138968

FIKE CHEMICALS, INC.

P. O. BOX 546 NITRO, WEST VIRGINIA 25143

PHONE 755-3336
(AREA CODE 304)

received
Region III EPA
2/25/85

JRB

GROUNDWATER MONITORING SUMMARY : Fike chemicals,inc, Coastal Tank Lines, Cst,inc.

Background: In 1983, Fike/CST/Coastal executed a consent agreement with USEPA. Among other tasks, Fike, etc. agreed to install wells, sample and analyze groundwater for several parameters , using analytical methods specified by EPA. (See Table 1)

Concurrently, Fike submitted a groundwater quality assessment paln to EPA Region III . In this plan fike cagreed to perform quaterly sampling of selected monitoring wells and to analyze thes samples for the Table 1 parameters.

To date three sets of samples have been taken and analyzed. Two of the wells had also been sampled in 1981 by an EPA contractor, and analyzed using GC/MS methods.

Summary: Results are presented in tabular form for ecah parameter. Elevation data from the "JRB Report" is also presented along with analytical data. It sholud be noted that elevation date from the JRB Report is at variance with that obtained by Fike's contractor. On average , the JRB elevations are six feet lower that those obtained by Fikes surveyor, using a USGS Benchmark for reference elevation. The JRB study does not state how elevations were obtained.

A sketch of the flow lines developed by JRB is attached along with a map of the elevations obtained by Fike.

A cursory study of the analytcal results does not reveal an apparent contaminant plume. Most of the analyses indicate virtually uncontaminated groundwater.

TABLE 1 Sample Parameters, Methods of Analysis, and Criteria (as per Consent Agreement)

A. 1,2-Dichloroethane: Criterion; 0.94 ug/l, Method; Gas chromatograph-purge and trap- Hall electrolytic conductivity detector.

B. Tetrachloroethene: Criterion: 0.8 ug.l , Method; Same as No. A above.

C. Trichloroethene: Criterion; 2.7 ug/l, Method; Same as No. A above.

D. Bis(2-chloroethyl) ether: Criterion; 0.3 ug/l, Method; Gas chromatograph- extraction with methylene chloride- Hall electrolytic conductivity detector.

E. Benzene: Criterion; o.66 ug/l, Method; Gas chromatograph - purge and trap- photoionization detector.

F. Phenol: Criterion; 300 ug/l, Method; Standard Method.

G. Cyanide: Criterion; 200 ug/l, Method; Standard Method.

H. Arsenic: Criterion; 50 ug/l, Method; Standard Method.

I. Specific Conductivity: Criterion; none, Method, Standard Method.

J. pH: Criterion; None, Method, Standard Method.

K. Total Organic Carbon: Criterion;None, Method; Standard Method.

Criteria are chosen to equal the minimum detection limit (to 99% confidence) or the water quality carcinogen criterion, whichever is higher.

