XXXXXXXXXXXXXXXXX
Director

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
7272 Cleanwater Lane, LU-11 • Olympia, Washington 98504-6811 • (206) 753-2353

November 15, 1993

Mr. Tom Tebb
Fred Tebb and Sons, Inc.
Post Office Box 2235
Tacoma, Washington 98401

RE: Site Report for Fred Tebb and Sons, Inc., Tacoma, Washington

Dear Mr. Tebb:

The Southwest Regional Office (SWRO) of the Department of Ecology (Ecology) has received your report entitled "Quarterly Ground Water Monitoring/Soil Remediation" prepared by Nowicki and Associates dated October 25, 1993.

The report will be kept in the Central Files of the Southwest Regional Office of Ecology. The reports in Central Files are made available for public review by appointment only. Appointments can be made by calling the SWRO resource person, Cathy Downs, at (206) 664-0388.

When a final independent report is received by Ecology, the site is listed on Ecology's leaking underground storage tank database as a conducted cleanup without an Ecology review.

Ecology has implemented a system effective July 1, 1993, in which owners and/or operators can apply to Ecology for a review of final independent cleanup reports. The review would determine whether or not a site qualifies for a "no further action" status by Ecology. The review is a fee-based service. For more information, contact Dick Heggen at (206) 586-8618.

Thank you for your cooperation.

Sincerely,

Lynn Gooding

Lynn Gooding
Southwest Regional Office
Toxics Cleanup Program

LG:ak

cc: Arlene Van DeWege, Nowicki & Associates

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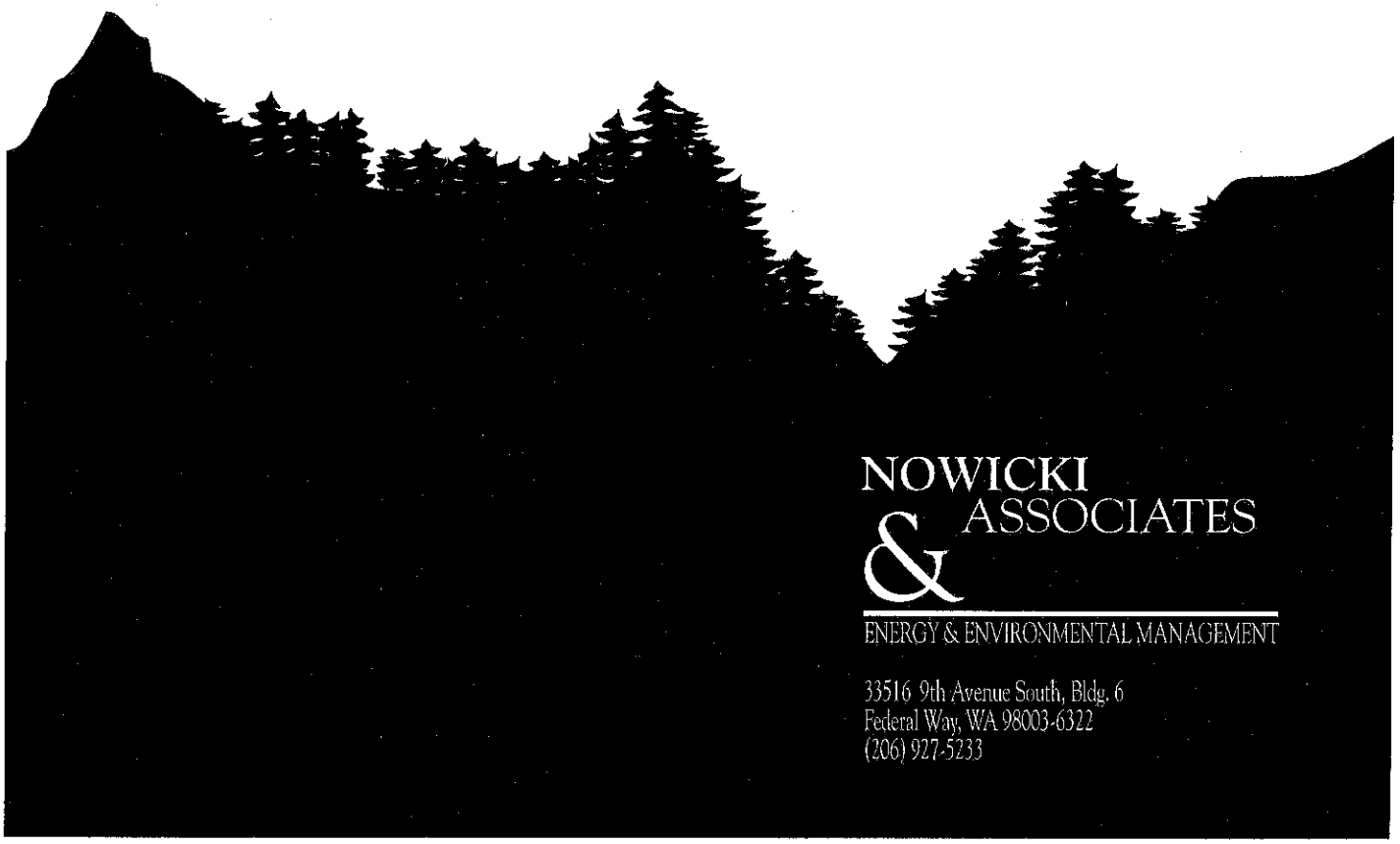
FRED TEBB AND SONS, INC.

QUARTERLY GROUNDWATER MONITORING

AND

SOIL REMEDIATION

October 25, 1993



NOWICKI
& ASSOCIATES
ENERGY & ENVIRONMENTAL MANAGEMENT

33516 9th Avenue South, Bldg. 6
Federal Way, WA 98003-6322
(206) 927-5233

FRED TEBB AND SONS, INC.
QUARTERLY MONITORING/SOIL REMEDIATION

1906 Marc Street
Tacoma, WA 98421

Client:
Mr. Tom Tebb, President
Fred Tebb and Sons, Inc.
P.O. Box 2235
Tacoma, WA 98401
(206) 272-4107

Consultant:
Nowicki & Associates, Inc.
33516 9th Avenue S., Bldg. #6
Federal Way, WA 98003
Contact: Arlene Van De Wege
(206) 927-5233

The purpose of this report is to document the field results and laboratory analysis from the quarterly groundwater monitoring and to document the soil sample laboratory results collected from the southeast landfarm area. This report is written in compliance with WAC 173-340 Model Toxic Control Act independent cleanup action requirements.

Attached are sketches depicting site location, monitoring well and landfarm locations, and Landfarm 2 soil sampling locations; tables summarizing current and previous groundwater laboratory analysis, current soil laboratory analysis, field parameters, and well data; groundwater direction and gradient calculations; Spectra Laboratories water analysis; Spectra Laboratories soil analysis; and Thin Layer Chromatography field results.

