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**PLANT 6 CHARACTERIZATION - TIE ACTION ITEM**

02/15/89

DOE-601-89  
DOE-FN      USEPA  
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LETTER



**Department of Energy**

**FMPC Site Office**

P.O. Box 398705

Cincinnati, Ohio 45239-8705

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**5665**

February 15, 1989

DOE-601-89

Ms. Catherine A. McCord  
U.S. Environmental Protection Agency  
Region V - 5HR-12  
230 South Dearborn Street  
Chicago, Illinois 60604

Dear Ms. McCord:

**PLANT 6 CHARACTERIZATION - TIE ACTION ITEM**

This letter transmits information requested under a January 10, 1989 TIE action item entitled, "USEPA/OEPA requested results of the Plant 6 borings sampling analyses".

The initial characterization of Plant 6 was started in November, 1988. Through January of 1989 a total of 8 borings and 3-2000 series wells were drilled with water and soil samples collected and analyzed. Please see the attached drawings for locations and analysis results.

The eight borings (#1110 thru 1117) were drilled to a maximum depth of 20 feet. If water was encountered, a piezometer was installed and will be monitored monthly to interpret the water levels of the local perched water. The three wells will become part of the quarterly RI/FS sampling program.

The analyses of the soil samples taken from the borings show slightly elevated levels of uranium in four of the eight borings in the first 1.5 feet of soil (158 ppm is the highest reading). Below that depth most levels drop off significantly. Four of the eight borings encountered water and have piezometers. The uranium levels in the water were 2 ppm or less. Higher levels of both uranium and nitrates were found in the perched water under plant 6 in July of 1988. Therefore, the water from these borings was also analyzed for nitrates. The levels were low (9.1 mg/l was the highest reading).

Initial water sample results from the three wells (2054, 2109 and 2118) drilled to the south and east of plant 6 show uranium levels of 11 ppb (parts per billion) or less and nitrate levels of 1.2 ppm or less. Additional water and soil analyses are in progress.

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Based on the high uranium and high nitrate levels found under Plant 6, these initial results around the outer perimeter of the plant are favorable indicators that the elevated concentrations found near the scrap pickling area may be confined.

If you have any further questions on this subject, please contact Mary Stone of our staff at FTS 774-6656.

Sincerely,

  
James A. Reafsnyder  
Site Manager

DP-84:Stone

Attachments: As stated

cc w/attachments:

L. Sparks, SE-31, ORO  
M. E. Stone, DOE/FMPC  
B. G. Constantelos, USEPA-5  
G. Mitchell, OEPA-Dayton

cc w/o attachments:

L. C. Bogar, WMCO  
C. R. Conner, WMCO  
R. G. Lenyk, ASI

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bcc: D. J. Carr  
S. J. Clement  
C. R. Conner  
M. J. Galper  
R. E. Heath  
G. J. Krieger

Central Files

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Original File Copy

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of Ohio

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WMCO:SR(IA):89-0057  
February 15, 1989

Mr. James A. Reafsnyder  
Site Manager  
U. S. Department of Energy  
P. O. Box 398705  
Cincinnati, Ohio 45239-8705

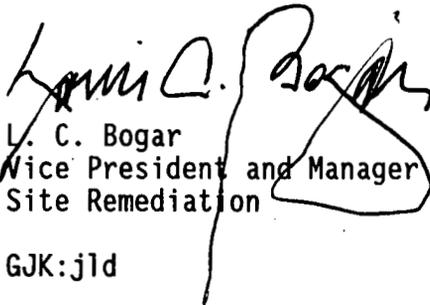
**SEQUENCE OF EVENTS - PLANT 6 WATER AND SOIL CONTAMINATION**

Dear Mr. Reafsnyder:

This letter is in response to a request by Ray Hansen in the January 30, 1989 dry run for the February 1989 public meeting.

This letter transmits a sequence of events covering the finding of elevated concentrations of uranium in the water and soil under Plant 6 during the construction phase of the NOx destructor project.

