AT&T Communications, Inc.
Chicago, IL

U.S. Sprint Communications Co.

Kansas City, MO

ENSR

Pertinent Documents Associated with the AT&T and U.S. Sprint Cable Sites in Appleton, Wisconsin

ENSR Consulting and Engineering

(Formerly ERT)

May 12, 1989

Document Number 0550-029-600

ENSR

ENSR Corporation Offices

Alaska	Anchorage
California	Los Angeles
	Orange County
	Ventura County
	San Francisco
Colorado	Fort Collins
Connecticut	Hartford
Dist. of Columbia	
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Pennsylvania	Philadelphia
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	Houston
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AT&T Communications, Inc.
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Pertinent Documents Associated with the AT&T and U.S. Sprint Cable Sites in Appleton, Wisconsin

ENSR Consulting and Engineering

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May 12, 1989

Document Number 0550-029-600

TABLE 1

PERTINENT DOCUMENTS* ASSOCIATED WITH AT&T AND U.S. SPRINT FIBEROPTIC CABLE SITES NEAR N.W. MAUTHE CO. FACILITY IN APPLETON, WISCONSIN

1. Memorandum, "Hazardous Work Condition in Appleton, Wisconsin," from John Seigla (AT&T) to Robert Weber (ENSR) and Angelo Basile (AT&T), September 23, 1987.

2. Memorandum, "Information from N.W. Mauthe Spill & C&NW RR in Appleton," from Terry Hegeman (WDNR) to Larry Campbell (ENSR), September 24, 1987, Ref. #G417-100.

3. Notes, "Site Visit Appleton, WI," by Larry Campbell (ENSR), September 29, 1987, Ref. #G417-100.

4. Telecon, from Larry Campbell (ENSR) to Vickie Smith (ENSR) and Art Paradise (ENSR), September 30, 1987, Ref. #G417-100.

5. Letter, "Work Plan to Investigate Impact of Chromium Contamination on AT&T Lightguide Cable in Appleton, WI," from Larry Campbell (ENSR) to John Seigla (AT&T), September 30, 1987, Ref. #87-09-Y012.

6. Letter, "AT&T Contract No. LGC-934D and WDNR Data for Chromium Contamination Project in Appleton, WI," from Larry Campbell (ENSR) to John Seigla (AT&T), September 30, 1987, Ref. #G417-100.

7. Telecon, from Larry Campbell (ENSR) to Terry Hegeman (WDNR), October 1, 1987, Ref. #G417-100.

8. Telecon, from Scott Veenstra (ENSR) to Terry Hegeman (WDNR), October 1, 1987, Ref. #G417-100.

9. Letter, "Authorization to Proceed with Field Sampling at Chromium Contaminated Area in Appleton, Wisconsin," from Larry Campbell (ENSR) to John Seigla (AT&T), October 2, 1987, Ref. #87-10-M007.

10. Letter and Plans, "Sampling Plan, Appleton, Wisconsin," from Larry Campbell (ENSR) to John Seigla (AT&T), October 2, 1987, Ref. #87-10-M002. (Includes:
    - "Sampling Plan, Soil and Groundwater Investigation at the AT&T Lightguide Cable Site, Appleton, Wisconsin," October 2, 1987, ERT Document No. G417-200, and

---

[*] Except as noted herein, all listed documents are provided in a 3-ring binder entitled "Pertinent Documents Associated with the AT&T and U.S. Sprint Cable Sites in Appleton, Wisconsin," May 12, 1989, ENSR Document No. 0550-029-600.

TABLE 1 (Con't.)

- "Health and Safety Plan for the AT&T Lightguide Cable [Site] Located in Appleton, Wisconsin," October 2, 1987, ERT Document No. G417-210.

11. Memorandum, "Transmittal of WDNR Reports," from Terry Hegeman (WDNR) to Larry Campbell (ENSR), October 6, 1987, Ref. #G417-100.

12. Letter, from Scott Veenstra (ENSR) to Mike Erbaugh (HAZCO), October 9, 1987, Ref. #87-10-M011.

13. Memorandum, "VOC Analysis AT&T Appleton, WI Samples," from Scott Veenstra (ENSR) to Louie Pounds (ENSR), October 12, 1987, Ref. #87-10-Q015.

14. Telecons, "Verbal Results," from Bo Blankfield (ENSR) to Scott Veenstra (ENSR), October 15 and November 2, 1987, Ref. #G417-100.

15. Telecon, "Verbal Results," from Louie Pounds (ENSR) to Scott Veenstra (ENSR), October 16, 1987, Ref. #G417-300.

16. Memorandum, "On-site Work Delays During Sampling at AT&T, Appleton, WI," from Scott Veenstra (ENSR) to Larry Campbell (ENSR), October 16, 1987, Ref. #87-10-Q026.

17. Letter, "Addendum to Sampling Plan to include Phase II Field Sampling in Appleton, WI," from Larry Campbell (ENSR) to John Seigla (AT&T), October 21, 1987, Ref. #87-10-033.

18. Letter, "Toxic Spill, Appleton, Wisconsin," from David Cheney (Finley Engineering Co.) to John Seigla (AT&T), October 21, 1987, Ref. #G417-810.

19. Letter, "Phase II Work Plan to Investigation Potential Chromium Contamination Along Two Alternate AT&T Lightguide Cable Routes in Appleton, WI," from Larry Campbell (ENSR) to John Seigla (AT&T), October 29, 1987, Ref. #87-10-Q049.

20. Letter, "Appleton Toxic Waste, Re-Route," from David Cheney (Finley) to John Seigla (AT&T), November 16, 1987, Ref. #G417-100.

21. Letter, "Appleton Chromic Acid Spill," from David Cheney (Finley) to Larry Campbell (ENSR), December 2, 1987, Ref. #G417-500.

22. Letter, "Alternate Route and Plans for Anti-Seep Plug on AT&T Lightguide Cable in Appleton, Wisconsin," from Larry Campbell (ENSR) to John Seigla (AT&T), December 4, 1987, Ref. #87-12-H022.

TABLE 1 (Con't.)

23. Letter, "Chromic Acid Spill," from David Cheney (Finley) to Larry Campbell (ENSR), December 7, 1987, Ref. #G417-520.

24. Proposal, "Proposal for ERT Services to U.S. Sprint in Appleton, WI," from Larry Campbell (ENSR) to Kenneth Knuth (Finley), December 22, 1987, Ref. #87-12-Q111.

25. Letter, "43-531-01," from Kenneth Knuth (Finley) to Roy Smith (U.S. Sprint), December 28, 1987, Ref. #G417-520.

26. Letter, "Results of the Soil and Groundwater Investigation of U.S. Sprint Locations in Appleton, Wisconsin," from Larry Campbell (ENSR) to Ben Humphrey (Finley), January 11, 1988, Ref. #88-01-Q130.

27. Letter, "Plans to Complete Anti-Seep Plugs on AT&T and U.S. Sprint Fiberoptic Cable Lines in Appleton, Wisconsin," from Larry Campbell (ENSR) to John Seigla (AT&T) and Roy Smith (U.S. Sprint), January 22, 1988, Ref. #88-01-Q150.

28. Letter, "Disposal Criteria for Soil and Water at Appleton, WI," from Larry Campbell (ENSR) to Terry Hegemen (WDNR), January 28, 1988, Ref. #88-01-Q168.

29. Letter, "Purchase Order for ERT Services at Appleton, WI," from Larry Campbell (ENSR) to John Seigla (AT&T), February 18, 1988, Ref. #88-02-Q208.

30. Letter, from Jackie Coles (U.S. Sprint) to Larry Campbell (ENSR), February 24, 1988, Ref. #G417-810 (520).

31. Letter, from Jackie Coles (U.S. Sprint) to Larry Campbell (ENSR), March 8, 1988.

32. Letter, "AT&T Appleton, Wisconsin Acid Spill," from David Cheney (Finley) to Larry Campbell (ENSR), May 18, 1988.

33. Letter, "Resumption of Operations to Complete Anti-Seep Plug Installation at AT&T Fiberoptics Cable Line in Appleton, Wisconsin," from Larry Campbell (ENSR) to John Seigla (AT&T), July 22, 1988, Ref. #88-07-Q508.

34. Letter, "Appleton Acid Spill - ERT," from David Cheney (Finley) to John Seigla (AT&T), July 25, 1988, Ref. #G417.

35. Letter, "Appleton Acid Spill," from David Cheney (Finley) to John Seigla (AT&T), August 3, 1988, Ref. #0550-029.

36. Letter, "Final Report of ERT Services for U.S. Sprint at Chromium Contaminated Site in Appleton, Wisconsin," from Larry Campbell (ENSR) to Jackie Coles (U.S. Sprint), August 12, 1988, Ref. #88-08-Q550.

TABLE 1 (Con't.)

37. Addendum, "Addendum to AT&T Lightguide Cable Health and Safety Plan," August 18, 1988.

38. Letter, "Chromium contamination, Appleton, WI," from Jackie Coles (U.S. Sprint) to Larry Campbell (ENSR), September 19, 1988.

39. Letter and Report, "Final Report for Soil and Groundwater Investigation and Anti-Seep Plug Installation at U.S. Sprint Cable Site in Appleton, WI," from Larry Campbell (ENSR) to Jackie Coles (U.S. Sprint), September 30, 1988, Ref. #88-09-Q616.
    - (Report is Document No. 0550-029-520, September 30, 1988 - **see separate binder.**)

40. Letter, "N.W. Mauthe Company, Appleton, Wisconsin, Superfund Response," from Gary Edelstein (WDNR) to Larry Campbell (ENSR), November 30, 1988, Ref. #4430.

41. Letter, "Draft Report of Soil Investigation and Anti-Seep Plug Installation at AT&T Cable Site in Appleton, Wisconsin," from Larry Campbell (ENSR) to John Seigla (AT&T), December 16, 1988, Ref. #88-12-Q726.

42. Letter, "Right-of-Way Assessment Report, N.W. Mauthe Company, Appleton, Wisconsin," from Gary Edelstein (WDNR) and Annette Weissbach (WDNR) to Glenn Balanoff (Woodward-Clyde Consultants), March 31, 1989, Ref. #4440.

43. Letter, "Revised Draft Report of Soil Investigation and Anti-Seep Plug Installation at AT&T Cable Site in Appleton, Wisconsin," from Larry Campbell (ENSR) to Angelo Basile (AT&T), April 12, 1989, Ref. #89-04-K074.

44. Letter, "Draft of Letter to Transmit the Appleton, WI Report to WDNR," from Larry Campbell (ENSR) to John Seigla (AT&T), April 13, 1989, Ref. #89-04-S186.

45. Letter, "Request for Supplement Information Pursuant to Section 104(e) of CERCLA and Section 3007 of RCRA for the N.W. Mauthe Company Site located in Appleton, Wisconsin," from Mary Gade (U.S. EPA) to Larry Campbell, April 26, 1989, Ref. #5HS-11. (Certified letter No. P-842-122-316 received by ENSR on May 2, 1989.)

46. Letter, "U.S. EPA Request for Information Regarding the AT&T Cable Site in Appleton, Wisconsin," from Larry Campbell (ENSR) to Angelo Basile (AT&T), May 3, 1989, Ref. #89-05-Q106.

47. Letter, "Final Revised Draft Report of Soil Investigation and Anti-Seep Plug Installation at AT&T Cable Site in Appleton,

Wisconsin," from Larry Campbell (ENSR) to Angelo Basile (AT&T), May 3, 1989, Ref. #89-05-Q105.

48. Memorandum, "EPA Request for Information at Superfund Site," from Larry Campbell (ENSR) to Bill Nelson (ENSR) and Van Cates (ENSR), May 4, 1989, Ref. #89-05-D277.

49. Letter, "Final Revision of Report of Soil Investigation and Anti-Seep Plug Installation at AT&T Cable Site in Appleton, Wisconsin," from Larry Campbell (ENSR) to Angelo Basile (AT&T), May 10, 1989, Ref. #89-05-D294.

50. Letter, "Response to U.S. EPA Letter Requesting Supplemental Information Regarding the N.W. Mauthe Company Site in Appleton, Wisconsin," from Larry Campbell (ENSR) to Jackie Coles (U.S. Sprint), May 10, 1989, Ref. #89-05-Q119.

51. Letter, "Errata in Final Report for Soil and Groundwater Investigation and Anti-Seep Plug Installation at U.S. Sprint Cable Site in Appleton, WI," from Larry Campbell (ENSR) to Jackie Coles (U.S. Sprint), May 10, 1989, Ref. #89-05-Q116.

52. Letter, "Response to U.S. EPA Letter of April 26, 1989 Regarding Request for Supplemental Information for the N.W. Mauthe Company Superfund Site in Appleton, WI," from Larry Campbell (ENSR) to Rita Cestaric (U.S. EPA) and Gary Edelstein (WDNR), May 10, 1989, Ref. #89-05-D295.

53. Letter and Report, "Final Report of Soil and Groundwater Investigation and Anti-Seep Plug Installation at AT&T Cable Site in Appleton, Wisconsin," from Larry Campbell (ENSR) to John Seigla (AT&T), May 12, 1989, Ref. #89-05-Q121.
    - (Report is Document No. 0550-029-510, May 12, 1989 - **see separate binder.**)

54. Letter, "N.W. Mauthe Site Appleton, WI," from Jackie Coles (U.S. Sprint) to Larry Campbell (ENSR), May 17, 1989, Ref. #0550-029-600.

55. Field Log, AT&T Fiberoptic Cable Site, Appleton, WI, Project No. G417, New Project No. 0550-029.

56. Project Diary, AT&T Appleton, WI Site, Larry M. Campbell, Project Manager, Project No. G417, New Project No. 0550-029.

57. Photographs of Site and Anti-Seep Plug Construction.
    - (AT&T photographs are in Document No. 0550-029-610, May 19, 1989; U.S. Sprint photographs are in Document No. 0550-029-620, May 19, 1989 - **see separate binders.**)

9/23/87

RE: HAZARDOUS WORK CONDITION
IN APPLETON, WISCONSIN

ANGELO BASILE
BOB WEBER

THE ATTACHED IS INFORMATION I HAVE RECEIVED ON THE ACID SPILL IN APPLETON, WISCONSIN.

PAGE 3 IS A LETTER FROM OUR ENGINEERING CONSULTANT TELLING ME WHAT THEY KNOW ABOUT THE PROBLEM.

PAGES 4 THRU 9 IS A LETTER FROM THE WISCONSIN DNR TO US SPRINT (DROP COPY TO DON KRALING, AT&T COMMUNICATIONS). <u>THIS IS SOME ADDED INFO. I RECEIVED AFTER I TALKED TO YOU BOTH</u>. (TABLE 1, 2 AND MAP)

PAGE 10 IS A MAP OF APPLETON, WISCONSIN SHOWING THE SPILL AREA.

ANY QUESTIONS PLEASE CALL ME ON 312-621-5256.

John Seigla

JOHN SEIGLA
AT&T Room 605
1 NORTH WACKER DRIVE
CHICAGO, ILLINOIS 60606

MEET AT HOLIDAY INN
ON SEPT. 29, 1987
AT 1:00 PM

FINLEY ENGINEERING COMPANY
CONSULTING ENGINEERS
P.O. BOX 147
EAU CLAIRE. WI 54702-0147
715-834-2605

August 31, 1987

John Seigla
AT&T Communications
6th Floor
One North Wacker Dr.
Chicago, IL 60606

Re: Appleton - Watertown
Hazardous Waste Danger

Dear Mr. Seigla:

It has come to our attention that an acid spill that occurred in 1979 in the Appleton area is still causing hazardous work conditions in the area. We have heard that contractors working along the Chicago & Northwestern Railroad tracks at Outagamie Street in Appleton have received rather severe burns while working the ground in the area.

Rick Stroll, Hydrologist with the Wisconsin DNR in Green Bay, describes the toxic substance as Chromic Acid, yellow when in low concentrations and green when in high concentrations. A large area has been classified as contaminated, but it is doubtful that any recovery would be undertaken near the tracks. Mr. Stroll could not comment on the effect of Chromic Acid on Polyethylene cable sheath or innerduct.

Minnesota Utility Contracting, Inc., the contractor installing the cable in the area, reported no unusual health problems during the installation.

I don't know if an unusual health risk exists for AT&T Operations employees or not.

If you have any questions, please call me at (715)834-2605.

Yours very truly,

David W. Cheney, P.E.

blw
AT&T:App-Wtn

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Lake Michigan District Headquarters
1125 North Military Avenue
P.O. Box 10448
Green Bay, WI 54307-0448

Carroll D. Besadny
Secretary

File Ref: 4430

September 9, 1987

Mr. Roy Smith
US Sprint
3233 W. Colony Drive
Greenfield, WI53221

Dear Mr. Smith:

Enclosed is the information you requested in our August 18, 1987 telephone conversation regarding contamination from the N.W. Mauthe Company in Appleton. As I told you the groundwater and soils on the adjacent Chicago and Northwestern Railroad property have been contaminated by chromic acid from the Mauthe property. I am surprised your firm was not told this by the railroad as they were aware of the problem.

One of the problems with this site is the Department does not know to what extend the railroad property has been contaminated. The sure signs of chrome contamination are yellow colored soils and yellow/green groundwater. These are indicators of highly contaminated areas. The indicators for lesser contaminated areas are more subtle and may not be visibly recognizable. These lesser contaminated areas may still present a hazard. Extreme caution is advised if you intend to continue with your project in this area. My field inspection indicated the highly contaminated soils and groundwater are present where you ended your trenches.

As I said over the phone any highly contaminated soil or discolored groundwater would be classified as a hazardous waste by state and federal law. This means that any soil or contaminated groundwater removed during the trenching process must be handled as a hazardous waste. We are willing to allow the soil to be stockpiled nearby and returned immediately to the trench as soon as possible. If contaminated groundwater is removed it must be stored onsite; an emergency ID number obtained from U.S. EPA; and the contaminated groundwater must be transported to an approved treatment facility accompanied by a Uniform Hazardous Waste Manifest per state and federal law. The large metal tank on the Mauthe property may be used for temporary storage of liquids if access to it can be secured from Mrs. Mauthe.

Our collection line/french drain system was broken by your initial attempt to complete the project. This line must be restored to its original state. This may prove difficult to do without removing contaminated liquids from any trenches dug.

Finally, the State is actively pursuing listing this area on the Federal Superfund list for uncontrolled hazardous waste sites. If we are successful in our efforts we would expect cleanup to occur. This would involve removal of highly contaminated soils both on and offsite. The presence of your fiberoptics line may complicate cleanup activities and be a hindrance. In addition your trench will disturb the native soil structure and may provide a conduit for contaminants to migrate off-site. If this occurs you may be considered a potentially responsible party for cleanup purposes and held liable for remediation of any contaminations spread by your trench. To prevent contaminants from spreading via the trench I strongly recommend you recompact any soil placed in the trench to its pre-existing state and create a slight mound above the trench to promote runoff. You should install anti-seep devices at Second Street and Outagamie Street. A diagram is enclosed for a similar device used at sanitary landfill in case this is new to you. I do not recommend using concrete since it is subject to cracking and the cracks may be solutionally enlarged by the acid nature of the waste involved.

If you further questions regarding this matter please contact me at 414-497-3055.

Sincerely,

Terry L.

Terry L. Hegeman
Hazardous Waste Specialist

TLH:cks

Encl.

cc: Jim Schedgick - Oshkosh
Ted Amman - SW/3
Doug Rossberg - LMD
Sherry Eggleson - DOJ
Steve Golubic, Outagamie County Emergency Government, 410 S. Walnut
Appleton, WI 54911
Mr. Don Kraling, AT&T Communications, W277 S4747 Saylesville Road,
Waukesha, WI 53188
Mr. Jeff Weliky, Chicago & Northwestern Railroad
200 Dousman Street, Green Bay, WI 54303

PAGE

Table 1
Organic Priority Pollutants - Water
N. W. Mauthe, Appleton, WI

Organic Pollutant	Sample Location, Concentrations in ppb						
	MW-7	MW-15	MW-17	MW-34	Duplicate	MW-35	Blank
Acetone ?	393.4	*	*	*	*	*	220
Methylene Chloride	5.6	16000	1600	880	790	7600	6.6
Tetrahydrofuran	3.6	*	*	*	*	36	*
1,1,1-Trichloroethane	6.4	18000	300	380	700	*	*
Trichloroethene	*	*	*	475	780	*	*

Legend

*Concentration below detection limit.

Table 2
Inorganic Priority Pollutants - Water
N. W. Mauthe, Appleton, WI

Inorganic	Sample Location, Concentrations in ppb						
Pollutant	MW-7	MW-15	MW-17	MW-34	Duplicate	MW-35	Blank
Antimony	*	1760	554	*	*	54	*
Arsenic	*	4.2	*	*	*	*	*
Barium	118	*	*	40	39	29	*
Cadmium	*	*	*	27	17	*	*
Calcium	98800	691000	223000	28800	28300	118000	*
Chromium	186	1520000	266000	11400	11000	72100	12
Cobalt	*	*	*	34	39	*	*
Copper	10	*		1390	1370	8.8	52
Magnesium	74300	340000	153000	15900	16100	57400	*
Manganese	86	286	174	145	149	120	*
Potassium	3420	*	*	5790	5810	2160	*
Silver	*	*	*	6.2	5.7	*	*
Sodium	51300	144000	51400	*	336000	64100	1620
Tin	35	*	*	*	*	28	*
Vanadium	9.1	672	*	*	*	*	*

Legend
*Concentration below detection limit.

TDD # R[illegible]310-1C-4

Date 7-9-85

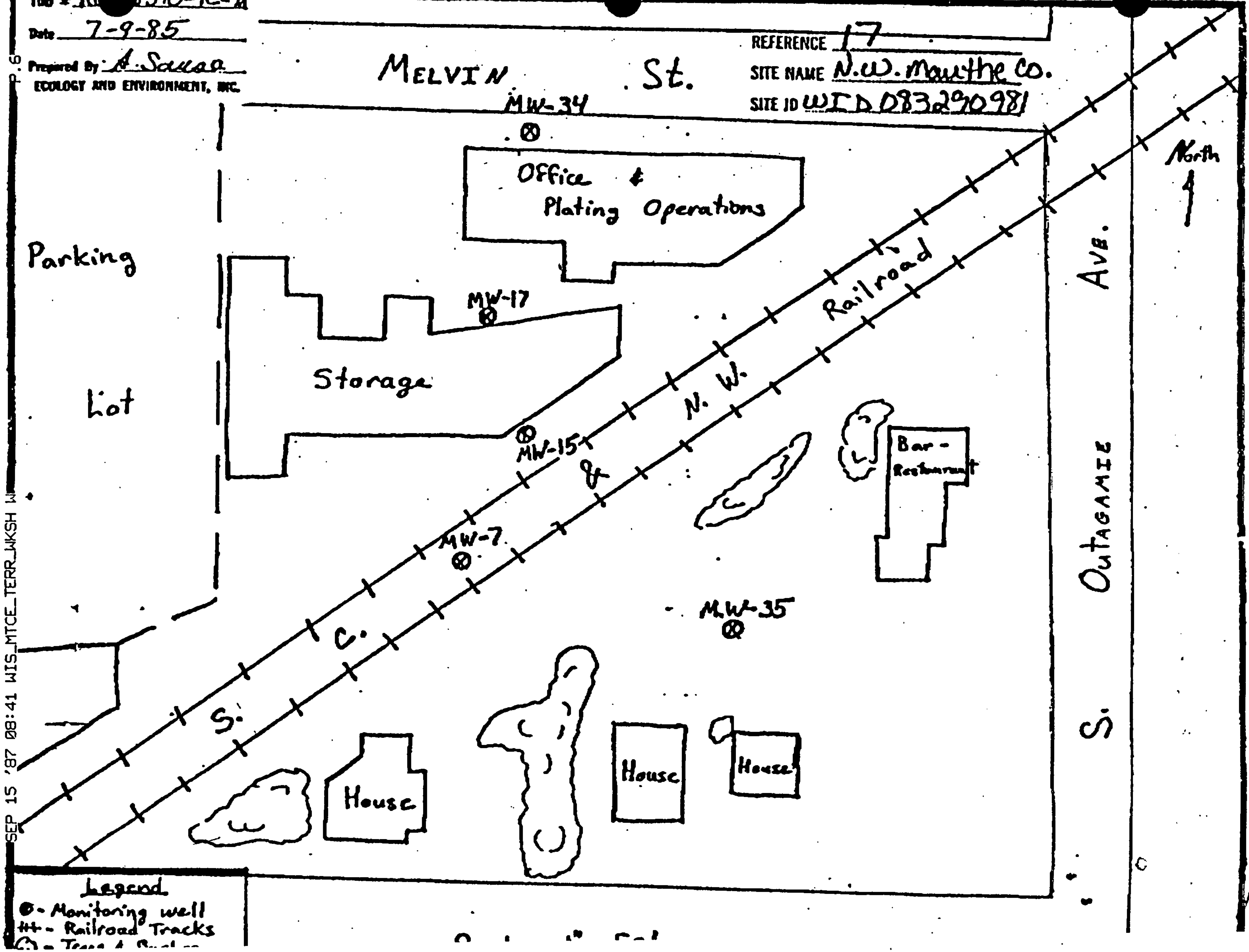
Prepared By A. Sauza

ECOLOGY AND ENVIRONMENT, INC.

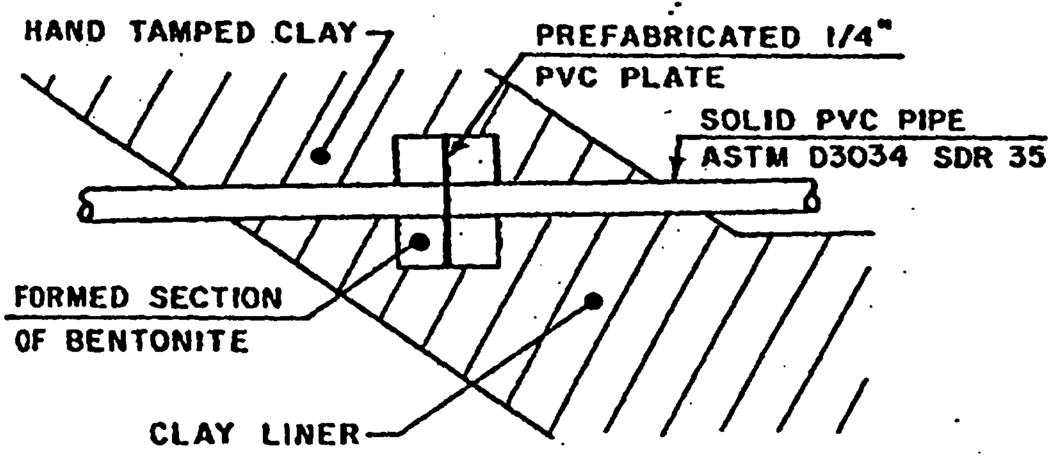
REFERENCE 17

SITE NAME N.W. Mauthe Co.

SITE ID WID 083290981

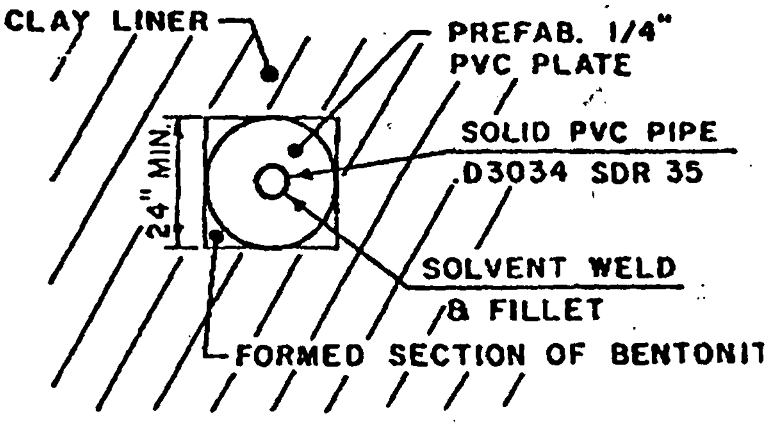


ANTI - SEEP COLLAR DETAIL



SIDE VIEW

NOT TO SCALE

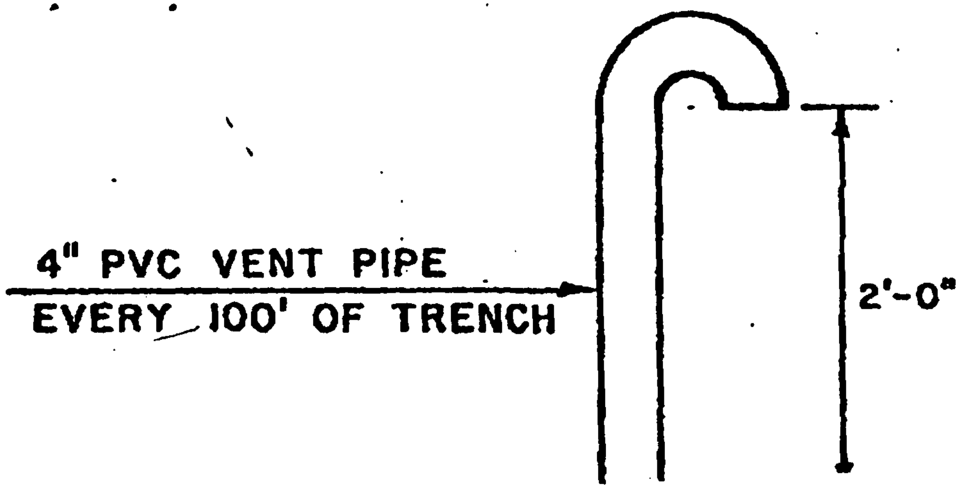


END VIEW

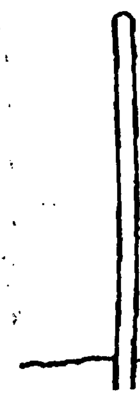
NOT TO SCALE

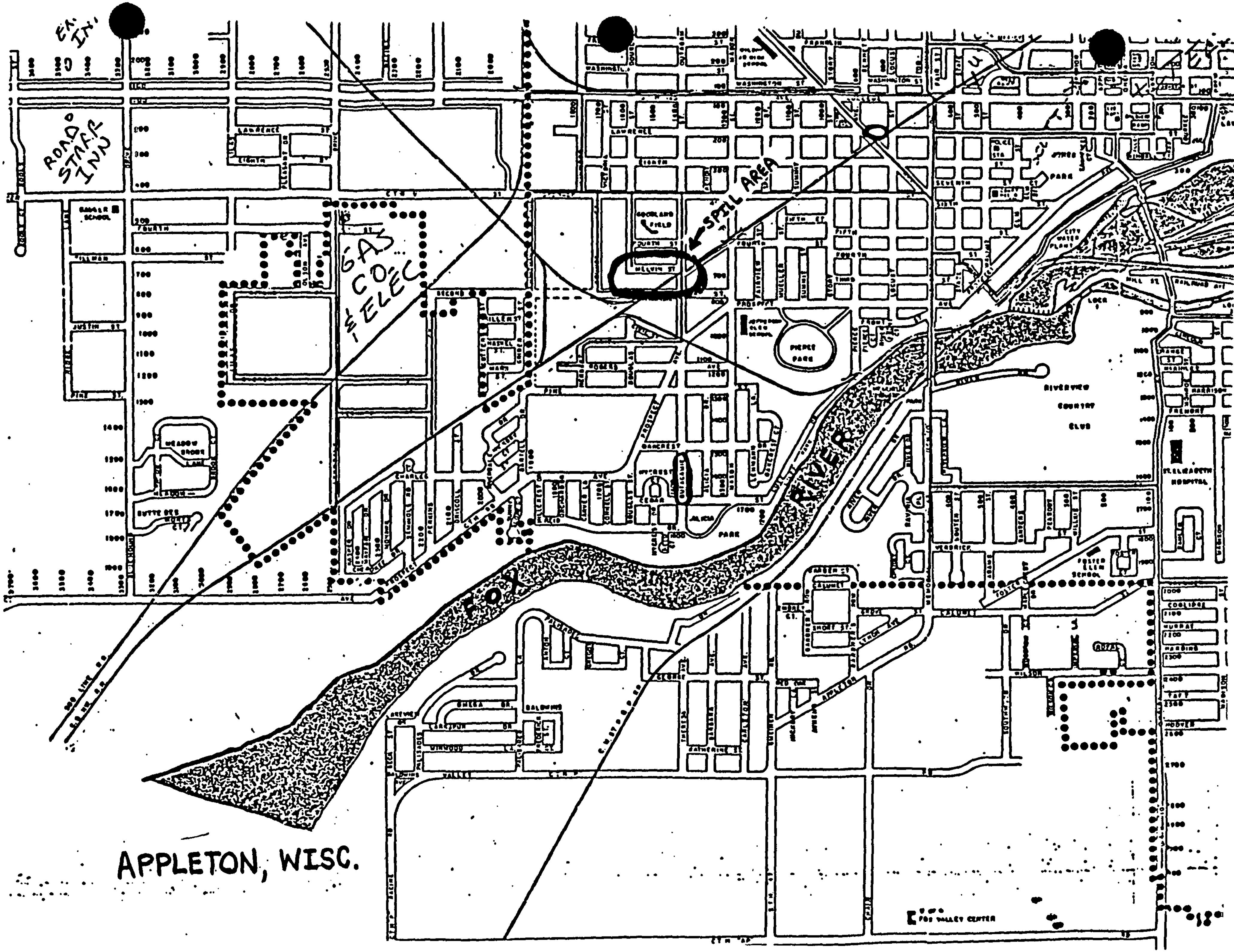
GAS VENTING TRENCH DETAIL

SCALE 1"=1'-0"



GAS





APPLETON, WISC.

STATE OF WISCONSIN
REPLY MESSAGE
FORM AD-16

INSTRUCTIONS TO SENDER:
REMOVE YELLOW COPY FOR YOUR FILE.
SEND REMAINDER OF FORM INTACT WITH CARBONS TO PERSON ADDRESSED.

TO: Larry Cambell
ERT.
131 Eisenhower La
Lombard, IL 60148

FROM: Terry Hageman
G417-100

SUBJECT—MESSAGE

Dear Mr. Cambell:

Enclosed is the information you requested regarding the N.W. Mauthe Spill & C&NW RR in Appleton. I could not find a diagram of our collection system. The system consists of several trenches about 3 feet deep paralleling the railroad tracks. The trenches are 1-2 feet wide, contain 4 inch perforated pvc sloped to the collection sump. ~~&~~ When you inspect the site you will see a piece of 4 inch perforated pvc at the surface near Outagamie Street. This is a portion of the system disrupted by AT&T's trench.

Enclosures

SIGNED Terry Hageman DATE 9/04/87

REPLY

RECEIVED
SEP 28 1987
L. M. CAMPBELL

SIGNED ______ DATE ______

FILE

State of Wisconsin \ **DEPARTMENT OF NATURAL RESOURCES**

Lake Michigan District Headquarters
1125 North Military Avenue
P.O. Box 10448
Green Bay, WI 54307-0448

Carroll D. Besadny
Secretary

September 9, 1987

File Ref: 4430

RECEIVED
SEP 28 1987
L. M. CAMPBELL

Mr. Roy Smith
US Sprint
3233 W. Colony Drive
Greenfield, WI53221

414-282-5173

Dear Mr. Smith:

Enclosed is the information you requested in our August 18, 1987 telephone conversation regarding contamination from the N.W. Mauthe Company in Appleton. As I told you the groundwater and soils on the adjacent Chicago and Northwestern Railroad property have been contaminated by chromic acid from the Mauthe property. I am surprised your firm was not told this by the railroad as they were aware of the problem.

One of the problems with this site is the Department does not know to what extend the railroad property has been contaminated. The sure signs of chrome contamination are yellow colored soils and yellow/green groundwater. These are indicators of highly contaminated areas. The indicators for lesser contaminated areas are more subtle and may not be visibly recognizable. These lesser contaminated areas may still present a hazard. Extreme caution is advised if you intend to continue with your project in this area. My field inspection indicated the highly contaminated soils and groundwater are present where you ended your trenches.

As I said over the phone any highly contaminated soil or discolored groundwater would be classified as a hazardous waste by state and federal law. This means that any soil or contaminated groundwater removed during the trenching process must be handled as a hazardous waste. We are willing to allow the soil to be stockpiled nearby and returned immediately to the trench as soon as possible. If contaminated groundwater is removed it must be stored onsite; an emergency ID number obtained from U.S. EPA; and the contaminated groundwater must be transported to an approved treatment facility accompanied by a Uniform Hazardous Waste Manifest per state and federal law. The large metal tank on the Mauthe property may be used for temporary storage of liquids if access to it can be secured from Mrs. Mauthe.

Our collection line/french drain system was broken by your initial attempt to complete the project. This line must be restored to its original state. This may prove difficult to do without removing contaminated liquids from any trenches dug.

Finally, the State is actively pursuing listing this area on the Federal Superfund list for uncontrolled hazardous waste sites. If we are successful in our efforts we would expect cleanup to occur. This would involve removal of highly contaminated soils both on and offsite. The presence of your fiberoptics line may complicate cleanup activities and be a hindrance. In addition your trench will disturb the native soil structure and may provide a conduit for contaminants to migrate off-site. If this occurs you may considered a potentially responsible party for cleanup purposes and held liable for remediation of any contaminations spread by your trench. To prevent contaminants from spreading via the trench I strongly recommend you recompact any soil placed in the trench to its pre-existing state and create a slight mound above the trench to promote runoff. You should install anti-seep devices at Second Street and Outagamie Street. A diagram is enclosed for a similar device used at sanitary landfill in case this is new to you. I do not recommend using concrete since it is subject to cracking and the cracks may be solutionally enlarged by the acid nature of the waste involved.

If you further questions regarding this matter please contact me at 414-497-3055.

Sincerely,

Terry L. Hegeman
Hazardous Waste Specialist

TLH:cks

Encl.

cc: Jim Schedgick - Oshkosh
Ted Amman - SW/3
Doug Rossberg - LMD
Sherry Eggleson - DOJ
Steve Golubic, Outagamie County Emergency Government, 410 S. Walnut
Appleton, WI 54911
Mr. Don Kraling, AT&T Communications, W277 S4747 Saylesville Road,
Waukesha, WI 53188
Mr. Jeff Weliky, Chicago & Northwestern Railroad
200 Dousman Street, Green Bay, WI 54303 .

Table 1
Organic Priority Pollutants - Water
N. W. Mauthe, Appleton, WI

Organic Pollutant	Sample Location, Concentrations in ppb						
	MW-7	MW-15	MW-17	MW-34	Duplicate	MW-35	Blank
Acetone	393.4	*	*	*	*	*	220
Methylene Chloride	5.6	16000	1600	880	790	7600	6.6
Tetrahydrofuran	3.6	*	*	*	*	36	*
1,1,1-Trichloroethane	6.4	18000	300	380	700	*	*
Trichloroethene	*	*	*	475	780	*	*

Legend
*Concentration below detection limit.

Table 2
Inorganic Priority Pollutants - Water
N. W. Mauthe, Appleton, WI

Inorganic	Sample Location, Concentrations in ppb						
Pollutant	MW-7	MW-15	MW-17	MW-34	Duplicate	MW-35	Blank
Antimony	*	1760	554	*	*	54	*
Arsenic	*	4.2	*	*	*	*	*
Barium	118	*	*	40	39	29	*
Cadmium	*	*	*	27	17	*	*
Calcium	98800	691000	223000	28800	28300	118000	*
Chromium	186	1520000	266000	11400	11000	72100	12
Cobalt	*	*	*	34	39	*	*
Copper	10	*		1390	1370	8.8	52
Magnesium	74300	340000	153000	15900	16100	57400	*
Manganese	86	286	174	145	149	120	*
Potassium	3420	*	*	5790	5810	2160	*
Silver	*	*	*	6.2	5.7	*	*
Sodium	51300	144000	51400	*	336000	64100	1620
Tin	35	*	*	*	*	28	*
Vanadium	9.1	672	*	*	*	*	*

Legend
*Concentration below detection limit.

Table 1. Calculated total chromium concentrations (mg/kg) in soils for selected elevations at the Mauthe sites.

Site no.	804 ft.	801 ft.	798 ft.	795 ft.	792 ft.	789 ft.
1	80	61	30	24	30	25
2	1,300	860	765	765	1,500	30
3	770	160	180	140		
4	390	62	115	120		
5	130	96	210	150	20	
6	79	195	181	44	16	48
7	650	280	55	32	21	20
8	910	120	115	68	20	28
9	32	32	26	23	22	21
14	13,000	6,800	535	830	32	30
17	2,400	1,260	130	220	30	
21	560	215	66	67	87	31
22	39	43	39	36	133	131
23	52	34	30	30	30	26
24	24	28	26	26	27	
25	140	215	370	380	31	
26	34	30	40	30		
27	40	20	30	25	20	
29	30	34	36			
30	30	34	34	25	25	30
33	1,100	310	250	250	164	30
35	40	55	85	30	32	
36	1,800	300	350	150	155	40

Table 2. Calculated hexavalent chromium concentrations (mg/kg) in soils for selected elevations at the Mauthe sites.

Site no.	804 ft.	801 ft.	798 ft.	795 ft.	792 ft.	789 ft.
14	800	455	185	630	<0.2	<0.2
17	19	22	49	64		
21	2.6	2.6	3.6	23	0.3	<0.2
22	<0.2	3.0	7.5	9.1	4.5	<0.2
24	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
25	0.5	140	310	130	<0.2	
29	<0.2	<0.2	5.5			
33	1.5	0.4	145	145	86	1.2
36	180	150	170	200	95	<0.2

Table 3. Standing water levels and piezometric heads for wells intercepting the 796 foot elevation for two dates.

	011183		032983	
Well no.	Elevation	Piezo. head	Elevation	Piezo. head
11	802.77	down	802.42	down
13	801.89	down	802.80	down
av. 15,16	802.43	down	802.41	down
18	803.14	up	804.10	down
25	802.68	--	805.42	--
26	801.47	--	802.56	--
32	801.96	up	801.73	down
34	802.63	--	804.26	--
35	801.52	--	801.78	--

Table 4. Calculated total chromium concentrations (ppm) in well water for selected elevations at the Mauthe sites.

Site no.	804 ft.	801 ft.	798 ft.	795 ft.	792 ft.	789 ft.
7, 10, 11			38	19	0.36	0.02
8, 12, 13			210	210	220	110
14, 15, 16		500	500	2,000	2,000	0.16
17, 18, 19	20	20	150	230	310	
25			840	840		
26		2.6	2.6	2.6	2.6	
31, 32		0.02	21	42	42	
34			0.4	0.4		
35			66	66		

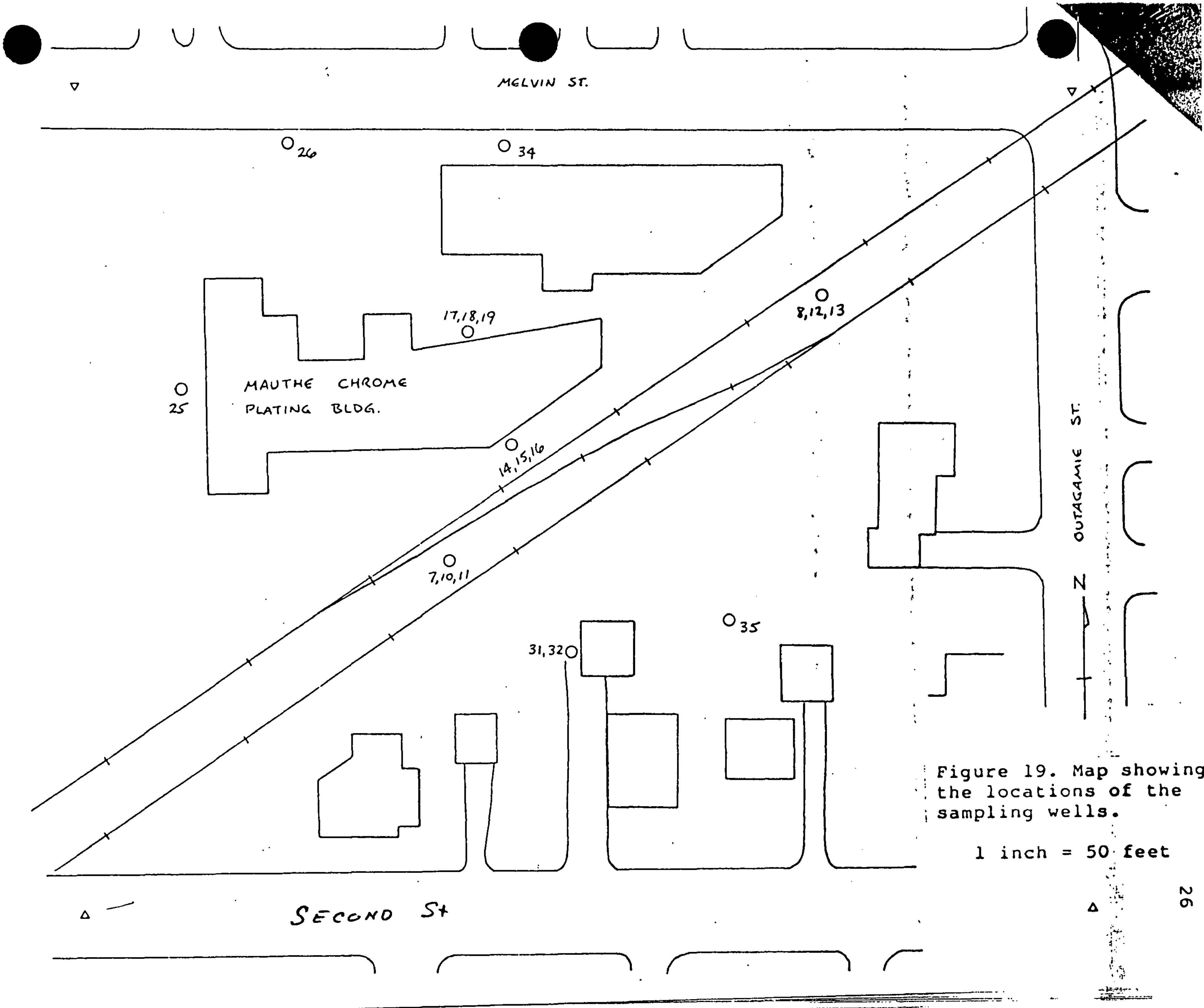
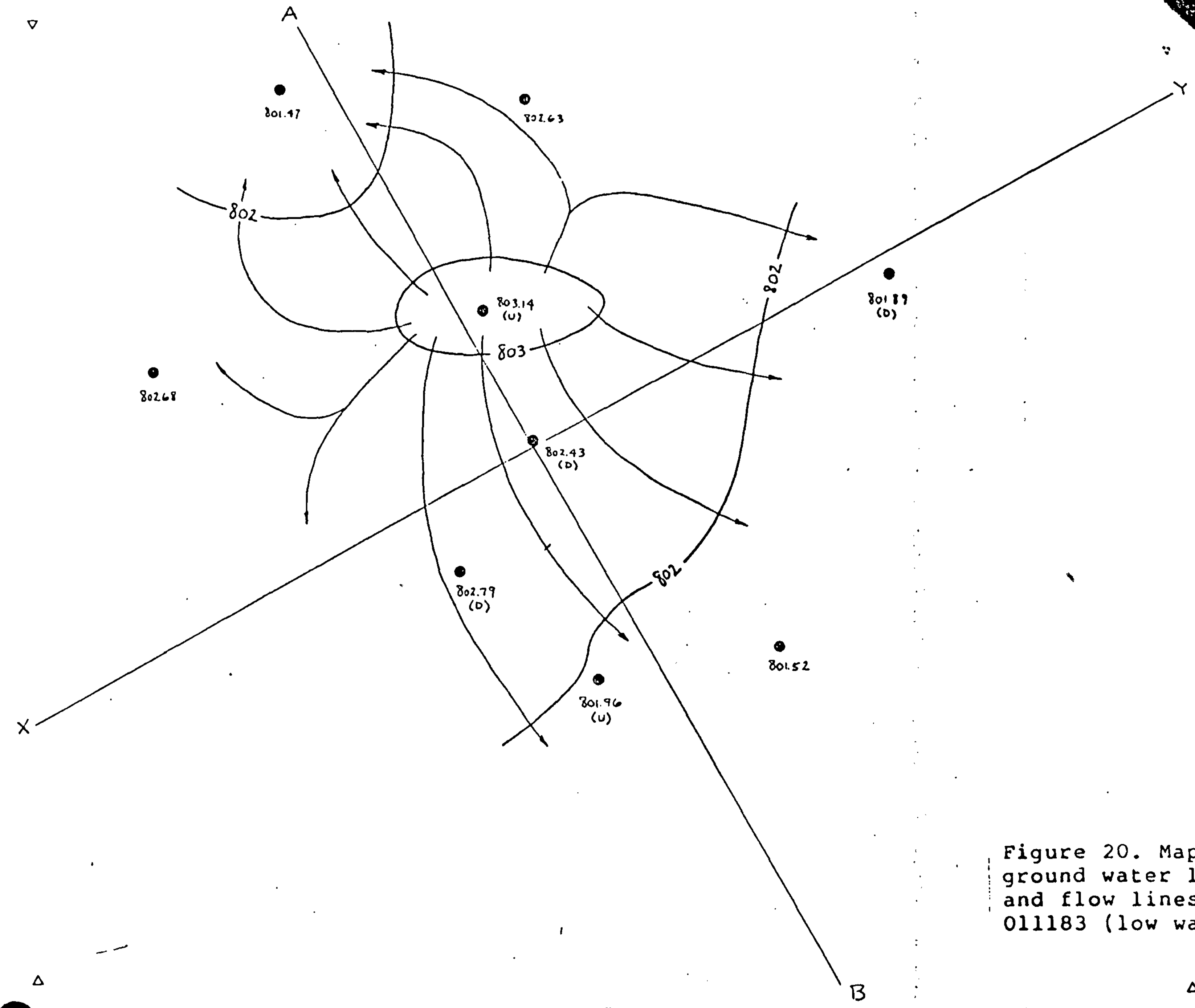


Figure 19. Map showing the locations of the sampling wells.

1 inch = 50 feet



Here
To
End

Figure 20. Map showing ground water levels and flow lines for 011183 (low water).

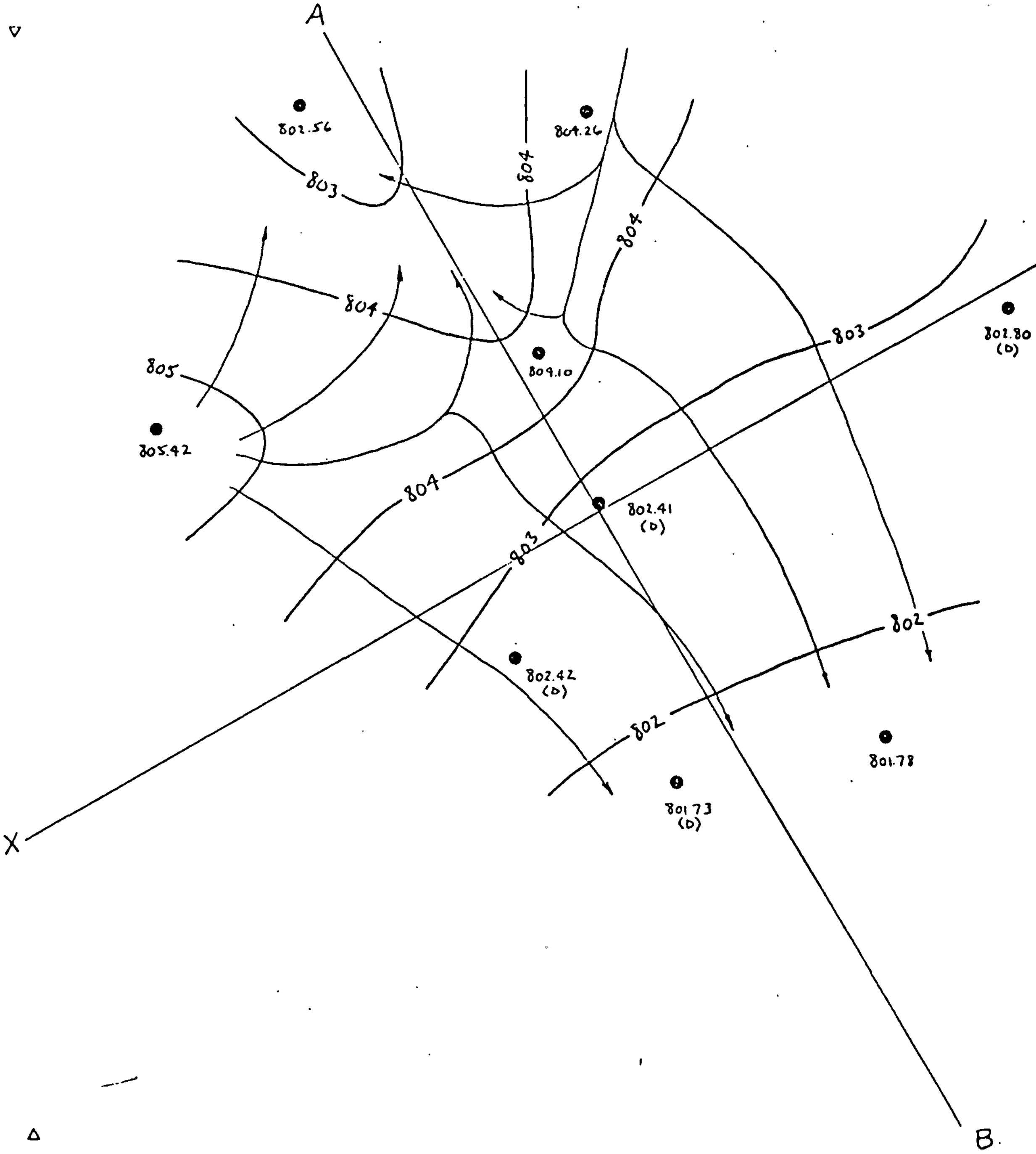


Figure 21. Map showing ground water levels and flow lines for 032983 (high water).

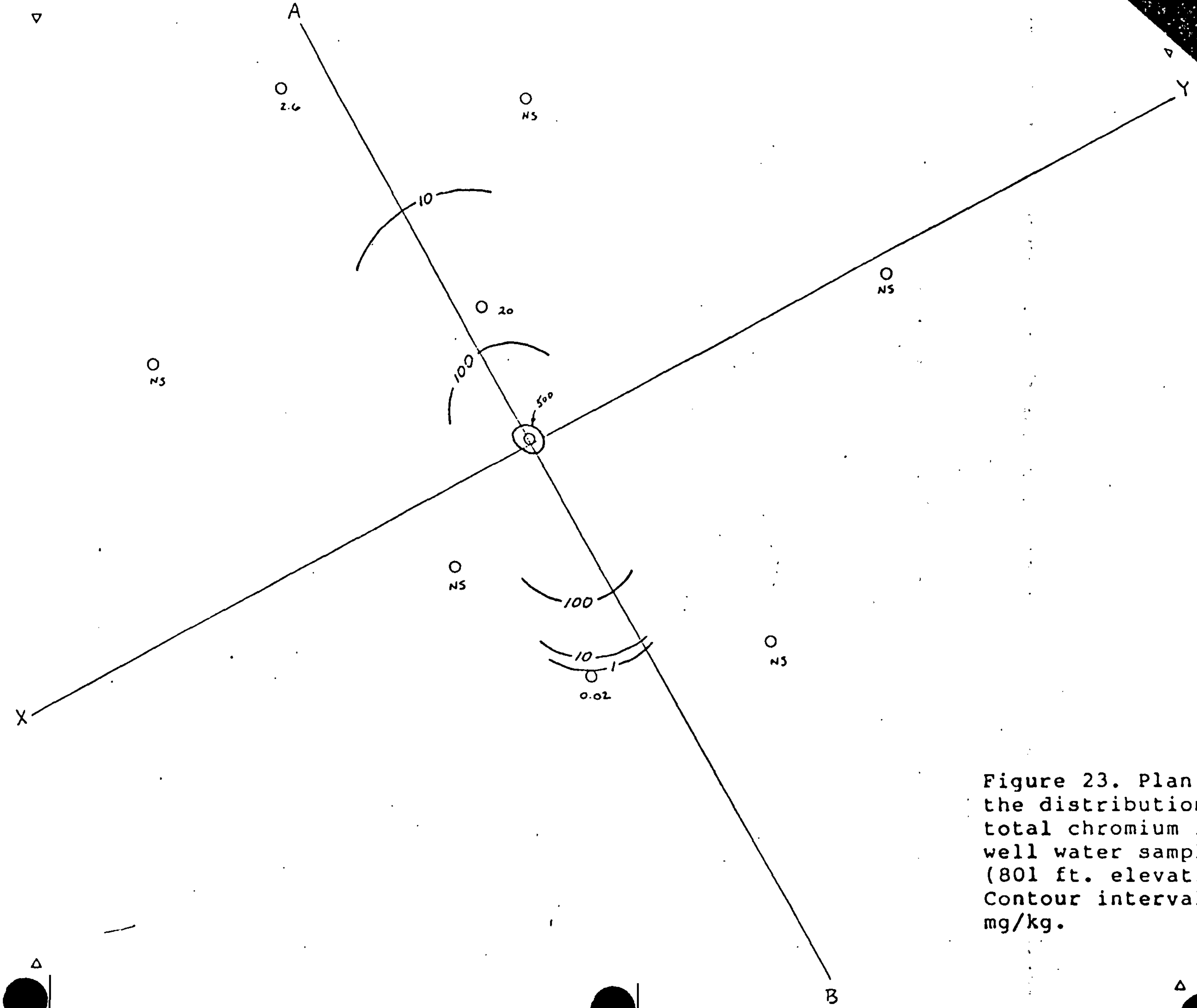


Figure 23. Plan view of the distribution of total chromium in the well water samples (801 ft. elevation). Contour intervals in mg/kg.

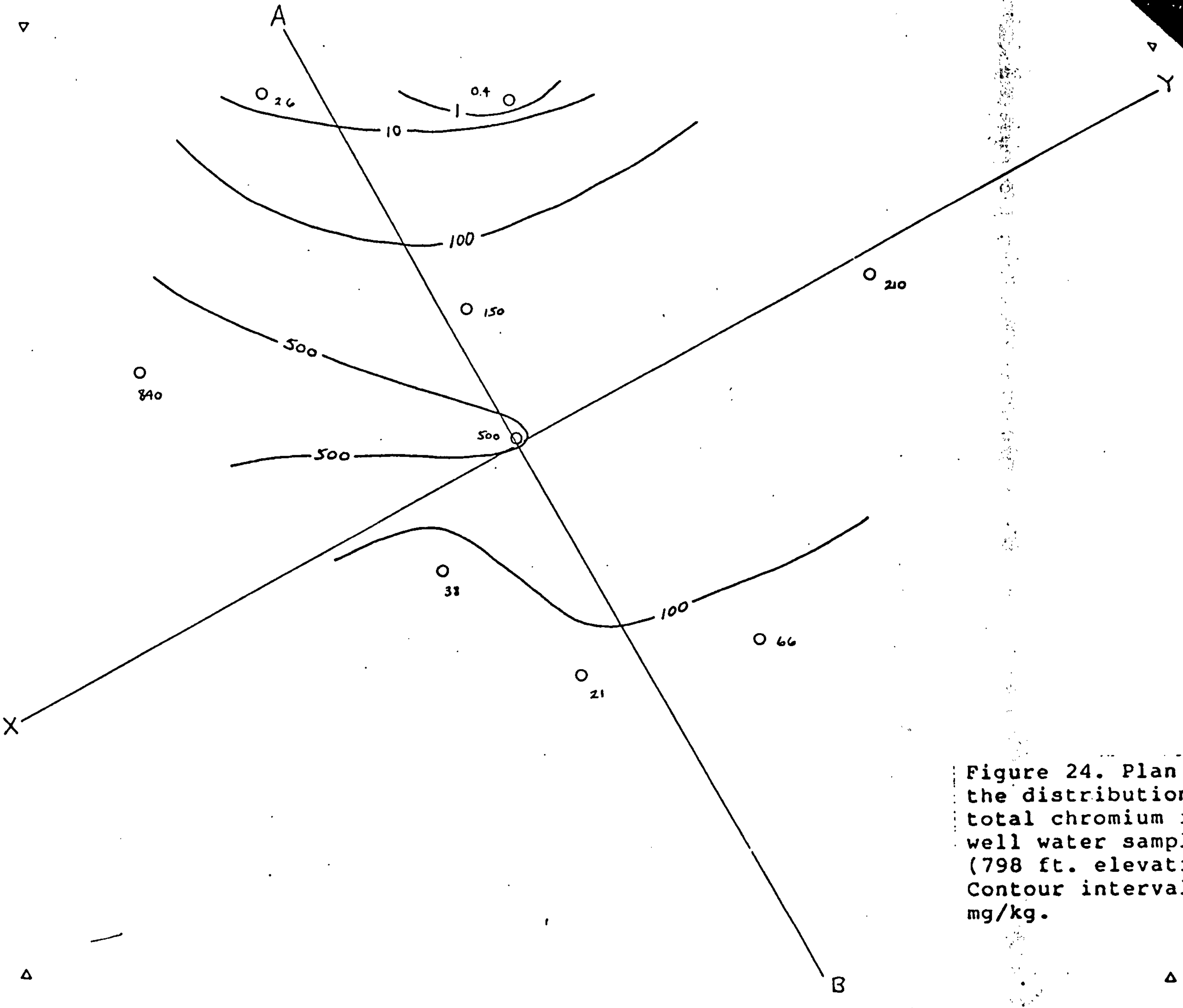


Figure 24. Plan view of the distribution of total chromium in the well water samples (798 ft. elevation). Contour intervals in mg/kg.

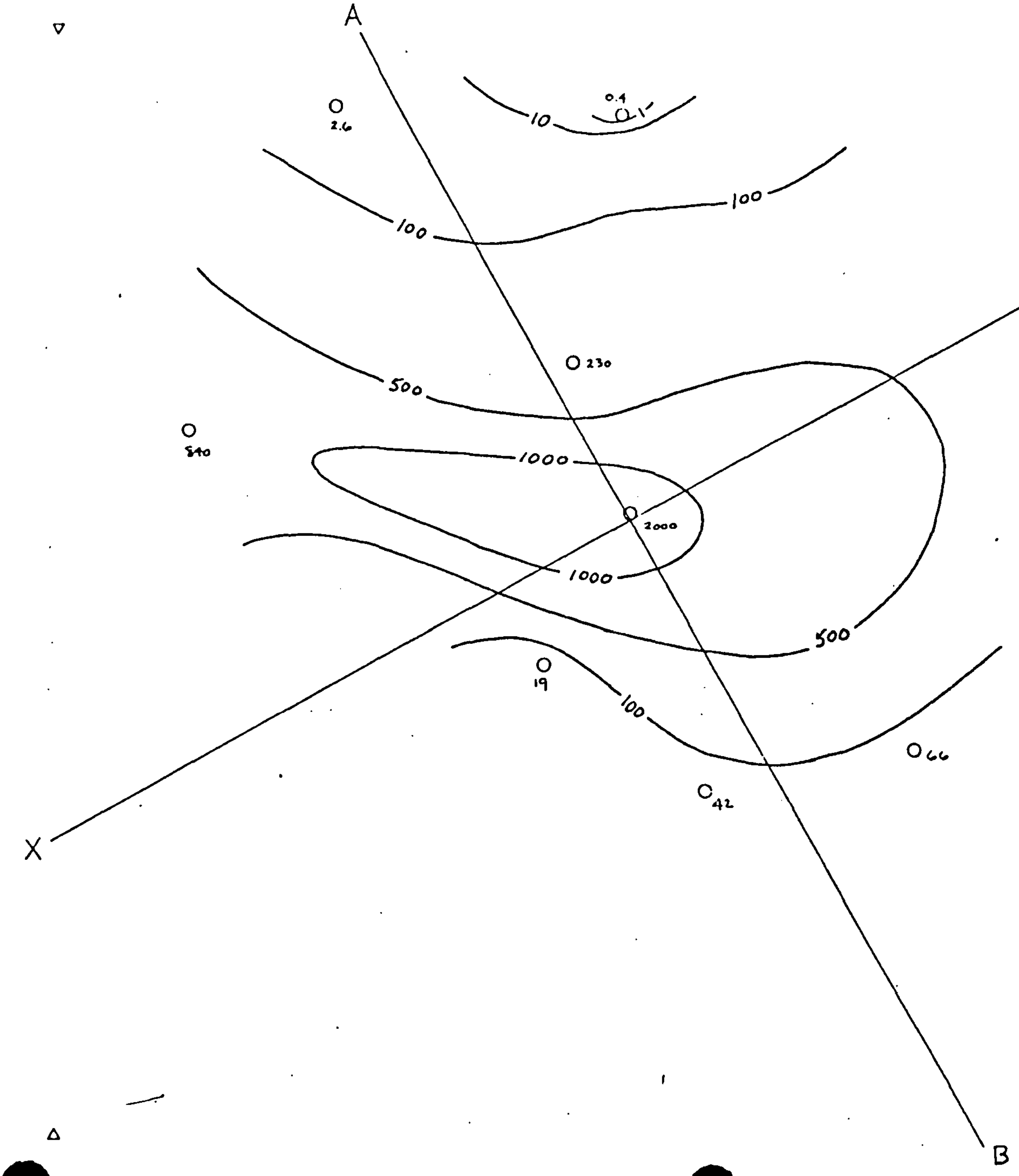
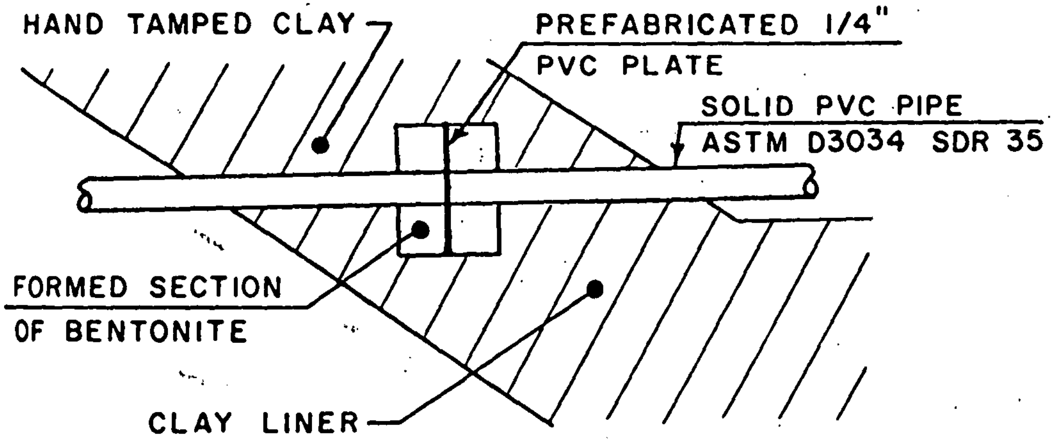


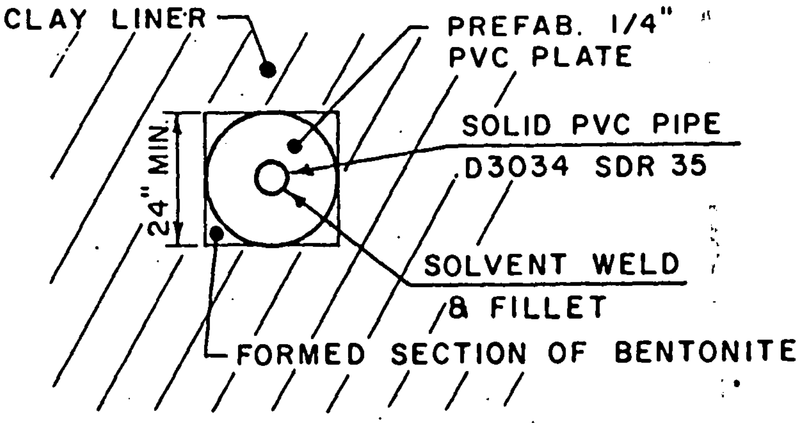
Figure 25. Plan view of the distribution of total chromium in the well water samples (795 ft. elevation). Contour intervals in mg/kg.

ANTI - SEEP COLLAR DETAIL



SIDE VIEW

NOT TO SCALE

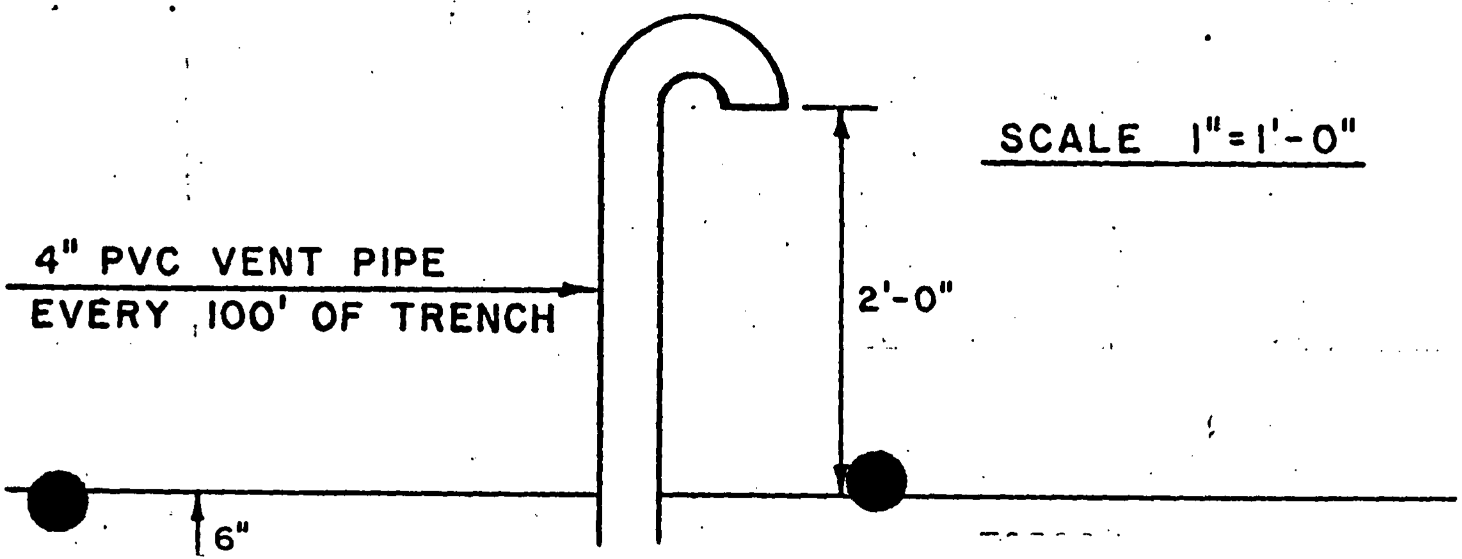


END VIEW

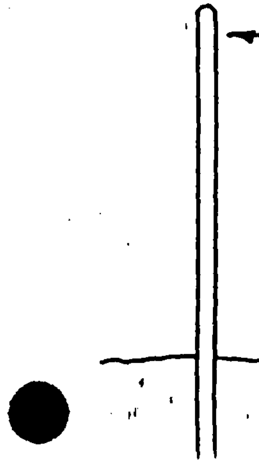
NOT TO SCALE

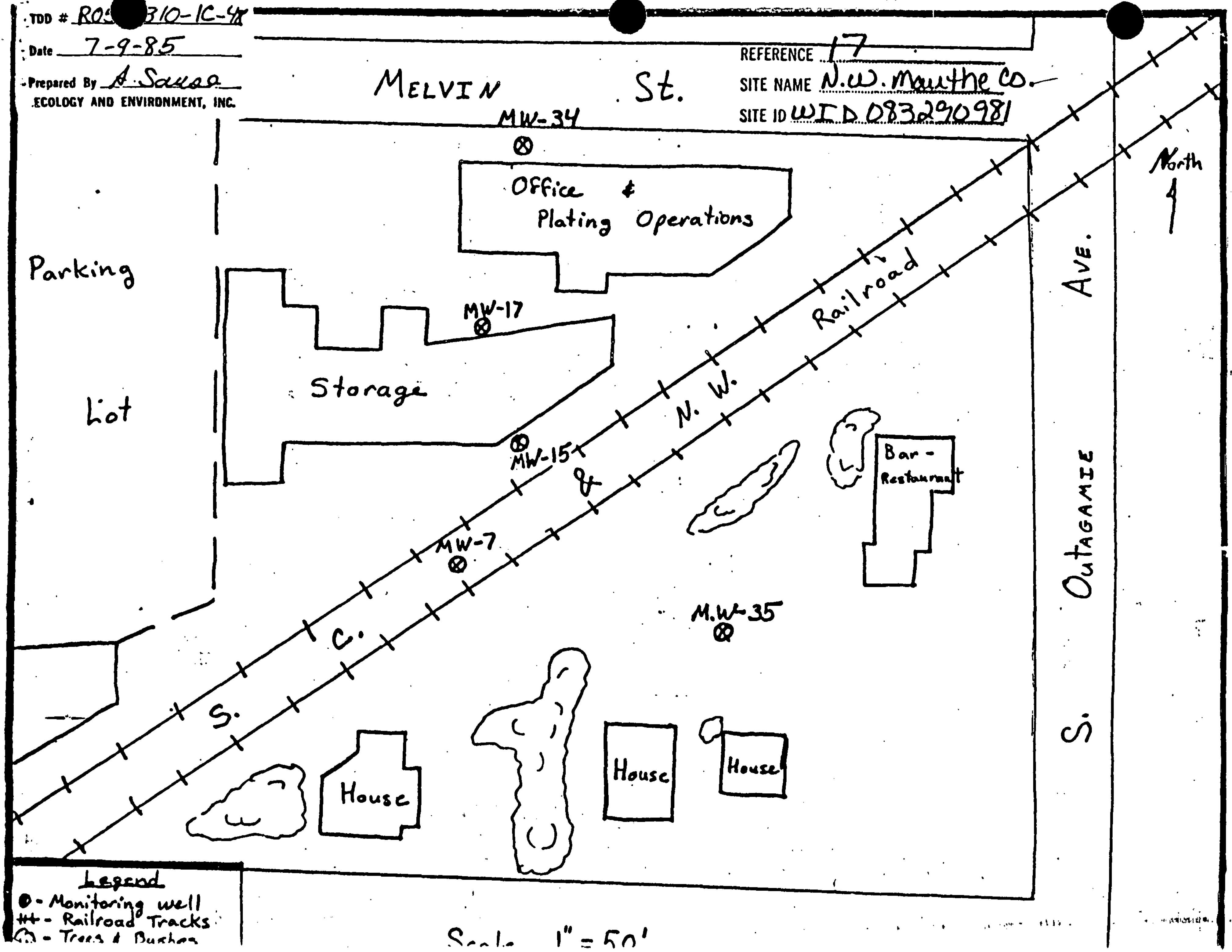
GAS VENTING TRENCH DETAIL

SCALE 1"=1'-0"



GAS





TDD # RO5[illegible]310-IC-48

Date 7-9-85

Prepared By A. Sauso

ECOLOGY AND ENVIRONMENT, INC.

