BLASLAND & BOUCK ENGINEERS, P.C.
ENGINEERS & GEOSCIENTISTS
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July 26, 1990

Mr. Alfred J. Labuz
Superintendent of Env. Control
Allied-Signal, Inc.
Environmental Control &
Product Safety
P.O. Box 6
Solvay, New York 13209

Re: Mathews Avenue Landfill

File: 131.26 #2

Dear Al:

On September 12, 1989, Blasland & Bouck excavated a total of seven test pits in the vicinity of Test Pits S-3 and S-7, previously excavated by Allied in February 1989. The work was performed at the request of Allied, and is outlined in a letter prepared for Allied dated June 6, 1989 describing the scope of work to be performed at the former Mathews Avenue Landfill. The investigation was expanded in the areas of Test Pits S-3 and S-7 (Figure 1) to determine the extent of previously detected elevated concentrations of some detected chemical compounds in soil.

Four test pits, TP-3N, TP-3S, TP-3E, and TP-3W, were installed approximately 30 feet from the original Test Pit S-3 at an angle of approximately 45° from each compass quadrant. Only three test pits, TP-7N, TP-7E, and TP-7W, could be placed in the vicinity of former Test Pit S-7 due to a steep drop off to the south of S-7. The three new test pits were located approximately 30 feet away from S-7 in the north, east, and west quadrants. A map of the former Mathews Avenue Landfill and the approximate locations of the test pits is attached as Figure 1, Test Pit Locations.

Each test pit was machine excavated by Ballard Construction of Solvay, New York. The depth of the test pits was determined by either the excavation limit of the backhoe (approximately 17 feet), the presence of ground water, or until natural soils were reached. Natural soils were not encountered in any of the test pits excavated during the field program. Soil samples were collected from the walls of the test pit when possible or from the materials retrieved in the bucket when the test pit depth exceeded the reach of the sampling device.

Three to four soil sample sets were collected at relatively equal depth intervals from each test pit. The soil sample sets from each depth interval were collected in three jars. Two jars for each sample set were specially prepared and provided by OBG Laboratories of Syracuse, New York, and the third was a plain pint glass jar. The one pint jar from each sample set was screened in the field for detectable vapors with a HNU PI-101 photoionizer with a 10.2 eV bulb, calibrated for a 1:1 response to benzene. The interval in which soil samples were collected and the HNU readings from the headspace in the sample jars are presented in Attachment A.

The remaining two sample jars from the three to four sample sets from each test pit were submitted to the laboratory to be composited into one sample set per test pit for analysis of volatile petroleum hydrocarbons and metals by the EP Toxicity procedure.

A detailed description of the materials observed in each of the test pits is provided in Attachment B, and a summary of the observations and the analytical results are discussed below.

TEST PIT S-7 AREA

The total depth of each test pit in the S-7 area was 16 to 17 feet below ground surface, the excavation limit of the backhoe. Four soil samples were obtained from each test pit at depths of approximately 4, 8, 12, and 16 feet.

In general, materials in the pits consisted of construction debris, wood, brick, plastic, graphite pieces and white-grey powdery or pasty material. Refer to Attachment B for a more detailed description of materials.

The HNU readings range from 8.0 ppm to 50.0 ppm above background in the headspace of jarred samples from TP-7W. As shown in Attachment A, HNU readings from soil samples from TP-7N averaged approximately 2.5 ppm and readings from soil samples from TP-7E were slightly above (0.1 to 0.2 ppm) background levels of 0.1 ppm.

The analytical laboratory results from the composited soil samples are presented in Attachment C. The analytical results indicate the presence of three volatile chlorinated hydrocarbons (chlorobenzene, 1,4-dichlorobenzene, and 1,2-dichlorobenzene) in the composited soil samples from Test Pits TP-7W and TP-7N. The concentrations of these compounds in the composite samples from TP-7W and TP-7N are respectively 7.7 ppm and 1.3 ppm chlorobenzene; 23 ppm and 4.5 ppm 1,4-dichlorobenzene; and 3.2 ppm and 1.8 ppm 1,2-dichlorobenzene. In addition, 0.27 ppm xylenes were detected in the composite soil sample from TP-7W.

