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report.hw915050_.1993_-12-13_.INDUSTRIAL WASTE SITES.pdf

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Superfund - hw
Spills - sp
ERP - e
VCP - v
BCP - c

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Example: letter.sp9875693.1998-01.Filespillfile.nf.pdf

Entered

INDUSTRIAL WASTE SITES

SPAULDING FIBRE COMPANY, INC.
INDUSTRIAL PLASTICS DIVISION
TONAWANDA, NEW YORK 14150

12/83

Entered

INDUSTRIAL WASTE SITES

AT

SPAULDING FIBRE COMPANY, INC.

INDUSTRIAL PLASTICS DIVISION

310 WHEELER STREET

TONAWANDA, NEW YORK 14150

DECEMBER 13, 1983

BY: SPAULDING FIBRE COMPANY, INC.

INDEX

1. BACKGROUND

Spaulding Fibre Company, Inc.'s Industrial Plastics Division located at 310 Wheeler Street, Tonawanda, New York, County of Erie has two (2) inactive disposal waste sites on its property. One (1) is listed under NYSDEC site code as #915050-b and the other as #915050-c. The 915050-b site contains approximately 750 - 55 gallon drums of resin and was used from February 1978 to September 1978. The 915050-c site contains approximately 40 tons (7,500 cubic yards) of Spauldite® dust in polyethylene bags and was used from the fall of 1977 to September 1978.

The manufacture of Spauldite® brand high pressure industrial laminate involves the use of a reinforcing web in a resin matrix. The reinforcing webs used at this facility during the 1977 and 1978 time period were: cellulose paper, asbestos paper, woven cotton fabric (linen and canvas), woven asbestos fabric and woven glass fabric. These continuous webs are dipped in a thermosetting liquid resin (adhesive) system and cured (dried) to a B-stage or prepreg condition. Several sheets of B-state are then placed in a press where heat (300-365°F) and pressure (1000-1500 psi) are used to fuse the individual B-stage plies into one homogeneous mass with a thickness determined by the weight (number of plies) put into the press. Since the resins used are all thermosetting the chemical reaction that takes

place is irreversible and the resin is permanently cured (set). An analysis of our production records indicate that the average product mix is 95% phenolic, 2% epoxy and 3% melamine laminate. All the sheets are saw trimmed and most are sawed into thirds or halves. About 5-10% of the laminates are also surface sanded for various reasons such as close thickness tolerance control, roughened surface for bonding, etc. It is the saw and sanding dust that was bagged and disposed of in the dust area #915050-c. This material is solid, inert, water insoluble and non-volatile.

As stated, liquid resin systems are used to impregnate and/or coat the reinforcing webs. It is the tank heels and cleanup residual material that is in the drums in area #915050-b. These systems are thermosetting and have the catalyst in them so that they will polymerize to their cured (C-stage) form. The polymerization process is a chemical reaction that is temperature dependent. The reaction rate doubles for each 10°C increase in temperature. These resins cure at 50 to 300 seconds at 300°F. Since these reactions are condensation polymerization in nature, the by-product is water. The last drum was disposed of in #915050-b in September 1978, over five (5) years ago. We would fully expect that these materials have solidified in that time period. The raw chemicals in these systems are: phenol, formaldehyde, cresylic

acid, dibutyl phthalate, butyl octyl phthalate, aniline, epichlorohydrin, bisphenol-A, methanol, toluol, methyl-ethyl-ketone and ethyl alcohol.

2. DUMP LOCATION AND DESIGN

The original 1961 blueprint of the Spaulding buildings and property updated as of November 1983 shows the location, dimensions and vertical section design of the dump sites.

The dust site has a mounded cover approximately 25 x 70 feet. This site contains two (2) trenches 6 x 40 feet and one (1) trench 6 x 20 feet. The bottom of the trenches is ten (10) feet below ground level and twelve (12) feet below the mounded cap. There is approximately four (4) feet of cover on top of the bagged dust. The bags of dust are in layers with each layer covered with earth.

The drum site has a mounded cover 50 x 70 feet containing trenches seven (7) feet wide. The drums are positioned in a randomed manner in the trenches with about four (4) feet of earth cover.

3. DATA

A. USGS Test Borings - 1982

1. Site 915050a (lagoon to collect Spauldite® tube wet grinding waste containing phenol)

Lagoons were excavated 1972 and filled with clean material. The excavated material was disposed of at Seaway Landfill. NYDEC reports that this area has been properly closed.

Well No.	Depth (ft)	Description
1	0 - 0.5	Topsoil
	0.1 - 1.5	Clay, red, intermixed with gravel, extremely tight
		SOIL SAMPLE: 2 - 3.5 ft.
2	0 - 5.5	Clay, red, tight, dry, with layers of gravel
	5.5 - 7.0	Clay, red, wet
	7.0 - 11.5	Clay, red, tight, dry
	11.5 - 16.5	Clay, red, tight, dry
		SOIL SAMPLE: 5.5 - 7.0 ft.
3	0 - 5.0	Clay, reddish, tight, dry, some gravel
	5.0 - 5.5	Clay, reddish, wet
	5.5 - 26.5	Clay, reddish, dry
		SOIL SAMPLE: 5 - 5.5 ft.

Well No.	Depth (ft)	Description
4	0 - 0.5	Topsoil
	0.5 - 3.5	Clay, reddish, tight, dry
	3.5 - 4.5	Clay, reddish, damp
	4.5 - 16.5	Same as above but with gravel layers.
		SOIL SAMPLE: 3.5 - 4.5

As indicated, soil samples were collected from each boring at depths ranging from 2 - 7 feet. No phenols were reported in these samples.

B. Earth Dimensions, Inc. Test Borings - 1978

Attached are copies of these boring data plus a summation letter dated September 27, 1978 by Mr. Donald W. Owens, Soil Scientist for Earth Dimensions, Inc.

EARTH DIMENSIONS, INC.

Soil Investigations and Natural Resource Assessments

797 Center Street • East Aurora, New York 14052 • (716) 655-1717

September 27, 1978

Mr. David Weber
Krehbiel Associates, Inc.
1668 Niagara Falls Boulevard
Tonawanda, New York 14150

RE: SOILS REPORT - SPAULDING FIBRE

Dear David:

Three soil borings were augered September 22, 1978 near the eastern and southern side of the buildings of Spaulding Fibre in the City of Tonawanda. The placement sites were located by David Weber of Krehbiel Associates.

The soils were logged at these sites based on split spoon samples taken from every major horizon. In addition, undisturbed soil samples were collected in Shelby tubes from two depths at each bore site for permeability laboratory tests.