REFERENCE 17

SITE NAME N.W. Mauthe Co.

SITE ID WID 083290981

G417 - 100

SITE VISIT
APPLETON WI

9-29-87
JM Campbell

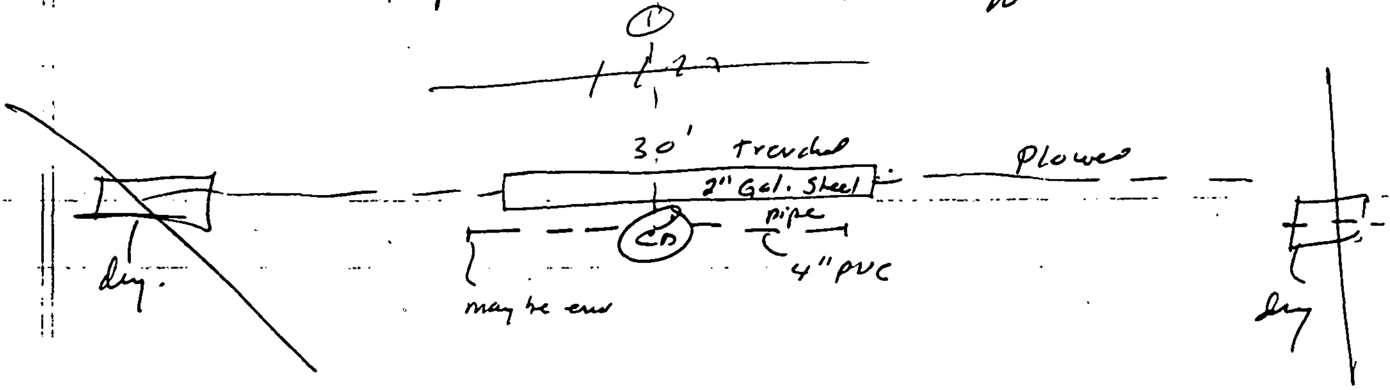
Findley Eng Co - Dale Goss

Pits 3'x25' x 4'deep

@ Street - dry - damp

@ Catch Basin - 1' water - not pumped

People worked in - No adverse effects noted.



Colln system doesnt appear to be operating -

Objectives

1. Danger to employees
2. Damage to cable - Innerduct -
Corrugated PVC 1¼" flex.

Contact State
re ERT Sampling wells, other more recent data
Sampling on RR Track no problem
Check w/ OVA, CGI, quick Test on Chromo.

Install blockage

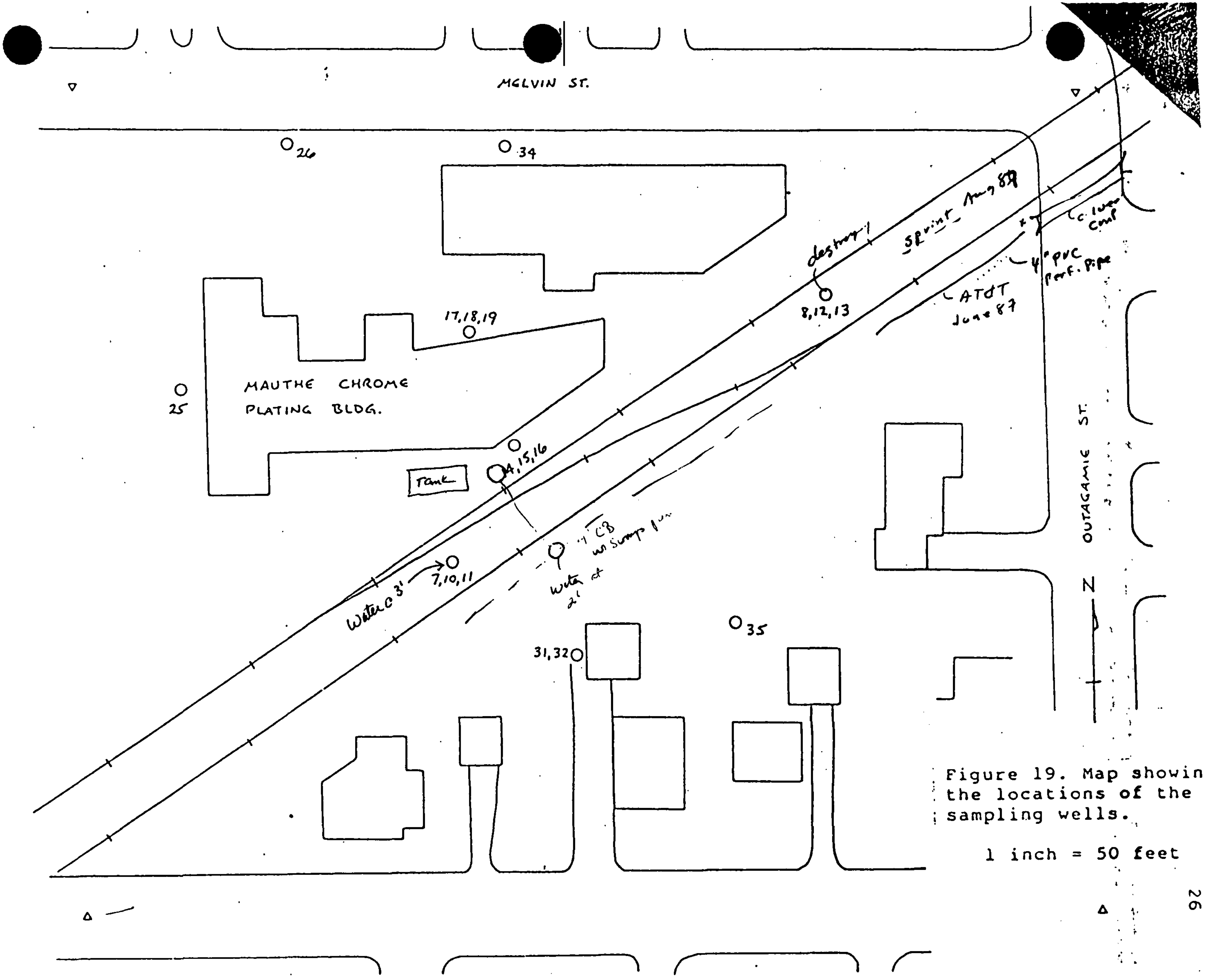


Figure 19. Map showing the locations of the sampling wells.

1 inch = 50 feet

G 417-100

9.30.87 Call Vicki Smith

Joan Hoesl Lab Supervisor

~~[illegible]~~

Volume 4 to 8 oz container for Soil 6 mos holding

8 to 16 oz container for water

		Std	Expedited
Total Chrome	$15	10-14 days	48 hr turnaround ~~5 days~~
Hex Chrome	$35		@100%
prep charge	$15/container 65		Surcharge.

Bo - Recommends Total only then Hex if necessary later.

But for this proj, w/ limited # samples + time constraints - run both is ok

Take pH in field.

9[illegible].87
10:45

Call Art Paradiso

Re availability of VOC analyses

VOC Screen

Verbal results in 1 week

[3 - 40 ml VOA vials - no headspace

soil VOC Screen @ $50 (x2)? = 100

If + VOC analysis @ 250 x 2 = 500

Water VOC Analysis @ 200 x 2 = 400

LMC

ERT
A RESOURCE ENGINEERING COMPANY
131 EISENHOWER LANE, LOMBARD, ILLINOIS 60148, (312) 620-5900

RECEIVED
OCT 1 1987
L. M. CAMPBELL

environmental and engineering excellence

September 30, 1987

Ref.#87-09-Y012
G417-100

Mr. John Seigla
AT&T Communications, Inc.
One North Wacker Drive, 6th Floor
Chicago, IL 60606

SUBJECT: Work Plan to Investigate Impact of Chromium Contamination on AT&T Lightguide Cable in Appleton, WI

Dear Mr. Seigla:

ERT is pleased to submit this Work Plan to provide environmental consulting services to AT&T to investigate the impact of chromium contamination on the operation and maintenance of AT&T's recently installed lightguide cable in Appleton, WI. This Work Plan has been developed based on information provided by AT&T, documents obtained from the Wisconsin Department of Natural Resources (WDNR), and observations and instructions obtained during a visit to the site on September 29, 1987. Persons on the site visit included Messrs. John Seigla and Don Kraling of AT&T Communications, Mr. Angelo Basile of AT&T Corporate Environmental Engineering, Mr. Dale Goss of Finley Engineering Company, and Mr. Larry Campbell of ERT.

BACKGROUND

The lightguide cable is installed in an easement approximately 9 ft south of the center of the southern railroad track on property owned by the Chicago and Northwestern Railroad Company. U.S. Sprint has also installed a fiberoptics cable in an easement between the two railroad tracks. The specific area of interest is an approximately 450-ft-long section located between Outagamie Street on the northeast and Second Street on the southwest (Figure 1). According to information provided by the WDNR (letter of 9/9/87 to U.S. Sprint; personal communications by Mr. Larry Campbell with Mr. Terry Hegeman of WDNR on 9/22/87), the area of interest is contaminated by chromic acid and chlorinated solvents from the N.W. Mauthe Company chrome plating facility located immediately north of and adjacent to the railroad property.

ERT understands that AT&T's primary concerns regarding the chromium and solvent contamination relate to:

1. The effects on AT&T and contractor personnel performing maintenance on the lightguide cable, and

2. The effects on the integrity and operation of the lightguide cable.

Secondary, but related, concerns are associated with actions of WDNR:

3. WDNR contends that AT&T's cable installation operations (as well as those of U.S. Sprint) have broken WDNR's french drain groundwater collection system installed in the area of interest.

4. WDNR contends that AT&T's plowed-in cable (as well as U.S. Sprint's cable and installation trench) may provide a conduit for contaminants to migrate from the area of interest.

5. WDNR is attempting to include this site on the U.S. EPA National Priorities List of Uncontrolled Hazardous Waste Sites (Superfund). If the site becomes a Superfund site, remediation activities would occur which could impact operation of the lightguide cable. In addition, AT&T (and U.S. Sprint) could be considered a potentially responsible party (PRP) for cleanup purposes, especially for remediation of contamination possibly spread by AT&T's cable installation.

ERT understands that time is of the essence inasmuch as AT&T has planned to begin operational use of the lightguide line in about 6 weeks. In anticipation that the existing contamination would significantly impact maintenance activities and possible future remediation activities could disrupt cable operations, AT&T is proceeding with preliminary activities associated with bypassing the area of interest by installing a new cable along another route.

SCOPE OF SERVICES

ERT will provide the following services (tasks) in an attempt to provide information useful in addressing AT&T Concerns No. 1 and 2 described above.

1. Contact Mr. Hegeman at WDNR to obtain additional information concerning the contamination in the area of interest. This would include information regarding the source of the contamination, details of the monitoring well installation and groundwater collection system, and additional analytical data. Specifically, we would hope to obtain a copy of the report from which Mr. Hegeman has sent a few excerpted tables and figures.

2. Inquire of WDNR of any limitations ERT would encounter in collecting additional soil and groundwater samples in order to respond to AT&T's Concerns No. 1 and 2. Could ERT collect samples from the existing monitoring wells? (Some well casings are locked, others are unlocked, and some apparently have been damaged/destroyed by U.S. Sprint installation operations.)

3. Obtain samples of soil at various locations in the vicinity of the lightguide cable in the area of interest. Soil samples will be obtained from hand auger borings drilled to a depth of about 4 ft at 50 to 75 ft intervals along the cable route. Samples from the 3 and 4 ft depths will be composited for testing. A few borings (say 2 to 4) will be drilled at other locations in the area of interest to provide information on contaminant levels between and north of the railroad tracks. We estimate drilling 10 hand auger borings. We understand that AT&T will obtain approval from the C&NW Railroad to conduct these activities on their property. In addition, AT&T will locate the cable in the field and approve ERT boring locations so as not to damage the cable.

4. Obtain samples of groundwater from the area of interest. If encountered in the soil borings, groundwater samples will be collected from these borings. If such sampling is not effective, it may be necessary to sample from the WDNR french drain collection pits and/or the monitor wells. We anticipate collecting groundwater samples from six locations. For this initial assessment, monitor wells will not be purged prior to sampling because the contaminated groundwater must be transported to an approved treatment facility as a hazardous waste. (Such extra expense may be warranted at a later date to provide additional testing and characterization of groundwater contamination in the area of interest.)

5. Analyze the collected soil and groundwater samples. Soil and groundwater samples and quality control (QC) samples (i.e., duplicates and blanks) will be analyzed in ERT analytical laboratories for concentration of total and hexavalent chromium and for volatile organic compounds (VOCs). The pH of liquid samples will be obtained in the field during sampling with a portable pH meter. Soil samples will be screened in the field with an organic vapor analyzer (OVA) as an aid in selecting samples for laboratory VOC analysis. Sampling operations will also use a combustible gas indicator (CGI) to screen samples and borings for an explosive atmosphere. Laboratory testing will be performed on an expedited schedule. We anticipate analyzing 11 soil and water samples for chromium and six soil and water samples for VOCs.

6. Review and evaluate existing and newly collected data and provide information, conclusions and recommendations to AT&T regarding Concerns No. 1 and 2. Without knowing the composition and properties of the lightguide cable and its innerduct, ERT cannot provide final, definitive recommendations regarding Concern No. 2. We suggest that ERT data be provided to the appropriate AT&T division (e.g., Bell Laboratories) to evaluate the operational impact on the lightguide cable.

7. Document the activities and results of tasks 1 through 6 above in a report to AT&T.

With regard to AT&T Concerns No. 4 and 5, ERT will provide the following services (tasks):

8. Assist AT&T in obtaining a qualified hazardous waste contractor to install anti-seep devices around the lightguide cable at locations near Outagamie Street and Second Street. As requested, act as AT&T's authorized representative to direct the contractor's activities to effect the anti-seep installations.

9. During the course of Task 8, collect and analyze samples of soil and groundwater at the locations of the anti-seep installations to document the existing level of contamination at those locations. Such sampling will be obtained immediately adjacent to the cable as well as within 1 to 2 ft of the cable in order to provide background data to (hopefully) demonstrate AT&T's lack of impact on the spreading of the

contamination. We anticipate testing six soil and water samples for chromium, and three soil and five water samples for VOCs.

SCHEDULE

ERT will contact WDNR this week in order to request/obtain the information described in Tasks 1 and 2. ERT will mobilize two qualified field personnel to the site early next week to collect soil and groundwater samples. We anticipate the sampling can be completed in 2 to 3 days. Samples will be shipped via overnight courier each day to the ERT laboratory in Wilmington, MA (VOC analysis) and Houston, TX (chromium analysis). Analyses will be preformed on an expedited schedule. We anticipate receipt of preliminary results (prior to quality control review) within 7 days for VOCs and 3 days for chromium. We anticipate being able to provide preliminary recommendations to AT&T within 10 to 14 days after receipt of authorization to proceed. A draft report can be provided within a few days thereafter. It can be finalized shortly after receipt of final QC review and receipt of AT&T comments.

Tasks 8 and 9 to install the anti-seep devices and document contamination at those locations can be implemented after collection of samples in field Tasks 3 and 4 while Task 5 testing is in progress. It may be desirable or necessary, however, to delay these installations somewhat depending on the availability of a qualified hazardous waste contractor and review of Task 5 testing results.

BUDGET

ERT proposes to provide the services described in this Work Plan on a time and materials basis in accordance with terms and conditions of the National Contract Agreement between AT&T and Resource Engineering Inc. (ERT's parent company), AT&T Contract No. LGC-934-D. We estimate that the total cost of ERT services on this project will be about $26,500, as summarized by task in Table 1. ERT will not exceed this amount without prior authorization of AT&T.

These costs have been estimated assuming managing and staffing the project from our Lombard, IL office and performing the analytical testing in our Houston, TX and Wilmington, MA laboratories for chromium and VOC analyses, respectively. Analytical testing costs for the initial field sampling are for expedited delivery of results and include our standard 100 percent surcharge. No surcharge has been included for the testing associated with the anti-seep devices.

As instructed during the site visit, ERT is proceeding to implement the tasks outlined in this Work Plan in an expeditious manner. This includes preparing to mobilize staff to the site early next week to collect soil and groundwater samples. We will not mobilize staff to the field, however, prior to receiving oral authorization from AT&T to do so. We understand that AT&T Communications, Inc. will issue a purchase order for the services of this Work Plan.

ERT appreciates the opportunity to provide services to AT&T Communications, Inc. regarding this interesting project. If you have any questions, please call.

Very truly yours,

Larry M. Campbell

Larry M. Campbell, P.E.
Senior Program Manager

Approved by:

Robert C. Weber

Robert C. Weber
Manager, Midwest Operations

RCW/cy
Att.
cc: A. Basile
D. Kraling
M. DeBartolo

TABLE 1

ESTIMATED COSTS TO INVESTIGATE CHROMIUM CONTAMINATION IMPACT APPLETON, WI

	Tasks	Labor	ODC	Total
100	1,2 Site Visit, Work Plan, WDNR Contact	$2,200	$300	$2,500
200	3,4 Soil and Groundwater Sampling	4,350	1,650	6,000
	5 Laboratory Analysis	0	8,250	8,250
300	6,7 Data Review, Report	2,700	350	3,050
	Subtotal Tasks 1-7	$9,250	$10,550	$19,800
	8 Field Installation	1,600	2,500	4,100
	9 Laboratory Analysis	0	2,600	2,600
	Subtotal Tasks 8-9	1,600	5,100	6,700
	TOTAL	$10,850	$15,650	$26,500

Figure 1 Project Location

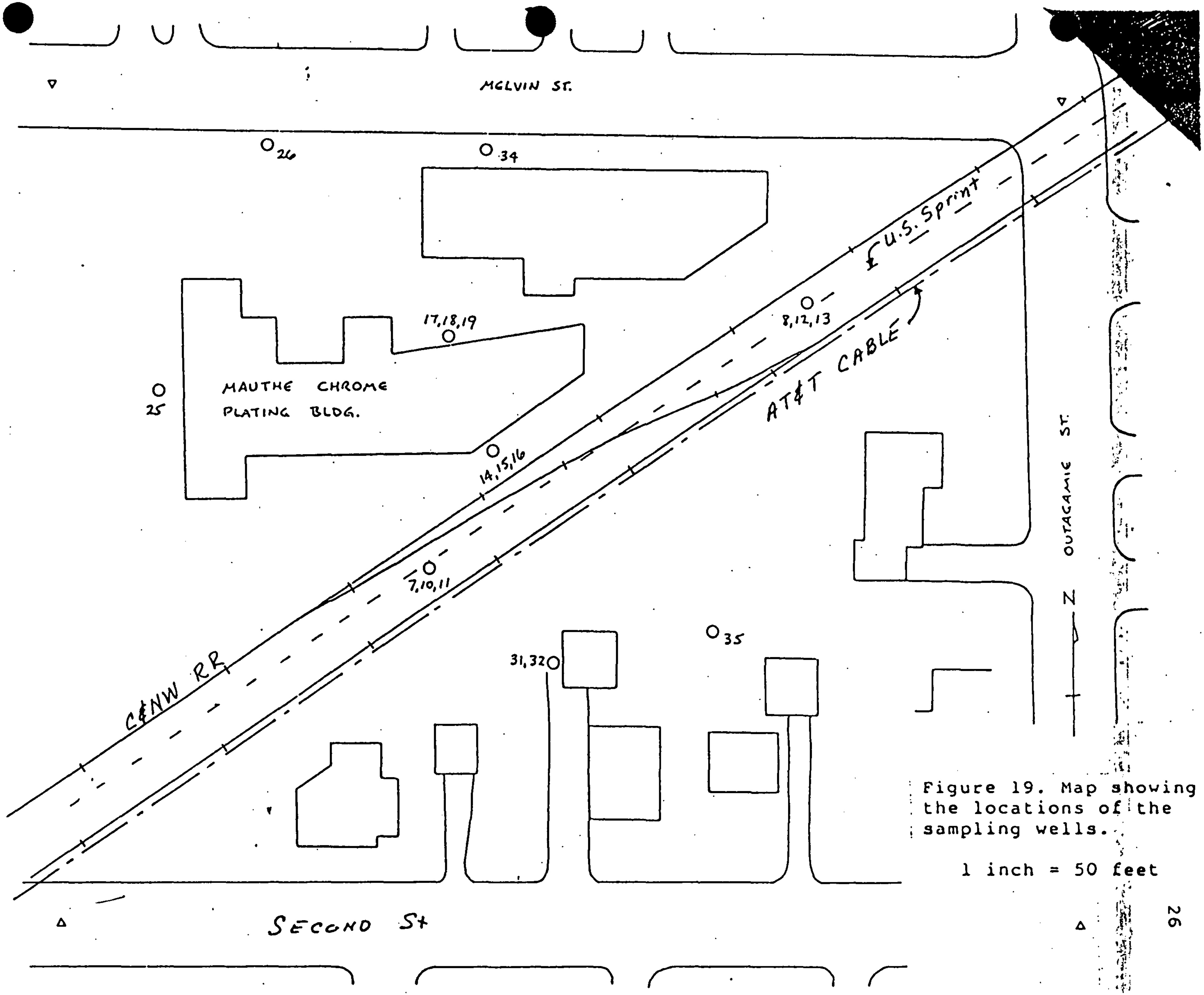


Figure 19. Map showing the locations of the sampling wells.

1 inch = 50 feet

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OCT 1 1987
L. M. CAMPBELL

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A RESOURCE ENGINEERING COMPANY
131 EISENHOWER LANE, LOMBARD, ILLINOIS 60148, (312) 620-5900

environmental and engineering excellence

September 30, 1987

G417-100

Mr. John Seigla
AT&T Communications, Inc.
One North Wacker Drive, 6th Floor
Chicago, IL 60606

SUBJECT: AT&T Contract No. LGC-934D and WDNR Data for Chromium Contamination Project in Appleton, WI

Dear Mr. Seigla:

As you requested during the site visit on September 29, 1987, I enclose various documents for your use on the subject project.

1. AT&T Contract No. LGC-934-D, governing work by Resources Engineering Inc. (ERT's parent company) and AT&T.
2. AT&T Commercial Terms, Time and Materials Agreement, specifying ERT labor rates in effect in 1987.
3. Documents received from Mr. Terry Hegeman of Wisconsin Department of Natural Resources regarding the subject site.

Please call if you have any questions.

Sincerely,

Very truly yours,

Larry M Campbell

Larry M. Campbell
Senior Program Manager

LMC/cy
Enc.
cc: A. Basile
R. Weber
M. DeBartolo
D. Kraling

G417-100
10.1.87

TELECON

Call to Terry Hegeman, WDNR

Source of chrome + solvent contamination: ? Date ?

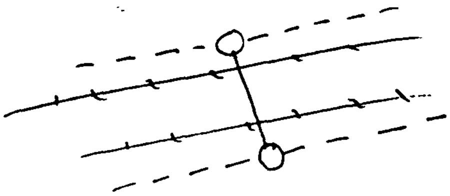
Mauthe Co.

Prior Investigation Activities

Borings through bldg floor - contaminated soils below

Owner + State ~~Fed~~ Investigations by Owner (Mauthe), State (WDNR), Fed EPA (for CERCLA assessment)

Details of GW Collection System Installation & Operational Status (No pumps, disc. pipes down, etc.)



Installed 1982
operated for 2 years.
Stopped because of funding limitations
Water had to be treated offsite.
No oper since 1984 or 1985

Who operates system? Owns Colln Tank?

Funded by state: No as built documentation
State operated

Monitor Well Details, depths, screened intervals etc.

30' or Less Installed by state.

Additional, more recent analytical data?

Not known.

Obtain Copy of report (of excerpted pages): Available

EdE for Site Assessment ; Twin City Testing ; Summary for owner Foltz + Van Dyke.

ERT Sample Soil + GW in area? Problems? Permits?

[illegible]

ERT Sample Monitor wells (?) Mary Jordan

Could do - coordinate w/ WDNR - Share data - provide ~~[illegible]~~ requests possibly split sample

Installation of Anti Seep devices

WDNR doesn't permit, but would

ERT
ENVIRONMENTAL RESEARCH & TECHNOLOGY, INC.

RECEIVED
OCT 1 1987
L.M. CAMPBELL

TELEPHONE CALL SUMMARY SHEET

LOCAL ______ L.D. ✓ PLACED ______ REC'D. ✓ DATE 10-1-87

BY SCOTT VEENSTRA TALKED WITH TERRY HEGEMAN

OF WISCONSIN DNR ON ERT PROJECT NO. G417

414-497-3055

I DISCUSSED WITH TERRY ERT'S PLANNED SAMPLING AT THE AT&T APPLETON, WS SITE. I QUESTIONED TERRY AS TO HOW WE SHOULD HANDLE DISPOSAL OF WATER USED TO DECONTAMINATE SAMPLING EQUIPMENT. I TOLD HIM THAT WE WOULD BE GENERATING ONLY 10 TO 15 GALLONS DURING A 2 DAY PERIOD. HE SAID THAT IT COULD TECHNICALLY BE CONSIDERED A HAZARDOUS WASTE BUT DUE TO THE SMALL VOLUME, HE WOULD ALLOW US TO DISPOSE OF ANY CONTAMINATED WASH WATER GENERATED DURING SAMPLING BACK INTO THE COLLECTION LINE/FRENCH DRAIN SYSTEM DRAINAGE SUMPS. THESE ARE LOCATED ON EITHER SIDE OF THE RAILROAD TRACKS SOUTH OF THE MAUTHE PROPERTY.

Scott C. V
Signature

DISTRIBUTION: B. WEBER
1070 (6/77) L. CAMPBELL

FILE

ERT
A RESOURCE ENGINEERING COMPANY
131 EISENHOWER LANE, LOMBARD, ILLINOIS 60148, (312) 620-5900

environmental and engineering excellence

October 2, 1987

Ref. #87-10-M007
ERT Program No. G417-100

Mr. John Seigla
AT&T Communications, Inc.
One North Wacker Drive
Sixth Floor
Chicago, Illinois 60606

Subject: Authorization to Proceed with Field Sampling at Chromium Contaminated Area in Appleton, Wisconsin

Dear Mr. Seigla:

This letter documents the writer's telephone conversation with Mr. John Gerding of your office on October 1, 1987. I explained to Mr. Gerding ERT's plans to mobilize personnel and equipment to the field on Monday, October 5, 1987 to conduct the field sampling we discussed during the site meeting on Tuesday, September 29, 1987 and as described in the Work Plan sent to you on Wednesday, September 30, 1987 (ERT Ref. #87-09-Y012). In your absence, Mr. Gerding instructed the writer to proceed with the field program as planned. Mr. Gerding said that he would inform you of his approval.

Accordingly, we are mobilizing personnel and equipment to the site on Monday, October 5, 1987. We expect to have completed field work by Tuesday evening October 6, 1987. We have coordinated our plans with Mr. Don Kraling of AT&T and Mr. Dale Goss of Finley Engineering Company.

Very truly yours,

Larry M. Campbell

Larry M. Campbell
Senior Program Manager

LMC/csm

cc: J. Gerding
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environmental and engineering excellence

October 2, 1987

Ref. #87-10-M002
ERT Program No. G417-200

AT+T

Mr. John Seigla
AT&T Communications, Inc.
One North Wacker Drive
Sixth Floor
Chicago, Illinois 60606

Subject: Sampling Plan, Appleton, Wisconsin

Dear Mr. Seigla:

ERT is pleased to present to you a copy of the Sampling Plan for Soil and Groundwater Investigation at the AT&T Lightguide Cable Site in Appleton, Wisconsin. This document is provided to describe the Field Sampling Plan, Quality Assurance/Quality Control Plan, and Health and Safety Plan.

Please do not hesitate to contact us should you have any questions regarding this document, or any aspect of the field investigation.

Very truly yours,

Larry M. Campbell

Larry M. Campbell
Senior Program Manager

LMC/csm

cc: A. Basile
D. Kraling
S. Veenstra
A. Stecyk
R. Weber

SAMPLING PLAN
SOIL AND GROUNDWATER INVESTIGATION
AT THE AT&T LIGHTGUIDE CABLE SITE
APPLETON, WISCONSIN

ERT Document No. G417-200

October 2, 1987

Prepared by:

ERT, Inc., A Resource Engineering Company
131 N. Eisenhower Lane
Lombard, Illinois 60148

1.0 SOIL AND GROUNDWATER SAMPLING

The following soil and groundwater sampling program is in response to the ERT Work Plan dated September 30, 1987 for the AT&T Lightguide Cable Site in Appleton, WI. This program has been made to investigate the impact of chromium and volatile organic compound contamination at the location of the lightguide cable installed in the easement approximately 9 feet south of the center of the southern railroad track on property owned by the Chicago and Northwestern Railroad Company.

Shallow soils borings will be performed at 10 locations. These soil borings will be obtained by hand augering. The total depth of the borings is expected to be 4 feet.

Depicted in Figure 1 are the proposed boring locations for the AT&T Lightguide Cable Site. Seven soil borings are planned along the approximately 450-foot-long section of lightguide cable on the southern side of the northeast-southwest trending Chicago and Northwestern Railroad tracks between Outagamie Street and Second Street. These borings will be advanced to a depth of about 4 feet, spaced equidistant (approximately 70 feet) apart, and drilled within 1 foot of the lightguide cable as located by AT&T in the field. An eighth boring will be located north of the railroad tracks near the drainage collection sump. The ninth boring will be just south of boring 8, between the northern and southern tracks. Boring 10 will be located between the railroad tracks, approximately 100 to 150 feet northwest of boring 9.

The soils samples at each designated boring location will be obtained and described in the project field notebook by one of a crew of two ERT geologists. These notes will later be utilized to construct logs of the soil borings. A stainless steel hand auger with a 3-inch diameter bucket will be advanced to obtain the samples. The stem of the auger will be marked at the 3 and 4 foot intervals to simplify sampling at these depths with the bucket of the auger. Representative material from the two depths will be combined to form a single composite sample. This will provide a total of 11 soil samples, one from each of the 10 borings and one duplicate. Each composite soil sample will be separated for chromium analysis (both total and hexavalent chromium) and volatile organic compound (VOC) analysis.

An organic vapor analyzer (OVA) will be used for field screening to aid in the selection of samples for laboratory VOC analysis. A combustible gas indicator (CGI) will be used to screen samples and borings for an explosive atmosphere.

For the chromium analysis, the sample material will be placed into one 8 oz. jar which are appropriately labeled for delivery to the ERT Houston, TX analytical laboratory. The second half of each sample will be placed into a set of three 40 ml VOA vials. After properly labelling each glass VOA vial, they will be placed into a cooler at a temperature of 4°C and shipped to ERT's Wilmington, MA laboratory. The sample containers have been purchased from I-CHEM who has prepared the glassware for sampling previous to delivery to ERT. I-CHEM's cleaning protocol for glassware and further information concerning ERT sample labelling and chain-of-custody procedures for all samples are included in the QA/QC Plan in Appendix A.

The soils that are expected to be encountered in this investigation consist of sandy silty clay. Water is expected to be encountered during the drilling of these 4-foot-deep borings. The nature of this clayey material should prevent side-wall collapse and allow for groundwater sampling.

After soil sampling at each boring location, groundwater will be allowed to flow into the boring. A stainless steel bailer will be used to collect groundwater samples from five borings and from the collection sump. The pH of each sample will be obtained in the field during sampling with a portable pH meter. It is expected to collect a total of 10 water samples: five from borings, one from the collection sump, one duplicate, one field blank and two trip blanks.

Each sample will be analyzed for concentrations of total and hexavalent chromium in the ERT Houston Laboratory and for volatile organic compounds (VOCs) in the ERT Wilmington laboratory. The groundwater collected for chromium analyses will be placed into two 4 oz. glass jars. Sample for total chromium analysis will be preserved with the addition of nitric acid until a stabilized pH below 2 is reached. Sample for hexavalent chromium analysis will be chilled to 4°C. Each groundwater sample for VOC analysis will be placed into a set of three 40 ml VOA vials and labelled appropriately. These samples will be protected from light and chilled to less than 4°C.

All groundwater and soil samples will be shipped to ERT's analytical laboratories for analysis using standard chain-of-custody procedures as included in the QA/QC Plan in Appendix A.

To insure that soil and groundwater samples will not be cross-contaminated in the field, the following decontamination procedures will be used:

- A decontamination station will be set-up in the field. The station will consist of plastic sheeting on the floor in the decon area, one washtub of non-phosphate alconox detergent and deionized water, one washtub of deionized water, a pump sprayer of deionized water, scrub brushes and Kim-wipes.

- Between obtaining soils samples between borings, the bucket of the auger will be removed, scrubbed, and then rinsed two times with deionized water and dried with Kim-wipes.

- Three bucket augers will be available to expedite the sampling and decontamination process.

- Between obtaining groundwater samples, the stainless steel bailer will be scrubbed and then rinsed twice with deionized water and dried with Kim-wipes.

- Two bailers will be available to expedite the sampling and decontamination process.

- Sampling personnel will apply a new pair of gloves between each boring and between each groundwater sample.

- All rinse water from the decontamination process will be containerized and added to the collection sump on the southside of the railroad tracks. This sump is part of a non-functional french drain/groundwater collection system owned by the Wisconsin Department of Natural Resources. Mr. Terry Hegeman of WDNR has approved this disposal of decontamination fluids.

A health and safety plan governing the field operations during the boring and sampling procedure of this investigation is included in Appendix B.

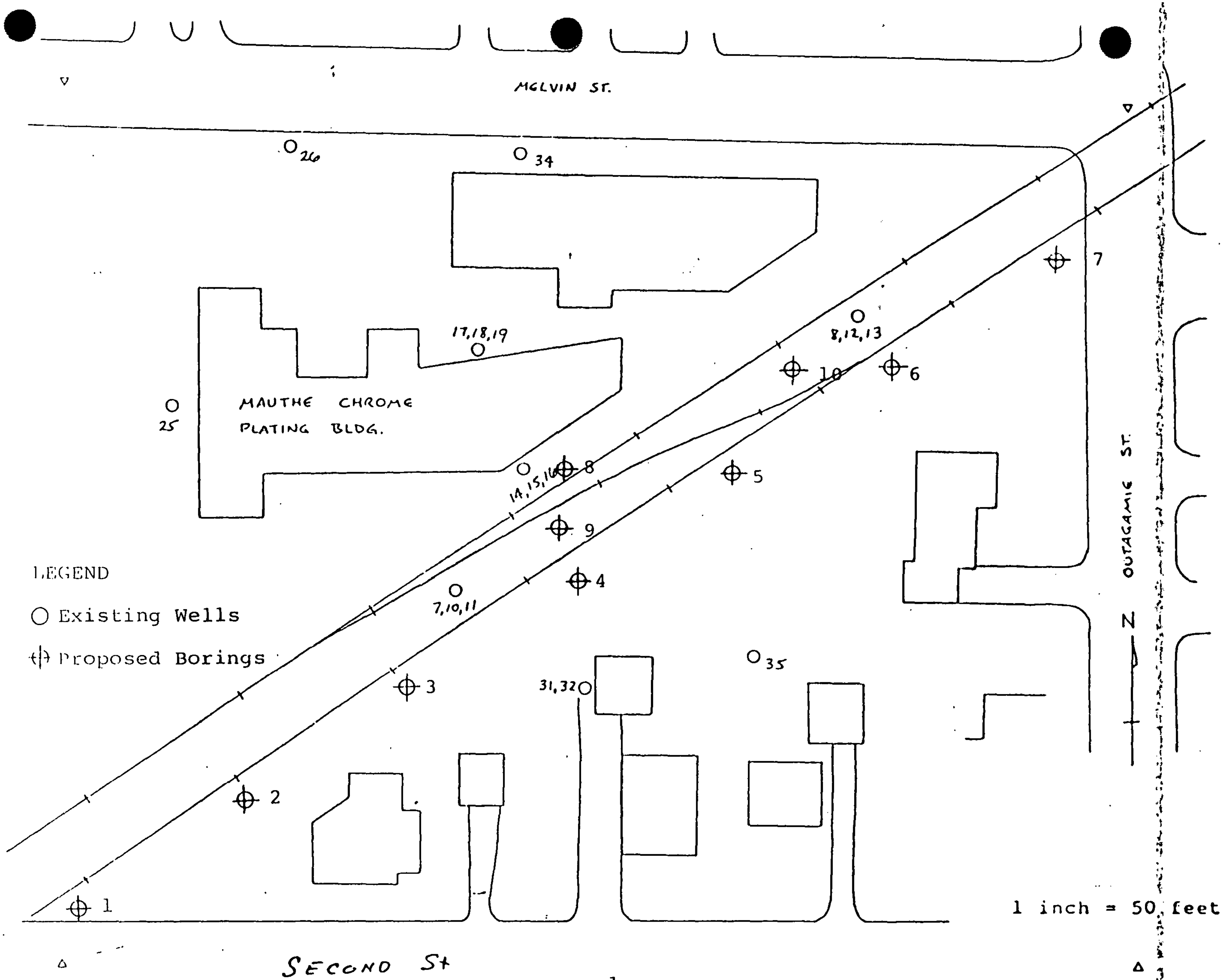

FIGURE 1

Map Showing Boring Locations

2.0 ANALYTICAL TESTING

A total of 11 soil samples (10 samples + 1 duplicate) as well as 10 groundwater samples (6 samples + 4 field/trip blanks and one duplicate) will be submitted to ERT's Houston laboratory for total and hexavalent chromium analyses. The VOC analyses for soil and groundwater will be conducted by the ERT Wilmington, MA laboratory and will include 11 soil samples (10 samples + 1 duplicate) and 6 groundwater samples (4 samples + 2 field blanks/duplicates).

All of the samples will be handled under chain-of-custody procedures. The samples will be analyzed using the following methods:

- VOC water samples will be analyzed using GC/MS EPA Method 624, Methods for Chemical Analysis of Water and Wastes (EPA 600-4-79-020), revised October, 1983.
- VOC soil samples will be analyzed following EPA Method 8240 from Test Methods for Evaluating Solid Waste-Physical Chemical Methods SW846, 3rd edition, revised 1986.
- Hexavalent chromium samples will be analyzed using Method 312B from Standard Methods for The Examination of Water and Wastewater, 15th & 16th editions, 1980, 1985.
- Total chromium samples will be analyzed following Method 6010 from Test Methods for Evaluating Solid Waste-Physical Chemical Analyses of Water and Wastes (EPA 600-4-29-020), revised October, 1983.

APPENDIX A

ERT QUALITY ASSURANCE/QUALITY CONTROL PLAN

ERT has been retained by AT&T Communications, Inc. to carry out a soil and groundwater investigation at the lightguide cable installed on the C&NW Railroad easement in Appleton, WI. The investigation will include soil borings to a depth of 4 feet and collection and analysis of subsurface soil samples and groundwater samples.

The purpose of the project is to define the extent and evaluate the level of total and hexavalent chromium and volatile organic compound contamination at the site.

An integral part of QA/QC of field activities will be the maintenance of a field notebook. Information obtained from field activities will be recorded and documented.

Members of the project staff working in field operations will keep a field notebook of their project activities. Items to be included in the notebook, as appropriate, are:

- Field activity subject
- Unusual events
- Visitors on site
- ERT personnel on site
- Sample screening results
- Sample locations
- Air monitoring measurements.

In additions, boring logs, sample logs and chain-of-custody forms will be prepared and kept as part of the official field record. Field records will be collected and maintained by the Field Team Leader until completion of the field program or until they are submitted to the project central file.

All samples collected will be containerized in sample containers that have been provided by ERT laboratory sample custodian. All samples will be collected, containerized, identified, preserved, and transferred to ERT's laboratories, in accordance with applicable ERT Standard Operating Procedures No. 7110, 7115, 7510, 7600.

The sample containers provide by ERT laboratory sample custodian were obtained from I-CHEM after the following cleaning protocols for preparation of containers had been implemented:

1. Wash containers, closures, and teflon liners in hot tap water with laboratory grade non-phosphate detergent.
2. Rinse three times with tap water.
3. Rinse with 1:1 nitric acid.
4. Rinse three times with ASTM Type 1 deionized water.
5. Rinse with pesticide grade methylene chloride.
6. Oven dry.
7. Remove containers, closures and teflon liners from oven.
8. Place teflon liners in closures and place closures on containers. Attendant to wear gloves and containers to not be removed from preparations room until sealed.

The following table indicates the samples that will be collected and analyzed as part of this investigation.

TABLE

SUMMARY OF SAMPLING PROGRAM

Parameters to be Analyzed	Number of Samples	Containers (unit sample)	Number of Duplicates	No. of Field and Trip Blanks	Preservation
Soil VOC	10	3-40 ml glass VOA vials	1	none	cool 4°C
Groundwater VOC	4	3-40 ml glass VOA vials	1	1F/OT	cool 4°C
Soil total and hexavalent chromium	10	1-8 oz. jar	1	none	none
Groundwater total chromium	6	1-4 oz. glass jar	1	1F/2T	buffer with nitric acid to ph <2
Groundwater hexavalent chromium	6	1-4 oz. glass jar	1	1F/2T	cool to 4°C

STANDARD OPERATING PROCEDURE LIST

Number	Title
2005 (Draft)	Numerical analysis and peer review
7110	Surface soil sampling
7115	Subsurface soil sampling
7510	Packaging and shipment of samples
7600	Decontamination of equipment

STANDARD OPERATING PROCEDURE LIST

Number	Title
2005 (Draft)	Numerical analysis and peer review
7110	Surface soil sampling
7115	Subsurface soil sampling
7510	Packaging and shipment of samples
7600	Decontamination of equipment

STANDARD OPERATING PROCEDURE

Number: 2005

Date of Issue: 4th Qtr, 1985

Title: Numerical Analysis and Peer Review

Organizational Acceptance	Authorization	Date
Originator	Donald P Ga Scott M. Whittemore	10-31-85
Department Manager	E. Moore	10-31-85
Divisional Manager	Peter Shaughnessy	Oct 31 1985
Group Quality Assurance Officer	Scott M. Whittemore	10-31-85
Other		

Revisions	Changes	Authorization	Date

Page 1 of 4

STANDARD OPERATING PROCEDURE

Title: NUMERICAL ANALYSIS AND PEER REVIEW

Date: 4th Qtr. 1985
Number: 2005
Revision: 0

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1. Purpose and Applicability

This document describes ERT's procedure for ensuring that all data analyses for site investigations and other studies are correct and consistent with project objectives and are legibly and retrievably documented. The purpose of the documentation is to permit peer review and reconstruction of the logic by which any conclusions were deduced.

2. Responsibilities

The responsibility for implementation of this procedure on each project rests with the person performing the calculations.

The project manager is responsible for ensuring the completeness of project files.

3. Method of Documentation

3.1 Manual Calculations

3.1.1 All calculations shall be documented in legible, reproduction-quality records. The records shall be complete enough to permit logical reconstruction by a qualified person other than the originator.

3.1.2 Calculations should be maintained in division files during the project, and shall be placed into the central project file at the end of the project.

3.1.3 Each calculation should be assigned a unique identification number by an appropriate person. The calculations may be consecutively numbered within a given project. (e.g., D010-1, D010-2,...).

3.1.4 Calculations for each project should be kept in a binder with an index sheet.

3.1.5 Records of calculations shall contain, on each page, the initials of the originator and reviewer, the date, the project number, calculation number and page number.

3.1.6 Each calculation shall have a cover page which should contain:

- client name,
- project name and number,
- calculation name and number,
- total number of pages in the calculation,
- date,
- originator's signature.

3.1.7 The complete record of any series of calculations for a project shall have a cover page containing at least the following:

- Statement of purpose
- Brief description of method
- Assumptions and justifications
- Reference to input data sources
- All numerical calculations, showing all units
- Results
- Reference to associated computer output
- Signature of originator and date

3.2 Computer Programs

Documentation and qualification procedures for ERT-written computer programs are detailed in ERT SOP 2006. Each revision of each program is documented in an annotated hard copy of the software. Annotations should be sufficient to permit a qualified individual other than the originator to understand how the program works. Minimum contents of such a record are:

- Program name
- Originator's name
- Input parameters
- Date of printout
- Revision number
- Each page should be numbered, and should indicate the total number of pages in the record

These records are archived along with the qualification records in a central file.

3.3 Computer Program Output

3.3.1 All final computer program output used in a given project will be retained in hard copy in the project files. The output should be bound and assigned a unique reference number.

3.3.2 Each program output record shall contain at least the following:

- o Name and revision date of program or model used
- o Input parameters
- o Name of user
- o Date of run

3.4 Drawings

3.4.1 All drawings shall be labeled with a unique identification number, which might consist of the project number and a sequential drawing number (e.g. D010-1, D010-2,...).

3.4.2 All drawings shall be constructed using standardized symbols and nationally-recognized drafting standards

3.4.3 All drawings shall be signed and dated by the originator and checked, signed and dated by a reviewer.

3.4.4 All drawings to be published must be approved for issue by the project manager or his designee.

4. Method for Review and Revision

4.1 All calculations and drawings for each project shall be verified by a qualified person other than the originator.

4.2 Verification shall consist of a thorough check of the calculations for the following elements:

- o Appropriateness of method,
- o Appropriateness of assumptions,
- o Correctness of calculations,
- o Completeness of references,
- o Completeness of record.
- o Correctness of input parameters for calculations using computer programs

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4.3 Method of Review - It is the responsibility of the reviewer to assure that the methodology used and results obtained are correct. This may require verification of each number in the calculation, but this is usually not necessary. Typically, spot checks of the computations and visual inspection for the reasonableness constitute a sufficiently thorough check.

In some cases, it may be appropriate and economically feasible for the reviewer to perform a complete, independent calculation using a different, but appropriate method.

It is up to the reviewer to determine the appropriate method of review.

4.4 If the reviewer recommends revisions, the reviewer and originator will confer until any disagreements are resolved.

4.5 After determining that the calculation is acceptable, the reviewer will sign and date the cover page and initial and date the remaining pages.

4.6 A photocopy of the approved calculation record is made and filed in the central project file.

STANDARD OPERATING PROCEDURE

Number 110 Date of Issue 1st Quarter, 1984

Title: Surface Soil Sampling

ganizational Acceptance	Authorization	Date
Originator	Charles S Martin	3/2/84
Department Manager		3/2/84
Divisional Manager		3-2-84
Group Quality Assurance Officer		3/2/84
Other		

Revisions	Changes	Authorization	Date
1	Update	SMW	3/2/84
		CSM	3/2/84
		ASL	3/2/84
		EM	3-2-84

STANDARD OPERATING PROCEDURE

Title: Surface Soil Sampling

Date 1st Qtr 1989
Number 7110
Revision 1

1.0 General Applicability

This SOP describes the methods used for obtaining surface soil samples for physical analysis or quality/chemical analysis. This SOP also describes the procedures for using the various types of sampling equipment, which include shovels, trowels, and hand augers. The equipment may be constructed of special materials (for example, stainless steel, inert plactics) according to specific project requirements.

2.0 Equipment Descriptions:

2.1 shovel - long or short handle type. Used for penetrating the upper surface and/or obtaining soil samples directly.

2.2 trowel - basic garden variety, which resembles a small shovel. Constructed of steel or polypropylene (plastic)*. The blade of a trowel is generally flat and 5 to 6 inches in length. A scoop (blade has curved edges versus flat) may be substituted if necessary. Both can be purchased with volume calibrations.*

2.3 Hand auger - This tool consists basically of a short spiral-bladed metal rod (Auger) attached to a handle. Clockwise rotation of the T handle initiates the cutting process. Most of the loose soil is discharged upwards as the auger moves downwards. However, if the soil is cohesive some of it will stick to the auger flight providing a collectable sample at a measurable depth. Samples of surface soil can also be collected using a tube sampler which will be attached to the end of the auger rods and advanced into the soil to extract a sample.

3.0 Responsibilities

The project geologist/engineer will be responsible for the proper use and maintenance of all types of equipment used for obtaining surface soil samples; and the collection, labelling, handling and storage of all samples until further chain of custody procedures are undertaken.

4.0 Supporting Materials

- Sample containers/Labels
- Sample Logs/Boring Logs
- Decontamination materials (if required)*
- Field notebook
- [illegible] or tape measure for depth measurement

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*Requirements for special materials, decontamination, or calibrated sampling tools may be required depending upon the purpose of the sampling. These requirements will be detailed in a project specific sampling plan.

5.0 Method or Protocol

5.1 General Procedures

Specific sampling equipment and methodology will be dictated by the characteristics of the soil to be sampled, the type of soil samples required by the project and the analytical procedures to be employed. Soil samples obtained at the surface may be collected using a shovel or trowel. The type of analysis requested (e.g., grain-size distribution, physical, chemical) may require specific soil amounts or the use of specialized sampling equipment. Sampling to obtain uniform coverage within a specified area will require the use of an area grid. These considerations will be followed based upon specific project requirements defined in the project sampling plan.

A hand auger can be used to extract shallow soil samples up to three (3) feet below the surface. Representative samples will be collected directly from the auger flight as it is withdrawn from the ground, or from the tube sampler attached to the end of the rods and advanced into the soil.

The location of sample points will be determined on a project specific basis.

5.2 Standard Procedures

5.2.1 Select the specific sampling location. Construct a sampling grid if necessary. Remove all surface materials that are not to be included samples, for example, rocks, twigs, leaves.

5.2.2 Select type of sampler required to obtain the correct sample. At the surface, use a shovel, trowel or tube sampler; below surface, use a hand auger or tube sampler.

5.2.3 Obtain a sufficient quantity of soil for the desired chemical or physical analyses.

5.2.4 When using the hand auger, auger the hole to the required depth, then slowly remove the auger and collect the soil sample from the auger flight itself at the point corresponding to the required depth. Reinsert and continue augering if deeper samples are required. In addition, a tube sampler can be attached to the auger rods after augering to the desired depth, inserted into the open bore, and then advanced into the deposits at the base of the boring. If sampling is needed in sand or non-cohesive soil, a trowel may be necessary to obtain sample.

5.2.5 Cap the sample container; attach label; seal container (if analysis for volatile chemical species is anticipated). Record all observations such as visual soil description in a field book or on a surface soil sample log. Complete chain of custody records. Utilize proper storage procedures (see SOP 7510).

5.2.6 Decontaminate the sampler between collection points. Decontamination procedures will be performed as identified in SOP 7600 Decontamination unless otherwise specified.

5.2.7 Initiate proper procedures for delivery of the samples to the designated laboratory. This includes packaging, and shipping with chain of custody forms (see SOP 7510).

6.0 Documentation

Various forms are required to ensure that adequate documentation is made of the sample collection activities. These forms include:

- field log books
- sample logs
- chain of custody forms
- shipping forms

The field book will be maintained as an overall log of all samples collected throughout the study. These documents will be retained in the appropriate project files.

SURFACE SOIL SAMPLE LOG

PROJECT NO. ____________ PROJECT LOCATION ____________

SAMPLE POINT NO. ____________

DATE ____________ TIME ____________

SAMPLE POINT DESCRIPTION/DESIGNATION ____________

____

SAMPLE COLLECTION:

EQUIPMENT USED ____________

NO. OF SAMPLES COLLECTED ______ CONTAINER SIZE ____________

SAMPLE NO.	DEPTH	TYPE OF MATERIAL	ANALYSIS REQUEST

COMMENTS ____________

____

____

LAB DESIGNATION ____________

SHIPPING [illegible] ____________

STANDARD OPERATING PROCEDURE

Number: 7115 Date of Issue: 1st Quarter, 1984

Title: Subsurface Soil Sampling

Organizational Acceptance	Authorization	Date
Originator	Charles E Martin	3/2/84
Department Manager		3/2/84
Divisional Manager		3-2-84
Group Quality Assurance Officer		3/2/84
Other		

Revisions	Changes	Authorization	Date
1	Update	EMW	3/2/84
		CEM	3/2/84
		ASL	3/2/84
		EM	3-2-84

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STANDARD OPERATING PROCEDURE

Title: Subsurface Soil Sampling

Date: 1st Qtr 198-
Number: SOP 7115
Revision 1

1.0 General Applicability

This SOP describes the methods used in obtaining subsurface soil samples for identification of soil grain-size distributions, stratigraphic correlations, and chemical analysis (if required). Subsurface soil samples are obtained in conjunction with soil boring and monitoring-well installation programs and provide direct information as to the physical makeup of the subsurface environment. This SOP covers subsurface soil sampling by split-spoon only, as this is the means most often used for obtaining samples from unconsolidated deposits. (See also, SOP 7220 - Monitoring Well Construction).

2.0 Responsibilities

It shall be the responsibility of the contract driller to provide the necessary materials for obtaining subsurface soil samples. This includes the split-spoon sampler and sample containers (sized according to project requirements) as well as the appropriate boring logs. It is the contract driller's responsibility to maintain a complete set of boring logs for contract purposes. Standard Penetration Tests (SPT) (ASTM: 1586-67) will be conducted by the contract driller if required by the project. Equipment decontamination shall also be the responsibility of the driller.

It shall be the responsibility of the project geologist/engineer to observe all activities pertaining to subsurface soil sampling to ensure that all the standard procedures are followed properly, and to record all pertinent data on a boring log. It is also the geologist/engineer's responsibility to indicate to the contract driller at what specific depth samples shall be collected. The geologist/engineer will maintain custody of all samples until they are shipped to their appropriate destination.

3.0 Supporting Materials

In addition to those materials provided by the contract driller, the geologist/engineer will provide:

- analytical sample bottles and labels
- boring logs
- field notebook
- chain-of-custody forms

STANDARD OPERATING PROCEDURE

Title: Subsurface Soil Sampling

Date: 1st Qtr 1984
Number: SOP 7
Revision: 1

4.0 Methods or Protocol for Use

4.1 General Procedures

The sampling depth interval is typically one (1) sample per every five (5) vertical feet with additional samples taken, at the discretion of the project geologist/engineer, when significant textural, visual or odor changes are encountered.

The following are the standard procedures to be used in advancing casing and obtaining soil samples.

Specific requirements described in a project's task plan may call for deviations in the standard procedures but these will be taken into account on a project by project basis. Any deviations from specified procedures will be recorded on the boring log.

4.2 Standard Procedures - Advancing Casing

4.2.1 The casing shall be advanced to the required depth. All loose material within the casing shall be removed prior to sampling. The casing shall be advanced according to project requirements. Borings are typically advanced by two methods, drive-and-wash casing, and hollow-stem augering. The casing shall be of the flush joint or flush couple type and of sufficient size to allow for soil sampling, coring, and/or well installation. All casing sections shall be straight and free of any obstructions. Hollow-stem augers or solid flight augers with casing may be used according to specific project requirements as described in the project task plan. If hollow-stem augers are to be used, the bit shall be equipped with a plug device to be removed at the required sampling depth.

4.2.2 For those borings which encounter obstructions, the casing shall be advanced either past or through the obstruction by drilling, mechanically fracturing, or blasting (if required). If the obstruction is bedrock, a rock core shall be taken according to project requirements and following the standard procedures for rock coring (SOP # 7010).

4.2.3 The use of recirculated water shall not be permitted when casing is being driven, unless specified in the project task plan, directed and [illegible] documented by the geologist/engineer.

4.2.4 If [illegible] water [illegible] used all loose material within the casing shall be removed by washing to the required sampling depth using a minimum amount of water. Care shall be taken to limit recirculation of the wash water to those times when the water supply is extremely limited or unavailable.

4.3 Standard Procedures - Soil Sampling

4.3.1 Subsurface soil samples shall be obtained using a split-tube type sampler (split spoon) having a 2-inch O.D. with a corresponding 1 3/8-inch I.D. and a 24-inch long sample capacity. It shall be equipped with a ball check valve and will require a flap valve or basket-type retainer for loose-soil sampling. Sampling frequency will be as stated in Section 4.1, or as otherwise specified in the project task plan.

4.3.2 Sampling depth shall be independently determined by the inspecting geologist, and any discrepancies shall be resolved prior to obtaining the sample.

4.3.3 Samples shall be obtained using the standard penetration test (SPT), which allows for determination of resistance within the deposits. The sampler shall be driven using a 140-pound hammer with a vertical drop of 30-inches using 1 to 2 turns of the rope on the cathead. A certificate indicating exact weight may be required for documentation purposes. The number of hammer blows required for every 6 inches of penetration shall be recorded on the boring log.

4.3.4 The sampler shall be immediately opened upon removal from the casing. If the recovery is inadequate, another attempt shall be made before drilling progresses. Adequate recovery should be no less than 12 inches, not including any residual wash material brought up with the sample.

4.3.5 The sample shall be split if necessary, placed in the appropriate container, labelled, and placed in the storage box. The boring log and the sample container/label should contain the following information for each sample: site name, boring location, depth, blow counts, recovery, sample number and collection date. The type of material shall be indicated in the boring logs and will be described using the Unified Soil Classification System (ASTM: D2487-69 and D2488-69).

4.3.6 The sampler shall be cleaned with water between attempts in order to prevent cross-contamination. If further decontamination is required, SOP 7600 shall be consulted.

4.3.7 [illegible] procedures for delivery to the designated laboratory shall [illegible] all samples are collected. This includes [illegible] sample logs, analysis request forms, and [illegible] custody forms.

5.0 Documentation

Various forms are required to ensure that adequate documentation of each sample is followed and will include:

- sample logs
- boring logs
- chain of custody forms
- shipping forms

In addition, a field log book will be kept as an overall log of all samples collected throughout the study. All documents are retained in the appropriate project files idefinitely.

Project: ____________ Site ____________ **BORING** ________ Sh 1 of ____

Date Started ____________ Completed ____________ Ground Elevation ____________

Total Depth ____________ Location ____________ Logged by ____________

Casing I.D. ____________ Contractor ____________

Remarks ____________

Elev. Feet	Depth Feet	Sample				Graphic Log	Sample Description	Equipment Installed
		Type & Number	Blows per 6 In.	Depth Range	Rec.			

STANDARD OPERATING PROCEDURE

Number: 7510 Date of Issue: March 12, 1984

Title: Packaging and Shipment of Samples

Organizational Acceptance	Authorization	Date
Originator	Christopher Carter	3-13-84
Department Manager		3/12/84
Divisional Manager		
Group Quality Assurance Officer		
Other		

Revisions	Changes	Authorization	Date

Page 1 of 6

STANDARD OPERATING PROCEDURE

Title: Packaging and Shipment of Samples

Date: 1st Qtr. 1984
Number: SOP 7510
Revision

1.0 Applicability

This Standard Operating Procedure (SOP) is concerned with the presentation of protocols associated with the packaging and shipment of samples. Two general categories of samples exist: environmental samples consisting of air, water and soil; and waste samples which include non-hazardous solid wastes and hazardous wastes as defined by 40 CFR Part 261.

2.0 Responsibilities

It is the responsibility of the project manager to assure that the proper packaging and shipping techniques are entered into each project specific sampling plan. The site operations manager shall be responsible for the enactment and completion of the packaging and shipping requirements outlined in project specific sampling plans. The site operations manager shall be responsible to research, identify and follow all applicable U.S. Department of Transportation (DOT) regulations.

.0 General Method

The objective of sample packaging and shipping protocol is to identify standard procedures which will minimize the potential for sample spillage or leakage and maintain field sampling program compliance with U.S. EPA and U.S. DOT regulations.

The extent and nature of sample containerization will be governed by the type of sample, and the most reasonable projection of the sample's hazardous nature and constituents. The EPA regulations (40 CFR Section 261.4(d)) specify that samples of solid waste, water, soil or air, collected for the sole purpose of testing, are exempt from regulation under the Resource Conservation and Recovery Act (RCRA) when all of the following conditions are applicable:

A. Samples are being transported to a laboratory for analysis;
B. Samples are being transported to the collector from the laboratory after analysis;
C. Samples are being stored (1) by the collector prior to shipment for analyses, (2) by the analytical laboratory prior to analyses, (3) by the analytical laboratory after testing but prior to return of sample to the collector or pending the conclusion of a court case.

[illegible] for categories A and B above require that samp. collectors comply with U.S. DOT and U.S. Postal [illegible] USPS regulations or comply with the following items if U.S. DOT and USPS regulations are found not to apply

STANDARD OPERATING PROCEDURE

Title: Packaging and Shipment of Samples

Date: 1st Qtr. 1984
Number: SOP 7510
Revision:

The following information must accompany all samples and will be entered on a sample specific basis on chain of custody records:

- sample collector's name, mailing address and telephone number,
- analytical laboratory's name, mailing address and telephone number,
- quantity of sample,
- date of shipment
- description of sample

In addition, all samples must be packaged so that they do not leak, spill or vaporize.

4.0 Method

4.1 Place plastic bubble wrap matting over the base and bottom corners of each cooler or shipping container as needed to manifest each sample.

4.2 Obtain a chain of custody record as shown in Figure 1 and enter all the appropriate information as discussed in Section 3.0 of this SOP. Chain of custody records will include complete information for each sample. One or more chain of custody records shall be completed for each cooler or shipping container as needed to manifest each sample.

4.3 Wrap each sample bottle individually and place standing upright on the base of the appropriate cooler, taking care to leave room for some packing material and ice or equivalent. Rubber bands should be used to secure wrapping, completely around each sample bottle.

4.4 Place additional bubble wrap and/or styrofoam pellet packing material throughout the voids between sample containers within each cooler.

4.5 Place ice or cold packs in heavy duty zip-loc type plastic bags, close the bags, and distribute such packages over the top of the samples.

4.6 Add additional bubble wrap styrofoam pellets to fill the balance of [illegible]

4.7 [illegible] in Figure [illegible] and enter the custody tape numbers in the appropriate place [illegible] chain of custody form. Sign and date the chain of custody tape

STANDARD OPERATING PROCEDURE

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Revision:

4.8 To complete the chain of custody form enter the type of analysis required for each sample, by container, under the "ANALYSES" section. Under the specific analysis enter the quantity/volume of sample collected for each corresponding analysis.

If shipping the samples where travel by air or other public transportation is to be undertaken, sign the chain of custody record thereby relinquishing custody of the samples. Reliquishing custody should only be performed when directly transmitting custody to a receiving party or when transmitting to a shipper for subsequent receipt by the analytical laboratory. Shippers should not be asked to sign chain of custody records.

4.9 Remove the back carbon copy from the chain of custody record and retain with other field notes. Place the remaining copies in a zip-lock type plastic bag and place the bag on the top of the contents within the cooler or shipping container.

4.10 Close the top or lid of the cooler or shipping container and with another person rotate/shake the container to verify that the contents are packed so that they do not move. Improve the packaging if needed and reclose.

When travelling with samples by automobile, and where periodic changes of ice are required, the cooler should only be temporarily closed so that reopening is simple. In these cases, chain of custody will be maintained by the person transporting the sample and chain of custody tape will not be used.

4.11 Place the chain of custody tape at two different locations on the cooler or container lid and overlap with transparent packaging tape.

4.12 Packaging tape should be placed entirely around the sample shipment containers. A minimum of one to two full rotations of packaging tape will be placed at at least two places on the cooler. Shake the cooler again to verify that the sample containers are well packed.

4.13 If shipment is required, transport the cooler to an overnight express package terminal. Obtain copies of all shipment records as provided by the shipper.

4.14 If the samples are to travel as luggage, check with regular [illegible]

4.15 Upon receipt of the samples, the analytical laboratory will open the cooler or shipping container and sign as "received for laboratory" each chain of custody form. The laboratory will verify that the chain of custody tape has not been broken previously and that the chain of custody tape number corresponds with the number on the chain of custody record. The analytical laboratory will then forward the back copy of the chain of custody record to the sample collector to indicate that sample transmittal is complete.

5.0 Documentation

As discussed in Section 4.0 the documentation for supporting the sample packaging and shipping will consist of chain of custody records and shipper's records. In addition a description of sample packaging procedures will be written in the field log book. All documentation will be retained in the project files following project completion.

STANDARD OPERATING PROCEDURE

Number: 7600 Date of Issue: 1st Quarter, 1984

Title: Decontamination of Equipment

Organizational Acceptance	Authorization	Date
Originator		3/2/84
Department Manager		3/2/84
Divisional Manager		3-2-84
Group Quality Assurance Officer		3/2/84
Other		

Revisions	Changes	Authorization	Date
1	Update	SMW	3/7/84
		CCM	3/2/84
		AGC	3/2/84
		Elw	3-2-84

STANDARD OPERATING PROCEDURE

Title: Decontamination

Page of 4
Date: 1st Qtr 1984
Number: 7600
Revision 1

1.0 General Applicability

This SOP describes the methods to be used for the decontaminization of all field equipment which becomes potentially contaminated during a sample collection task. The equipment may include split spoons, bailers, trowels, shovels, hand augers, or any other type of equipment used during field activities.

Decontamination is performed as a quality assurance measure and a safety precaution. It prevents cross-contamination between samples and also helps to maintain a clean working environment for the safety of all field personnel involved, including the environment.

Decontamination is mainly achieved by rinsing with liquids which include: soap and/or detergent solutions, tap water, deionized water, and methanol. Equipment will be allowed to air dry after being cleaned or may be wiped dry with chemical free cloths or paper towels if immediate re-use is needed.

The frequency of equipment use, dictates that most decontamination be accomplished at each sampling site between collection points. Waste products produced by the decontamination procedures such as waste liquids, solids, rags, gloves, etc. will be collected and disposed of properly based on the nature of contamination. All cleaning materials and wastes should be stored in a central location so as to maintain control over the quantity of materials used and/or produced throughout the study.

2.0 Responsibilities

It is the primary responsibility of the site operations manager to assure that the proper decontamination procedures are followed and that all waste materials produced by decontamination are properly stored and disposed of.

It is the responsibility of the project safety officer to draft and enforce safety measures which provide the best protection for all persons involved directly with sampling and/or decontamination.

It is the responsibility of any subcontractors (i.e., drilling contractors) to follow the proper, designated decontamination procedures that are stated in their contracts and outlined in the Project Health and Safety Plan.

It is the responsibility of all personnel involved with sample collection or decontamination to maintain a clean working environment and to ensure that any contaminants are not negligently introduced to the environment

3.0 Supporting Materials

- cleaning liquids: soap and/or detergent solutions, tap water, deionized water, methanol
- personal safety gear (defined in Project Health and Safety Plan)
- chemical-free paper towels
- disposable gloves
- waste storage containers: drums, boxes, plastic bags
- cleaning containers: plastic buckets, galvanized steel pans
- cleaning brushes

4.0 Methods or Protocol for Decontamination

4.1 General Procedures

4.1.1 The extent of known contamination will determine to what extent the equipment needs to be decontaminated. If the extent of contamination cannot be readily determined, cleaning should be done according to the assumption that the equipment is highly contaminated until enough data are available to allow assessment of the actual level of contamination.

4.1.2 Adequate supplies of all materials must be kept on hand. This includes all rinsing liquids and other materials listed in Section 3.0.

4.1.3 The standard procedures listed in the following section can be considered the procedure for full field decontamination. If different or more elaborate procedures are required for a specific project, they will be spelled out in the project work plan. Such variations in decontamination may include following all, just part, or an expanded scope of the decontamination procedure stated herein.

4.2 Standard Procedures

4.2.1 Remove any solid particles from the equipment or material by [illegible]

4.2.2 Wash equipment sampler with the soap or detergent solution.

4.2.3 Rinse with tap water

4.2.4 Rinse with deionized water

4.2.5 Rinse with methanol

4.2.6 Repeat entire procedure or any parts of the procedure if necessary

4.2.7 Allow the equipment or material to air dry before re-using

4.2.8 Dispose of any soiled materials in the designated disposal container

5.0 Specific Decontamination Procedures

5.1 Submersible Pump

5.1.1 Applicability

This procedure will be used to decontaminate submersible pumps between ground-water sample collection points and at the end of each day of use.

5.1.2 Materials

- plastic-nalgene upright cylinder
- 5-10 gallon plastic water storage containers
- methanol and dispenser bottle
- deionized water and dispenser bottle
- chemical free paper towels

5.1.3.1 During decontamination the submersible pump will be placed on a clean surface or held away from ground.

5.1.3.2 When removing the submersible pump from each well the power cord and discharge line will be wiped dry using chemical-free disposable towels.

[illegible]

5.1.3.4 Reverse pump backwashing all removable residual water present in the pump tubing. The pump should be shut off as soon as intermittent flow is observed from the reverse discharge.

5.1.3.5 Rinse the stainless steel submersible down hole pump section with a liberal application of methanol and wipe dry.

5.1.3.6 Place the submersible pump section upright in the cylinder and fill the cylinder with tap water, adding 50-100 ml of methanol for every one liter of water.

5.1.3.7 Activate the pump in the forward mode withdrawing water from the cylinder.

5.1.3.8 Continue pumping until the water in the cylinder is pumped down and air is drawn through the pump. At this time air pockets will be observed in the discharge line. Shut off the pump immediately.

5.1.3.9 Remove the pump from the cylinder and place the pump in the reverse mode allowing that all removable water be discharged on to the ground surface as discussed in Step 2.

5.1.3.10 Using the water remaining in the cylinder, rinse the sealed portion of the power chord and discharge tube by pouring the water carefully over the coiled lines.

5.1.3.11 When reaching the next monitoring well place the pump in the well casing and wipe dry both the power and discharge lines with a clean paper towel as the pump is lowered.

5.1.4 Quality Assurance

To assure that decontamination is complete, field blank samples shall be collected using the cleaned submersible pump. These field blanks will be subsequently analyzed for the parameters of interest with respect to the ground water.

The procedure for collecting the field blanks will comprise using the pump to withdraw the tap water used for decontamination, from the plastic cylinder to sample containers. This field blank sample collection procedure shall only be performed after the materials [illegible] have [illegible]

HEALTH AND SAFETY PLAN

for the

AT&T Lightguide Cable
(Name of Site/Facility)

Located in

Appleton (City) Wisconsin (State)

Project Number: G417

Document Number: G417-210

Division Number: 180

Date: October 2, 1987

Prepared By: Scott C. Veenstra Approved By:

Date: October 1, 1987 Date: Oct 2 1987

(Health and Safety Manager)

Date:

SITE/PROJECT DESCRIPTION

SITE DESCRIPTION: ACTIVE? YES ✓ NO ____

Samples to be collected along active railroad right-of-way where AT&T had previously placed a lightguide cable.

SCOPE OF PROJECT/TASK: ERT will obtain soil and water samples in the vicinity of AT&T's buried lightguide cable to aid in determining contaminant levels present. The results will be used by AT&T to determine the effects on the integrity and operations of the lightguide cable, and effects of personnel performing maintenance of the cable.

