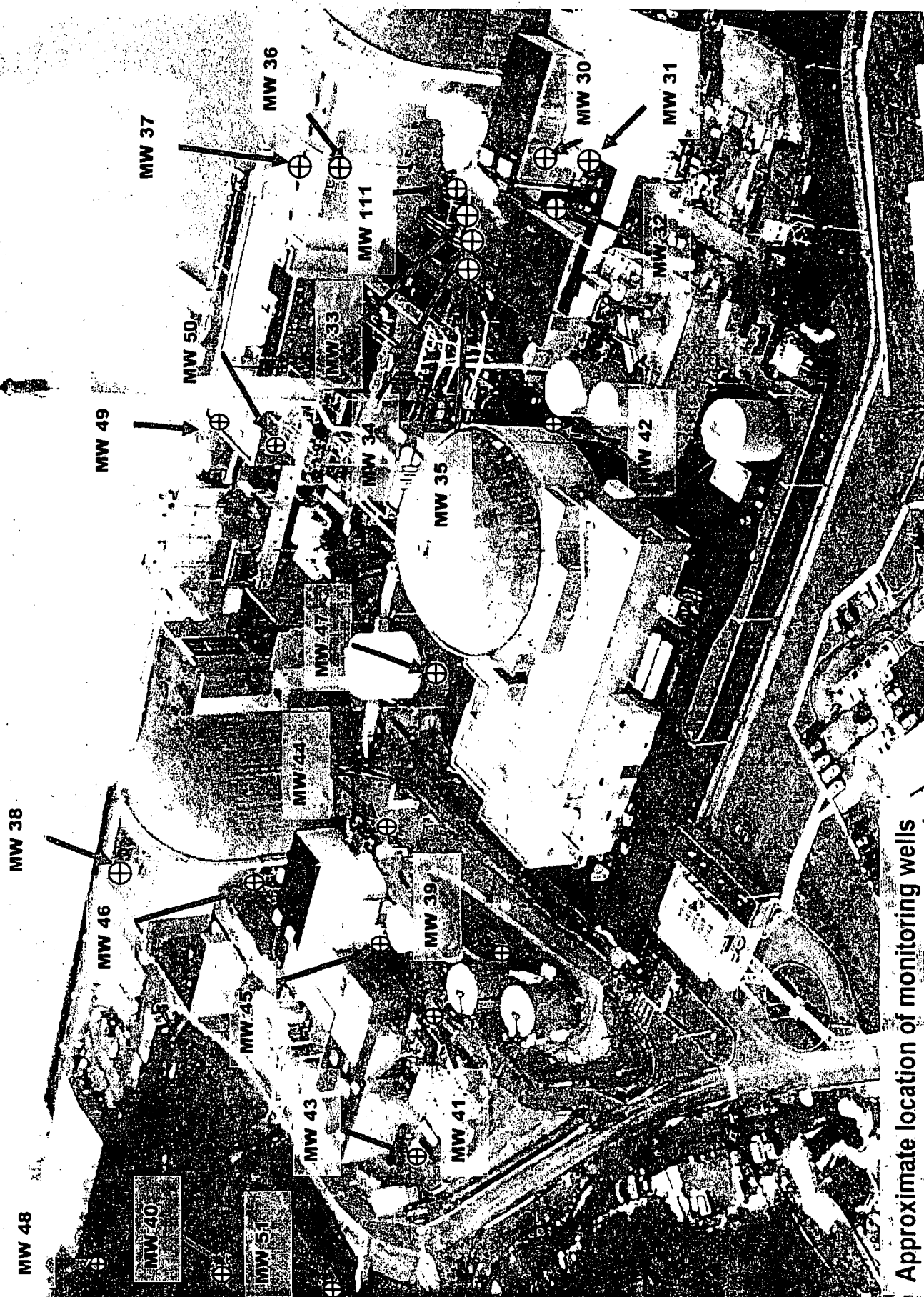
MW 30

MW 31

MW 32

MW 42

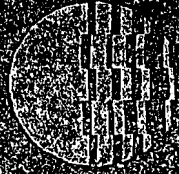
Approximate location of monitoring wells



Radioactivity Investigation

Spent Fuel Pool Liner Inspection

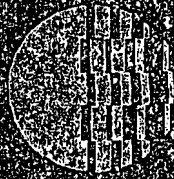
- Unit 2 SFP constructed of 4-6 feet of steel re-enforced concrete with a 1/4" Stainless Steel Liner
- Divers and remote video cameras employed to inspect accessible areas of pool (cask loading area and above the fuel racks)
- Preliminary scoping inspection (video) of spent fuel pool floor
- Evaluating capabilities of vendors to inspect inaccessible walls and floor
- Inspection found 6 indications requiring further evaluation
- All 6 areas leak tested and repaired with coating