A thin mantle of clayey lake sediment was described as the surficial original sediment at all three sites. This mostly stone free sediment rested on a silty clay loam (CLAYEY-SILT) dense glacial till containing some stone fragments. The lower boundary of this very impervious clayey mantle ranged from 3.0 to 4.5 feet below the surface. A silty lake sediment layer was a transition zone between the clayey lake sediment and glacial till in boring #3.

The (CLAYEY-SILT) dense glacial till, sometimes called "hardpan" is very high in silt with moderate (about 25 to 35%) amount of clay and low content (less than 15%) of sand. This till is very uniform, even in the distribution of the stone fragments which is estimated to be less than 15%. Water movement through this dense zone is also very slow.

Water tends to perch above the clayey lake sediment as was the case in soil boring #1 with the water seeping into the bore hole from the more permeable industrial waste cap. This surficial perched water table usually disappears in late spring reappearing in fall except after intense summer thunderstorms or extended wet periods. The permanent water table was below sampling depth, though the moisture content did increase with depth in borings #2 and #3.

Prepared by:

Donald W. Owens
Soil Scientist

DWO/dew
6178

EARTH DIMENSIONS, INC.

Test Borings and Logs
797 Center Street • East Aurora, New York 14052 • (716) 655-1717

6178 HOLE NO. 1 SURF. ELEV. _____

PROJECT Spaulding Fibre Co., Inc.
City of Tonawanda
LOCATION 510 Wheeler Street

CLIENT Krehbiel Associates, Inc.
DATE STARTED 9/22/78 COMPLETED 9/22/78

DEPTH (feet)	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24	N	DESCRIPTION & CLASSIFICATION	WATER TABLE & REMARKS
							Moist, reddish-brown SILTY-CLAY fill, very firm	Water rapidly seeped into bore hole from the man deposited fill mantle.
	1	8	4	4		8	Extremely moist to wet black cinders, reddish-brown SILTY-CLAY and industrial wastes, very friable to firm, in 3 to 6 inch layers.	
5	2	27	NT				Moist, reddish-brown silty clay (CLAYEY-SILT) with less than 5% gravel, massive soil structure, extremely firm (stiff)	Fill to four feet over ½ foot thick lake sediment resting on very dense silty glacial till to end of boring. The original approximate 4 feet of clayey lake surficial material was removed.
		Shelby tube sample #1					Moist, reddish-brown, silty clay loam (CLAYEY-SILT) with 5 to 10% subangular, gray, hard shale and dolomitic gravel, massive soil structure, extremely firm, slightly plastic. This deposit is very compact and uniform.	NT - not taken due to Shelby tube samples taken at this depth and below.
	3	27	43	58		101		
10								
15	4	33	NT					
		Shelby tube #2						
	5	27	33	35		68	(Note change in scale between 10 and 15 feet with sample #4 secured between 14.5 and 15.0 feet.)	Water table at 11.5 feet below surface at completion.
		50	42	53		95		
20	6						Boring completed at 20.0 feet	

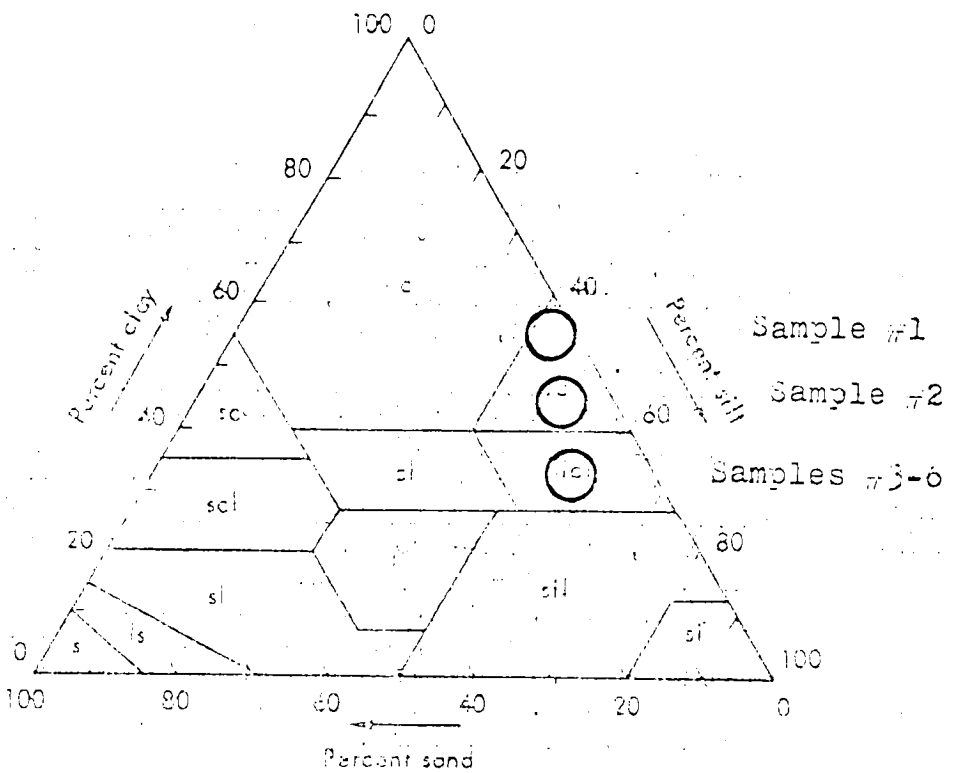
dew N = NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW.

LOGGED BY Owens & Smith

SHEET 1 OF 1

HOLE #1:

6I78



Sample #1

Sample #2

Samples #3-6

c	Clay	scl	Sandy clay loam
sic	Silty clay	sicl	Silty clay loam
cl	Clay loam	l	Loam
sil	Silt loam	si	Silt
sl	Sandy loam	s	Sand
ls	Loamy sand		

Textural classes and particle-size limits (clay, <0.002 mm; silt, 0.002-0.05 mm; and sand 0.05-2.0 mm) for loam soil texture (Adapted from U.S. Soil Survey Staff, 1951).

EARTH DIMENSIONS, INC.