Very truly yours,

  
L. C. Bogar  
Vice President and Manager  
Site Remediation

GJK:jld

c: M. E. Stone, DOE/FMPC  
R. Hansen, DOE/FMPC

FEB 15 1989

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1-31-89

## PLANT 6 NOx DESTRUCTOR CONSTRUCTION PROJECT

## WATER &amp; SOIL CONTAMINATION

## SEQUENCE OF EVENTS

- o Week of 6-20-88 - broke ground
- o 6-30-88 - took 5 surface soil samples and 7 subsurface soil samples (see attached diagram for location and results)
- o 7-12-88 - upon finding water, took water sample from deepest excavated area next to the sump.
- o 7-13-88 thru 7-20-88 - excavation continued, samples analyzed.
- o 7-21-88 - took 6 soil samples plus one water sample from the excavated area. (See diagram for location & results)
- o 7-21-88 thru 7-25-88 - Pumped water (intermittently) from excavation to 6000 gallon tank in Plant 6 water treatment area. Total quantity pumped is approximately 1000 gallons. During pumping, water kept seeking its own level at about 5 feet below grade.
- o 7-26-88 - excavated area appeared dry
- o 7-27-88 - removed an additional foot of soil to remediate to less than 500 ppm. Water re-appeared; water came in much faster; created an earthen sump to gather water for pumping; pumped continuously to Thursday afternoon, 7-28-88.
- o 7-28-88 - took 6 soil samples and 1 water sample from excavated area. (See diagram for location & results). A task team was formed to develop a course of action.

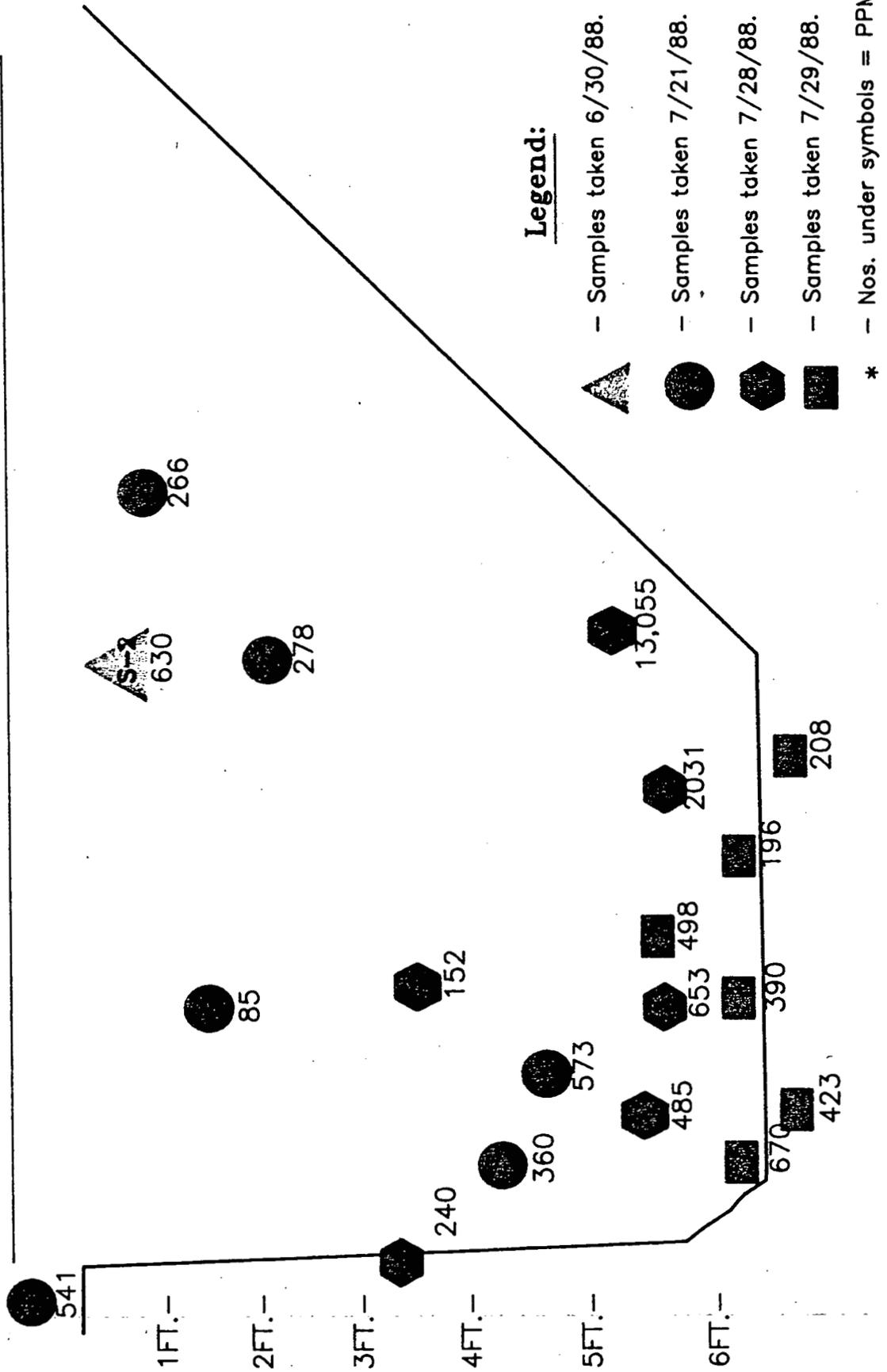