Executive Summary

Tacoma-Pierce County Health Department (TPCHD) requested that the Fall quarterly groundwater sampling include MW7 along with MW3 and MW6. Lead levels in MW3 and MW6 and benzene in MW3 were above Model Toxics Control Act Method A cleanup level in the previous sampling round collected May 13, 1993. MW7 is located downgradient to MW3 and MW6.

Groundwater samples were collected on September 13, 1993 and lab-analyzed for TPH using WTPH-D and WTPH-G and for BTEX using EPA Method 8020. Lead was detected in MW6 at 120 ug/L and in MW7 at 6.3 ug/L. The MTCA Method A cleanup level for lead is 5.0 ug/L. No lead was detected in MW3. Benzene was detected in MW3 at 92 ug/L. MTCA Method A cleanup level is 5 ug/L. No other analytes were detected above the MTCA Method A cleanup levels.

Water levels were measured in all eight wells in the morning during low tide and later in the day during high tide. The water levels varied up to 7/16" from low to high tide. Groundwater gradient and flow direction varied depending on the wells

used in the calculations. The flow direction is generally to the southeast/east with a maximum gradient of 12.6"/100 FT.

During excavation of contaminated soil in August, 1991 approximately 170 cubic yards were placed in a controlled landfarm area (Landfarm 1) south of the Planer building near Stewart Street (southwest end of the property) and the remaining approximately 100 cubic yards were placed in a second controlled landfarm area (Landfarm 2) south of the railroad tracks by the Finger Jointer building. Twelve soil samples were collected from Landfarm 1 and field analyzed using on-site Thin Layer Chromatography (TLC). Semi-volatiles were detected in the east end of the landfarm. No laboratory samples were collected. Additional nutrients will be added and the soil aerated to continue the remediation process.

Thirteen soil samples were collected from Landfarm 2 and field analyzed using on-site TLC. Minimal contamination was detected in the west end. Three composite soil samples were collected and lab-analyzed for TPH using WTPH-D and WTPH-G and for BETX using EPA Method 8020. Laboratory analysis confirmed the field results; no analytes were detected in the east and middle samples. Diesel was detected at 51 ppm in the west sample. The MTCA Method A cleanup level is 200 ppm. The soil is now categorized as Class 2 fill according to Department of Ecology's document "Guidance for Remediation of Released from UST's" and will be used as such.

Discussion

Groundwater Monitoring:
MW3 - All analytes dropped below the MTCA Method A cleanup levels except for benzene which is reported at 92 ug/L. The MTCA Method A cleanup level is 5 ug/L. Lead decreased from 11.5 ppb (May 13, 1993) to non-detect.

MW6 - Lead increased from 56.8 ug/L (May 13, 1993) to 120 ug/L. No other analytes were detected.

MW7 - Lead was detected at 6.3 ug/L, slightly above the 5 ug/L MTCA Method A cleanup level. Benzene was detected at 4.2 ug/L, below the 5 ug/L cleanup level. No other analytes were detected.

Soil Remediation:
In August, 1990 diesel and gasoline contaminated soil from a LUST site was excavated and approximately 170 cubic yards were placed in Landfarm 1, a controlled area south of the Planer Building near Stewart Street and the remaining approximately 100 cubic yards were placed in Landfarm 2, a second controlled area southeast of the railroad tracks. Nutrients were added and the soil was periodically aerated.

On September 22, 1993 twelve soil samples were collected from the Landfarm 1 and field screened using on-site TLC analysis. Diesel was detected in the east end where the first truck loads of excavated soil were placed. No contamination was detected in the middle and west end. Additional nutrients will be added and the soil periodically aerated prior to resampling.

Twelve soil samples were collected from Landfarm 2 located southeast of the railroad tracks and analyzed using on-site TLC. Minimal contamination was detected in the west end. Three composite soil samples were collected using the hand tool method, hand-delivered that day to Spectra Laboratories, and analyzed for total petroleum hydrocarbons (TPH) using methods WTPH-G and WTPH-D and for BETX using EPA Method 8020. No gasoline-TPH or BETX were detected. No diesel-TPH was detected in two samples and the remaining sample showed diesel-TPH at 51 ppm, less than the 200 ppm MTCA Method A cleanup level. The soil is categorized as Class 2 fill according to DOE's document "Guidance for Remediation of Releases from UST's" and will be used accordingly.

Conclusions

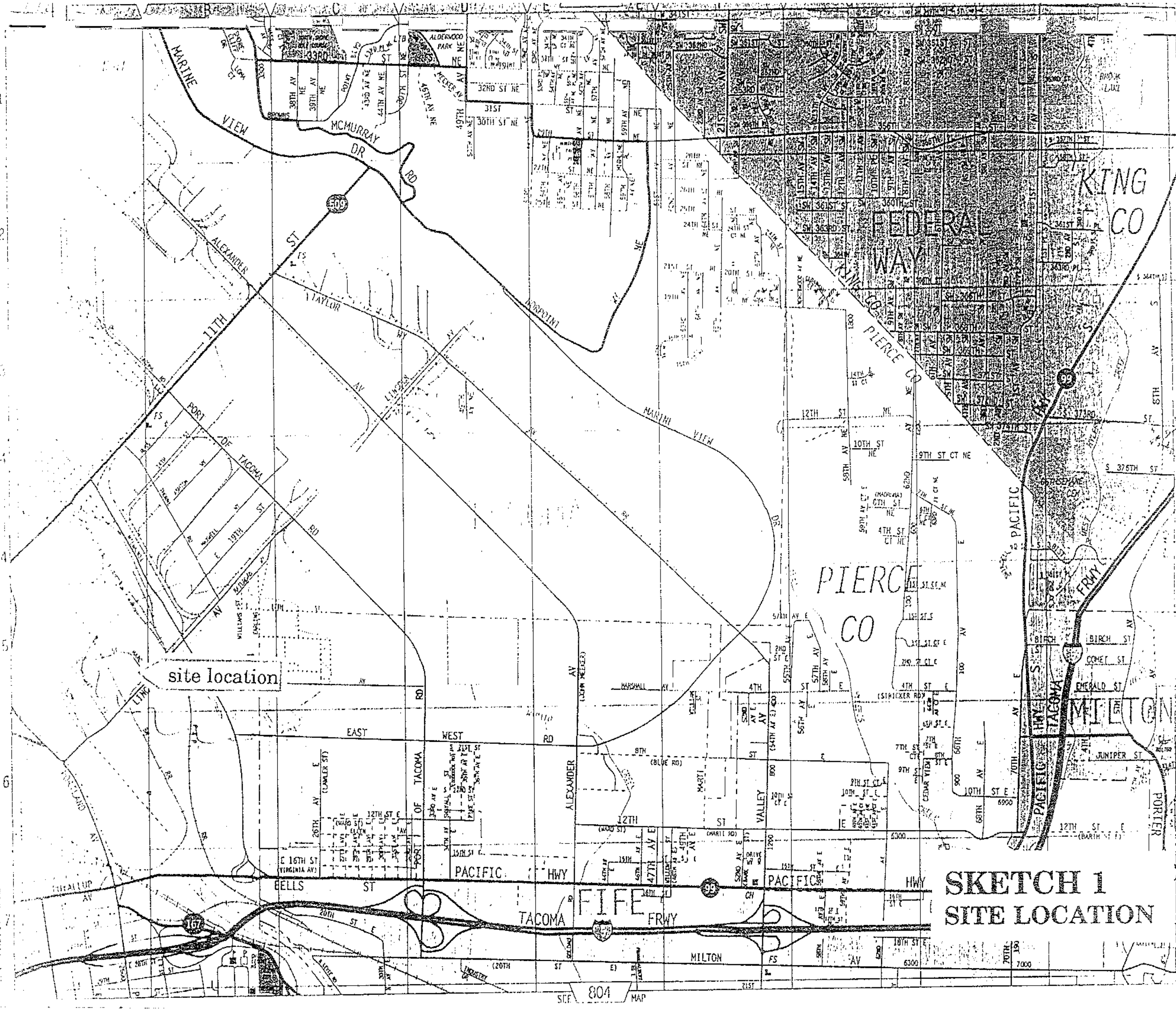
Benzene in MW3 and lead in MW6 and MW7 remain above the MTCA Method A cleanup levels. We recommend continuing quarterly monitoring of MW3, MW6 and MW7 to track TPH BETX, and lead levels.