Test Borings and Logs
797 Center Street • East Aurora, New York 14052 • (716) 655-1717

6178 HOLE NO. 2 SURF. ELEV. _____

PROJECT Spaulding Fibre Co., Inc. LOCATION _____
City of Tonawanda 310 Wheeler Street
CLIENT Krehbiel Associates, Inc. DATE STARTED 9/22/78 COMPLETED 9/22/78

DEPTH (Feet)	SAMPLE NO.	BLOWS ON SAMPLER (0-6 / 6-12 / 12-18 / 18-24)	N	DESCRIPTION & CLASSIFICATION	WATER TABLE & REMARKS
				Extremely moist, black, cinder fill, very friable	
				Moist, black, silt loam (CLAYEY-SILT) topsoil	
	1	27 / 39 / 44	83	Moist, distinctly mottled, reddish-brown SILTY-CLAY, with gray vertical dessication cracks, extremely firm (stiff), plastic	Clayey lake sediments to 2 feet over dense, silty clay loam glacial till to end of boring.
5	2	2 / NT		Moist, reddish-brown silty clay loam (CLAYEY-SILT) with 10 to 15% subangular hard dolomite and shale gravels and occasional cobble, massive soil structure, extremely firm, slightly plastic.	NT-not taken due to Shelby tube samples taken at this depth and below.
		Shelby tube sample #1			
10	3	33 / 45 / 56	101		(Note scale change between 10.0 and 15.0 feet.)
				---grades downward to-14.0 feet---	
15	4	12 / NT			(Sample #4 taken at 14.5 to 15.0' depths)
		Shelby tube sample #2		Moist, brown, silty clay loam (CLAYEY-SILT) with 10 to 15% subangular hard dolomite and shale gravel, massive soil structure, firm, slightly plastic	No water at completion
		17 / 24 / 24 / 29	53		
20	5			Boring completed at 20 feet	

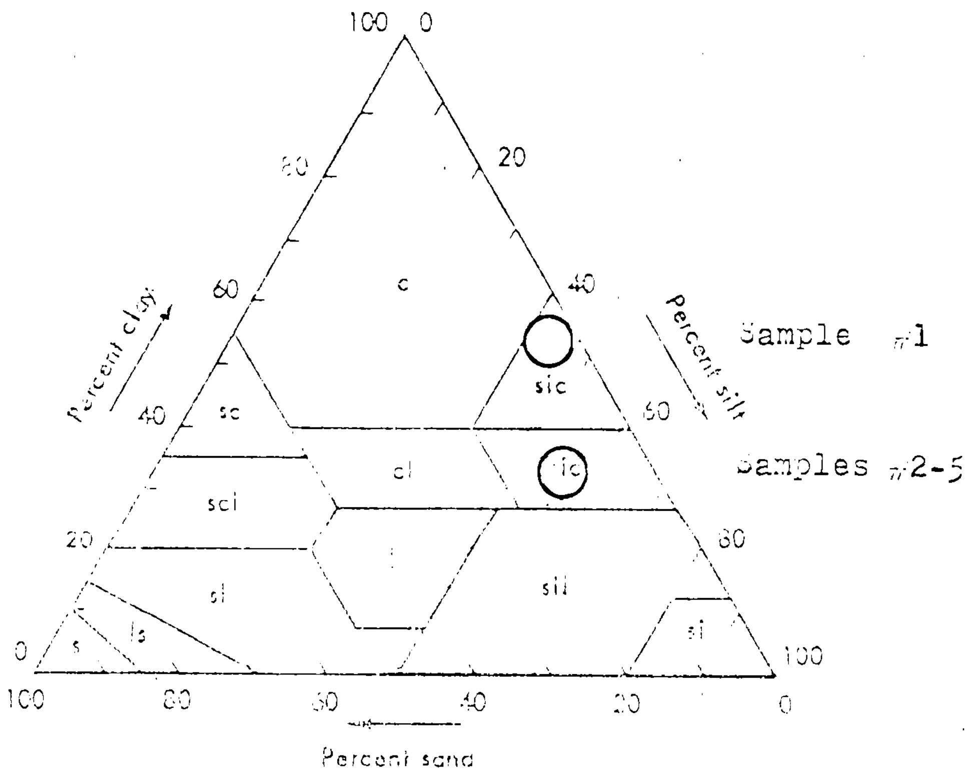
N = NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW.

dew

LOGGED BY Owens & Smith -10- SHEET 1 OF 1

6178

HOLE #2:



c	Clay	scl	Sandy clay loam
si	Silt	sicl	Silty clay loam
s	Sand	cl	Clay loam
l	Loam	sil	Silt loam
sc	Sandy clay	sl	Sandy loam
sic	Silty clay	ls	Loamy sand

[illegible] (0.002-0.05 mm), and sand (0.05-2.0 mm) [illegible] Soil Survey Staff, 1951).

EARTH DIMENSIONS, INC.

Test Borings and Logs
797 Center Street • East Aurora, New York 14052 • (716) 655-1717