PROPOSED ON-SITE ACTIVITIES: ERT will use hand augers to advance vertical borings to a depth of 4 feet. Samples of both soil and groundwater will be collected from the borings and sent for analysis of VOC's and chromium (total and hexavalent).

PROPOSED DATE(S) OF FIELD ACTIVITIES: October 5-7, 1987

PERSONNEL REQUIREMENTS:

NAME	RESPONSIBILITY
Larry Campbell	Project Manager
Scott Veenstra	Project Engineer
Amy Stecyk	Project Geologist

HAZARD EVALUATION

MATERIALS OF CONCERN: Chromium compounds including chromic acid, methylene, chloride, 1,1,1-trichloroethane.

PHYSICAL STATE: Chromium compounds in the hexavalent form and chromic acid present as contamination in the soil and water. Methylene chloride and 1,1,1-trichloroethane have been observed in low ppm concentrations in groundwater.

HEALTH HAZARD INFORMATION: Chromium in the forms expected to be found in this site are irritants to the skin, eyes and respiratory system. Direct contact should be avoided. Methylene chloride and 1,1,1-trichloroethane both represent a respiratory hazard when present in sufficient vapor concentrations. Refer to attached Health Guideline on Chromic Acid and Chromates for more detailed information.

CHEMICAL/PHYSICAL PROPERTIES:
Methylene Chloride - TLV (100 ppm), FP (N/A), LEL (12%), VP (350 mm)
1,1,1-Trichloroethane - TLV (100 ppm), FP (N/A), LEL (75%), VP (144 mm).
Chromic Acid and Chromium (VI) Compounds - TLV (0.05 mg/m^3).

TOPOGRAPHICAL HAZARDS: Work will take place on railroad right-of-way and between tracks of the Chicago and Northwestern Railroad Company.

OPERATIONAL HAZARDS: The railroad tracks in this work area are active and it is understood that a flagman from the C&NW Railroad Company will be present during work.

PERSONAL PROTECTION/TRAINING REQUIREMENTS

RESPIRATORY PROTECTION REQUIREMENT: LEVEL D

SPECIFICATIONS:

MODIFICATIONS: If monitoring indicates organic vapor concentrations in excess of 100 ppm, work in area will be suspended until safe working conditions are obtained or proper modifications of this plan can be approved by ERT health and safety personnel.

PROTECTIVE CLOTHING REQUIREMENT:

__✓__ WORK CLOTHES/COVERALLS (long sleeved) at all times
__✓__ CHEMICAL PROTECTIVE CLOTHING. TYPE? Tyvek during sampling if splash hazard exists.
__✓__ WORK SHOES (steel toe/shank)
__✓__ BOOTS. TYPE? Chemically resistant, steel-toed
__✓__ GLOVES. TYPE? Nitrile with PVC inner liners
_____ HARD HAT
_____ FACE SHIELD
__✓__ SAFETY GLASSES/GOGGLES at all times

MODIFICATIONS:

TRAINING REQUIREMENTS: Procedures and responsibilities will be outlined during a brief safety meeting to be held on-site prior to start of field operations. Personnel should be familiar with the Health and Safety Plan and attached MSDS's.

AIR MONITORING REQUIREMENTS

1) INSTRUMENT: Foxboro OVA Model 128

2) INSTRUMENT: ISD MX241 permissible oxygen/combustible gas detector.

MONITORING PROCEDURE: Monitor breathing zone during hand augering and sampling with OVA. If levels during monitoring exceed 100 ppm, leave the work area and consult health and safety staff in ERT office. Combustible gas detector shall be used to monitor for explosive atmospheres while augering. Action level based on TLV for methylene chloride (100 ppm) and its relative response (100%) for a Foxboro OVA Model 128 calibrated to methane.

DECONTAMINATION PROCEDURES

EQUIPMENT/SOLVENTS/SOLUTIONS: Wash basins, scrub brush, alconox or similar detergent, clean water.

DECONTAMINATION PROCEDURE(S):

1) ITEM(S): Hard hat, goggles, boots, gloves

PROCEDURE: Rinse off gross contaminations, scrub in soapy water, rinse clean and dry and store appropriately.

DISPOSAL PROCEDURE: Disposable Tyvek and latex gloves should be disposed of as regular consumables unless authorized by client to do otherwise or suits become grossly contaminated.

NOTE: The above specified decontamination procedures pertain to the decontamination of personal protective equipment only. Procedures for the decontamination of sampling tools or other related equipment should be specified in the subject work plan and/or QA plan.

EMERGENCY REFERENCE

AMBULANCE: 911

POLICE: 911

FIRE: 911

HOSPITAL: Appleton Medical Center
Location: 1818 North Mead
Appleton, WS
414/738-6800

DIRECTIONS TO HOSPITAL: MAP INCLUDED? NO

To be determined at site.

POISON CONTROL CENTER: 1-800-942-5969

NATIONAL RESPONSE CENTER: 1/800-424-8802

- ERT REPRESENTATIVES:

ERT/CONCORD, MA	617/369-8910
- KEVIN POWERS (HSM)	X 4558 617/773-0484 (HOME)
- KATHLEEN HARVEY (HSO)	X 4557 617/665-6797 (HOME)
- LARRY CAMPBELL (PM)	312/620-5900 X 5934 312/381-5456 (HOME)

- AGENCY REPRESENTATIVE: TERRY HEGEMAN 414/497-3055
- CLIENT REPRESENTATIVE: DON KRALING 414/521-7730

NEAREST PHONE: TO BE DETERMINED AT SITE.

Occupational Health Guideline for Chromic Acid and Chromates*

INTRODUCTION

This guideline is intended as a source of information for employees, employers, physicians, industrial hygienists, and other occupational health professionals who may have a need for such information. It does not attempt to present all data; rather, it presents pertinent information and data in summary form.

APPLICABILITY

The general guidelines contained in this document apply to all chromic acid and chromates. Physical and chemical properties of several specific compounds are provided for illustrative purposes.

SUBSTANCE IDENTIFICATION

Chromic acid

- Formula: CrO_3
- Synonyms: Chromic anhydride; chromium trioxide
- Appearance and odor: Dark red, deliquescent, odorless solid.

Sodium dichromate

- Formula: $Na_2Cr_2O_7 \cdot 2H_2O$
- Synonyms: Sodium bichromate (dihydrate)
- Appearance and odor: Red-orange, odorless solid.

Potassium chromate

- Formula: K_2CrO_4
- Synonyms: Chromate of potash
- Appearance and odor: Yellow, odorless solid.

PERMISSIBLE EXPOSURE LIMIT (PEL)

The current OSHA standard for chromic acid or chromates is a ceiling of 0.1 milligram of chromic acid or chromates per cubic meter of air (mg/m^3). Certain forms of chromium (VI) have been found to cause increased respiratory cancer among workers. Certain other forms of chromium (VI) are currently believed to be non-carcinogenic: The non-carcinogenic forms include the monochromates and bichromates (dichromates) of hydrogen, lithium, sodium, potassium, rubidium, cesium, and ammonium, and chromium (VI) oxide (chromium acid anhydride). NIOSH has not conducted an in-depth study of the toxicity of chromium metal or compounds containing chromium in an oxidation state other than 6. NIOSH recommends that the permissible exposure limit for carcinogenic chromium (VI) compounds be reduced to 0.001 Cr (VI) mg/m^3 and that thesecompounds be regulated as occupational carcinogens. NIOSH also recommends that the permissible exposure limit for non-carcinogenic chromium (VI) be reduced to 0.025 Cr (VI) mg/m^3 averaged over a work shift of up to 10 hours per day, 40 hours per week, with a ceiling level of 0.05 Cr (VI) mg/m^3 averaged over a 15-minute period. It is further recommended that chromium (VI) in the workplace be considered carcinogenic, unless it has been demonstrated that only the non-carcinogenic chromium (VI) compounds mentioned above are present. The NIOSH Criteria Documents for Chromic Acid and Chromium (VI) should be consulted for more detailed information.

HEALTH HAZARD INFORMATION

- Routes of exposure

Chromic acid or chromates can affect the body if they are inhaled or if they come in contact with the eyes or skin. They can also affect the body if they are swallowed.

- Effects of overexposure

1. Short-term Exposure: Chromic acid mist and chromate dusts may cause severe irritation of the nose, throat, bronchial tubes, and lungs. Chromic acid splashed in the eyes may cause severe injury. If swallowed, chromates and sodium and potassium dichromates may cause stomach and kidney problems. These

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*These recommendations reflect good industrial hygiene and medical surveillance practices and their implementation will assist in achieving an effective occupational health program. However, they may not be sufficient to achieve compliance with all requirements of OSHA regulations.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service Centers for Disease Control
National Institute for Occupational Safety and Health

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

September 1978

compounds, if swallowed, often cause vomiting. Skin exposure to chromic acid or chromates may cause ulceration of the skin.

2. *Long-term Exposure:* Repeated or prolonged exposure to chromic acid or chromate dust or mist may cause an ulceration and perforation of the nasal septum. Respiratory irritation may occur with symptoms resembling asthma. Liver damage with yellow jaundice has been reported. Prolonged or repeated exposure of the skin may cause a skin rash. Allergic skin rash may also occur. An increased amount of lung cancer has been found in employees in the chromate-producing industry.

3. *Reporting Signs and Symptoms:* A physician should be contacted if anyone develops any signs or symptoms and suspects that they are caused by exposure to chromic acid or chromates.

- **Recommended medical surveillance**

The following medical procedures should be made available to each employee who is exposed to chromic acid or chromates at potentially hazardous levels:

1. *Initial Medical Examination:*

—A complete history and physical examination: The purpose is to detect pre-existing conditions that might place the exposed employee at increased risk, and to establish a baseline for future health monitoring. Persons with a history of asthma, allergies, or known sensitization to chromic acid or chromates would be expected to be at increased risk from exposure. Examination of the respiratory system, blood, liver, and kidneys should be stressed. The skin should be examined for evidence of chronic disorders.

—A complete blood count: Chromates have been shown to cause blood changes in humans. A complete blood count should be performed including a red cell count, a white cell count, a differential count of a stained smear, as well as hemoglobin and hematocrit.

—14" x 17" chest roentgenogram: Chromates may cause human lung damage and are associated with a high incidence of lung cancer. Surveillance of the lungs is indicated.

—FVC and FEV (1 sec): Chromates are reported to cause decreased pulmonary function. Periodic surveillance is indicated.

—Urinalysis: Since chromates may cause kidney damage, a urinalysis should be obtained, including at a minimum specific gravity, albumin, glucose, and a microscopic on centrifuged sediment.

—Liver function tests: Chromates may cause liver damage. A profile of liver function should be obtained by utilizing a medically acceptable array of biochemical tests.

—Skin disease: Chromates are defatting agents and can cause dermatitis on prolonged exposure. Persons with pre-existing skin disorders may be more susceptible to the effects of these agents.

Periodic Medical Examination: The aforementioned medical examinations should be repeated on an annual basis. Emphasis should be placed on observation for changes in the mucous membranes of the upper respiratory tract, ulceration of the skin, and surveillance for malignancy of the respiratory tract and lungs.

- **Summary of toxicology**

Chromic acid mist and chromate dusts are severe irritants of the nasopharynx, larynx, lungs, and skin. Chromium compounds, especially the hexavalent compounds are associated with a high incidence of lung cancer in humans. Administered subcutaneously to rabbits and guinea pigs, chromates produce kidney damage, with albuminuria and cylindruria; fatal nephritis occurred in a human treated with chromic acid to cauterize a wound. Workers exposed to chromic acid or chromates in concentrations of 0.11 to 0.15 mg/m^8 developed ulcers of the nasal septum and irritation of the conjunctiva, pharynx and larynx, as well as asthmatic bronchitis. A worker exposed to unmeasured but massive amounts of chromic acid mist for 4 days developed severe frontal headache, wheezing, dyspnea, cough, and pain on inspiration; after 6 months there was still chest pain on inspiration and cough. In an industrial plant where the airborne chromic acid concentrations measured from 0.18 to 1.4 mg/m^3, moderate irritation of the nasal septum and turbinates was observed after 2 weeks of exposure, ulceration of the septum after 4 weeks, and perforation of the septum after 8 weeks. A worker exposed to an unmeasured concentration of chromic acid mist for 5 years developed jaundice and was found to be excreting significant amounts of chromium; liver function in four other workers with high urinary chromium excretion was mildly to moderately impaired. Other studies of chromate workers have not found any unusual incidence of liver diseases or other systemic diseases except for lung cancer. Erosion and discoloration of the teeth has been attributed to chromic acid exposure. Blood changes were observed in chromate plant workers, including leukocytosis or leukopenia, monocytosis, and eosinophilia. A markedly increased incidence of bronchogenic carcinoma occurs in workers exposed to chromate dust. The latent period is relatively short, suggesting the presence of a potent carcinogen. Calcium chromate and zinc chromate have been demonstrated to be carcinogenic in rats, and the risk of lung cancer is reportedly increased in chrome pigment workers. Papillomata of the oral cavity and larynx were found in 15 of 77 chrome platers exposed for an average of 6.6 years to chromic acid mist at air concentrations of chromium of 0.4 mg/m^8. There is no positive evidence that chromic acid in the workplace has contributed to an increase in lung cancer, neither is there definitive evidence that absolves chromic acid. A concentrated solution of chromic acid in the eye causes severe corneal injury; chronic exposure to the mist causes conjunctivitis. Chrome ulcer, a penetrating lesion of the skin, occurs chiefly on the hands and forearms where there has been a break in the epidermis; it is believed to be due to a direct necrotizing effect of the chromate ion. The ulcer is relatively painless, heals slowly, and produces a characteristic depressed scar.

Prolonged exposure to chromic acid mist causes dermatitis, which varies from a dry erythematous eruption to a weeping eczematous condition. Cutaneous sensitization to chromate compounds is a common problem in industrial practice.

CHEMICAL AND PHYSICAL PROPERTIES

- Physical data—Chromic acid
  1. Molecular weight: 100
  2. Boiling point (760 mm Hg): Decomposes when it melts
  3. Specific gravity (water = 1): 2.7
  4. Vapor density (air = 1 at boiling point of chromic acid): Not applicable
  5. Melting point: 197 C (387 F) (decomposes)
  6. Vapor pressure at 20 C (68 F): Data not available (very low)
  7. Solubility in water, g/100 g water at 20 C (68 F): 63
  8. Evaporation rate (butyl acetate = 1): Not applicable
- Physical data—Sodium dichromate
  1. Molecular weight: 298
  2. Boiling point (760 mm Hg): 400 C (752 F) (decomposes)
  3. Specific gravity (water = 1): 2.34
  4. Vapor density (air = 1 at boiling point of sodium dichromate): Not applicable
  5. Melting point: 357 C (674 F) (loses water at 85 C (185 F))
  6. Vapor pressure at 20 C (68 F): Zero (except for water of crystallization)
  7. Solubility in water, g/100 g water at 20 C (68 F): 236
  8. Evaporation rate (butyl acetate = 1): Not applicable
- Physical data—Potassium chromate
  1. Molecular weight: 194
  2. Boiling point (760 mm Hg): Data not available
  3. Specific gravity (water = 1): 2.7
  4. Vapor density (air = 1 at boiling point of potassium chromate): Not applicable
  5. Melting point: 971 C (1780 F)
  6. Vapor pressure at 20 C (68 F): Zero
  7. Solubility in water, g/100 g water at 20 C (68 F): 39
  8. Evaporation rate (butyl acetate = 1): Not applicable
- Reactivity—Chromic acid or chromates
  1. Conditions contributing to instability: None
  2. Incompatibilities: Contact with any combustible, organic, or other readily oxidizable materials such as paper, wood, sulfur, aluminum, plastics, etc. may cause fires and explosions
  3. Hazardous decomposition products: None
  4. Special precautions: Chromic acid or chromates will attack most forms of metals, cloth, leather, plastics, rubber, and coatings and may cause spontaneous ignition.
- Flammability
  1. Chromic acid is not combustible in itself, but is a powerful, oxidizing material. It will ignite on contact with acetic acid and alcohol.
- Warning properties

Grant states that "contact with the solid material or with concentrated solution (of chromic acid) by splash in the eye causes severe corneal injury characterized by infiltration, vascularization, and opacification of the cornea.

"More commonly, exposure to chromic acid occurs in less serious form as a result of spraying of fine droplets into the air from electroplating baths or by transfer to the eyes on the fingers. After chronic exposure to such conditions, the ocular changes seen are chronic conjunctival inflammation, analogous to the well-known irritation of the nasal mucosa which leads to perforation of the nasal septum." In addition, Grant states that "dichromates (bichromates) as ammonium, sodium, or potassium salts are water-soluble, crystalline substances which have a peculiar injurious effect on the cornea, causing great swelling of the corneal stroma."

The *Documentation of TLV's* states that "Vigliani and Zurlo reported . . . irritation of the mucous membranes of the larynx, pharynx, and conjunctiva . . . in a group of workers allegedly exposed to chromates or chromic acid in concentrations ranging from 0.11 to 0.15 mg/m³."

MONITORING AND MEASUREMENT PROCEDURES

- Ceiling Evaluation

Measurements to determine employee ceiling exposure are best taken during periods of maximum expected airborne concentrations of chromic acid or chromates. Each measurement should consist of a fifteen (15) minute sample or series of consecutive samples totalling fifteen (15) minutes in the employee's breathing zone (air that would most nearly represent that inhaled by the employee). A minimum of three (3) measurements should be taken on one work shift and the highest of all measurements taken is an estimate of the employee's exposure.

- Method

Sampling and analyses may be performed by collection of chromic acid or chromates on a filter, followed by chemical treatment and colorimetric analysis. An analytical method for chromic acid and chromates is in the *NIOSH Manual of Analytical Methods*, 2nd Ed., Vol 3, 1977, available from the Government Printing Office, Washington, D.C. 20402 (GPO No. 017-033-00261-4).

RESPIRATORS

- Good industrial hygiene practices recommend that engineering controls be used to reduce environmental concentrations to the permissible exposure level. However, there are some exceptions where respirators may be used to control exposure. Respirators may be used when engineering and work practice controls are not technically feasible, when such controls are in the process of being installed, or when they fail and need to be supplemented. Respirators may also be used for operations which require entry into tanks or closed vessels, and in emergency situations. If the use of respirators is necessary, the only respirators permitted are those that have been approved by the Mine Safety and Health Administration (formerly Mining Enforcement and Safety Administration) or by the National Institute for Occupational Safety and Health.

- In addition to respirator selection, a complete respiratory protection program should be instituted which includes regular training, maintenance, inspection, cleaning, and evaluation.

PERSONAL PROTECTIVE EQUIPMENT

- Employees should be provided with and required to use impervious clothing, gloves, face shields (eight-inch minimum), and other appropriate protective clothing necessary to prevent any possibility of skin contact with solids or liquids containing chromic acid or chromates.
- If employees' clothing may have become contaminated with solids or liquids containing chromic acid or chromates, employees should change into uncontaminated clothing before leaving the work premises.
- Clothing contaminated with chromic acid or chromates should be placed in closed containers for storage until it can be discarded or until provision is made for the removal of substance from the clothing. If the clothing is to be laundered or otherwise cleaned to remove the chromic acid or chromates, the person performing the operation should be informed of chromic acid or chromates' hazardous properties.
- Where there is any possibility of exposure of an employee's body to solids or liquids containing chromic acid or chromates, facilities for quick drenching of the body should be provided within the immediate work area for emergency use.
- Non-impervious clothing which becomes contaminated with chromic acid or chromates should be removed immediately and not reworn until the substance is removed from the clothing.
- Employees should be provided with and required to use dust- and splash-proof safety goggles where there is any possibility of solids or liquids containing chromic acid or chromates contacting the eyes.
- Where there is any possibility that employees' eyes may be exposed to solids or liquids containing chromic acid or chromates, an eye-wash fountain should be provided within the immediate work area for emergency use.

SANITATION

- Skin that becomes contaminated with chromic acid or chromates should be immediately washed or showered with soap or mild detergent and water to remove any such sbustance.
- Workers subject to skin contact with solids or liquids containing chromic acid or chromates should wash with soap or mild detergent and water any areas of the body which may have contacted such a substance at the end of each work day.
- Eating and smoking should not be permitted in areas where solids or liquids containing chromic acid or chromates are handled, processed, or stored.
- Employees who handle solids or liquids containing chromic acid or chromates should wash their hands thoroughly with soap or mild detergent and water before eating, smoking, or using toilet facilities.
- Areas in which exposure to a carcinogenic form of chromium (VI) may occur should be identified by signs or other appropriate means, and access to these areas should be limited to authorized personnel only.

COMMON OPERATIONS AND CONTROLS

The following list includes some common operations in which exposure to chromic acid or chromates may occur and control methods which may be effective in each case:

Operation	Controls
Use in metal finishing in chrome plating, anodizing, conversion coatings, and for corrossion resistance	Local exhaust ventilation; personal protective equipment
Use in leather finishing for shoe uppers, glove and garment leathers, and bag leather	Local exhaust ventilation; personal protective equipment
Use as corrosion inhibitors in radiator coolants, internal combustion and gas turbine engines, refrigerator and air conditioning systems, and water-cooled nuclear reactors	Local exhaust ventilation; personal protective equipment
Use in photoreproduction processes as sensitizing agents for photoengraving, photography, lithography, and blueprinting	Local exhaust ventilation; personal protective equipment

Operation	Controls
Use as corrosion-inhibiting and coloring pigments, artists' colors, jointing pastes, inks, rubber, and ceramics, and color blending	Process enclosure; local exhaust ventilation; personal protective equipment
Use in dyeing of fur, leather, fabrics, wool, and nylon; oxidizing of dyes; aftertreating on cotton, and in textile and paper printing; use in manufacture of glue used in shoes, furniture, and packaging	Local exhaust ventilation; personal protective equipment
Use as fungicides; use in aqueous preservatives and fire retardants for wood; for protection of textiles and seed	Local exhaust ventilation; personal protective equipment
Use in battery manufacture to increase shelf life; to provide corrosion resistance and for battery depolarization	Local exhaust ventilation; personal protective equipment
Use in manufacture of safety matches and explosives	Local exhaust ventilation; personal protective equipment
Use as a chemical reagent, oxidizing agent, catalyst, indicator, in bleaching of fats, oils, and waxes, in chemical synthesis, and in analytical chemistry	Local exhaust ventilation; personal protective equipment
Use in manufacture and packaging of cement	Local exhaust ventilation; personal protective equipment

EMERGENCY FIRST AID PROCEDURES

In the event of an emergency, institute first aid procedures and send for first aid or medical assistance.

- **Eye Exposure**

If solids or liquids containing chromic acid or chromates get into the eyes, wash eyes immediately with large amounts of water, lifting the lower and upper lids occasionally. Get medical attention immediately. Contact lenses should not be worn when working with these chemicals.

- **Skin Exposure**

If solids or liquids containing chromic acid get on the skin, immediately flush the contaminated skin with soap or mild detergent and water. If chromic acid soaks through the clothing, remove the clothing immediately and flush the skin with water. If irritation persists after washing, get medical attention. If chromates get on the skin, immediately wash the contaminated skin using soap or mild detergent and water. If solids or liquids containing chromic acid or chromates penetrate through the clothing, remove the clothing immediately and wash the skin using soap or mild detergent and water. If irritation persists after washing, get medical attention.

- **Breathing**

If a person breathes in large amounts of chromic acid or chromates, move the exposed person to fresh air at once. If breathing has stopped, perform artificial respiration. Keep the affected person warm and at rest. Get medical attention as soon as possible.

- **Swallowing**

When solids or liquids containing chromic acid or chromates have been swallowed, give the person large quantities of water immediately. After the water has been swallowed, try to get the person to vomit by having him touch the back of his throat with his finger. Do not make an unconscious person vomit. Get medical attention immediately.

- **Rescue**

Move the affected person from the hazardous exposure. If the exposed person has been overcome, notify someone else and put into effect the established emergency rescue procedures. Do not become a casualty. Understand the facility's emergency rescue procedures and know the locations of rescue equipment before the need arises.

SPILL AND DISPOSAL PROCEDURES

- Persons not wearing protective equipment and clothing should be restricted from areas of spills until cleanup has been completed.
- If chromic acid or chromates are spilled, the following steps should be taken:

1. Ventilate area of spill.
2. Collect spilled material in the most convenient and safe manner and deposit in sealed containers for reclamation or for disposal in a secured sanitary landfill. Liquid containing chromic acid or chromates should be absorbed in vermiculite, dry sand, earth, or a similar material.

- Waste disposal method:

Chromic acid or chromates may be disposed of in sealed containers in a secured sanitary landfill.

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* SPECIAL NOTE

The International Agency for Research on Cancer (IARC) has evaluated the data on these chemicals and has concluded that they cause cancer. See *IARC Monographs on the Evaluation of Carcinogenic Risk of Chemicals to Man*, Volume 2, 1973, and Volume 23, 1980.

- Warning properties

RESPIRATORY PROTECTION FOR CHROMIC ACID AND CHROMATES

Condition	Minimum Respiratory Protection* Required Above 0.1 mg/m^3
Particulate Concentration	
5 mg/m^3 or less	A high efficiency particulate filter respirator with a full facepiece. Any supplied-air respirator with a full facepiece, helmet, or hood. Any self-contained breathing apparatus with a full facepiece.
30 mg/m^3 or less	A powered air-purifying respirator with a full faceplece and a high efficiency particulate filter. A Type C supplied-air respirator with a full facepiece operated in pressure-demand or other positive pressure mode or with a full faceplece, helmet, or hood operated in continuous-flow mode.
Greater than 30 mg/m^3 or entry and escape from unknown concentrations	Self-contained breathing apparatus with a full faceplece operated in pressure-demand or other positive pressure mode. A combination respirator which includes a Type C supplied-air respirator with a full facepiece operated in pressure-demand or other positive pressure or continuous-flow mode and an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive pressure mode.
Fire Fighting	Self-contained breathing apparatus with a full facepiece operated in pressure-demand or other positive pressure mode.
Escape	A high efficiency particulate filter respirator. Any escape self-contained breathing apparatus.

*Only NIOSH-approved or MSHA-approved equipment should be used.

APPENDIX D—SUPPLEMENTARY EXPOSURE LIMITS (Continued)

Chromic Acid and Chromates
Chromium, Metal and Insoluble Salts
Chromium, Soluble Chromic, Chromous Salts

The OSHA PEL's are as follows: chromic acid and chromates (as CrO_3), 0.1 mg/m³ (ceiling); chromium, metal and insoluble salts (as Cr), 1 mg/m³ (8-hour TWA); and chromium, soluble chromic, chromous salts (as Cr), 0.5 mg/m³ (8-hour TWA).

The NIOSH recommended exposure limit for carcinogenic chromium (VI) compounds is 1 µg Cr(VI)/m³ (10-hour TWA). For noncarcinogenic chromium (VI) compounds (which includes chromic acid), NIOSH recommends a 25 µg Cr(VI)/m³ 10-hour TWA and a 50 µg Cr(VI)/m³ 15-minute ceiling. Based on current evidence, noncarcinogenic chromium (VI) is the chromium (VI) in monochromates and bichromates (dichromates) of hydrogen, lithium, sodium, potassium, rubidium, cesium, ammonia, and chromic (VI) oxide (chromic acid anhydride). Carcinogenic chromium (VI) comprises any and all chromium (VI) materials not included in the noncarcinogenic group above.

ACGIH has three different TLV's for chromium metal and inorganic compounds (all as Cr). The 8-hour TWA for chromium metals and alloys; chromium (II) compounds (e.g., chromous chloride and chromous sulfate), and chromium (III) compounds (e.g., chromic oxide, chromic sulfate, chromic chloride, chromic potassium sulfate, and chromite ore) is 0.5 mg/m³. The 8-hour TWA for water soluble chromium (VI) compounds which include chromic acid and its anhydride, and the monochromates and dichromates of sodium, potassium, ammonium, lithium, cesium, and rubidium is 0.05 mg/m³. The 8-hour TWA for certain water-insoluble chromium (VI) compounds, which include zinc chromate, calcium chromate, lead chromate, barium chromate, strontium chromate, and sintered chromium trioxide, and chromite ore processing (chromate) is 0.05 mg/m³ with a designation A1 (human carcinogen).

Fisher Scientific Company

Chemical Manufacturing Division
P. O. Box 375, 1 Reagent Lane
Fair Lawn, NJ 07410

MATERIAL SAFETY DATA SHEET (Adapted from USDL Form LSD-005-4) (201) 796-7100

SECTION I. IDENTIFICATION OF PRODUCT

CHEMICAL NAME: Methylene Chloride

FORMULA: CH_2Cl_2

SYNONYM OR CROSS REFERENCE: Dichloromethane

SECTION II. HAZARDOUS INGREDIENTS

MATERIAL: Methylene Chloride

NATURE OF HAZARD: Irritant

SECTION III. PHYSICAL DATA

BOILING POINT: 39.8°C

MELTING POINT: -95°C

VAPOR PRESSURE (mm Hg): 380

SPECIFIC GRAVITY: 1.32

VAPOR DENSITY (AIR = 1): 2.9

PERCENT VOLATILE BY VOLUME (%): 100%

WATER SOLUBILITY: 2%

EVAPORATION RATE (ether = 1): greater than 1

APPEARANCE: Clear, colorless liquid

SECTION IV. FIRE AND EXPOSION HAZARD DATA

FLASH POINT (method used) (°F): None

FLAMMABLE LIMITS

Uel	Lel
19	12

FIRE EXTINGUISHING MEDIA: NA

SPECIAL FIRE-FIGHTING PROCEDURES: Wear self-contained breathing apparatus.

UNUSUAL FIRE AND EXPLOSION HAZARD: When heated to decomposition, emits toxic fumes of phosgene and hydrogen chloride.

SECTION V. HEALTH HAZARD

THRESHOLD LIMIT VALUE: 200 ppm (air)

HEALTH HAZARDS: Harmful if inhaled. Irritating to eyes and skin.

FIRST AID PROCEDURES: Inhalation: Remove to fresh air. Give artificial respiration if necessary. Contact a physician. Skin & eyes: flush with wa for at least 15 minutes. For eyes, contact a physician.

* Disclaimer [illegible]

SECTION VI. REACTIVITY DATA

STABILITY

UNSTABLE ☐

STABLE ☒

CONDITIONS TO AVOID

INCOMPATIBILITY (Materials to avoid)

HAZARDOUS DECOMPOSITION PRODUCTS When heated to decomposition, emits toxic fumes of phosgene and hydrogen chloride.

HAZARDOUS POLYMERIZATION

MAY OCCUR ☐

WILL NOT OCCUR ☒

CONDITIONS TO AVOID

SECTION VII. SPILL AND DISPOSAL PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Absorb on a suitable media such as vermiculate. Scoop up and place in a suitable container.

WASTE DISPOSAL METHOD

DISPOSE OF BY MEANS AS TO COMPLY WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS OR CONTACT AN APPROVED AND LICENSED DISPOSAL AGENCY.

SECTION VIII. PROTECTION INFORMATION

RESPIRATORY PROTECTION (specify type)

face mask with organic vapor canister.

VENTILATION

LOCAL acceptable

SPECIAL

MECHANICAL (general) preferable

OTHER

PROTECTIVE GLOVES rubber

EYE PROTECTION safety glasses

OTHER PROTECTIVE EQUIPMENT

SECTION IX. HANDLING AND STORAGE PRECAUTIONS

STORAGE AND HANDLING

SECTION X. MISCELLANEOUS INFORMATION

PREPARED BY [illegible]

Gaston L. Pillori

Manager of Quality Assurance

[illegible] WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY EXPRESSED OR IMPLIED [illegible] particular purposes

1

March 23, 1981

MATERIAL SAFETY DATA SHEET

J. T. Baker Chemical Co., 222 Red School Lane, Phillipsburg, N.J. 08865

SECTION I - IDENTIFICATION OF PRODUCT

CHEMICAL NAME Methylene Chloride	FORMULA CH_2Cl_2
SYNONYM OR CROSS REFERENCE Dichloromethane Methylene Bichloride	CAS NO: 75-09-2

SECTION II - HAZARDOUS INGREDIENTS

MATERIAL		NATURE OF HAZARD

SECTION III - PHYSICAL DATA

BOILING POINT 104°F.	MELTING POINT Freezing Point -143°F.
VAPOR PRESSURE @ 22°C. 380 mmHg	SPECIFIC GRAVITY 1.326 at 20°/4°C.
VAPOR DENSITY (AIR=1) 2.93 1.92	PERCENT VOLATILE BY VOLUME (%)
WATER SOLUBILITY Soluble in about 50 parts water	EVAPORATION RATE (________ = 1)

APPEARANCE
Colorless liquid; chloroform-like odor.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (method used)	FLAMMABLE LIMITS	Lower	Upper
		15.5%	66.4%

FIRE EXTINGUISHING MEDIA

SPECIAL FIRE-FIGHTING PROCEDURES Contact with hot surfaces or naked flame can cause decomposition, with toxic fumes being produced. Methylene Chloride dissolves many plastics and certain rubber products: protective clothing must be resistant to this.

UNUSUAL FIRE AND EXPLOSION HAZARD
Forms flammable vapor-air mixtures at about 100°C. or higher.

SECTION V - HEALTH HAZARD

THRESHOLD LIMIT VALUE
500 ppm A vapor concentration of 2000 ppm may cause anesthesia.

HEALTH HAZARDS Inhalation will cause loss of consciousness. Vapors are highly irritating to eyes. Symptoms: nausea, dizziness, numbness of fingers, mental confusion.

FIRST AID PROCEDURES In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Flush skin with water. Call a physician. If inhaled, remove to fresh air. Administer oxygen or artificial respiration as necessary.

CHEMICAL NAME

SECTION VI - REACTIVITY DATA

STABILITY			CONDITIONS TO AVOID
	UNSTABLE		
	STABLE	X	Heat

INCOMPATABILITY (materials to avoid)

Nitrogen Tetroxide; Oxygen (liquid)

HAZARDOUS DECOMPOSITION PRODUCTS

HAZARDOUS POLYMERIZATION			CONDITIONS TO AVOID
	MAY OCCUR		
	WILL NOT OCCUR	X	

SECTION VII - SPILL AND DISPOSAL PROCEDURES

SPILLS

Eliminate all sources of ignition. Absorb on sand, earth, or vermiculite. Carefully sweep up and remove. Flush spill area with water. Alternatively use a J. T. Baker Flammable Solvent Spill Cleanup Kit.

DISPOSAL

Dispose at an approved landfill site providing environmental regulations permit.

SECTION VIII - PROTECTION INFORMATION

RESPIRATORY PROTECTION (specify type)

Air line respirator

VENTILATION	LOCAL	SPECIAL
	Preferable	
	MECHANICAL (general)	OTHER

PROTECTIVE GLOVES	EYE PROTECTION
Rubber gloves	Safety glasses; safety goggles.

OTHER PROTECTIVE EQUIPMENT approved working clothes; rubber protective clothing; safety shower; eyebath

SECTION IX - HANDLING AND STORAGE PRECAUTIONS

STORAGE & HANDLING

Store in a cool, dry, well-ventilated location.
Wash thoroughly after handling.

SECTION X - MISCELLANEOUS INFORMATION

Avoid contact with eyes, skin, and clothing.
Avoid prolonged or repeated breathing of vapor.
Use only with adequate ventilation.

Date issued: 5/3/83 Revision: ______ Approved by: R. M. Mitchell

Manager, Quality Assurance

Fisher Scientific Company

Chemical Manufacturing Division
P O Box 375, 1 Reagent Lane
Fair Lawn, NJ 07410

MATERIAL SAFETY DATA SHEET (Adapted from USDL Form LSD-005-4) (201) 796-7100

SECTION I. IDENTIFICATION OF PRODUCT

CHEMICAL NAME 1,1,1-Trichloroethane	FORMULA CH_3CCl_3

SYNONYM OR CROSS REFERENCE Methylchloroform
Chlorothene

SECTION II. HAZARDOUS INGREDIENTS

MATERIAL	NATURE OF HAZARD
1,1,1-Trichloroethane	Irritant

SECTION III. PHYSICAL DATA

BOILING POINT	74°C	MELTING POINT	-38°C
VAPOR PRESSURE(mm Hg)	144	SPECIFIC GRAVITY	1.34
VAPOR DENSITY (AIR = 1)	4.55	PERCENT VOLATILE BY VOLUME (%)	100%
WATER SOLUBILITY	insoluble	EVAPORATION RATE (ether = 1)	creater than 1

APPEARANCE Clear, water-white liquid

SECTION IV. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (method used) (F) NA

FLAMMABLE LIMITS	Uel	Lel
	15	7.5

FIRE EXTINGUISHING MEDIA NA

SPECIAL FIRE-FIGHTING PROCEDURES
Wear self-contained breathing apparatus.

UNUSUAL FIRE AND EXPLOSION HAZARD When heated to decomposition, emits toxic fumes of chlorine.

SECTION V. HEALTH HAZARD

THRESHOLD LIMIT VALUE
350 ppm

HEALTH HAZARDS Irritating to eyes, mucous membranes and in high concentrations narcotic.

FIRST AID PROCEDURES If inhaled, remove to fresh air. Administer oxygen or artificia espiration as necessary. Call a physician. In case of contact, flush eyes ith plenty of water for at least 15 minutes. Call a physician.

SECTION VI. REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	

INCOMPATABILITY (materials to avoid)

HAZARDOUS DECOMPOSITION PRODUCTS
When heated to decomposition, emits toxic fumes of chlorine.

HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII. SPILL AND DISPOSAL PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Absorb spill on vermiculite and place in a suitable container.

WASTE DISPOSAL METHOD
DISPOSE OF BY MEANS AS TO COMPLY WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS OR CONTACT AN APPROVED AND LICENSED DISPOSAL AGENCY.

SECTION VIII. PROTECTION INFORMATION

RESPIRATORY PROTECTION (specify type)
respirator with organic vapor canister

VENTILATION	LOCAL Acceptable	SPECIAL
	MECHANICAL (general) Acceptable	OTHER

PROTECTIVE GLOVES Rubber	EYE PROTECTION Safety glasses

OTHER PROTECTIVE EQUIPMENT

SECTION IX. HANDLING AND STORAGE PRECAUTIONS

STORAGE AND HANDLING

SECTION X. MISCELLANEOUS INFORMATION

INFORMATION FURNISHED BY Gaston L. Pillori	TITLE Manager of Quality Assurance

January 25, 1982

118C (1)

CHLOROTHANE (R) VG SOLVENT = 95.8% 1,1,1, TRICHLOROETHANE

MATERIAL SAFETY DATA SHEET PAGE: 1

DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4400

EFFECTIVE DATE: 15 JUN 81 PRODUCT CODE: 16822

PRODUCT NAME: CHLOROTHENE (R) VG SOLVENT MSD: 0110

INGREDIENTS (TYPICAL VALUES-NOT SPECIFICATIONS) : % :

1,1,1-TRICHLOROETHANE (NOMINAL) : 95.8 :

SECTION 1 PHYSICAL DATA

BOILING POINT: 165F (74C) : SOL. IN WATER: 0.07G/100G @ 25C
VAP PRESS: 100 MMHG @ 20C : SP. GRAVITY: 1.320 @ 25/25C
VAP DENSITY (AIR=1): 4.55 : % VOLATILE BY VOL: 100 (ESSEN.)

APPEARANCE AND ODOR: COLORLESS LIQUID.

SECTION 2 FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: NONE : FLAMMABLE LIMITS
METHOD USED: T.O.C.,T.C.C.,C.O.C. : LFL: 7.5% @ 25C UFL: 15% @ 25C

EXTINGUISHING MEDIA: WATER FOG.

SPECIAL FIRE FIGHTING EQUIPMENT AND HAZARDS: SELF-CONTAINED RESPIRATORY EQUIPMENT. NOT CONSIDERED A FLAMMABLE LIQUID HAZARD UNDER AMBIENT TEMPERATURE USE CONDITIONS.

SECTION 3 REACTIVITY DATA

STABILITY: AVOID OPEN FLAMES, WELDING ARCS OR OTHER HIGH TEMPERATURE SOURCES WHICH INDUCE THERMAL DECOMPOSITION.

INCOMPATIBILITY: WATER - SLOW HYDROLYSIS PRODUCES CORROSIVE ACID.

HAZARDOUS DECOMPOSITION PRODUCTS: HYDROGEN CHLORIDE AND VERY SMALL AMOUNTS OF PHOSGENE AND CHLORINE.

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

SECTION 4 SPILL, LEAK, AND DISPOSAL PROCEDURES

ACTION TO TAKE FOR SPILLS (USE APPROPRIATE SAFETY EQUIPMENT): SMALL LEAKS: MOP UP, WIPE UP OR SOAK IMMEDIATELY. REMOVE TO OUT OF DOORS. LARGE SPILLS: EVACUATE AREA. CONTAIN LIQUID; TRANSFER TO CLOSED METAL CONTAINERS. KEEP OUT OF WATER SUPPLIES.

(CONTINUED ON PAGE 2)

(R) INDICATES A TRADEMARK OF THE DOW CHEMICAL COMPANY

EFFECTIVE DATE: 15 JUN 81 PRODUCT CODE: 15922
PRODUCT (CONT'D): CHLOROTHENE (R) VG SOLVENT MSD: 0110

SECTION 4 SPILL, LEAK, AND DISPOSAL PROCEDURES (CONTINUED)

DISPOSAL METHOD: (IN ORDER OF PREFERENCE) SEND SOLVENT TO LICENSED RECLAIMER, INCINERATION, EVAPORATION OF VERY SMALL QUANTITIES, OR APPROVED LANDFILL BURIAL IN COMPLIANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS. DUMPING INTO SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER IS STRONGLY DISCOURAGED, AND MAY BE ILLEGAL.

SECTION 5 HEALTH HAZARD DATA

INGESTION: VERY LOW TOXICITY. LD50 (LABORATORY ANIMALS) RANGES FROM 8.6 TO 15.0 G/KG.

EYE CONTACT: MILD IRRITATION, BUT NO CORNEAL INJURY LIKELY.

SKIN CONTACT: SHORT CONTACT - NO IRRITATION. PROLONGED OR FREQUENT EXPOSURE - MINOR IRRITATION.

SKIN ABSORPTION: VERY LOW TOXICITY. LD50 (RABBITS) - 24 HOUR EXPOSURE - GREATER THAN 15 G/KG.

INHALATION: OSHA STANDARD AND ACGIH TLV IS 350 PPM.

EFFECTS OF OVEREXPOSURE: ANESTHETIC EFFECTS - MAY OCCUR IN THE RANGE OF 1000 PPM. CAN CAUSE DEATH IF TOO MUCH IS BREATHED.

SECTION 6 FIRST AID

EYES: IRRIGATION OF THE EYE IMMEDIATELY WITH WATER FOR FIVE MINUTES IS GOOD SAFETY PRACTICE.

SKIN: CONTACT WILL PROBABLY CAUSE NO MORE THAN IRRITATION. WASH OFF IN FLOWING WATER OR SHOWER. WASH CLOTHING BEFORE REUSE.

INHALATION: REMOVE TO FRESH AIR IF EFFECTS OCCUR. IF RESPIRATION STOPS, GIVE MOUTH-TO-MOUTH RESUSCITATION. ADMINISTER OXYGEN IF AVAILABLE. CALL PHYSICIAN AND/OR TRANSPORT TO MEDICAL FACILITY.

INGESTION: DO NOT INDUCE VOMITING. CALL A PHYSICIAN AND/OR TRANSPORT TO EMERGENCY FACILITY.

NOTE TO PHYSICIAN:
EYES: MAY CAUSE CONJUNCTIVITIS. STAIN FOR EVIDENCE OF CORNEAL INJURY.
SKIN: MAY CAUSE MILD IRRITATION. CHRONIC EXPOSURE MAY CAUSE DEFATTING TYPE OF DERMATITIS. TREAT AS ANY CONTACT DERMATITIS. NOT LIKELY TO BE ABSORBED IN ACUTELY TOXIC AMOUNTS.
RESPIRATORY: ANESTHETIC OR NARCOTIC EFFECT MAY OCCUR. ADMINISTER OXYGEN IF AVAILABLE. BRONCHODILATORS, EXPECTORANTS, AND ANTITUSSIVES MAY BE OF HELP.

(CONTINUED ON PAGE 3)

(R) INDICATES A TRADEMARK OF THE DOW CHEMICAL COMPANY

STATE OF WISCONSIN
REPLY MESSAGE
FORM AD-16

INSTRUCTIONS TO SENDER:
REMOVE YELLOW COPY FOR YOUR FILE.
SEND REMAINDER OF FORM INTACT WITH CARBONS TO PERSON ADDRESSED.

TO: Mr. Larry Campbell
EKT
131 Eisenhower Lane
Lombard, IL 60148

FROM: Terry Hegeman
Box 10448
Green Bay, WI 54307

SUBJECT—MESSAGE

Dear Mr. Campbell:

Enclosed are copies of "Chromium Spill Remedial Program" prepared for Wisconsin Chromium Corp. (N.W. Mauthe) by Foth & Van Dyke & Assoc., Inc. and "Subsurface Soil Exploration Program AND Groundwater Monitoring Well Installation . . ." for N.W. Mauthe property by Twin City Testing.

As our files are fairly extensive I strongly suggest someone from your office review them.

SIGNED Terry Hegeman DATE 10-6-87

REPLY

RECEIVED
OCT 8 1987
L. M. CAMPBELL
6417-100

SIGNED DATE

REC'D DNR
[illegible]
GREEN BAY

RECEIVED
OCT 8 1987
L. M. CAMPBELL
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Missing Figure
11 & 13
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CHROMIUM SPILL REMEDIAL PROGRAM

Prepared For:

Wisconsin Chromium Corporation
Appleton, Wisconsin

Prepared By:

FOTH & VAN DYKE and Associates, Inc.
Waste/Energy Division
Green Bay, Wisconsin

August 12, 1986

Foth & Van Dyke
Engineering/Architectural Division
[illegible] Monroe Street
Madison, Wisconsin 53711
608/238-4761

Introduction

Wisconsin Chromium Corporation was located at 725 South Outagamie Street in Appleton, Wisconsin. During the period 1960 to 1976 hard chrome plating was the principal activity of the corporation. In 1976 the corporations assets were liquidated and the chrome plating at this site ceased.

Hard chrome plating is the direct plating of chromium to a base metal. In the Wisconsin Chromium process this was accomplished through the process of electrolysis which requires that an electric current of high amperage through the devices being plated. Much of Wisconsin Chromium's plating was conducted on roller drums for the paper industry. The source of the chromium utilized in the plating was concentrated chromic acid. During the electroplating operation the drums were partially submerged in the acid and while the current was passing through the drums, the drums were being slowly rotated in tanks containing chromic acid.

A byproduct of this process is the evolution of hydrogen gas within the chromic acid solution which required collection and removal from the fascility. This was accomplished utilizing a ventilation system which collected the fumes, and additionally chromic acid vapor, from the area above the plating tanks and exited them to the environment above the roof of the building.

Waste chromic acid, spay from the streams cooling the drum journals, and, wash water from cleaning activities were directed into a shallow trench in the floor of the building for collection and piping to the City of Appleton Sanitary Sewer System. The floor of the building was constructed of reinforced concrete five inches thick. Chromic acid is a very strong and reactive acid and reacts with concrete, which is basic. Calcium hydroxide, an important component of the concrete, is especially subject to attack by acids. The reaction between chromic acid and calcium hydroxide produces the soluble salt calcium chromate and water. The result of this reaction was to produce cracks and pits within the drainage trench and the floor itself, thus creating pathways for cromium-bearing solutions to enter the soil beneath the building. These cracks and pits were patched on a regular basis as they appeared by the Bloy Construction Company of Appleton, Wisconsin.

In 1982 a citizen's complaint was registered with the Wisconsin Department of Natural Resources (WDNR) concerning puddle(s) of yellowish greenish water lying adjacent to the railroad tracks near the Wisconsin Cromium buildinq. A sample of this water was collected by WDNR personnel and analyzed. The results of the analysis showed that the sample contained high concentrations of chromium. WDNR initiated an investigation to determine the source of the chromium and contracted with STS Consultants, Ltd., Green Bay, Wisconsin to cunduct subsurface soil sampling in, and adjacent to, the east end of the block which lies southwest of the intersection of Melvin and Outagamie Streets. The soil samples collected were analyzed for total chromium. The results of the analyses showed variable, but in some cases, extremely high chromium concentrations.

These results lead to the installation of groundwater monitoring wells, and more soil sampling, which was conducted by Twin City Testing of Appleton, Wisconsin. The soils were analyzed for total chromium and some were also analyzed for water extractable chromium, which is roughly equivalent to hexavalent chromium (in this report it will be referred to as hexavalent chromium). In addition, the standing water levels in the wells were measured periodically and samples of water were collected for analysis of total and hexavalent chromium. The results of the soil analyses yielded information similar to, but amplifying, that which were initially collected by STS. The well water analyses indicate that the water in the immediate vicinity of the Wisconsin Chromium Corporation building contained chromium concentrations considerably in excess of that allowed by Wisconsin Statuates.

As a result of these findings WDNR initiated legal proceedings, which have become protracted over time. The issue now rests with a judgement rendered by the Supreme Court of Wisconsin, 366 N.W. 2d 871 (Wis. 1985), which found that a hazzardous substance (chromium) had been discharged from the former Wisconsin Chromium Corporation operation, and that Mr. Norbert W. Mauthe, owner of the corporation, is required to take remedial action to rectify this situation.

Distribution of Chromium at the Wisconsin Chromium Site

The locations of the soil sampling sites are shown in Figure 1. In general, the soils consist of two to five feet of fill material, cheifly poorly sorted gravel, which overlies stratified glacial lacustrine sediments. The sediments are mainly finely layered red clays and silts which contain lenses, or pockets, of fine sands.

The results of the total and hexavalent chromium analyses for all of the samples which have been analyzed for both parameters are plotted in Figure 2. The soil materials have been divided into into three categories: 1, fill material; 2, sandy or sand containing materials; and, 3, sand-free silty and clayey materials. It is appearent that soils containing less than 40 mg/kg total chromium contain very little, if any, hexavalent chromium. When sand-bearing materials contain more than 40 mg/kg total chromium they usually contain significant amounts of hexavalent chromium. For most of the non-sandy silty and clayey soils this sharp increase in hexavalent chromium generally takes place above 100 mg/kg total chromium. Elevated hexavalent chromium concentrations are found in fill material only when the total chromium concentrations exceed 300mg/kg.

Past reports by WDNR and Foth & Van Dyke (FVD) have shown that the elevated chromium concentrations in the soil are limited to an oval shaped area. The major axis of the oval is parallel the the C & NW RR tracks and is 450 feet in length. The minor oval axis is 300 feet in length and the oval is esentially centered at the southest corner of the Wisconsin Chromium Corporation building. The area of contamination decreases with depth and is limited to a dpeth of approximately 13 feet. The area of highest chromium concentrations is the upper four to six feet of soil in the immediate vicinity of the building.

Groundwater observation wells were installed in material of low permeability at locations shown in Figure 3. Most of the wells contained little or no water after initial installation. Four of the sites consist of three well piezometer nests and an additional two well piezometer nest was installed. The other sites consist of a single well.

Standing water levels were measured at these sites in 1983 by WDNR and in 1986 by FVD. The measurements indicate that the depth to groundwater is two to five feet below the land surface. Although the regional groundwater table slopes to the south or southeast towards Lake Winnebago, a local and limited groundwater high exists beneath thw Wisconsin Chromium site. Insufficient data exist to determine whether this high is a groundwater mound or a divide. Piezometer sites 11-10-7 and 13-8-12 have been covered with gravel by the railroad and well 25 has been covered with blacktop by Miller Electric. Therefore these wells are no longer accessible.

A comparison of total chromium concentrations in groundwater samples collected three years apart (030783 by WDNR and 030386 by FVD) is shown in Table 1. Most of the wells showed a marked decrease, often nearly [illegible], in chromium concentration. Some of the wells, especially the deep ones, showed a slight increase in concentration. The decreases are attributed to groundwater dilution and the slight increases at depth are attributed to a slight downward migration of chromium.

Changes in total chromium concentration with time are shown for all of the three well piezometer nests in Figures 4 through 7. The depth at which the greatest chromium concentrations occur can be attributed to the dominant soil material intersected by a particular well screen. The highest concentrations are associated with the sandiest material.

The distribution of elevated chromium concentrations in the groundwater has a three dimensional form similar to that of the chromium distribution in the soil. The distribution of chromium in the water is quite irregular as a function of depth due mainly to the variable distribution of the sand lenses or pockets.

Analyses of groundwater samples plotted as a function of total and hexavalent chromium are shown in Figure 8. The plotted relationship suggests that nearly all of the chromium in the water samples is hexavalent. Since hexavalent chromium is quite mobile in the environment and not readily sorbed by soils it shouls be possible to withdraw this contaminated water and remove the chromium from it.

The near surface distribution of elevated chromium concentrations has been of concern and interest. The permeability of the fill material is several orders of magnitude greater than the underlying clays, silts and sands. Since the groundwater levels are generally within the fill, the potential exists for rapid dispersal of chromium from beneath the Wisconsin Chrome building to the surrounding environment. The question is why hasn't this happen in the 26 years since the operation commenced? Mean sea level elevations of the top of the clay layer are plotted in Figure 9. This figure shows that a significant trough exists parallel to the railroad tracks. This trough also leads towards the Hency property on 2nd Street. When the strong downward vertical groundwater gradient beneath the groundwater high is considered in conjunction with this trough system it appears possible that the trough acts as both a distributing guide and trap for the chromium bearing groundwater.

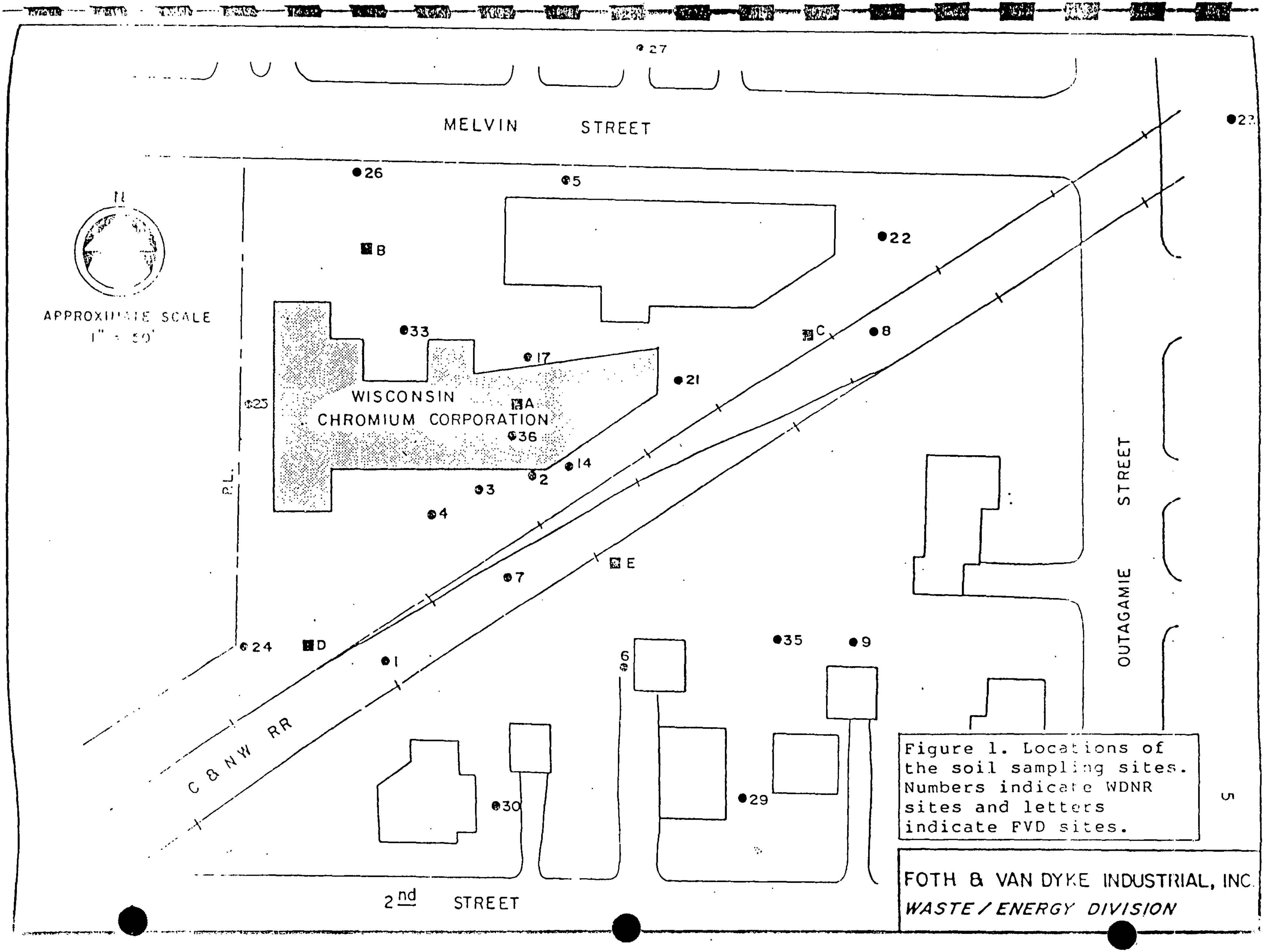

Figure 1. Locations of the soil sampling sites. Numbers indicate WDNR sites and letters indicate FVD sites.

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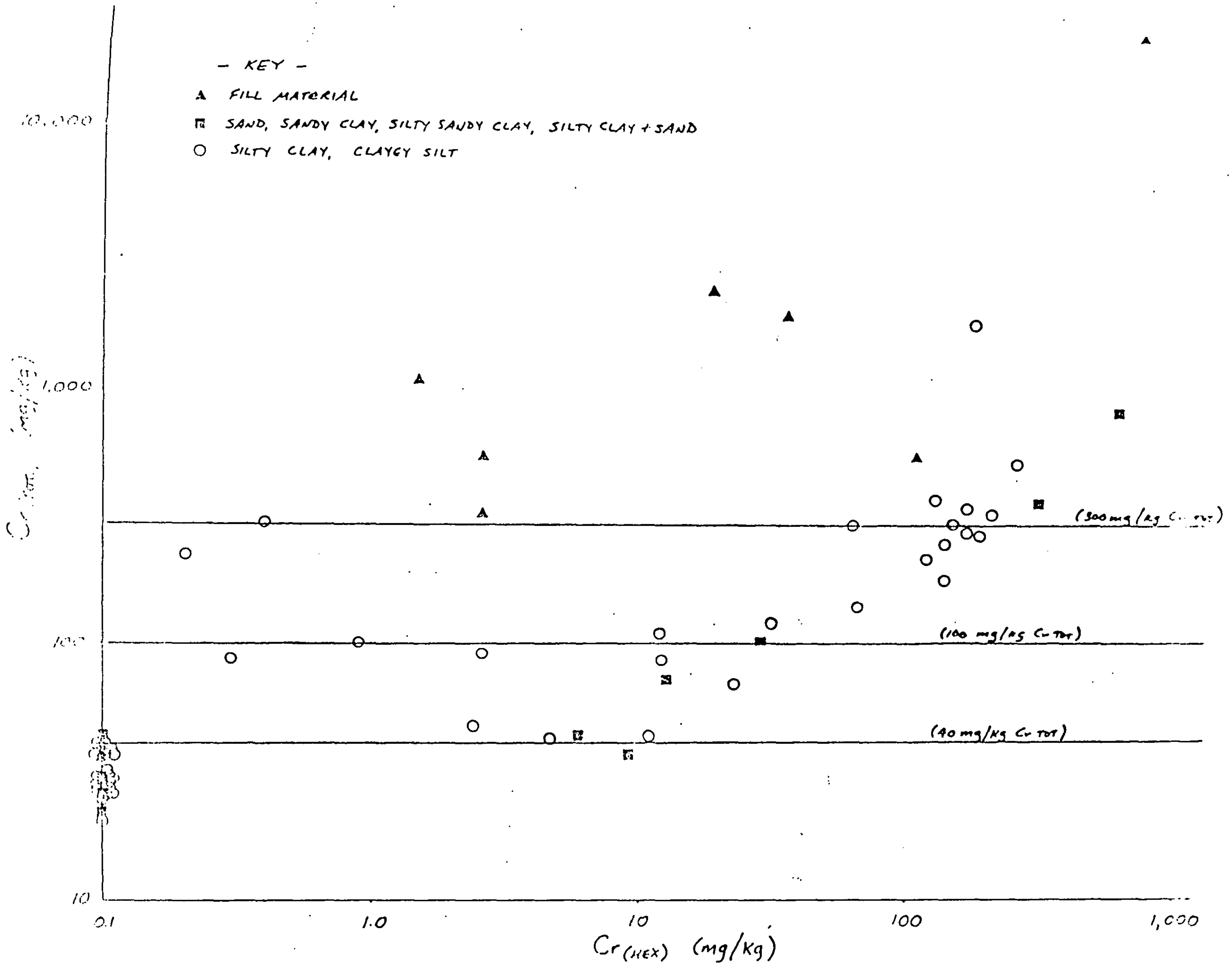

Figure 2.- Plot of the relationship between total chromium and hexavalent chromium for three groups of soil materials (fill material, sand containing soils and the silty and clayey soils without sand). Twenty six samples containing less than 0.2 mg/kg hexavalent chromium are plotted at the 0.1 mg/kg concentration.

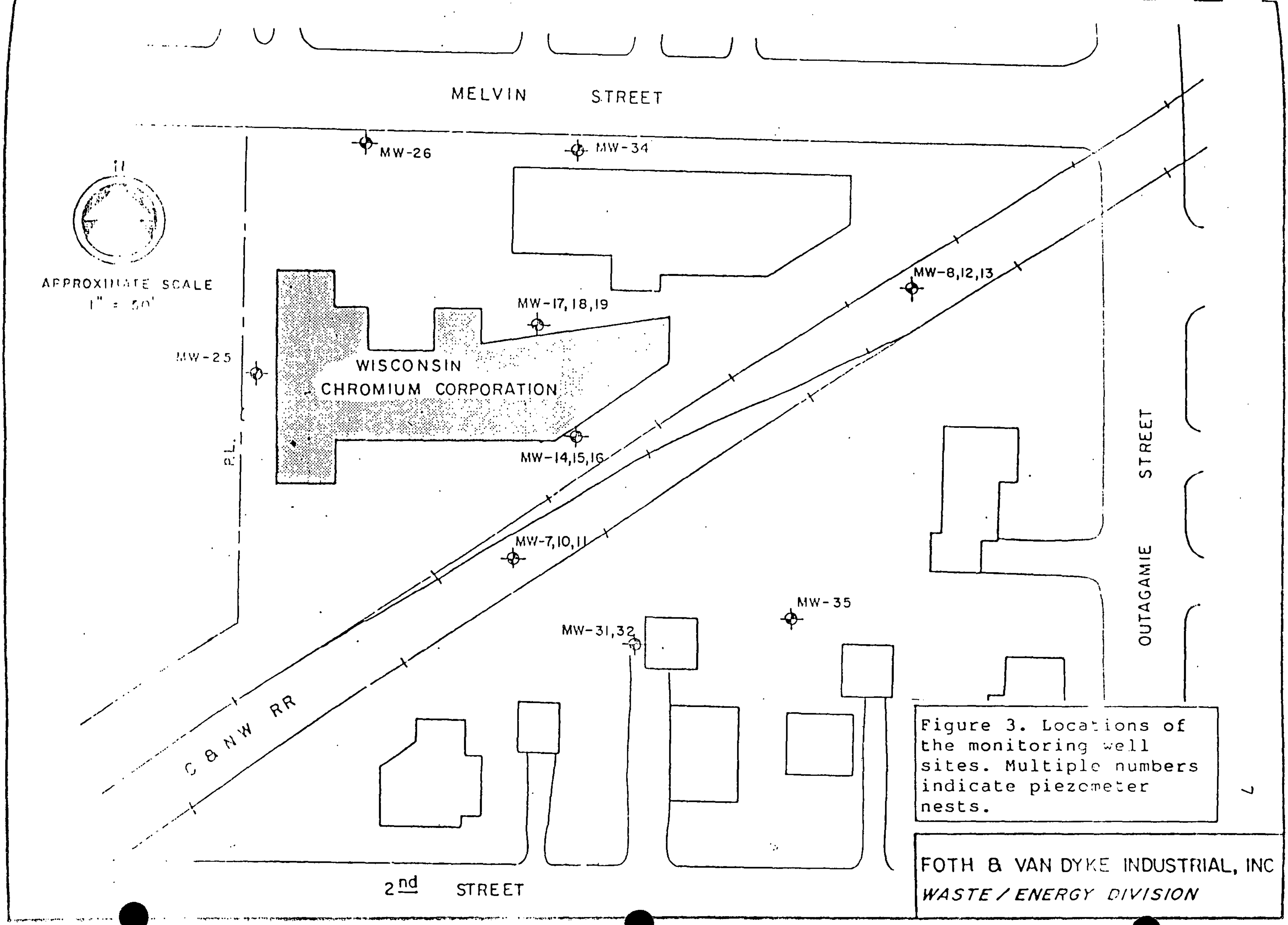

Figure 3. Locations of the monitoring well sites. Multiple numbers indicate piezometer nests.

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Table 1. A comparison of total chromium concentrations (in ppm) in groundwater samples collected three years apart. Note the general decrease in concentration with time for most of the wells. Some wells show a slight increase in concentration with time (nos. 7, 12, 14, and, 34).

Well No.	Cr concentrations in ppm for samples collected 030783	Cr concentrations in ppm for samples collected 030386
11	38	25
10	0.36	0.08
7	0.02	1.3
13	210	88
8	220	92
12	0.06	1.4
16	500	238
15	2,000	990
14	0.16	0.51
19	20	7.8
18	150	93
17	310	265
34	0.4	3.8
35	66	49

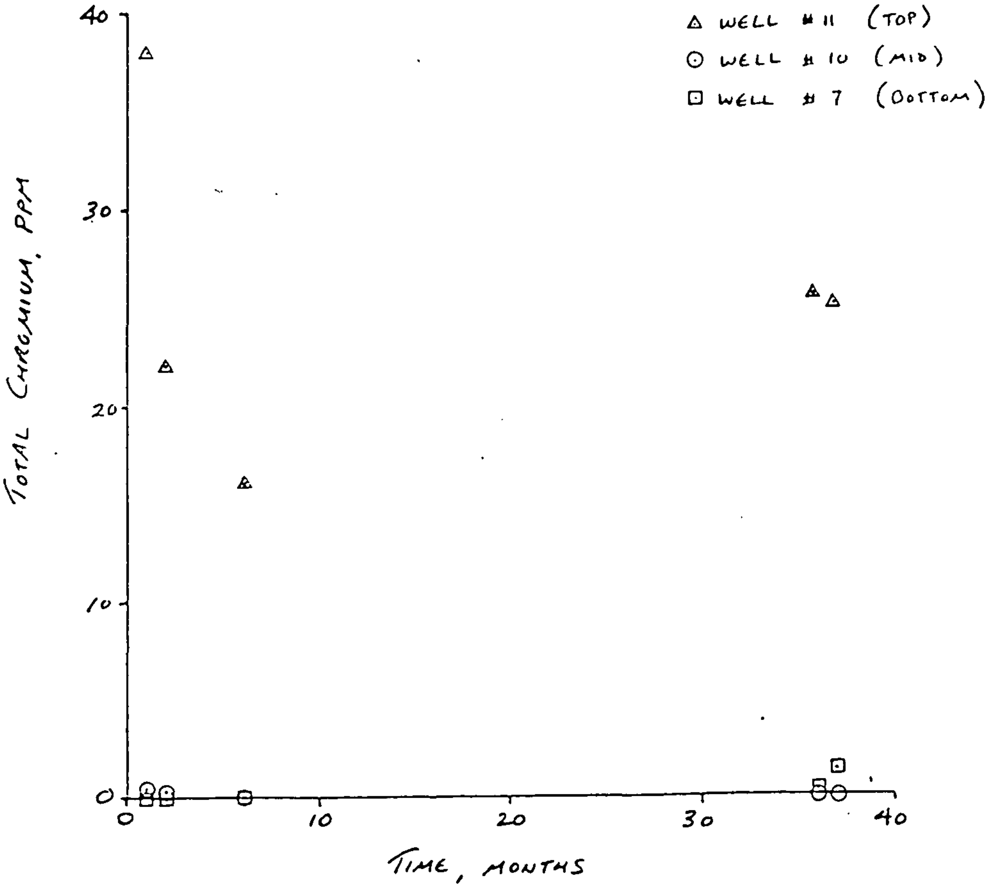

Figure 4. The change in total chromium concentration in groundwater samples over a three year period from piezometer site 11-10-7. Month 1 is March 1983. Note that the highest concentrations occur in the near surface well (#11) and that the concentrations in the top and middle well generally decrease with time whereas those in the deepest well slightly increased with time.

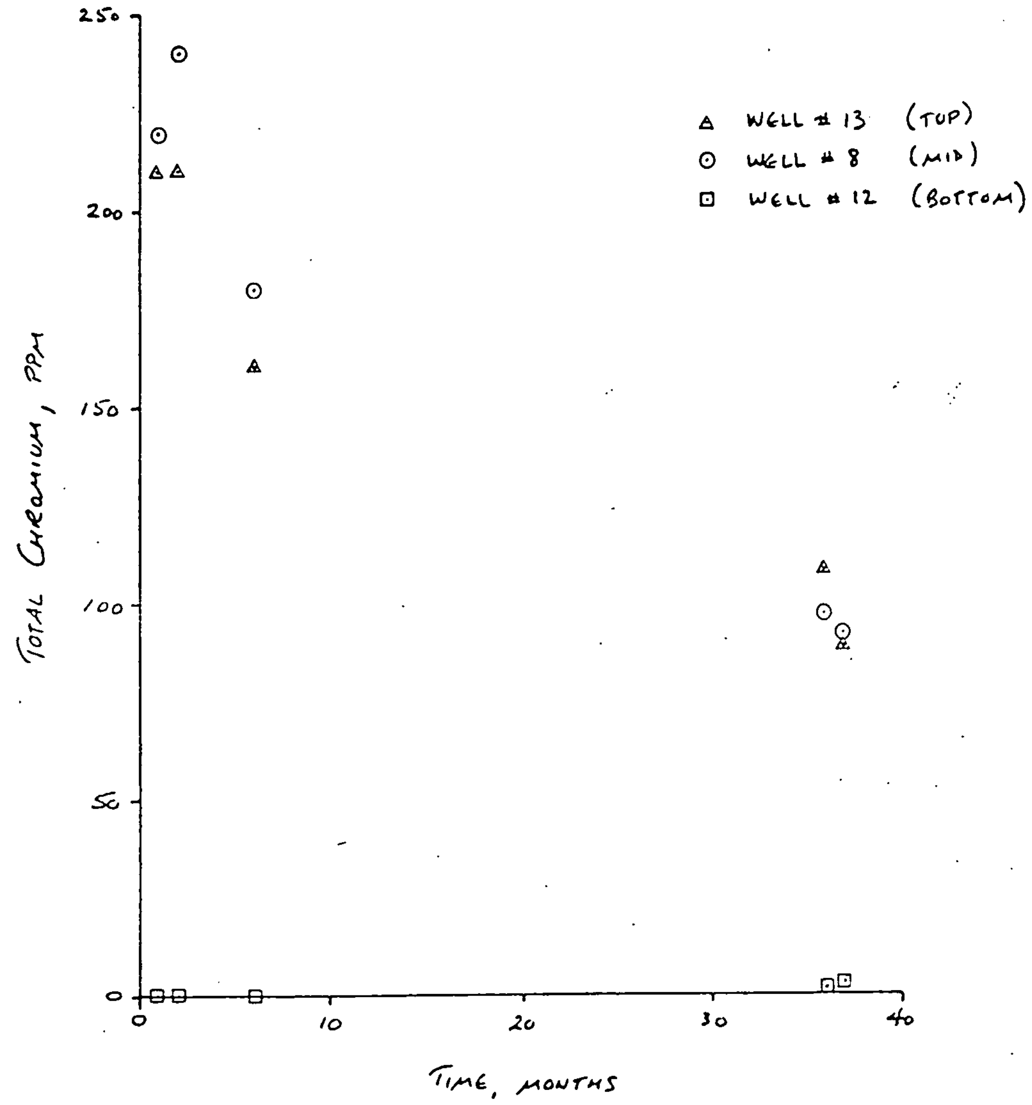

Figure 5. The change in total chromium concentration in groundwater samples over a three year period from piezometer site 13-8-12. Month 1 is March 1983. Note that the highest concentrations occur in the near surface and middle wells (#13 and #8, respectively) and that the concentrations in these two wells generally decreases with time whereas those in the deepest well slightly increases with time.