Soil in Landfarm 1 remains above the MTCA Method A cleanup level and will continue to be remediated. The soil in Landfarm 2 is below MTCA Method A cleanup levels and will be used according to DOE guidelines. No further action is required for Landfarm 2.

Arlene N. Van De Wege
Environmental Engineer

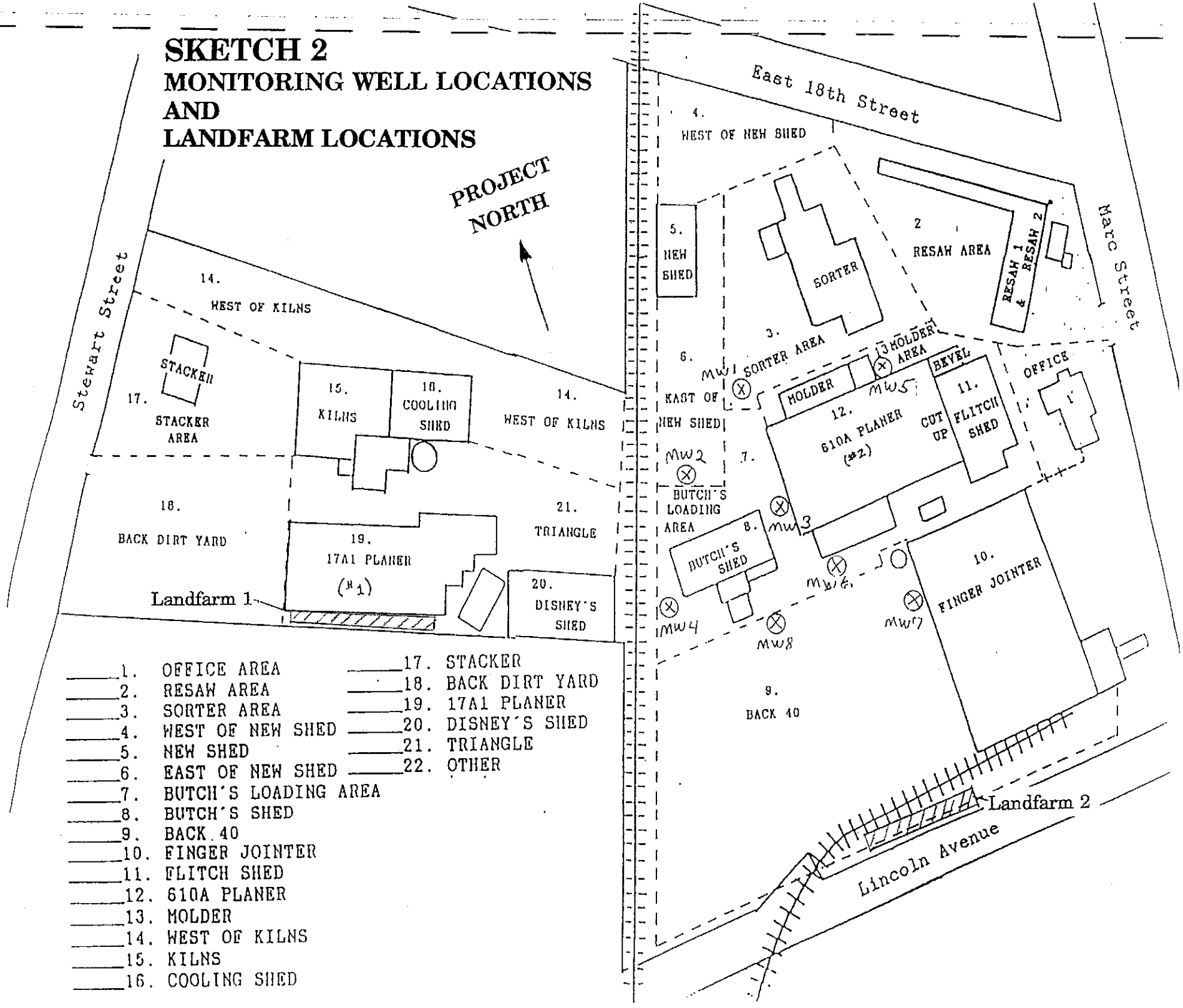
SKETCHES

Site Location
Monitoring Well and Landfarm Locations
Landfarm 2 Soil Sampling Locations