6I78 HOLE NO. 3 SURF. ELEV. _____

PROJECT Spaulding Fibre Co., Inc. LOCATION 510 Wheeler Street
City of Tonawanda

CLIENT Krenbiel Associates, Inc. DATE STARTED 9/22/78 COMPLETED 9/22/78

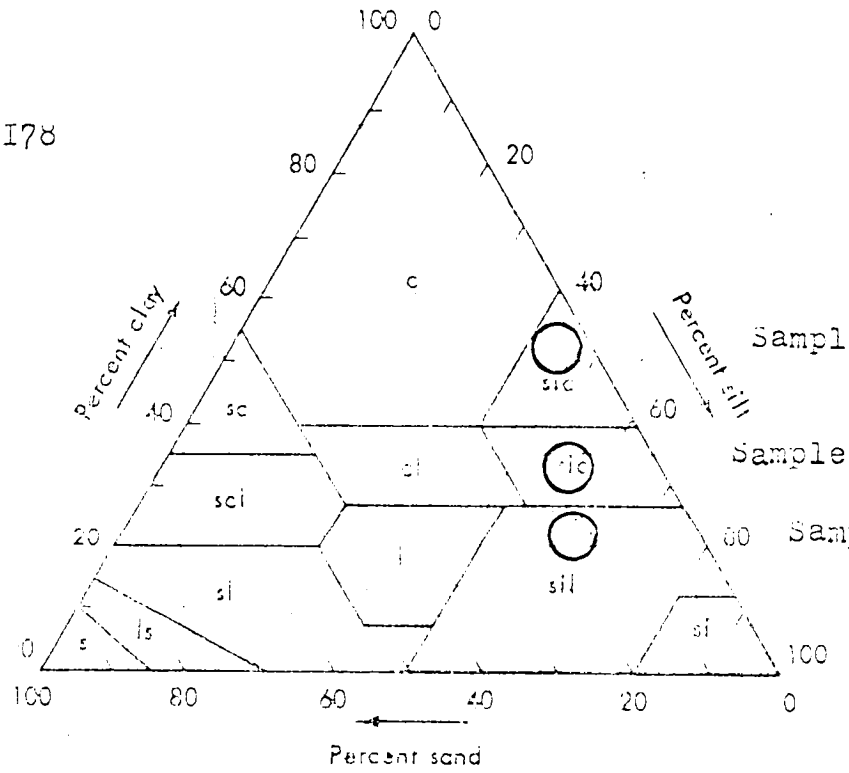
DEPTH (feet)	SAMPLE NO.	BLOWS ON SAMPLER (0-6 / 6-12 / 12-18 / 18-24)	N	DESCRIPTION & CLASSIFICATION	WATER TABLE & REMARKS
				Moist, black, silt loam (CLAYEY-SILT) topsoils, very friable	
		8 12 20	32		
	1			Moist, distinctly mottled, reddish brown, SILTY-CLAY with gray dessication cracks, very firm	
				------clear transition to----------	Clayey and silty lake sediments to 6 feet over dense, silty clay loam glacial till to end of boring
		Shelby tube			
		sample #1		Moist, reddish-brown, heavy, silt loam (CLAYEY-SILT), thinly bedded, firm, nonplastic, nonsticky	
5					
				-------clear transition to--------	
				Moist, reddish-brown SILTY CLAY loam (CLAYEY-SILT) with 10 to 15% subangular, hard, gray shale and dolomite gravels, massive soil structure, extremely firm	
10		18 21 40	61		
	3				
				------grades downward to----------	
				Moist, to extremely moist, brown silty clay loam (CLAYEY-SILT) with 10 to 15% subangular, gray hard shale and dolomite gravels, massive soil structure, firm.	
		Shelby tube			
		sample #2			
		17 22	39		
	4			Continued on Page 2...	

N = NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW.

dew LOGGED BY Owens & Smith -11- SHEET 1 OF 2

HOLE #3:

6I78



c	Clay	scl	Sandy clay loam
si	Silt	sicl	Silty clay loam
s	Sand	cl	Clay loam
l	Loam	sil	Silt loam
sc	Sandy clay	sl	Sandy loam
sic	Silty clay	ls	Loamy sand

Textural classes, showing the percentages of clay (<0.002 mm), silt (0.002-0.05 mm), and sand (0.05-2.0 mm) in the basic soil textural classes (adapted from Soil Survey Staff, 1951).

EARTH DIMENSIONS, INC.
Test Borings and Logs
797 Center Street • East Aurora, New York 14052 • (716) 655-1717

6178 HOLE NO. 3 continued SURF. ELEV. _____

PROJECT Spaulding Fiber Co., Inc. City of Tonawanda LOCATION 310 Wheeler Street

CLIENT Krehbiel Associates, Inc. DATE STARTED 9/22/78 COMPLETED 9/22/78

DEPTH (feet)	SAMPLE NO.	BLOWS ON SAMPLER 0/6 6/12 12/18 18/24 N	DESCRIPTION & CLASSIFICATION	WATER TABLE & REMARKS
		12 24 24 29 53	(Same horizon as described at the bottom of page 1 of 2)	Water table 9.5 feet below surface at completion
20	5		Boring completed at 20 feet	

N = NUMBER OF BLOWS TO DRIVE 2 " SPOON 12 " WITH 140 lb. WT. FALLING 30 " PER BLOW.

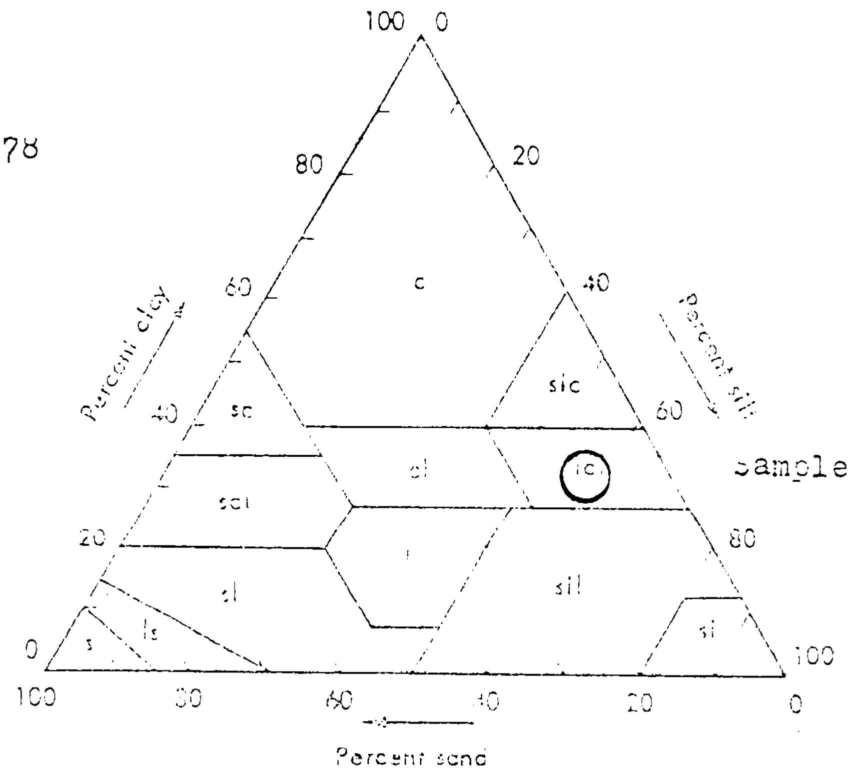
dew

LOGGED BY Owens & Smith

SHEET 2 OF 2

HOLE #3 - Continued:

6178



Sample #5

c	Clay	scl	Sandy clay loam
si	Silt	sicl	Silty clay loam
s	Sand	cl	Clay loam
l	Loam	sil	Silt loam
sc	Sandy clay	sl	Sandy loam
sic	Silty clay	ls	Loamy sand

[illegible] silt (0.002-0.05 mm), and sand (0.05-2.0 mm) [illegible] Soil Survey Staff, 1951.)