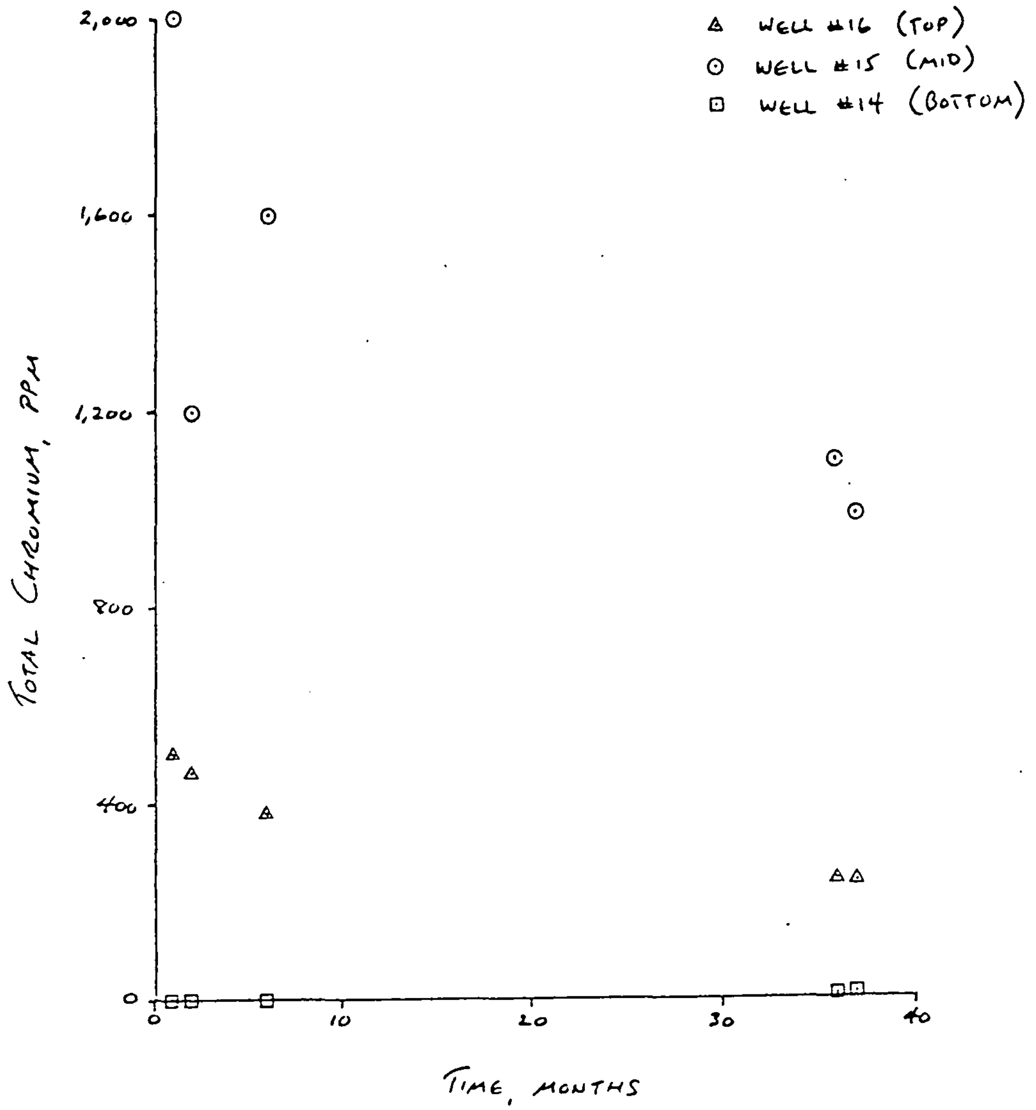

Figure 6. The change in total chromium concentration in groundwater samples over a three year period from piezometer site 16-15-14. Month 1 is March 1983. Note that the highest concentrations occur in the middle well (#15) and that the concentrations in the upper wells generally decreases with time whereas those in the deepest well slightly increases with time

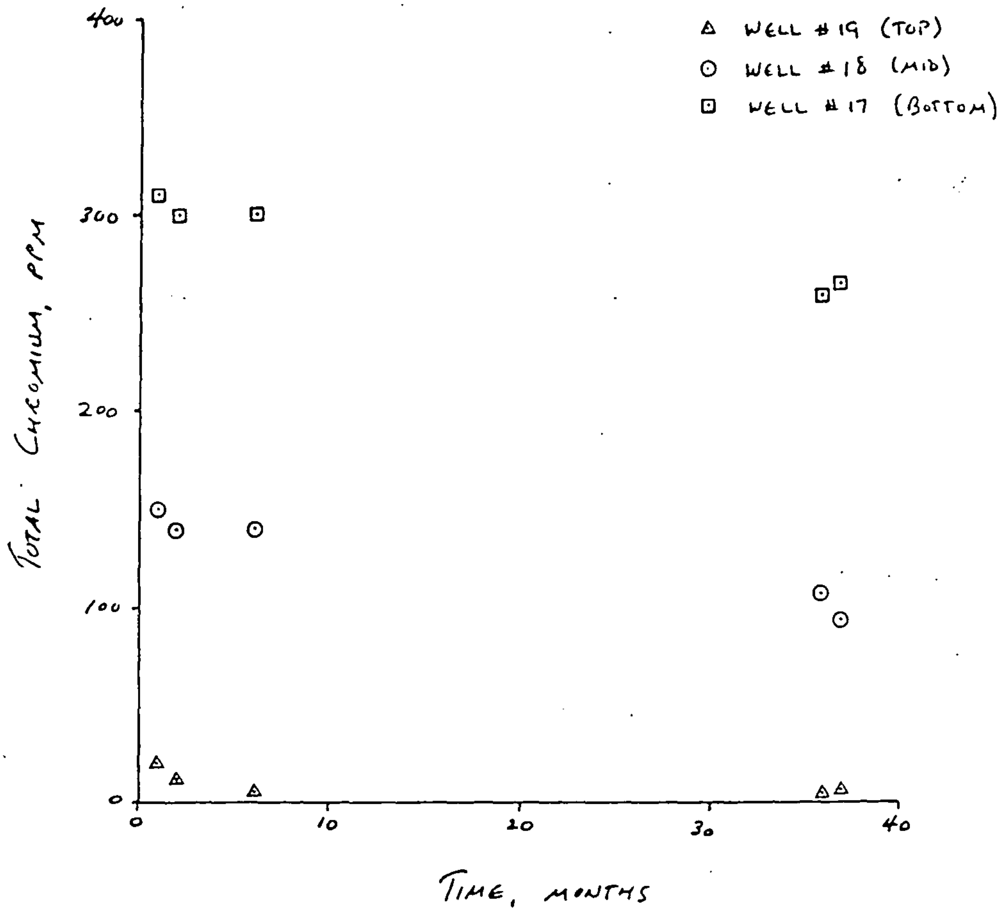

Figure 7. The change in total chromium concentration in groundwater samples over a three year period from piezometer site 19-18-17. Month 1 is March 1983. Note that the highest concentrations occur in the deepest well (#17) and that the concentrations in all three wells show a general decrease with time.

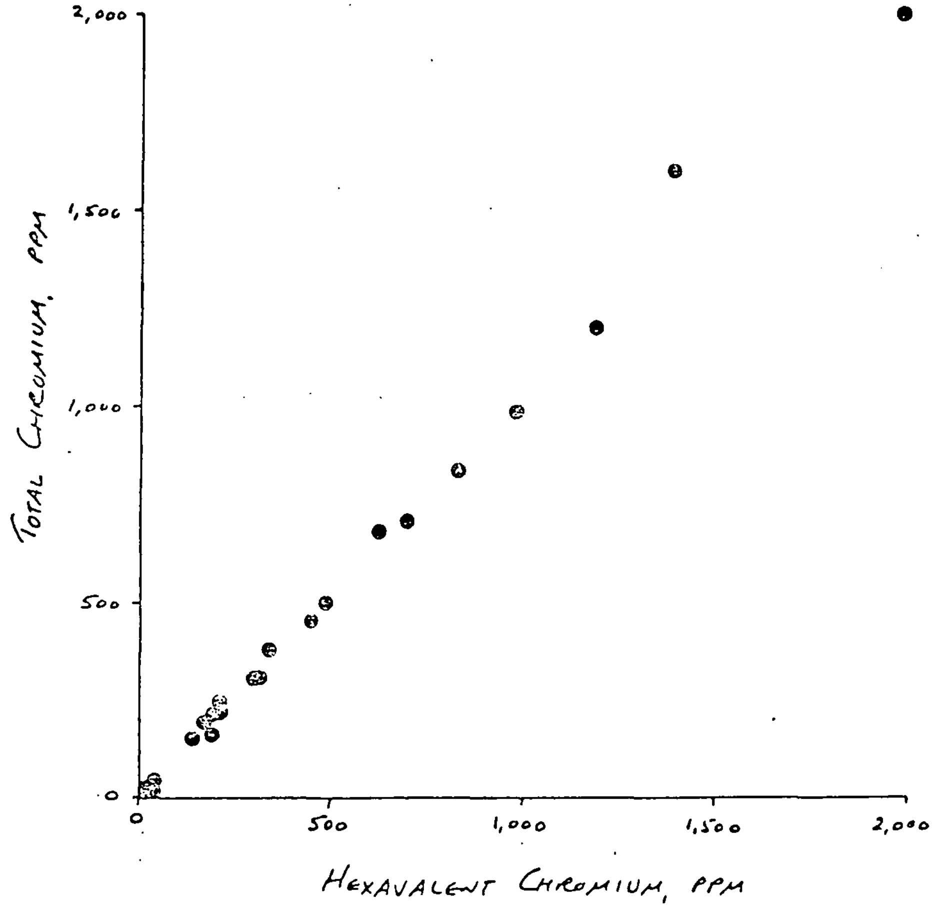

Figure 8. Analyses of groundwater samples plotted as a function of total and hexavalent chromium. This relationship suggests that nearly all of the chromium in the samples is hexavalent.

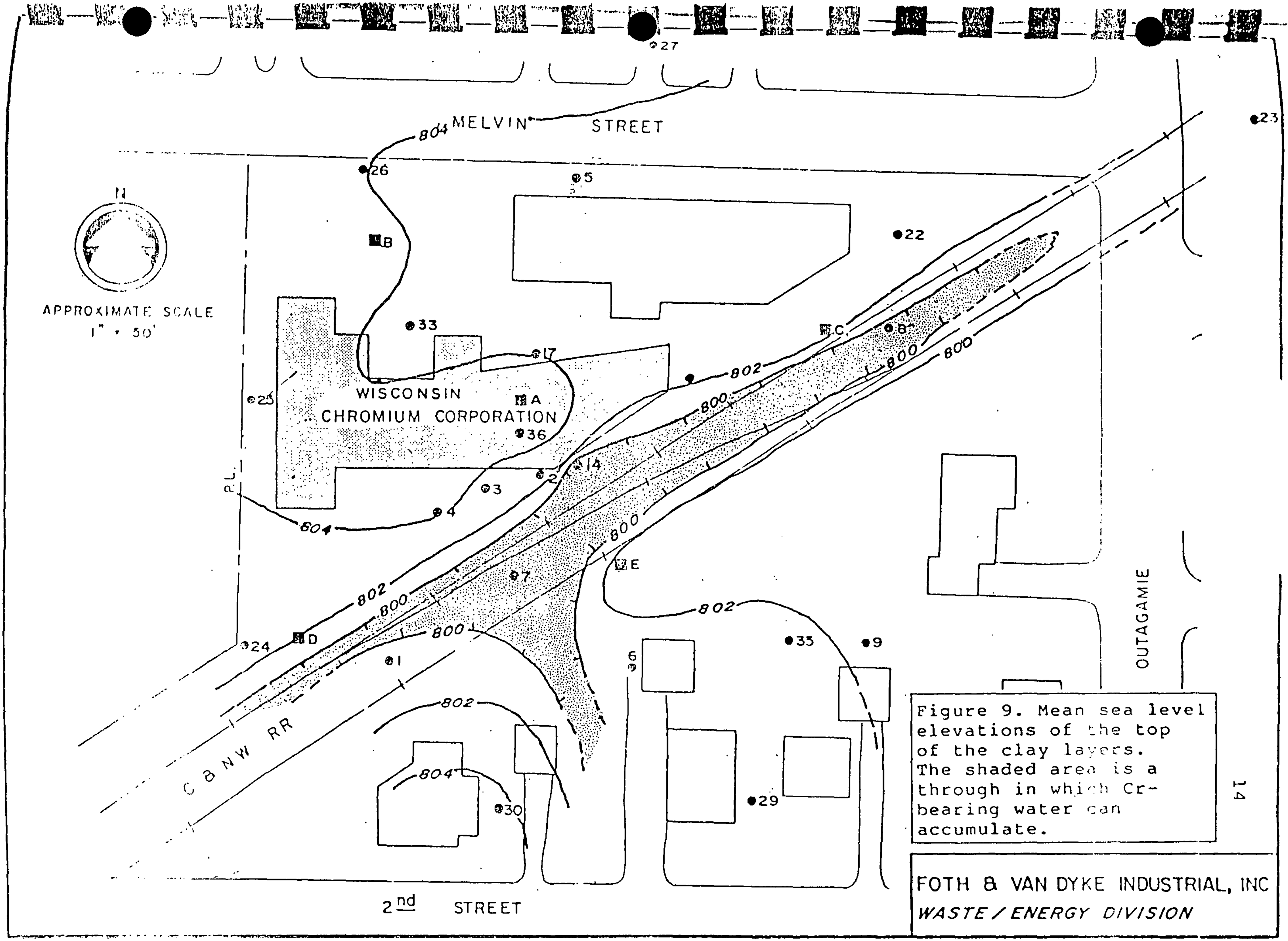

Figure 9. Mean sea level elevations of the top of the clay layers. The shaded area is a through in which Cr-bearing water can accumulate.

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Proposed Remedial Actions

The chromium spill in the vicinity of the Wisconsin Cromium Corporation site can be efficiently ameliorated by undertaking the following tasks:

1, demolition and disposal of the Wisconsin Corporation building;

2, removal and disposal on the heavily contaminated soil from the vicinity of the building; and,

3, withdrawing and removing the chromium from the groundwater in the vicinity of the building.

The building can be demolished and disposed of in the Outagamie County Landfill by utilizing local contractors. Initial discussions with some area contractors and the landfill suggest that this portion of the remedial action might cost $12,500.00 and can be accomplished without delay.

FVD analyses of fill material within the heavily contaminated area shown in Figure 10 indicate that most of this material fails the EP toxicity test and therefore must be considered hazardous as defined by USEPA. Since there are no hazardous material disposal sites within the state the soil will have to be excavated and transported out of state at a considerable cost. American Waste Processing Ltd. of Maywood, IL and Chemical Waste Management, Inc. of Oakbrook, IL have both indicated that they would be willing to remove, transport and accept this waste at their landfills. Prior to the commencement of this remedial action the following permits would have to be obtained:

1, a hazardous waste generators permit from Wisconsin;

2, a USEPA ID number;

3, an Illinois EPA ID number; and,

4, a disposal permit from Illinois.

The first three permits can normally be obtained within two to three weeks from date of request. The Illinois disposal permit, however, generally requires four to six months to obtain. This disposal permit must establish that the landfill is capable of accepting the generator's waste. A complete analysis of the waste (RCRA metals, phenols, cyanide, pH, flashpoint, sulfite, etc.) and copies of the generator's permits and ID numbers must be included in the application for the disposal permit.

It will [illegible] permits and ID number prior [illegible] of the remedial action. It will [illegible] without this, [illegible] removed from the site. Once the concrete floor of the building is removed considerable quantities of chromium will be exposed to the surface environment and will be subject to potentially serious runoff and infiltration problems.

Immediately following the removal of the hazardous waste, the excavated area will be filled with clean gravel from a local source. The estimated cost for the removal and disposal of the hazardous waste and the filling of the excavated area is $616,500.

Groundwater will be withdrawn utilizing three foot wide trenches located in Figure 11. Trench A is 300 feet long and is intersected by the 125 foot long trench B at the midpoint of trench A. Trench C is also 125 feet long and it intersects trench B 45 feet from the A-B intersection. The system will operate by gravity collection and all of the trenches will slope at 2% towards the low point of the system- the intersection of trenches A and B.The pipe in the drains will be standard four inch diameter PVC drain. The low point in the system will be 20 feet below grade and will contain a 200 gallon collection tank constructed from concrete and lined with synthetic resin. A submersible pump will be utilized to transport the water to the surface for treatment. The trenches will be filled with 3/4 inch washed gravel.

Groundwater will be pumped to a 200 gallon surge tank where the pH will be adjusted to 6.0 to 6.5. The solution will be pumped through a prefilter to remove any solids and through an automatic feed valve controlled by a microprocessor. The feed will initially be about one gallon per minute but will taper off to one gallon per hour as the groundwater flow into the trenches reaches a steady state. The solution will pass through a series of two four inch diameter reverse osmosis (RO) modules where the concentration of chromium will be reduced from an average of 133 ppm (030386 well data) to a value less than one ppm (the Appleton Waste Water Treatment Plant has a limit of seven ppm total chromium).

The concentrate (the high chrome side) will be collected in drums and stored for shipment to a hazardous waste facility. The permeate (the clean side) will be split, approximately one half being recycled back to the feed valve and the rest being discharged to the municipal sanitary system. The entire operation will be monitored and controlled by microprocessor, which, in the event of an upset, will flush the RO modules with deionized water and activate an alarm system which will notify the operators. The concentrate will be disposed as a D007 waste. ESL of Elwood, IL is willing to transport and accept this waste for approximately $100.00 per drum. The approximate capitol costs for this remedial action are $134,000. A schematic diagram of the process just discussed is shown in Figure 12.

Following the excavation and filling of the soil the general area surrounding the building will be [illegible] with a three inch layer of [illegible] properly sloped to insure adequate [illegible] [illegible] tractors and will cost about $[illegible].

The small building necessary to house the treatment facility shoulb be constructed on top of the concrete cap above the intersection of trenches A and B.

The estimated total cost for these remedial actions is $773,000. This figure does not include bonding, engineering fees,maintainance costs, and, permit applications.

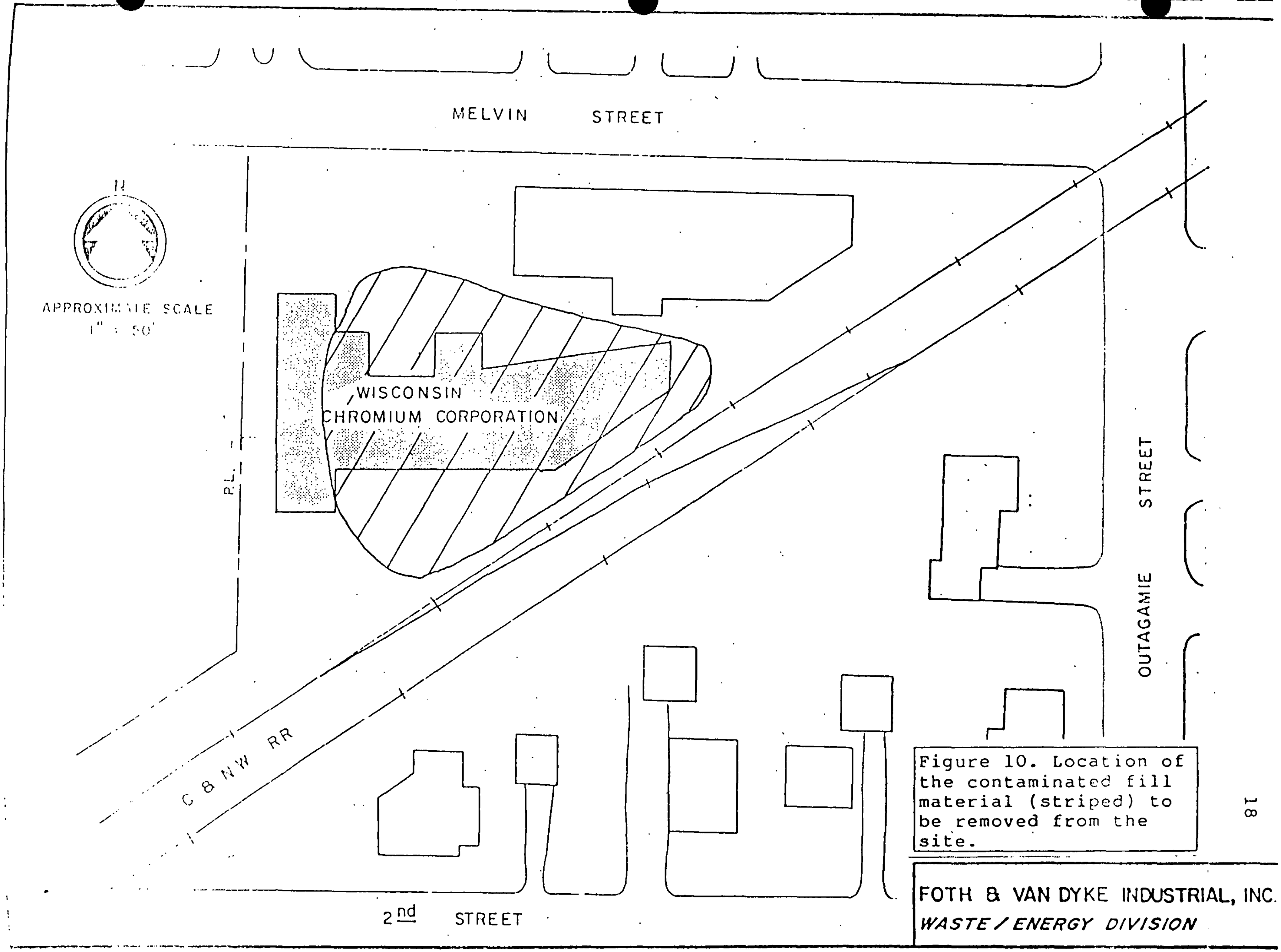

Figure 10. Location of the contaminated fill material (striped) to be removed from the site.

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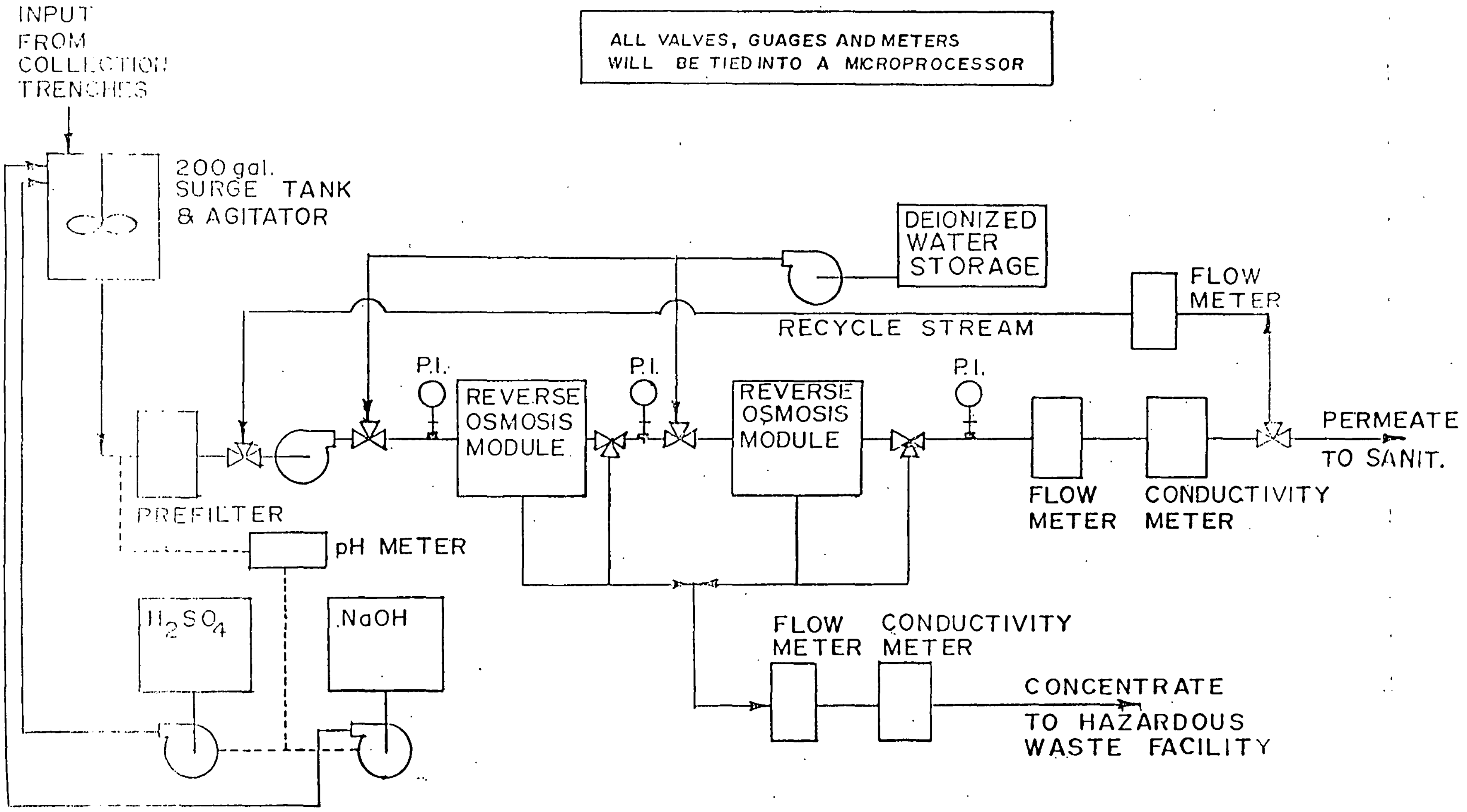

ALL VALVES, GUAGES AND METERS WILL BE TIED INTO A MICROPROCESSOR

Figure 12.

PROCESS FLOW DIAGRAM FOR DECONTAMINATION OF GROUNDWATER AT MAUTHE CHROME

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Uncorrected

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E. M. CAMPBELL

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SUBSURFACE SOIL EXPLORATION PROGRAM
AND GROUNDWATER MONITORING WELL INSTALLATION
N. W. MAUTHE COMPANY CHROMIUM SPILL SITE
APPLETON, WISCONSIN

#97-2312

REC'D DNR
FEB 16 1988
GREEN BAY

twin city testing
and engineering laboratory, inc.

REPORT OF SUBSURFACE SOIL EXPLORATION PROGRAM
AND GROUNDWATER MONITORING WELL INSTALLATION
N. W. MAUTHE COMPANY CHROMIUM SPILL SITE
APPLETON, WISCONSIN
#97-2312

INTRODUCTION

This report presents boring logs and monitoring well installation diagrams for the subsurface exploration conducted at the N. W. Mauthe Company chromium spill site in Appleton, Wisconsin. Twenty-six soil borings with sixteen having monitoring wells installed were put down during the period of November 17, 1982 through January 24, 1983. The borings were put down at approximately the locations shown on the attached sketch. Groundwater monitoring well elevations were determined by Twin City Testing and Engineering Laboratory, Inc.

The scope of this project consisted of putting borings down with selected split spoon sampling in addition to installing groundwater monitoring wells in selected borings under the direct supervision of DNR Hazardous Waste specialist, Mr. George Kraft. It is presently beyond the scope of this work to describe ground surface conditions, subsurface conditions and extended water level observations.

FIELD EXPLORATION PROCEDURES

Sampling

Soil sampling was done in borings 14, 17, 21, 22, 23, 24, 25, 26, 27, 29, 30, 33, 35 and 36. Soil sampling in all of the borings with the exception of number 36 was done in accordance with ASTM:D1586. Using this procedure, a 2-inch O.D. Split-Barrel Sampler was driven into the soil by 140-pound weight falling 30 inches. After an initial set of 6 inches, the number of blows required to drive the sampler an additional 12 inches is known as the penetration resistance of "N" value. The "N" value is an index of the relative density of cohesionless soils or the consistency of cohesive soil. The above samples were obtained using a drill rig and hollow stem augers with the exception of boring 36. Boring 36 was advanced using hand auger techniques. The samples in boring 36 were obtained using a split spoon sampler driven into the ground with a sledge hammer. All soil borings were advanced to depths as directed by the DNR at the time of exploration.

As an added precaution during the subsurface exploration, the split spoon samplers were thoroughly washed in water and rinsed in a separate water pail to eliminate any possible carry-down of contamination from the samples above.

Classification

As the samples were obtained in the field, they were visually and manually, classified by the crew chief in accordance with ASTM:D 2488. Representative

Classification (cont'd)

samples were split in the field. One portion of the split spoon sample was carefully selected by the DNR representative who logged the sample and stored it for further laboratory tests. The remaining portion of the samples were returned to our laboratory for further visual examination and for verification of the field classifications. Logs of the borings indicate the depths of the various strata, the "N" value, water information obtained during drilling and pertinent information regarding the method of maintaining and advancing the drill holes. These logs are attached to this report. A chart illustrating the soil classification procedures, the descriptive terminology and symbols used on the boring logs are also attached. We have included diagrams for each of the wells installed.

GROUNDWATER MONITORING WELL INSTALLATION

A total of sixteen groundwater monitoring wells were installed in borings 10, 11, 12, 13, 14, 15,16, 17, 18, 19, 25, 26, 31, 32, 34 and 35A, ranging in depths from 6 to 21 feet. These wells consisted of 2-inch I.D. PVC pipe fitted with 3- to 10-foot sections of slotted PVC pipe. The slotted PVC screens were covered with a double wrap of filter sock. Borings for the groundwater monitoring wells were advanced using hollow stem augers (HSA) with a nominal 6-inch O.D. Once the well screens and riser pipes were installed, the void space between the natural soil and the well was filled using a medium-grained sand pack. After the sand pack was placed, the wells were grouted from the top of the sand pack to the ground surface with a cement-bentonite grout. Grout was placed through a Tremie pipe.

Steel protector pipes of 4-1/2-inch O.D. were placed at the top of all wells and concreted into place. All wells were secured with key padlocks prior to leaving the site. Well installation details are shown for each well on the attached diagrams.

BACKFILLING OF BORINGS

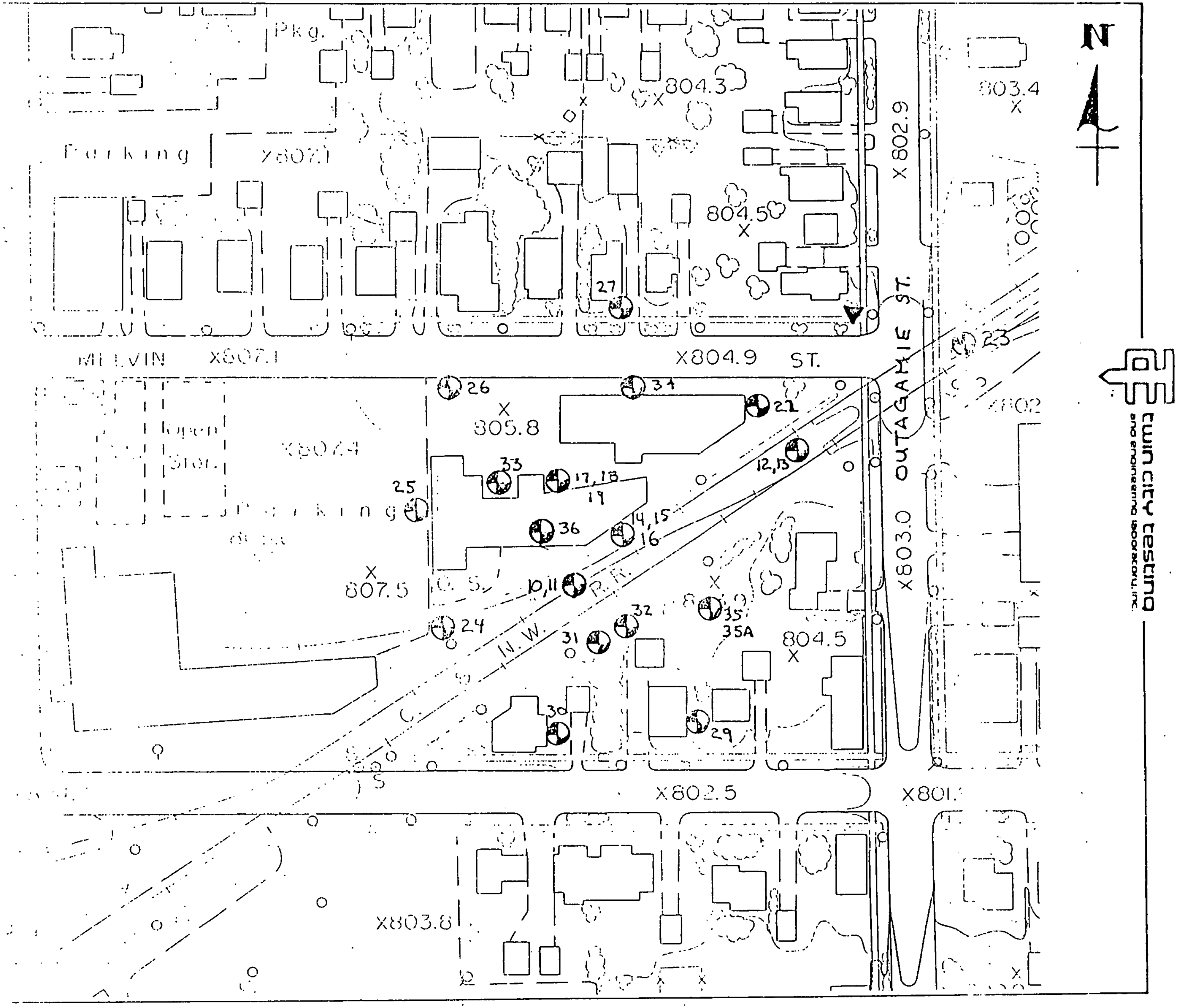
Ten of the 26 borings did not have groundwater monitoring wells installed in them. These borings, 21, 22, 23, 24, 27, 29, 30, 33, 35 and 36, were backfilled with grout through a Tremie pipe from the bottom of the boring up to the ground surface. The grout in all of these borings, with the exception of No. 36, consisted of cement and bentonite. The grout placed in boring 36 consisted of sand and cement. All of the above borings were grouted shut under the direction of the DNR.

This report was prepared by:

John E. Dingeldein

John E. Dingeldein
Geotechnical Engineer

Endls: Generalized Boring Location Plan
Boring Logs
Monitoring Well Installation Diagram
General Notes
Classification of Soils



twin city testing and engineering laboratory, inc.

BORING & WELL LOCATIONS

JOB NO. 97-2312

SCALE: 1" ≈ 100'

DRAWN BY JD

CHECKED BY RB

⊕ BORING AND/OR WELL LOCATION

TBM: ARROW ON FIRE HYD. ELEV. [illegible]

LOG OF TEST BORING

JOB NO 97-2312 VERTICAL SCALE 1" = 3' BORING NO 10

PROJECT N. W. MAUTHE SPILL SITE, APPLETON, WISCONSIN

SURFACE ELEVATION 804.9'

DEPTH IN FEET	DESCRIPTION OF MATERIAL	GEOLOGIC ORIGIN	N	WL	SAMPLE NO	SAMPLE TYPE	LABORATORY TESTS W	D	LL/PL	Qu
	FILL, mostly SILTY SAND and gravel, black	FILL								
6	SILTY CLAY, trace gravel and sand, reddish brown (CL)	TILL								
9	SANDY CLAY, trace gravel, dark brown (CL)									
15	END OF BORING NOTE: No samples taken. Visual observation off of auger only.									

WATER LEVEL MEASUREMENTS

11-23 1150 NONE 15 15 NONE

11-23-

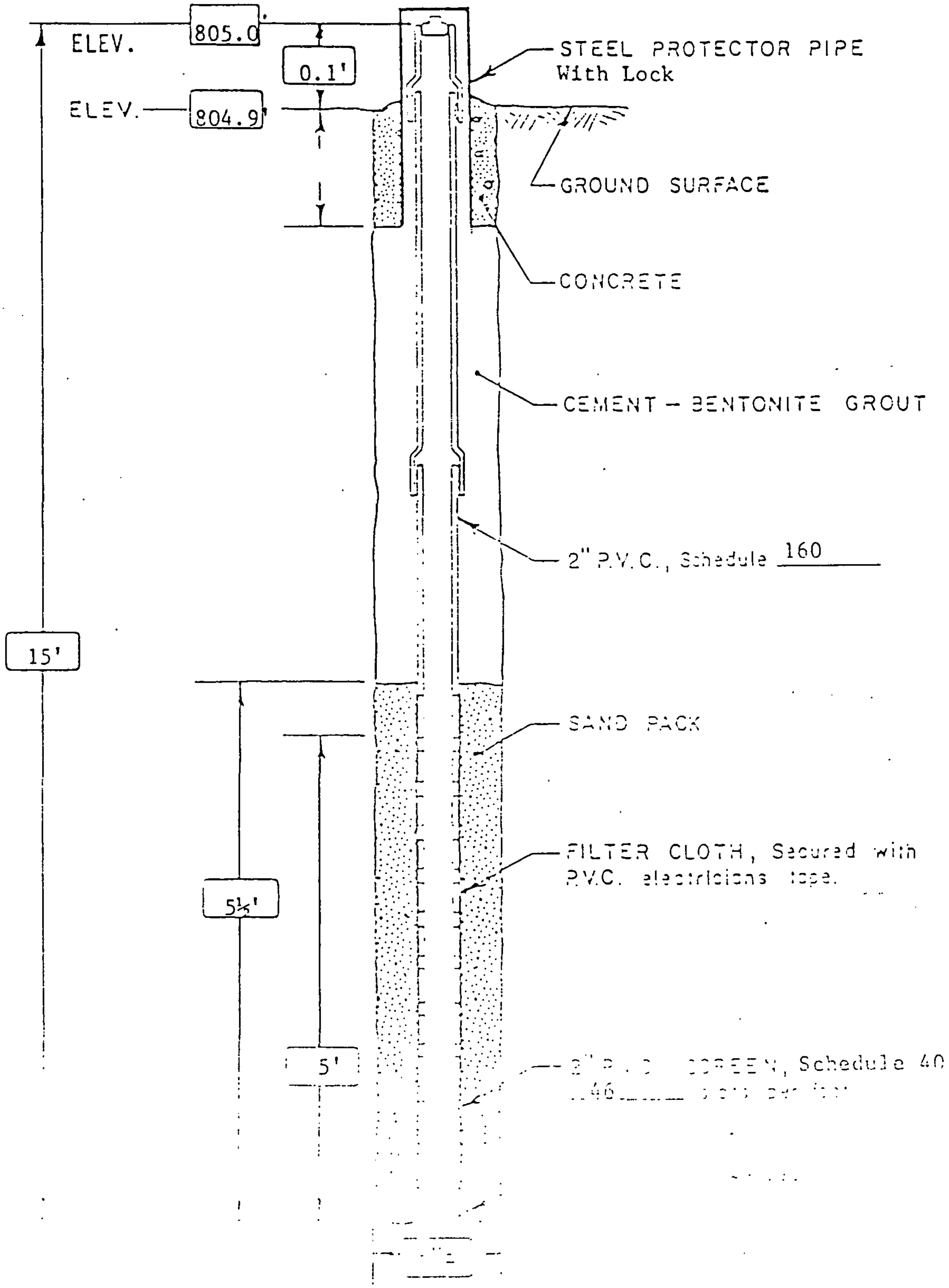
HSA 0-25'

MCMULLEN

twin city testing
and engineering laboratory, inc.

SE-2 (77-8)-3

WELL NO. 16



MAUTHE SPILL SITE	JOB NO. 97-2312	SCALE N/A	DRAWN BY TM	CHECKED BY JD

LOG OF TEST BORING

JOB NO 97-2312 VERTICAL SCALE 1" = 3' BORING NO 11

PROJECT N.W. MAUTHE SPILL SITE, APPLETON, WISCONSIN

DEPTH IN FEET	DESCRIPTION OF MATERIAL SURFACE ELEVATION 805.0'	GEOLOGIC ORIGIN	N	WL	SAMPLE NO	SAMPLE TYPE	LABORATORY TESTS W	LABORATORY TESTS D	LABORATORY TESTS LL/PL	LABORATORY TESTS Qu
	FILL, a mixture of SILTY SAND and gravel, black	FILL								
6	SILTY CLAY with gravel, reddish brown (CL)	TILL								
10	END OF BORING NOTE: No samples taken. Visual observation off of auger only.									

WATER LEVEL MEASUREMENTS

11-23 1230 NONE 10' 10' NONE

HSA 0-10'

MCMILLEN

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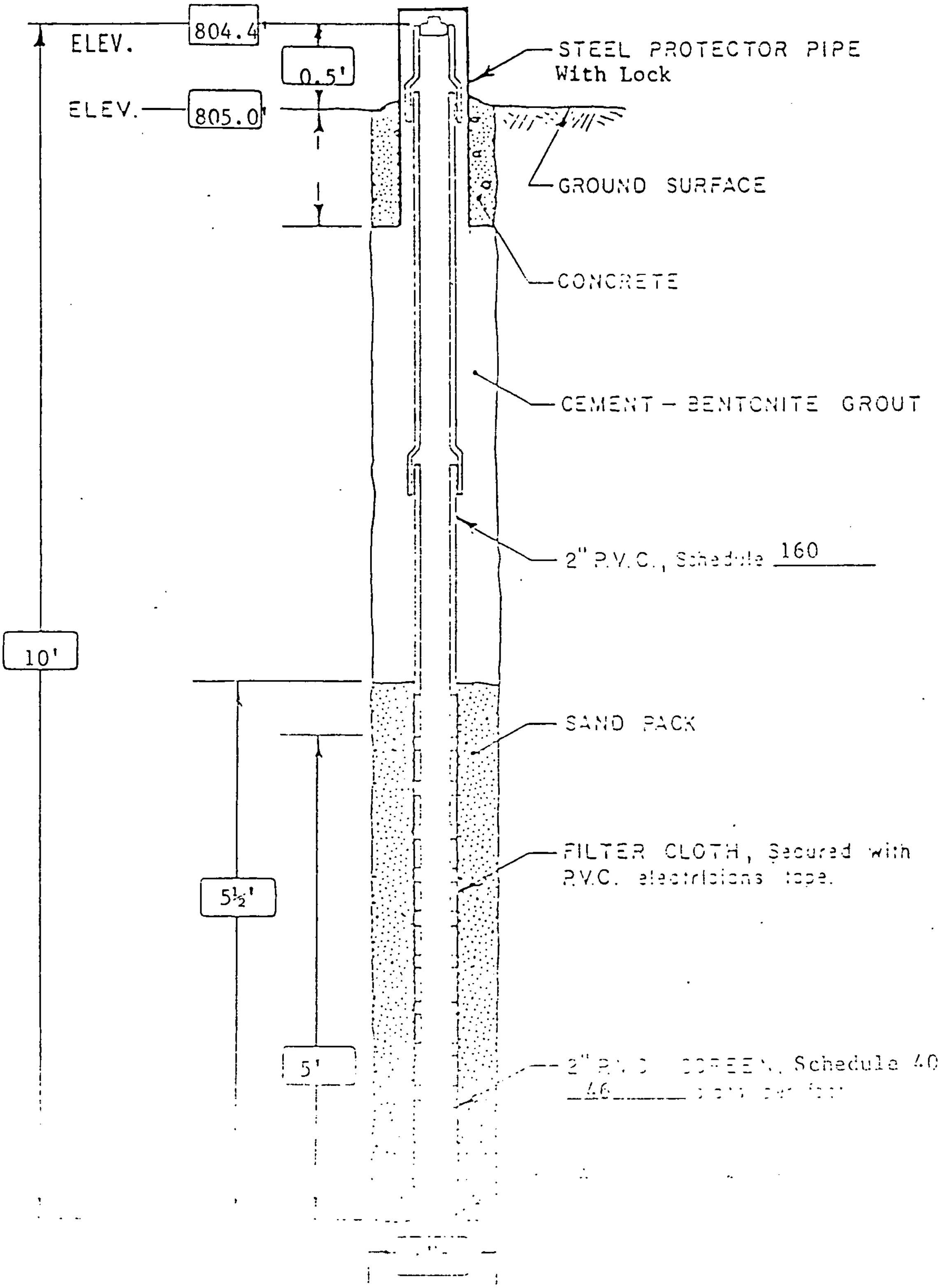
and engineering laboratory, inc.

SE-2 (77-B 3

twin city testing
and engineering laboratory, inc.

WELL NO. 11



MAUTHE SPILL SITE
JOB NO. 97-2312
SCALE N.A
DRAWN BY TM
CHECKED BY JD

LOG OF TEST BORING

JOB NO 97-2312 VERTICAL SCALE 1" = 3' BORING NO 12

PROJECT N. W. MAUTHE SPILL SITE, APPLETON, WISCONSIN

DEPTH IN FEET	DESCRIPTION OF MATERIAL SURFACE ELEVATION 805.0'	GEOLOGIC ORIGIN	N	WL	SAMPLE NO	SAMPLE TYPE	LABORATORY TESTS W	D	LL/PL	Qu
	FILL, mostly SILTY SAND and gravel, dark brown	FILL								
5	SILTY CLAY, trace gravel and sand, reddish brown (CL)	TILL								
11	SILTY SANDY CLAY, trace of gravel, dark brown, wet, medium (CL)									
21	END OF BORING									

NOTE: No samples taken 0-17'. Visual classification off of augers only

WATER LEVEL MEASUREMENTS

11-22	1230	21'	19½'	21'	NONE

HSA 0-19.5'

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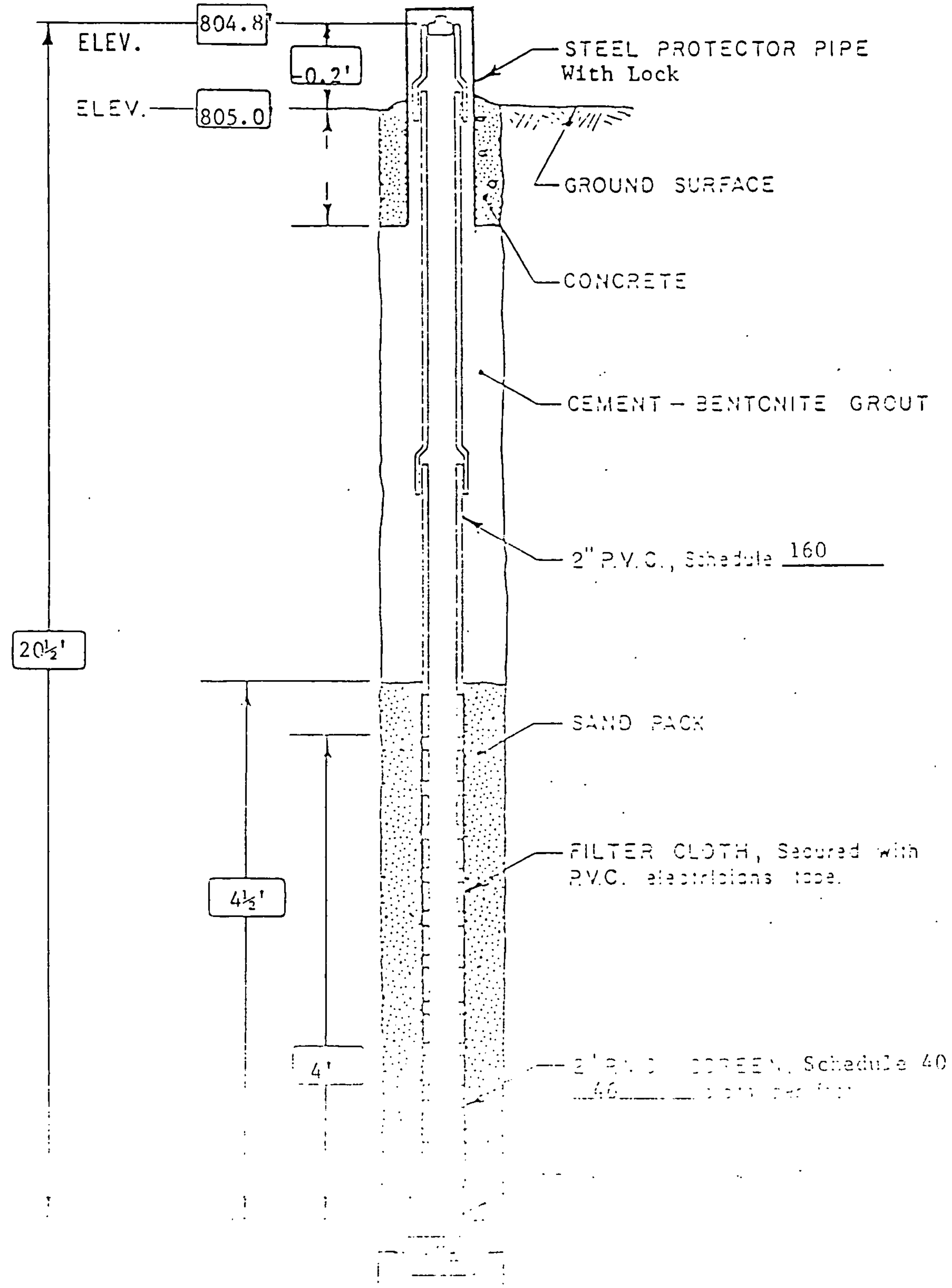
SE 2 (77-8)-3

WELL NO. 12



MAUTHE SPILL SITE	JOB NO. 97-2312	SCALE: N/A	DRAWN BY TM	CHECKED BY JD

LOG OF TEST BORING

JOB NO 97-2312
VERTICAL SCALE 1" = 3'
BORING NO 13
PROJECT N. W. MAUTHE SPILL SITE, APPLETON, WISCONSIN

SURFACE ELEVATION 804.9'

DEPTH IN FEET	DESCRIPTION OF MATERIAL	GEOLOGIC ORIGIN	N	WL	SAMPLE NO	SAMPLE TYPE	W	D	LL/PL	Qu
	FILL, a mixture of SILTY SAND and gravel, dark brown	FILL								
5	SILTY CLAY with gravel, reddish brown, moist	TILL								
10	END OF BORING									

NOTE: No samples taken.
Visual observations off of augers only.

WATER LEVEL MEASUREMENTS

11-23 1300 NONE 10' 10' NONE

HSA 0-10'

[illegible] MONTILEN

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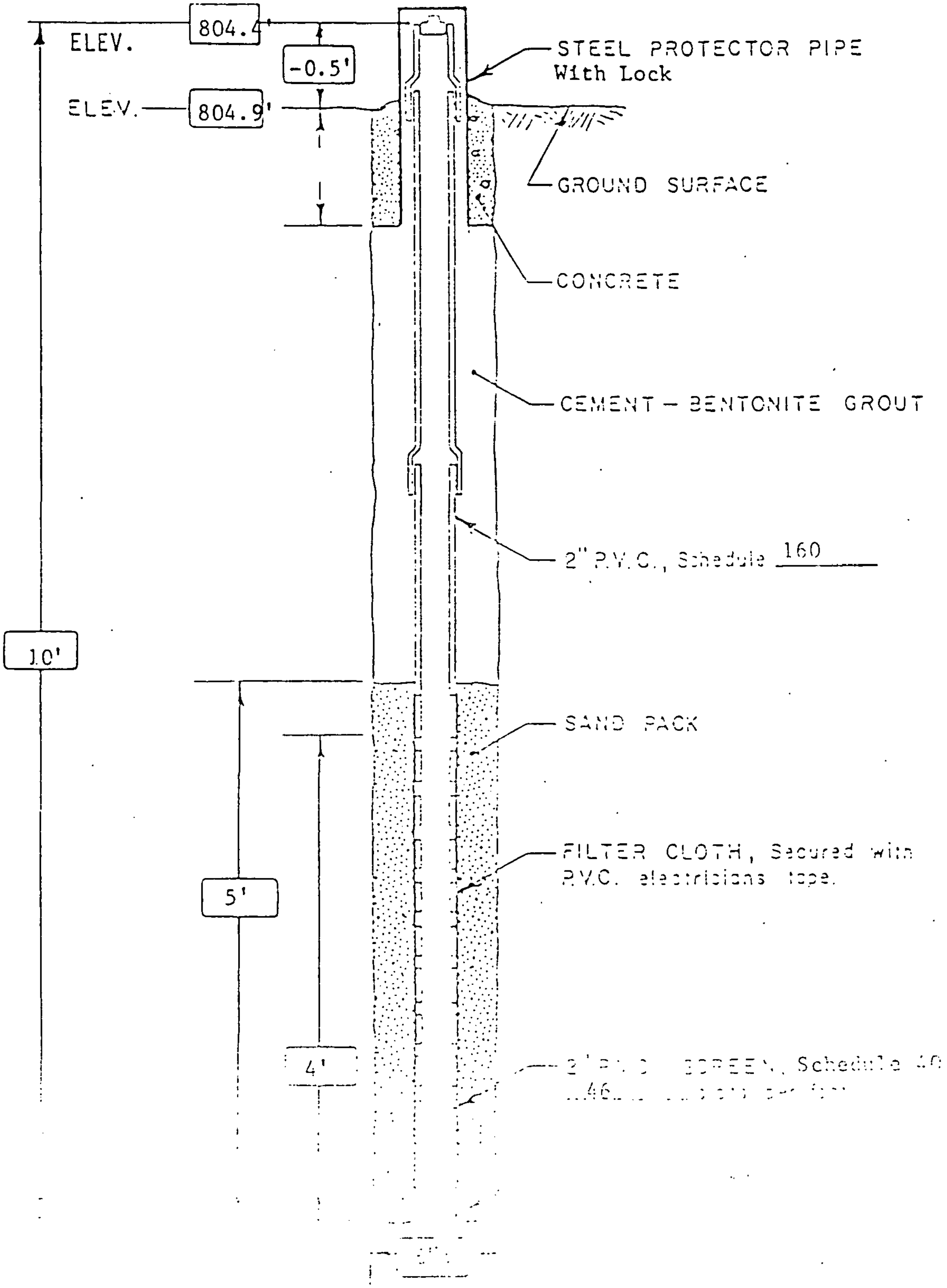
SE [illegible] 3

WELL NO. 1[illegible]



MAUTHE SPILL SITE	JOB NO. 97-2312	SCALE N/A	DRAWN BY TM	CHECKED BY JD

LOG OF TEST BORING

JOB NO 97-2312 VERTICAL SCALE 1" = 3' BORING NO 14, 15 & 16

PROJECT N. W. MAUTHE SPILL SITE, APPLETON, WISCONSIN

DEPTH IN FEET	DESCRIPTION OF MATERIAL SURFACE ELEVATION 805.1'	GEOLOGIC ORIGIN	N	WL	SAMPLE NO	SAMPLE TYPE	LABORATORY TESTS W	D	LL PL	Qu
	FILL, a mixture of SILTY SAND and SILTY CLAY, with gravel, dark brown	FILL	16		NSR	SB				
			14		1	SB				
6	SILTY CLAY, trace gravel, reddish brown, seams of sand between 9½ and 11', stiff (CL)		7		2	SB				
			17		3	DN				
11	SILTY CLAY, trace gravel, dark reddish brown, lenses of silt and sand between 17½ and 18', medium (CL)	TILL	24		4	SB				
			11		5	SB				
			9		6	SB				
			8		7	SB				
21	END OF BORING		8		8	SB				

WATER LEVEL MEASUREMENTS

11-24 1300 21' 19½' 21' NONE

HSA 0-21'

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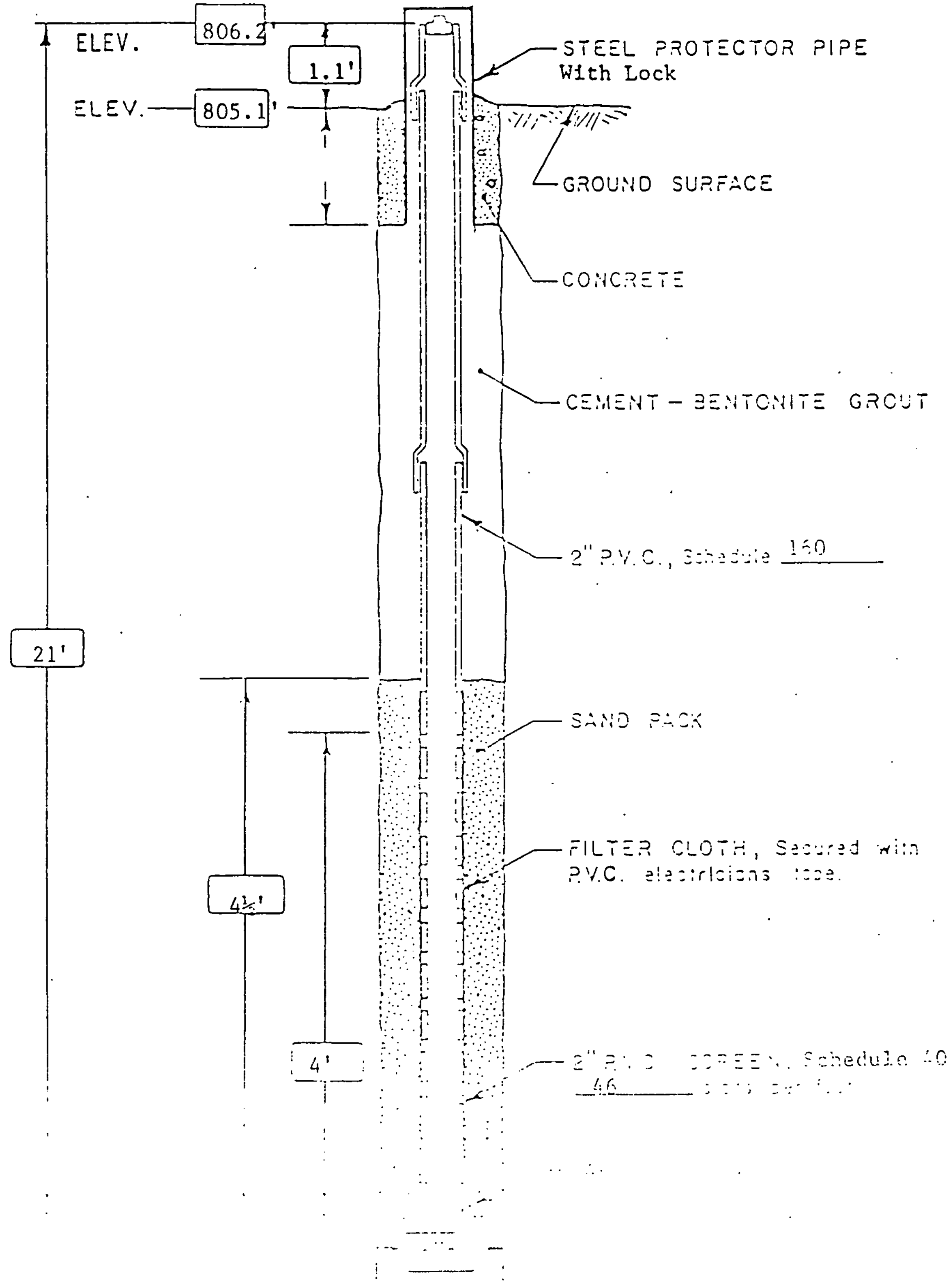
WELL NO 14



MAUTHE SPILL SITE	JOB NO. 97-2312	SCALE N/A	DRAWN BY TM	CHECKED BY JD

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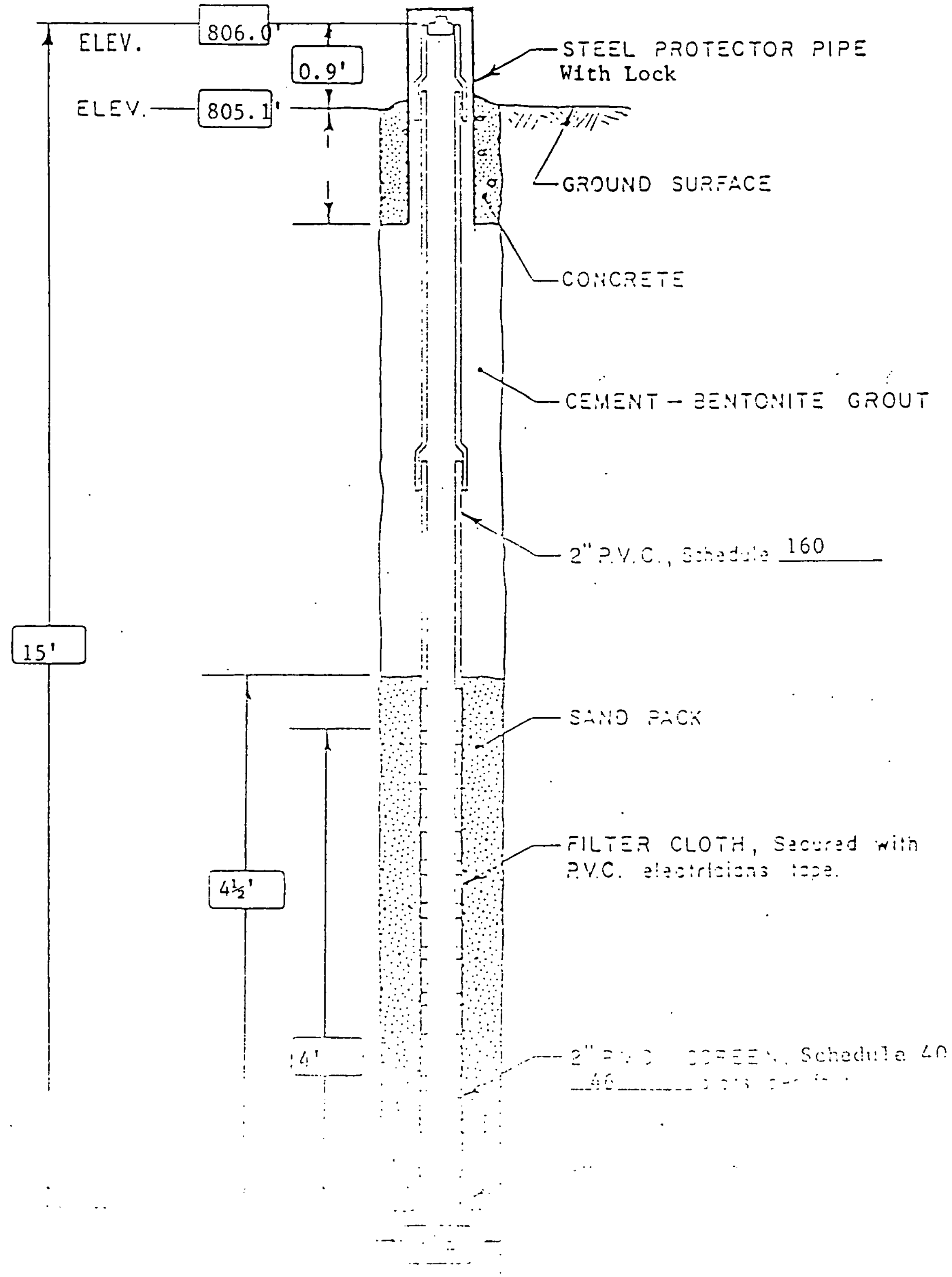
WELL NO. 15



MAUTHE SPILL SITE	JOB NO. 97-2312	SCALE: N/A	DRAWN BY TM	CHECKED BY JD

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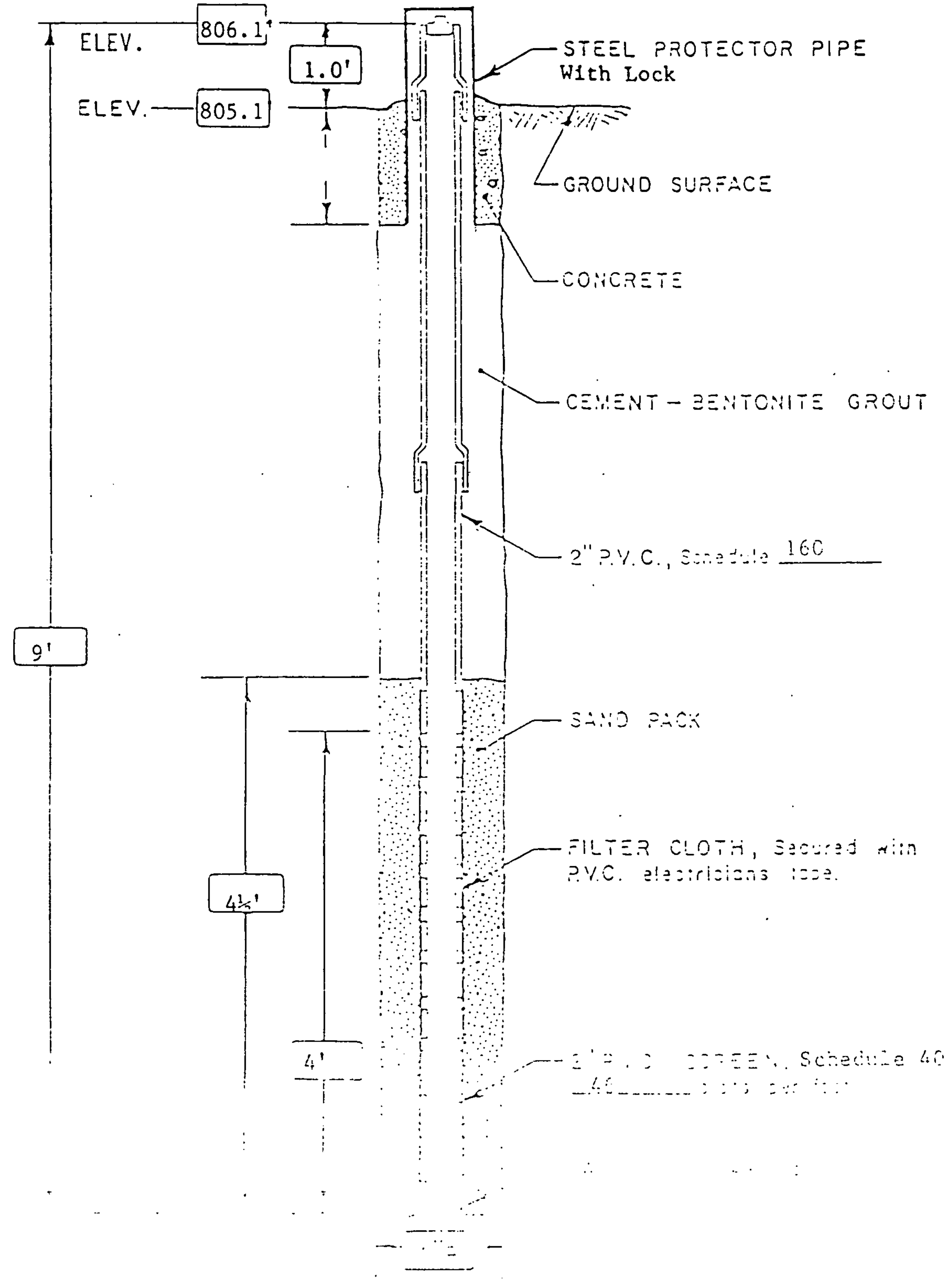
WELL NO __M__



MAUTHE SPILL SITE	JOB NO. 07-2312	SCALE N/A	DRAWN BY TM	CHECKED BY JD

LOG OF TEST BORING

JOB NO 97-2312
VERTICAL SCALE 1" = 3'
BORING NO 17, 18 & 19
PROJECT

SURFACE ELEVATION 806.7'

DEPTH IN FEET	DESCRIPTION OF MATERIAL	GEOLOGIC ORIGIN	N	WL	SAMPLE NO	SAMPLE TYPE	LABORATORY TESTS W	D	LL/PL	Qu
½	GRAVEL, gray									
	FILL, SAND, a little to some gravel, trace cinders and silt, brown to black	FILL	7		1	SB				
3	SILTY CLAY, a little gravel, trace sand, reddish brown, stiff to rather stiff (CL)	TILL	7		2	SB				
			20		3	SB				
			26		4	SB				
			21		5	SB				
			14		6	SB				
14	SILTY CLAY, trace of sand and gravel, dark reddish brown, medium (CL)									
16	END OF BORING		5		7	SB				

WATER LEVEL MEASUREMENTS

11-19	1115	16'	NONE	16'		NONE

HSA 0-16'

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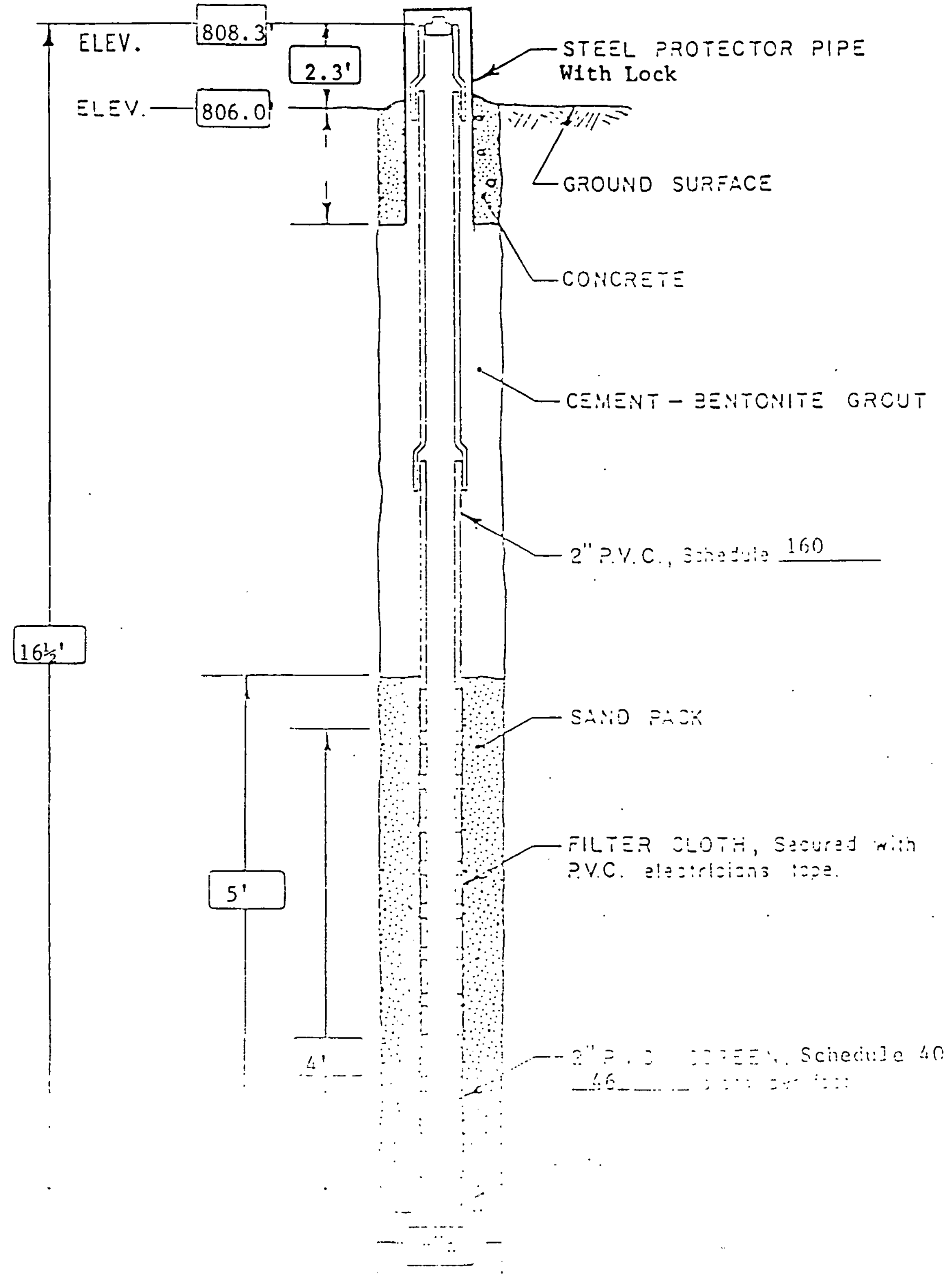
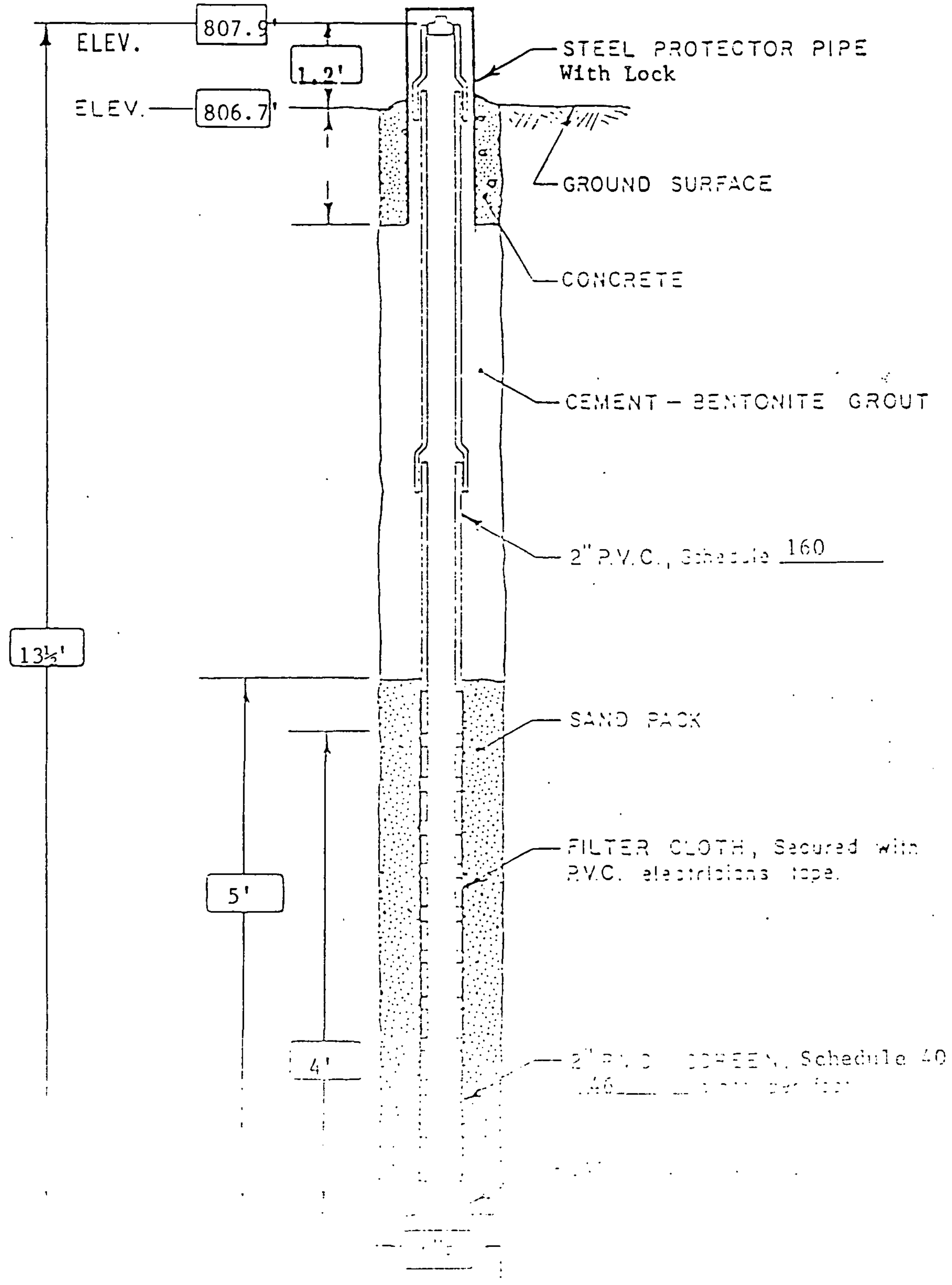
WELL NO J7



MAUTHE SPILL SITE | JOB NO. 97-2312 | SCALE: N/A | DRAWN BY TM | CHECKED BY JD

twin city testing
and engineering laboratory, inc.