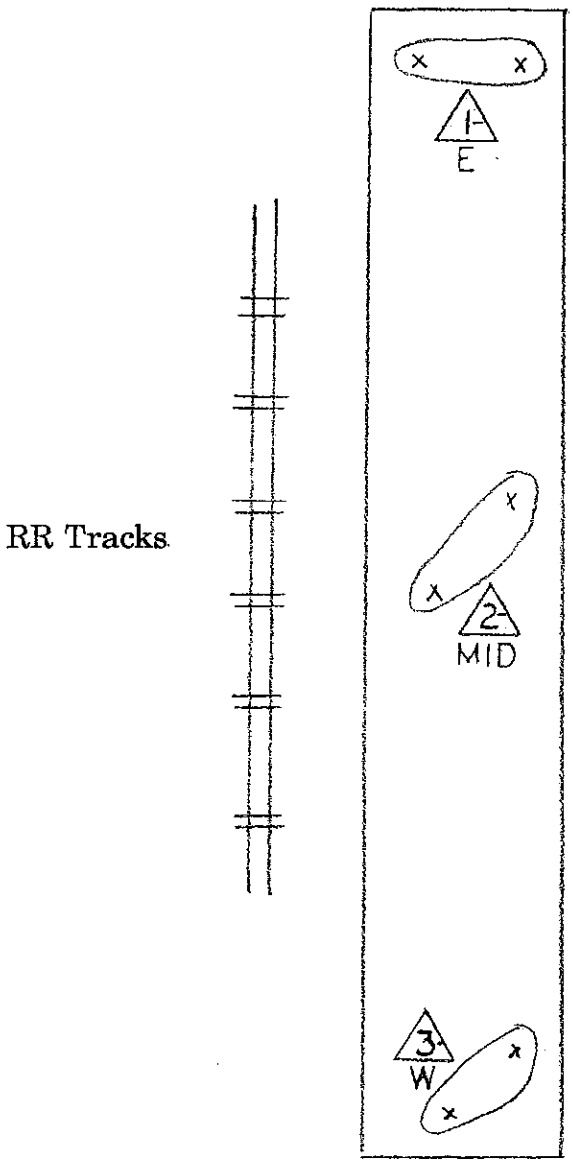
SKETCH 1
SITE LOCATION

SKETCH 2
MONITORING WELL LOCATIONS AND LANDFARM LOCATIONS



_____1. OFFICE AREA
_____2. RESAW AREA
_____3. SORTER AREA
_____4. WEST OF NEW SHED
_____5. NEW SHED
_____6. EAST OF NEW SHED
_____7. BUTCH'S LOADING AREA
_____8. BUTCH'S SHED
_____9. BACK 40
_____10. FINGER JOINTER
_____11. FLITCH SHED
_____12. 610A PLANER
_____13. MOLDER
_____14. WEST OF KILNS
_____15. KILNS
_____16. COOLING SHED
_____17. STACKER
_____18. BACK DIRT YARD
_____19. 17A1 PLANER
_____20. DISNEY'S SHED
_____21. TRIANGLE
_____22. OTHER

FRED TEBB AND SONS, INC.
SOIL SAMPLING LOCATIONS



PROJECT NORTH ←

△ – denotes sampling location

LANDFARM 2

SKETCH 3

Approx. Scale 1" = 20'

0 — 20'

Fred Tebb and Sons, Inc.
Quarterly Monitoring/Soil Remediation Report
Nowicki & Associates, Inc. October 1993

TABLES

Current and Previous Groundwater Laboratory Analysis
Field Parameters
Well Data
Water-Level Data
Soil Laboratory Analysis

MONITORING WELL LAB ANALYSIS

Monitoring Well: MW1

Date	Benzene	Toluene	Ethyl Benzene	Total Xylenes	TPH gasoline	Total Lead
8-15-91	<1	<1	<1	<1	<1,000*	<2
11-18-91	NA	NA	NA	NA	NA	NA
2-12-92	<1	<1	<1	<1	<1,000*	NA
2-28-92	NA	NA	NA	NA	NA	NA
5-21-92	NA	NA	NA	NA	NA	NA
8-28-92	NA	NA	NA	NA	NA	NA
1-9-93	NA	NA	NA	NA	NA	NA
5-13-93	NA	NA	NA	NA	NA	NA
9-13-93	NA	NA	NA	NA	NA	NA

Monitoring Well: MW2

Date	Benzene	Toluene	Ethyl Benzene	Total Xylenes	TPH gasoline	Total Lead
8-15-91	<1	<1	<1	<1	<1,000*	<2
11-18-91	NA	NA	NA	NA	NA	NA
2-12-91	<1	<1	<1	<1	<1,000*	NA
2-28-92	NA	NA	NA	NA	NA	NA
5-21-92	NA	NA	NA	NA	NA	NA
5-28-92	NA	NA	NA	NA	NA	NA
1-9-93	NA	NA	NA	NA	NA	NA
5-13-93	NA	NA	NA	NA	NA	NA
9-13-93	NA	NA	NA	NA	NA	NA

Monitoring Well: MW3

Date	Benzene	Toluene	Ethyl Benzene	Total Xylenes	TPH gasoline	Total Lead
8-15-91	1,500	22	530	1100	8,400*	NA
11-18-91	NA	NA	NA	NA	NA	NA
2-12-92	330	3.3	440	460	<1,000*	NA
2-28-92	250	3.4	430	420	540	NA
5-21-92	300	2.0B	210	280	550	NA
8-28-92	340	1.4	190	100	1,200	NA
1-9-93	128	<1	19	1.1	650	NA
5-13-93	57	0.8B	9.5	<1	<250	11.5
9-13-93	92	<1	3.5	4.0	<250	<2

Monitoring Well: MW4

Date	Benzene	Toluene	Ethyl Benzene	Total Xylenes	TPH gasoline	Total Lead
8-15-91	<1	<1	<1	<1	<1,000*	<2
11-18-91*	<1	<1	<1	<1	<1,000*	NA
2-12-92	<1	<1	<1	<1	<1,000*	NA
2-28-92	NA	NA	NA	NA	NA	NA
5-21-92	NA	NA	NA	NA	NA	NA
8-28-92	NA	NA	NA	NA	NA	NA
1-9-93	NA	NA	NA	NA	NA	NA
5-13-93	NA	NA	NA	NA	NA	NA
9-13-93	NA	NA	NA	NA	NA	NA

Monitoring Well: MW5

Date	Benzene	Toluene	Ethyl Benzene	Total Xylenes	TPH gasoline	Total Lead
8-15-91	<1	<1	<1	<1	<1,000*	NA
11-18-91	NA	NA	NA	NA	NA	NA
2-12-92	<1	<1	<1	<1	<1,000*	NA
2-28-92	NA	NA	NA	NA	NA	NA
5-21-92	NA	NA	NA	NA	NA	NA
8-28-92	<1	<1	<1	<1	<250	NA
1-9-93	NA	NA	NA	NA	NA	NA
5-13-93	NA	NA	NA	NA	NA	NA
9-13-93	NA	NA	NA	NA	NA	NA

Installed MW6, MW7 and MW8 on 12-16-92.