C. Calspan Corporation Soil Permeability Coefficients (k) - 1978

Shelby tube samples were taken from two (2) depths at each of the three (3) bore sites augered September 22, 1978 by Earth Dimensions, Inc. and cited in B. above. These samples were tested by Calspan Corporation for natural soil permeability coefficient with the following results:

Test Boring	Sample Zone (ft)	Permeability Coefficient (cm/sec)
1	4.5 - 5.5	$k = 1.06 \times 10^{-7}$
	15 - 17	$k = 2.1 \times 10^{-7}$
2	5 - 6	$k = 2.0 \times 10^{-5}$
	15 - 17	$k = 2.3 \times 10^{-7}$
3	3.5 - 4.5	$k = 2.2 \times 10^{-5}$
	14.5 - 15.5	$k = 1.4 \times 10^{-6}$

D. Aerial Photograph Review and Interpretation

1951, 1961, 1972 and 1978 aerial photos were reviewed with the following observations:

1951 - Some activity was noted in the area of Site 915050c. The soil appears to have been disturbed and some piles of material or containers were noted in this area.

1961 - Continued activity noted at Site 915050c. A depression, possibly a pit was evident in the general area of 915050a. No deposition of material evident.

1972 - Extensive accumulations of material and disturbance of soils noted in the area of Sites 915050 a, b, and c. Also apparent storage of material noted next to the building in the northeastern corner of property.

1978 - Only minor activity noted at Site 915050b. No determination possible on the type of activity.

The aerial photo review generally confirms reported disposal activity by Spaulding Fibre.

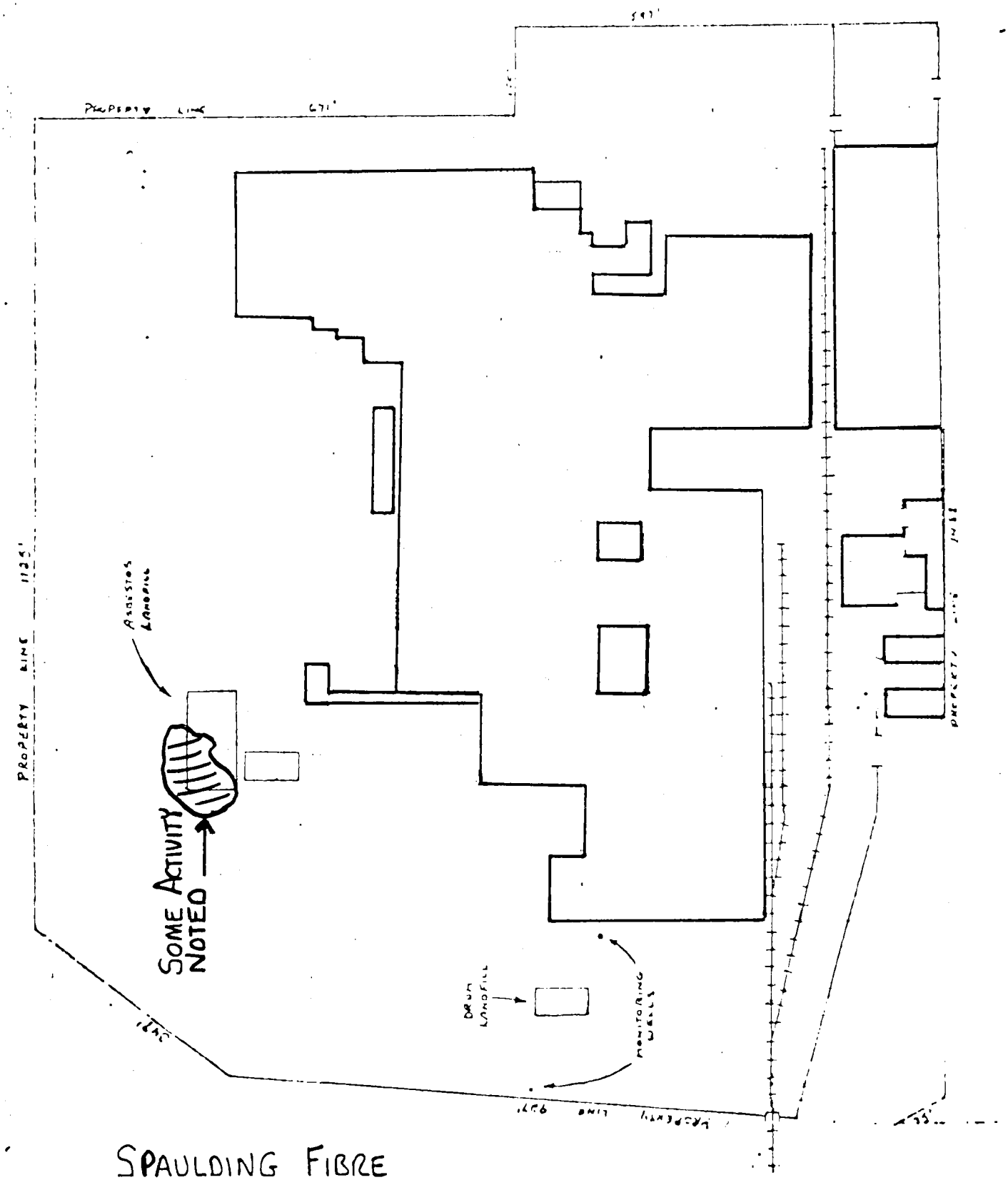
E. Town of Tonawanda Hydrogeologic Investigation By Thomson Associates - July 1983

This information was reviewed because of the proximity of this site to Spaulding Fibre (approximately 1/4 miles south).

An executive summary on Page 7 of this report indicates that the Tonawanda Landfill areas overlay thick glacial till deposits with low vertical and horizontal permeability. The unconsolidated deposits were described as between 56 and 95.5

feet thick and consisting primarily of a red-brown silty clay glacial till. These materials were tested and showed a mean vertical and horizontal hydraulic conductivity of 1.7×10^{-6} cm/sec and 1×10^{-5} cm/sec respectively.

This data generally confirms the soil data reported by Krehbiel and USGS for the Spaulding Fibre site.



SPAULDING FIBRE

1951 [redacted] - AERIAL PHOTO INTERP.