The concentration of total hydrocarbons is 470 ppm in the composite soil sample from TP-7W and 35 ppm in the composite soil sample from TP-7N. The laboratory indicated that these hydrocarbons were typical of some type of "fuel."

Mercury was detected in the EP Toxicity extract from each of the three composite soil samples obtained from Test Pits TP-7E, TP-7W, and TP-7N at concentrations of .0072 ppm, 0.13 ppm, and 0.17 ppm, respectively. With the exception of lead, which was detected in the composite sample from TP-7E at a concentration of 0.7 ppm, all other EP Toxicity metals analyzed were below the detection limit.

TEST PIT S-3 AREA

Each of the four test pits in the S-3 area were terminated at approximately 7 feet due to the presence of ground water. Three soil samples were obtained from each test pit at depths of approximately 2, 4, and 6 feet.

In general, the materials encountered in the test pits from the S-3 area did not contain the type of construction debris that was found in the test pits from the S-7 area. The soils from the upper two feet were generally brown sand and gravel. White-grey powdery to pasty material with coal chips, possibly originating from the limekiln, was present from two to four feet and the lower four to six feet contained blacktop and black-stained soil. Ground water entering the test pits at 7 feet was observed to have a slight sheen. The HNU headspace measurements from samples obtained from this test pit were between 0.5 ppm and 2.0 ppm above background levels of 0.1 ppm.

Analytical results from the four composite soil samples from this area indicate that none of the compounds tested were present at or above the detection limits (Attachment C).

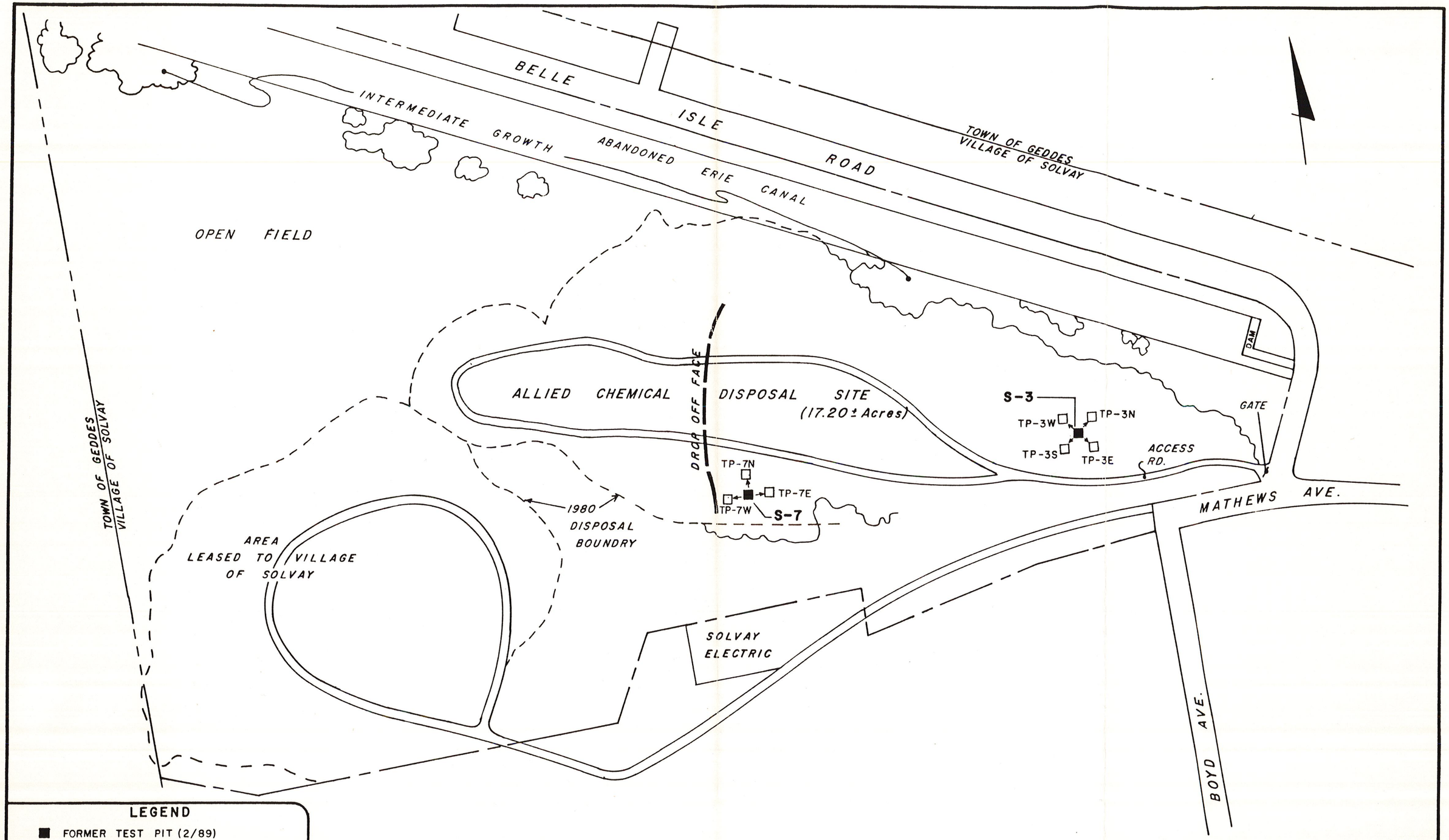
If you have questions, please contact either me or George Thomas.