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- o 7-29-88 - Task team decided to cut a 1 foot diameter hole at the base of the south wall of the clarifier pit (which is adjacent to the excavated area). Purpose of hole was to allow water to drain into clarifier pit and be pumped into plant 6 water treatment system. This would possibly eliminate water from excavated area. The hole was cut and a stream of water approximately 4" wide x 3/4" deep flowed out. The flow continued until Monday 8-1-88 totalling about 19,000 gallons. Excavation site began drying up. Took 6 soil samples. (See diagram for location & results).
- o 8-1-88 - Excavation site dried up. Removed an additional 1 foot of soil to remediate area to less than 500 ppm. Took 2 soil samples.
- o 8-2-88 - Since water problem in excavated area had been eliminated by cutting hole in the clarifier pit wall, task team decided to allow construction to continue if the above 2 samples were less than 500 ppm.
- o 8-3-88 - The 2 soil samples were 203 and 405 ppm; therefore construction continued with one condition, excavated area would be lined with plastic before backfilling.
- o 9-13-88 - Developed a Plant 6 Characterization Plan to determine the nature and extent of the elevated concentrations of uranium found under Plant 6 and also to supply the information needed for a future risk assessment and potential remedial action alternatives.
- o 9-16-88 - Initiate a modification to ASI's contract to include the drilling of the 8 borings and 3 wells around Plant 6 as suggested in the Plant 6 Characterization Plan.
- o 10-24-88 - Developed a Facilities Testing Work Plan, but the plan did not cover investigations into and around the active production facilities.