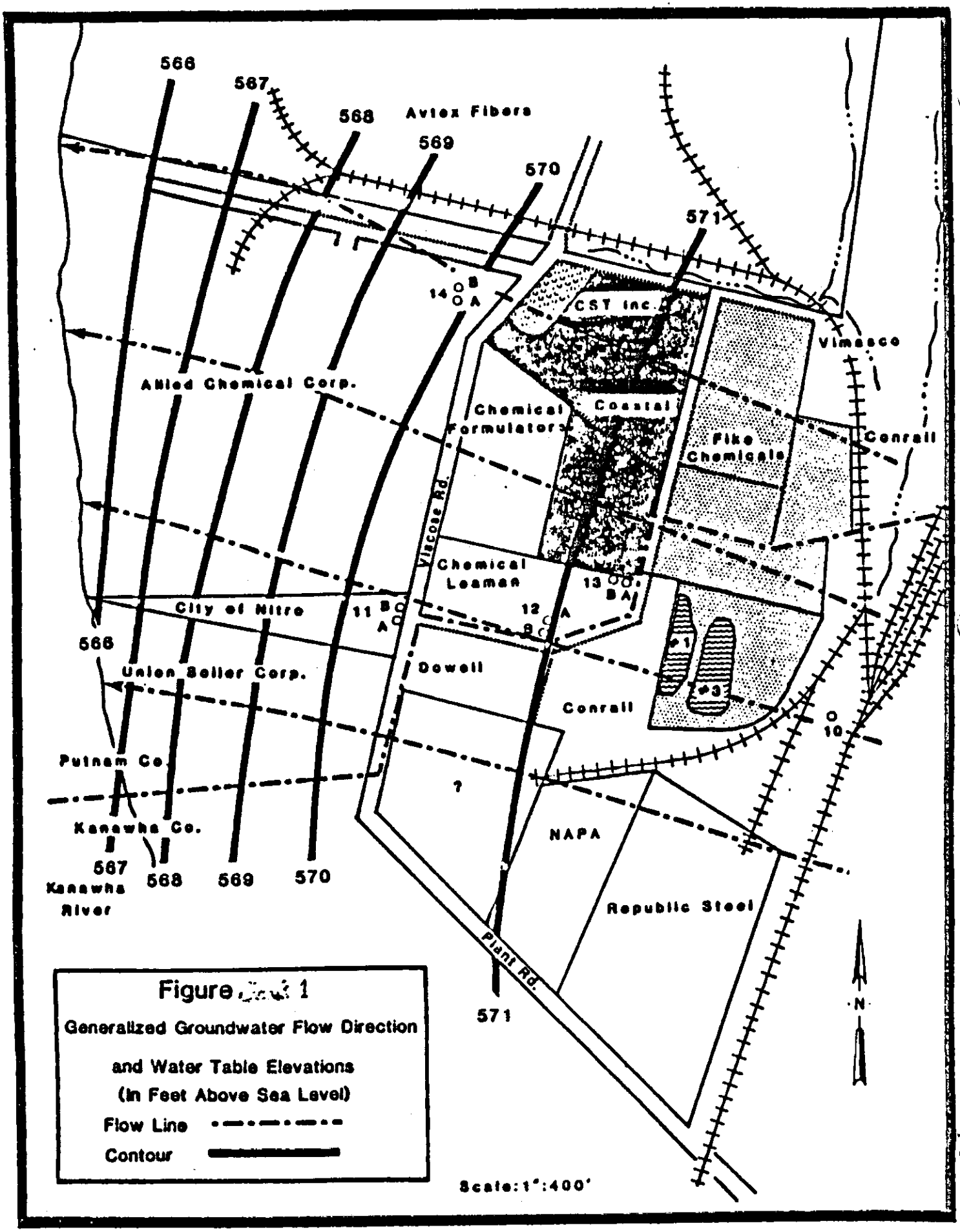


Figure 1

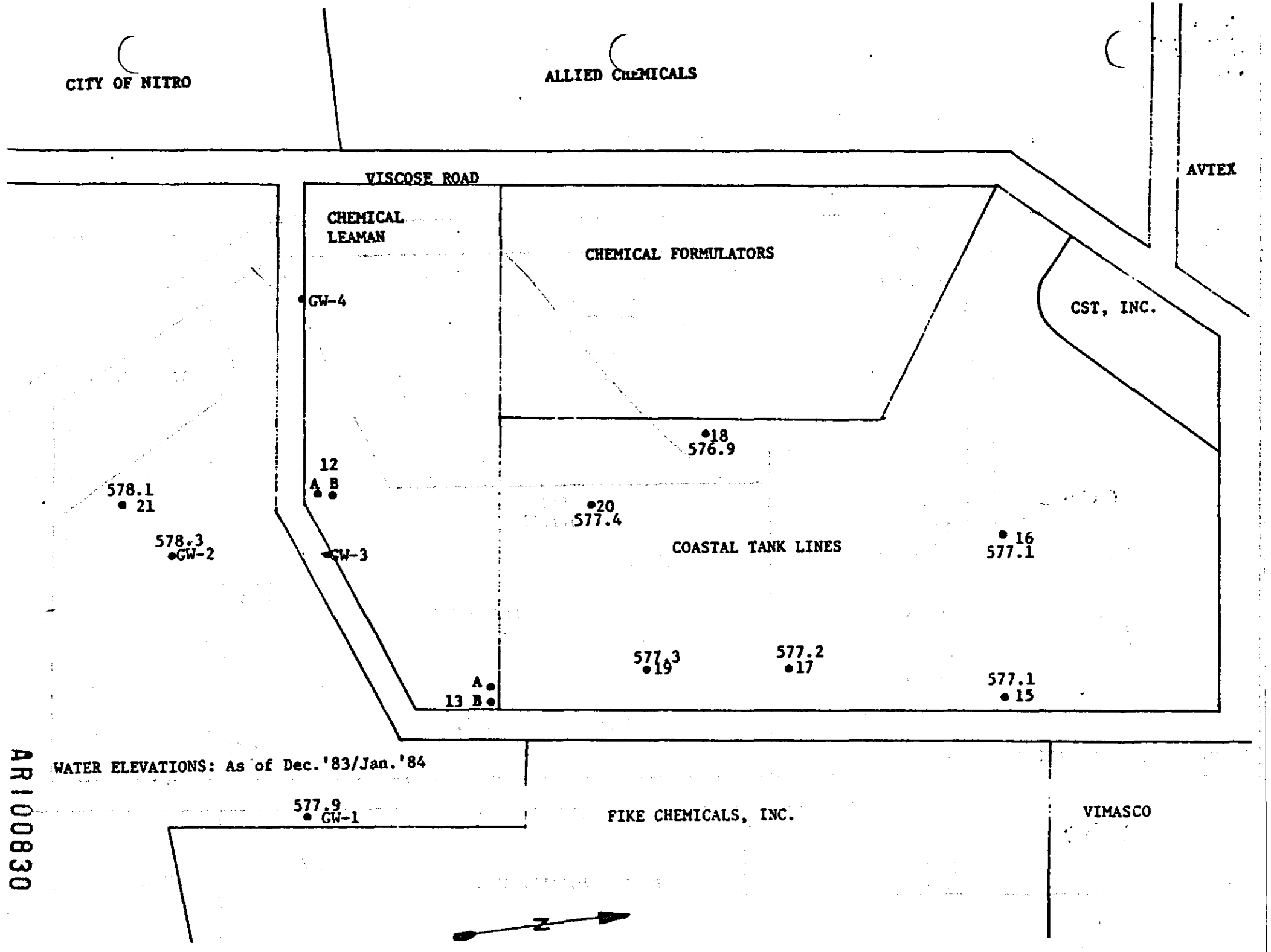
Generalized Groundwater Flow Direction

and Water Table Elevations

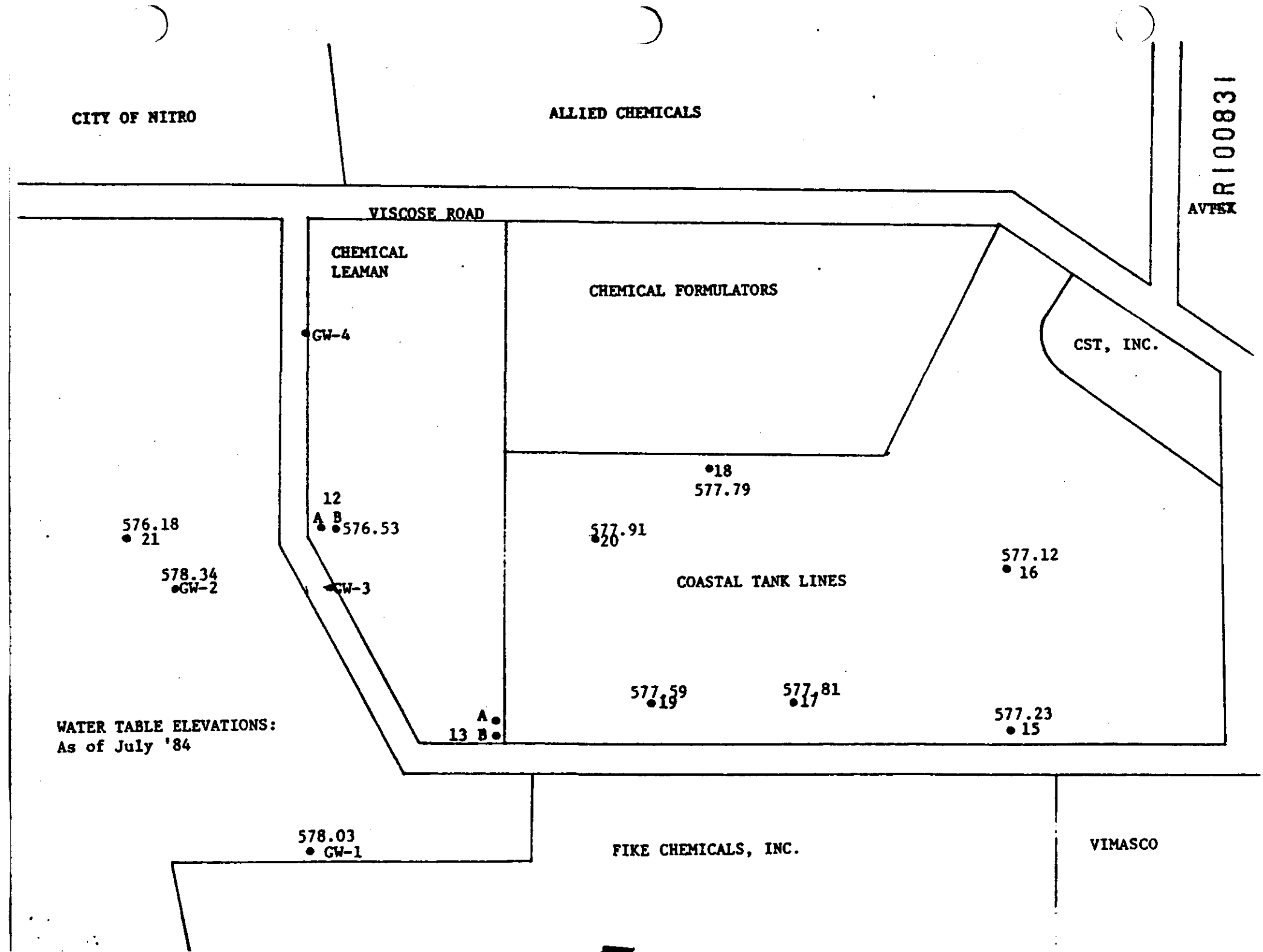
(In Feet Above Sea Level)

Flow Line

Contour


CITY OF NITRO
ALLIED CHEMICALS
AVTEX
VISCOSE ROAD
CHEMICAL LEAMAN
CHEMICAL FORMULATORS
CST, INC.
GW-4
18
576.9
12
A B
578.1
21
20
577.4