Monitoring Well MW6:

Date	Benzene	Toluene	Ethyl Benzene	Total Xylenes	TPH gasoline	Total Lead
1-9-93	1.5	<1	<1	<1	<250	NA
5-13-93	<1	<1	<1	<1	<1	56.8
9-13-93	<1	<1	<1	<1	<250	120

Monitoring Well MW7:

Date	Benzene	Toluene	Ethyl Benzene	Total Xylenes	TPH gasoline	Total Lead
9-13-93	4.2	<1	<1	<1	<250	6.3

Monitoring Well MW8:

Date	Benzene	Toluene	Ethyl Benzene	Total Xylenes	TPH gasoline	Total Lead
1-9-93	<1	<1	<1	<1	<250	NA
5-13-93	NA	NA	NA	NA	NA	NA
9-13-93	NA	NA	NA	NA	NA	NA

MTCA Method A Groundwater Cleanup Levels

Benzene	Toluene	Ethyl Benzene	Total Xylenes	TPH gasoline	Total Lead
5.0	40.0	30.0	20.0	1,000.0	5.0

* Notes:

1. BTEX analyzed using 8020.
2. TPH analyzed using EPA 8015M for the 8-15-91, 11-18-91, and 2-12-92 analysis and using EPA method WTPH-G for the remaining analysis.
3. Total lead analyzed using EPA method 7421.
4. MW4 sampled on 8-15-91 was resampled on 11-18-91 due to incorrect labeling of MW3 and MW4.
5. MW3 sampled on 2-12-92 was resampled on 2-28-92 to verify the well with contamination.
6. All results reported in ug/L.
7. B - also found in blank.

FIELD PARAMETERS

Monitoring Well: MW1

Date	Temperature Degrees F	Conductance umhos/cm	pH
11-26-91	57.4	952	7.14
5-21-92	NA	NA	NA
8-28-92	NA	NA	NA
1-9-93	NA	NA	NA
5-13-93	NA	NA	NA
9-13-93	NA	NA	NA

Monitoring Well: MW2

Date	Temperature Degrees F	Conductance umhos/cm	pH
11-26-91	55.6	1,203	6.40
5-21-92	NA	NA	NA
8-28-92	NA	NA	NA
1-9-93	NA	NA	NA
5-13-93	NA	NA	NA
9-13-93	NA	NA	NA

Monitoring Well: MW3

Date	Temperature Degrees F	Conductance umhos/cm	pH
11-26-91	56.7	2,160	6.46
5-21-92	63.1	1,254	7.11
8-28-92	66.1	1,390	6.90
1-9-93	49.3	2,320	7.17
5-13-93	59.4	1,364	6.10
9-13-93	63.6	1,030	6.51

Monitoring Well: MW4

Date	Temperature Degrees F	Conductance umhos/cm	pH
11-26-91	55.0	3,770	7.00
5-21-92	NA	NA	NA
8-28-92	NA	NA	NA
1-9-93	NA	NA	NA
5-13-93	NA	NA	NA
9-13-93	NA	NA	NA

Monitoring Well: MW5

Date	Temperature Degrees F	Conductance umhos/cm	pH
11-26-91	53.8	2,390	6.28
5-21-92	NA	NA	NA
8-28-92	62.2	1,843	6.76
1-9-93	NA	NA	NA
5-13-93	NA	NA	NA
9-13-93	NA	NA	NA

Installed MW6, MW7 and MW8 on 12-16-92.

Monitoring Well: MW6

Date	Temperature Degrees F	Conductance umhos/cm	pH
1-9-93	47.2	3,320	6.58
5-13-93	61.8	1,240	6.76
9-13-93	66.7	2,910	6.56

Monitoring Well: MW7

Date	Temperature Degrees F	Conductance umhos/cm	pH
9-13-93	64.1	3,360	6.35

Monitoring Well: MW8

Date	Temperature Degrees F	Conductance umhos/cm	pH
1-9-93	46.7	1,557	6.33
5-13-93	NA	NA	NA
9-13-93	NA	NA	NA

WELL DATA

Monitoring Well	Well Depth	Screened Interval	Survey Elevation
1	10	3-10	11.21
2	10	3-10	10.69
3	15	5-15	11.81
4	10	3-10	11.06
5	10	3-10	12.03
6	15	5-15	11.25
7	15	5-15	12.42
8	15	5-15	11.53

WATER - LEVEL DATA

Depth to Water (ft) / Water Level El. (ft)

Date	MW 1	MW 2	MW 3	MW 4	MW 5	MW 6	MW 7	MW 8
11-26-91	5.46/5.75	5.08/5.61	6.32/5.49	5.25/5.81	6.71/5.32	NA/NA	NA/NA	NA/NA
2-12-92	5.00/6.21	4.66/6.03	5.90/5.91	4.97/6.09	6.22/5.81	NA/NA	NA/NA	NA/NA
5-21-92	5.25/5.96	4.77/5.92	6.06/5.75	5.55/5.51	6.25/5.78	NA/NA	NA/NA	NA/NA
8-28-92	5.95/5.26	5.28/5.41	5.13/6.68	4.91/6.15	5.14/6.89	NA/NA	NA/NA	NA/NA
1-09-93	5.91/5.30	5.40/5.29	6.76./5.05	6.00/5.06	6.83/5.20	7.04/4.21	8.55/3.87	7.13/4.40
5-13-93	5.35/5.86	4.89/5.80	6.28/5.53	5.34/5.72	6.41/5.62	6.58/4.67	8.14/4.28	6.70/4.83
9-13-93*	5.96/5.25	5.44/5.25	6.78/5.03	5.93/5.13	6.88/5.15	8.06/3.19	8.60/3.82	7.18/4.35
9-13-93**	5.96/5.25	5.43/5.26	6.78/5.03	5.90/5.16	6.87/5.16	8.03/3.22	8.59/3.83	7.17/4.36

Notes:
1. * Water levels measured beginning at 9:00 a.m. during low tide.
2. ** Water levels measured at beginning 3:40 p.m. during high tide.
3. The variation between low and high tide for each well is as follows:
   MW1 - 1/16"; MW2 - 1/16"; MW3 - 0"; MW4 - 7/16"; MW5 - 1/8"; MW6 - 1/8"; MW7 - 1/16"; MW8 - 1/8"