- o 11-15-88 - Revised the Facilities Testing Work Plan to include investigations into and around the active production facilities, including Plant 6.
- o 11-18-88 - DOE submitted the Revised Facilities Testing Work Plan to the USEPA. To date the USEPA has not commented on the work plan.

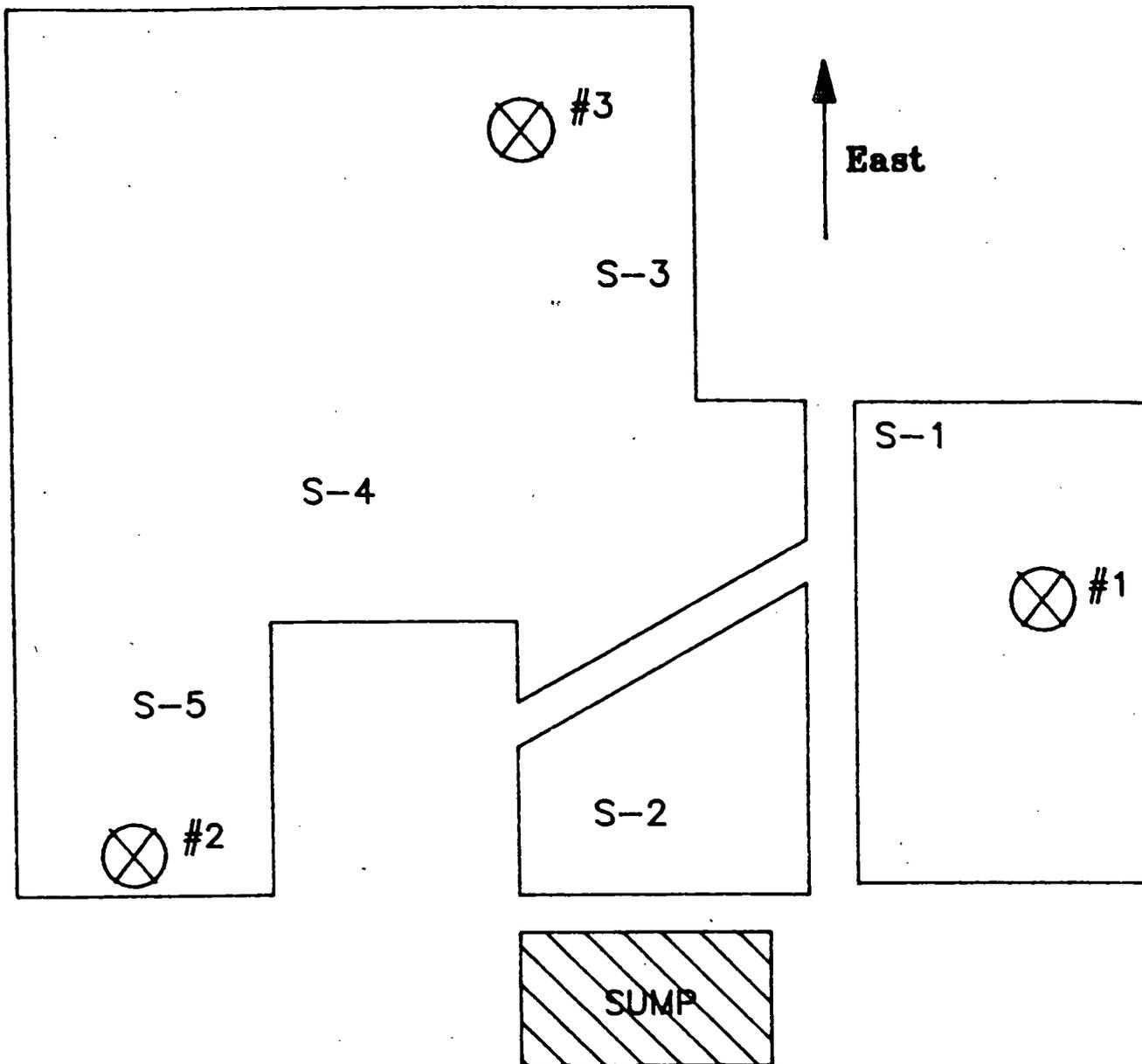
CROSS SECTION OF PLANT 6 NO<sub>x</sub> DESTROYER EXCAVATION LOOKING NORTH