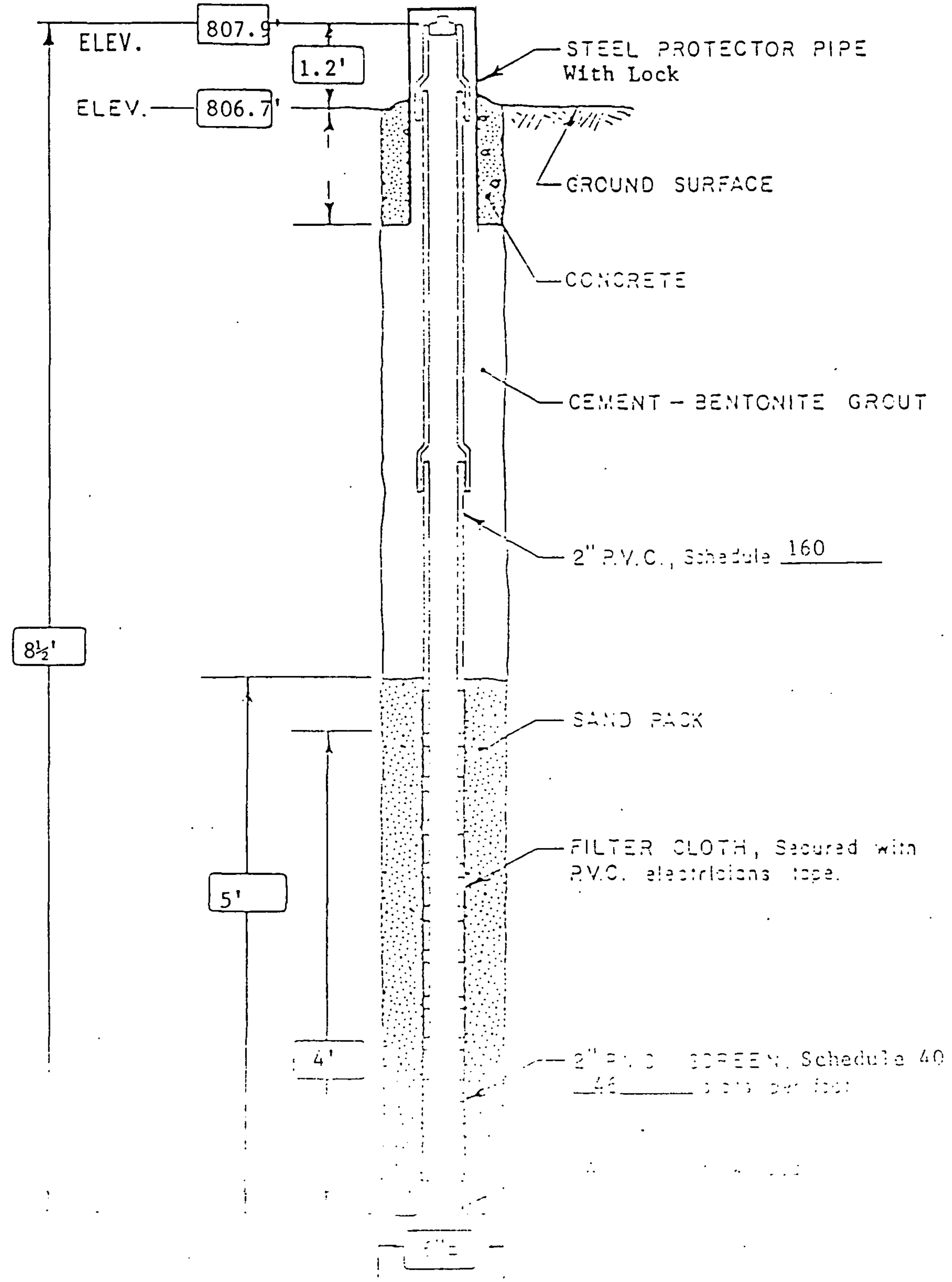
WELL NO. 10



MAUTHE SPILL SITE	JOB NO. 97-2312	SCALE N/A	DRAWN BY TM	CHECKED BY JD

twin city testing
and engineering laboratory, inc.

WELL NO 19



MAUTHE SPILL SITE	JOB NO. 97-2312	SCALE N/A	DRAWN BY TM	CHECKED BY JD

LOG OF TEST BORING

JOB NO. 97-2312 VERTICAL SCALE 1" = 3' BORING NO. 21

PROJECT N. W. MAUTHE SPILL SITE, APPLETON, WISCONSIN

DEPTH IN FEET	DESCRIPTION OF MATERIAL SURFACE ELEVATION 806.0'	GEOLOGIC ORIGIN	N	WL	SAMPLE NO.	SAMPLE TYPE	LABORATORY TESTS W	D	LL/PL	Qu
	GRAVEL, gray									
1	FILL, a mixture of SILTY SAND and SILTY CLAY, a little gravel, gray to dark brown	FILL	13		1	SB				
			8		2	SB				
4	SILTY CLAY, trace of sand and gravel, reddish brown to mottled gray, stiff (CL)		24		3	SB				
			28		4	SB				
			16		5	SB				
12	SILTY CLAY, dark reddish brown, wet, rather stiff to medium, lenses of sand and silt (CL)	TILL	11		6	SB				
			7		7	SB				
			5		8	SB				
21			5		9	SB				
	END OF BORING NOTE: Boring Tremie filled with cement-bentonite grout									

WATER LEVEL MEASUREMENTS

11-24	1000	21'		NONE	21'		NONE

HSA 0-19.5'

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LOG OF TEST BORING

JOB NO 97-2312 VERTICAL SCALE 1" = 3' BORING NO 22

PROJECT N. W. MAUTHE SPILL SITE, APPLETON, WISCONSIN

DEPTH IN FEET	DESCRIPTION OF MATERIAL SURFACE ELEVATION 805.0'	GEOLOGIC ORIGIN	N	WL	SAMPLE NO	SAMPLE TYPE	LABORATORY TESTS W	D	LL/PL	Qu
	FILL, a mixture of SANDY SILT and gravel, brown, moist	FILL	8		1	SB				
2½	SANDY SILTY CLAY, trace gravel, brown, rather stiff (CL)	TILL	9		2	SB				
6	SILTY CLAYEY SAND, reddish brown to brown, trace bluish gray, moist, dense to medium dense (SC)		11		3	SB				
			15		4	SB				
			14		5	SB				
			10		6	SB				
14½	SILTY CLAY, dark brown, seams of sand between 19½ and 21', wet, rather stiff to medium (CL)		11		7	SB				
			5		8	SB				
			SB		9	SB				
21	END OF BORING NOTE: Boring backfilled with Tremie placed cement-bentonite grout									

WATER LEVEL MEASUREMENTS

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	[illegible]	WATER LEVEL
11-29	1430	21'	NONE	17'		13'

START 11-29-82 COMPLETE 11-29-82

METHOD [illegible] 1:50

HSA 0-19½'

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LOG OF TEST BORING

JOB NO 97-2313
VERTICAL SCALE 1" = 3'
BORING NO 23
PROJECT N. W. MAUTHE SPILL SITE, APPLETON, WISCONSIN

DEPTH IN FEET	DESCRIPTION OF MATERIAL SURFACE ELEVATION 804.5'	GEOLOGIC ORIGIN	N	WL	SAMPLE NO	SAMPLE TYPE	LABORATORY TESTS W	D	LL/PL	Qu
	FILL, a mixture of SILTY SAND and ash, dark brown to black, moist	FILL								
			13		1	SB				
2½'	SILTY CLAY, a trace of sand and gravel, reddish brown, moist to wet at 14', soft to stiff, with lenses of sand between 12 and 13.5'	TILL	4		2	SB				
			4		3	SB				
			9		4	SB				
			14		5	SB				
			17		6	SB				
16			17		7	SB				
	END OF BORING NOTE: Boring backfilled with Tremie placed cement-bentonite grout									

WATER LEVEL MEASUREMENTS

DATE	TIME	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
11-29	1400	11'	9.5'	NONE		8.3'
11-29	1430	16'	14.5'	NONE	--	7.2'

11-[illegible]-82
11-29-[illegible]
[illegible] 1430
HSA 0-14½'
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LOG OF TEST BORING

JOB NO 97-2312 VERTICAL SCALE 1" = 3' BORING NO 24

PROJECT N. W. MAUTHE SPILL SITE, APPLETON, WISCONSIN

DEPTH IN FEET	DESCRIPTION OF MATERIAL SURFACE ELEVATION 806.2'	GEOLOGIC ORIGIN	N	WL	SAMPLE NO	SAMPLE TYPE	W	D	LL/PL	Qu
	FILL, organic SILTY SANDY CLAY, dark brown to black, trace grass	FILL	4		1	SB				
3	SILTY CLAY, trace of sand and gravel, reddish brown to mottled gray, stiff (CL)	TILL	8		2	SB				
			17		3	SB				
			20		4	SB				
			23		5	SB				
12	SILTY CLAY, a little gravel, a trace of sand, dark grayish brown, moist, rather stiff to medium (CL)		9		6	SB				
16	END OF BORING NOTE: Boring backfilled with Tremie placed cement-bentonite grout		5		7	SB				

WATER LEVEL MEASUREMENT

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
11-22	1455	16'	NONE	16'		NONE

[illegible] 11-22-8[illegible] [illegible] 11-22-8[illegible]

HSA 0-14'

[illegible] MCMULLEN

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LOG OF TEST BORING

JOB NO 97-2312 VERTICAL SCALE 1" = 3' BORING NO 25

PROJECT N. W. MAUTHE SPILL SITE, APPLETON, WISCONSIN

DEPTH IN FEET	DESCRIPTION OF MATERIAL SURFACE ELEVATION 807.5'	GEOLOGIC ORIGIN	N	WL	SAMPLE NO	SAMPLE TYPE	LABORATORY TESTS W	D	LL/PL	Qu
	FILL, asphalt and gravel over SILTY SAND and SILTY CLAY, mixed	FILL	10		1	SB				
3	SILTY CLAY, trace of sand and gravel, reddish brown, stiff (CL)	TILL	11		2	SB				
			20		3	SB				
			22		4	SB				
9	SILTY CLAYEY SAND, a little gravel, brown, lenses of silty sand between 9½ and 11', moist, dense (SC)		19		5	SB				
12½	SILTY CLAY, trace of sand and gravel, dark brown, rather stiff to medium (CL)		14		6	SB				
16	END OF BORING		6		7	SB				

WATER LEVEL MEASUREMENTS

DATE	TIME	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
11-23	0800	16'	PVC	NONE		3.4'

[illegible] 11-22-82 [illegible] 11-22-

HSA 0-14½'

[illegible] McMULLEN

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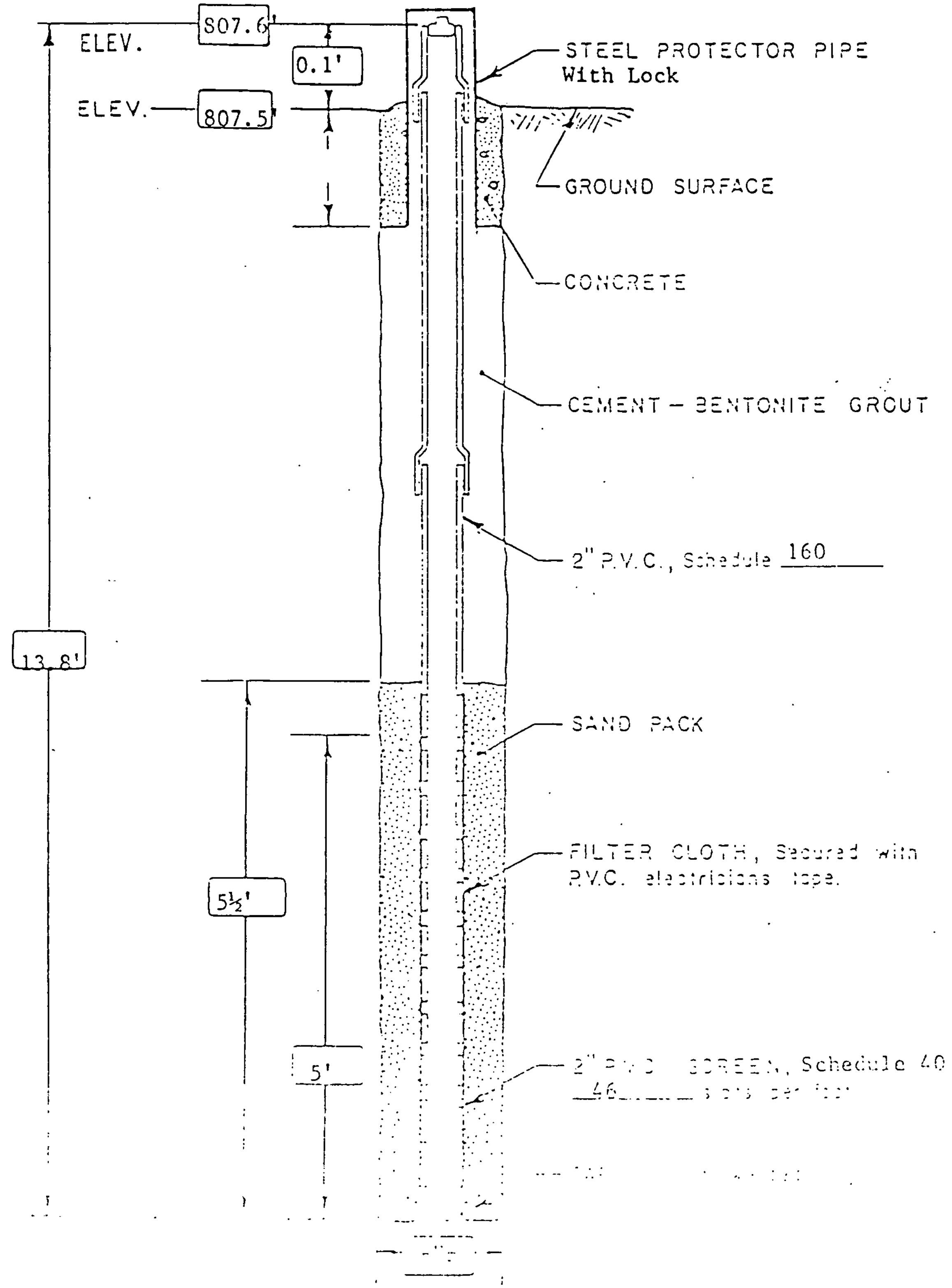
WELL NO. 25



MAUTHE SPILL SITE	JOB NO. 97-2312	SCALE N/A	DRAWN BY TM	CHECKED BY JD

LOG OF TEST BORING

JOB NO 97-2312 VERTICAL SCALE 1" = 3' BORING NO 26

PROJECT N. W. MAUTHE SPILL SITE, APPLETON, WISCONSIN

DEPTH IN FEET	DESCRIPTION OF MATERIAL SURFACE ELEVATION	GEOLOGIC ORIGIN	N	WL	SAMPLE NO	SAMPLE TYPE	W	D	LL/PL	Qu
	FILL, a mixture of SILTY SAND and gravel, yellowish brown, moist	FILL								
2	SILTY CLAY, a little gravel, a trace of sand, reddish brown, moist, stiff (CL)	TILL	16		1	SB				
			25		2	SB				
			22		3	SB				
			19		4	SB				
			17		5	SB				
12½	SILTY CLAY, dark reddish brown, seams of dark sand between 12½ and 13', wet, rather stiff to medium (CL)		12		6	SB				
16	END OF BORING		7		7	SB				

WATER LEVEL MEASUREMENTS

11-23	0855	16'	NONE	14½'		NONE

11-23-92 11-23-92

HSA 0-14½'

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LOG OF TEST BORING

JOB NO 97-2312 VERTICAL SCALE 1" = 3' BORING NO 27

PROJECT N. W. MAUTHE SPILL SITE, APPLETON, WISCONSIN

DEPTH IN FEET	DESCRIPTION OF MATERIAL SURFACE ELEVATION 805.7'	GEOLOGIC ORIGIN	N	WL	SAMPLE NO	SAMPLE TYPE	LABORATORY TESTS W	D	LL/PL	Qu
	FILL, a mixture of sand and gravel, brown, moist	FILL								
1	SILTY CLAYEY SAND, a trace to a little gravel, brown, moist, dense (SC)		18		1	SB				
			1		2	SB				
3½	SILTY CLAY, trace of sand and gravel, reddish brown to mottled gray, stiff to rather stiff (CL)	TILL	31		3	SB				
			22		4	SB				
11	SILTY CLAY, a little gravel, trace sand, reddish brown, stiff (CL)		9		5	SB				
			17		6	SB				
14½	CLAYEY SAND with gravel, grayish brown, moist, dense (SC)									
16	END OF BORING NOTE: Boring backfilled by Tremie method with cement-bentonite grout		17		7	SB				

WATER LEVEL MEASUREMENTS

DATE	TIME	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	WATER
11-19	0945	16'	NONE	16'			NONE

11-19-82 11-19-82

0945

HSA 0-16'

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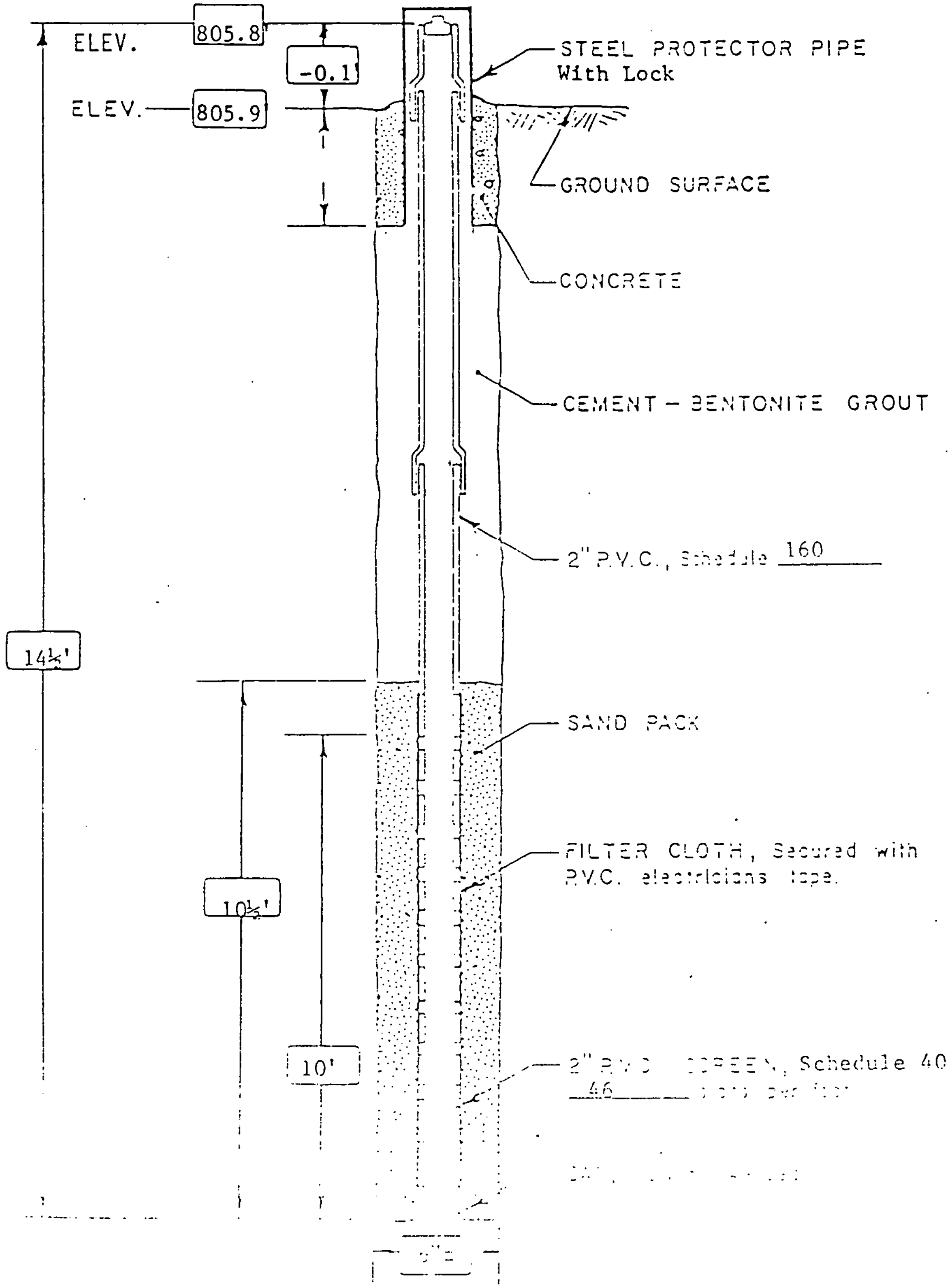
WELL NO. 26



MAUTHE SPILL SITE
JOB NO. 97-2312
SCALE: N/A
DRAWN BY TM
CHECKED BY JD

LOG OF TEST BORING

JOB NO. 97-2312 VERTICAL SCALE 1" = 3' BORING NO 30

PROJECT N. W. MAUTHE SPILL SITE, APPLETON, WISCONSIN

DEPTH IN FEET	DESCRIPTION OF MATERIAL SURFACE ELEVATION	GEOLOGIC ORIGIN	N	WL	SAMPLE NO	SAMPLE TYPE	W	D	LL/PL	Qu
½	FILL, a mixture of SILTY SAND and gravel)	FILL								
	CLAYEY SAND, fine-grained, trace gravel, dark brown, moist, medium dense (SC)	TILL	6		1	SB				
2	SANDY CLAY, trace of gravel, brown, moist, medium to stiff (CL)		10		2	SB				
			8		3	SB				
			20		4	SB				
			18		5	SB				
12	SILTY CLAY, trace of sand and gravel, dark reddish brown, moist, medium (CL)		8		6	SB				
16			8		7	SB				
	END OF BORING NOTE: Boring backfilled by Tremie method with cement-bentonite grout									

WATER LEVEL MEASUREMENTS

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	BAILED DEPTHS	WATER LEVEL
11-19	1200	16'	NONE	16'		NONE
					to	
					to	

START 11-19-92 COMPLETE 11-19-92

METHOD @ 1200

HSA 0-16'

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LOG OF TEST BORING

JOB NO. 97-2312 VERTICAL SCALE 1" = 3' BORING NO. 29

PROJECT

DEPTH IN FEET	DESCRIPTION OF MATERIAL SURFACE ELEVATION 805.0'	GEOLOGIC ORIGIN	N	WL	SAMPLE NO	SAMPLE TYPE	LABORATORY TESTS W	D	LL/PL	Qu
	ORGANIC SANDY SILT, trace of gravel, black to dark brown, moist, loose, medium dense	FILL	6		1	SB				
			9		2	SB				
4	CLAYEY SILT, a trace to a little gravel, trace of sand, reddish brown, moist, dense to very dense (ML)	TILL	24		3	SB				
			20		4	SB				
			24		5	SB				
			51		6	SB				
14	SILTY CLAY, trace of sand and gravel, brown, lenses of sand and silt, moist, rather stiff (CL)		9		7	SB				
16	END OF BORING NOTE: Boring backfilled by Tremie method with cement-bentonite grout									

WATER LEVEL MEASUREMENTS

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	BAILED DEPTHS	WATER LEVEL
11-18	0900	16'	NONE	10'		6'
					to	
					to	
					to	

BORING STARTED 11-17-82 COMPLETED 11-17-82

@ 1550

HSA 0-16'

CREW CHIEF MCMULLEN

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LOG OF TEST BORING

JOB NO 97-2312 VERTICAL SCALE 1" = 3' BORING NO 31

PROJECT N. W. MAUTHE SPILL SITE, APPLETON, WISCONSIN

DEPTH IN FEET	DESCRIPTION OF MATERIAL SURFACE ELEVATION 803.2'	GEOLOGIC ORIGIN	N	WL	SAMPLE NO	SAMPLE TYPE	LABORATORY TESTS W	D	LL PL	Qu
	SANDY SILT, dark brown to black, trace to little organic (ML)	FILL								
3	SILTY CLAY, trace sand, brown, moist (CL)	TILL								
6	END OF BORING NOTE: No samples taken. Visual observation off of auger only.									

WATER LEVEL MEASUREMENTS

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	BAILED DEPTHS	WATER LEVEL
11-17	1415	NONE	NONE	6'		NONE
					to	
					to	
					to	

START 11-17-82 COMPLETE 11-17-82

METHOD @ 1415

HSA 0-6'

CREW CHIEF MCMULLENN

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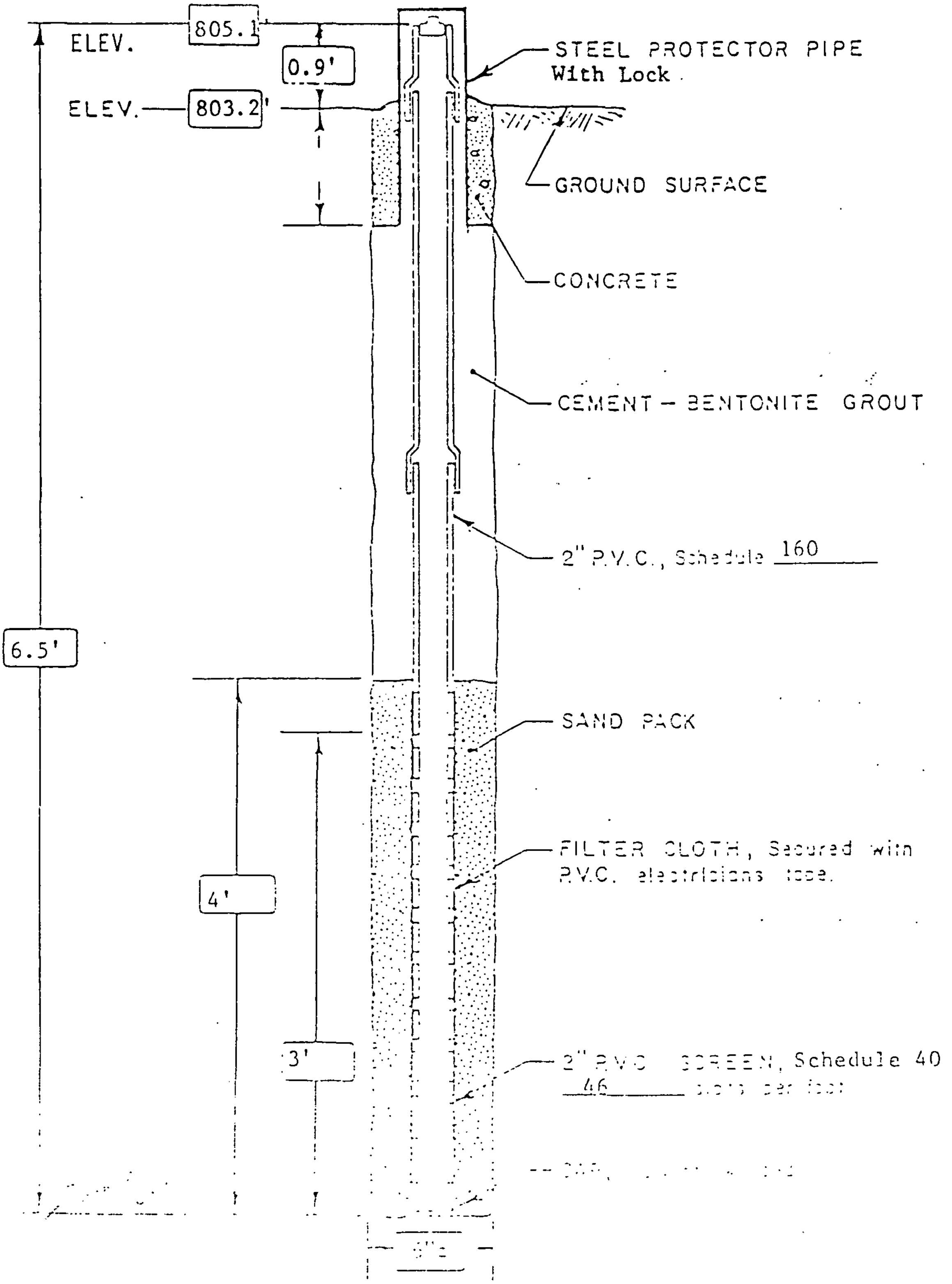
WELL NO. 31



MAUTHE SPILL SITE	JOB NO. 97-2312	SCALE: N/A	DRAWN BY TM	CHECKED BY JD

LOG OF TEST BORING

JOB NO. 97-2312 VERTICAL SCALE 1" = 3' BORING NO 32

PROJECT N. W. MAUTHE SPILL SITE, APPLETON, WISCONSIN

DEPTH IN FEET	DESCRIPTION OF MATERIAL SURFACE ELEVATION 803.2'	GEOLOGIC ORIGIN	N	WL	SAMPLE NO	SAMPLE TYPE	LABORATORY TESTS W	D	LL/PL	Qu
	SANDY SILT, trace of gravel, dark brown to black, moist (ML)	TOPSOIL								
3	SILTY CLAY, trace of gravel, brown, moist (ML)	TILL								
12	END OF BORING NOTE: No samples taken. Visual observations off of auger only.									

WATER LEVEL MEASUREMENTS

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	BAILED DEPTHS	WATER LEVEL
11-17	1350	NONE	NONE	12'	..	NONE
					to	
					to	
					to	

START 11-17-82 COMPLETE 11-17-8

METHOD @ 1350

HSA 0-12'

CREW CHIEF MCMULLEN

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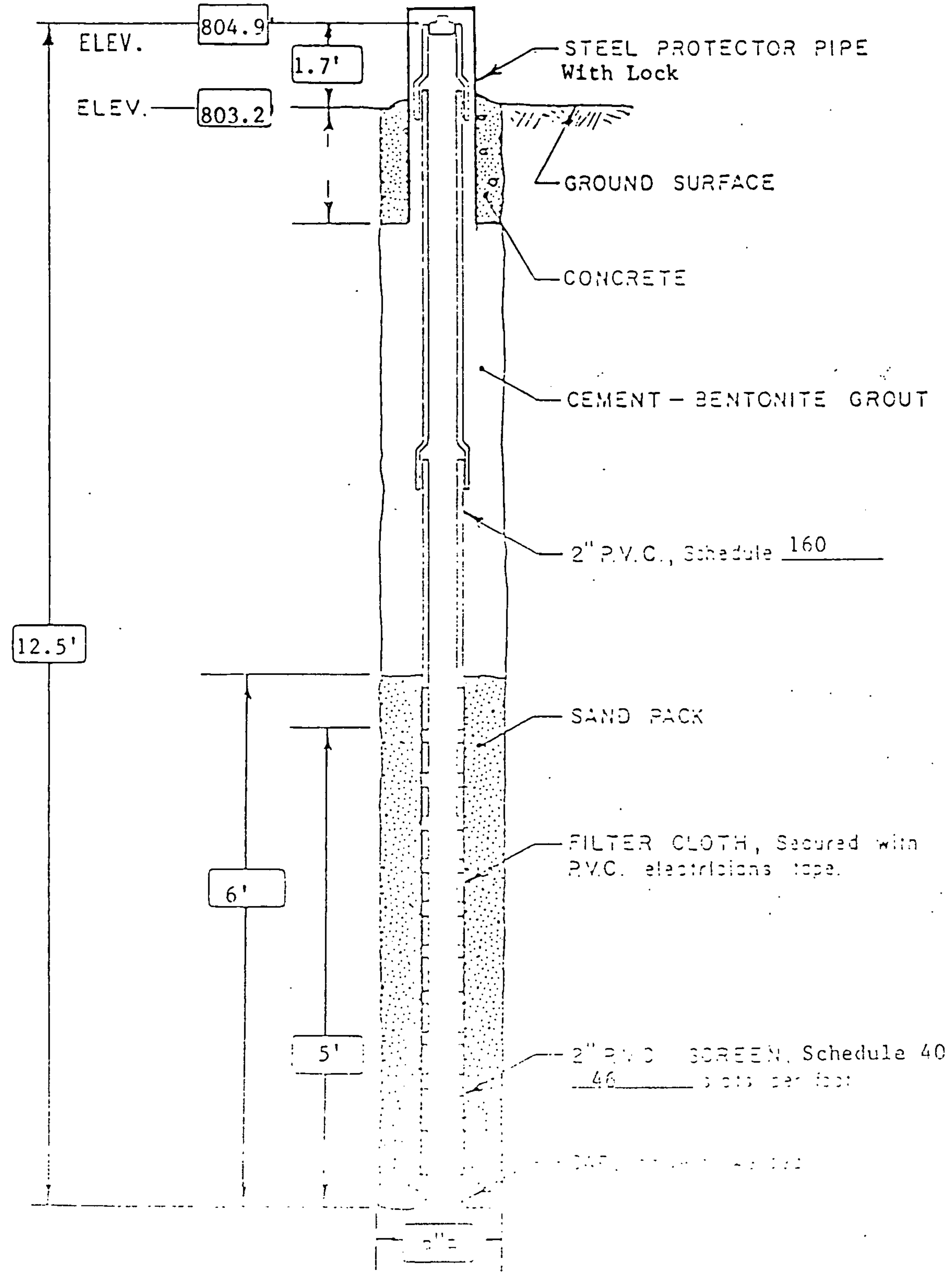
WELL NO. 32



MAUTHE SPILL SITE	JOB NO. 97-2312	SCALE: N/A	DRAWN BY TM	CHECKED BY JD

LOG OF TEST BORING

JOB NO. 97-2312 VERTICAL SCALE 1" = 3' BORING NO. 33

PROJECT N. W. MAUTHE SPILL SITE, APPLETON, WISCONSIN

DEPTH IN FEET	DESCRIPTION OF MATERIAL SURFACE ELEVATION 806.8'	GEOLOGIC ORIGIN	N	WL	SAMPLE NO	SAMPLE TYPE	LABORATORY TESTS W	LABORATORY TESTS D	LABORATORY TESTS LL/PL	LABORATORY TESTS Qu
	FILL, a mixture of SILTY SAND and gravel, a little SILTY CLAY, brown	FILL	11		1	SB				
2½	SILTY CLAY, trace sand and gravel, reddish brown, moist, stiff to rather stiff (CL)	TILL	8		2	SB				
			30		3	SB				
			30		4	SB				
			21		5	SB				
			11		6	SB				
14	SILTY CLAY, trace sand and gravel, dark reddish brown, wet, medium (CL)		10		7	SB				
			7		8	SB				
			6		9	SB				
21	END OF BORING NOTE: Boring backfilled by Tremie method with cement-bentonite grout									

WATER LEVEL MEASUREMENTS

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	BAILED DEPTHS	WATER LEVEL
11-22	1150	21'	NONE	21'	to	NONE
					to	
					to	
					to	

START 11-22-82 COMPLETE 11-22-8

METHOD @ 1150

HSA 0-19.5'

CREW CHIEF MCMULLEN

SE 2 (77-B)-3

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LOG OF TEST BORING

JOB NO. 97-2312 VERTICAL SCALE 1" = 3' BORING NO. 34

PROJECT N. W. MAUTHE SPILL SITE, APPLETON, WISCONSIN

DEPTH IN FEET	DESCRIPTION OF MATERIAL SURFACE ELEVATION 805.6'	GEOLOGIC ORIGIN	N	WL	SAMPLE NO.	SAMPLE TYPE	LABORATORY TESTS W	D	LL/PL	Qu
	CLAYEY SAND, fine-grained, trace gravel, black (SC)	TOPSOIL								
2	SANDY CLAY, a little gravel, trace of sand, reddish brown, moist to wet at 7' (CL)	TILL								
13	END OF BORING									

NOTE: No samples taken.
Visual observations off of auger only.

WATER LEVEL MEASUREMENTS

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	BAILED DEPTHS	WATER LEVEL
11-18	1535	NONE	NONE	13'		NONE
					to	
					to	
					to	

START 11-18-82 COMPLETE 11-18-82

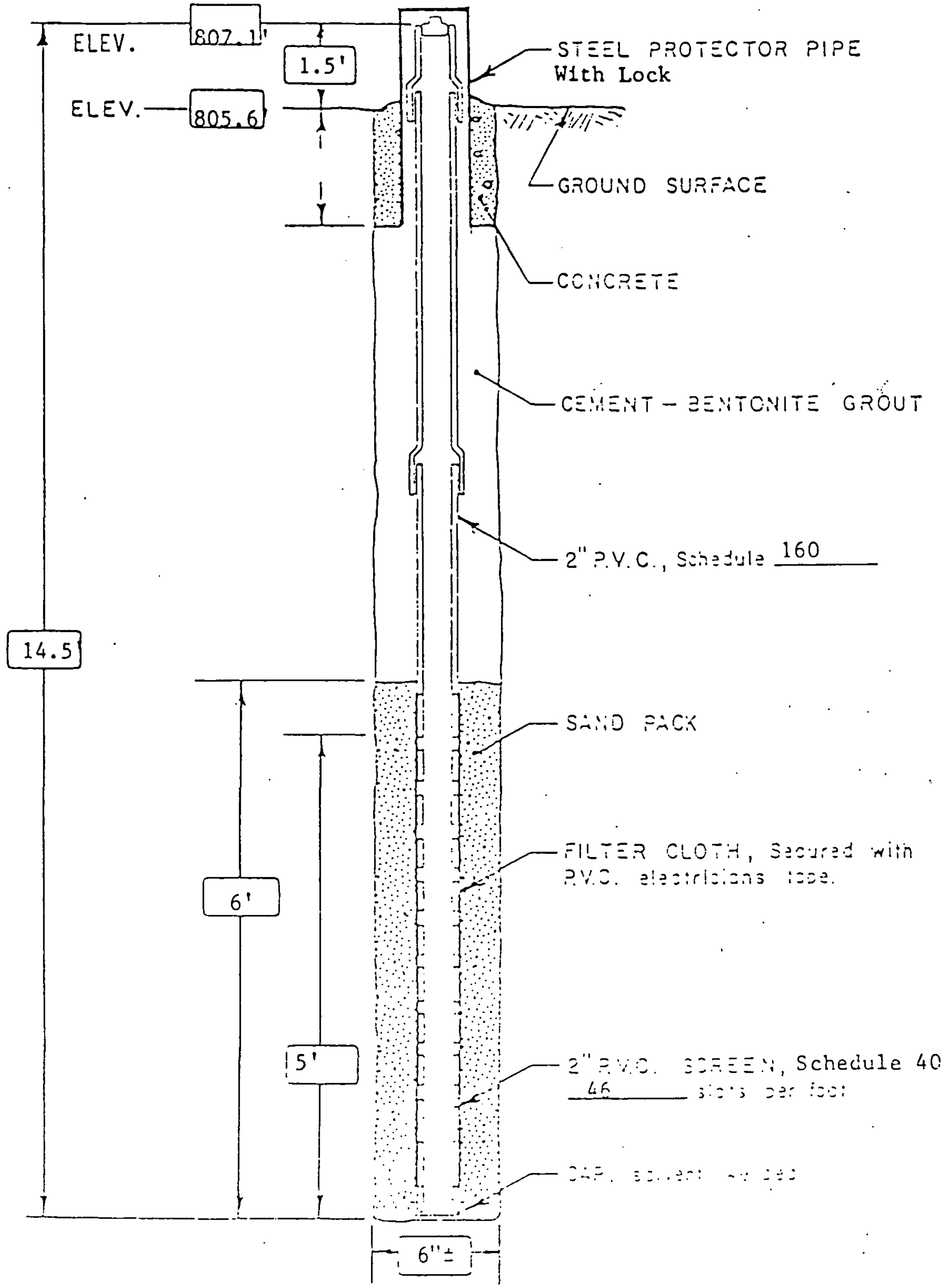
METHOD @ 1535

HSA 0-13'

CREW CHIEF MCMULLEN

twin city testing
and engineering laboratory, inc.

WELL NO. 34



MAUTHE SPILL SITE	JOB NO. 97-2312	SCALE: N/A	DRAWN BY TM	CHECKED BY JD

LOG OF TEST BORING

JOB NO. 97-2312 VERTICAL SCALE 1" = 3' BORING NO. 35

PROJECT N. W. MAUTHE SPILL SITE, APPLETON, WISCONSIN

DEPTH IN FEET	DESCRIPTION OF MATERIAL SURFACE ELEVATION 804.5'	GEOLOGIC ORIGIN	N	WL	SAMPLE NO	SAMPLE TYPE	LABORATORY TESTS W	D	LL/PL	Qu
	ORGANIC SILTY CLAY, trace of gravel, dark brown to black, trace of grass roots, moist, medium (OL)	FILL	5		1	SB				
3	SANDY CLAY, trace to a little gravel, reddish brown, moist, stiff (CL)	TILL	11		2	SB				
			25		3	SB				
			30							
11	SILTY CLAY, trace of sand and gravel, dark reddish brown, lenses of sand, moist, rather stiff to medium (CL)		18		5	SB				
			10		6	SB				
			7		7	SB				
			7		8	SB				
21	END OF BORING NOTE: Boring backfill by Tremie method with cement-bentonite grout. Well installed in 35A to 10' depth. Offset 3' west of 35.		7		9	SB				

WATER LEVEL MEASUREMENTS

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	BAILED DEPTHS	WATER LEVEL
					to	
					to	
					to	
					to	

START 11-18-82 COMPLETE 11-18-82

METHOD @ 0950

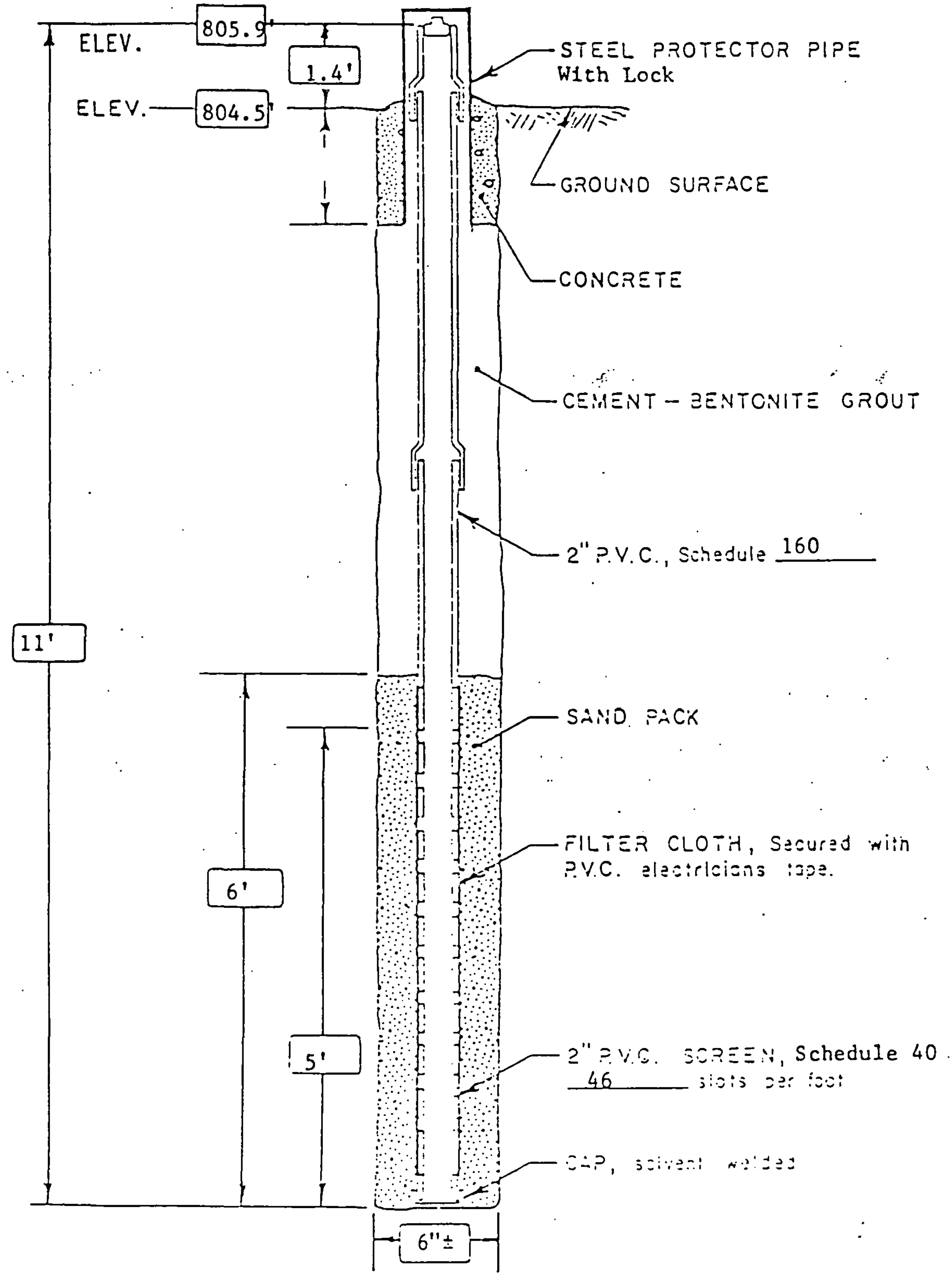
HSA 0-21'

CREW CHIEF MCMULLEN

SE-2 (77-8)-3

twin city testing and engineering laboratory, inc.

WELL NO. 35A



MAUTHE SPILL SITE	JOB NO. 97-2312	SCALE: N/A	DRAWN BY TM	CHECKED BY JD

LOG OF TEST BORING

JOB NO. 97-2312

VERTICAL SCALE 1" = 3'

BORING NO. 36

PROJECT

DEPTH IN FEET	DESCRIPTION OF MATERIAL SURFACE ELEVATION N/A	GEOLOGIC ORIGIN	N	WL	SAMPLE NO	SAMPLE TYPE	LABORATORY TESTS W	D	LL/PL	Qu
0.7	Concrete Slab									
	SILTY SAND, fine to medium-grained, brown, moist (SM)	FILL								
1.7	SILTY CLAY, trace sand, brown to reddish brown (CL)				1	HA				
					2	SB				
					3	SB				
					4	SB				
10	SILTY CLAY, trace sand and gravel, reddish brown (CL)	TILL			5	SB				
					6	SB				
15½	SILTY CLAY, trace sand and gravel, reddish brown to grayish brown (CL)				7	SB				
19	END OF BORING NOTE: Boring inside of building. Boring backfill by Tremie method using sand-cement grout				8	SB				

WATER LEVEL MEASUREMENTS

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	BAILED DEPTHS	WATER LEVEL
1-24	1145	8½'	NONE	8½'	to	8½'
1-25	1030	19'	NONE	19'	to	7'
					to	
					to	

START 1-24-83

COMPLETE 1-25-83

METHOD

@ 1130

3" dia hand auger

CREW CHIEF ROUSE

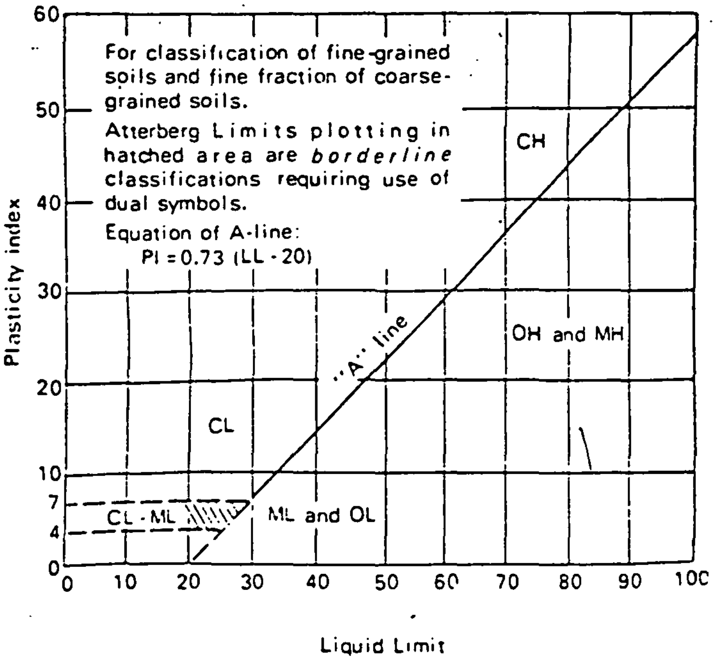
SE-2 (77-8)-3

twin city testing
and engineering laboratory, inc.

CLASSIFICATION OF SOILS FOR ENGINEERING PURPOSES

ASTM Designation: D 2487 – 69 AND D 2488 – 69

(Unified Soil Classification System)

Major divisions			Group symbols	Typical names	Classification criteria		
Coarse-grained soils More than 50% retained on No. 200 sieve*	Gravels 50% or more of coarse fraction retained on No. 4 sieve	Clean gravels	GW	Well-graded gravels and gravel-sand mixtures, little or no fines	Classification on basis of percentage of fines Less than 5% pass No. 200 sieve . . . . . GW, GP, SW, SP More than 12% pass No. 200 sieve . . . . . GM, GC, SM, SC 5 to 12% pass No. 200 sieve . . . . . *Borderline* classifications requiring use of dual symbols	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_z = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3	
			GP	Poorly graded gravels and gravel-sand mixtures, little or no fines		Not meeting both criteria for GW	
		Gravels with fines	GM	Silty gravels, gravel-sand-silt mixtures		Atterberg limits below "A" line or P.I. less than 4	Atterberg limits plotting in hatched area are *borderline* classifications requiring use of dual symbols
			GC	Clayey gravels, gravel-sand-clay mixtures		Atterberg limits above "A" line with P.I. greater than 7	
	Sands More than 50% of coarse fraction passes No. 4 sieve	Clean sands	SW	Well-graded sands and gravelly sands, little or no fines		$C_u = \frac{D_{60}}{D_{10}}$ greater than 6; $C_z = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3	
			SP	Poorly graded sands and gravelly sands, little or no fines		Not meeting both criteria for SW	
		Sands with fines	SM	Silty sands, sand-silt mixtures		Atterberg limits below "A" line or P.I. less than 4	Atterberg limits plotting in hatched area are *borderline* classifications requiring use of dual symbols
			SC	Clayey sands, sand-clay mixtures		Atterberg limits above "A" line with P.I. greater than 7	
Fine-grained soils 50% or more passes No. 200 sieve*	Silts and clays Liquid limit 50% or less		ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands	Plasticity Chart  For classification of fine-grained soils and fine fraction of coarse-grained soils. Atterberg Limits plotting in hatched area are *borderline* classifications requiring use of dual symbols. Equation of A-line: PI = 0.73 (LL - 20)		
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays			
			OL	Organic silts and organic silty clays of low plasticity			
	Silts and clays Liquid limit greater than 50%		MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts			
			CH	Inorganic clays of high plasticity, fat clays			
			OH	Organic clays of medium to high plasticity			
Highly organic soils			Pt	Peat, muck and other highly organic soils	*Based on the material passing the 3 in. (76 mm) sieve.		

GENERAL NOTES

DRILLING AND SAMPLING SYMBOLS

SYMBOL	DEFINITION
HSA	3 1/4" I.D. Hollow Stem Auger
_FA	4", 6" or 10" Diameter Flight Auger
_HA	2", 4" or 6" Hand Auger
_DC	2 1/2", 4", 5" or 6" Steel Drive Casing
_RC	Size A, B or N Rotary Casing
PD	Pipe Drill or Cleanout Tube
CS	Continuous Split Barrel Sampling
DM	Drilling Mud
JW	Jet Water
SB	2" O.D. Split Barrel Sample
_L	2 1/2" or 3 1/2" O.D. SB Liner Sample
_T	2" or 3" Thin Walled Tube Sample
3TP	3" TWT (Pitcher Sampler)
_TO	2" or 3" TWT (Osterberg Sampler)
W	Wash Sample
B	Bag Sample
P	Test Pit Sample
_Q	BQ, NQ or PQ Wireline System
_X	AX, BX or NX Double Tube Barrel
CR	Core Recovery — Percent
NSR	No Sample Recovered, classification based on action of drilling equipment and/or material noted in drilling fluid or on sampling bit.
NMR	No Measurement Recorded, primarily due to presence of drilling or coring fluid.
▼	Water Level Symbol

LABORATORY TEST SYMBOLS

SYMBOL	DEFINITION
W	Water Content - % of Dry Wt. - ASTM D 2216
D	Dry Density - Pounds Per Cubic Foot
LL, PL	Liquid and Plastic Limit - ASTM D423 and 424
Qu	Unconfined Compressive Strength - in Pounds/ Square Foot - ASTM D 2166

Additional Insertions in Qu Column

Pq	Penetrometer Reading - Tons/Square Foot
Ts	Torvane Reading -Tons/Square Foot
G	Specific Gravity - ASTM D 854
SL	Shrinkage Limit - ASTM D 427
pH	Hydrogen ion Content - Meter Method
OC	Organic Content - Combustion Method
SP	Swell Pressure - Tons/Square Foot
PS	Percent Swell
FS	Free Swell - Percent
SC	Sulfate Content - Parts/Million, same as mg/L
CC	Chloride Content - Parts/Million, same as mg/L
C *	One Dimensional Consolidation - ASTM D 2435
Qc *	Triaxial Compression
D.S. *	Direct Shear - ASTM D3080
K *	Coefficient of Permeability - cm/sec
D *	Dispersion Test
MA *	Particle Size Analysis - ASTM D 422
R	Laboratory Resistivity, in ohm - cm
E *	Pressuremeter Deformation Modulus - TSF
Vs *	Field Vane Shear - ASTM D 2573
RQD	Rock Quality Designation - Percent

* See attached data sheet or graph

WATER LEVEL

Water levels shown on the boring logs are the levels measured in the borings at the time and under the conditions indicated. In sand, the indicated levels may be considered reliable ground water levels. In clay soil, it may not be possible to determine the ground water level within the normal time required for test borings, except where lenses or layers of more pervious waterbearing soil are present and even then an extended period of time may be necessary to reach equilibrium. Therefore, the position of the water level symbol for cohesive or mixed texture soils may not indicate the true level of the ground water table. Perched water refers to water above an impervious layer, thus impeded in reaching the water table. The available water level information is given at the bottom of the log sheet.

DESCRIPTIVE TERMINOLOGY

DENSITY TERM	"N" VALUE	CONSISTENCY TERM
Very Loose	0-4	Soft
Loose	5-8	Medium
Medium Dense	9-15	Rather Stiff
Dense	16-30	Stiff
Very Dense	Over 30	Very Stiff

Standard "N" Penetration: Blows Per Foot of a 140 Pound Hammer Falling 30 inches on a 2 inch OD Split Barrel Sampler.

Lamination	Up to 1/2" thick stratum
Layer	1/2" to 6" thick stratum
Lens	1/2" to 6" discontinuous stratum, pocket
Varved	Alternating laminations of clay, silt and/or fine grained sand, or colors thereof
Dry	Powdery, no noticeable water
Moist	Below saturation
Wet	Saturated, above liquid limit
Waterbearing	Pervious soil below water

RELATIVE PROPORTIONS AND SIZES

Term	Range
Trace	0-5%
A Little	5-15%
Some	15-30%
With	30-50%

Boulder	Over 12"
Cobble	3" - 12"
Gravel	
Coarse	3/4" - 3"
Fine	#4 - 3/4"
Sand	
Coarse	#4 - #10
Medium	#10 - #40
Fine	#40 - #200
Silt & Clay	— #200, Based on Plasticity

ERT
A RESOURCE ENGINEERING COMPANY
131 EISENHOWER LANE, LOMBARD, ILLINOIS 60148, (312) 620-5900

environmental and engineering excellence

October 9, 1987

Ref. #87-10-M011
ERT Program No. G417-300

RECEIVED
OCT 12 1987
L.M. CAMPBELL

Mr. Mike Erbaugh
HAZCO
409 East Monument Avenue
Suite 103
Dayton, Ohio 45402

Dear Mike:

This is the OVA that we discussed on the telephone Friday afternoon, October 9, 1987. The unit's pump malfunctioned several times while being used in the field on Tuesday, October 6, 1987. In our conversation, you stated that the calibration/service charge of $150.00 would be waived and the rental charges pro-rated to cover the equipment down time. I thank you for your cooperation on this matter.

Sincerely,

Scott C. V

Scott C. Veenstra
Environmental Engineer

SCV/csm

cc: L. Campbell
J. Fiorellino

RECEIVED
OCT 12 198
L. M. CAMPBELL

MEMORANDUM

TO: Louie Pounds,
ERT Wilmington, MA

MEMO NO: 87-10-Q015

FROM: Scott Veenstra

DATE: October 12, 1987

SUBJECT: Voc Analysis AT&T
Appleton, WI Samples

6417-300

This is a confirmation of are telephone conversation of this morning concerning additional analysis of samples for voc based initial screening. The following samples will be analyzed and verbal results returned within 3 days per Larry Campbell's agreement with Art Paradice.

Soil Samples	Water Samples
SB-01	SB-03-W
SB-03	SB-04-W
SB-04	SB-08-W
SB-07	SB-12-W
SB-08	SB-13-W
SB-12	Shipping Blank

cc: L. Campbell

AT&T APPLETON, WI G417-300 S. VEENSTRA

PRELIMINARY

VERBAL RESULTS PER BO BLANKFIELD 16:00 10-15-87

SAMPLE NO.	TOTAL CHROMIUM	HEXAVALENT CHROMIUM
SB-01	26 mg/kg	17 mg/kg
SB-02	45 mg/kg	28.3 mg/kg
SB-03	98 mg/kg	35 mg/kg
SB-03-W	31 mg/l	34 mg/l
SB-04	519 mg/kg	104 mg/kg
SB-04-W	42 mg/l	74 mg/l
SB-12 (1)	478 mg/kg	163 mg/kg
SB-12-W (1)	105 mg/l	68 mg/l
SB-05	59 mg/kg	23 mg/kg
SB-06	238 mg/kg	219 mg/kg
SB-07	26 mg/kg	107 mg/kg
SB-08	536 mg/kg	115 mg/kg
SB-08-W	280 mg/l	350 mg/l
SB-10	172 mg/kg	140 mg/kg
SB-11-W (2)	219 mg/l	212 mg/l
SB-13-W (3)	<0.04 mg/l	<0.5 mg/l
SHIPPING BLANK	<0.04 mg/l	<0.5 mg/l

NOTES:

(1) SB-12 DUPLICATE OF SB-04, SB-12-W DUPLICATE OF SB-04-W.

(2) SB-11-W FROM COLLECTION SUMP NEAR PLATING FACILITY

(3) SB-13-W COLLECTED AS FIELD BLANK

AT&T APPLETON, WI

G417-300
11-2-87

VERBAL RESULTS PER BO BLANKFIELD

BELOW ARE REPLACEMENT DATA FOR RERUN ANALYSES (Phase I)

SAMPLE No.	HEXAVALENT CHROMIUM (mg/kg)
SB-01	<20
SB-02	<20
SB-03	<20
SB-04	89
SB-05	<20
SB-06	<20
SB-07	<20
SB-08	<20
SB-10	95
SB-12	104

NOTE: SB-12 IS A DUPLICATE OF SB-04

ANALYSES INDICATED THAT PREVIOUS RESULTS WERE INCORRECT DUE TO A NEGATIVE INTERFERENCE CAUSED BY IRON PRESENT IN THE SOIL SAMPLES.

AT&T APPLETON, WI. G417-300 S. VEENSTRA
SAMPLES FOR GC/MS **PRELIMINARY**
VERBAL RESULTS PER LOUIE POUNDS 9:30 10-16-87

SAMPLE NO.	CONTAMINANT	CONCENTRATION
SB-01	VOC	<0.6 ppm
SB-03	VOC	<0.6 ppm
SB-04	VOC	<0.6 ppm
SB-07	VOC	<0.6 ppm
SB-08	1,1,1 TRICHLOROETHANE	1.2 mg/g (ppm)
	TRICHLOROETHYLENE	1.2 mg/g (ppm)
SB-12 (DUPE OF SB-04)	VOC	<0.6 ppm
SB-03-W	1,1 DICHLOROETHENE	16 ppb
	1,1,1 TRICHLOROETHANE	330 ppb
	CARBON TETRACHLORIDE	52 ppb
	TRICHLOROETHYLENE	59 ppb
SB-04-W	1,1 DICHLOROETHENE	17 ppb
	1,1 DICHLOROETHANE	26 ppb
	TRANS 1,2 DICHLOROETHYLENE	18 ppb
	1,1,1 TRICHLOROETHANE	530 ppb
	CARBON TETRACHLORIDE	86 ppb
	TRICHLOROETHYLENE	41 ppb
* SB-08-W	1,1, DICHLOROETHENE	94 ppb
	1,1 DICHLOROETHANE	74 ppb
	TRANS 1,2 DICHLOROETHYLENE	77 ppb
	1,1,1 TRICHLOROETHANE	1400 ppb *
	CARBON TETRACHLORIDE	240 ppb
	TRICHLOROETHYLENE	590 ppb

AT&T APPLETON, WI G 417-300 S. VEENSTRA

SAMPLES FOR GC/MS **PRELIMINARY**

VERBAL RESULTS PER LULIE FUNK [illegible] 10-16-87

* NOTE THAT THIS SAMPLE IS BEING REANALYZED DUE TO CONCENTRATION OF CONTAMINANT OCCURING OUTSIDE OF THE LINEAR RANGE FOR THE ANALYSIS. THE REPORTED CONCENTRATIONS ARE SUBJECT TO CHANGE AND IT IS EXPECTED THAT THE NOTED CONCENTRATION WILL BE RE-REPORTED AT A HIGHER CONCENTRATION.

** SB-12-W	1,1 DICHLOROETHENE	17, 20	ppb
(DUPE OF	1,1 DICHLOROETHANE	25, 28	ppb
SB-04-W)	TRANS 1,2 DICHLOROETHYLENE	17, 19	ppb
	1,1,1 TRICHLOROETHANE	510, 560	ppb
	CARBON TETRACHLORIDE	82, 90	ppb
	TRICHLOROETHYLENE	40, 44	ppb

** SAMPLE WAS RUN IN DUPLICATE FOR QA PURPOSES, BOTH VALUES REPORTED

SB-13-W (FIELD BLANK)	TOTAL VOC	<10 ppb
SHIPPING BLANK	TOTAL VOC	<10 ppb

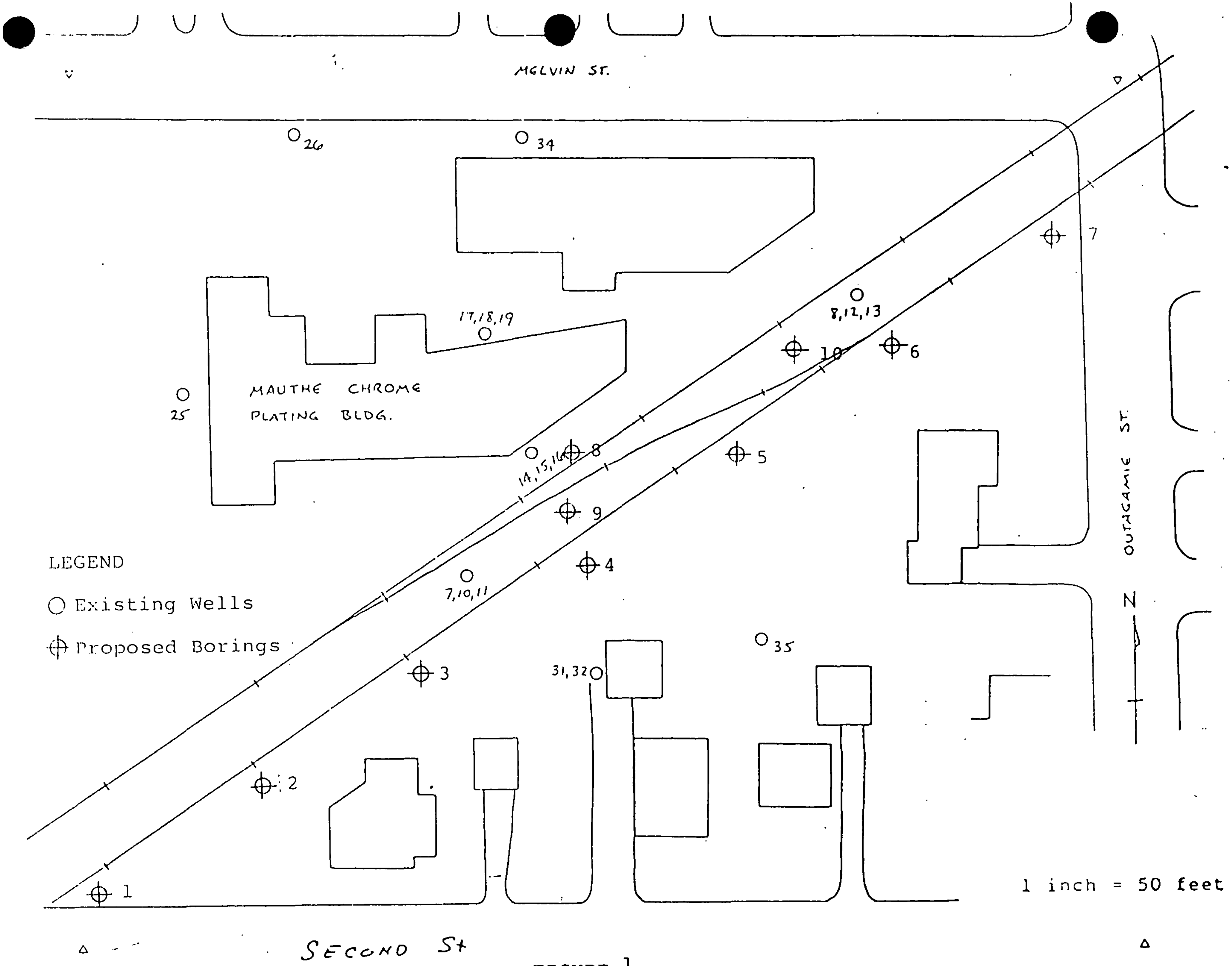


FIGURE 1

Map Showing Boring Locations

FILE

RECEIVED
OCT 16 1987
L. M. CAMPBELL

MEMORANDUM

TO: Larry Campbell MEMO NO: 87-10-Q026

FROM: Scott Veenstra DATE: October 16, 1987

SUBJECT: On-site Work Delays during Sampling at AT&T, Appleton, WS

G417-200

While ERT was on-site to collect samples on ERT Project No. G417-200 for AT&T Lightguide Cable in Appleton, Wisconsin, two delays were experienced.

The first delay was Monday, October 5, 1987, caused by Finley Engineering failing to provide equipment to determine the precise location of the lightguide cable prior to ERT placing borings with a hand auger. ERT was prepared to begin sampling at 12:30, but was unable to proceed due to the lack of Finley Engineering locating equipment and personnel. The result was that ERT was delayed one half a day in starting on-site sample collection.

The second delay was Tuesday, October 6, 1987 when the organic vapor analyzer (OVA) rented from Hazco failed during start up procedures. ERT spend the morning making repairs to the OVA and was able to return to the field to begin sampling at 12:30. It was later determined in a conversation with Mike Erbaugh of Hazco that the new pump diaphragm had been installed too tightly which prevented the pump from starting properly. As a result of the problems experienced with the OVA, Mike informed me that ERT would not be charged the $150.00 calibration fee and our rental fee would be prorated to reflect the equipment down time.

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RECEIVED
OCT 22 1987
L. M. CAMPBELL

October 21, 1987

Ref. #87-10-033
ERT Program No. G417-100

Mr. John Seigla
AT&T Communications, Inc.
One North Wacker Drive
Sixth Floor
Chicago, IL 60606

SUBJECT: Addendum to Sampling Plan to include Phase II Field Sampling in Appleton, WI.

Dear Mr. Seigla:

This letter serves as an addendum to the Sampling Plan for Soil and Groundwater Investigation at the AT&T Lightguide Cable Site in Appleton, Wisconsin - ERT Document No. G417-200, dated October 2, 1987. Contained in this letter is a diagram showing the locations of the proposed borings for the Phase II field sampling (Figure 1), and a table summarizing the sampling/analytical program for Phase II field activities (Table 1).

All work conducted during Phase II of the field sampling shall be conducted in accordance with the guidelines described in the original sampling plan (ERT Document No. G417-200). Again, samples will be submitted to ERT's Houston laboratory for total and hexavalent chromium analyses and ERT's Wilmington laboratory for VOC analyses.

ERT is prepared to mobilize and begin sampling on Monday, October 26, 1987 provided that Dale Goss of Finley Engineering is able to obtain approval from the City of Appleton and any other involved parties for us to conduct our proposed field sampling.

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Please do not hesitate to call myself or Larry Campbell should you have any questions.