SOIL SAMPLE LABORATORY ANALYSIS

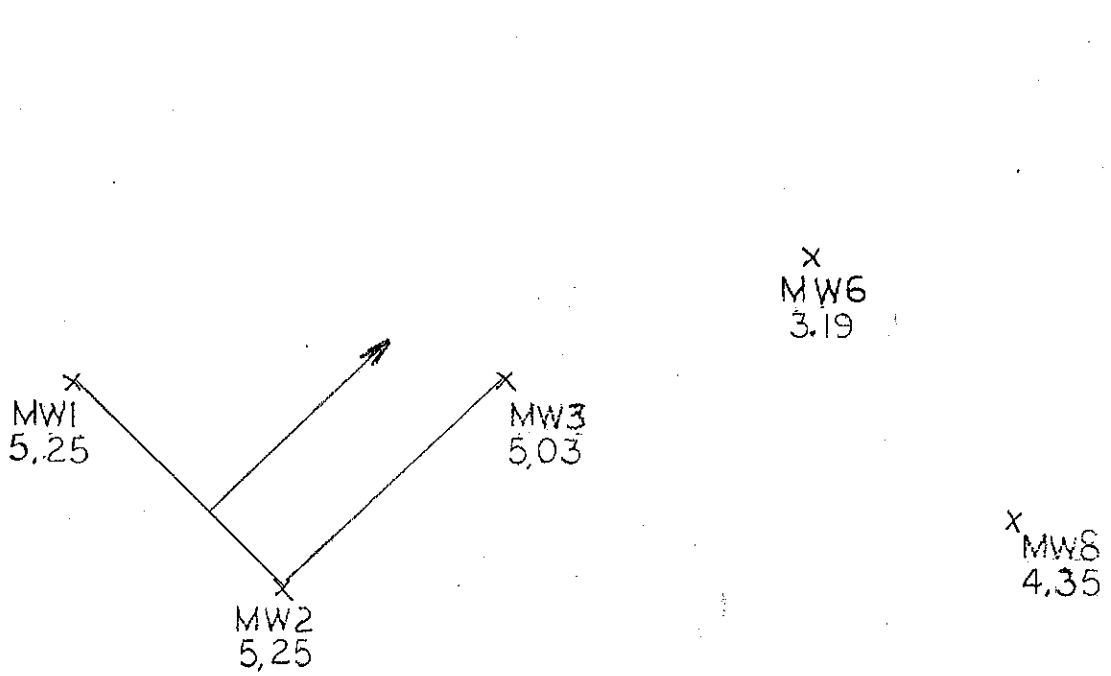
COLLECTED FROM LANDFARM 2:

ID	Date	Benzene	Toluene	Ethyl Benzene	Total Xylenes	TPH gasoline	TPH diesel
1-E	9-22-93	<0.3	<0.3	<0.3	<0.3	<20	<25
2-mid	9-22-93	<0.3	<0.3	<0.3	<0.3	<20	<25
3-W	9-22-93	<0.3	<0.3	<0.3	<0.3	<20	51
MTCA Method A levels		0.5	40.0	20.0	20.0	100.0	200.0
Detection Limits		0.3	0.3	0.3	0.3	20	25

Notes:
1. BTEX analyzed using EPA Method 8020.
2. TPH analyzed using EPA Method WTPH-G for gasoline and WTPH-D for diesel.
3. All units are reported in mg/kg.

GROUNDWATER DIRECTION AND GRADIENT CALCULATIONS

FRED TEBB AND SONS, INC.



GRADIENT = $\frac{5.25 - 5.03}{80'} = \frac{2.6''}{80'}$, OR $\frac{3.3''}{100\ FT}$

GROUNDWATER FLOW/GRADIENT

USING MW1, MW2, MW3

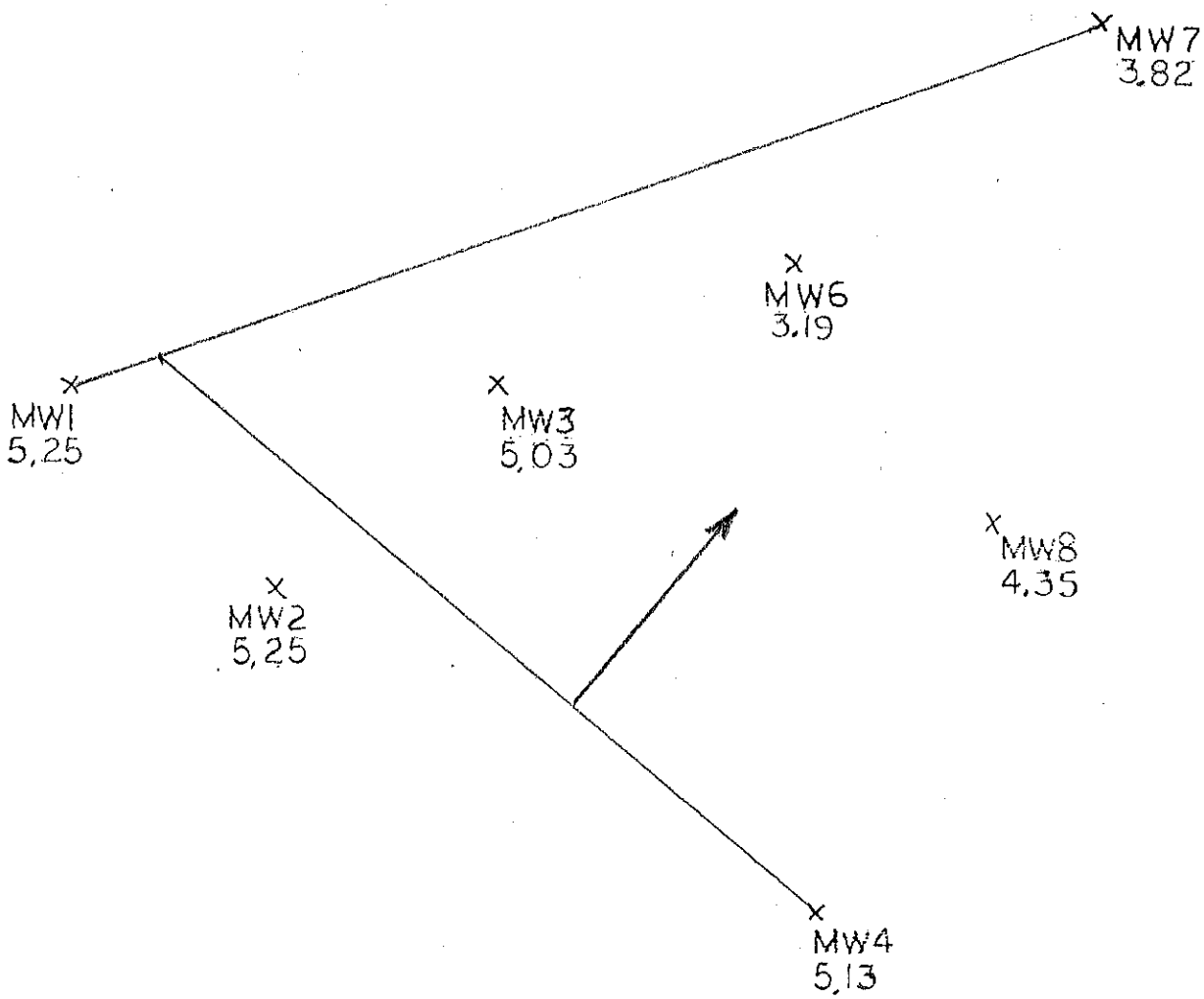
(SEPT 14, 1993 MONITORING)

APPROX. SCALE 1 = 50'

0 — 50'

ANV 9-13-93
NAI

FRED TEBB AND SONS, INC.