CONCRETE SLAB



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### Survey Map



Plant 6 Date 6-30-88  
 Area Scrap Pickling/NOx Destructor

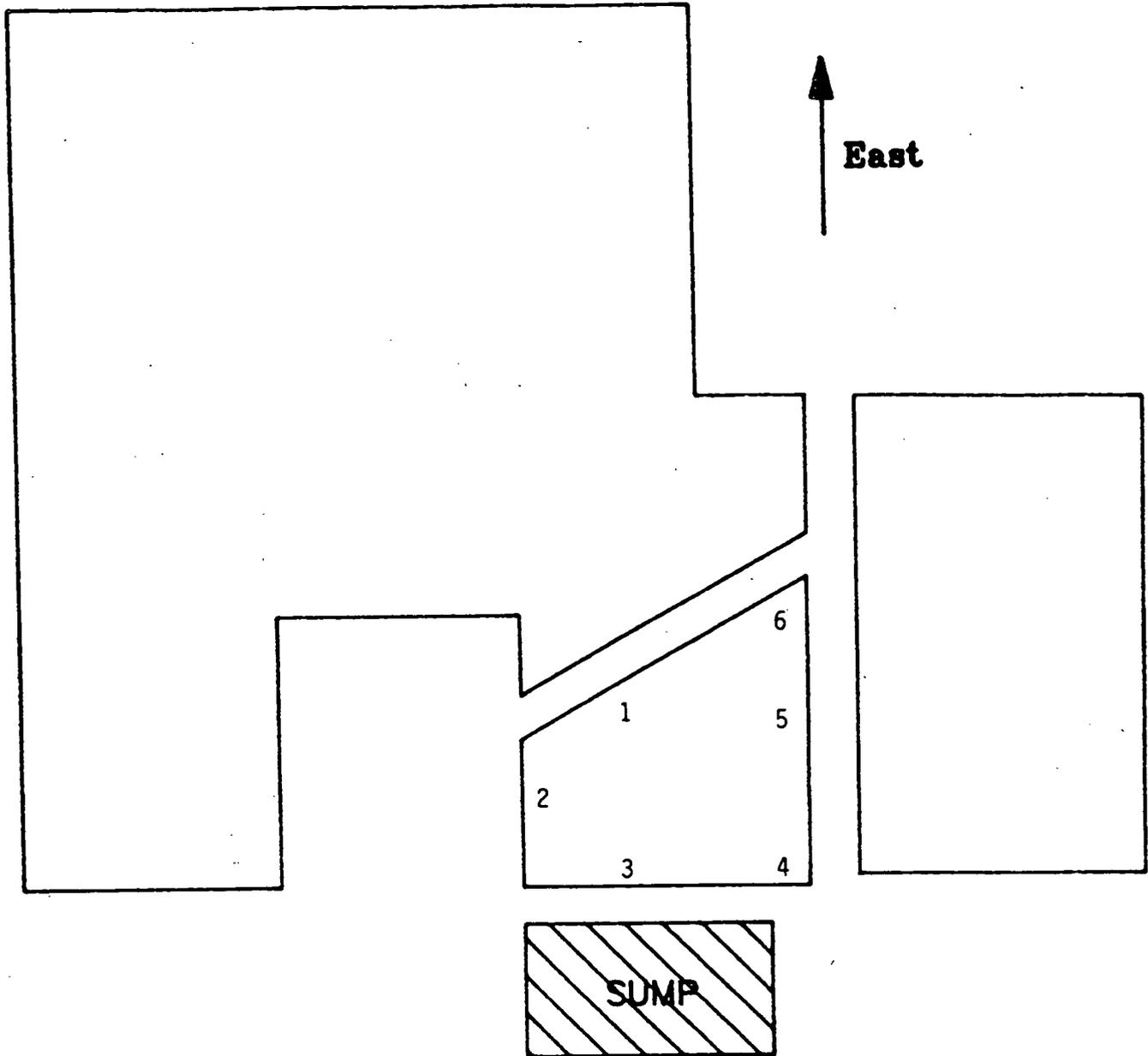
S-X = Surface Samples

⊗ = Samples at 1,2, and 3 ft.

#### Survey Area

S-1	6 PPM
S-2	630 PPM
S-3	4842 PPM
S-4	3126 PPM
S-5	2768 PPM
#1	13 PPM, 12 PPM, 58 PPM
#2	406 PPM
#3	53 PPM, 16 PPM, 318 PPM