AVOELL - DEC-1983

F. Spaulding Fibre Gas Well Log Information - 1978

Spaulding Fibre Company, Inc. installed three (3) gas wells on its property in 1978. The following is an excerpt from the drilling logs:

Well #1 (Water Tower Area - North Side of Property)

Depth (ft)	Description
0 - 24	Fill and glacial debris
24 - 170	Salina

Well #2 (Hines Street - Hackett Street - Southwest Corner of Property)

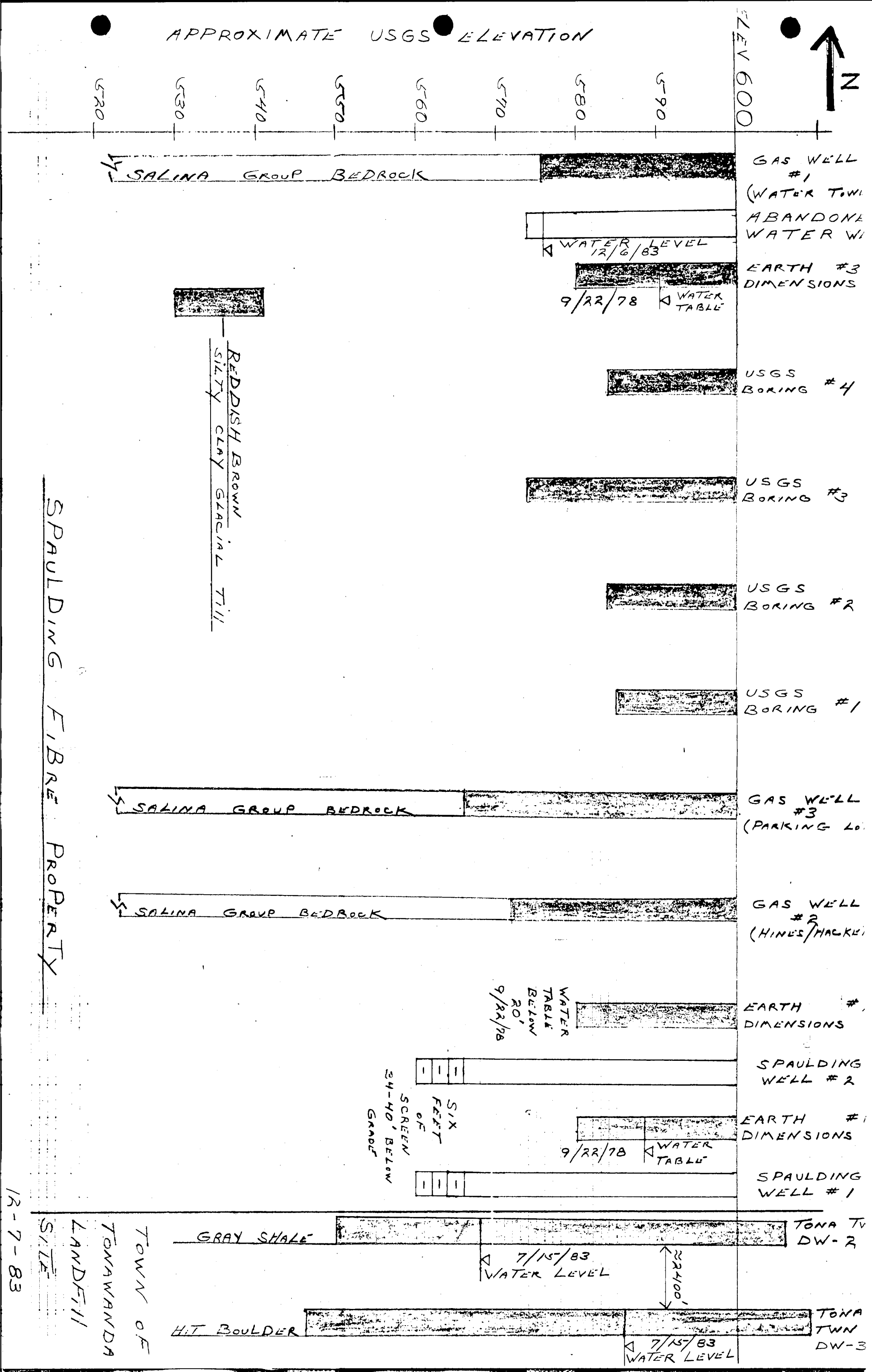
Depth (ft)	Description
0 - 28	Fill and glacial till
28 - 202	Salina

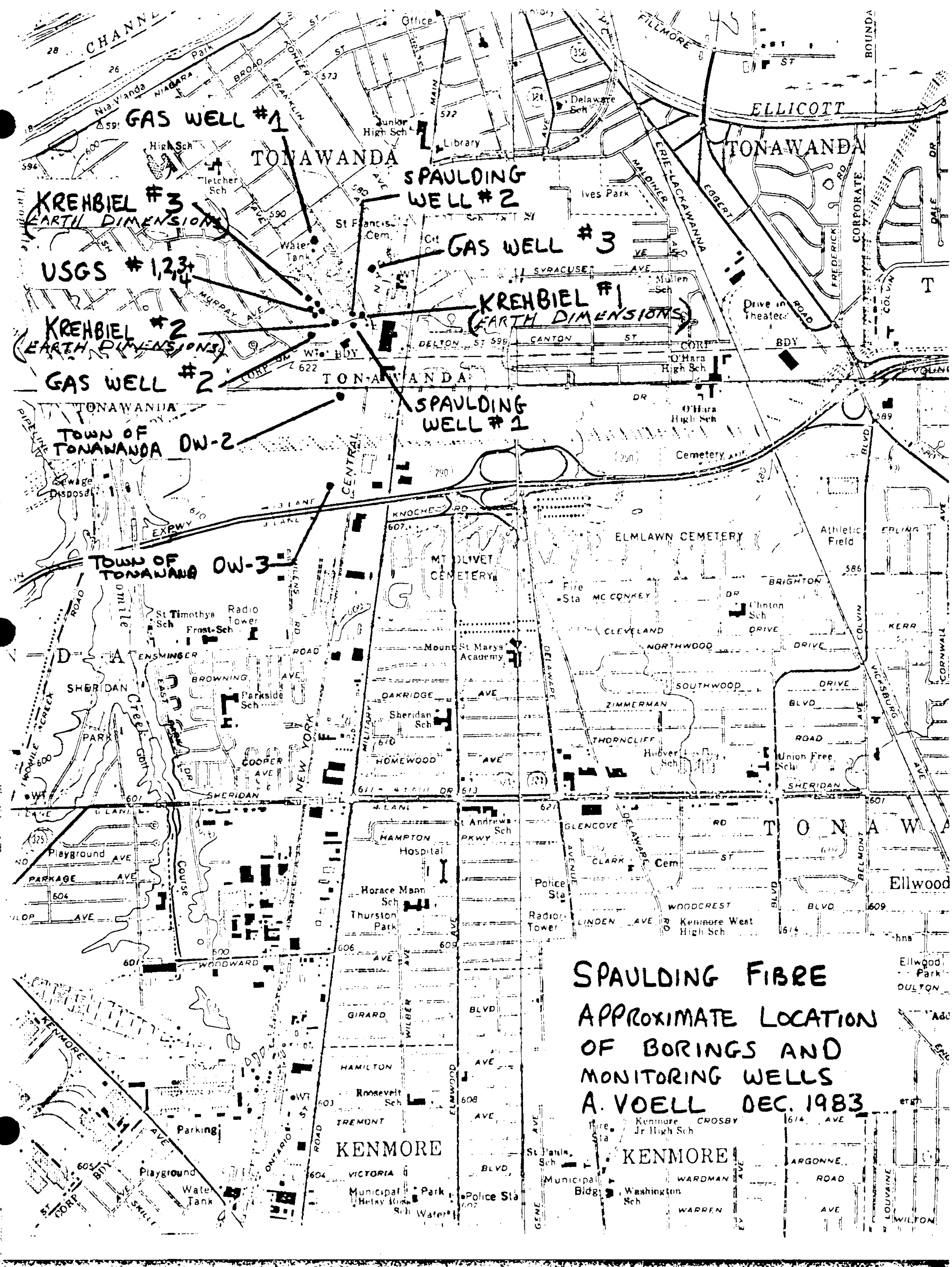
Well #3 (Parking Lot Across Wheeler Street - East Side of Property)