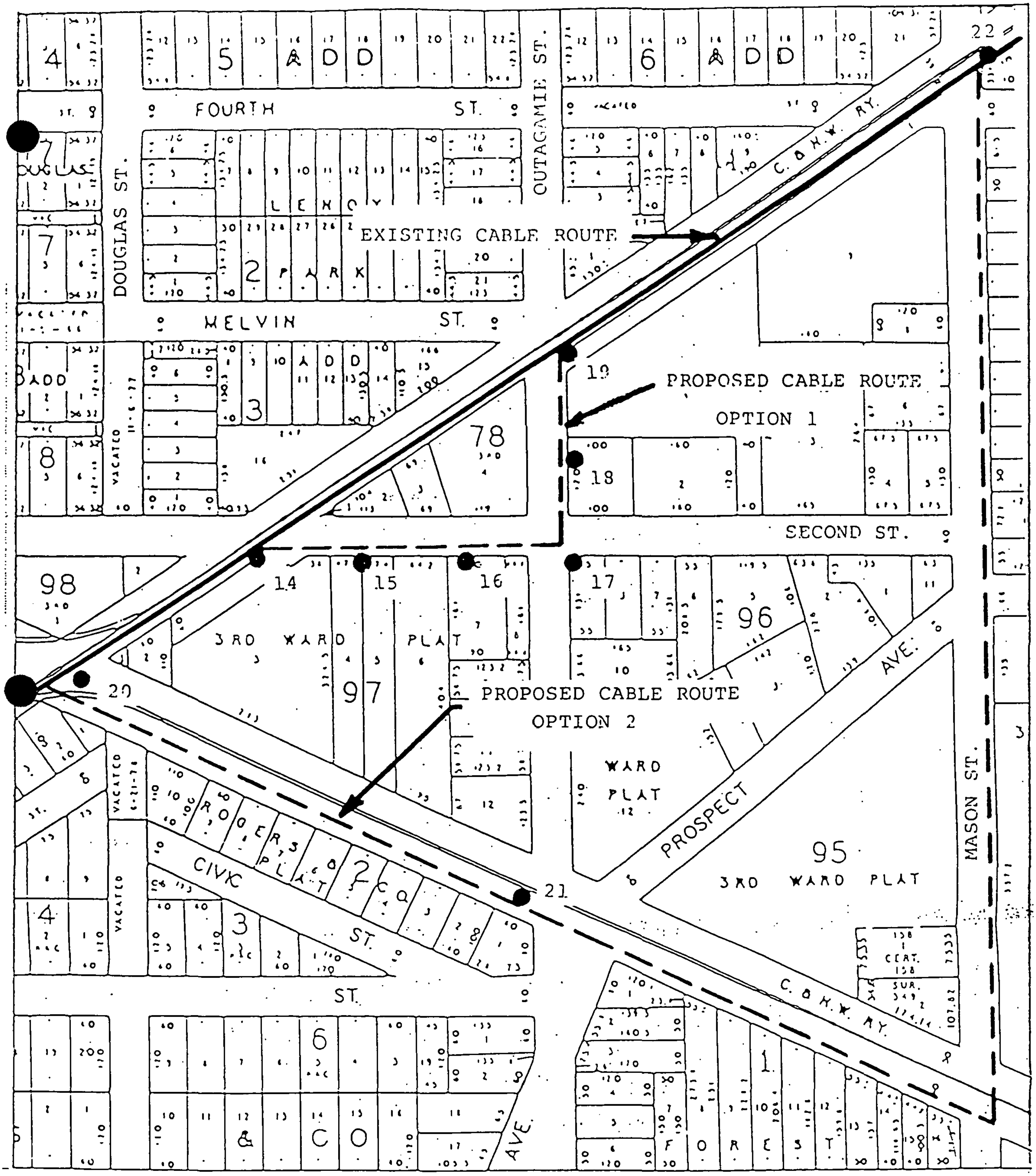
Sincerely,

Scott C. V

Scott C. Veenstra
Environmental Engineer

SCV/lmq

cc: A. Basile
D. Kraling
M. DeBartolo
L. Campbell
R. Weber



● PROPOSED BORING

FIGURE 1

BORING LOCATION FOR PHASE II FIELD SAMPLING

TABLE 1
SUMMARY OF SAMPLING/ANALYTICAL PROGRAM
PHASE II FIELD SAMPLING

Parameters to be Analyzed	Number of Samples	Containers (unit sample)	Number of Duplicates	No. of Field and Trip Blanks	Preservation
Soil VOC	9	3-40 ml glass VOA vials	1	none	cool 4°C
Groundwater VOC	9	3-40 ml glass VOA vials	1	1F/OT	cool 4°C
Soil total and hexavalent chromium	9	1-8 oz. jar	1	none	none
Groundwater total chromium	9	1-4 oz. glass jar	1	1F/2T	buffer with nitric acid to ph <2
Groundwater hexavalent chromium	9	1-4 oz. glass jar	1	1F/2T	cool to 4°C

BOX 147

PHONE: 834-2605
(AREA CODE 715)

FINLEY ENGINEERING COMPANY, INC.
CONSULTING ENGINEERS
EAU CLAIRE, WISCONSIN 54701

October 21, 1987

RECEIVED
OCT 23 1987
L. M. CAMPBELL
G417-810

John Seigla
AT&T Communications
6th Floor
One North Wacker Dr.
Chicago, IL 60606

Re: Toxic Spill
Appleton, Wisconsin

Dear Mr. Seigla:

As a follow-up to our telephone conversation with Mr. Campell of ERT, the following is my understanding of the scope of ERT's expected effort:

1. Sample and analyze the route along the south side of Second Street and the east side of Outagamie Street.
2. Sample and analyze three locations along a longer route. One at the Intersection of the railroads, one at Prospect Avenue and the railroad and one at Mason and our fiber route.
3. Contact should be made with Finley Engineering Company's Resident Engineer, Dale Goss at (414)921-8045 before field work commences.

In that time is of the essence, ERT understands that any early results that could result in a route decision should be forwarded to us immediately.

If you have any questions, please call me at (715)834-2605.

Yours very truly,

David W. Cheney, P.E.

blw
cc: L. Campell, ERT

RECEIVED
OCT 30 1987
L. M. CAMPBELL

ERT
A RESOURCE ENGINEERING COMPANY
131 EISENHOWER LANE LOMBARD ILLINOIS 60148 (312) 620-5900

environmental and engineering excellence

October 29, 1987

Ref. #87-10-Q049
ERT Program No. G417-810

Mr. John Seigla
AT&T Communications, Inc.
One North Wacker Drive, Room 605
Chicago, IL 60606

SUBJECT: Phase II Work Plan to Investigate Potential Chromium Contamination Along Two Alternate AT&T Lightguide Cable Routes in Appleton, WI

Dear Mr. Seigla:

This Phase II Work Plan summarizes the scope of services, schedule and budget to investigate the potential chromium contamination along two alternate lightguide cable routes in Appleton, WI. This Work Plan is based on the October 19, 1987 teleconference between yourself, Mr. David Cheney of Finley Engineering Co., and the writer; and the October 20, 1987 teleconference between yourself, Mr. Angelo Basile of AT&T Corporate Environmental Engineering, and Mr. Scott Veenstra of ERT.

SCOPE OF SERVICES

ERT will mobilize a sampling team to the site to obtain samples of soil and water at various locations along two alternate routes proposed by Finley Engineering Co. The locations of these routes and of the nine proposed shallow borings are shown on Figure 1 of ERT's October 21, 1987 letter (Ref. #87-10-033) describing the Addendum to Sampling Plan to include Phase II Field Sampling (copy attached). Table 1 of the referenced letter includes a summary of proposed chromium and VOC analytical testing that is to be performed on an expedited schedule. In addition, ERT will coordinate with Mr. Dale Goss of Finley Engineering Co., the City of Appleton, and other interested parties to obtain approval to perform the sampling. ERT will orally provide results of the analytical testing and of our preliminary assessment of chromium and/or VOC contamination along the alternate routes. Finally, ERT will incorporate these Phase II results with the Phase I data in a written report.

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ERT personnel conducted the sampling on Tuesday, October 27, 1987 as described in the referenced Sampling Plan Addendum, with the following field modifications:

- Borings 20 and 22 were relocated as shown in the attached Figure 1, based on field conditions.
- Groundwater was not encountered in any of the nine borings; therefore, no analytical testing of liquids will be performed except for the field and shipping blank liquid samples.

SCHEDULE

Following agreement of the scope of services on October 20, ERT issued the Sampling Plan Addendum on October 21, 1987, revised the health and safety plan, contacted the City of Appleton and various utility companies for boring location approval, and mobilized field equipment by October 23, 1987. A two-man field team (including the Phase I field team leader) traveled to Appleton on Monday, October 26, 1987, met with Mr. Goss, obtained a City of Appleton work permit, and obtained city and utility companies' approval of boring locations. All nine borings were completed, soil samples obtained and shipped to the ERT laboratories, and bore holes backfilled on Tuesday, October 27, 1987.

Samples have been received at the ERT laboratories and testing has begun on an expedited schedule. We anticipate receiving preliminary oral results from the laboratories by late Friday, October 30, or Monday, November 2, 1987. These results and our preliminary assessment of contamination will be promptly relayed to AT&T for use in selecting the alternate route for lightguide cable installations.

Combined Phase I and Phase II activities and results will be documented in a report within one week after receipt of analytical results that have had QC review. We anticipate providing the report by mid to late November 1987.

BUDGET

ERT proposes to provide the Phase II services on the same time and materials basis as for Phase I services, as described in the ERT Work Plan dated September 30, 1987 (Ref. #87-09-Y012). We estimate the additional costs of Phase II services will be about $15,300, as summarized by task in Table 1. This costs estimate reflects the reduction in analytical testing costs resulting from not encountering, collecting or testing groundwater samples.

We request that AT&T issue a change order to Purchase Order No. ER74050, raising the authorized amount from $26,500 to $41,800.

ADDITIONAL DOCUMENTS

Enclosed with our Phase II Sampling Plan Addendum letter of October 21, 1987 (Ref. #87-10-033), we transmitted the following documents providing information relevant to the Appleton project.

- Preliminary Verbal Results of ERT Analytical Testing for Appleton, WI, October 15 and 16, 1987
- Memo from Mr. Terry Hegeman of Wisconsin DNR to Larry Campbell of ERT, dated October 6, 1987, transmitting the following two documents:
  - "Chromium Spill Remedial Program," report prepared by Foth & Van Dyke and Associates, Inc. of Green Bay, WI, dated August 12, 1986, and
  - "Subsurface Soil Exploration Program and Groundwater Monitoring Well Installation," report prepared by Twin City Testing and Engineering Laboratory, Inc., in February 1983.

As summarized in this Phase II Work Plan, ERT has proceeded to implement the elements of the Work Plan in order to expeditiously obtain the required information to assist AT&T and Finley Engineering Co. in selecting the appropriate alternate route for the lightguide cable in Appleton, WI. If you have any questions, please call.

Very truly yours,

Larry M. Campbell

Larry M. Campbell
Senior Program Manager

LMC/lmq

Attachments

Enclosure

cc: A. Basile
M. DeBartolo
D. Kraling
R. Weber
S. Veenstra

TABLE 1

ESTIMATED PHASE II INVESTIGATION COSTS

TASK	LABOR	ODC	TOTAL
250-Field Sampling	$4,000	$2,100	$ 6,100
350-Laboratory Analysis	450	7,600	8,050
400-Data Review, Report (Additional)	1,100	50	1,150
	$5,550	$9,750	$15,300

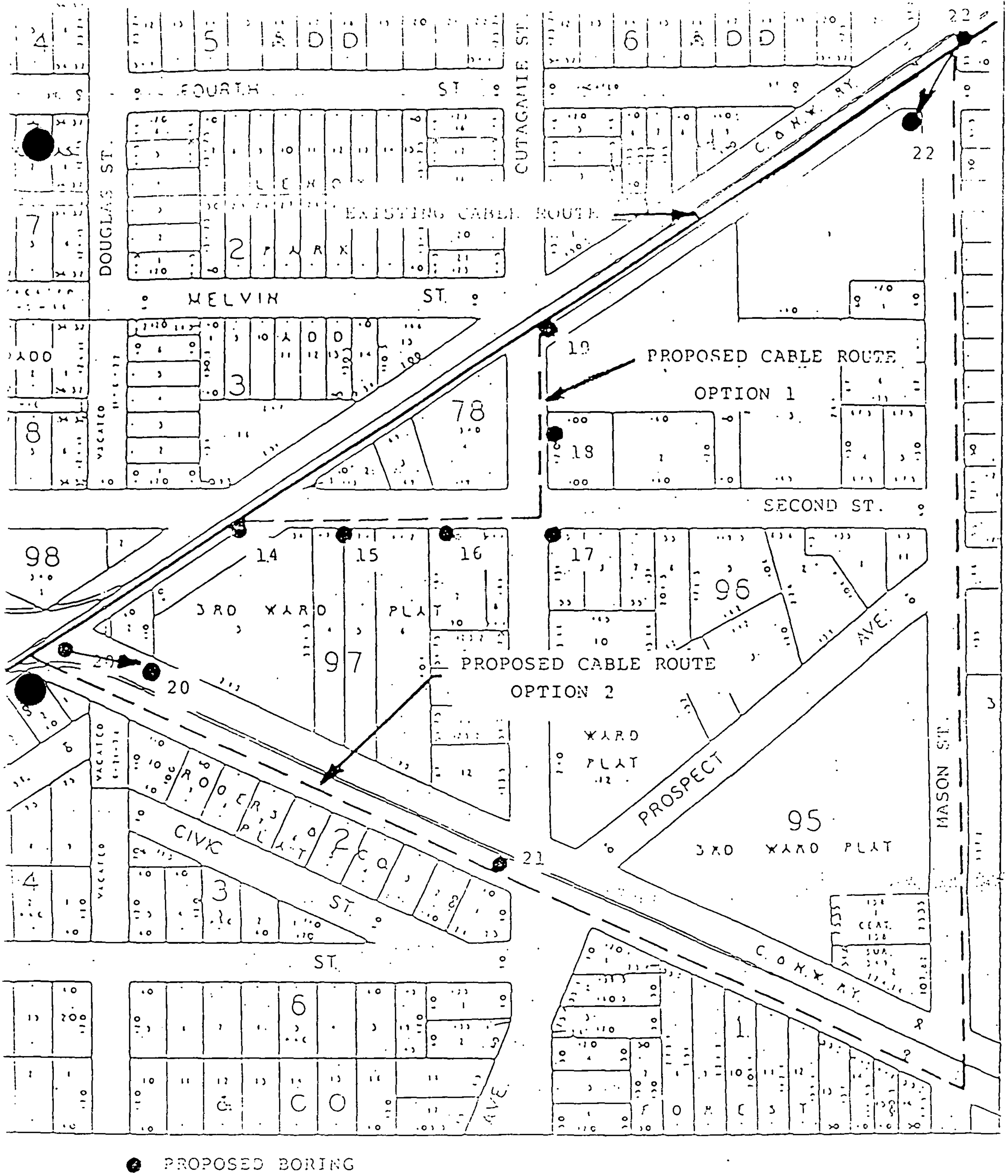


FIGURE 1

ACTUAL BORING LOCATIONS FOR PHASE II FIELD SAMPLING

ERT
A RESOURCE ENGINEERING COMPANY
131 EISENHOWER LANE LOMBARD, ILLINOIS 60148, (312) 620-5900

environmental and engineering excellence

October 21, 1987

Ref. #87-10-033
ERT Program No. G417-100

Mr. John Seigla
AT&T Communications, Inc.
One North Wacker Drive
Sixth Floor
Chicago, IL 60606

SUBJECT: Addendum to Sampling Plan to include Phase II Field Sampling in Appleton, WI.

Dear Mr. Seigla:

This letter serves as an addendum to the Sampling Plan for Soil and Groundwater Investigation at the AT&T Lightguide Cable Site in Appleton, Wisconsin - ERT Document No. G417-200, dated October 2, 1987. Contained in this letter is a diagram showing the locations of the proposed borings for the Phase II field sampling (Figure 1), and a table summarizing the sampling/analytical program for Phase II field activities (Table 1).

All work conducted during Phase II of the field sampling shall be conducted in accordance with the guidelines described in the original sampling plan (ERT Document No. G417-200). Again, samples will be submitted to ERT's Houston laboratory for total and hexavalent chromium analyses and ERT's Wilmington laboratory for VOC analyses.

ERT is prepared to mobilize and begin sampling on Monday, October 26, 1987 provided that Dale Goss of Finley Engineering is able to obtain approval from the City of Appleton and any other involved parties for us to conduct our proposed field sampling.

Please do not hesitate to call myself or Larry Campbell should you have any questions.

Sincerely,

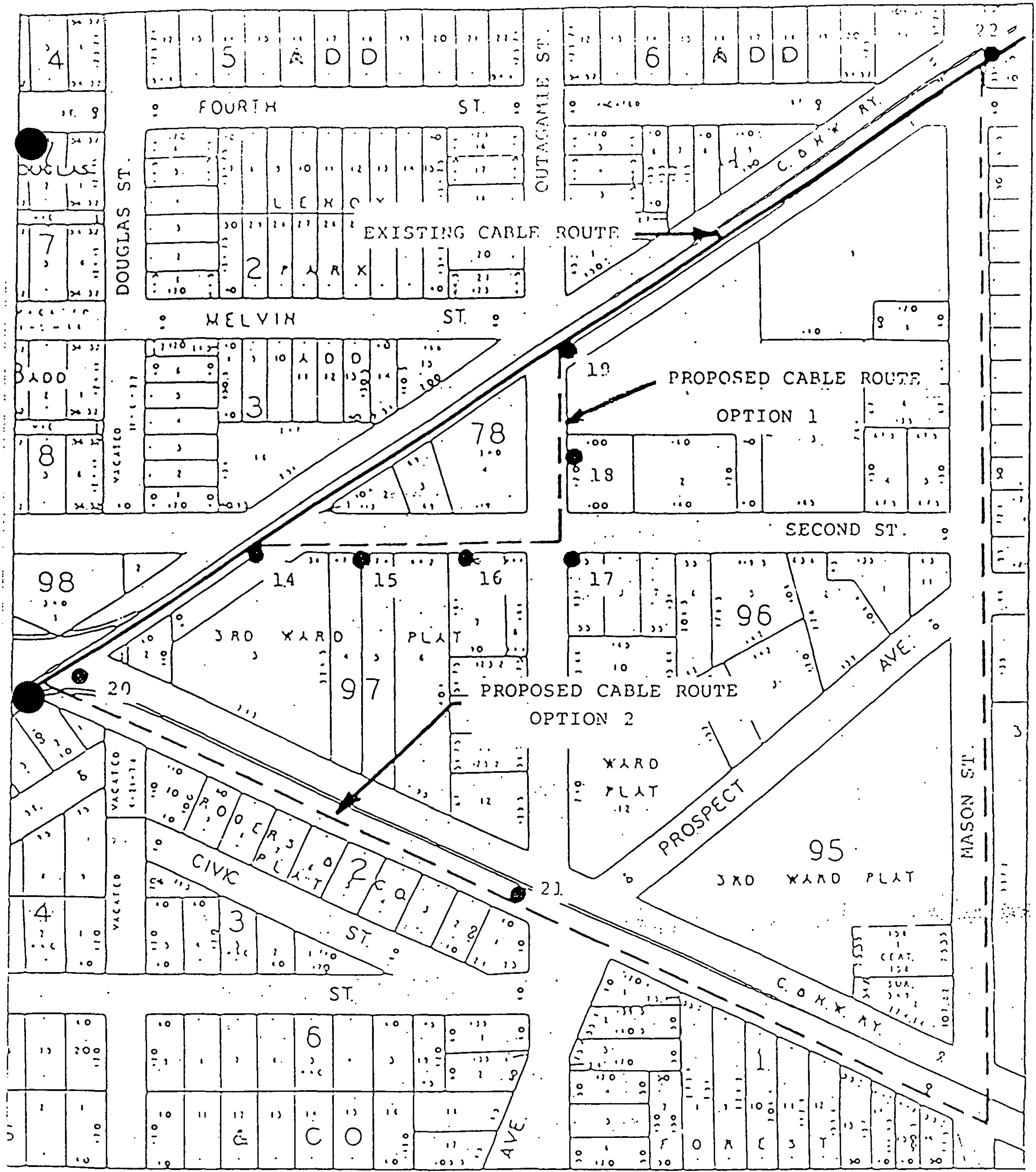
Scott C. Veenstra
Environmental Engineer

SCV/lmq

cc: A. Basile
D. Kraling
M. DeBartolo
L. Campbell
R. Weber

TABLE 1
SUMMARY OF SAMPLING/ANALYTICAL PROGRAM
PHASE II FIELD SAMPLING

Parameters to be Analyzed	Number of Samples	Containers (unit sample)	Number of Duplicates	No. of Field and Trip Blanks	Preservation
Soil VOC	9	3-40 ml glass VOA vials	1	none	cool 4°C
Groundwater VOC	9	3-40 ml glass VOA vials	1	1F/0T	cool 4°C
Soil total and hexavalent chromium	9	1-8 oz. jar	1	none	none
Groundwater total chromium	9	1-4 oz. glass jar	1	1F/2T	buffer with nitric acid to ph <2
Groundwater hexavalent chromium	9	1-4 oz. glass jar	1	1F/2T	cool to 4°C



● PROPOSED BORING

FIGURE 1

BORING LOCATION FOR PHASE II FIELD SAMPLING

FINLEY ENGINEERING COMPANY
CONSULTING ENGINEERS
P O BOX 147
EAU CLAIRE WI 54702 0147
715 834 2605

RECEIVED
NOV 18 1987
L. M. CAMPBELL

FILE

November 16, 1987

John Seigla
AT&T Communications
6th Floor
One North Wacker Dr.
Chicago, IL 60606

Re: Appleton Toxic Waste
Re-Route

Dear Mr. Seigla:

US Sprint and Michels Pipe Line Construction, Inc. have decided to begin construction on the Appleton Toxic Waste Re-Route on November 30, 1987. The replacement cable should be on-site by December 15, 1987.

We are arranging to buy 3 AT&T handholes from M.U.C. for the re-route and will have them delivered to Appleton.

Michels will place all the re-route conduit and handholes, pull out old cable and pull in new cable.

E.R.T. will arrange to have the toxic barriers installed by qualified toxic material handlers.

If you have any questions, please call me at (715)834-2605.

Yours very truly,

David W. Cheney, P.E.

blw
cc: E.R.T.
[illegible]

FINLEY ENGINEERING COMPANY
CONSULTING ENGINEERS
P.O. BOX 147
EAU CLAIRE, WI 54702-0147
715-834-2605

RECEIVED
DEC 7 1987
L. M. CAMPBELL

G417-500

December 2, 1987

Larry Campbell
ERT
131 N. Eisenhower Lane
Lombard, IL 60148

Re: Appleton Chromic Acid Spill

Dear Mr. Campbell:

I am writing this letter to confirm our telephone conversation about the materials and procedure for blocking at the Appleton, Wisconsin Chromic Acid Spill Site.

TFS-81 Bentonite is to be mixed in a 30% blend with wet sand and placed in a trench 1-foot wide crossing the cable and extending 2 feet either side, above and below the cable. See the drawing attached.

These plugs will be placed on either side of the steel bore pipes crossing 2nd and Outagamie Streets.

American Colloid will deliver the Bentonite to Michels' yard in Brownsville, Wisconsin on 12/05/87. On 12/07/87, ERT will privide a technician on-site to supervise the plug installation and make all necessary tests.

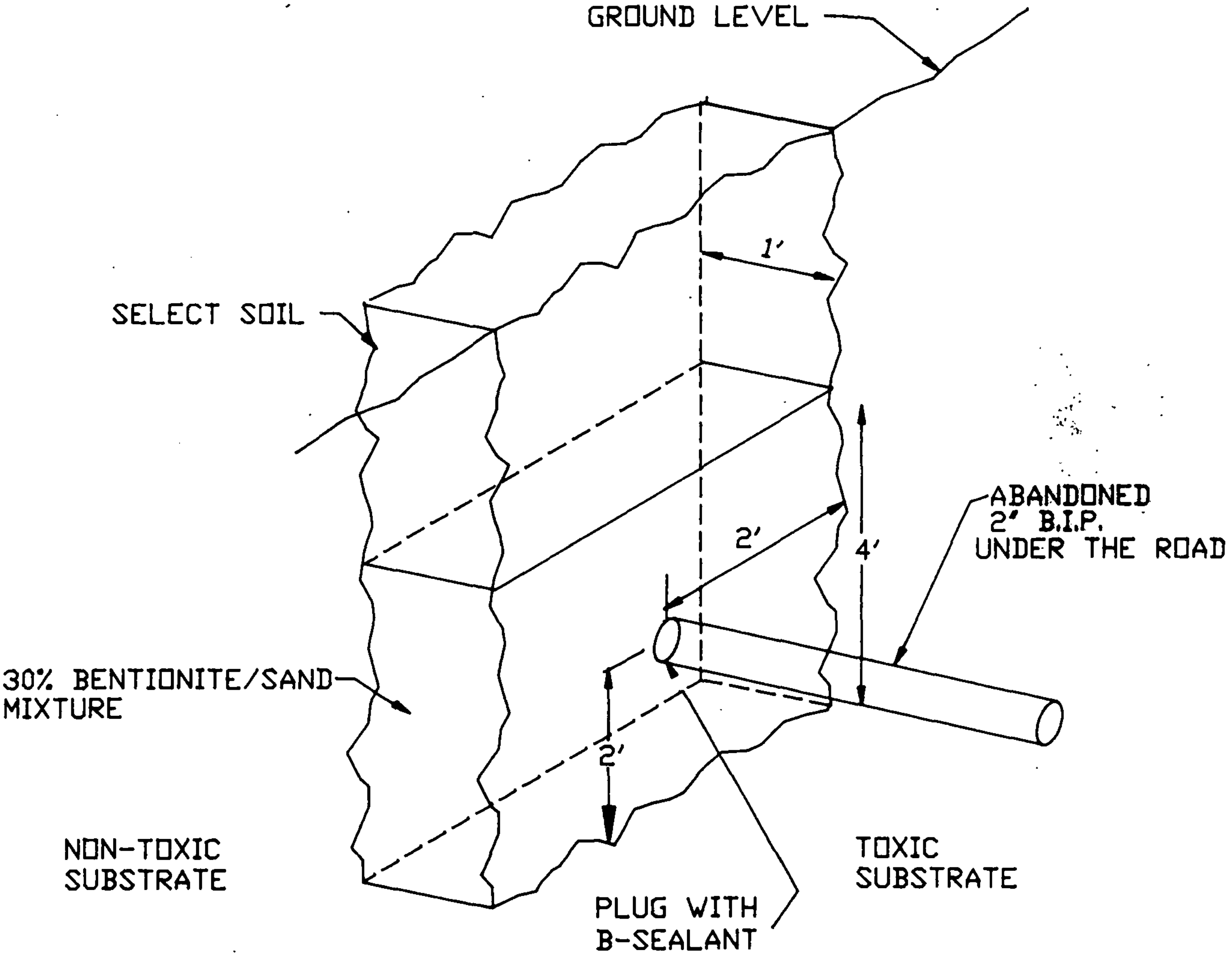
Please respond by FAX if you concur with my scenario, or if you have any changes. Our FAX Number is (715)834-2220.

If you have any questions, please call me at (715)834-2605.

Yours very truly,

David W. Cheney, P.E.

lmo
Enclosures
FAX
cc: John Seigla, AT&T



ISSUE

APPLETON WISCONSIN
TOXIC WASTE PLUG

WITH SPECS.	DRAWN BY F.E.C.	CHECKED BY D.W.C	DATE 12-2-87
AT&T COMMUNICATIONS CENTRAL REGION		DRAWING NO.	SIZE P1

ERT
A RESOURCE ENGINEERING COMPANY
131 EISENHOWER LANE. LOMBARD ILLINOIS 60148 (312) 620-5900

environmental and engineering services

FILE

December 4, 1987

Ref.#87-12-H022
ERT Program No. G417-500

Mr. John Seigla
AT&T Communications, Inc.
One North Wacker Drive, Room 605
Chicago, Illinois 60606

Subject: Alternate Route and Plans for Anti-Seep Plug on AT&T Lightguide Cable in Appleton, Wisconsin.

Dear Mr. Seigla:

This letter confirms my oral conversation with you on November 4, 1987 and with Mr. Steve Johnson of Finley Engineering Company on November 3, 1987 wherein I reported the results of our sampling along the two alternate lightguide routes to bypass the chromium contamination encountered along the existing lightguide route between Outagamie and Second Streets. The analytical results indicated chromium levels within normally expected limits for soils and no volatile organic compounds above detection limits. Based on available data, both of the alternate routes appear to be unaffected by the existing chromium contamination. Accordingly, either route is acceptable for installation of the bypass cable. Since the shorter route along Outagamie and Second Streets is located closer to the source of the chromium spill than is the longer route along Mason Street and the C&NW Rail line, there is an increased risk of chromium contamination along the shorter route. This risk is not quantifiable without additional investigation.

This letter also confirms and summarizes various recent conversations and correspondence with Mr. David Cheney of Finley Engineering Company during the period November 20, 1987 through today regarding the anti-seep plugs to be installed along the existing lightguide route at Outagamie Street and Second Street.

1. Four anti-seep plugs will be installed, one at each end of the steel conduits pushed under Outagamie Street and Second Street (see figure).

2. Each anti-seep plug will consist of a mixture of 25 to 30% (by weight) of bentonite and sand placed in a trench excavated perpendicular to the lightguide cable and conduit. The bentonite will be American Colloid Volclay TFS-81 formulated for use in chemical environments.

3. The plug will extend a minimum distance of 2 feet in all directions radially from the location of the innerduct and/or conduit (see figure). If the innerduct and conduit are installed at different elevations, the sand/bentonite plug will be installed a minimum of 2 feet below the lower unit (conduit or innerduct) and extend to 2 feet above the upper unit (innerduct or conduit). The plug will have a minimum thickness of 1 foot. For plugs B and C on the west side of Outagamie Street and the north side of Second Street, the minimum desired thickness is 1.5 feet.

4. The innerduct and cable will be cut at the edge of the trench so that they do not extend across the trench and through the plug. The ends of the innerduct and the conduit will be sealed with the sand/bentonite mixture or "B" sealant.

5. The sand/bentonite mixture can be prepared in a concrete redi-mix truck or similar mixer. The mixture will consist of sand (concrete sand is acceptable) with 12 to 15% water (by weight) and 25 to 30% bentonite. The water should be added to wet the sand prior to adding the powdered bentonite. The mixture must be mixed sufficiently to provide a uniform mixture of sand and bentonite without clumps of unmixed bentonite.

6. The trench will be wetted prior to being backfilled. The sand/bentonite mixture will be discharged from the mixer directly into the trench. Additional water may be sprayed on the sand/bentonite mixture during discharge to provide sufficient moisture to hydrate the bentonite. The sand/bentonite mixture should be "puddled" or otherwise compacted to insure there are no void spaces in the volume of the plug.

7. The areas of the trench on the ends of the plug and above the plug will be backfilled with existing materials that were excavated from the trench.

8. ERT personnel will inspect the installation of the anti-seep sand/bentonite plugs, and will obtain samples of soils from the walls of the trenches in the

vicinity of the innerduct and/or conduit. Results of ERT's inspection and analyses will be included in the ERT report summarizing the Appleton project.

If you have any questions, please call.

Very truly yours,

Larry M Campbell

Larry M. Campbell
Senior Program Manager

cc: D. Cheney
D. Goss
A. Basile
M. DeBartolo
R. Weber
S. Posadzy

CALCULATIONS AND COMPUTATIONS

SHEET ___ OF ___

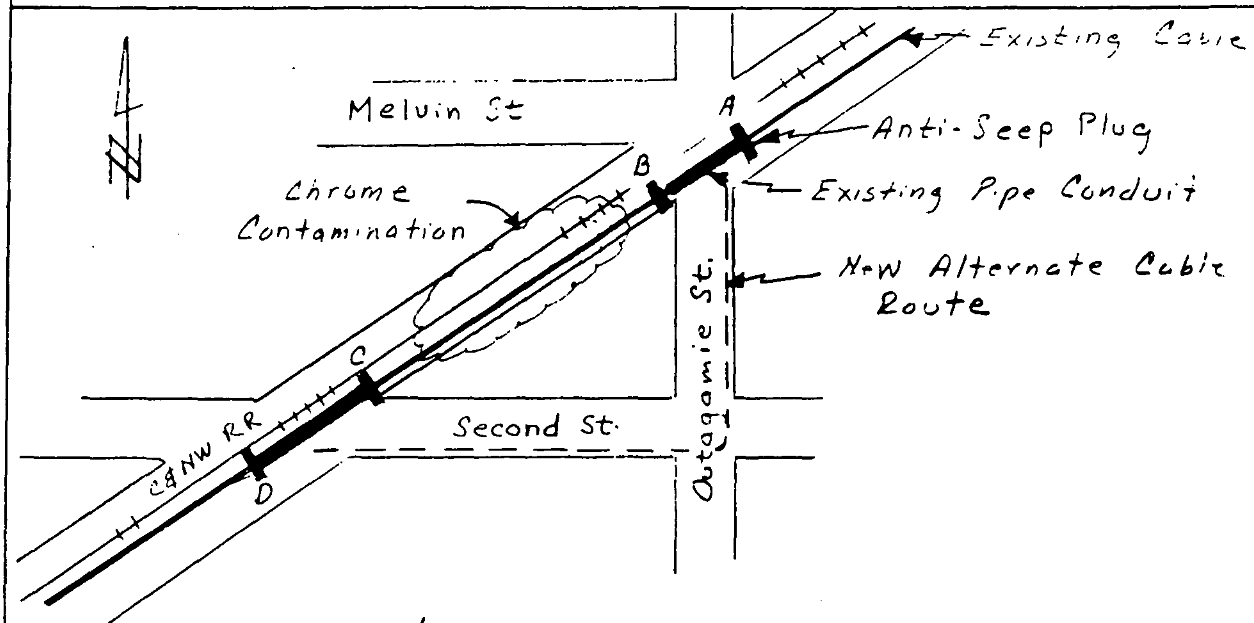
PROJECT: AT&T APPLETON

JOB NO.: G417-500

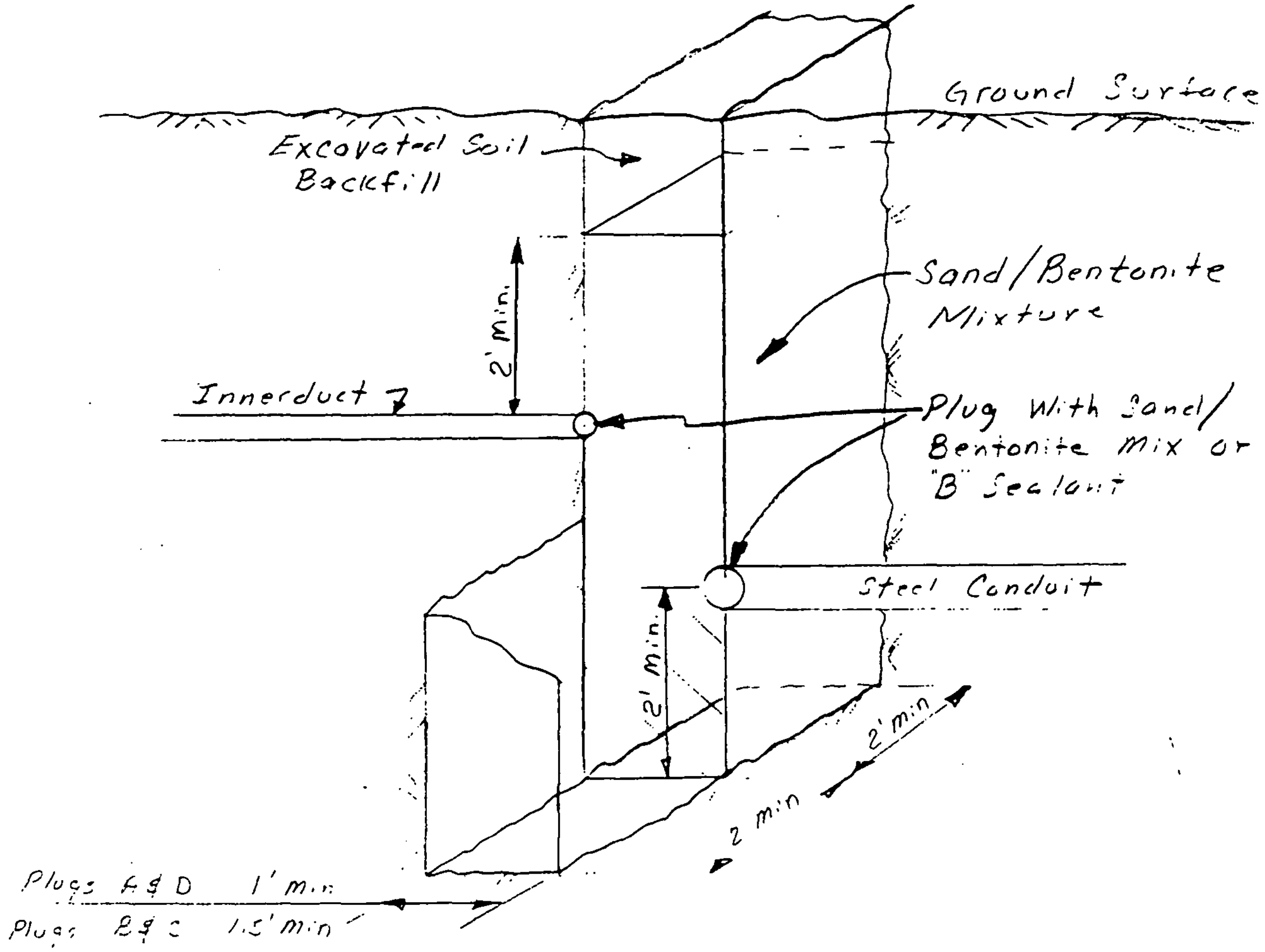
SUBJECT: ANTI-SEEP PLUGS
Location & Details

COMPUTED BY: LMC DATE: 12.4.87

CHECKED BY ______ DATE ______



LOCATIONS OF ANTI-SEEP PLUGS



DETAILS OF ANTI-SEEP PLUG

FINLEY ENGINEERING COMPANY
CONSULTING ENGINEERS
P O BOX 147
EAU CLAIRE WI 54702 0147
715 834 2605

RECEIVED
DEC 9 1987
L. M. CAMPBELL
9417-520

December 7, 1987

Larry Campbell
Environmental Research T.
131 N. Eisenhower Lane
Lombard, IL 60148

Re: Chromic Acid Spill

Dear Mr. Campbell:

Please have your technician on-site in Appleton take samples near U.S. Sprint's cable on the opposite side of the tracks from where you will take samples for AT&T. The invoice should be itemized for work done in association with U.S. Sprint's line and that done for AT&T. Invoice all the work to AT&T.

If you have any questions, please call me at (715)834-2605.

Yours very truly,

David W. Cheney, P.E.

lmo
cc: John Seigla, AT&T

ERT
A RESOURCE ENGINEERING COMPANY
131 EISENHOWER LANE. LOMBARD ILLINOIS 60148 (312) 620-5900

environmental and engineering excellence

December 22, 1987

Ref. #87-12-Q111
ERT Program No. G417-520

Mr. Kenneth Knuth
Finley Engineering Co.
P.O. Box 259
Slayton, MN 56172

SUBJECT: Proposal for ERT Services to U.S. Sprint in Appleton, WI

Dear Mr. Knuth:

In accordance with our telephone conversation of December 14, 1987, I enclose two copies of the subject proposed for your subsequent transmittal to and execution by U.S. Sprint. This proposal covers ERT services provided directly and indirectly (through AT&T Communications) to U.S. Sprint regarding the chromium contaminated site in Appleton, WI.

Inasmuch as many of the requested services have previously been performed, I would appreciate your prompt attention to this matter and expeditious processing by U.S. Sprint. Please call if you have questions.

Very truly yours,

Larry M. Campbell

Larry M. Campbell
Senior Program Manager

LMC/lmq

Enclosure - 2

cc: M. DeBartolo
J. Seigla
D. Cheney
R. Weber

ERT
A RESOURCE ENGINEERING COMPANY
131 EISENHOWER LANE LOMBARD, ILLINOIS 60148 (312) 620-5900

[illegible]

December 22, 1987

Ref. #87-12-Q101
ERT Program No. G417-520

Mr. Roy Smith
U.S. Sprint
2768 N. Golfview Drive
Naperville, IL 60565

SUBJECT: Proposal to Provide Environmental Consulting Services to U.S. Sprint Related to Chromium Contamination in Appleton, Wisconsin

Dear Mr. Smith:

Background

ERT has been retained by AT&T Communications, Inc. to investigate the nature and degree of contamination along their lightguide cable line between Outagamie and Second Streets in Appleton, WI resulting from an earlier chromic acid release by others. ERT has also investigated the potential chromium contamination along two alternate routes that would bypass the existing area of chromium contamination. ERT has provided field sampling, analytical testing and environmental recommendations regarding the nature and degree of contamination along the existing and alternate routes. ERT has also provided recommendations and on-site sampling and inspection of the installation of anti-seep plugs to minimize possible migration of chromium contamination outward from the chromium source along the lightguide installation trench.

ERT understands that U.S. Sprint has entered into an agreement with AT&T to share the cost of ERT services since such services are also pertinent to U.S. Sprint's plans to install additional fiberoptics cable to bypass the abandoned cable in the chromium contamination area. In addition, ERT has been requested by Finley Engineering Co., on behalf of U.S. Sprint, to sample and analyze soil and water samples at locations of anti-seep plugs and to inspect the construction of such plugs on the U.S. Sprint line.

ERT has subsequently been requested by Mr. Kenneth Knuth of Finley Engineering Co. and Mr. Dean Cline of U.S. Sprint [illegible], to collect and analyze soil and water samples at additional locations along the existing, newly operational fiberoptics cable, (2) to provide recommendations and on-site inspection of anti-seep plug construction, and (3) to identify a qualified hazardous waste contractor to install anti-seep plugs in contaminated areas.

Inasmuch as ERT has been requested to perform services directly to and solely for the benefit of U.S. Sprint, ERT believes that ERT and U.S. Sprint must enter into a consulting agreement to cover the scope of previous and subsequent work to be performed.

<u>Scope of Service</u>

Services that ERT has performed at the request of AT&T, but which are also beneficial to U.S. Sprint, include the following:

1. Investigating the nature and extent of possible contamination along the AT&T lightguide cable route and other locations on the northeast-southwest oriented Chicago and Northwestern Railroad (C&NW RR) right-of-way between Outagamie and Second Streets.

2. Investigating the nature and degree of possible contamination along two alternate lightguide cable routes including a short route along Outagamie and Second Streets and a longer route along Mason Street and the northwest-southeast oriented C&NW RR right-of-way.

3. Providing recommendations concerning the design and installation of anti-seep plugs at either end of the steel conduits pushed under both Outagamie and Second Streets.

ERT services which have been requested specifically for U.S. Sprint are summarized below:

4. ERT will collect soil and water samples from the walls of four excavations dug at Outagamie and Second Streets for the purpose of installing anti-seep plugs. In each excavation, typically one soil sample will be collected of the trench backfill material beneath the fiberoptics cable conduit, and another soil sample will be collected from the trench wall in undisturbed material. Samples of infiltrating groundwater will also be collected. These collected samples together with pertinent quality control samples (i.e., duplicate, field blank and trip blank samples) will be analyzed by

ERT for concentrations of total and hexavalent chromium and for volatile organic compounds (VOCs). Such analyses will be performed in an expedited schedule to provide prompt results.

5. Similarly, ERT will collect and analyze samples of backfill soil, undisturbed soil and groundwater, as encountered, at four other locations as directed by U.S. Sprint. Two such locations are planned at and northeast of the junction box northeast of Outagamie Street, and two other locations at and southwest of the junction box southwest of Second Street. These samples will also be expeditiously analyzed for total and hexavalent chromium and VOCs.

   Samples will be collected by qualified personnel using decontaminated sampling equipment. Samples will be maintained under appropriate chain-of-custody procedures from collection through shipment, testing and disposal. Quality control samples (i.e., duplicates and blanks) will be collected in the field at a rate of approximately 10 percent and submitted blindly to the laboratory for analysis. Testing will be performed using EPA approved methods.

6. ERT will provide recommendations to U.S. Sprint regarding the design and installation of anti-seep plugs at locations along the U.S. Sprint route selected by U.S. Sprint. As requested, ERT will assist U.S. Sprint in selecting the anti-seep plug locations. ERT will inspect and document the installation of anti-seep plugs at the selected locations.

7. ERT will document in a report the results of field and laboratory investigations and of field construction activities during installation of anti-seep plugs. This report will describe and illustrate field operations and will include the results of analytical testing of collected and quality control samples.

8. ERT will identify and assist in retaining a qualified hazardous waste contractor to install the anti-seep plugs in contaminated areas. If desired by U.S. Sprint, ERT can facilitate installation of the anti-seep plugs by utilizing our sister company; REI Constructors, a hazardous waste contractor.

9. ERT will provide related services requested by U.S. Sprint that are associated with investigation and remediation of the chromium contaminated area and U.S. Sprint lines in Appleton, WI.

Schedule

Investigation activities of Task 1 were conducted during the period October 5 through 7, 1987; those of Task 2 were completed during the period October 26 and 27, 1987. Oral results of Task 2 alternate route sampling were relayed to Finley Engineering Co. and AT&T on November 3 and 4, 1987, respectively. These Task 2 results and Task 3 anti-seep plug plans were documented in ERT's letter (Ref. #87-12-H022) of December 4, 1987.

Task 4 sampling and Task 6 inspection of installation of one anti-seep plug southwest of Second Street were completed during the period December 7 through 11, 1987. Task 5 sampling was conducted during the period December 16 through 18, 1987. Results of the associated analyses will be orally reported upon receipt. Task 6 selection of anti-seep plug locations can be completed in late December 1987 or early January 1988. Task 8 installation of the anti-seep plugs can be completed in early January 1988. The Task 7 report will be available within two weeks after completion of field inspection activities or after receipt of QC reviewed laboratory results, whichever is later.

Budget

ERT proposes to conduct this project on a Time and Materials basis in accordance with our Standard Commercial Terms (attached). We understand that ERT will invoice AT&T for all services provided both to AT&T and to U.S. Sprint. Charges related to field and laboratory services on and after December 7, 1987 have been identified to separate accounts and will be so itemized on the invoices. ERT charges for analytical testing, as reported to Mr. Knuth on December 10, 1987, are as follows: total and hexavalent chromium analyses of soil or liquid samples - $65; VOC analysis of samples - $225 (liquid) and $250 (soil). A surcharge of 100% is added for expedited analytical results.

ERT appreciates the opportunity to provide services to U.S. Sprint. If you agree with the terms of this proposal, please have one copy of this proposal executed by an authorized U.S. Sprint representative and returned to ERT.

Very Truly Yours,

Larry M. Campbell

Larry M. Campbell
Senior Program Manager

Approved by

Robert C. Weber
Manager, Midwest Operations

Accepted for U.S. Sprint

____
Name

____
Signature

____
Title

____
Date

LMC/vak

attachment

cc: M. DeBartolo
J. Siegla
K. Knuth
D. Cheney

ERT
A RESOURCE ENGINEERING COMPANY

Commercial Terms

TIME AND MATERIALS AGREEMENT

Effective January 1, 1987 - December 31, 1987

BILLING RATES

STAFF

Charges for work performed on the project, including office and field time, will be calculated and billed on the basis of the staff category hourly rates shown below in U.S. currency. The hourly rates are fully loaded with fringe benefits, burden and fee.

Staff Category	Rate/Hour	Staff Category	Rate/Hour	Staff Category	Rate/Hour
Tech 1	21.00	Prof 3	42.00	Prof 7	77.00
Tech 2	24.00	Prof 4	50.00	Prof 8	89.00
Prof 1	28.00	Prof 5	59.00	Prof 9	98.00
Prof 2	34.00	Prof 6	67.00	Prof 10	115.00
				Prof 11	130.00

Billing rates for Corporate Officers will be quoted upon request. All staff personnel have been classified in the above staff categories based on discipline skills, education and experience level.

Time spent in either inter-city or local travel will be billed in accordance with the foregoing schedule, except that no more than eight hours of travel time will be charged in any day. Overtime hours worked, if authorized by the client, will be charged as quoted above for exempt employees (non-hourly). Overtime hours worked by non-exempt (hourly-non-supervisory) employees will be charged at 130% of the base rate quoted above.

EXPERT TESTIMONY

Expert witness testimony or participation at hearings or depositions, including necessary preparation time will be charged at 150% of the base rate quoted above.

INVOICING AND PAYMENT

Invoice statements will be issued monthly itemizing the staff categories worked and Other Direct Costs incurred in the performance of the project. Payments shall be sent to the address appearing on the invoice All payments are due within thirty (30) days of the invoice date. Invoices not paid within thirty days shall be subject to interest from the 31st day at the rate of **1-1/2% per month** (18% per annum).

OTHER DIRECT COSTS

Charges for Other Direct Costs, and facilities furnished by ERT are computed on the basis of actual cost plus twenty percent. This override covers the costs associated with cost of money, the risks associated with our responsibility for delivery on behalf of subcontractors, etc. Examples of such items which are directly attributable to the project include: shipping charges; printing and reproduction; special fees; permits; special insurance and licenses; subcontracts: outside computer time; and miscellaneous materials. Travel and travel-related expense, and equipment purchased for the project with advanced authorization are computed on the basis of actual cost plus ten percent. Charges for ERT laboratory analyses, inventoried supplies, usage of ERT owned computers and lease of ERT owned equipment carry no override. Rate sheets for these items are available and will be provided when appropriate

ESTIMATED COST

ERT will perform the work and accomplish the objectives defined within the estimated costs and schedule proposed The estimated costs and schedule proposed are based on our best judgement of the requirements known at the time of the proposal Successful completion within cost and schedule limits can be influenced favorably or adversely by changes in work scope and schedule as dictated by client needs and by presently unforeseen circumstances ERT will notify the client in advance if schedule or costs are expected to exceed the estimate In such event the client may wish to (1) authorize additional funds to complete the work as originally defined, (2) redefine the scope of work in order to fit the remaining funds, or (3) request that work be stopped at a specific expenditure level If option 3 is chosen ERT will turn over such data results and materials completed at the authorized level without further obligation or liability to either party except for payment for work performed

FINLEY
ENGINEERING [illegible]
COMPANY Box 259 • Slayton MN 56172 • Phone (507) 836-6515

RECEIVED
DEC 30 1987
L. M. CAMPBELL
6417-520

December 28, 1987

Mr. Roy Smith
US Sprint
2768 N. Golfview Drive
Naperville, Illinois 60565

RE: 43-531-01

Dear Mr. Smith:

Enclosed is a letter and two contracts from ERT. I think this letter is quite self-explanatory. Will you please get these signed by the proper people.

Also, we should get our data from the testing in a few days.

Ken Knuth
Kenneth D. Knuth

kk:cz

enclosure

xc: Mr. Larry Campbell

ERT
A RESOURCE ENGINEERING COMPANY
131 EISENHOWER LANE LOMBARD ILLINOIS 60148 (312) 620-5900

environmental and engineering

RECEIVED
JAN 13 1988
L. M. CAMPBELL

January 11, 1988

Ref. #88-01-Q130
ERT Program No. G417-520

Mr. Ben Humphrey
Finley Engineering Co.
P.O. Box 259
Slayton, MN 56172

SUBJECT: Results of the Soil and Groundwater Investigation of U.S. Sprint Locations in Appleton, Wisconsin

Dear Mr. Humphrey:

This letter summarizes the preliminary results of the soil and groundwater investigation, in Appleton, WI., performed by ERT for U.S. Sprint, in accordance with the ERT Proposal (Ref. #87-12-Q101) dated December 22, 1987, directed to Mr. Roy Smith of U.S. Sprint:

<u>Soil Sampling</u>

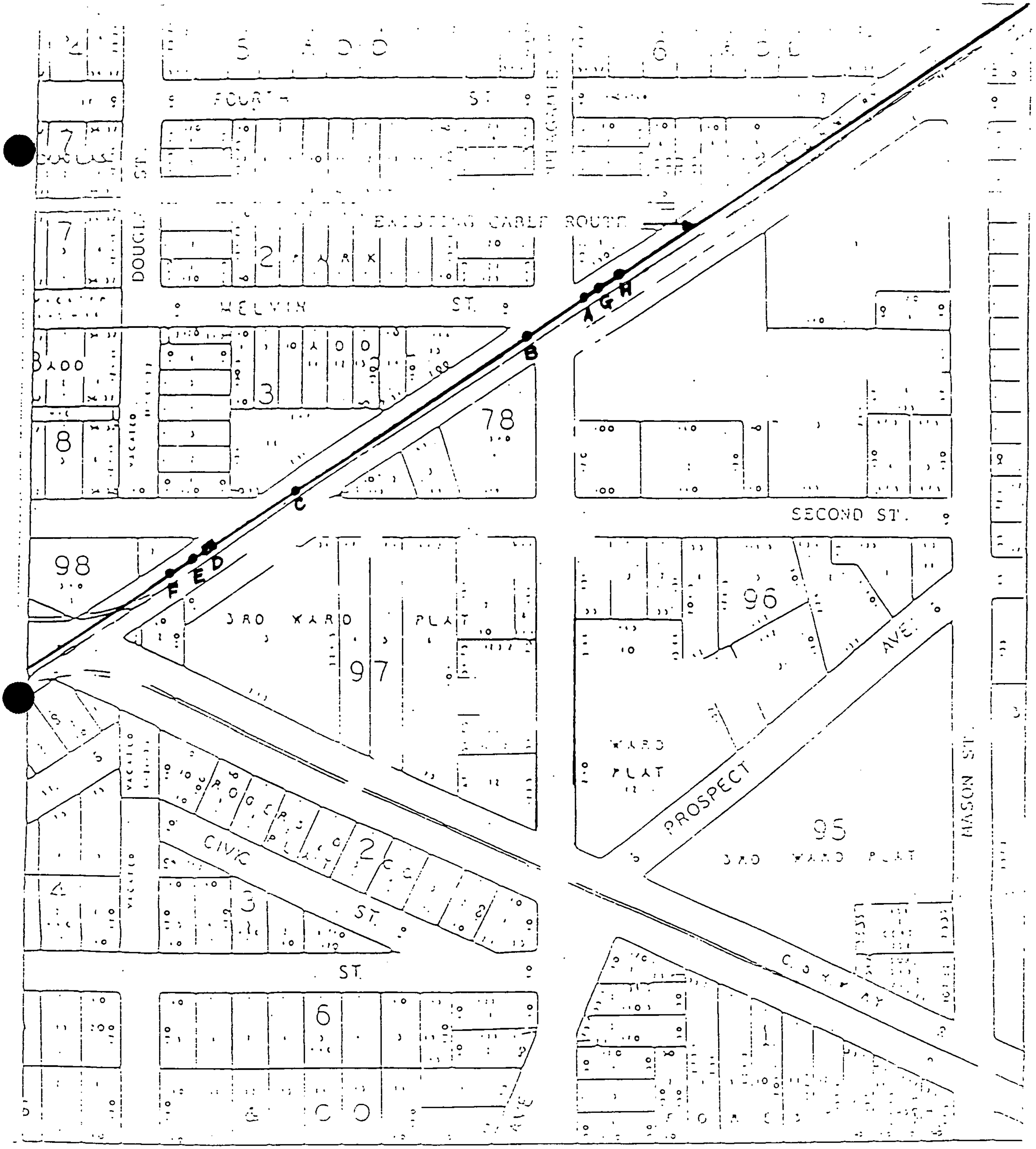
Soil samples were taken from eight pits excavated by Michels Pipeline Construction Co. at locations shown in Figure 1. The soil samples were taken from the soil beneath the steel conduit exposed in each excavation, and in the undisturbed soil approximately 2 ft. laterally from that conduit. These samples were then analyzed for total and hexavalent chromium and volatile organic compounds (VOCs).

<u>Groundwater Sampling</u>

Groundwater samples were collected from all excavations where it was encountered. These samples were also analyzed for total and hexavalent chromium and VOCs.

<u>Quality Assurance/Quality Control (QA/QC)</u>

As part of the ERT QA/QC plan, duplicate soil samples and field and trip blanks of the deionized water used in the decontamination process were collected and analyzed. This was done to insure the integrity of soil and groundwater sampling and decontamination procedures.



● PIT LOCATION

■ ANTI-SEEP PIT LOCATION

FIGURE 1.0

SOIL AND GROUNDWATER SAMPLE PIT LOCATIONS

Analytical Results

The preliminary analytical results of the soil and groundwater investigation are summarized in Table 1 and Table 2. These results are those discussed between yourself and Larry Campbell of ERT on January 5, 1988. Also, it is important to note that these results are preliminary and are subject to change following QA review by the ERT laboratories.

Recommendations

Based on the available information, it is the opinion of ERT that the levels of total and hexavalent chromium and VOCs at U.S. Sprint locations E, F, G, and H are typical for soils and groundwater in the area. It is ERT's opinion that contamination has not migrated northeast of Outagamie Street or southwest Second Street; therefore, ERT concludes that installation of the anti-seep plugs at the originally planned U.S. Sprint locations A, B, C and D should fulfill the original goals. The anti-seep plug at location D was previously installed by Michels Pipeline Construction Co. in December, 1987. The remaining anti-seep plugs at locations A, B and C should be installed as described in ERT letter (Ref. #87-12-Q101 dated December 22, 1987).

The chromium concentration in the groundwater encountered at U.S. Sprint location B was sufficiently elevated to characterize the water as hazardous. Accordingly, the installation of this anti-seep plug should be performed by an OSHA trained and hazardous waste experienced contractor. REI Constructors, the sister company of ERT, Inc., is qualified to perform such an operation, and is currently preparing a proposal which will cover the costs of installing all of the anti-seep plugs.

TABLE 1

Analytical Results: Soil Sampling of U.S. Sprint Locations in Appleton, WI

Sample No.	Total Chromium (mg/kg)	Hexavalent Chromium (mg/kg)	VOC/ Detected Level (mg/kg)
A-1-US	29.8	<0.08	ND
B-1-US	35.8	<0.08	ND
B-2-US	43.2	<0.08	ND
B-3-US	34.8	<0.08	ND
C-1-US	33.8	<0.08	ND
C-2-US	24.8	<0.08	ND
D-1-US	19.1	<0.08	ND
E-1-US	30.0	<0.08	ND
E-2-US	38.0	<0.08	Toluene/72 Chlorobenzene/130 Total xylenes/7
E-3-US	31.0	<0.08	ND
F-1-US	29.0	<0.08	ND
F-2-US	31.0	<0.08	ND
G-1-US	31.0	<0.08	ND
G-2-US	41.0	<0.08	ND
H-1-US	38.0	<0.08	ND
H-2-US	43.0	<0.08	ND

ND - Not Detected

TABLE 2

Analytical Results: Groundwater Sampling of U.S. Sprint Locations in Appleton, WI

Sample No.	Total Chromium (mg/l)	Hexavalent Chromium (mg/l)	VOC/ Detected Level (μg/l)
A-W-US	0.056	<0.002	ND
B-W-US	15.7	14.0	1,1,1-Trichloroethane/35 Toluene/3.4 Total xylenes/2.6
E-W-US	1.43	<0.002	ND
G-W-US	0.43	<0.002	ND
H-W-US	0.48	<0.002	Benzene/7.2
Field Blank	<0.01	<0.002	Chloroform/4.3
Field Blank	<0.01	<0.002	Chloroform/8.8
Trip Blank	<0.01	<0.002	Chloroform/4.6
Trip Blank	<0.01	<0.002	Chloroform/8.8

ND - Not Detected

ERT will continue to provide the services outlined in the proposal to U.S. Sprint. Final analytical results and documentation of anti-seep plug installation will be included in a final report.

Please call if you have any questions.

Very truly yours,

Scott M. Posadzy

Scott M. Posadzy
Environmental Engineer

Larry M. Campbell

Larry M. Campbell
Senior Program Manager

SMP/lmq

cc: K. Knuth
D. Cheney

ERT
A RESOURCE ENGINEERING COMPANY
131 EISENHOWER LANE LOMBARD, ILLINOIS 60148, (312) 620-5900

environmental and engineering excellence

RECEIVED
JAN 22 1988
L.M. CAMPBELL

January 22, 1988

Ref. #88-01-Q150
ERT Program No. G417-510 & -520

Mr. John Seigla
AT&T Communications, Inc.
One North Wacker Drive, Room 605
Chicago, Illinois 60606

Mr. Roy Smith
U.S. Sprint
2768 North Golfview Drive
Naperville, Illinois 60565

SUBJECT: Plans to Complete Anti-Seep Plugs on AT&T and U.S. Sprint Fiberoptic Cable Lines in Appleton, Wisconsin

Dear Messrs. Seigla and Smith:

This letter summarizes the current status of the installation of anti-seep plugs and the plans to complete such plugs on both the AT&T and U.S. Sprint fiberoptics lines in Appleton, WI. Recommendations for installation of the anti-seep plugs were included in ERT's letter of December 4, 1987 (Ref. #87-12-H022) to Mr. Seigla (copy attached).

Background

At the time of the referenced letter, four anti-seep plugs were planned for installation on the AT&T line south of the railroad tracks; one plug was planned at each end of the steel conduits pushed under Outagamie Street and Second Street (locations A, B, C and D on the attached figure). U.S. Sprint also planned to install four anti-seep plugs at comparable locations on the U.S. Sprint line between the two railroad tracks. However, in anticipation that chromium contamination may have migrated along this fiberoptics line further northeast of location A-US or further southwest of location D-US, additional soil and water samples were collected and analyzed from locations E-US, F-US, G-US and H-US. Data from these locations would be useful in selecting anti-seep plug locations in areas outside of the chromium plume.

During the period December 7 through 11, 1987, Michaels Pipeline Construction Co. installed four anti-seep plugs in general accordance with ERT recommendations included in the cited December 4, 1987 letter and provided orally by ERT's field inspector and Project Manager. Anti-seep plugs were installed at locations A, C and D on the AT&T line and at location D-US on the U.S. Sprint line.

Installation of the remaining anti-seep plug on the AT&T line at location B was deferred because greenish water (possibly indicative of chromium contamination) had seeped into the excavation during the night. Michaels Pipeline Construction Co. is not a licensed hazardous waste contractor and Michaels' personnel are not trained to handle hazardous waste. In addition, no provision existed to collect, transport or dispose of potentially contaminated groundwater or soil from AT&T location B. Consequently, excavated materials from location B were replaced in the excavation, backfilling it to grade.

Installation of remaining anti-seep plugs on the U.S. Sprint line was deferred by U.S. Sprint pending receipt of results from other sample locations, as described previously. In addition, ERT's field inspector noted organic vapor odors while collecting samples in the excavations at U.S. Sprint locations A-US and B-US. These odors may also be indicative of contamination that requires work be performed by a hazardous waste contractor.

Discussion

ERT collected and analyzed soil and groundwater samples from the four AT&T locations A, B, C and D, and from the eight U.S. Sprint locations A-US through H-US (see figure). Both soil and water samples were analyzed for total and hexavalent chromium and volatile organic compounds (VOCs). Based on these results, ERT has concluded that chromium contamination has not migrated along the fiberoptics lines northeast of Outagamie Street or southwest of Second Street. Accordingly, ERT has recommended, in a January 11, 1988 letter to Mr. Humphrey of Finley Engineering Co. (Ref. #88-01-Q130), that the remaining anti-seep plugs on the U.S. Sprint line be installed at the originally planned locations A-US, B-US and C-US. Similarly, ERT recommends that the remaining anti-seep plug on the AT&T line be installed at location B.

Chromium and VOC concentrations in the soils from the recommended remaining anti-seep plug locations B, A-US, B-US and

C-US are typical for soils in the area. Chromium concentrations in groundwater that seeped into pits at locations B and B-US were 5.8 and 15.7 mg/l, respectively. These chromium concentrations exceed the Wisconsin Department of Natural Resources' criteria for disposal as hazardous waste of 5 mg/l. Since the soils excavated from these locations were mixed with the contaminated water when the pits were backfilled, the soils should probably be considered to be contaminated. Soils re-excavated to install the anti-seep plugs at these locations will probably require off-site disposal as hazardous waste.

Soils re-excavated from locations A-US and C-US probably do not contain chromium concentrations that would require their disposal as hazardous waste. Accordingly, these excavated materials could be spread at the surface near the pit locations, or they could be disposed in a local sanitary landfill. The conservative approach, however, would be to dispose of all excavated soils as hazardous waste. In addition, the volume of soil requiring disposal is not large. Activities described in the remainder of this plan are based on the assumption that all excess excavated soils will be disposed as hazardous waste.

Installation of the anti-seep plugs at locations B and B-US (and possibly A-US, based on VOC odors) should be performed by a qualified hazardous waste contractor whose personnel are OSHA trained to handle hazardous materials. ERT recommends that all four remaining anti-seep plugs be installed by a single hazardous waste contractor.

Proposed Activities

Activities required to complete the installation of the anti-seep plugs are itemized below and described in the following paragraphs:

- Obtain U.S. EPA generator identification numbers,
- Obtain and test a sample of hazardous waste material,
- Retain hazardous waste contractor,
- Locate positions of anti-seep plugs,
- Install anti-seep plugs,
- Transport and dispose of hazardous waste materials, and
- Document all investigation and remediation activities.

Prior to disposal of hazardous waste, the "generator" of such waste (i.e., AT&T and U.S. Sprint) must obtain an identification number from the U.S. Environmental Protection Agency (U.S. EPA). A separate identification number must be obtained by each generator for wastes generated from separate "facilities". Accordingly, existing AT&T or U.S. Sprint identification numbers are not valid for use in disposal of hazardous waste generated during installation of the anti-seep plugs at Appleton. ERT will assist AT&T and U.S. Sprint in obtaining identification numbers for disposal of the hazardous wastes from Appleton. AT&T and U.S. Sprint must each complete EPA Form 8700-12, "Notification of Hazardous Waste Activity," (see attached sample form). U.S. EPA will issue generator identification numbers within approximately 2 to 3 weeks after receipt of the properly completed forms.

In order to dispose of solid hazardous waste, a sample must be obtained and tested for waste characteristics. ERT personnel will travel to Appleton, collect a composite sample of soil from locations B and B-US, and ship the sample to the proposed hazardous waste disposal facility for pre-acceptance testing. The disposal facility typically performs such pre-acceptance testing in its own laboratory to establish a waste profile. Pre-acceptance testing at Chemical Waste Management's Adams Center Landfill in Ft. Wayne, IN typically requires 2 to 3 weeks for assumed/declared hazardous materials and 4 to 6 weeks for non-hazardous materials.

Samples of contaminated groundwater are not anticipated to be necessary at the present time. ERT and REI Constructors do not expect to encounter significant quantities of groundwater if the anti-seep plugs are installed promptly following excavation of the pit. If significant quantities of groundwater are encountered, they will be collected in drums, tested for chromium concentration, and properly disposed.

Finley Engineering Co. and U.S. Sprint shall locate the proposed positions of the anti-seep plugs at the ends of the conduits at Outagamie and Second Streets.

REI Constructors, Inc., an affiliated company of ERT, Inc., is a qualified hazardous waste contractor that can effect installation of the anti-seep plugs in a contaminated environment and dispose of the contaminated soils and groundwater that may be encountered. REI Constructors is prepared to mobilize personnel and equipment to Appleton to install the four remaining anti-seep plugs in accordance with ERT's letter of December 4, 1987 (Ref. #87-12-H022) as modified below. REI

Constructors will also manifest and arrange for proper transport and disposal of all hazardous wastes encountered. Representatives of AT&T and U.S. Sprint, however, must sign the manifests as the generators.

Modifications of the referenced procedures are summarized below:

- In Item 3, the minimum plug thickness shall be 2 ft,
- In Item 5, the initial amount of water in the sand-bentonite mixture shall be limited to 5 to 6 percent (dry weight basis). Additional water shall be added during discharge into the excavation as described in Item 6.

Similar procedural modifications were orally issued by the ERT Project Manager during installation of the four existing plugs.

REI Constructors proposes to excavate the pits using a tractor-mounted backhoe using a 2-ft-wide bucket. The sand-bentonite mixture will be obtained from the same redi-mix concrete supplier that was used previously and will be installed in each pit promptly after its excavation so as to minimize the potential for seepage into the pit of contaminated groundwater. Excavated soils will be loaded into containers provided by the hazardous waste transporter. Contaminated water, if encountered, will be removed from the pit prior to backfilling and stored in drums until the water can be tested to determine the proper method of disposal. A secure location to store these drums will have to be obtained.

Using information provided by the pre-acceptance testing performed by the hazardous waste disposal facility, ERT and REI Constructors' personnel will prepare the Uniform Hazardous Waste Manifests (EPA Form 8700-22, see attached copy) required to transport and dispose of the solid hazardous waste. Similar manifests will be required to dispose of contaminated liquids, if encountered. Wastes from both AT&T and U.S. Sprint "facilities" can be combined in the same container for transport and disposal, but separate manifests must be provided for each generator's waste. REI Constructors plans to have the containers of excavated soils transported by Chemical Waste Management, Inc., to its Adams Center hazardous waste disposal facility in Ft. Wayne, IN for disposal by landfilling.

AT&T and U.S. Sprint, as the generators, must designate an appropriate person to sign manifest Item 16, the Generator's Certification. Manifests must be completed by the generators and accompany the manifested waste during transport to the disposal facility.

With the exception of the pre-acceptance testing to be performed by the hazardous waste disposal facility, ERT will perform all testing required to document existing conditions at the project site and to determine proper methods of liquid disposal. Inasmuch as soil samples have been obtained and tested from all existing and planned anti-seep plug locations, additional sampling and testing are not anticipated prior to completion of the planned plug installations. If unanticipated conditions are encountered during the plug installations, however, ERT will collect and analyze samples in a manner consistent with previous testing. AT&T and U.S. Sprint will be consulted prior to performing the analyses.

Following completion of the installation of the anti-seep plugs, ERT will document in a single report the results of field and laboratory investigations and of field construction activities during installation of anti-seep plugs on both the AT&T and U.S. Sprint lines.

Schedule

ERT can mobilize to Appleton to obtain the pre-acceptance soil sample within 3 to 5 days after receipt of notification to proceed from both AT&T and U.S. Sprint. Pre-acceptance testing generally requires 2 to 3 weeks, but it may be possible to expedite this schedule. The U.S. EPA identification numbers can be obtained within this same time frame of 2 to 3 weeks. ERT and REI Constructors can mobilize to the site within a week after receiving approval to dispose of hazardous wastes. Installation of the four remaining anti-seep plugs should be completed in 1 to 2 days. Solid wastes can be transported promptly following completion of the field operations. The documentation report will be available within 2 weeks after the latter of: completion of field inspection activities, receipt of QC-reviewed laboratory results, or receipt of the manifests documenting proper transport and disposal of the hazardous waste materials.

Budget

REI Constructors proposes to conduct this project on a Time and Materials basis in accordance with REI's National Contract Agreement with AT&T. Inasmuch as ERT is not a licensed contractor, REI Constructors cannot operate as an ERT subcontractor for hazardous waste remediation. Accordingly, REI

Constructors will require a purchase order (AT&T) and contractual agreement (U.S. Sprint) separate from those with ERT for investigation, oversight and documentation.

REI Constructors estimates that installation of the anti-seep plugs as described herein (2 ft thick, 6 ft wide and 6 ft deep) will cost approximately $2,750 per plug, for an estimated total cost of approximately $11,000 for the four plugs. Transportation and disposal costs for the estimated 19 tons of excavated soil are estimated to be approximately $1,850 and $2,650, respectively. Pre-acceptance testing costs are $225 per sample. The total estimated construction cost, therefore, is approximately $16,000.

ERT estimates the additional costs of ERT services to obtain and ship the pre-acceptance sample, inspect the field installation activities, and prepare the final report will be approximately $9,500. Estimated costs incurred to date for the Phase 1 investigation, the Phase 2 alternate route investigation, and the Phase 3 inspection of four anti-seep plugs (including all analytical testing) is approximately $74,500. Therefore, estimated total ERT costs for the project will be approximately $84,000. AT&T issued Purchase Order No. ER74050 in the amount of $26,500 to cover the initial investigation. We hereby request that AT&T issue a change order in the amount of $57,500 to cover the additional services described herein.

ERT understands that AT&T and U.S. Sprint have entered into an agreement to share ERT charges for services on this project. We further understand that ERT will continue to invoice AT&T for all ERT services provided both to AT&T and to U.S. Sprint. Charges related to field and laboratory services on and after December 7, 1987 have been identified to separate accounts and will be so itemized on future invoices.

ERT and REI Constructors appreciate the opportunity to provide services to AT&T and to U.S. Sprint on this project. If you agree with the terms stated herein, please provide documentation of your acceptance by signing and returning a copy of this letter. In addition, we require additional funding for ERT services and a separate purchase order/contractual agreement for REI Constructors services.