Very truly yours,

BLASLAND & BOUCK ENGINEERS, P.C.

Tyler E. Gass, C.P.G.
Vice President

TEG/nyb
Attachments



LEGEND

- ■ FORMER TEST PIT (2/89)
- □ NEW TEST PIT (9/89)

ALL LOCATIONS ARE APPROXIMATE

NOTE: MAP PREPARED FROM "SOLID WASTE SECTION, MATHEWS AVE., CONSTRUCTION & DEMOLITION DEBRIS DISPOSAL SITE," MP-4950-2 BY THE INDUSTRIAL CHEMICALS DIV., ALLIED CHEM. CORP., NY, SYRACUSE WORKS TO SCALE 1"=200'. UPDATED 5/16/80

BLASLAND & BOUCK ENGINEERS, P.C.
Syracuse, New York
White Plains, New York

ALLIED CHEMICAL CORPORATION
SOLVAY, NEW YORK

MATHEWS AVE. LANDFILL TEST PIT LOCATIONS

File No. 131.26

Date OCTOBER 17, 1989

0' SCALE 200'

FIGURE

ATTACHMENT A

FORMER MATHEWS AVENUE LANDFILL

Summary of Headspace HNU Screening in Soil Sample Jars

Test Pit	Approximate Sample Depth (ft. below grade)	HNU Reading Above Background in Headspace (ppm)
TP-7E	4.0	0.1
	9.0	0.1
	14.0	0.1
	16.5	0.2
TP-7N	4.0	2.0
	8.0	2.6
	12.0	2.6
	16.0	2.4
TP-7W	4.0	15.4
	8.0	32.0
	12.0	50.0
	16.0	25.0
TP-3S	2.0	0.4
	4.0	3.0
	6.0	1.0
TP-3W	2.0	0.6
	4.0	0.8
	6.0	1.0
TP-3E	2.0	0.3
	4.0	1.4
	6.0	1.0
TP-3N	2.0	1.2
	4.0	1.4
	6.0	2.0