578.3
GW-2
GW-3
COASTAL TANK LINES
16
577.1
577.3
19
577.2
17
A
13 B
577.1
15
WATER ELEVATIONS: As of Dec.'83/Jan.'84
577.9
GW-1
FIKE CHEMICALS, INC.
VIMASCO
N

AR100830


CITY OF NITRO
ALLIED CHEMICALS
VISCOSE ROAD
AVTEX
CHEMICAL LEAMAN
CHEMICAL FORMULATORS
CST, INC.
GW-4
18
577.79
12
A B
576.53
576.18
21
577.91
20
577.12
16
578.34
GW-2
GW-3
COASTAL TANK LINES
577.59
19
577.81
17
A
13 B
577.23
15
WATER TABLE ELEVATIONS:
As of July '84
578.03
GW-1
FIKE CHEMICALS, INC.
VIMASCO

R100831

Table 2 Water Table Elevattion Data(JRB Report Feb. 1981

Well No.	Well Elev	Depth to Water	Water Table
10	586.9'	15.4	571.5'
11-a	586.3'	15.4	570.9'
11-b	586.1'	15.4'	570.7'
[illegible]-a	586.5'	15.3'	571.2'
12-b	590.9'	15.4'	571.0
13-a	590.8'	19.6'	571.3'
13-b	590.8'	19.6'	571.2'