### Survey Map



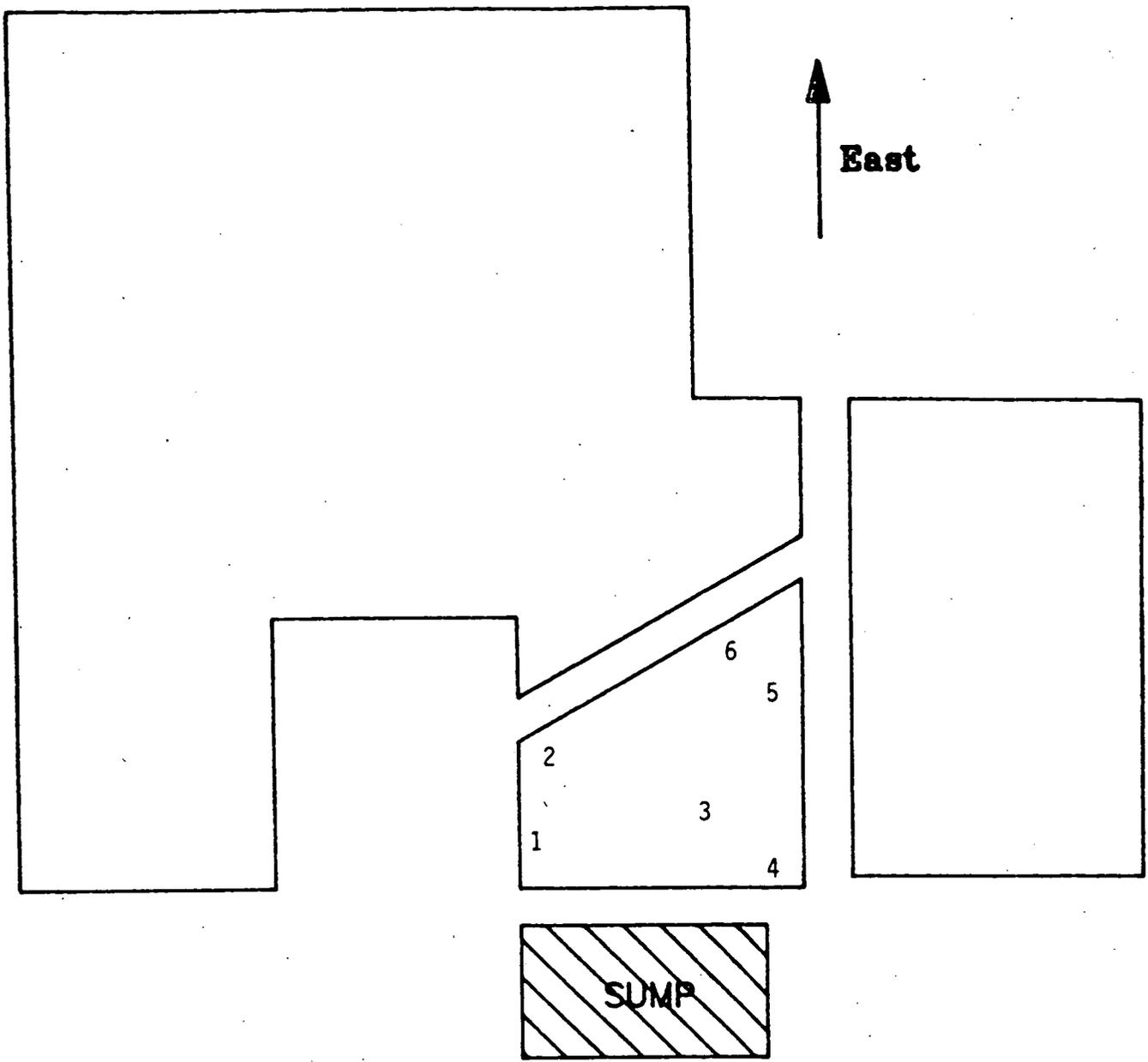
Plant 6 Date 7-21-88  
 Area Scrap Pickling/NOx Destructor