GRADIENT = $\frac{5,13' - 3.82''}{225'} = \frac{15.7''}{225'}$, OR $\frac{7''}{100\,FT}$

GROUNDWATER FLOW/GRADIENT

USING MW 1, MW 4, MW 7

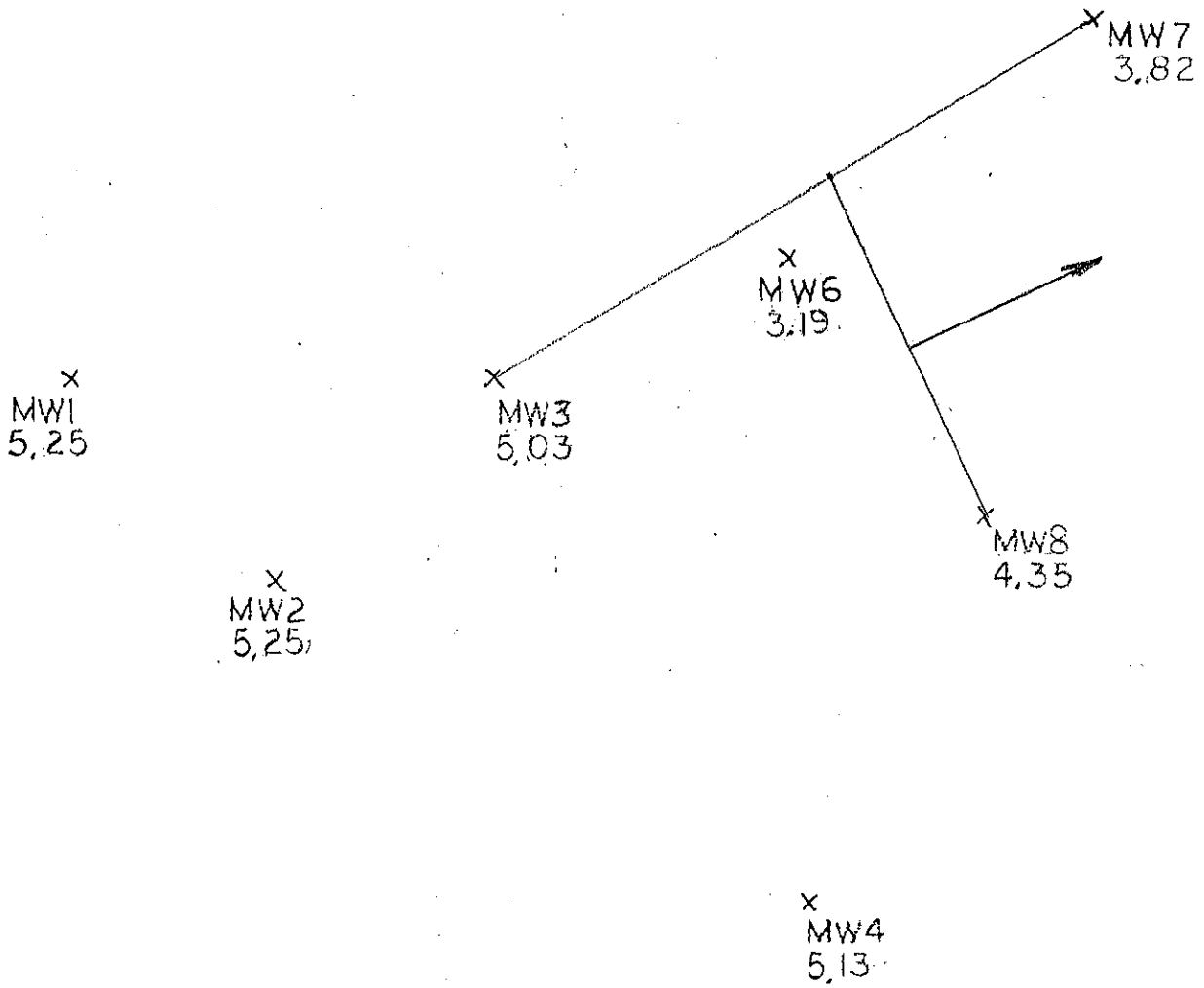
(SEPT 14, 1993 MONITORING)

APPROX. SCALE 1 ≈ 50'

0 — 50'

ANV 9-13-93
NAI

FRED TEBB AND SONS, INC.



GRADIENT = $\frac{4.35' - 3.82'}{80'} = \frac{6.4''}{80'}$ OR $\frac{8''}{100\,FT}$

GROUNDWATER FLOW/GRADIENT

USING MW3, MW7, MW8

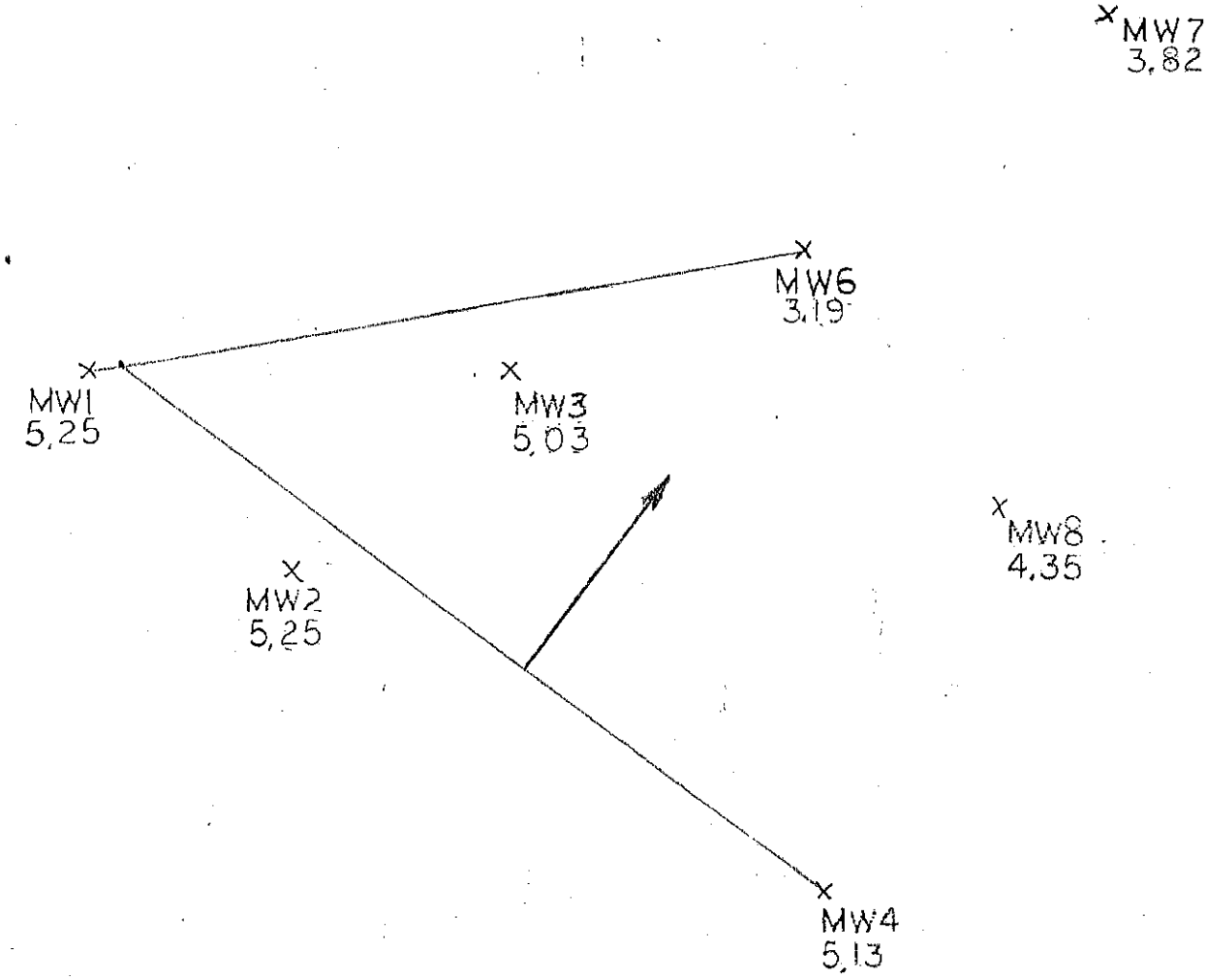
(SEPT 14, 1993 MONITORING)