Radioactivity Investigation

Results to date

- Tritium levels are highest near IP2 spent fuel pool and IP2 transformer yard
- Lower levels of tritium found in other locations including low levels in some storm drainage systems
- Water movement on site has been influenced by construction activities
- Groundwater flow is generally from north to west and south toward Hudson River
- Sr-90 found in two wells (IP2 transformer yard and adjacent to discharge canal)



Energy

Radioactivity Investigation

Radiological Impacts

- No impact from groundwater pathway
 - No groundwater drinking water supplies
 - All samples off-site negative for radioactivity
 - Supported by hydrology
- Insignificant impact river pathway
 - Bounding calculation for river release pathway
 - < 0.1% of regulatory limits²⁵
 - Extremely small fraction of natural background



Energy

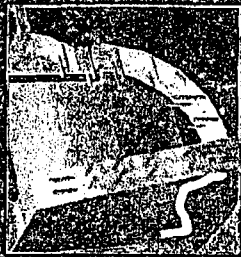
Radioactivity Investigation

Next Steps

- Finish development of phase 2 wells to refine conceptual model of groundwater flow
- Conduct tracer tests
- Continue sampling program
- Determine mitigation/remediation strategy



Plant Diagrams Pictures

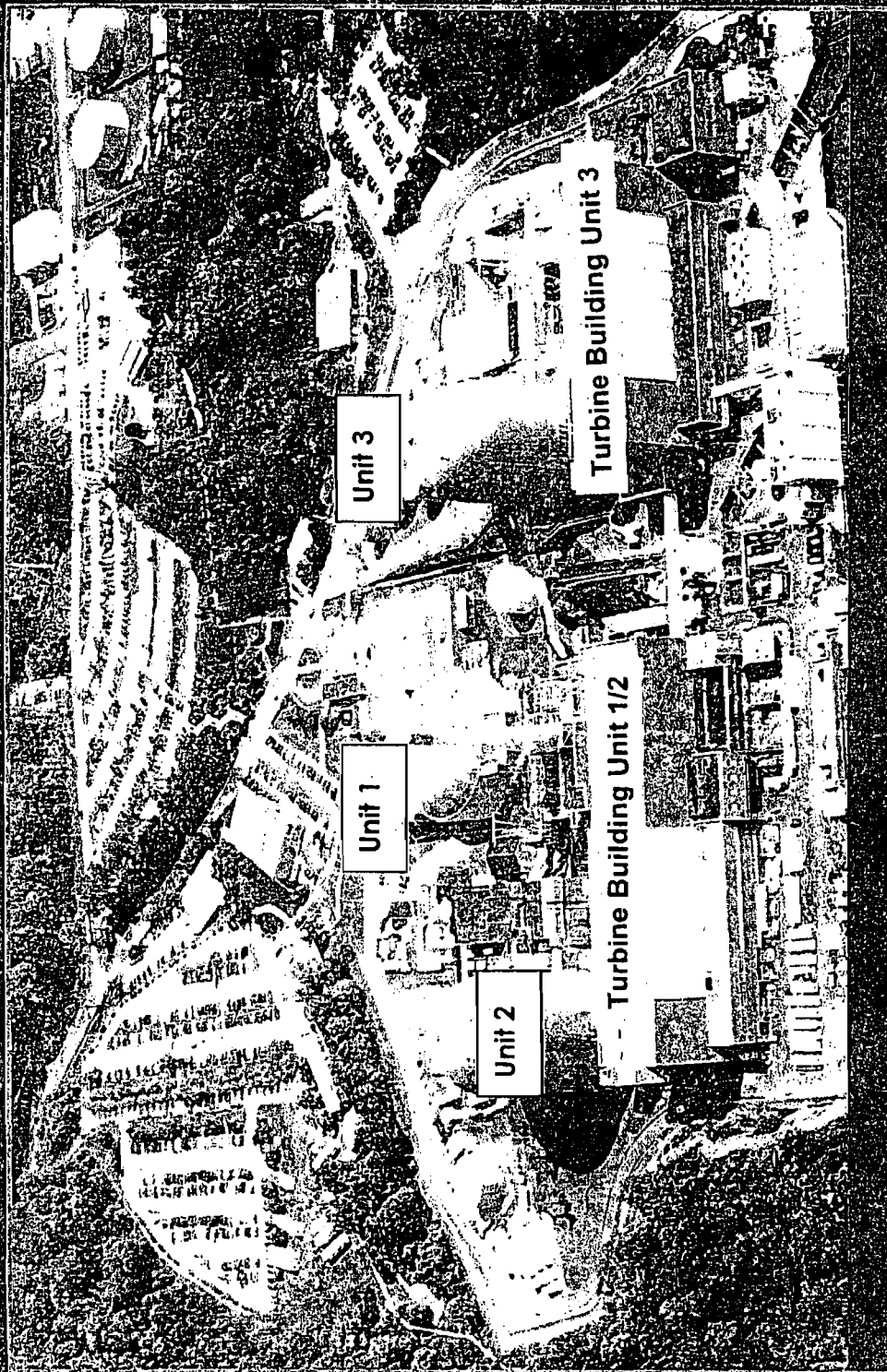


Phase 1



Phase 2

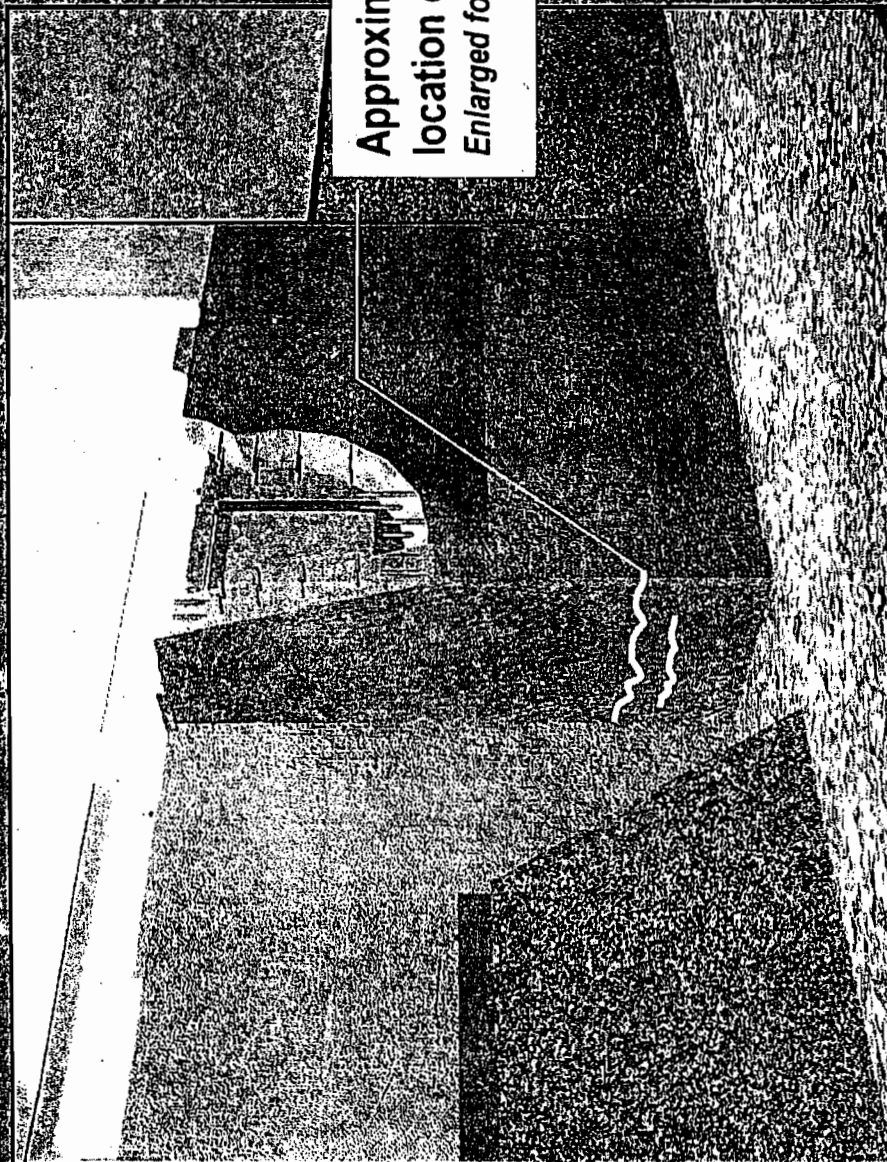




Energy

Indian Point Energy Center

IP2 Loading Bay During Excavation



Artist
depiction
of spent
fuel pool
wall

Approximate
location of cracks.
Enlarged for illustration



For illustration only

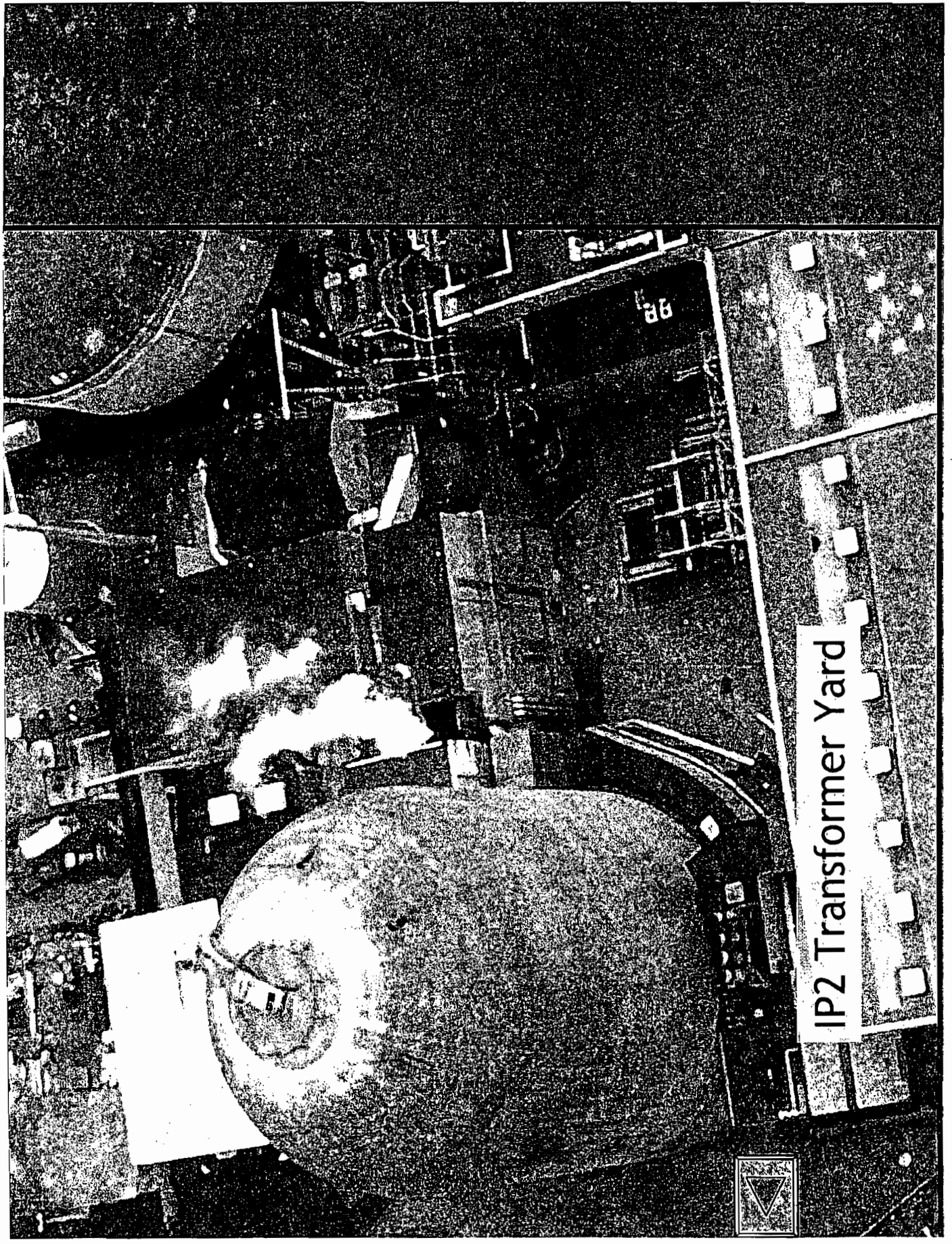
43



Energy

**THIS PAGE CONTAINS SUNSI DATA AND IS NOT FOR
PUBLIC DISCLOSURE - IT IS INTENTIONALLY LEFT BLANK.**

**THIS PAGE CONTAINS SUNSI DATA AND IS NOT FOR
PUBLIC DISCLOSURE - IT IS INTENTIONALLY LEFT BLANK.**