Very truly yours,

Larry M. Campbell

Larry M. Campbell
Senior Program Manager

Approved by:

for Robert C. Weber
Manager, Midwest Operations

Accepted for AT&T:

Name ____________________
Signature ____________________
Title ____________________
Date ____________________

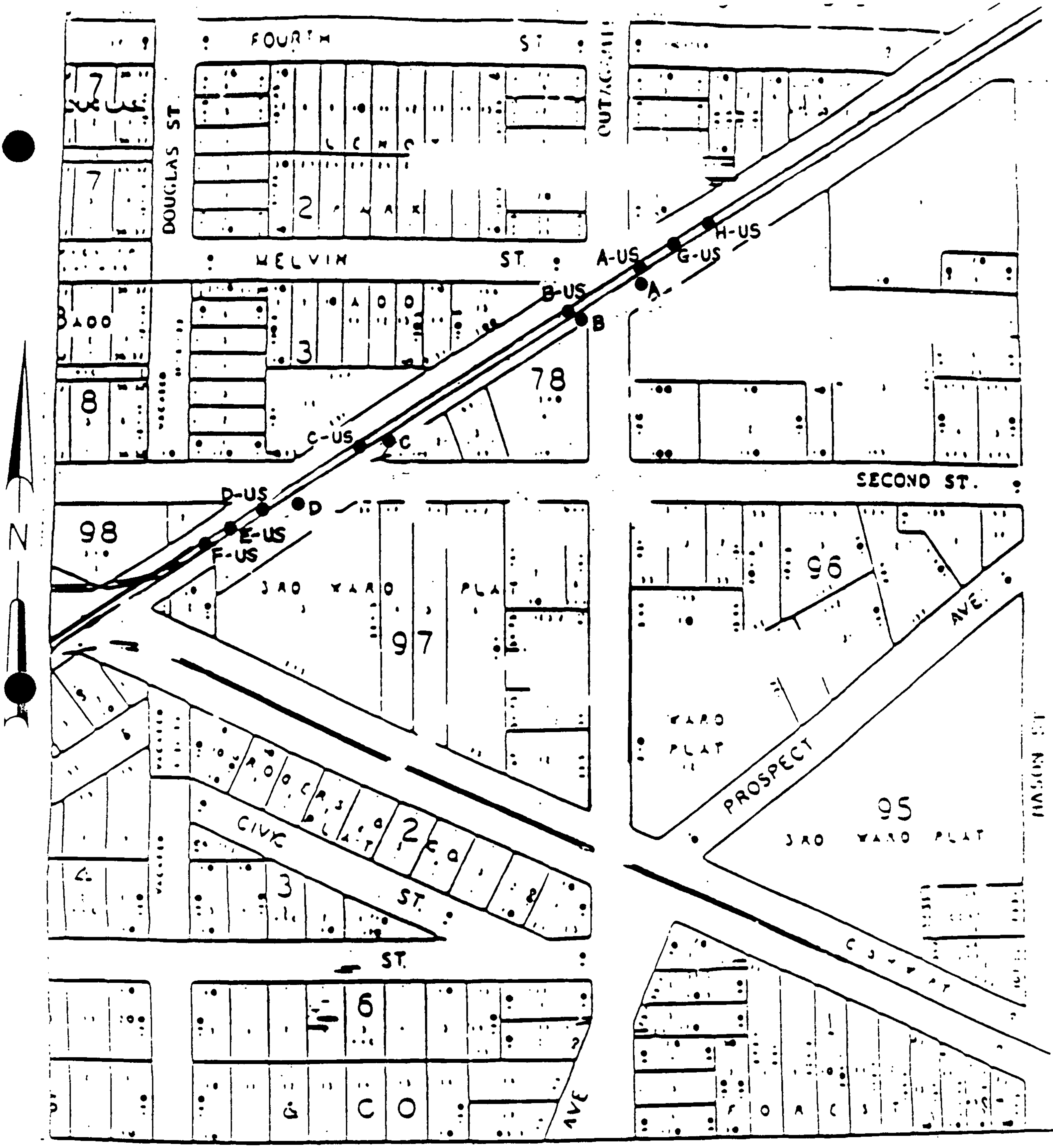
Accepted for U.S. Sprint:

Name ____________________
Signature ____________________
Title ____________________
Date ____________________

LMC/lmq

attachments: a/s

cc: M. DeBartolo
A. Basile
D. Cheney
B. Humphrey



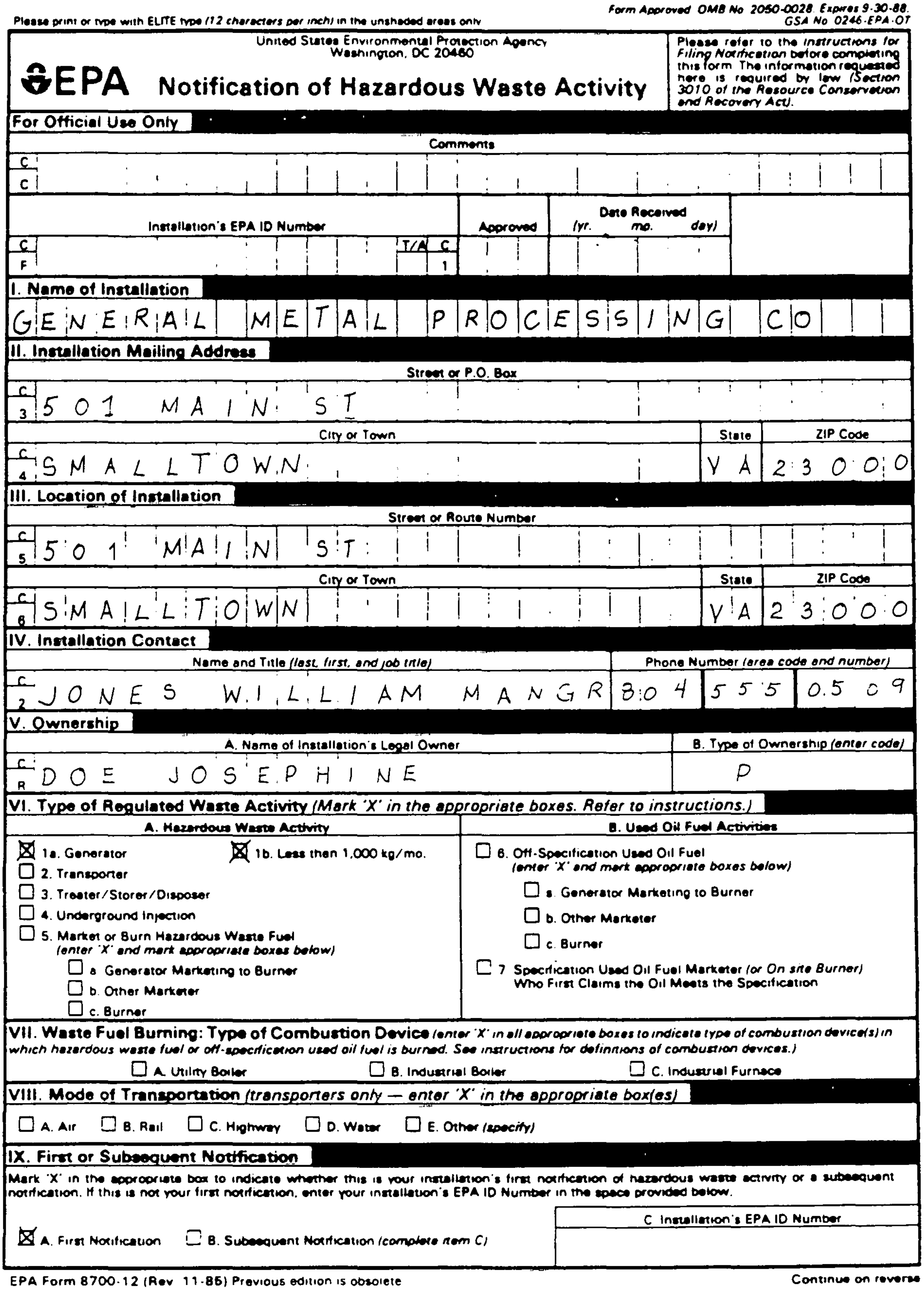
Sampling Locations on
AT&T and U.S. Sprint
Fiberoptics Lines in
Appleton, Wi.

Legend

● Sampling location
A - D AT&T
A-US - H-US U.S.Sprint

FIGURE 1

SAMPLE "NOTIFICATION OF HAZARDOUS WASTE ACTIVITY" FORM*



Please print or type with ELITE type *(12 characters per inch)* in the unshaded areas only

Form Approved OMB No 2050-0028 Expires 9-30-88.
GSA No 0246-EPA-OT

United States Environmental Protection Agency
Washington, DC 20460

EPA **Notification of Hazardous Waste Activity**

Please refer to the *Instructions for Filing Notification* before completing this form. The information requested here is required by law *(Section 3010 of the Resource Conservation and Recovery Act).*

For Official Use Only

Comments

C

C

Installation's EPA ID Number — C F — T/A C 1 | Approved | Date Received *(yr. mo. day)*

I. Name of Installation

GENERAL METAL PROCESSING CO

II. Installation Mailing Address

Street or P.O. Box: C 3 — 501 MAIN ST

City or Town: C 4 — SMALLTOWN | State: VA | ZIP Code: 23000

III. Location of Installation

Street or Route Number: C 5 — 501 MAIN ST

City or Town: C 6 — SMALLTOWN | State: VA | ZIP Code: 23000

IV. Installation Contact

Name and Title *(last, first, and job title)*: C 2 — JONES WILLIAM MANGR

Phone Number *(area code and number)*: 304 555 0509

V. Ownership

A. Name of Installation's Legal Owner: C R — DOE JOSEPHINE

B. Type of Ownership *(enter code)*: P

VI. Type of Regulated Waste Activity *(Mark 'X' in the appropriate boxes. Refer to instructions.)*

A. Hazardous Waste Activity

☒ 1a. Generator ☒ 1b. Less than 1,000 kg/mo.
☐ 2. Transporter
☐ 3. Treater/Storer/Disposer
☐ 4. Underground Injection
☐ 5. Market or Burn Hazardous Waste Fuel *(enter 'X' and mark appropriate boxes below)*
  ☐ a. Generator Marketing to Burner
  ☐ b. Other Marketer
  ☐ c. Burner

B. Used Oil Fuel Activities

☐ 6. Off-Specification Used Oil Fuel *(enter 'X' and mark appropriate boxes below)*
  ☐ a. Generator Marketing to Burner
  ☐ b. Other Marketer
  ☐ c. Burner
☐ 7. Specification Used Oil Fuel Marketer *(or On site Burner)* Who First Claims the Oil Meets the Specification

VII. Waste Fuel Burning: Type of Combustion Device *(enter 'X' in all appropriate boxes to indicate type of combustion device(s) in which hazardous waste fuel or off-specification used oil fuel is burned. See instructions for definitions of combustion devices.)*

☐ A. Utility Boiler ☐ B. Industrial Boiler ☐ C. Industrial Furnace

VIII. Mode of Transportation *(transporters only — enter 'X' in the appropriate box(es)*

☐ A. Air ☐ B. Rail ☐ C. Highway ☐ D. Water ☐ E. Other *(specify)*

IX. First or Subsequent Notification

Mark 'X' in the appropriate box to indicate whether this is your installation's first notification of hazardous waste activity or a subsequent notification. If this is not your first notification, enter your installation's EPA ID Number in the space provided below.

☒ A. First Notification ☐ B. Subsequent Notification *(complete item C)*

C. Installation's EPA ID Number

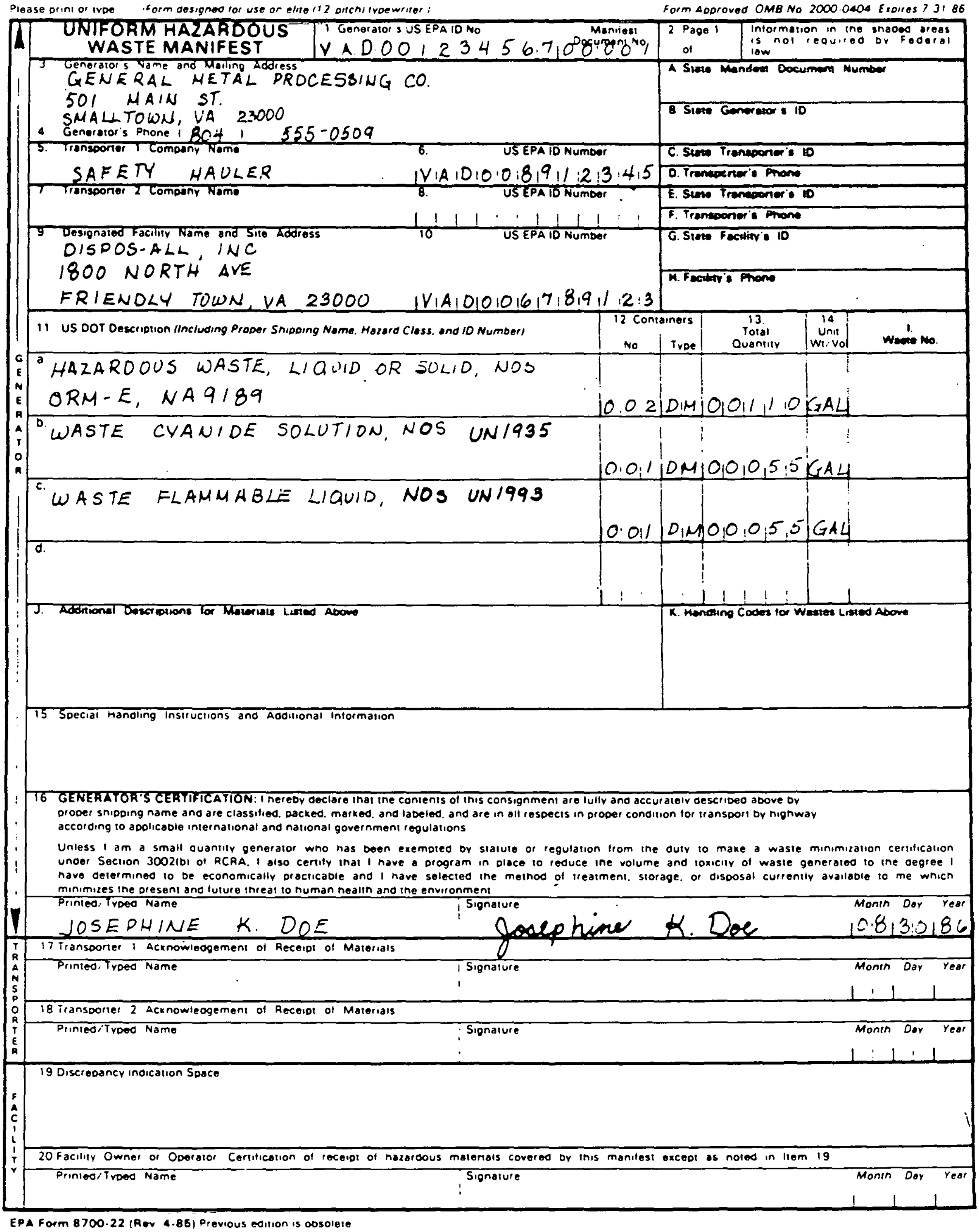
EPA Form 8700-12 (Rev 11-85) Previous edition is obsolete

Continue on reverse

**Instructions for filling out this form are provided, along with the form, by EPA. Additional information is found in Appendix B of this handbook.*

FIGURE 2

SAMPLE "UNIFORM HAZARDOUS WASTE MANIFEST" FORM*



Please print or type (Form designed for use on elite (12 pitch) typewriter.)

Form Approved OMB No 2000-0404 Expires 7 31 86

UNIFORM HAZARDOUS WASTE MANIFEST

1 Generator's US EPA ID No: VAD001234567 Manifest Document No: 00001

2 Page 1 of

Information in the shaded areas is not required by Federal law

3 Generator's Name and Mailing Address
GENERAL METAL PROCESSING CO.
501 MAIN ST.
SMALLTOWN, VA 23000

4 Generator's Phone (804) 555-0509

5. Transporter 1 Company Name: SAFETY HAULER

6. US EPA ID Number: VAD008912345

7 Transporter 2 Company Name:

8. US EPA ID Number:

9 Designated Facility Name and Site Address
DISPOS-ALL, INC
1800 NORTH AVE
FRIENDLY TOWN, VA 23000

10 US EPA ID Number: VAD000678912 3

A. State Manifest Document Number

B. State Generator's ID

C. State Transporter's ID

D. Transporter's Phone

E. State Transporter's ID

F. Transporter's Phone

G. State Facility's ID

H. Facility's Phone

GENERATOR

11 US DOT Description *(Including Proper Shipping Name, Hazard Class, and ID Number)*	12 Containers No	12 Containers Type	13. Total Quantity	14 Unit Wt/Vol	I. Waste No.
a. HAZARDOUS WASTE, LIQUID OR SOLID, NOS ORM-E, NA9189	002	DM	00110	GAL	
b. WASTE CYANIDE SOLUTION, NOS UN1935	001	DM	00055	GAL	
c. WASTE FLAMMABLE LIQUID, NOS UN1993	001	DM	00055	GAL	
d.					

J. Additional Descriptions for Materials Listed Above

K. Handling Codes for Wastes Listed Above

15 Special Handling Instructions and Additional Information

16 **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations

Unless I am a small quantity generator who has been exempted by statute or regulation from the duty to make a waste minimization certification under Section 3002(b) of RCRA, I also certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and I have selected the method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment

Printed/Typed Name: JOSEPHINE K. DOE
Signature: Josephine K. Doe
Month Day Year: 08 30 86

TRANSPORTER

17 Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name
Signature
Month Day Year

18 Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name
Signature
Month Day Year

FACILITY

19 Discrepancy Indication Space

20 Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19
Printed/Typed Name
Signature
Month Day Year

EPA Form 8700-22 (Rev 4-85) Previous edition is obsolete

**Information in the shaded areas is not required by Federal law, but this or other additional information may be required by your state.*

ERT
A RESOURCE ENGINEERING COMPANY
131 EISENHOWER LANE, LOMBARD, ILLINOIS 60148, (312) 620-5900

environmental and engineering excellence

December 4, 1987

Ref.#87-12-H022
ERT Program No. G417-500

Mr. John Seigla
AT&T Communications, Inc.
One North Wacker Drive, Room 605
Chicago, Illinois 60606

Subject: Alternate Route and Plans for Anti-Seep Plug on AT&T Lightguide Cable in Appleton, Wisconsin.

Dear Mr. Seigla:

This letter confirms my oral conversation with you on November 4, 1987 and with Mr. Steve Johnson of Finley Engineering Company on November 3, 1987 wherein I reported the results of our sampling along the two alternate lightguide routes to bypass the chromium contamination encountered along the existing lightguide route between Outagamie and Second Streets. The analytical results indicated chromium levels within normally expected limits for soils and no volatile organic compounds above detection limits. Based on available data, both of the alternate routes appear to be unaffected by the existing chromium contamination. Accordingly, either route is acceptable for installation of the bypass cable. Since the shorter route along Outagamie and Second Streets is located closer to the source of the chromium spill than is the longer route along Mason Street and the C&NW Rail line, there is an increased risk of chromium contamination along the shorter route. This risk is not quantifiable without additional investigation.

This letter also confirms and summarizes various recent conversations and correspondence with Mr. David Cheney of Finley Engineering Company during the period November 20, 1987 through today regarding the anti-seep plugs to be installed along the existing lightguide route at Outagamie Street and Second Street.

1. Four anti-seep plugs will be installed, one at each end of the steel conduits pushed under Outagamie Street and Second Street (see figure).

2. Each anti-seep plug will consist of a mixture of 25 to 30% (by weight) of bentonite and sand placed in a trench excavated perpendicular to the lightguide cable and conduit. The bentonite will be American Colloid Volclay TFS-81 formulated for use in chemical environments.

3. The plug will extend a minimum distance of 2 feet in all directions radially from the location of the innerduct and/or conduit (see figure). If the innerduct and conduit are installed at different elevations, the sand/bentonite plug will be installed a minimum of 2 feet below the lower unit (conduit or innerduct) and extend to 2 feet above the upper unit (innerduct or conduit). The plug will have a minimum thickness of 1 foot. For plugs B and C on the west side of Outagamie Street and the north side of Second Street, the minimum desired thickness is 1.5 feet.

4. The innerduct and cable will be cut at the edge of the trench so that they do not extend across the trench and through the plug. The ends of the innerduct and the conduit will be sealed with the sand/bentonite mixture or "B" sealant.

5. The sand/bentonite mixture can be prepared in a concrete redi-mix truck or similar mixer. The mixture will consist of sand (concrete sand is acceptable) with 12 to 15% water (by weight) and 25 to 30% bentonite. The water should be added to wet the sand prior to adding the powdered bentonite. The mixture must be mixed sufficiently to provide a uniform mixture of sand and bentonite without clumps of unmixed bentonite.

6. The trench will be wetted prior to being backfilled. The sand/bentonite mixture will be discharged from the mixer directly into the trench. Additional water may be sprayed on the sand/bentonite mixture during discharge to provide sufficient moisture to hydrate the bentonite. The sand/bentonite mixture should be "puddled" or otherwise compacted to insure there are no void spaces in the volume of the plug.

7. The areas of the trench on the ends of the plug and above the plug will be backfilled with existing materials that were excavated from the trench.

8. ERT personnel will inspect the installation of the anti-seep sand/bentonite plugs, and will obtain samples of soils from the walls of the trenches in the

vicinity of the innerduct and/or conduit. Results of ERT's inspection and analyses will be included in the ERT report summarizing the Appleton project.

If you have any questions, please call.

Very truly yours,

Larry M Campbell

Larry M. Campbell
Senior Program Manager

cc: D. Cheney
D. Goss
A. Basile
M. DeBartolo
R. Weber
S. Posadzy

CALCULATIONS AND COMPUTATIONS

SHEET ____ OF ____

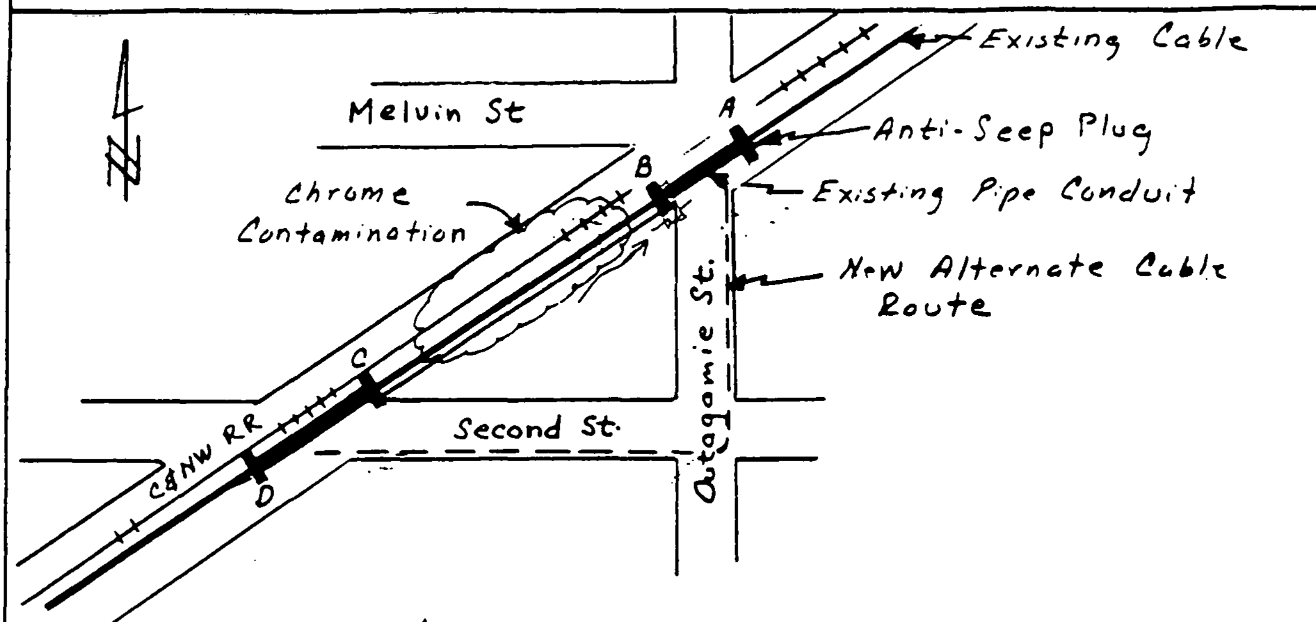
PROJECT: AT&T APPLETON

JOB NO.: G417-500

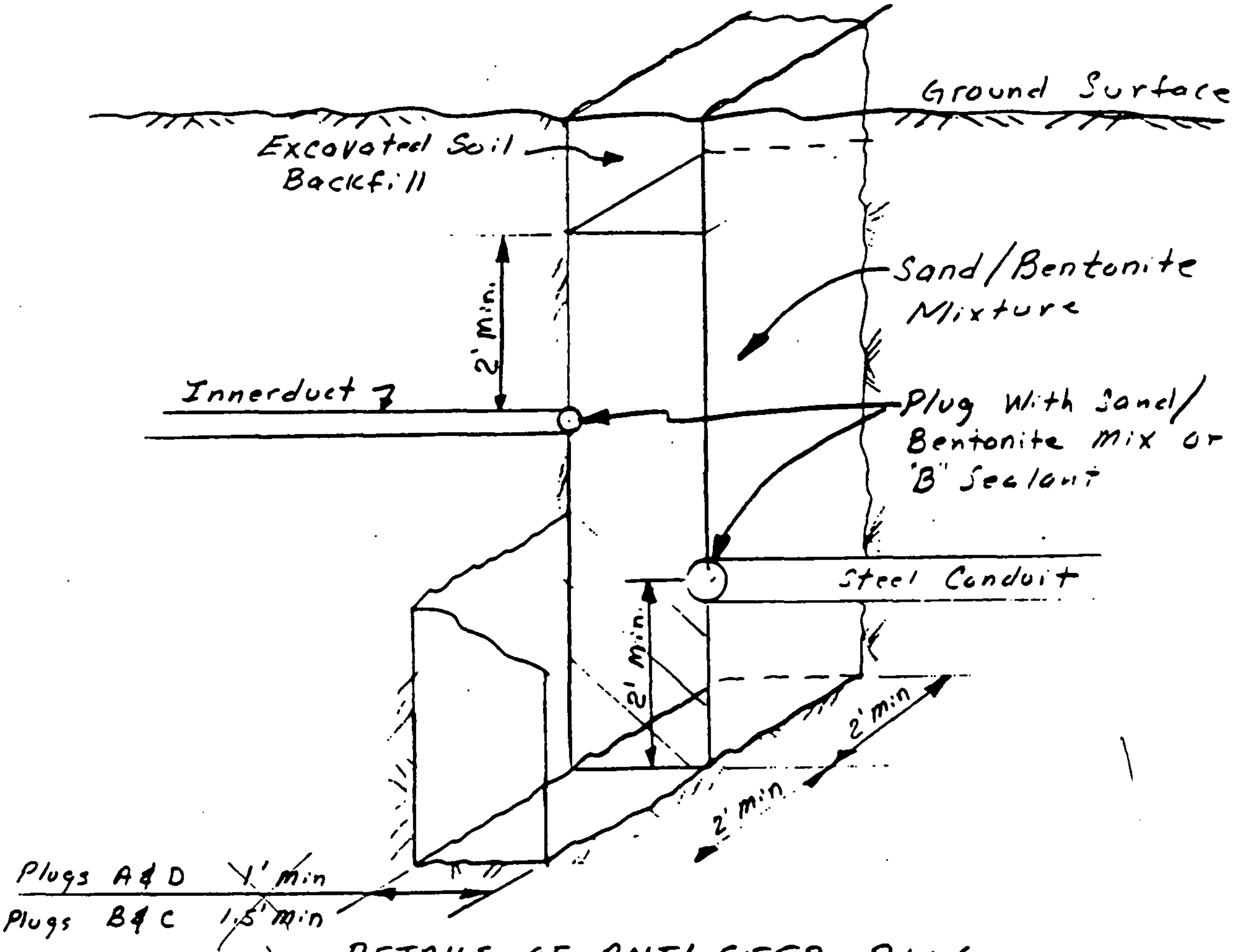
SUBJECT: ANTI-SEEP PLUGS
Location & Details

COMPUTED BY: LMC DATE: 12-4-87

CHECKED BY: ______ DATE: ______



LOCATIONS OF ANTI-SEEP PLUGS



2'

DETAILS OF ANTI-SEEP PLUG

ERT

bcc: [illegible] Long
J. Cygan
S. Posadzy

ERT
A RESOURCE ENGINEERING COMPANY
131 EISENHOWER LANE. LOMBARD. ILLINOIS 60148. (312) 620-5900

environmental and engineering excellence

January 28, 1988

Ref. #88-01-Q168
ERT Program No. G417-510 & -520

Mr. Terry L. Hegeman
Wisconsin Department of Natural Resources
1125 N. Military Ave.
P.O. Box 10448
Green Bay, WI 54307-0448

SUBJECT: Disposal Criteria for Soil and Water at Appleton, WI

Dear Mr. Hegeman:

This letter summarizes our conversations of January 27 and 28, 1988 concerning criteria for disposal of soil and water that may be encountered during planned activities on the AT&T and U.S. Sprint fiberoptic cable lines in Appleton, WI. The subject site is located on the Chicago & Northwestern Railroad line south of the N.W. Mauthe Co. between Outagamie and Second Streets. This area has been contaminated by chromic acid from the Mauthe property.

As recommended in your letter of September 9, 1987, to Mr. Roy Smith of U.S. Sprint, AT&T and U.S. Sprint are installing anti-seep plugs on their fiberoptic lines on both sides of both Outagamie and Second Streets - a total of eight plugs, four on each line. Four such plugs were installed on December 10, 1987, three on the AT&T line and one on the U.S. Sprint line. You were present at the site and observed the installation of plugs on the AT&T line. You also observed the greenish water that had seeped into the AT&T pit on the west side of Outagamie Street.

Because the greenish water may have been indicative of chromium contamination, installation of additional anti-seep plugs was deferred until samples could be analyzed and a hazardous waste contractor retained. Samples of the water in AT&T and U.S. Sprint pits on the west side of Outagamie Street had chromium levels greater than the 5 mg/l concentration that would require their classification as hazardous waste.

Because the excavated soil used to backfill these pits may have become contaminated by the groundwater in the pits, we propose to obtain and test samples of the soils that will be excavated to install anti-seep plugs at these locations. We propose to collect and composite hand auger samples from the 3, 4 and 5-ft-depth intervals and perform EP Toxicity tests on these composited samples. These soils will be classified as hazardous or non-hazardous on the basis of the results of the EP Toxicity tests. Hazardous materials will be appropriately manifested, transported and disposed in a RCRA-compliant hazardous waste disposal facility. Non-hazardous materials are proposed to be disposed on the ground surface near the pit excavation and covered with gravel, similar to the existing railroad ballast.

The purposes of my telephone calls were to describe the proposed approach for installing the remaining four anti-seep plugs (three for U.S. Sprint and one for AT&T) and to solicite your comments on this plan. It is my understanding that WDNR has no objection to disposing of non-hazardous soil at the surface provided the soil is disposed along the railroad property between Outagamie and Second Streets. The hazardous classification will be based on the results of the EP Toxicity test.

Based on your response to this approach as we discussed today, we plan to retain a qualified hazardous waste contractor and install the remaining four anti-seep plugs as described above. As you requested, I will notify you when the field installation activities are scheduled.

Please call if you have any questions.

Very truly yours,

Larry M. Campbell

Larry M. Campbell, P.E.
Senior Program Manager

LMC/lmq

cc: J. Seigla
M. DeBartolo
A. Basile
R. Smith
D. Cheney
B. Humphrey

ERT
A RESOURCE ENGINEERING COMPANY
131 EISENHOWER LANE, LOMBARD, ILLINOIS 60148, (312) 620-5900
environmental and engineering excellence

RECEIVED
FEB 22 1988
L. M. CAMPBELL

February 18, 1988

Ref. #88-02-Q208
ERT Program No. G417-810

Mr. John Seigla
AT&T Communications, Inc.
One North Wacker Drive, Room 605
Chicago, Illinois 60606

SUBJECT: Purchase Order for ERT Services at Appleton, WI

Dear Mr. Seigla:

This letter confirms our telephone conversation of February 12, 1988 wherein your stated that you would issue a local purchase order for the present and future ERT services to AT&T and U.S. Sprint at Appleton, WI. As described in my letter of January 22, 1988 (ERT Document No. 88-01-Q150), a purchase order in the additional amount of $57,500 is required to cover present and anticipated future costs to complete the project. As indicated in the referenced letter and in our recent discussions, ERT has provided requested services and incurred costs to date of about $74,500, far in excess of the original authorized amount of $26,500. Accordingly, your prompt issuance of the local purchase order will be greatly appreciated.

Please call if you have questions.

Very truly yours,

Larry M Campbell

Larry M. Campbell, P.E.
Senior Program Manager

LMC/lmq

cc: M. DeBartolo
A. Basile
J. Fiorellino
R. Weber

US Sprint
Communications
Company

P. O. Box 8490
Kansas City, MO 64114-0490

US Sprint

RECEIVED
FEB 29 1988
6417-810 (520)
L.M. CAMPBELL

February 24, 1988

Larry Campbell
ERT Resource Engineering Co.
131 Eisenhower Lane
Lombard, Ill 60148

Dear Larry,

On December 30, 1988 US Sprint received two contracts for signature from ERT Resource Engineering. These contracts were for services performed and subsequent work to be performed jointly for US Sprint and AT&T at a construction site in Appleton, Wisconsin.

Since that time it has become apparent that the interests of AT&T and US Sprint may be different, and in the future may become in conflict with each other. Therefore, US Sprint has elected to utilize its own consulting firm and ERT's services will no longer be required by US Sprint in relation to the Appleton, Wisconsin site.

Please provide an itemized invoice to this office so all services performed to date can be verified and processed for payment.

If you have any questions, please call me at 816-941-5564.

Sincerely,
Jackie Coles
Jackie Coles
Sr. OSP Engineer

Concur Beth Forwalder
Beth Forwalder-Legal Depart.

O.A. Bell-Director E/C

lmn/M-025

cc: Roy Smith
John Seigla (AT&T)
Ben Humphrey (Finley Eng.)

US Sprint Communications Company
P. O. Box 8490
Kansas City, MO 64114-0490

US Sprint

RECEIVED
MAR 11 1988
L. M. CAMPBELL

March 8, 1988

Larry Campbell
ERT Resource Engineering Co.
131 Eisenhower Lane
Lombard, Ill 60148

Dear Larry,

On December 30, 1988 US Sprint received two contracts for signature from ERT Resource Engineering. These contracts were for services performed and subsequent work to be performed jointly for US Sprint and AT&T at a construction site in Appleton, Wisconsin.

Since that time it has become apparent that the interests of AT&T and US Sprint may be different, and in the future may become in conflict with each other. Therefore, US Sprint has elected to utilize its own consulting firm and ERT's services will no longer be required by US Sprint in relation to the Appleton, Wisconsin site.

Please provide an itemized invoice to this office so all services performed to date can be verified and processed for payment.

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Sincerely,

Jackie Coles

Jackie Coles
Sr. OSP Engineer

Concur Beth Forwalder

Beth Forwalder-Legal Depart.

O.A. Bell-Director E/C

lmn/M-025

cc: Roy Smith
John Seigla (AT&T)
Ben Humphrey (Finley Eng.)

FINLEY ENGINEERING COMPANY
CONSULTING ENGINEERS
P.O. BOX 147
EAU CLAIRE WI 54702-0147
715 834 2605

RECEIVED
MAY 20 1988
L. M. CAMPBELL

May 18, 1988

Larry Campbell
ERT
131 Eisenhower Lane
Lombard, IL 60148

Re: AT&T Appleton, Wisconsin Acid Spill

Dear Mr. Campbell:

Due to the recent IBT Company fire, Finley Engineering Company has had difficulty contacting ERT to arrange for the completion of their work for AT&T in Appleton, Wisconsin.

On March 7, 1988, I spoke to you about completing the required work by ERT at the earliest possible time. It was agreed that ERT would contact our Resident Engineer, Dale Goss, prior to beginning the work. AT&T would expect this work to be completed soon and a final report prepared.

Please contact Finley Engineering Company as to ERT's schedule as soon as possible.

If you have any questions, please call me at (715)834-2605.

Yours very truly,

David W. Cheney, P.E.

lmo
cc: J. Seigla

ERT.
An ENSR Company
131 EISENHOWER LANE, LOMBARD, IL 60148, (312) 620-5900

environmental and engineering excellence

July 22, 1988

Ref. #88-07-Q508
ERT Program No. 0550-029-510

RECEIVED
JUL 22 1988
L. M. CAMPBELL

Mr. John Seigla
AT&T Communications, Inc.
One North Wacker Drive, 6th Floor
Chicago, Illinois 60606

SUBJECT: Resumption of Operations to Complete Anti-Seep Plug Installation at AT&T Fiberoptics Cable Line in Appleton, Wisconsin

Dear Mr. Seigla:

As requested by Mr. David Cheney of Finley Engineering Co. on May 18, 1988, ERT has resumed operations to complete work at the AT&T fiberoptics cable line site in Appleton, Wisconsin. As described in my letter of January 28, 1988 (Ref. #88-01-Q168, attached) to Mr. Hegeman of the Wisconsin Department of Natural Resources (WDNR), ERT sampled the soil at the remaining proposed AT&T anti-seep plug location B on the west side of Outagamie Street on June 1, 1988.

The soil sample was analyzed for EP Toxicity metals and was found to contain no metals concentrations in the extract that exceeded the maximum allowable concentrations. In fact, all metals concentrations were below detection limits except for barium whose concentration was 0.31 mg/l (maximum allowable concentration is 100 mg/l). Accordingly, the soils at plug location B are classified as non-hazardous and may be disposed at the surface near the pit excavation.

ERT and our sister company ENSR Constructors, Inc. are planning to complete installation of the anti-seep plug late next week or early the following week (July 28 through August 3, 1988). This action will require assistance from Finley Engineering Co to locate the end of the conduit at Outagamie Street and to arrange for a C&NW Railroad flagman. As described in the attached letter, ERT will also notify Mr. Hegeman of WDNR of our plans once a firm schedule has been established.

ALASKA · CALIFORNIA · COLORADO · ILLINOIS · MASSACHUSETTS · MINNESOTA · NEW JERSEY · PENNSYLVANIA · TEXAS · WASHINGTON

Following completion of this final plug installation, ERT will complete the draft report summarizing our multi-phased investigations and anti-seep plug installation activities. We will finalize the report following receipt of AT&T and Finley Engineering Co. comments.

If you have any questions, please call. We appreciate the opportunity to be of continuing service to AT&T Communications.

Very truly yours,

Larry M. Campbell

Larry M. Campbell, P.E.
Technical Operations Manager

LMC/lmq
attachment

cc: M. DeBartolo
A. Basile
D. Cheney
T. Smart
S. Posadzy

bcc: [redacted]
J. Cygan
S. Posadzy

ERT
A RESOURCE ENGINEERING COMPANY
131 EISENHOWER LANE, LOMBARD, ILLINOIS 60148, (312) 620-5900

environmental and engineering excellence

January 28, 1988

Ref. #88-01-Q168
ERT Program No. G417-510 & -520

Mr. Terry L. Hegeman
Wisconsin Department of Natural Resources
1125 N. Military Ave.
P.O. Box 10448
Green Bay, WI 54307-0448

SUBJECT: Disposal Criteria for Soil and Water at Appleton, WI

Dear Mr. Hegeman:

This letter summarizes our conversations of January 27 and 28, 1988 concerning criteria for disposal of soil and water that may be encountered during planned activities on the AT&T and U.S. Sprint fiberoptic cable lines in Appleton, WI. The subject site is located on the Chicago & Northwestern Railroad line south of the N.W. Mauthe Co. between Outagamie and Second Streets. This area has been contaminated by chromic acid from the Mauthe property.

As recommended in your letter of September 9, 1987, to Mr. Roy Smith of U.S. Sprint, AT&T and U.S. Sprint are installing anti-seep plugs on their fiberoptic lines on both sides of both Outagamie and Second Streets - a total of eight plugs, four on each line. Four such plugs were installed on December 10, 1987, three on the AT&T line and one on the U.S. Sprint line. You were present at the site and observed the installation of plugs on the AT&T line. You also observed the greenish water that had seeped into the AT&T pit on the west side of Outagamie Street.

Because the greenish water may have been indicative of chromium contamination, installation of additional anti-seep plugs was deferred until samples could be analyzed and a hazardous waste contractor retained. Samples of the water in AT&T and U.S. Sprint pits on the west side of Outagamie Street had chromium levels greater than the 5 mg/l concentration that would require their classification as hazardous waste.

Because the excavated soil used to backfill these pits may have become contaminated by the groundwater in the pits, we propose to obtain and test samples of the soils that will be excavated to install anti-seep plugs at these locations. We propose to collect and composite hand auger samples from the 3, 4 and 5-ft-depth intervals and perform EP Toxicity tests on these composited samples. These soils will be classified as hazardous or non-hazardous on the basis of the results of the EP Toxicity tests. Hazardous materials will be appropriately manifested, transported and disposed in a RCRA-compliant hazardous waste disposal facility. Non-hazardous materials are proposed to be disposed on the ground surface near the pit excavation and covered with gravel, similar to the existing railroad ballast.

The purposes of my telephone calls were to describe the proposed approach for installing the remaining four anti-seep plugs (three for U.S. Sprint and one for AT&T) and to solicite your comments on this plan. It is my understanding that WDNR has no objection to disposing of non-hazardous soil at the surface provided the soil is disposed along the railroad property between Outagamie and Second Streets. The hazardous classification will be based on the results of the EP Toxicity test.

Based on your response to this approach as we discussed today, we plan to retain a qualified hazardous waste contractor and install the remaining four anti-seep plugs as described above. As you requested, I will notify you when the field installation activities are scheduled.

Please call if you have any questions.

Very truly yours,

Larry M. Campbell

Larry M. Campbell, P.E.
Senior Program Manager

LMC/lmq

cc: J. Seigla
M. DeBartolo
A. Basile
R. Smith
D. Cheney
B. Humphrey

FINLEY ENGINEERING COMPANY
CONSULTING ENGINEERS
P.O. BOX 147
EAU CLAIRE. WI 54702-0147
715-834-2605

RECEIVED
JUL 27 1988
L. M. CAMPBELL

July 25, 1988

John Seigla
AT&T Communications, Inc.
6th Floor
One North Wacker Drive
Chicago, IL 60606

RE: Appleton Acid Spill - ERT

Dear Mr. Seigla:

ERT was contacted on July 18, 1988 to ascertain their progress in completing the acid spill related work in Appleton, Wisconsin. On Friday July 22, 1988, Mr. Campbell contacted me that ERT was arranging to complete the work in the next couple weeks and that Dale Goss, our Resident Engineering would be advised when work is to begin. The work as Mr. Campbell described it would be minimal dirt work and grading.

If you have any questions, please call me at (715)834-2605.

Yours very truly,

David W. Cheney, P.E.

cdr

cc: ERT

FINLEY ENGINEERING COMPANY
CONSULTING ENGINEERS
P.O. BOX 147
EAU CLAIRE, WI 54702-0147
715-834-2605

RECEIVED
AUG 5 1988
L. M. CAMPBELL
0550-029

August 3, 1988

John Seigla
AT&T Communications, Inc.
6th Floor
One North Wacker Drive
Chicago, IL 60606

RE: Appleton Acid Spill

Dear Mr. Seigla:

John Schiffgens, ERT contacted Finley Engineering Company's Resident Engineer, Dale Goss to inform us that the last Bentonite plug will be poured in Appleton during the week of August 15, 1988.

If you have any questions, please call me at (715)834-2605.

Yours very truly,

David W. Cheney, P.E.

cdr
cc: Larry Campbell, ERT

ERT.
An ENSR Company
1 EISENHOWER LANE, LOMBARD, IL 60148. (312) 620-5900

environmental and engineering excellence

RECEIVED
AUG 13 1988
L. M. CAMPBELL

August 12, 1988

Ref. #88-08-Q550
ERT Program No. 0550-029-520

Mr. Jackie Coles
U.S. Sprint Communications Company
P.O. Box 8490
Kansas City, MO 64114-0490

SUBJECT: Final Report of ERT Services for U.S. Sprint at Chromium Contaminated Site in Appleton, Wisconsin

Dear Mr. Coles:

ERT appreciates receiving your check No. 570256, dated July 29, 1988 in the amount of $18,095.90 as a partial "good faith" payment of half of the $36,191.80 amount invoiced to U.S. Sprint in March 1988 (ERT Ref. #88-03-M153). Invoices for ERT services performed for U.S. Sprint in March and April 1988 totalling $2,705.95 were recently sent to you (ERT Ref. #88-08-Q549).

In response to your "good faith" payment and our July 26, 1988 telephone conversation, ERT will prepare a Final Report describing ERT services, analytical results, and conclusions regarding our work at the chromium contaminated site in Appleton, Wisconsin. It is our understanding that delivery of the referenced Final Report will expedite U.S. Sprint payment of the currently outstanding amount due ERT of $20,801.85. Additionally, we will invoice U.S. Sprint for the ERT charges to complete and deliver the Final Report.

ERT has performed services at the subject site on behalf of U.S. Sprint as requested and authorized by Messrs. Knuth and Humphrey of Finley Engineering Company and by your construction superintendent, Mr. Dean Cline. These professional engineering services were performed expeditiously and in good faith that U.S. Sprint would honor the commitments made by your agents. Again, we are proceeding to prepare the requested Final Report on faith that U.S. Sprint will honor the oral commitment made by Mr. Coles during the July 26th telephone call. We trust that our faith is justified and that ERT will not have to resort to other means to collect the monies due for services provided.

ALASKA · CALIFORNIA · COLORADO · ILLINOIS · MASSACHUSETTS · MINNESOTA · NEW JERSEY · PENNSYLVANIA · TEXAS · WASHINGTON

Please call if you have questions or if our understanding of your plans are not correct.

Very truly yours,

Larry M Campbell

Larry M. Campbell, P.E.
Technical Operations Manager

LMC/lmq

Enclosures

cc: B. Humphrey
D. Cheney
M. DeBartolo
A. Basile

bcc: R. Weber
     J. Fiorellino
     H. Sanger

RECEIVED
AUG 18 1988
L. M. CAMPBELL

ADDENDUM TO AT&T LIGHTGUIDE CABLE HEALTH AND SAFETY PLAN

SCOPE OF PROJECT/TASK: ERT/ENSR will excavate a 4.0′ x 4.0′x 6.0′ hole at the cable right-of-way and fill it with grout to provide a barrier to contaminant migration in the cable right-of-way. The spoil material will be evenly distributed on the site at grade.

PROPOSED ON-SITE ACTIVITIES: ERT will utilize a backhoe to perform the excavation. Grout will be delivered and deposited into the excavation. The waste material that results from the excavation will be distributed by the backhoe at grade throughout the site.

PROPOSED DATE(S) OF FIELD ACTIVITIES: August 19, 1988

PERSONNEL REQUIREMENTS:

NAME:	RESPONSIBILITY:
Terry Smart	Project Superintendent
Glenn Anderson	Project Engineer
Mike Adkinson	Equipment Operator

OPERATIONAL HAZARDS:

1. The rail tracks are active. If a flagman from the C&NN Railroad is not provided then one of the site personnel will need to perform the role of flagman, and alert the workers to the presence of rail traffic. Equipment will be removed from the tracks or rail bed area if and when rail traffic is noted.

2. The planned area of the excavation shall be defined by caution tape to assure no inadvertent access to the work area during the excavation.

3. The planned depth of excavation is below the five foot limit for personnel access to the excavation without shoring or personal protection. No access by personnel to the excavation will be permitted, unless adequate shoring of the excavation is performed. If it becomes necessary to mix the grout compound and any intrusive groundwater, this will be performed using the bucket of the backhoe.

PERSONAL PROTECTION/TRAINING REQUIREMENTS

The nature of the chrome contaminants are not a respiratory hazard, nor do they represent a skin hazard in the concentrations that are present. It will be necessary to don the protective clothing only if a splash hazard exists with the excavated material.

The results of the analyses performed on soil sampled in this area are included. Note the levels for VOC and metals contamination for this area.

All personnel will be briefed as to the planned work evolution that will occur prior to the start of work. Personnel should be familiar with the Health and Safety Plan and the addendum.

AIR MONITORING REQUIREMENTS

MONITORING PROCEDURE: Monitor the breathing zone of the person nearest the excavation a minimum of once each half hour. If levels during monitoring exceed 50 ppm as read on the Hnu, leave the work area and don half-face respiratiors with organic canisters.

Prepared By: Date: 18 Aug 88

Approved By: Larry M Campbell Date: 18 Aug 88

Proj. Manager

DATE: 06/15/88

TO: Larry Campbell

FROM: Bo Blankfield, Laboratory Director Linda Basile for BB

PROJ. NO.: 0550-029-510 LAB NO.: 9498

Attached are reports of chemical analyses of samples received June 2, 1988. These analyses are:

Count	Test Code		Test Name	Test Method	Sampled	Matrix
1	Ag	-S-EPT-HOU	EP TOXICITY SILVER ON SOLID	LEACHATE: 846:1310, Ag: SM:303A, AA	06/01/88	SOIL
1	As	-S-EPT-HOU	EP TOXICITY ARSENIC ON SOLID	LEACHATE:SW846:1310, ARSENIC:SM303E	06/01/88	SOIL
1	Ba	-S-EPI-HOU	EP TOXICITY BARIUM ON SOLID	LEACHATE:SW846:1310,Ba:846:6010,ICP	06/01/88	SOIL
1	Cd	-S-EPI-HOU	EP TOXICITY CADMIUM ON SOLID	LEACHATE:SW846:1310,Cd:846:6010,ICP	06/01/88	SOIL
1	Cr	- -ICP-HOU	CHROMIUM	EPA 600: 200.7, ICP	06/01/88	LIQUID
1	Cr	-S-EPI-HOU	EP TOXICITY CHROMIUM ON SOLID	LEACHATE:SW846:1310,Cr:846:6010,ICP	06/01/88	SOIL
1	Hg	-S-EPT-HOU	EP TOXICITY MERCURY ON SOLID	LEACHATE:SW846:1310, MERCURY:SM303F	06/01/88	SOIL
1	Pb	-S-EPI-HOU	EP TOXICITY LEAD ON SOLID	LEACHATE:SW846:1310,Pb:846:6010,ICP	06/01/88	SOIL
1	Se	-S-EPT-HOU	EP TOXICITY SELENIUM ON SOLID	LEACHATE: SW846:1310, SELENIUM:303E	06/01/88	SOIL

Data contained in this report reflect a full quality control review and have met all applicable standards established by ERT. ERT quality assurance protocols are in accordance with EPA guidelines.

Should you have any questions, do not hesitate to contact me at (713) 520-9900.

BB/lis

Enclosures: Analytical Summary, Analytical Reports, Chain of Custody, Sample Receipt Checklist, Quality Control Logs, Billing Summary

LAB NO. 9498
PROJECT 0550-029-510 AT&T

ERT

ERT LABORATORIES

Analytical Report
06/15/88 06:47

AT&T	Field ID: MAY-B-1	Date Sampled: 06/01/88
Proj. No.: 0550-029-510	Lab ID: 1	Time Sampled: 1300
Lab No.: 9498	Matrix: SOIL	Date Received: 06/02/88

Parameter (Test Code) (Test Name) (Test Method)	Concentration	Units	Method Detection Limit	Date/Time Analysis Performed
Ag -S-EPT-HOU EP TOXICITY SILVER ON SOLID LEACHATE: 846:1310, Ag: SM:303A, AA	<0.02	MG/L	0.02	06/06/88 1000
As -S-EPT-HOU EP TOXICITY ARSENIC ON SOLID LEACHATE: SW846:1310, ARSENIC:SM303E	<0.0025	MG/L	.0025	06/06/88 1430
Ba -S-EPI-HOU EP TOXICITY BARIUM ON SOLID LEACHATE:SW846:1310,Ba:846:6010,ICP	0.31	MG/L	0.02	06/06/88 1149
Cd -S-EPI-HOU EP TOXICITY CADMIUM ON SOLID LEACHATE:SW846:1310,Cd:846:6010,ICP	<0.010	MG/L	0.010	06/06/88 1149
Cr -S-EPI-HOU EP TOXICITY CHROMIUM ON SOLID LEACHATE:SW846:1310,Cr:846:6010,ICP	<0.02	MG/L	0.02	06/06/88 1149
Hg -S-EPT-HOU EP TOXICITY MERCURY ON SOLID LEACHATE:SW846:1310, MERCURY:SM303F	<0.0025	MG/L	.0025	06/09/88 1300
Pb -S-EPI-HOU EP TOXICITY LEAD ON SOLID LEACHATE:SW846:1310,Pb:846:6010,ICP	<0.04	MG/L	0.04	06/06/88 1149
Se -S-EPT-HOU EP TOXICITY SELENIUM ON SOLID LEACHATE: SW846:1310, SELENIUM:303E	<0.0025	MG/L	.0025	06/06/88 1130

***** CONTINUED *****

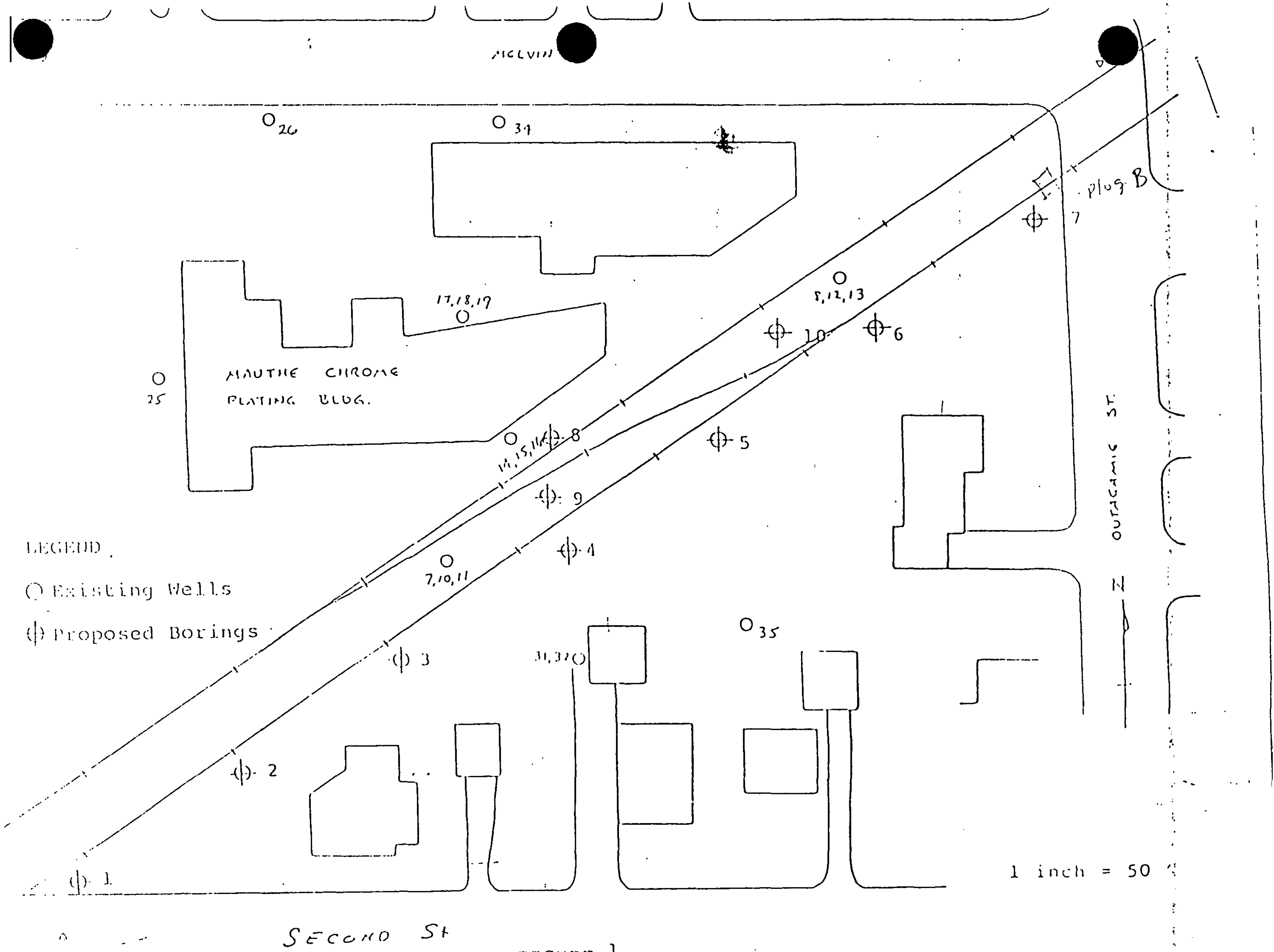


FIGURE 1

Map Showing Boring Locations

TABLE 3-5
ANALYTICAL RESULTS: PHASE III GROUNDWATER

Sample No.	Total Chromium (mg/kg)	Hexavalent Chromium (mg/kg)	VOC Detected	VOC Conc. (μg/l)0
~~A-W-US~~	~~0.056~~	~~<0.002[3]~~	~~None~~	~~BDL~~
B-W	5.84	5.40[3]	Acetone	130
~~B-W-US~~	~~15.7~~	~~14.0[3]~~	~~1,1,1-Trichloethane~~	~~35~~
			~~Toluene~~	~~3.4~~
			~~Total Xylenes~~	2.6
Field[2] Blank	<0.01	<0.02	Chloroform	8.2
Field[2] Blank	<0.01	<0.002[3]	Chloroform	4.3
Field[2] Blank	<0.01	<0.002[3]	Toluene	4.7
Shipping[2] Blank	<0.01	<0.02	Chloroform	8.0
Shipping[2] Blank	<0.01	<0.002[3]	Chloroform	4.6
Shipping[2] Blank	<0.01	<0.002[3]	Toluene	3.2

Notes

1. BDL= Below Detection Limits (See Appendix C for detection limits of various VOCS).
2. Deionized water
3. The required holding time for analysis after sampling (24 hrs.) was exceeded.

TABLE 3-4
ANALYTICAL RESULTS: PHASE III SOIL

Sample No.	Total Chromium (mg/kg)	Hexavalent Chromium (mg/kg)	VOC Detected	VOC Conc. (µg/kg)
A-1	30.6	<0.08	None	BDL
A-1-US	29.8	<0.08	None	BDL
B-1	59.0	2.56	None	BDL
~~B-1-US~~	~~35.8~~ dupl	~~1.60~~	~~None~~	~~BDL~~
B-2	55.8	2.30	None	BDL
~~B-2-US~~	~~43.2~~	~~1.88~~	~~None~~	~~BDL~~
B-3	36.8	5.94.	None	BDL
B-3-US	34.8	1.40	None	BDL
C-1	157.4	<0.08	None	BDL
C-1-US	33.8	<0.08	None	BDL
C-2	92.0	<0.08	None	BDL
C-2-US	24.8	<0.08	None	BDL
D-1	27.6	<0.08	None	BDL
D-1-US	19.1	<0.08	None	BDL

Notes

1. BDL= Below Detection Limits (See Appendix C for detection limits of various VOCs).

TABLE 3-1
ANALYTICAL RESULTS: PHASE I SOIL

Sample No.	Total Chromium (mg/kg)	Hexavalent Chromium (mg/kg)	VOC Detected	VOC Conc. (µg/kg)
SB-01	26	<20	2-Butanone	1.4
SB-02	45	<20	NA	-
SB-03	98	<20	2-Butanone	1.4
SB-04	519	80	2-Butanone	1.4
SB-05	59	<20	NA	-
SB-06	238	<20	NA	-
SB-07	26	<20	2-Butanone	1.2
SB-08	536	88	None	BDL
SB-10	172	72	NA	-
SB-12[3]	478	<20	2-Butanone	1.1
MB870847[4]	NA	NA	2-Butanone	1.9
MB870848[4]	NA	NA	2-Butanone	18

Notes

1. NA = Not Analyzed
2. BDL= Below Detection Limits (See Appendix C for detection limits of various VOCS).
3. SB-12 is a duplicate of SB-04.
4. Laboratory method blank.

US Sprint
Communications
Company

P. O. Box 8490
Kansas City, MO 64114-0490

RECEIVED
SEP 21 1988
L. M. CAMPBELL

US Sprint

September 19, 1988

Larry Campbell
ERT Engineering
131 N. Eisenhower Lane
Lombard, Ill 60148

RE: Chromium contamination, Appleton, WI

Mr. Campbell

Per your letter dated August 12, 1988, a final report was being prepared for this project. As of September 19, 1988, I have not received this report. I am returning these invoices and will be unable to pay any future invoices until a "final report" has been received and reviewed by this office.

Please provide this report and all invoices to this office as soon as possible so payment can be made.

If you have any questions, please call.

Regards

Jackie Coles

Jackie Coles

cc: O.A. Bell
Beth Forwalder
file

ERT
An ENSR Company
31 EISENHOWER LANE, LOMBARD, IL 60148. (312) 620-5900

environmental and engineering excellence

September 30, 1988

Ref. #88-09-Q616
ERT Program No. 0550-029-520

Mr. Jackie Coles
U.S. Sprint Communications
P.O. Box 8490
Kansas City, Missouri 64114-0490

SUBJECT: Final Report for Soil and Groundwater Investigation and Anti-Seep Plug Installation at U.S. Sprint Cable Site in Appleton, WI

Dear Mr. Coles:

Transmitted herewith are three copies of our Final Report describing ERT services, analytical results, and conclusions regarding our services for U.S. Sprint at the chromium contaminated fiberoptic cable site in Appleton, WI.

This report documents our investigation at and adjacent to the contaminated cable route (Phase I) and along potential alternate routes (Phase II). It also documents the installation of one of four planned anti-seep plugs (Phase III). U.S. Sprint elected to defer installation of remaining anti-seep plugs pending investigation of alternate plug locations (Phase IV).

On October 1, 1988, we are changing our name to ENSR Consulting and Engineering. Concurrently, we are moving our Chicago area office to 740 Pasquinelli Drive, Westmont, IL 60559. If we can be of further service or if you have questions, please call us at our new telephone (312) 887-1700.

Very truly yours,

Larry M Campbell

Larry M. Campbell, P.E.
Technical Operations Manager

LMC/lmq

Enclosures

cc: B. Humphrey (w/o enclosure)
D. Cheney (w/o enclosure)
M. DeBartolo (w/o enclosure)
A. Basile (w/o enclosure)

FILE

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES
Carroll D. Besadny
Secretary

Box 7921
Madison, Wisconsin 53707

November 30, 1988

IN REPLY REFER TO: 4430

RECEIVED
DEC 5 1988
L. M. CAMPBELL

Mr. Larry M. Campbell, P.E.
ERT
131 Eisenhower La.
Lombard, IL 60148

SUBJECT: N.W. Mauthe Company
Appleton, Wisconsin
Superfund Response

Dear Mr. Campbell:

We wish to inform you of the status of the N.W. Mauthe Company chromium contamination case and the expected response under the Federal Superfund program. We are sending this letter to property owners, residents and businesses adjacent to the site and others who may have an interest in the case. If you own property or rent to others near the site, please pass this letter on to them.

The State has recently concluded its enforcement action under the State "spill" law against the owner of the property where the contamination originated. There are no plans at this time to take further State enforcement actions under that law.

On June 21, 1988, the United States Environmental Protection Agency (EPA) added the site to the federal Superfund National Priorities List (NPL), making the site eligible for a response under that program. At the end of September, our agency entered into an agreement with EPA to conduct a full investigation of the site, known as a Remedial Investigation/Feasibility Study (RI/FS). The purpose of the investigation is to determine the extent of contamination in the area and select a complete remedy (clean-up) of the site. We will soon be hiring a qualified consulting firm to conduct the investigation; which is expected to begin early next year. This investigation will be funded by the Superfund trust fund. We expect, at this time, the construction of the remedy to be funded by that trust fund, with the State contributing a 10% share of those costs.

As a result of our earlier interim clean-up actions, we believe the site has been stabilized and does not pose an imminent risk to people living nearby. However, near-surface soil contamination remains and heavy rainfall or snowmelt could bring more chromium contamination to the surface (this would be expressed as yellow or greenish water or stained soil at the surface). Therefore, we suggest that people avoid the site; children and pets should certainly remain clear of it to avoid direct contact with surface soils. Should you notice any surface contamination emanating from the site, please report it immediately to the local DNR office in Oshkosh or Green Bay.

We are concerned about the remaining contamination, therefore, we plan to design the Superfund action to include a faster than normal interim clean-up. The interim clean-up could occur as soon as next summer.

You should know that the Superfund process includes a full public participation element. Before we begin the investigation, we will hold a public meeting early next year in Appleton to discuss the work and answer any questions. A number of public meetings will be taking place throughout the Superfund process. For example, we will have another meeting after the investigation is complete, but before a final remedy is selected. The public's input into the process is appreciated and will be considered when important decisions are made.

Should you have any questions regarding this matter, please contact me [(608) 267-7563] or Ms. Annette Weissbach, Superfund Coordinator, at our Lake Michigan District Office in Green Bay [(414) 497-3151].

Sincerely,

Gary A. Edelstein, P.E., Project Coordinator
Environmental Response and Repair Section
Bureau of Solid & Hazardous Waste Management

GE:lm/PC34
Perm\sw9mpubl.gae

cc: Annette Weissbach - LMD
    Dave Misterek - Oshkosh Area Office
    Mike Gifford - U.S. EPA Region V
    Meg Ziarnek - DHSS
    Shari Eggleson - DOJ
    Wendy Wiesensel - IE/4

ENSR

Formerly ERT

ENSR Consulting
and Engineering

740 Pasquinelli Drive
Suite 124
Westmont, IL 60559
(312) 887-1700

December 16, 1988

Mr. John Seigla
AT&T Communications, Inc.
One North Wacker Drive, Room 605
Chicago, Illinois 60606

SUBJECT: Draft Report of Soil Investigation and Anti-Seep Plug Installation at AT&T Cable Site in Appleton, Wisconsin

Dear Mr. Seigla:

Transmitted herewith for your review is a draft copy of our report on the Soil Investigation and Anti-Seep Plug Installation at the AT&T Cable Site in Appleton, Wisconsin. This report summarizes all ENSR activities for AT&T at the subject site from the initial Phase I investigation through the final Phase IV installation of the final anti-seep plug.

Copies of this report are being distributed to others as noted below. Following your review and comment, we are prepare to revise, finalize and issue this report.

As you are aware, we prepared a similar report for U.S. Sprint summarizing our services that were co-sponsored by U.S. Sprint and AT&T as well as those provided solely for U.S. Sprint. U.S. Sprint has subsequently retained another consultant to provide on-going consulting services regarding the subject site. We have been informed by U.S. Sprint's consultant that U.S. Sprint plans to provide a report to the Wisconsin Department of Natural Resources (WDNR) that will include some or all of the results contained in ENSR's report to U.S Sprint. In view of the site recently being identified as an NPL (Superfund) site, we recommend that AT&T also consider providing similar information to WDNR.

If you have questions or comments, please call. We appreciate being of continuing service to AT&T on this interesting project.

Very truly yours,

Larry M. Campbell

Larry M. Campbell, P.E.
General Manager
Chicago Operations

LMC/lmq

ENSR Program No. 0550-029-510
Ref. #88-12-Q726

cc: M. DeBartolo
A. Basile
D. Cheney

FILE

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES
Carroll D. Besadny, Secretary
Box 7921
Madison, Wisconsin 53707
TELEFAX NO. 608-267-3579
TDD NO. 608 267-6897

March 31, 1989

IN REPLY REFER TO: 4440

RECEIVED
APR 10 1989
L.M. CAMPBELL

Mr. Glenn Balanoff
Staff Scientist
Woodward - Clyde Consultants
122 South Michigan Avenue
Suite 1920
Chicago, IL 60603

SUBJECT: Right-of-Way Assessment Report
N.W. Mauthe Company
Appleton, Wisconsin

Dear Mr. Balanoff:

The Department has completed its review of the above-referenced report, prepared by your firm for U.S. Sprint Communications Company. The report was received on December 21, 1988. Based upon our review, we have the following comments:

A. General Observations

We found the report somewhat confusing and difficult to follow. The figures presenting sampling locations and tables summarizing the sample data did not match very well. There appeared to be gaps in presenting data previously collected by ERT (now ENSR). At a minimum, we suggest all the ERT report(s) and data be provided, the tables be re-done to clarify them, and the report revised to account for this letter.

We don't know exactly what U.S. Sprint intends to use this report for, but we suspect they are interested in knowing our reactions and observations to the following issues:

1. Was the site restored in accordance with our requirements after the disturbance occurred?

2. Was the re-routing of the lines acceptable and did the rerouting activities affect the site?

3. Are the telephone companies potentially responsible parties (PRP's) under Superfund in view of what has happened so far?

Based on the report, and the information we have on file for the case, we have the following reactions and observations to these issues:

1. The information does not document that the site was restored as required. More information is needed to determine if the actions taken were adequate and if more restoration is needed. See our detailed comments below for further explanation.

2. It appears that the installation of the re-routed lines did not affect the site significantly. However, our opinion on this issue could change if new information comes to light on the re-routing activities.

3. While EPA will make the determination of who is a PRP, we expect they will consider our input. We believe they will examine the effects the disturbance had on contaminant distribution and if the restoration activities were adequate to prevent significant further migration. Proper documentation of the disturbance events and restoration activities will be imperative, if the phone companies wish to avoid potential liability under Superfund.

B. Specific Comments

1. Page 1 - The report indicates routine easement searches included contacts with our agency. Please describe the purpose of such searches and the activities normally associated with their implementation. Who at the Department was contacted and why? Were Solid Waste/Spill program staff contacted? If not, why not?

2. Page 2 - A summary of the U.S. Sprint remedial activities is provided at the bottom of page 2. A similar summary of AT&T's activities would be helpful. While we appreciate that U.S. Sprint is not responsible for documenting AT&T's activities where they are totally unrelated to U.S. Sprint's, we suggest the two firms work together and document all activities in a single report. This would simplify matters for everyone involved, and make sense given the relationship between the two firm's activities at the site.

3. Pages 3, 4 and Appendix B - Site History - Enclosed is a copy of our diary summary history for the site. We suggest you revise your chronologies to reflect our more accurate summary. The site was discovered at the end of March 1982, not in January of 1980. The January 2, 1980 date refers to an erroneously dated letter. That letter was actually written in September 1987.

4. Page 3 - Initial Activities - Significantly more detailed information, including detailed plans, specifications, narratives, photographs, etc., is needed to describe the following:

   a. Original cable installation methods, including trenching, jacking, piping, etc.

   b. How the cut-off plugs were installed; including information describing why the U.S. Sprint plugs were installed on only one side of Outagamie and Second Streets, while the AT&T plugs were installed on both sides.

c. How the original trenches through the site were abandoned and restored, including backfill soil types, compaction methods and what happened to the black iron pipe housing in the trenches.

d. The exact location of the plug that was abandoned due to green water seepage and what was done to restore that installation area after the water seeped in.

5. Pages 6 and 7 - Soil Density Testing - Our September 9, 1987 letter requested that the soil in trenches through the site along the railroad right-of-way be re-compacted and a soil mound formed on the top of the trench. The cone penetrometer testing occurred only along the re-route, not along the railroad right-of-way. Therefore, the requested recompaction, if it was completed, was not documented.

   The cone penetrometer testing method may not be adequate to confirm compaction of the trenches along the railroad right-of-way. This method requires reference values to compare with the field results, utilizing the experience of the tester, and his or her knowledge of local soil conditions. The test could possibly give misleading results for uncompacted clay tills, which may be found along the original routes. The native soils at the site are mostly clay tills with fill above that (including railroad ballast). Yet, the report indicates on the bottom of page 6 that only sandy soils are at the site and the penetrometer method was for sandy soils. Were the trenches backfilled with sandy soil? Sandy soils, even if recompacted, can act as a conduit for spreading contamination. It also appears likely that the trenches were backfilled with railroad ballast or fill, as evidenced by the observation of soil types (cobbles) at backhoe pit E-5 (top of page 8). If so, that may cause the trenches to act as conduits, regardless of compaction effort, unless sufficient fine-grained materials were mixed with the railroad ballast or fill.

6. Pages 8 & 9 - Shallow collection system - The report's description of this system is not accurate. While it's true no detailed plans exist in our file for this system, we were able to interview George Kraft to determine how it was installed. The trenches were dug to the point where native clay soils were encountered (i.e., below the railroad ballast and fill) and extended slightly below the clay soils. Slotted PVC drain pipe (or tile) was installed in the <u>bottom</u> of the trenches, sloped towards the collection crocks (slotted manholes). The trench was shallower near the upstream ends, so the drain tile may have been closer to the surface there; this was necessary to obtain an adequate slope to the crocks. The trenches were backfilled with the railroad ballast; gravel was used to backfill around the crocks only. Pumps were installed in both crocks, which were hard piped to discharge to a collection tank. A solid pipe subsurface storm drain was installed to the south of the collection system, with its inlet located at the "dam" shown on George Kraft's rough sketch (shown in the Assessment Report Appendix C). This drain was intended to route clean surface water around the site.