ATTACHMENT B

FORMER MATHEWS AVENUE LANDFILL
Description of Materials in Test Pits

Test Pit S-7 Area

Test Pit	Depth Below Grade	Description
TP-7E	0-4	Materials generally compact, difficult to excavate. Boulder-size limestone blocks, red disintegrated brick, plastic sheeting, small pieces of wood. White-grey fine to coarse sand and fine to coarse limestone gravel matrix.
	4-9	Generally same as above. Increased amount of wood planks, conglomerate glass, orange bricks, plastic sheeting. Matrix material is grey to red rust-stained.
	9-14	Predominately large plastic sheeting and large wood planks. White-grey pieces of powdery material. Plastic barrel, approximately 30 gallons, filled with orange-red plastic pellets. Matrix material was moist.
	14-16.5	Graphite pieces, rubber hose, burlap bags, smaller pieces of wood, plastic, and metal. Blue-green-purple soft pieces of material, red and white pieces of pasty material. Matrix materials are generally moist and finer grained.
TP-7N	0-4	Grey limestone boulders, powdery black-green stained soil and gravel, and boulder-size pieces of black-green material. Wood planks, black hose, and small pieces of metal.

ATTACHMENT B (Cont'd.)

Test Pit S-7 Area (Cont'd.)

Test Pit	Depth Below Grade	Description
	4-8	Larger wood planks, large plastic sheeting, rubber hose, glass, general refuse (paper plates, plastic can rings, soda cans). Green-stained areas and white pasty material.
	8-12	Large black pads, heavy plastic sheeting, wood planks, black hose. White powdery and pasty material, white crystalline, weathered pieces of material.
	12-16	Black tubing, wood planks, red disintegrated brick, black soil with zones of white powdery material. Generally finer grained black to brown soil.
TP-7W	0-4	Grey gravel to boulder size limestone, matrix material stained red at approximately 4 feet.
	4-8	Generally same materials as upper 4 feet. Wood planks, little brick, intact newspapers dated 1973 and 1976.
	8-12	Graphite pieces, intact papers dated October 1969, styrofoam pieces, black hose, cement blocks, and debris.
	12-16	Black finer grained soil and less debris. Styrofoam, little wood, newspaper.
	Comment:	In general, this pit contained less debris than TP-7E and TP-7N.

Test Pit S-3 Area

Test Pit	Depth Below Grade	Description
TP-3S	0-2	Brown fine to coarse sand, some gravel and boulders, some metal fragments.
	2-4	White-grey powdery material with coal chips. Soil is moist.
	4-6	Black-stained soil, blacktop material, little plastic. Ground water at approximately 7.0 feet had a visible sheen. Generally little to no construction debris was observed.
TP-3W	0-6	Generally same profile as described in TP-3S. Ground water at approximately 7.0 feet had a visible sheen.
TP-3E	0-6	Generally same profile as described for TP-3S. Ground water at approximately 7.0 feet had a visible sheen. Additional materials included a few glass bottles, plastic caps, and bricks.
TP-3N	0-6	Generally same profile as described for TP-3S. Ground water at approximately 7.0 feet had a visible sheen. pH of the white-grey material from 2 to 4 feet was 10, based on a pH litmus paper test performed in the field.

ATTACHMENT C

ANALYTICAL LABORATORY RESULTS
MATHEWS AVENUE LANDFILL

OBG LABORATORIES, INC.

Laboratory Report

CLIENT BLASLAND & BOUCK ENGINEERS, P.C. JOB NO. 2887.013.517

DESCRIPTION Allied-Signal, Inc., Mathews Ave.
Soil Composites

DATE COLLECTED 9-12-89 DATE REC'D. 9-12-89 DATE ANALYZED 9-19,21-89

Description	TP-7E	TP-7W	TP-7N	TP-3E	TP-3W
Sample #	J0395	J0396	J0397	J0398	J0399
Volatile Petroleum Hydrocarbons and Solvents by Purge & Trap/GC:					
BENZENE	<13.	<140.	<140.	<17.	<14.
TOLUENE					
ETHYLBENZENE					
XYLENES		270.			
TRICHLOROETHENE		<140.			
TETRACHLOROETHENE					
CHLOROBENZENE		7700.	1300.		
1,3-DICHLOROBENZENE		<140.	<140.		
1,4-DICHLOROBENZENE		23000.	4500.		
1,2-DICHLOROBENZENE		3200.	1800.		
1,2,3-TRICHLOROBENZENE		<140.	<140.		
1,2,4-TRICHLOROBENZENE					
MTBE	<130.	<1400.	<1400.	<170.	<140.
TOTAL HYDROCARBONS	<130.	470000.	35000.	<170.	<140.
COMMENTS	-	Fuel	Fuel	-	-