#### Survey Area

- 1. 278 PPM
- 2. 573 PPM
- 3. 360 PPM
- 4. 541 PPM
- 5. 85 PPM
- 6. 266 PPM

Water Sample From 7-12-88 = 580 PPM

### Survey Map



Plant 6 Date 7-28-88

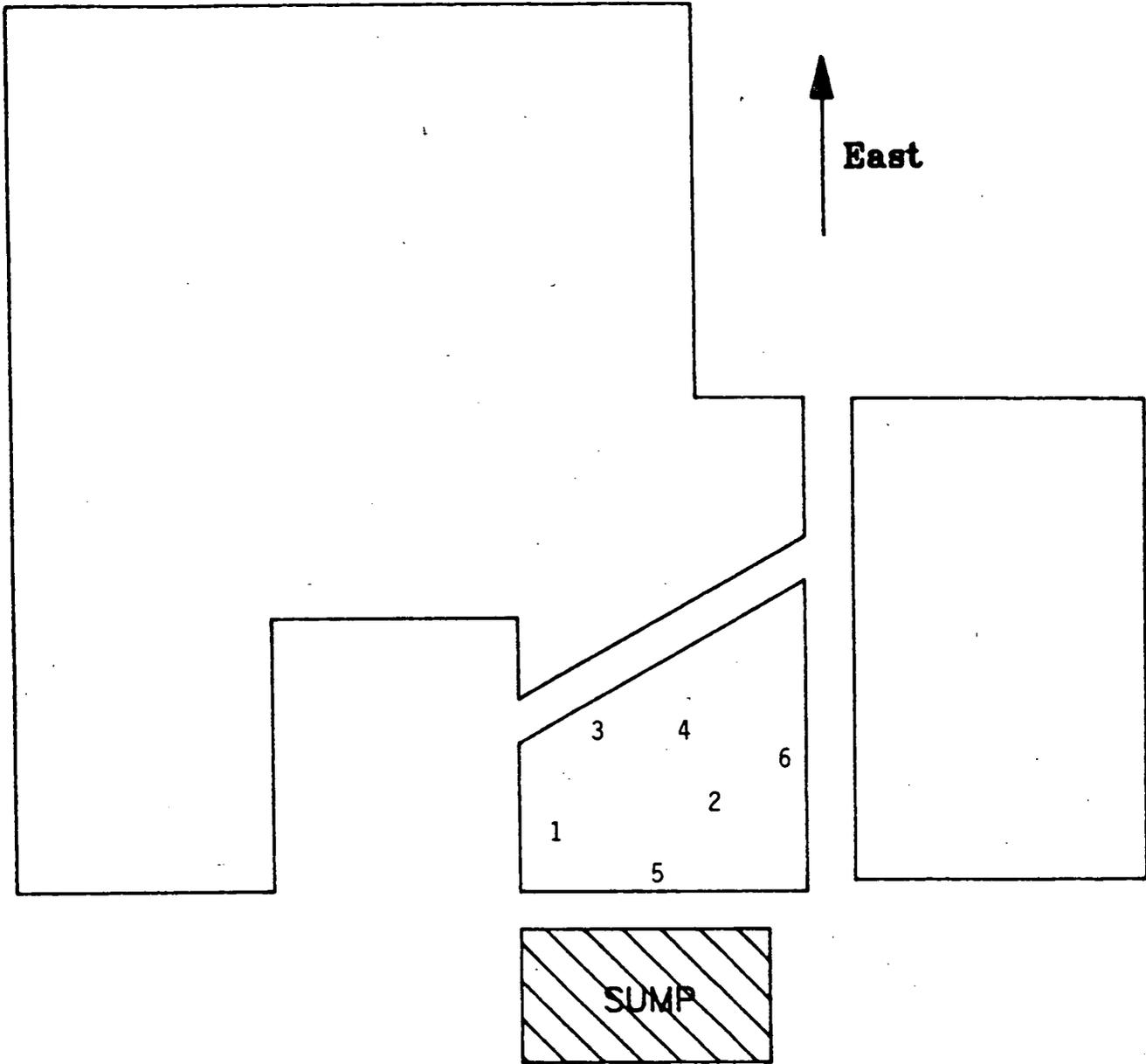
Area Scrap Pickling/ NOx Destructor

#### Survey Area

- 1. 653 PPM
- 2. 2031 PPM
- 3. 485 PPM
- 4. 240 PPM
- 5. 152 PPM
- 6. 13055 PPM

Water Sample = 1840 PPM

### Survey Map

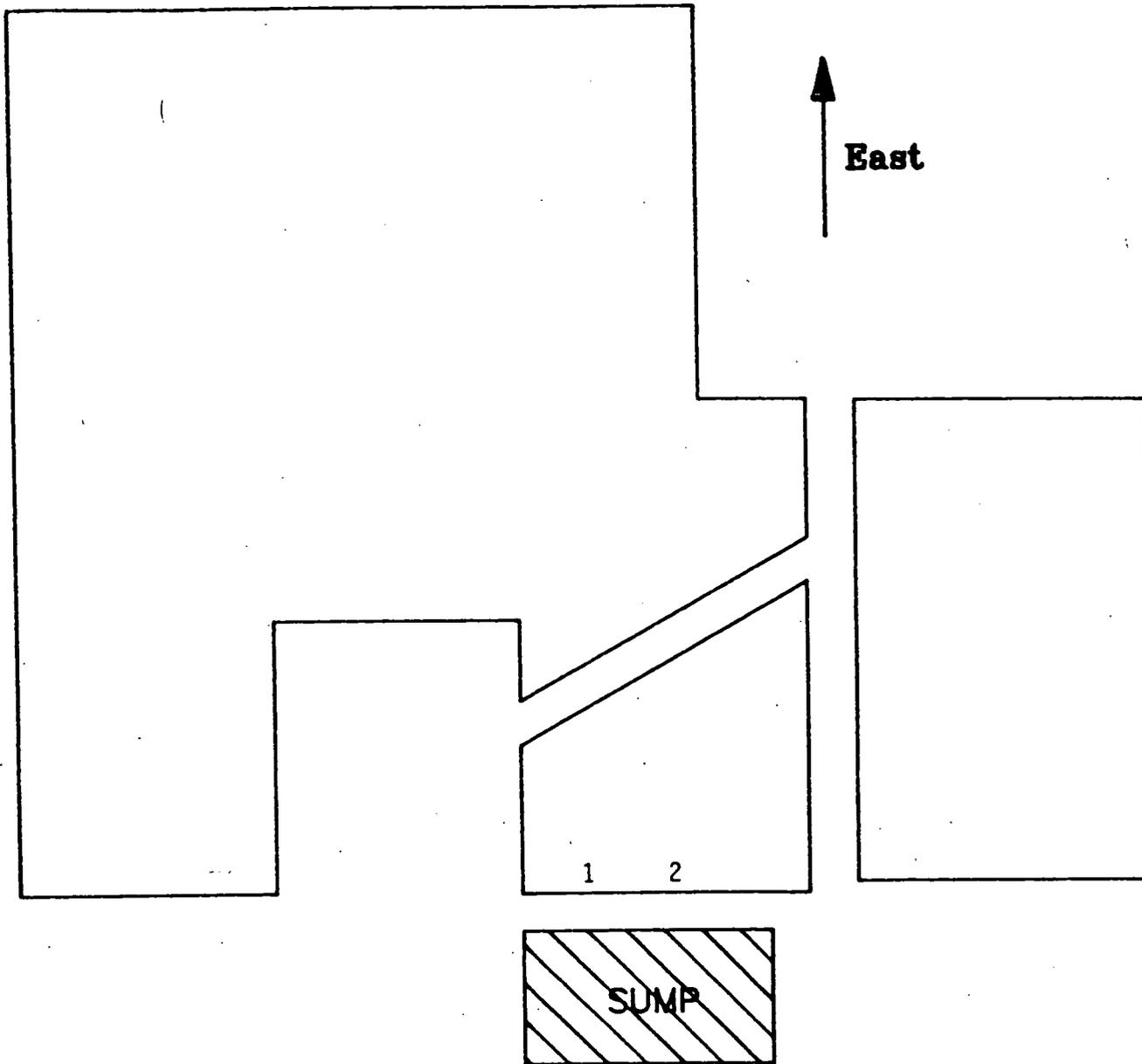


Plant 6 Date 7-29-88  
Area Scrap Pickling/NOx Destructor

#### Survey Area

- 1. 390 PPM
- 2. 423 PPM
- 3. 208 PPM
- 4. 196 PPM
- 5. 670 PPM
- 6. 498 PPM

### Survey Map



Plant 6 Date 8-1-88  
Area Scrap Pickling/NOx Destructor

Survey Area	
1.	<u>203 PPM</u>
2.	<u>405 PPM</u>

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## WATER ANALYSIS FROM PLANT 6

Clarifier Pit	U g/l	pH	NO <sup>3</sup> mg/l	APPROXIMATE AMOUNT OF WATER PUMPED gal.
8-1-88 -	2.06	6.7	7965	20,000
8-23-88 -	1.95	6.8		1,500
8-29-88 -	1.85	7.1		200
9-2-88 -	1.92	7.0	8240	100
9-9-88 -	2.11	7.0	8360	200
9-23-88 -	.63	6.6	9580	300
10-3-88 -	.57	6.5	3720	300
11-23-88 -	1.44	7.6	5700	1,200
12-2-88 -	1.67	7.3	5960	300
12-6-88 -	1.77	7.0	6286	150
12-9-88 -	1.64	7.3	5946	100
12-30-88 -	1.73	7.3	5960	900
1-6-89 -	1.64	7.1	5540	<u>300</u>
				25,550

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