IP2 Transformer Yard





ID	Date	Location	Sample Results Tritium (pCi/L)
MW-111	3/3/06	Transformer Yard	236,000
MW-30	2/7/06	SFB	511,000
MW-31	2/7/06	Adjacent to SFB	33,100
MW-32	2/7/06	SFB Alley Way	17,700
MW-33	3/3/06	Transformer Yard	253,000
MW-34	3/3/06	Transformer Yard	230,000
MW-35	3/3/06	Transformer Yard	119,000
MW-36	2/27/06	IP2 Turbine building	45,800 @ 41'
MW-37	2/25/06	IP2 Turbine Building	30,500 @ 32'
MW-38		South perimeter near IP3	
	3/3/06	Entergy (Teledyne)	2630 ND-Sr
	12/8/05	New York State	701
	12/8/05	Entergy	985
MW-48		South perimeter	
	2/10/06	Entergy	ND-HTO ND-Sr
	2/8/06	New York State	250-HTO
	2/8/06	Algonquin/Gypsum	ND-HTO ND-Sr
	2/8/06	Trap Rock Quarry/Hudson River	ND-HTO ND-Sr
	9/29/05	Entergy Sr-90	ND
	10/21/05	New York State - Sr-90	3

**THIS PAGE CONTAINS SUNSI DATA AND IS NOT FOR
PUBLIC DISCLOSURE - IT IS INTENTIONALLY LEFT BLANK.**