Table 3 Elevations of wells *

Well no.	Top of casing	Top of PVC	Grnd. Lvl
15	596.54	596.4	596.42
16	594.67	594.62	594.49
17	595.10	595.06	595.40
18	593.81	593.79	593.68
19	594.37	594.34	594.36
20	594.34	594.24	594.32
21	597.91	597.85	595.66
12-b	593.03	592.84	592.96
13-b	597.37	597.19	597.36
GW-1b	601.78	601.61	599.95
Gw-2b	599.21	599.09	597.39

* Reference elevation 604 (Benchmark located between 21st & 22 nd St's on Bank St in Nitro.)

Table 4 Water Table Elevation
* Indicates Elevation is Estimated- Casing Ht. Not Measured

Well No.	Dec. 83	July 84	Oct. 84
GW-1a*	---	577.69	577.60
GW-1b	577.90	578.03	577.60
GW-1c*	---	578.36	577.70
GW-2a*	---	578.42	577.66
GW-2b	578.30	578.34	577.66
GW-2c*	---	578.26	577.46
12b	---	576.53	---
13	---	---	577.04
	577.10	577.23	---
16	577.10	577.12	---
17	577.20	577.81	---
18	576.90	577.79	---
19	577.30	577.59	---
20	577.40	577.91	---
21	578.10	576.18	577.70

Table 5-A Arsenic,

Well No.	Feb 81	Dec 83	July 84	Oct 84
GW-1A	N/A	N/A	<0.05	<0.05
GW-1B	N/A	N/A	<0.05	<0.05
GW-1C	N/A	N/A	<0.05	<0.05
GW-2A	N/A	N/A	<0.05	<0.05
GW-2B	N/A	N/A	<0.05	<0.05
GW-2C	N/A	N/A	<0.05	<0.02
GW-3A	N/A	N/A	<0.05	<0.02
GW-4A	N/A	N/A	<0.05	<0.05
12	N/A	N/A	<0.05	<0.05
13B	N/A	N/A	<0.05	<0.05
15	N/A	N/A	<0.05	<0.05
16	N/A	N/A	<0.05	<0.02
17	N/A	N/A	<0.05	<0.02
18	N/A	N/A	<0.05	<0.02
19	N/A	N/A	<0.05	<0.02
20	N/A	N/A	<0.05	<0.02
21	N/A	N/A	<0.05	<0.05

Table 5-B	Benzene	ug/l	
Well No.	Feb 81	Dec 83	July 84
GW-1A	N/A	N/A	<0.66
GW-1B	N/A	N/A	15.6
GW-1C	N/A	N/A	15.5
GW-2A	N/A	N/A	<0.66
GW-2B	N/A	N/A	<0.66
GW-2C	N/A	N/A	<0.66
GW-3A	N/A	N/A	<0.66
GW-4A	N/A	N/A	N/A
	83	2.4	N/A
13B	N/D	<0.66	N/A
15	N/A	18	11
16	N/A	2.5	<0.66
17	N/A	<0.66	<0.66
18	N/A	<0.66	<0.66
19	N/A	4.2	4.9
20	N/A	<0.66	<0.66
21	N/A	11	28.5

Table 5-C	Bis(2 Chloroethyl)ether			ug/l
Well No.	Feb 81	Dec 83	July 84	Oct 84
GW-1A	N/A	N/A	<0.3	<0.3
GW-1B	N/A	16	38	39
GW-1C	N/A	N/A	1980	1230
GW-2A	N/A	N/A	<0.3	<0.3
GW-2B	N/A	8.2	2.6	4.6
GW-2C	N/A	N/A	1.8	<0.3
GW-3A	N/A	N/A	<0.3	<0.3
GW-4A	N/A	N/A	N/A	<0.3
12	N/D	1.2	N/A	N/A
13B	<10.0	0.5	N/A	N/A
15	N/A	36	42.0	26
16	N/A	6.5	3.0	3
17	N/A	6.3	10.5	<0.3
18	N/A	<0.3	0.8	<0.3
19	N/A	11.0	16.0	<0.3
20	N/A	<0.3	<0.3	<0.3
21	N/A	<0.3	0.48	<0.3