Methodology: Federal Register — 40 CFR, Part 136, October 26, 1984

Units: mg/ℓ (ppm) unless otherwise noted

Comments:

UNITS: µg/kg dry weight

Authorized: Thomas A. Alexander

Date: October 3, 1989

OBG Laboratories, Inc., an O'Brien & Gere Limited Company
Box 4942 / 1304 Buckley Rd. / Syracuse, NY 13221 / (315) 457-1494

OBG LABORATORIES, INC.

Laboratory Report

CLIENT BLASLAND & BOUCK ENGINEERS, P.C. JOB NO. 2887.013.517

DESCRIPTION Allied-Signal, Inc., Mathews Ave.
Soil Composites

DATE COLLECTED 9-12-89 DATE REC'D. 9-12-89 DATE ANALYZED 9-21-89

Description	TP-3S	TP-3N	QC Trip Blank		
Sample #	J0400*	J0401*	J0402**		
Volatile Petroleum Hydrocarbons and Solvents by Purge & Trap/GC:					
BENZENE	<15.	<15.	<1.		
TOLUENE					
ETHYLBENZENE					
XYLENES					
TRICHLOROETHENE					
TETRACHLOROETHENE					
CHLOROBENZENE					
1,3-DICHLOROBENZENE					
1,4-DICHLOROBENZENE					
1,2-DICHLOROBENZENE					
1,2,3-TRICHLOROBENZENE					
1,2,4-TRICHLOROBENZENE					
MTBE	<150.	<150.	<10.		
TOTAL HYDROCARBONS	<150.	<150.	<10.		
			UNITS:	* µg/kg	dry weight
				** µg/l	

Methodology: Federal Register — 40 CFR, Part 136, October 26, 1984

Units: mg/ℓ (ppm) unless otherwise noted

Comments:

Authorized: Thomas A. Alexander

Date: October 3, 1989

OBG Laboratories, Inc., an O'Brien & Gere Limited Company
Box 4942 / 1304 Buckley Rd. / Syracuse, NY 13221 / (315) 457-1494

OBG LABORATORIES, INC.

Laboratory Report

CLIENT BLASLAND & BOUCK ENGINEERS, P.C. JOB NO. 2887.013.517

DESCRIPTION Allied-Signal, Inc., Mathews Ave,
Soil Composite

DATE COLLECTED 9-12-89 DATE REC'D. 9-12-89 DATE ANALYZED

Description	TP-7E	TP-7W	TP-7N	TP-3E	TP-3W	TP-3S	TP-3N
Sample #	J0395	J0396	J0397	J0398	J0399	J0400	J0401
EP TOX Metals:							
ARSENIC	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BARIUM	<10.	<10.	<10.	<10.	<10.	<10.	<10.
CADMIUM	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
CHROMIUM	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
LEAD	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
MERCURY	0.0072	0.13	0.17	<0.0005	<0.0005	<0.0005	<0.0005
SELENIUM	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
SILVER	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Othter Analysis:							
PERCENT TOTAL SOLIDS	74.8	73.1	73.6	58.8	69.7	66.7	68.3
			UNITS: mg/l				

Methodology: Federal Register — 40 CFR, Part 136, October 26, 1984

Units: mg/l (ppm) unless otherwise noted

Comments:

OBG Laboratories, Inc., an O'Brien & Gere Limited Company
Box 4942 / 1304 Buckley Rd. / Syracuse, NY / 13221 / (315) 457-1494

Authorized: Thomas A. Colleran

Date: October 3, 1989