Depth (ft)	Description
0 - 34	Glacial fill
34 - 196	Salina

G. Spaulding Fibre Company, Inc. Abandoned Water Well

On the Spaulding property is an abandoned water well. This well was measured on December 6, 1983 for well depth and water level. The well is twenty-six (26) feet deep from ground level and the water level was at twenty-four (24) feet below the ground level.

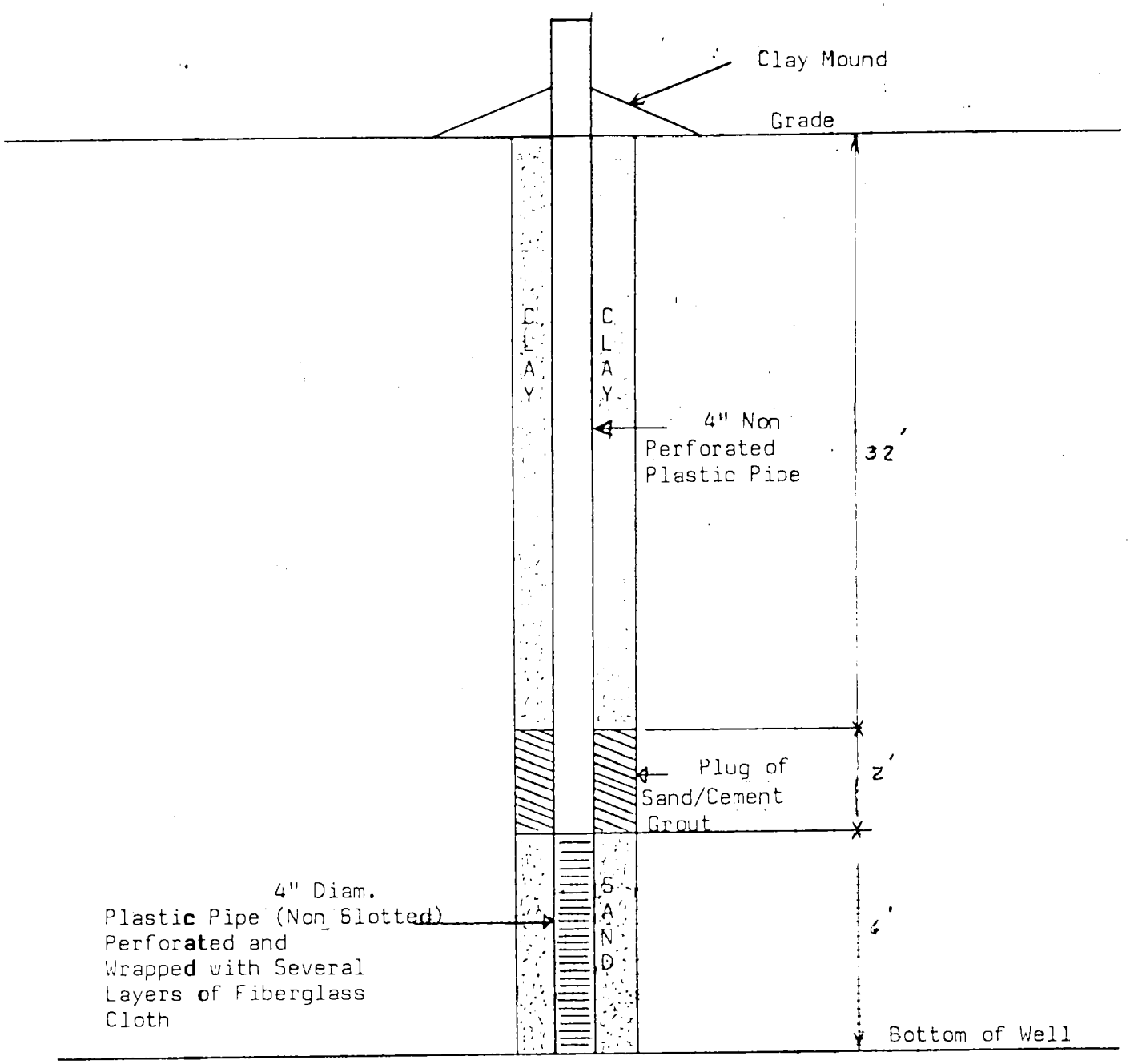

APPROXIMATE USGS ELEVATION
620
630
640
650
660
670
680
690
ELEV 600
N
SALINA GROUP BEDROCK
GAS WELL #1 (WATER TOWI
ABANDONA WATER WI
WATER LEVEL 12/6/83
EARTH #3 DIMENSIONS
9/22/78
WATER TABLE
REDDISH BROWN SILTY CLAY GLACIAL TILL
USGS BORING #4
USGS BORING #3
USGS BORING #2
USGS BORING #1
SALINA GROUP BEDROCK
GAS WELL #3 (PARKING LO
SALINA GROUP BEDROCK
GAS WELL #2 (HINES/HACKE
WATER TABLE BELOW 20' 9/22/78
EARTH # DIMENSIONS
SPAULDING WELL #2
SIX FEET OF SCREEN 24-40' BELOW GRADE
EARTH # DIMENSIONS
9/22/78
WATER TABLE
SPAULDING WELL #1
SPAULDING FIBRE PROPERTY
GRAY SHALE
TONA TV DW-2
7/15/83 WATER LEVEL
≈2400'
HIT BOULDER
TONA TWN DW-3
7/15/83 WATER LEVEL
TOWN OF TONAWANDA LANDFILL SITE
12-7-83