Table 5-D	Cyanide	mg/l		
Well No.	Feb 81	Dec 83	July 84	Oct 84
GW-1A	N/A	N/A	0.02	<0.02
GW-1B	N/A	N/A	<0.02	0.11
GW-1C	N/A	N/A	0.04	<0.02
GW-2A	N/A	N/A	<0.02	<0.02
GW-2B	N/A	N/A	<0.02	<0.02
GW-2C	N/A	N/A	<0.02	<0.02
GW-3A	N/A	N/A	<0.02	<0.02
GW-4A	N/A	N/A	<0.02	<0.02
	N/A	N/A	N/A	N/A
13B	N/A	N/A	N/A	N/A
15	N/A	N/A	<0.02	<0.02
16	N/A	N/A	<0.02	<0.02
17	N/A	N/A	<0.02	<0.02
18	N/A	N/A	<0.02	<0.02
19	N/A	N/A	<0.02	<0.02
20	N/A	N/A	<0.02	<0.02
21	N/A	N/A	<0.02	<0.02

Table 5-E	1,2-Dichloroethane			ug/l
Well No.	Feb 81	Dec 83	July 84	Oct 84
GW-1A	N/A	N/A	<0.94	<0.94
GW-1B	N/A	<0.94	<0.94	<0.94
GW-1C	N/A	N/A	<0.94	4.8
GW-2A	N/A	N/A	<0.94	<0.94
GW-2B	N/A	<0.94	<0.94	<0.94
GW-2C	N/A	N/A	<0.94	<0.94
GW-3A	N/A	N/A	N/A	<0.94
GW-4A	N/A	<0.94	<0.94	<0.94
12	N/D	37	<0.94	<0.94
13B	N/D	1.0	<0.94	<0.94
15	N/A	2.6	<0.94	8.2
16	N/A	0.94	<0.94	<0.94
17	N/A	0.99	11	<0.94
18	N/A	<0.94	<0.94	<0.94
19	N/A	4.3	<0.94	<0.94
20	N/A	<0.94	<0.94	<0.94
21	N/A	37	375	302

Table 5-F	pH	Std. Unit		
Well No.	Feb 81	Dec 83	July 84	Oct 84
GW-1A	N/A	N/A	6.18	6.23
GW-1B	N/A	7.1	6.92	6.47
GW-1C	N/A	N/A	11.41	7.28
GW-2A	N/A	N/A	6.43	6.35
GW-2B	N/A	6.92	5.44	5.40
GW-2C	N/A	N/A	5.26	5.25
GW-3A	N/A	N/A	6.02	5.94
GW-4A	N/A	<0.94	N/A	5.91
	5.5	5.94	N/A	N/A
13B	6.0	6.52	N/A	N/A
15	N/A	6.82	6.13	6.14
16	N/A	6.9	5.89	3.17
17	N/A	7.03	6.02	6.28
18	N/A	6.78	6.46	7.27
19	N/A	6.66	6.10	7.17
20	N/A	6.54	6.18	6.19
21	N/A	6.47	5.46	5.57

Table 5-G	Phenol	mg/l		
Well No.	Feb 81	Dec 83	July 84	Oct 84
GW-1A	N/A	<0.02	<0.0	<0.02
GW-1B	N/A	0.65	0.4	9.3
GW-1C	N/A	N/A	0.90	<0.02
GW-2A	N/A	N/A	<0.30	<0.02
GW-2B	N/A	<0.02	<0.30	<0.02
GW-2C	N/A	N/A	<0.30	<0.02
GW-3A	N/A	N/A	<0.30	<0.02
GW-4A	N/A	N/A	<0.30	<0.02
12	N/D	<0.02	<0.30	<0.02
13B	N/D	<0.02	<0.30	<0.02
15	N/A	0.05	<0.30	2.4
16	N/A	0.32	<0.30	<0.02
17	N/A	0.03	<0.30	<0.02
18	N/A	0.02	<0.30	<0.02
19	N/A	<0.02	<0.30	<0.02
20	N/A	<0.02	<0.30	<0.02
21	N/A	<0.02	<0.30	<0.02