APPROX. SCALE 1 ≈ 50'

0 — 50'

ANV 9-13-93
NAI

FRED TEBB AND SONS, INC.



GRADIENT = $\frac{5.13' - 3.19'}{185'} = \frac{23.3''}{185'}$ OR $\frac{12.6''}{100\,FT}$

GROUNDWATER FLOW/GRADIENT

USING MW1 MW4, MW6

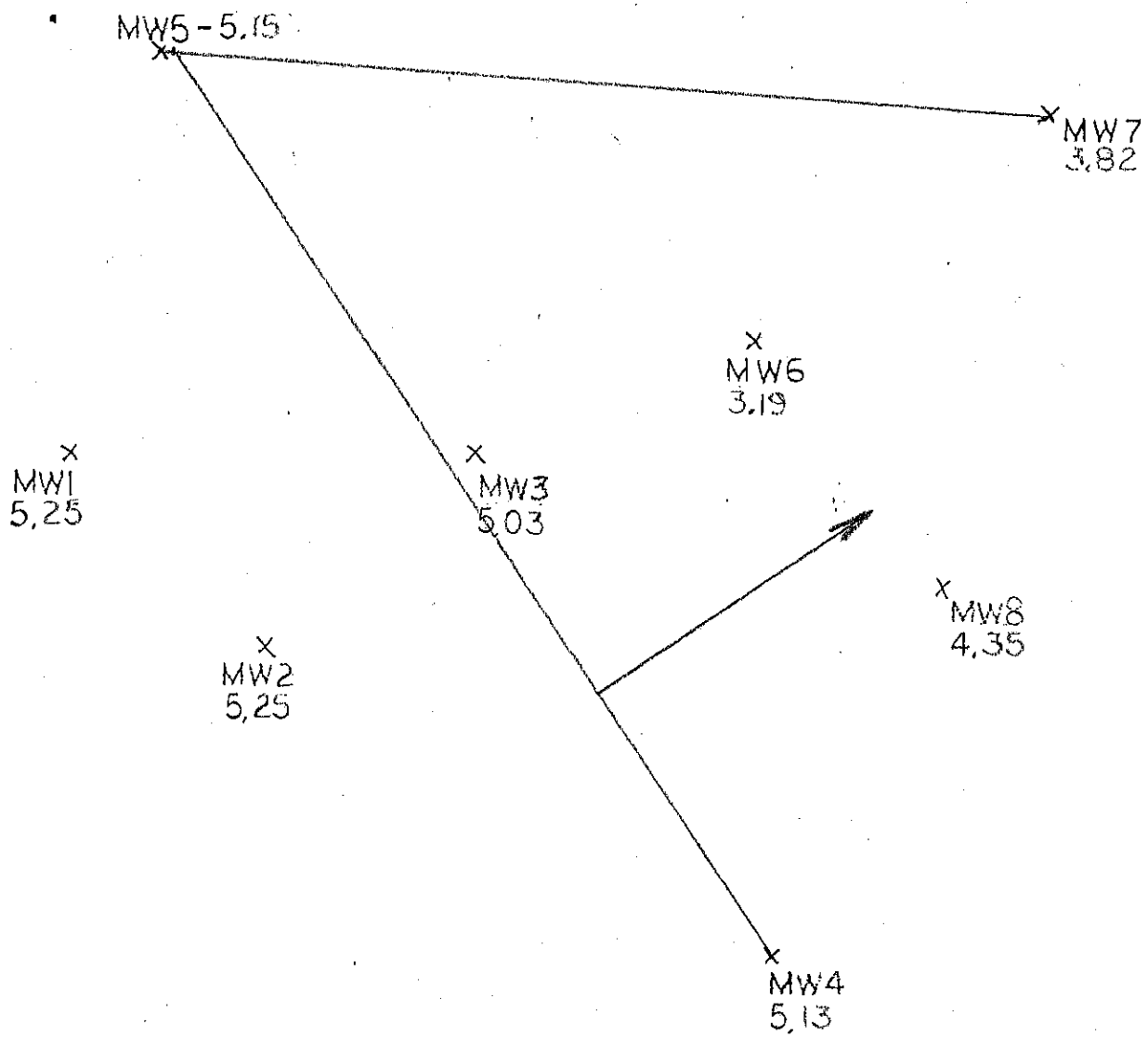
(SEPT 14, 1993 MONITORING)

APPROX. SCALE 1 ≈ 50'

0 — 50'

ANV 9-13-93
NAI

FRED TEBB AND SONS, INC.



GRADIENT = $\frac{5.13' - 3.82'}{195'} = \frac{15.7''}{195'}$, OR $\frac{8''}{100\ FT}$

GROUNDWATER FLOW/GRADIENT

USING MW4, MW5, MW7

(SEPT 14, 1993 MONITORING)

APPROX. SCALE 1 = 50'

0 — 50'

ANV 9-13-93
NAI