GAS WELL #1
SPAULDING WELL #2
KREHBIEL #3
(EARTH DIMENSIONS)
GAS WELL #3
USGS #1,2,3,+4
KREHBIEL #1
(EARTH DIMENSIONS)
KREHBIEL #2
(EARTH DIMENSIONS)
GAS WELL #2
SPAULDING WELL #1
TOWN OF TONANANDA OW-2
TOWN OF TONAWANA OW-3
SPAULDING FIBRE
APPROXIMATE LOCATION
OF BORINGS AND
MONITORING WELLS
A. VOELL DEC. 1983
TONAWANDA
KENMORE
ELLICOTT
ELMLAWN CEMETERY
MT OLIVET CEMETERY
SHERIDAN

H. Well Monitoring Results - 11/23/78 through 9/29/83

Pittsburgh Testing Lab, 605 Young Street, Tonawanda, New York was contacted to put in two (2) monitoring wells, one upstream and one downstream of the drum dump site (915050b). These wells were put in October 6-7, 1978. The driller's log shows that both wells were sunk to a depth of forty (40) feet below grade. Four (4) inch plastic pipe was used with the bottom six (6) feet perforated and wrapped with fiberglass cloth. The bottom six (6) feet was backfilled with sand then with two (2) feet of cement grout on top of the sand and the thirty-two (32) feet remainder backfilled with the excavated material. The upstream well core was dry for the top thirteen (13) feet and damp from fourteen (14) to forty (40) feet. The well was left open overnight and filled with water to 1.4 feet below the surface. The downstream well filled with water to two (2) feet below grade at the end of the drill.

Following are the test results since 11/23/78.



Water Wells 1 & 2 Installed 10-6, 7-1978

BF-8276

Form 285

RESIN DRUM DUMP SITE #915050b

IPD MONITORING WELLS - PPM

SAMPLE DATE	PHENOL UP	PHENOL DOWN	ANTIMONY UP	ANTIMONY DOWN	COD UP	COD DOWN
11-23-78	<.25	<.10	<.01	<.01	175	89
1-25-79	.22	.09	<.01	<.01	78	59
3-22-79	.07	.23	<.01	<.01	22.8	76
5-17-79	.18	.24	<.1	<.1	93	38.8
8-18-79	.04	.03	<.1	<.1	26.5	49.1
9-20-79	.15	.06	<.005	<.005	24.4	50.1
12-20-79	.07	.08	<.005	<.005	19.8	32.2
5-15-80	.23	.19	<.001	<.001	7.9	19.9
10-23-80	<.03	<.03	<.002	<.002	18.8	55.6
3-26-81	.21	.26	<.005	<.005	7.7	11.5
12-10-81	<.03	<.03	<.002	<.002	<5	<5
10-12-82	<.03	<.03	<.002	<.002	<1.0	14
	DER 11/19/82		LTR FILE NYSDEC TO FOLLOW			
			THC* UP	THC* DOWN		
3-17-83	<.03	<.03	.0082**	.013**	16.0	53.5
9-29-83	<.03	<.03	<.01	<.01	100.0	5.2

* EXPRESSED AS LINDANE

** THIS IS TOTAL CHLORINATED ORGANICS

10-11-82

I. Expended Well Testing - November/December 1983

As a result of NYSDEC's decision to go to Phase II for both the dust and drum sites, it was decided to gather additional data from the test wells. This involved analyzing for additional chemicals and analyzing to a lower sensitivity level. The results are in table form.

SAMPLE DATE	11/23/83		12/1/83		12/6/83	
PARAMETER	UP STREAM	DOWN STREAM	UP, STREAM	DOWN STREAM	UP STREAM	DOWN STREAM
Phenol	<2	<2	<2	<2		
Cresols	<5	<5	<5	<5		
Dibutyl Phthalate	<15	<15	<15	<15		
Butyl Octyl Phthalate	<20	<20	<20	<20		
Formaldehyde	5	30	14	10	3.4	8.3
Methyl Alcohol	3	11	2	2	2.9	2.9
Ethyl Alcohol	13	8	13	13	1.5	2.4
Methyl Ethyl Ketone	6	3	5	6	5.8	6.2
Toluene	9	3	13	9	3.4	5.1

NOTES: 1. Analysis by ACTS TESTING LABS, INC. using 606, 602, 604 EPA methods.
2. All results in parts per billion.

J. EP Toxicity Tests Spauldite® Dust - November 1983

A sample of Spauldite® dust was composited according to our average product mix as described under the section headed BACKGROUND i.e. 95% phenolic, 2% epoxy and 3% melamine. This sample was tested according to the EP toxicity test with the following results:

PARAMETER	DUST SAMPLE RESULT	EPA MAXIMUM CONCENTRATION
Arsenic	0.014 ppm	5.0 ppm
Barium	0.2 ppm	100.0 ppm
Cadmium	<0.01 ppm	1.0 ppm
Chromium	<0.01 ppm	5.0 ppm
Lead	<0.1 ppm	5.0 ppm
Mercury	<0.002 ppm	0.2 ppm
Selenium	<0.002 ppm	1.0 ppm
Silver	<0.01 ppm	5.0 ppm
Phenol	<2 ppb	NA
o-Cresol	<5 ppb	NA
p,m-Cresol	<5 ppb	NA
Dibutyl Phthalate	5910 ppb	NA
Butyl Octyl Phthalate	2270 ppb	NA
Formaldehyde	<0.8 ppb	NA
Methyl Alcohol	<0.3 ppb	NA
Ethyl Alcohol	15 ppb	NA
Methyl Ethyl Ketone	3 ppb	NA
Toluene	7 ppb	NA

4. SUMMARY AND CONCLUSIONS

1. Considerable data has already been accumulated in connection with the dump sites on Spaulding Fibre Company, Inc.'s property.
2. This data indicates that:
   a. there has been no evidence of contaminant leaching from the sites or of groundwater contamination,
   b. the geology of the soil in the area shows a reddish brown silty glacial till down to and below the water table. This is firm, uniform and impermeable,
   c. soil natural permeability coefficients (k) range from 2.0×10^{-5} to 2.1×10^{-7} cm/sec.,
   d. EP toxicity tests on Spauldite® dust do not show the material to be a hazardous waste as as defined by RCRA.
3. In view of the data, it is felt that Phase II work at the sites is not required, but that the on-going monitoring program be continued.