Table 5-H	Specific Conductivity			umhos/cm
Well No.	Feb 81	Dec 83	July 84	Oct 84
GW-1A	N/A	N/A	321	572
GW-1B	N/A	3350	2800	5090
GW-1C	N/A	N/A	3170	2760
GW-2A	N/A	N/A	397	531
GW-2B	N/A	457	443	654
GW-2C	N/A	N/A	651	626
GW-3A	N/A	N/A	N/A	1444
GW-4A	N/A	N/A	940	1489
	900	2500	N/A	N/A
13B	1500	1073	N/A	N/A
15	N/A	8.2	1919	2940
16	N/A	1045	584	2330
17	N/A	854	1385	2130
18	N/A	1017	1580	1631
19	N/A	1701	2650	1819
20	N/A	643	1389	2420
21	N/A	266	496	600

Table 5-I Tetrachloroethene

ug/l

Well No.	Feb 81	Dec 83	July 84	Oct 84
GW-1A	N/A	N/A	2.5	<0.8
GW-1B	N/A	N/A	2.5	<0.8
GW-1C	N/A	N/A	<0.8	<0.8
GW-2A	N/A	N/A	3.8	<0.8
GW-2B	N/A	N/A	1.2	<0.8
GW-2C	N/A	N/A	1.4	<0.8
GW-3A	N/A	N/A	N/A	<0.8
GW-4A	N/A	N/A	16.8	<0.8
12	N/D	N/A	N/A	<0.8
13B	N/D	N/A	N/A	<0.8
15	N/A	N/A	6.3	<0.8
16	N/A	N/A	4.2	<0.8
17	N/A	N/A	<0.8	<0.8
18	N/A	N/A	3.0	<0.8
19	N/A	N/A	9.1	2.5
20	N/A	N/A	3.4	<0.8
21	N/A	N/A	<0.8	<0.8

Table 5-J	Total Organic Carbon			mg/l
Well No.	Feb 81	Dec 83	July 84	Oct 84
GW-1A	N/A	N/A	<4.0	<4.0
GW-1B	N/A	105	80.0	38.0
GW-1C	N/A	N/A	40.0	47.0
GW-2A	N/A	N/A	<4.0	4.9
GW-2B	N/A	8.0	<4.0	<4.0
GW-2C	N/A	N/A	5.0	<4.0
GW-3A	N/A	N/A	6.0	8.6
GW-4A	N/A	N/A	N/A	8.2
[illegible]	N/A	6.0	N/A	N/A
13B	N/A	16.0	N/A	N/A
15	N/A	54.0	50.0	50.0
16	N/A	14.0	<4.0	60.0
17	N/A	9.0	9.0	4.3
18	N/A	4.0	9.0	14.0
19	N/A	25.0	40.0	8.2
20	N/A	7.0	<4.0	4.3
21	N/A	6.0	<4.0	4.0

Table 5-K Trichloroethene ug/l

Well No.	Feb 81	Dec 83	July 84	Oct 84
GW-1A	N/A	N/A	<2.7	<2.7
GW-1B	N/A	N/A	<2.7	<2.7
GW-1C	N/A	N/A	<2.7	<2.7
GW-2A	N/A	N/A	<2.7	<2.7
GW-2B	N/A	N/A	<2.7	<2.7
GW-2C	N/A	N/A	<2.7	<2.7
GW-3A	N/A	N/A	<2.7	<2.7
GW-4A	N/A	N/A	<2.7	<2.7
12	N/D	N/A	<2.7	<2.7
13B	N/D	N/A	<2.7	<2.7
15	N/A	N/A	5.0	3.7
16	N/A	N/A	<2.7	<2.7
17	N/A	N/A	<2.7	<2.7
18	N/A	N/A	<2.7	<2.7
19	N/A	N/A	<2.7	<2.7
20	N/A	N/A	<2.7	<2.7
21	N/A	N/A	<2.7	<2.7