We do not agree with the claim that the system, even if not pumped at this time, serves to spread fluids rather than collect them. General hydrogeologic principles state that a high conductivity zone (such as the railroad ballast and gravel) acts as a conduit for flow, attracting water from surrounding areas. The PVC tiles and trenches are sloped towards the crocks, so the conduit flow is towards them. The report states the system was inoperable at the time of the phone company's involvement. What is the definition of "inoperable" in this case? The system may be operating passively, even if active pumping from the crocks is not occurring. Due to the slope of the system, the limiting factor in passive operation is the height of the water in the crocks. However, even with no movement in the system, the high conductivity zone acts as a collection trench and holds the contaminated waters near the site. Disruption of this system has occurred and may lead to further migration away from the site. The report confirms that the shallow collection system was not restored to pre-disturbance conditions, as required.

We look forward to your reply on our comments. When we received the report, Mr. Jack Coles of U.S. Sprint indicated he would like to meet with us to discuss this matter. We will be happy to meet after you and U.S. Sprint have an opportunity to review this letter. Please contact Gary Edelstein, P.E., at (608) 267-7563 or Ms. Annette Weissbach of our Lake Michigan District office (414) 497-3151, when you are ready to set up a meeting or should you have any other questions.

Sincerely,

Gary A. Edelstein, P.E.
Environmental Response & Repair Section
Bureau of Solid & Hazardous Waste Management

Annette Weissbach, District Superfund Coordinator
Lake Michigan District

GE:sb33
8904\sw9d3988.gae
Noted: SBangert
Suzanne Bangert, Unit Leader
Superfund Unit
Environmental Response & Repair Section

Enc.

cc: Annette Weissbach - LMD
Mike Gifford - EPA Region V
Jack Coles - U.S. Sprint Communications
Mr. Don Kraling - AT&T Communications
Mr. Larry Campbell- ENSR

GAE
11/88
1/2

Note: Chrome Plating took place from 1960 - 1976.

N.W. Mauthe Co.
Diary Summary History of Important Events

te	Event
/31/82	Spill reported/discovered
/82 - 5/82	Puddles pumped; some surface sampling; contractor hired to install surface collection system. Began pumping, hauling to DePere POTW. Note: Private wells noted at Miller Electric and Bounds Street - not used.
/6 & 7/82	Nine borings installed, two developed into wells. Soil samples, GW samples. Kraft memo, Wade notes. Rough map of locations
/18-20/82	CPI begins clean-up and col system installation. No detailed plans for system.
/13/82	N.W. Mauthe referred to DOJ
0/4/82	DOJ files suit, seeks injunction for immediate action
1/82-4/83	Twenty-six borings and 16 wells installed. Soil and GW samples very extensive. Doc of borings/wells on file. Kraft draft summary of sampling results (never finalized)
/[illegible]3	Circuit court orders Mauthe to develop a clean-up plan.
/26/83	Site submitted by DNR to EPA for NPL listing. Scores < 28.5
/83	Jeff Pagels writes paper on case.
/12/83 /7/83	Per court order, Badger submits conceptual clean-up plan. Circuit court dismisses case because spill occurred <1978 (subsequently appealed).
ate '83	Twin City Testing selected to regrade site, install more SW collection and asphalt cap.
/84	Contract awarded to Twin City Testing Appeals Court agrees w/Trial Court
ate '84	Regrade done, cover put on, SW coll. done, pumps removed from 1982 shallow system, pumping ceased.
/85	Supreme Court overturns Appeals/Trial Court - spill law is retroactive for continuing discharges from contaminated soil - remanded to trial court.
/85	Holding tank @ DePere removed
/85	Report on late '84 work - asphalt needs redoing, well covers a problem. Existing system should be pumped. Hencey's basement need addressing.

2/2
GAE
11/88

85	DNR agrees in-house to: redo asphalt*, fix wells*, check with DHSS on Hencey's (DHSS subsequently says - sample, but probably not an imminent risk) Ask Mauthe to do work.
	*Not done to date. In-house decision. No more $ on this site for now.
86	Kraft leaves DNR
rly '86	Mauthe ordered by Circuit Court (stipulation) to develop a clean-up plan.
'86	Foth & Van Dyke develops prelim clean-up plan, found inadequate by DNR staff in notes - Rossberg letter.
/86	Judge orders new plan by 6/23/86
/15/86	New remediation report, based on DNR sampling, site sampling (not released) submitted by F&VD. DNR staff still says inadequate in notes.
/86	DOJ tries to get Mauthe to do more, but $ limited, Circuit Court finds insurance co. not liab - pollution exclusion clause
1/86	Norb Mauthe passes away
/87	DOJ appeals insurance co. liab issue
/87	U.S. Sprint and AT&T dig into site and 5/82 collection lines, worker contact with contamination; some contaminated water pumped on the ground, some water pumped to storage tank on-site (4 lines through site)
/87	LMD asks U.S. Sprint to restore the site and install anti-seep collars lines
/87	Carol Mauthe notifies DNR that zinc plating operation closed.
2/87	Appeals Court rules insurance co. not liab - upholds exclusion clause
2/87	AT&T & Sprint decide to route lines around the site and put collars at points were lines intersect streets. They sample site, but results not given to DNR (2nd; Outagamie Strs. intersect). Dug up lines thru site and backfilled with bentonite/sand. Some contam. H_2O in trench not removed.
1/88	DOJ files appeal of insurance liab issue to Supreme Court.
*	LMD staff discover water in phone line trenches not removed - some analysis results given over phone.
3/88	Supreme Court refuses to hear insurance case. Previous rulings stand.
6/88	Site proposed for NPL as #1 priority.
9/30/88	DNR signs CA with EPA to perform RI/FS.
10/88	Mauthe estate settles for $18,000 land contract for past response costs

N.W. Mauthe Co.
Sampling Events Summary

vent #	Date	Description	Comments/Doc
.	3/31/82	Boreholes (shallow) - 18"-36" Puddles	- Not Enf. - Only notes
2.	4/1/82	Sump pump 6 Boreholes (18" - 36")	- 4/14/82 Memo - Not Enf - Preliminary - 4/22/82 TS memo says not really very useful
3.*	4/5, 4/8/82	Maass & Miller Elec. Wells	
	4/21/82	2 surface water (puddles) 7 Boreholes (shallow)	-were enf; minimal doc. - 4/21/82 Note
4.* Major Event	5/6&7/82 (STS) (5/24, 6/2/82 - Coll tank samples)	9 deep borings w/soil samples 2 wells installed Soil under slab	- Notes by Wade, Kraft - 9/7/82 memo - STS logs/report
5.	6/2/82	Coll. Tank H_2O	- 8/13/82 memo
6.*	7/12/82	2 wells, Coll. Tank Coll. sump, sump pump @ Hencey's	- 7/16/82 & 8/19/82 - Wells switched on map
		- Issues:	B-1, B-2 vs. wells 7/8 Mislabeled 7/7/82 in one memo
7.*	8/19/82	2 wells, coll. tank, 2 coll. sumps, sump pump @ Hencey's	- 10/82 (not specific date) Memo to file
8.* Major Event	11/82 thru 4/83 (Twin City)	26 soil borings 16 wells Soil sampling GW sampling	- 1/31/83 memo - Kraft Draft 6/9/83 summary (never finalized) - Twin City Report (w/corrections) - Notes
9.*	8/22/83	GW Wells; Crock (sump) and col tank	- 9/23/83 memo
10.**	12/19/84	FIT samples wells	- See SI
11.	3/3/86	Foth & Van Dyke sample Site for Mauthe report	- See 8/86 report - Not all results released

ENSR

Formerly ERT

ENSR Consulting
and Engineering

750 Pasquinelli Drive
Suite 121
Westmont, IL 60559
(312) 887-1700

FILE

RECEIVED
APR 12
L. M. CAMPBELL

April 12, 1989

Mr. Angelo Basile
AT&T Technologies, Inc.
1 Oak Way
Berkeley Heights, NJ 07922

SUBJECT: Revised Draft Report of Soil Investigation and Anti-Seep Plug Installation at AT&T Cable Site in Appleton, Wisconsin

Dear Mr. Basile:

Transmitted herewith for your review is a revised draft copy of the subject report which has been revised to respond to your comments of March 1 and 8, 1989. Changes are noted by a vertical bar in the right margin.

Following receipt of your additional comments, we will finalize and issue the report. We understand that AT&T will provide this report to Wisconsin Department of Natural Resources.

Please call with your comments or questions.

Very truly yours,

Larry M. Campbell

Larry M. Campbell, P.E.
General Manager,
Chicago Operations

LMC/lak

ENSR Program No. 0550-029-510
Ref #89-04-K074

Enclosure

cc: D. Cheney
M. DeBartolo
J. Seigla

ENSR

FILE

RECEIVED

[illegible]

L. M. CAMPBELL

ENSR Constructors
740 Pasquinelli Drive
Suite 124
Westmont, Illinois 60559
312-887-1700

April 13, 1989

Mr. John Seigla
AT&T Communications, Inc.
One North Wacker Drive
Sixth Floor
Chicago, IL 60606

SUBJECT: Draft of Letter to Transmit the Appleton, WI Report to WDNR

Dear Mr. Seigla:

Enclosed for your review and comment is a draft letter that could be used to transmit to the Wisconsin Department of Natural Resources (WDNR) the report of our investigation and anti-seep plug construction at the AT&T cable site in Appleton, WI.

The revised draft of the report was issued to AT&T for comment yesterday. Following receipt of comments from AT&T on the report and transmittal letter, we will finalize the report and make the indicated distributions including to the WDNR.

Please call if you questions or comments.

Very truly yours,

Larry M Campbell

Larry M. Campbell, P.E.
General Manager
Chicago Operations

LMC/ahs

Enc.

ENSR Project No. 0550-029-510
Ref. # 89-04-S186

cc: A. Basile
D. Cheney
M. DeBartolo

FILE

RECEIVED
MAY - 2 1989
L. M. CAMPBELL

APR 2 6 1989

5HS-11
CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Larry M. Campbell, P.E.
ERT
131 Eisenhower La.
Lombard, IL 60148

Request for Supplemental Information Pursuant to Section 104(e) of CERCLA and Section 3007 of RCRA, for the N.W. Mauthe Company Site located in Appleton, Wisconsin.

Dear Sir or Madam:

The United States Environmental Protection Agency (USEPA) is presently investigating the source, extent and nature of the release or threatened release of hazardous substances, pollutants or contaminants at the N.W. Mauthe Company Site, located in Appleton, Wisconsin, hereinafter referred to as "the Site". This investigation requires inquiry into the generation, storage, treatment and disposal of such substances that have been or threaten to be released at the Site. This action is being taken by the USEPA pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) 42 U.S.C. 9601 et seq. as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), Pub. L. 99-499.

The USEPA is seeking to obtain information from you in matters relating to the Site, pursuant to its authority under Section 104(e) of CERCLA as amended, 42 U.S.C. 9604(e), and Section 3007 of the Resource Conservation and Recovery Act (RCRA) as amended, 42 U.S.C. 6927, for the purpose of enforcing CERCLA and RCRA and the need for future response to a release of hazardous substance(s) under SARA. The Administrator of the USEPA has the authority to require any person who generates, stores, treats, transports, disposes, arranges for the disposal of or otherwise handles hazardous wastes and hazardous substances, as those terms are defined in Section 1004(5) of RCRA, 42 U.S.C. 6903(5) and Section 101 of CERCLA, to furnish the USEPA with information related to such activities.

For purposes of this request for information, the site includes the N.W. Mauthe Company property at 725 South Outgamie, the Chicago Northwestern Railroad right-of-way that extends through the N. W. Mauthe Company property and any contiguous areas where contaminants have migrated from the N.W. Mauthe Company property. Furthermore, "you" includes the addressee of this letter and any of its officers, employees, agents, successors and assigns.

You are hereby requested to submit the following:

1. Identify all persons consulted in preparing your answers to these information requests.

2. Identify all documents consulted or referred to in preparing the answers to these information requests and provide copies of all these documents.

3. If you have reason to believe there may be other persons able to provide a more complete response to any of these information requests, or who may be able to provide additional responsive documents, identify those persons.

4. Describe the nature of all your activities or business at or near the site.

5. Describe, and provide specific dates for, all construction, excavation, restoration or maintenance activities you have performed at or near the site.

[illegible] Provide all plans, reports, notes, correspondence or other documents relating to any activities described in response to Request number 5 above.

7. Has soil ever been excavated or removed from the site by you? Unless the answer to the preceding question is anything besides an unequivocal "no" identify:

   a. Amount of soil excavated;
   b. Location of excavation;
   c. Manner and place of disposal and/or storage of excavated soil;
   d. Dates of soil excavation; and
   e. Identity of persons who excavated or removed the soil.

8. Provide all reports, information, field notes, laboratory results or data related to soil, water (ground and surface), or air quality, and geology/hydrogeology at and about the site. Provide copies of all documents containing, analyzing or interpreting such data and information, and provide description and documentation of sampling and analytical methodologies used in generating such data.

9. Describe and provide specific dates for all environmental investigations you have performed at or near the site.

10. Provide all plans, reports, notes, correspondence or other documents relating to any investigations described in response to Request number 9 above.

11. Did you ever generate, store, treat, dispose, transport or otherwise handle any hazardous substances or contaminated materials at or from the site. Such hazardous substances or contaminated materials may include, but are not limited to, contaminated soil, water, ballast, tanks, building debris and drummed wastes. If the answer to the preceding question is anything but an unqualified "no," identify:

    a. The chemical composition, characteristics, physical state (e.g., solid, liquid) of each hazardous substance or contaminated material;

    b. How such hazardous substances or contaminated materials were generated, stored, treated, transported, disposed, managed or otherwise handled by you.

    c. When such hazardous substances or contaminated materials were generated, stored, treated, transported, disposed, managed or otherwise handled by you.

    d. Where such hazardous substances or contaminated materials were generated, stored, treated, transported, disposed, managed or otherwise handled by you.

    e. The quantity of such hazardous substances or contaminated materials generated, stored, treated, transported, disposed, managed or otherwise handled by you.

12. Provide copies of all shipping orders, correspondence, receipts and manifests related to your management of any hazardous substances or contaminated materials at or near the site.

13. Provide all of your information about the site concerning:

    a. Location of underground utilities (telephone, electrical, sewer, water main, etc.)
    b. Surface structures (e.g. buildings, tanks, etc.)
    c. Groundwater wells, including drilling logs
    d. Stormwater drainage system, and sanitary sewer system, past and present, including septic tank(s), subsurface disposal field(s), and other underground structures; and where, when and how such systems are emptied.

e. Any and all additions, demolitions or changes of any kind on, under or about the site, its physical structures or to the property itself (e.g. excavation work); and any planned additions, demolitions or other changes to the site; and

f. All maps, drawings and photographs of the site in your possession.

This information should be sent to:

Rita Cestaric, (5HS-11)
Waste Management Division
Remedial and Enforcement
Response Branch
USEPA - Region V
230 South Dearborn Street
Chicago, Illinois 60604

A copy of your response should also be sent to :

Gary Edelstein, P.E. (SW/3)
Environmental Response and Repair Section
Bureau of Solid and Hazardous
Waste Management
Wisconsin Department of Natural
Resources
P.O. Box 7921
Madison, WI 53707

The information sought herein must be sent to USEPA within 21 calendar days of your receipt of this letter. Under Section 3008 of RCRA, 42 U.S.C. 6928, and under Section 104(e)(5) of CERCLA, 42 U.S.C. 9604(e)(5), failure to comply with this request may result in an enforcement action against you by USEPA. The information requested herein must be provided notwithstanding its possible characterization as confidential information or trade secrets. You may request, however, that such information be handled as confidential business information. A request for confidential treatment must be made when the information is provided, since any information not so identified will not be accorded this protection by the USEPA. Information claimed as confidential will be handled in accordance with the provisions of 40 C.F.R. Part 2.

The written statements submitted pursuant to this request must be notarized and submitted under the signature of a duly authorized corporate official certifying that all information contained therein is true and accurate to the best of the signatory's knowledge and belief and that a diligent search for all documents responsive to this request has been completed. All documents submitted to USEPA pursuant to this information request should be certified as true and authentic to the best of the signatory's knowledge and belief.

Should the signatory find, at any time after the submittal of the requested information, that any portion of the submitted information is false, the signatory should notify USEPA promptly. If any answer certified as true should be found to be untrue, the signatory can and may be prosecuted pursuant to 18 U.S.C. 1001.

If you need further information regarding this USEPA information request, contact Rita Cestaric of the Remedial and Enforcement Response Branch at (312) 353-6500 or Gary Edelstein of the Wisconsin Department of Natural Resources at (608) 267-7563. If you have legal questions, contact Tom Krueger of the Office of Regional Counsel at (312) 886-0562.

Due to the seriousness of the problem at the Site and the legal ramifications of your failure to respond promptly and properly, USEPA strongly encourages you to give this matter your immediate attention and to respond to these Information Requests within the specified time.

Sincerely yours,

Mary Gade, Associate Division Director
Office of Superfund

cc: Gary Edelstein, WDNR-Madison

FILE

RECEIVED
MAY - 2 1989
L.M. CAMPBELL

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES
Carroll D. Besadny
Secretary

Box 7921
Madison, Wisconsin 53707

December 22, 1988

IN REPLY REFER TO: 4430

Mr. Mike Gifford, RPM
U.S. EPA, Region V - 5HS-11
230 S. Dearborn Street
Chicago, IL 60604

SUBJECT: Information Request Letters
N.W. Mauthe Company
Appleton, Wisconsin

Dear Mr. Gifford:

Pursuant to our recent telephone conversations, we request that your agency send formal information request letters, under your CERCLA and RCRA authorities to the parties listed on the attachment to this letter.

We have tentatively included N.W. Mauthe Company's insurance companies on the list and have enclosed copies of their policies. We request that you determine if they should received an information request letter. Based on a review of our files, we have reason to believe these parties may possess information on their activities at the site, including construction plans and reports and environmental monitoring data that we do not possess. However, we have no reason to believe that any of the parties, except possibly the N.W. Mauthe Company, are generators who transported wastes to the site for disposal. However, some of them may have changed the site's physical characteristics and/or affected the nature or distribution of the existing contamination at the site.

Briefly, here's what we know:

1. The N.W. Mauthe Company may have excavated a trough or troughs in the chrome plating building and associated excavated contaminated soils may have been produced through this excavation activity. Also, the Company intended to install a concrete wall under the building in an attempt to cut-off contamination, however, a pit or sump with a pump may have been installed instead. Contaminated soils from under the building were apparently managed; it is unknown what happened to these materials. We do know some drums of unknown material remain at the site.

2. As part of the efforts to close the recently ceased zinc/cadmium plating operation, sumps, troughs, underground tanks and other structures and

materials may have been managed or removed. Contaminated materials or soils from this operation may have been managed at the site or other unknown locations.

3. The N.W. Mauthe Company hired a consulting firm or firms to investigate and develop clean-up plans in accordance with court-imposed requirements. We understand one of the firms did not submit all of their sampling and analysis results, reports and other information to our agency, possibly because the company failed to reimburse the firm for their efforts. Valuable site characterization information may exist that should be examined.

4. The Chicago and Northwestern Railroad may have, through maintenance and other track repair or improvement efforts, changed the physical nature of the site. For example, they may have damaged monitoring wells, added/removed soil/ballast/ties and damaged the Department's shallow collection system. Railroad ballast can act as a conduit for spreading contamination. Any plans, reports, explanations or other information they have concerning their site activities may be valuable for understanding the current site conditions.

5. Two telephone companies began to install underground fiber optic lines along the railroad right-of-way through the site. We know their activities damaged a collection system we installed in 1982. Contaminated water migrated into their trenches and was not removed. Their activities may have resulted in the re-disposal of contaminated soils or other materials on-site. Also, we know they restored their trenches, and routed their lines around the site. Anti-seep collars were installed at the intersections with the railroad right-of-way and street crossings. They also collected environmental (soil and water) samples and analyzed them. Although our agency requested information on their activity at the time, they refused to provide it. We have just received a report on U.S. Sprint's activities. Otherwise, we have no plans, reports or details on what they did when they dug into the site and how the site was restored. Again, this information would be invaluable for understanding the current site conditions.

Based on the above, we suggest the information request letters ask for the following, at a minimum:

1. Any plans, reports, notes, correspondence or other information relating to any construction, restoration or maintenance activities at the site.

2. Any environmental sampling and analysis information, including any field notes, laboratory results and documentation of methods used to collect samples and analyze them.

3. Any plans, reports, notes, correspondence or other information relating to any environmental investigation of the site conditions.

4. Any information, including correspondence, shipping papers or manifests relating to the management of any contaminated material, including, but

not limited to, any soil, water, ballast, tanks, building debris, or drummed wastes.

Finally, you may list my name as a person to contact in addition to your normal agency contacts in the information request letter.

Thank you for your attention to this request. Please call me at (608) 267-7563 should you have any questions.

Sincerely,

Gary Edelstein

Gary A. Edelstein, P.E.
Environmental Response & Repair Section
Bureau of Solid & Hazardous Waste Management

Noted:

S Bangert

Suzanne Bangert, Unit Leader
Superfund Unit
Environmental Response & Repair Section
Bureau of Solid & Hazardous Waste Management

GE:lm/PC34
8901\sw9d3023.gae

Enc.

cc: Annette Weissbach - LMD
Shari Eggleson - DOJ

ENSR

Formerly ERT

ENSR Consulting
and Engineering

740 Pasquinelli Drive
Suite 124
Westmont, IL 60559
(312) 887-1700

FILE

RECEIVED
[illegible]
L. M. CAMPBELL

May 3, 1989

Mr. Angelo Basile
AT&T Technologies, Inc.
1 Oak Way
Berkeley Heights, NJ 07922

SUBJECT: U.S. EPA Request for Information Regarding the AT&T Cable Site in Appleton, Wisconsin

Dear Mr. Basile:

Transmitted herewith for your files is a copy of a letter I received yesterday from the U.S. EPA requesting information on the the AT&T Cable Site in Appleton, Wisconsin.

Very truly yours,

Larry M Campbell

Larry M. Campbell, P.E.
General Manager,
Chicago Operations

LMC/lmq

ENSR Program No. 0550-029-510
Ref #89-05-Q106

Enclosure

cc: D. Cheney
M. DeBartolo
J. Seigla

ENSR

Formerly ERT

ENSR Consulting
and Engineering

740 Pasquinelli Drive
Suite 124
Westmont, IL 60559
(312) 887-1700

FILE

RECEIVED

L. M. CAMPBELL

May 3, 1989

Mr. Angelo Basile
AT&T Technologies, Inc.
1 Oak Way
Berkeley Heights, NJ 07922

SUBJECT: Final Revised Draft Report of Soil Investigation and Anti-Seep Plug Installation at AT&T Cable Site in Appleton, Wisconsin

Dear Mr. Basile:

Transmitted herewith for your review is a final revised draft copy of the subject report and proposed transmittal letter which have been revised to respond to your comments of April 18, 1989 and those of John Seigla of April 25, 1989. Changes are indicated with a vertical line in the left margin to aid in your review.

Following receipt of your additional comments, we will finalize and issue the report. We understand that AT&T will provide this report to Wisconsin Department of Natural Resources and to the U.S. Environmental Protection Agency.

Please call with your comments or questions.

Very truly yours,

Larry M Campbell

Larry M. Campbell, P.E.
General Manager,
Chicago Operations

LMC/lmq

ENSR Program No. 0550-029-510
Ref #89-05-Q105

Enclosure

cc: D. Cheney
M. DeBartolo
J. Seigla

FILE

MEMORANDUM

TO: Bill Nelson
Van Cates

MEMO NO: 89-05-D277

FROM: Larry M. Campbell

FILE: 0550-029-600

DATE: May 4, 1989

SUBJECT: EPA Request for Information at Superfund Site

ENSR has been providing environmental consulting services to AT&T (and indirectly to U.S. Sprint) at the site of a chromium spill in Appleton, Wisconsin from October 1987 till the present. Unknowingly, AT&T and U.S. Sprint had constructed fiber optic cable lines through the affected area along easements from the Chicago and Northwestern Railroad Company. The chromium contamination is attributed, by the Wisconsin Department of Natural Resources (WDNR), to a 1979 chronic acid spill at the adjacent N.W. Mauthe Company chrome plating facility.

In June 1988, U.S. EPA added the site to the National Priorities List under CERCLA. In September 1988, WDNR agreed to conduct an RI/FS at the site. On May 2, 1989, I received a CERCLA Section 104(e) and RCRA Section 3007 request for supplimental information regarding our activities at the Superfund site. A copy of the subject letter is enclosed for your review. A local AT&T construction manager also received the same request for information.

Today a conference call was held with representatives from AT&T Corporate Environmental, AT&T Communications, WDNR, U.S. EPA, and myself. The purpose of the call was to explore a proposed response to the subject letter in the form of a completion report of our activities at the site. We tentatively agreed that a single response from AT&T's Legal Department would satisfy the request to myself and to the AT&T construction manager. I'm asking that you review the subject letter and advise me as to ENSR's specific liabilities under the law in responding to this letter. I must respond to the EPA within 21 days of receipt of the letter, which would be May 23rd. Your prompt review and response will be appreciated.

LMC/ld
Encls.
cc: R. Weber
H. Sanger

ENSR

Formerly ERT

ENSR Consulting
and Engineering

740 Pasquinelli Drive
Suite 124
Westmont, IL 60559
(312) 887-1700

FILE

RECEIVED

May 10, 1989

Mr. Angelo Basile
AT&T Technologies, Inc.
1 Oak Way
Berkeley Heights, NJ 07922

SUBJECT: Final Revision of Report of Soil Investigation and Anti-Seep Plug Installation at AT&T Cable Site in Appleton, Wisconsin

Dear Mr. Basile:

Transmitted herewith for your review is a revised page 3-5 of the subject report. As you requested on May 4, 1989, the first paragraph of this page has been revised to paraphrase rather than quote from my letter of December 4, 1987.

Following the receipt of your comments and other instructions we will finalize the report for subsequent submittal to the U.S. Environmental Protection Agency and Wisconsin Department of Natural Resources as part of an AT&T consolidated response to the U.S. EPA letter of April 26, 1989 to myself and Don Kraling.

Please call with your comments or questions.

Very truly yours,

Larry M Campbell

Larry M. Campbell, P.E.
General Manager
Chicago Operations

LMC/ld

ENSR Program No. 0550-029-510
Ref.#89-05-D294

cc: J. Seigla
M. DeBartolo
D. Cheney

ENSR

Formerly ERT

ENSR Consulting
and Engineering

740 Pasquinelli Drive
Suite 124
Westmont, IL 60559
(312) 887-1700

RECEIVED
MAY 11 1989
L. M. CAMPBELL

May 10, 1989

Mr. Jackie Coles
U.S. Sprint Communications Company
P.O. Box 8490 (64114-0490)
901 East 104th Street
Kansas City, Missouri 64131

SUBJECT: Response to U.S. EPA Letter Requesting Supplemental Information Regarding the N.W. Mauthe Company Site in Appleton, Wisconsin

Dear Mr. Coles:

This letter documents my telephone conversation with you today wherein I identified to you that ENSR has received a letter dated April 26, 1989 from the U.S. Environmental Protection Agency (EPA) requesting supplemental information regarding the subject site. I understand that U.S. Sprint received a similar letter. In response to the requirements of the subject letter, I have been advised by our corporate counsel that I must identify to the U.S. EPA and the Wisconsin Department of Natural Resources (WDNR) ENSR's involvement in this project for U.S. Sprint. In addition, I have been advised that I must also submit the Final Report ENSR prepared for U.S. Sprint (ENSR Document No. 0550-029-520, dated September 30, 1988).

Because we originally became involved in this project as a consultant to AT&T Communications, ENSR is providing data requested by the subject U.S. EPA letter to AT&T. Accordingly, all AT&T-related information, as well as the subject U.S. Sprint Final Report, will be submitted to AT&T whose legal department will subsequently make a consolidated response to U.S. EPA and WDNR.

I also informed you that we had identified an error in Table 2-1 of the U.S. Sprint Final Report. Under separate cover, I am transmitting a revised copy of the referenced table for insertion in your copy of this report. I will include this revised table in the copy of the report that I supply to AT&T as described in the previous paragraph.

I plan to provide my response to AT&T on Friday, May 12, 1989. If you have any objections to the proposed course of action described herein, please notify me not later than noon on Friday, May 12, 1989. If you have any questions or comments, please call.

Very truly yours,

Larry M. Campbell

Larry M. Campbell, P.E.
General Manager
Chicago Operations

LMC/lmq

ENSR Program No. 0550-029-600
Ref. #89-05-Q119

cc: B. Humphrey
D. Cheney
J. Seigla
A. Basile
M. DeBartolo
V. Cates

ENSR

Formerly ERT

RECEIVED
MAY 11 1989
L. M. CAMPBELL

ENSR Consulting and Engineering

740 Pasquinelli Drive
Suite 124
Westmont, IL 60559
(312) 887-1700

May 10, 1989

Mr. Jackie Coles
U.S. Sprint Communications
P.O. Box 8490
Kansas City, Missouri 64114-0490

SUBJECT: Errata in Final Report for Soil and Groundwater Investigation and Anti-Seep Plug Installation at U.S. Sprint Cable Site in Appleton, WI

Dear Mr. Coles:

Since submittal of the subject report on September 30, 1988, we have identified an error in Table 2-1. The units of VOC Conc. in the last column were incorrectly reported as μg/kg (i.e., parts per billion). The correct units should be μg/g (i.e., parts per million).

In addition, method blank MB870847 was an analysis of muffled sand, as reported. Method blank MB870848, however, was an analysis of the laboratory water used to analyze for VOCs in the muffled sand blank. The concentration of 2-butanone found in the liquid blank should have been 18 μg/l, not 18 μg/kg as reported. The 2-butanone concentration is considered to be an artifact of the laboratory procedure, not a constituent in the soil sample.

These errata are corrected on a revised Table 2-1; three copies are enclosed for your three copies of the report. Please note that these errata represent only inaccurate summarization and presentation of the analytical data included in Appendix C of the subject report. They do not impact the assessment of site conditions nor discussions or conclusions presented therein.

We apologize for any inconvenience these errata may cause U.S. Sprint. If you have questions, please call me at (312) 887-1700.

Very truly yours,

Larry M Campbell

Larry M. Campbell, P.E.
General Manager
Chicago Operations

LMC/lmq

ENSR Program No. 0550-029-520
Ref. #89-05-Q116

Enclosure

cc: B. Humphrey
D. Cheney
M. DeBartolo
A. Basile

TABLE 2-1

ANALYTICAL RESULTS: PHASE I SOIL

Sample No.	Total Chromium (mg/kg)	Hexavalent Chromium (mg/kg)	Total Chromium of Leachate (mg/kg)	VOC Detected	VOC Conc. (μg/g)
SB-01	26	<20	<2	2-Butanone	1.4 B[1]
SB-02	45	<20	<2	NA[2]	-
SB-03	98	<20	<2	2-Butanone	1.4 B
SB-04	519	50	64	2-Butanone	1.4 B
SB-12[3]	478	54	72	2-Butanone	1.1 B
SB-05	59	<20	<2	NA	-
SB-06	238	<20	<2	NA	-
SB-07	26	<20	<2	2-Butanone	1.2 B
SB-08	536	108	110	NONE	BDL[4]
SB-10	172	72	72	NA	-
MB870847[5]	NA	NA	NA	2-Butanone	1.9
MB870848[6]	NA	NA	NA	2-Butanone	18 μg/l

Notes:

1 B = Detected in the method blank samples

2 NA = Not Analyzed

3 SB-12 is a duplicate of SB-04

4 BDL = Below Detection Limits (See Appendix C.1 for detection limits of various VOCs)

5 Laboratory method blank for VOC analyses of muffled sand.

6 Analysis of laboratory water used in analysis of muffled sand method blank MB870847.

ENSR

Formerly ERT

RECEIVED
MAY 11 1989
L. M. CAMPBELL

May 10, 1989

**ENSR Consulting
and Engineering**

740 Pasquinelli Drive
Suite 124
Westmont, IL 60559
(312) 887-1700

Ms. Rita Cestaric (5HS-11)
Waste Management Division
Remedial and Enforcement Response Branch
U.S. EPA - Region V
230 South Dearborn Street
Chicago, IL 60604

Mr. Gary Edelstein, P.E. (SW/3)
Environmental Response and Repair Section
Bureau of Solid and Hazardous Waste Management
Wisconsin Department of Natural Resources
P.O. Box 7921 (53707)
101 S. Webster Street, 3rd Floor
Madison, WI 53702

SUBJECT: Response to U.S. EPA Letter of April 26, 1989 Regarding Request for Supplemental Information for the N.W. Mauthe Company Superfund Site in Appleton, WI

Dear Ms. Cestaric and Mr. Edelstein:

The purpose of this letter is to document a course of action that was agreed to during the conference call on Thursday May 4, 1989 with yourselves, representatives from AT&T, and myself. ENSR Consulting and Engineering (formerly ERT) has served as the environmental consultant to AT&T Communications regarding various investigations at the subject site in Appleton, Wisconsin. In that role, ENSR will supply the information requested in the subject letter to AT&T. AT&T's Legal Department will subsequently submit our information and other pertinent information to the U.S. EPA and the Wisconsin Department of Natural Resources (WDNR) as a combined response. Accordingly, ENSR will not submit data and information directly to U.S. EPA and WDNR.

It is our understanding that the submission of ENSR information through AT&T is an acceptable response to the letter received by ENSR on May 2, 1989. Should this arrangement not comport with your understanding of our conversation, please contact me not later than 5:00 PM on Monday May 15, 1989 at (312) 887-1700.

Very truly yours

Larry M Campbell

Larry M. Campbell, P.E.
General Manager
Chicago Operations

LMC/ld
Ref.#89-05-D295
ENSR Program No. 0550-029-600

cc: John Siegla
Angelo Basile
Van Cates
Mike DeBartolo
Dave Cheney

ENSR

Formerly ERT

ENSR Consulting
and Engineering

740 Pasquinelli Drive
Suite 124
Westmont, IL 60559
(312) 887-1700

May 12, 1989

Mr. John Seigla
AT&T Communications, Inc.
One North Wacker Drive, Room 605
Chicago, Illinois 60606

SUBJECT: Final Report of Soil and Groundwater Investigation and Anti-Seep Plug Installation at AT&T Cable Site in Appleton, Wisconsin

Dear Mr. Seigla:

Transmitted herewith are three copies of our Final Report describing ENSR services, analytical results, and conclusions regarding our services for AT&T at the subject fiberoptic cable site in Appleton, Wisconsin.

This report documents our investigation at and adjacent to the cable route (Phase I) and along potential alternate routes (Phase II). It also documents the installation of three of four planned anti-seep plugs (Phase III) and of the final anti-seep plug (Phase IV).

If you have questions or comments, please call. We appreciate the opportunity to be of continuing service to AT&T on this interesting project.

Very truly yours,

Larry M. Campbell

Larry M. Campbell, P.E.
General Manager
Chicago Operations

LMC/lmq

ENSR Program No. 0550-029-510
Ref. #89-05-Q121

Enclosures

cc: M. DeBartolo
A. Basile
D. Cheney

US Sprint.

Jackie Coles
Senior Engineer
901 East 104th St. - MOKCMD099
Kansas City, MO 64131
(816) 941-5564

FILE

RECEIVED
MAY 22 1989
L. M. CAMPBELL

0550-029-600

May 17, 1989

Larry Campbell
ENSR Consulting and Engineering
740 Pasquinelli Dr.
Suite 124
Westmont, IL 60559

REF: N. W. Mauthe Site Appleton, WI

Dear Mr. Campbell

Per our telephone conversation of May 10, 1989, it is my understanding that ENSR (formerly ERT) is required to provide the US EPA with all supplemental information concering the N. W. Mauthe project in Appleton, WI.

This letter will serve as US Sprints approval for you to submit the reports which were performed by your company in behalf of US Sprint. This will include the final report.

Also be advised that the report you submit to Sprint will be included in the report we file with the US EPA.

If you have any questions please call.

Sincerely,

Jackie Coles

Jackie Coles

5-0015/lam

cc: O. A. Bell
Beth Forwalder

~~ERT, INC.~~
~~131 N. EISENHOWER LANE~~
~~LOMBARD, IL 60148~~
~~312/620-5900~~

ENSR Consulting
& Engineering
740 Pasquinelli Dr
Westmont IL 60559
(312) 887 1700

AT&T FIBEROPTIC CABLE SITE
APPLETON WI
FIELD LOG

~~6417~~
0550-029

AT&T LIGHTGUIDE CABLE SITE APPLETON, WI. G417

CONTACTS:

JOHN SEGLA (AT&T CHICAGO)	312/621-5256
DON KAALING (AT&T	414/521-7730
DALE GOSS (FINLEY ENGINEERING)	715/834-2605
LARRY CAMPBELL (ERT)	W 620-5900
	H
DALE GOSS	PAGE 608/275-1180
	HOME 414/921-8045
TERRY HEGEMAN (WISCONSIN DNR)	414/497-7055
RICHARD STOLL (WDNR - HYDROGEOLOGY)	414/497-4336
AMY STECYK (ERT GEOLOGIST)	H 312/
SCOTT VEENSTRA (ERT ENGINEER)	H 312/691-1458
CITY OF APPLETON, WI	
DEPT OF PUBLIC WORKS	
TOM HARP (DIRECTOR)	414/735-6474
SEWAGE DEPT - TOM HARP	
WATER DEPT - ROGER	414/733-2311
WISCONSIN NATURAL GAS	414/735-1246
WISCONSIN ELECTRIC	414/735-8473
WISCONSIN BELL	1-800-242-8335 WI
	414/735-3444 OUT OF WI
CABLE VISION OF FOX CITIES	414/738-3160
AT&T COMMUNICATIONS	414/542-8867
DIGGERS HOTLINE	800/242-8511 WI
	800/338-1342 OUT OF WI
	800/922-6576 INTERNAL #
JEFFERSON SCHOOL SE AT MASON AND PROSPECT PRIVATE LINES	414/735-6260
WISCONSIN BELL CABLE LOCATING-STATE	414/535-5023
APPLETON REGION	414/735-3399

Ken Knuth (Fenley Engineering)
Slayton Minn.

507/836-8515
507/836-87[illegible]3

[illegible]

414/738-04[illegible]

MONDAY OCTOBER 5, 1987

ERT PERSONNEL: SCOTT VEENSTRA, AMY STEYK

ERT ARRIVED ON-SITE IN APPLETON AT 11:20 AND MET BRIEFLY WITH DALE GOSS OF FINLEY ENGINEERING. AFTER LUNCH (12:30) DALE INFORMED ERT THAT LOCATION OF THE LIGHTGUIDE CABLE WOULD NOT BE POSSIBLE DUE TO HIS LOCATOR PERSON BEING UNAVAILABLE DUE TO AN EMERGENCY ON ANOTHER SITE.

ERT REVIEWED THE PLANNED WORK WITH DALE AND AL (REPRESENTATIVE OF THE RAILROAD). DALE SAID THAT HE WOULD CONTACT U.S. SPRINT AND HAVE THEIR PEOPLE ON-SITE TUESDAY TO LOCATE THE U.S. SPRINT LINE. DALE SAID HIS MAN WOULD BE ON-SITE ON TUESDAY AND WE COULD PROCEED WITH WORK THEN.

ALL OF THE ABOVE PARTIES AGREED TO MEET ON-SITE AT 7:30 ON TUESDAY TO BEGIN THE PLANNED WORK. ERT SPENT THE REMAINING PART OF THE DAY REVIEWING THE WORK/SAMPLING PLAN AND PREPARING EQUIPMENT FOR THE START OF WORK IN THE MORNING.

Scott C. V
Amy Steyk

TUESDAY OCTOBER 6, 1987

ERT PERSONNEL: SCOTT VEENSTRA, AMY STEYK

ERT ARRIVED ON-SITE AT 7:20 AND MET WITH MARK (RAILROAD FLAGMAN) AND DALE (FINLEY ENGINEERING) DALE COMPLETED LOCATION OF THE LIGHTGUIDE CABLE WHILE ERT WORKED ON SETTING UP EQUIPMENT.

ERT PREPARED TO SAMPLE THE SOUTHERN CATCH BASIN AND FOUND NO FREE LIQUID, ONLY SEDIMENT — NO SAMPLE WILL BE COLLECTED.

AT 8:00 EMT ATTEMPTED IGNITION OF HALCO'S OVA – THE INTERNAL PUMP WENT DEAD. NO SITE WORK WILL PROCEED UNTIL THE OVA HAS BEEN MADE FUNCTIONAL AGAIN.

EMT OBTAIN TOOLS AND REPAIRED HALCO'S OVA – CHECKED OUT OPERATION AND BELIEVE UNIT WILL WORK IN THE FIELD. CONTACTED EMT OFFICE AT 11:00 TO INFORM LARRY CAMPBELL OF SITUATION. LARRY STATED OVA HAD BEEN SENT BY AIR EXPRESS TO ARRIVE AT 11:5) OR 2:15 AT THE LOCAL AIRPORT.

EMT ARRIVED ON-SITE 12:30 TO BEGIN SAMPLING ACTIVITIES. FINLEY ENGINEERING AND RAILROAD BOTH HAVE THEIR REPRESENTATIVES PRESENT. OVA SURVEY OF AREA FOR BACKGROUND ORGANIC VAPORS GAVE NO INDICATION (OVA = 0 ppm).

SAMPLING EQUIPMENT WAS DECONTAMINATED PRIOR TO THE START OF SAMPLING.

BORING NO. 1 COMPLETED AT 13:35. SAMPLES SB-01 WERE COLLECTED. BORING DID NOT ENCOUNTER WATER & NO WATER SAMPLES COLLECTED. BORING CONSISTED OF APPROX 6" BLACK TOPSOIL OVER 3.5' CLAY – REDDISH WITH TAN LAYERS, SLIGHTLY MOIST. OVA DID NOT DETECT ANY VOC'S – BREATHING ZONE OR IN BORING. LEL = 0%.

BORING NO. 2 COMPLETED AT 14:25. SAMPLES SB-02 WERE COLLECTED. NO WATER WAS ENCOUNTERED. BORING WAS IN 6" BLACK TOPSOIL AND 3.5' FEET REDDISH SILTY-CLAY. OVA = 0 BORING, OVA = 0 BREATHING ZONE, LEL = 0% IN BORING

BORING NO. 3 COMPLETED AT 15:00. SAMPLES SB-03 WERE COLLECTED. WATER WAS ENCOUNTERED AT A DEPTH OF APPROX. 3'. 6" BLACK TOPSOIL OVER 3.5' REDDISH CLAY. OVA = 0 BORING, OVA = 0 BZ., LEL = 0%. SAMPLES SB-03-W WERE ALSO COLLECTED AT THIS LOCATION AT 15:15.

pH METER 7=7.00 4=4.35; Water pH of spl SB-03-W =7.20 For total Chromium spl SB-03-W spl was buffered to 1.65 for preservation while in the field. THE WATER SAMPLES WERE VERY CLOUDY, HAD NO DISTINCT ODOR.

BORING NO. 4 COMPLETED AT 16:00. SAMPLES SB-04 WERE COLLECTED. SAMPLES SB-12 WERE ALSO COLLECTED AS DUPLICATES. WATER WAS ENCOUNTERED AT APPROX 3'. 6" BLACK TOPSOIL, 2.5' GREY-BLACK MOTTLED CLAY, 6" TAN CLAY, 6" RED CLAY. TAN CLAY HAS ORANGE DISCOLORATIONS IN THE SAMPLE. OVA BORING = 0 ppm, OVA BZ = 0 ppm, LEL = 0 %. SAMPLES SB-04-W COLLECTED AT 16:45 AND SB-12-W AS DUPLICATES OF SB-04-W.

DECON OF EQUIPMENT BEGAN AT 17:00, ECT COMPLETED DECON AND LEFT SITE AT 18:00.

NOTE: WATER SAMPLES SB-04-W AND SB-12-W WHEN ALLOWED TO STAND (APPROX 30 MINUTES) IT WAS NOTED THAT THE ~~SEDIMENTED~~ SEDIMENT HAD SETTLED AND THE WATER WAS A GREENISH COLOR.

pH METER 7=7.00, 4=4.40; water pH of spl SB-04-W = 7.2. water pH of spl SB-12-W = 7.15; buffered to 1.65 for preservation in samples SB-12-W and SB-04-W.

Scott C. V

Amy St

WEDNESDAY OCTOBER 7, 1987

ECT PERSONNEL: SCOTT VEENSTRA, AMY STEZYK

ECT ARRIVED ON-SITE AT 7:00 TO BEGIN SAMPLING.

BORING NO. 5 WAS COMPLETED AT 7:50, SAMPLES SB-05 WERE COLLECTED. NO WATER WAS ENCOUNTERED DURING THE BORING. 6" BLACK TOPSOIL WITH GRAVEL,

3.5' RED SILTY CLAY. OVA BORING = 0, OVA BZ = 0, LEL = 0%.

BORING NO. 6 COMPLETED AT 8:30. SAMPLE SB-06 WAS COLLECTED. NOTE BORING STOPPED AT DEPTH OF 3.5' DUE TO GRAVEL LAYER THAT PREVENTED FURTHER ADVANCE OF THE AUGER. NO WATER WAS ENCOUNTERED DURING THE BORING. OVA BORING = 0, OVA BZ = 0, LEL = 0%. 6" TOPSOIL, 3' RED CLAY.

BORING NO. 7 COMPLETED AT 9:10. SAMPLES SB-07 COLLECTED. NO WATER ENCOUNTERED. 6" TOPSOIL & GRAVEL, 3.5' RED SILTY-CLAY. OVA BORING = 0, OVA BZ = 0, LEL = 0%.

BORING No. 8, 6" sandy gravelly fill, at 1' water was encountered, OVA in hole was 25, breathing zone is 0 LEL = 0%, Red silty clay 3½'; boring completed at 10:10; spls SB-08 were collected. Water samples SB-08-W were collected at 10:25. Water was very sedimented in appearance when collected but within minutes was green.

Note South collection sump water level was 3.4' from top of sump. Data collected at 9:30.

AT 9:30 ERT field personnel contacted Larry Campbell in LOMBARD. Mr. Campbell was informed that the original locations of borings 9&10 (between the tracks) would not be possible because of impenetratable fill material. New boring locations on the NORTH side of the tracks will be attempted.

A water sample from the NORTH sump (SB-11-W) was collected at 10:35. Waterlevel is 6.5' below top of sump. Approximate depth of water is 3'. The water was collected for total & hex chromium only.

The water was a very visible greenish color. (ANTIFREEZE COLORED).
pH 7 = 7.00 4 = 4.40 SB-08-W pH = 6.90 and was buffered with nitric acid in the total Chromium sample to a pH of 1.15. SB-11-W pH = 7.05 and WAS BUFFERED WITH NITRIC ACID IN THE TOTAL CHROMIUM SAMPLE TO A pH OF 1.25.

PREPARED FIELD BLANKS FOR VOC AND CHROMIUM (TOTAL AND HEXAVALENT) AT 11:15. DI WATER WAS COLLECTED VIA DECONTAMINATED BAILER. ALSO PREPARED SHIPPING BLANK FOR CHROMIUM (TOTAL AND HEXAVALENT) BY PLACING DI WATER INTO 4 OZ AMBER JARS. THE SHIPPING BLANK FOR TOTAL CHROMIUM WAS BUFFERED WITH NITRIC ACID, pH = 1.35. THE FIELD BLANK FOR TOTAL CHROMIUM WAS BUFFERED WITH NITRIC ACID TO pH = 1.35. FIELD BLANKS ARE LABELED AS SB-13-W.

BORING NO. 10 WAS PLACED AS ORIGINALLY INTENDED. THE BORING ENCOUNTERED 1.5' FILL - COAL CINDERS AND GRAVEL, 2.5' RED SILTY-CLAY. NO WATER WAS ENCOUNTERED. SAMPLES SB-10 WERE COLLECTED AT 12:10.

BORING NO. 9 WAS NOT PLACED DUE TO UNSURE LOCATION OF THE U.S. SPRINT CABLE, EVIDENCE OF DAMAGE TO THE GROUNDWATER COLLECTION SYSTEM TILE DRAINS IN AREA AND UNSURE LOCATION OF REMAINING UNITS STILL UNDERGROUND. TRAIN WAS ALSO ACTIVE IN SWITCHING OPERATIONS USING THE SPUR NEXT TO PROPOSED LOCATION OF BORING.

EMT COMPLETED DECON. PROCEDURES AT 13:00 AND LEFT THE SITE TO FINISH PREPARING SAMPLES FOR SHIPMENT. NOTE THAT DENNIS WAS THE REP. FROM FINLEY ON-SITE TODAY AND MIKE WAS THE RAILROAD FLAGMAN.

SCOTT CONTACTED TOM TRAINOR TO ALERT HIM THAT SAMPLES WERE BEING SHIPPED TONIGHT AND THAT HE WOULD RECEIVE THEM IN THE MORNING. SCOTT ALSO TOLD TOM THAT VICKY HAD SCHEDULED A RAPID TURN AROUND ON VAPOR RESULTS (<1 WEEK). TOM IS AT ERT WILMINGTON, MA LAB. 13:40 CALL PLACED.

VICKY SMITH WAS NOT AVAILABLE BUT JANE TOOK A MESSAGE THAT SAMPLES WERE BEING SHIPPED TO THE HUSBAND LABORATORY TONIGHT. THIS WAS DONE AT 13:40.

THE SAMPLES WERE DROPPED OFF AT FEDERAL EXPRESS AT THE LOCAL AIRPORT AT 14:40. THE OVA THAT WAS SENT VIA UNITED EXPRESS WAS ALSO PICKED UP AT APPROX. 14:50.

NOTES ON LOCATIONS OF BORING:

ALL BORINGS, EXCEPT NO 9, WERE PLACED AS INDICATED ON DRAWING INCLUDED IN SAMPLING PLAN. BORINGS ALONG RAILROAD MAIN TRACK WERE SPACED 65 FEET APART. BORING NO. 6 WAS COMPLETED ONLY TO 3.5' AT WHICH DEPTH A GRAVEL LAYER WAS FOUND AND PREVENTED FURTHER ADVANCEMENT OF THE AUGER. OTHER BORINGS WERE COMPLETED TO 4 FOOT DEPTH.

BORING NO. 8 WAS THE ONLY LOCATION THAT ORGANIC VAPORS WERE DETECTED.

WEATHER ON TUESDAY OCTOBER 6, 1987 WAS COLD (40-50°F), CLOUDY, RAINING PERIODICALLY.

WEATHER ON WEDNESDAY OCTOBER 7, 1987 WAS COLD (35-45°F), CLOUDY, GUSTY WINDS,

NO PRECIPITATION.

Scott G.
Amy Stecyk

MONDAY OCTOBER 26, 1987

ERT PERSONNEL: SCOTT VEENSTRA, SCOTT PUSADEY

12:45-13:15 ERT OBTAINED CITY WORK PERMIT FROM THE DEPT. OF PUBLIC WORKS TO COLLECT SOIL SAMPLES IN THE STREET RIGHT-OF-WAY ALONG SECOND AND OUTAGAMIE STREETS.

13:30 SUPERVISOR FROM THE CITY DEPT. OF PUBLIC WORKS ISSUED A VERBAL APPROVAL TO ERT TO PROCEED WITH THE PROPOSED BORINGS. THE SUPERVISOR REVIEWED THE MAP SHOWING THE PROPOSED BORING LOCATIONS AND INFORMED ERT THAT THERE WERE NO OBSTRUCTIONS IN THE 4 FOOT DEPTH OF THE BORINGS. A COPY OF THE PROPOSED BORING LOCATION MAP WAS SUBMITTED TO THE CITY WITH ERT'S INSURANCE CERTIFICATE AS REQUESTED IN THE WORK PERMIT APPLICATION.

13:35 DALE GOSS (FINLEY ENGINEERING) TOLD ERT THAT ALL OTHER UTILITIES HAD GIVEN APPROVAL TO THE PROPOSED BORING LOCATIONS.

14:00 ERT'S OVA NOT IGNITING AS IT SHOULD- COLD TEMP. MAY BE CAUSING PROBLEMS. HEAVY RAINFALL IS PREVENTING ANY WORK AT THIS TIME.

14:30 ERT INFORMED DALE GOSS AND THE RAILROAD FLAGMAN THAT NO WORK WOULD

BE DONE TODAY DUE TO HEAVY RAINFALL. ALL PARTIES SHOULD REGROUP AT 7:00 ON TUESDAY OCTOBER 27, 1987 TO PROCEED WITH THE PLANNED WORK.

15:00 ENT BACK IN HOTEL IS ABLE TO PROPERLY IGNITE OVA. UNIT SEEMS TO BE FUNCTIONING PROPERLY - WILL STORE INDOORS FOR THE NIGHT TO AVOID TEMPERATURE RELATED PROBLEMS.

15:15 ENT CONTACTED CATHY CAMPBELL (CALL BY SCOTT VEENSTRA) TO INFORM HIM OF DELAYS IN STARTUP OF SAMPLING (PRIMARILY BAD WEATHER AND OVA TROUBLES).

15:30 - 17:00 REVIEWED PROPOSED WORK PLANS AND COMPLETED LABELS FOR SAMPLE CONTAINERS TO BE USED TO CONTAIN SAMPLES TO BE COLLECTED.

Scott C. V

Scott M. Posadzy

TUESDAY OCTOBER 27, 1987

ENT PERSONNEL: SCOTT VEENSTRA, SCOTT POSADZY

7:10 ARRIVED ON-SITE, MET WITH RAILROAD FLAGMAN AND SET UP TO BEGIN WORK.

BORING NO. 14 COMPLETED AT 7:40. SAMPLE SB-14 WAS COLLECTED. NO WATER WAS ENCOUNTERED.

1' FILL - SANDY, 3' RED V. SILTY-CLAY, TOTAL DEPTH = 4'. OVA BZ=0, OVA HOLE = 0, LEL = 0%.

BORING No. 19 COMPLETED AT 8:25. SAMPLE SB-19 WAS COLLECTED. NO WATER WAS ENCOUNTERED. 6" FILL, 1' RED SILTY CLAY MOTTLED TANISH-GREEN, 2.5' RED SILTY-CLAY. TOTAL DEPTH = 4'. OVA BZ=0, OVA HOLE=0, LEL=0%. PHOTOS OF SURROUNDING BUILDINGS (FUEL STORAGE, WAREHOUSE, AND LOOKING SOUTH DOWN OUTAGAMIE FROM TRACKS TO SECOND. ST.).

8:50 RELOCATE BORING No. 22 TO SOUTHWEST CORNER OF MASON AND FOURTH STREET. DALE GOSS TOLD ELT THAT LINE WOULD COME TO THIS POINT FROM RAILROAD BEFORE THE BRIDGE. PHOTOS OF AREA TAKEN.

BORING No. 22 COMPLETED AT 9:05 - SAMPLES SB-22 WERE COLLECTED - NO WATER WAS ENCOUNTERED. 6" TOPSOIL, 3.5' RED SILTY CLAY, SOME GREENISH BLEBS AT DEPTH = 3.5'. TOTAL DEPTH = 4'. OVA BZ=0, OVA HOLE=0, LEL=0%.

9:20 ELT PLACED APPROX. 2 gallons OF DECON WATER INTO THE SOUTHERN COLLECTION SUMP ALONG THE SOUTH SIDE OF THE RAILROAD TRACKS. ELT NOTED THAT LIQUID WAS PRESENT IN THE SUMP AT A LEVEL 2.5' BELOW THE TOP OF THE CONCRETE CAP. THE LIQUID WAS CLOUDY WITH SEDIMENT ~~AND~~ HAD A GREENISH TINT TO IT. NOTE THAT ON MONDAY OCTOBER 26, 1987 APPLETON EXPERIENCED A HEAVY RAINFALL.

ORGINAL LOCATION FOR BORING NO 20 WAS MOVED TO NEW LOCATION DUE TO INABILITY OF EMT CREW TO PENETRATE FILL MATERIAL. APPROX 18" OF ROCK FILL WAS ENCOUNTERED AND FURTHER PENETRATION WAS NOT ACHIEVABLE.

NEW BORING NO. 20 WAS COMPLETED AT 10:35. SAMPLE SB-20 WAS COLLECTED. NO WATER WAS ENCOUNTERED. 6" FILL, 3.5' RED SILTY-CLAY. TOTAL DEPTH = 4'. OVA BZ=0, OVA HOLE=0, LEL=0%. PHOTO FROM PROPOSED LOOKING SOUTHEAST TO ACTUAL BORING LOCATION IN WEEDS.

BORING NO. 21 COMPLETED AT 11:15. SAMPLE SB-21 COLLECTED. NO WATER WAS ENCOUNTERED. 6" FILL AND 3.5' RED SILTY-CLAY. TOTAL DEPTH = 4'. AT DEPTH = 3.5' OVA = 15 IN HOLE, HOLE COMPLETED OVA (HOLE) = 10. OVA BZ=0, LEL=0%. SLIGHT ODOR IN AIR DURING BORING - SEWER LIKE ODOR. PHOTOS OF SURROUNDING AREA (NW UP TRACKS, SE DOWN TRACKS, N&S ON OUTAGAMIE, GAS STATION, DRIVE IN FOOD LOCATION).

11:35 EMT PLACED APPROX. 2 GALLONS OF DEION WATER IN THE SOUTHERN COLLECTION SUMP OF THE WONK COLLECTION SYSTEM.

11:40 - 12:30 EMT ON LUNCH BREAK.

12:35 EMT RESTARTED OVA - CALIBRATION SCALE ADJUSTMENT SWITCH NOT WORKING PROPERLY. UNIT STILL FUNCTIONS.

BORING. NO. 15 COMPLETED AT 12:45. SAMPLE SB-15 WAS COLLECTED. NO WATER WAS ENCOUNTERED. 3" TOPSOIL, 3.75' RED SILTY-CLAY, TOTAL DEPTH = 4'.

OVA BZ=0, OVA HOLE=0, LEL=0%. PHOTO OF BORING LOCATION.

BORING NO. 16 COMPLETED AT 13:15. SAMPLE SB-16 WAS COLLECTED. NO WATER WAS ENCOUNTERED. 1' TOPSOIL, 3' REDDISH-BROWN SILTY-CLAY. TOTAL DEPTH=4'. OVA BZ=0, OVA HOLE=0, LEL=0%. PHOTOS INDICATING AREA OF BORING. COLLECTED DUPLICATE SAMPLE SB-23 WHICH IS A DUPLICATE OF SB-16.

BORING NO17 COMPLETED AT 13:45. SAMPLE SB-17 WAS COLLECTED. NO WATER WAS ENCOUNTERED. 1' TOPSOIL, 3' REDDISH-BROWN SILTY-CLAY. TOTAL DEPTH=4'. OVA BZ=0, OVA HOLE=0, LEL=0%. PHOTOS OF LOCATION WERE TAKEN.

BORING NO. 18 COMPLETED AT 14:10. SAMPLE SB-18 WAS COLLECTED. NO WATER WAS ENCOUNTERED. 6" TOPSOIL, 3.5' REDDISH BROWN SILT - SOME SAND, NO CLAY. TOTAL DEPTH = 4'. OVA BZ=0, OVA HOLE=0, LEL=0%. PHOTO OF LOCATION.

14:15 EMT PLACED APPROX. 2 gallons OF DEION WATER IN THE SOUTHERN COLLECTION SUMP.

14:30 EMT COLLECTED SAMPLES SB-24-W AS A FIELD BLANK BY COLLECTING DEIONIZED WATER THAT WAS POURED THROUGH THE DECONTAMINATED BUCKET AUGER USED TO COLLECT THE SAMPLES. THE FIELD BLANK FOR TOTAL CHROMIUM WAS BUFFERED WITH NITRIC ACID TO A pH = 1.35

14:35 EMT COLLECTED SHIPPING BLANKS. THE BLANK FOR TOTAL CHROMIUM WAS BUFFERED WITH NITRIC ACID TO pH = 1.70

STANDARDIZING pH METER 7=7.00 4=4.30

REMAINING EQUIPMENT WAS DECONTAMINATED AND ANOTHER APPROX. 2 gallons of WASH WATER WAS PLACED IN THE SOUTHERN COLLECTION SUMP. CHAIN OF CUSTODY LOGS WERE COMPLETED AND THE SAMPLE COOLERS PACKED FOR SHIPMENT TO ENT LABS IN HOUSTON AND WILMINGTON. THE COOLERS WERE DROPPED OFF AT FEDERAL EXPRESS AT 16:00.

WEATHER CONDITIONS DURING SAMPLING WERE CLEAR SKYS, SUNNY, TEMP RANGING 40-50 °F (APPROX.), NO PRECIPITATION.

ENT CONTACTED BO BLANKFIELD IN THE HOUSTON LAB TO INFORM HIM THAT THE SAMPLES HAD BEEN SHIPPED. BO INDICATED THAT PRELIMINARY RESULTS MIGHT BE AVAILABLE FRIDAY OCTOBER 30, 1987. CONTACTED AT 14:15.

ENT ALSO ATTEMPTED TO CONTACT THE WILMINGTON LAB BUT NO PERSONNEL WERE AVAILABLE AT 14:25.

ENT LEFT A MESSAGE FOR LARRY CAMPBELL THAT WORK HAD BEEN COMPLETED, SAMPLES SHIPPED AND TO CALL IF ANY THING ELSE WAS NEEDED OF SITE PERSONNEL PRIOR TO RETURNING TO CHICAGO ON WEDNESDAY OCTOBER 28, 1987.

WEDNESDAY OCTOBER 28, 1987

ERT PERSONNEL: SCOTT VEENSTRA

7:35 CONTACTED ERT LAB IN WILMINGTON - ART PARADISE NOT IN YET, LEFT MESSAGE THAT SAMPLES FROM AT&T APPLETON, WI WOULD BE ARRIVING THIS MORNING AND THAT VERBAL RESULTS ARE EXPECTED TO BE RETURNED WITHIN 3 DAYS.

Scott C. V

Monday December 7, 1987

ERT PERSONNEL: Scott M. Posadzy

Weather Conditions: Overcast, cold, rain

9:00 Arrived in Appleton, Wisconsin.

9:30 Met Finley Engineering representative Dale Moss and gave him a copy of the letter concerning the anti-seep plug specifications. No trench excavations have been performed as of yet. We then decide that due to the commitments of the work crew to the AT&T lightguide cable bypass, only trenches C and D will be sampled today.

10:00 Informed ERT Project Manager Larry Campbell of the status of the operation.

10:15 Excavation of trench D is begun, using a John Deere 210-C backhoe. Completed at 11:00.

11:30 ~~Ex~~ Excavation of trench C is begun, using a John Deere 210C backhoe. Completed at 12:00

11:35 Soil Sample is taken from trench D. The sample (sample #D-1) was taken approx. 6" from the end of the exposed steel conduit along its bottom, on the east wall of ~~end of~~ the trench. The sample was then prepared for total and hexavalent Chromium and Volatile Organic Compound (VOC) analysis.

11:45 U.S. Sprint representative Dean Cline, expresses interest in ERT performing sampling soil in the splice pit where U.S. Sprint workmen experienced skin irritations while working. He then asked is similar soil sampling and anti-seep plug installation like AT&T's would be performed for U.S. Sprint, and was directed in both cases to Larry Campbell for consultation.

12:00 Soil sample is taken from trench C. The sample (sample # C-1) was taken approx. 18" from the end of the severed innerduct on the east wall of the trench, along its bottom. The sample was then prepared for total and hexavalent chromium and VOC analysis.

12:30 Soil sample is taken from trench C. The sample (sample # C-2) was taken approx. 2' to the south of sample C-1, at the same depth and approx. 6" into the east wall of the trench. The sample was then prepared for total and hexavalent Chromium and VOC analysis. This sample was taken to show undisturbed (background) soil conditions.

13:00 Deionized water is poured over decontaminated sampling equipment and is collected in containers for subsequent total and hexavalent Chromium and VOC analysis. In addition, the container for the total chromium analysis is buffered to a pH<2, with 7 drops of nitric acid. These samples were designated as Field Blanks, and will be analyzed to see if proper decontamination procedure was followed between samplings..

13:15 The deionized water used in the decontamination of sampling equipment is collected in containers for subsequent total and hexavalent chromium analysis. In addition, the container for the total chromium analysis is buffered to a pH<2, with 7 drops of nitric acid. These samples were designated as Strip Blanks, and will be analyzed to see if the deionized water was uncontaminated.

approx. 14:30 Informed Larry Campbell of the status of the operation, and was informed by ERT Personnel (Scott Veenstra) that all samples being tested for total and hexavalent chromium were to be sent to Houston, TX, and those for VOC analysis to Wilmington, MA.

approx. 16:30 Informed Larry Campbell of the status of the operation, and was told that additional equipment was being sent for use in sampling U.S. Sprint trenches, that were designated excavation, sampling, and plugging, as a result of his conversation with Dean Cline. In addition, sampling near the splice pit is also to be performed. Lastly, he stated that project numbers for AT&T and U.S. Sprint were to be G417-510 and G417-520 respectively.

17:00 All samples packaged in coolers with proper chain of custody forms and seals, are taken to Outagamie County airport for shipment via Federal express.

Scott M. Posadny

Tuesday December 8, 1987

ERT PERSONNEL: SCOTT M. POSADZY

Weather Conditions: overcast, cold, misting-rain 10:4

8:00 Picked up the additional sampling equipment at the 11:0
Federal Express office.

8:45 met with Dean Cline as agreed, and was informed at
that time that he planned to utilize the workcrew to
excavate the U.S. Sprint and remaining AT&T trenches,
install all the anti seep plugs, and backfill today. Despite
my personal doubts of the feasibility of this schedule,
I amended my procedure to sample the trenches as
quickly as they were excavated and to complete the
excavation reports prior to the plugging. Dale Ross then 11:15
informed me that he had met with the ready-mix
company preparing the Bentonite/Sand/water mixture,
and that it would arrive later in the day to ERT
specifications.

10:00 U.S. Sprint trench D is excavated using a Ford 555A
Back Hoe and hand labor. Completed at 10:45. The
steel conduit that was uncovered is continuous;
thus leaving a span of conduit across the trench.
This span was removed with a carbide saw; and
upon its removal, water trickled ~~from~~ into the 11:3
trench from the steel conduit extending from the
East wall of the trench. Completed at 10:30.

10:30 Soil sample is taken from U.S. Sprint trench D. The
sample (sample # D-1-US) was taken approx. 2' from the
end of the severed steel conduit extending from the
east wall of the trench; ~~from~~ undisturbed soil along
the bottom of the conduit. The sample was then

prepared for total and hexavalent chromium and VOC analysis.

10:45 U.S. Sprint trench C is excavated using a Ford 555-A Back Hoe and hand labor. Completed at 11:00.

11:00 Soil sample is taken for U.S. Sprint trench C. The sample (sample #C-1-US) was taken approx. 1' ~~behind~~ from the end and along the bottom of the severed steel conduit extending from the east wall of the trench (so that I could sample undisturbed soil) Minimal amounts of water were lying in the bottom of the trench, and can be attributed to the weather conditions. The sample was then prepared for total and hexavalent chromium and VOC analysis.

11:15 Soil sample is taken from U.S. Sprint trench C. The sample (sample # C-2-US) was taken approx 2' to the south of the base of the severed steel conduit, extending from the east wall of the trench, and at the same depth. The sample was then prepared for total and hexavalent chromium and VOC analysis. This sample was taken in undisturbed soil ~~and~~ to show background conditions. In addition at this time, U.S. Sprint trench B is excavated using a Ford 555-A Back Hoe and hand labor. Completed at 11:30.

11:30 Soil samples are taken from U.S. Sprint trench B. The samples (sample # B-1-US and B-2-US (Duplicate of B-1-US)) are taken along the base of the severed steel conduit, ~~extendin~~ which extends approx. 18" from the west wall of the trench and is leaking water at a steady rate. The samples were then prepared for total and hexavalent chromium and VOC analyses. In addition at this time, ~~U.S. Sprint~~ AT&T trench B is excavated using a Ford 555-A Back Hoe and hand labor. Completed at 12:00.

11:45 Soil sample is taken from U.S Sprint trench B. 13.
The sample (sample # B-3-US) was taken approx 2'
to the north of the steel conduit extending from the
west trench wall, at the same depth and in
undisturbed soil. The sample was prepared for
total and hexavalent chromium and VOC analysis and
was taken to show the background conditions of the
soil.

12:00 Soil samples ~~are~~ taken from AT&T trench B. The
samples (sample #B-1 and B-2 (a duplicate of B-1) 13:
are taken approx. 18" from end of the severed innerduct,
from under its base along the west wall of the
trench. No water is present. The samples were then 13:
prepared for total and hexavalent and VOC analyses.

12:05 Soil sample is taken from AT&T trench B. The
sample (sample # B-3) was taken approx 2' to the north
of the base of the innerduct severed, at the
same depth in undisturbed soil. The sample was
prepared for total and hexavalent chromium and VOC 14.
analysis; and was taken to show the background
levels ~~of~~ in the soil naturally present.

12:15 U.S Sprint trench A is excavated using a Ford 555-A
back hoe and hand labor. Completed at 12:30.

12:30 AT&T trench A is excavated using a Ford 555-A
back hoe and hand labor. Completed at 1:00

13:00 Soil sample is taken from AT&T trench A. The 14.
sample (sample # A-1) was taken along the base
of the unsevered steel conduit, along its bottom
in undisturbed soil. No water was present. The
sample was then prepared for Total and hexavalent
chromium and VOC analysis.

13:30 Soil sample is taken from U.S. Sprint trench A. The sample (sample # A-1-US) is taken from the undisturbed soil along the base of the severed steel conduit that extends from the west wall of the trench. Water is leaking from the steel conduit, and even with a respirator, I am driven out of the trench just as I finish the soil sampling. The sample was thus prepared for total and ~~chromium~~ hexavalent chromium and VOC analysis.

13:45 Inform Larry Campbell that all the sampling has been finished.

13.50 Inform Larry Campbell that workmen have discovered that yellow-green water has filled U.S. Sprint trench B and some of U.S. Sprint trench A. He then decide that water samples ~~are necessary to~~ need be taken in these trenches, and that he'll investigate the regulations governing these findings.

14:00 Water sample is taken from U.S. Sprint trench A. Sample (A-W-S) is prepared for total and hexavalent chromium and VOC analysis. In addition, the total chromium container contents is buffered to a pH<2 with 7 drops of nitric acid. At this time I inform Dean Cline of the chromium contaminated water problem, and that Larry Campbell is working ~~on~~ determining the possible options that are available to U.S. Sprint. He thus assures me that ~~they~~ U.S. Sprint trenches A and B will remain open.

14:30 Water sample is taken from U.S. Sprint trench B. Sample ~~is prepared for~~ (sample # B-W-US) is prepared for total and hexavalent chromium and VOC analysis. In addition, the total chromium container contents is buffered to a pH<2 with 7 drops of nitric acid.

15:00 Ready-mix truck containing bentonite/sand/mixture
9 arrives, but is sent back to have more water added. The anti-seep plug mixture was clumped into large balls at this time.

16:00 Field Blanks and Shipping Blanks are prepared for total and hexavalent chromium and VOC analyses.

16:30 U.S. Sprint trenches A, B, C & D, and AT&T trenches A and B are backfilled by order of the Chicago and Northwestern Railroad representative.

17:00 Dale Moss informs me that the ready-mix truck will not return today, but AT&T trenches C and D will remain open but covered. It is ~~rain~~ is raining heavily at this time. Informed Larry Campbell of the status of the operation, and he says additional sampling equipment is being sent up in case the sprint trenches and remaining AT&T trenches ~~are reopened and water is found tomorrow~~ contain water when reopened tomorrow.

18:48 Iced samples, packaged in coolers with proper chain of custody forms and seals, are taken to Outagamie County Airport for shipment via Federal Express.

Scott M. Poradny

Wednesday December 9, 1987

ERT Personnel: Scott M. Poszozy

Weather Conditions: Overcast, cold.

8:00 Picked-up additional sampling equipment at the Federal Express office.

8:30 Met with Dale Moss as scheduled and decided to re-excavate trenches A and B, and pump rainwater runoff out of Trench C. Also, he informs me that he plans to pour the anti-seep plugs at 1:00; but will at 3600#'s of bentonite to the mixer when it arrives.

8:45 Met with U.S. Sprint representative Dean Cline, who informed me that all U.S. Sprint operations were to be suspended until further notice.

9:00 Informed Larry Campbell of the status of all operations, and expressed the fact that all AT&T trenches were scheduled to be plugged and back-filled today.

9:15 AT&T trench A is re-excavated with a Ford 555-A Back-Hoe and hand labor. Completed 9:30.

9:30 AT&T trench B is re-excavated with a Ford 555 A Back Hoe and hand labor. Completed at 9:45. Workers then proceed to ~~[illegible]~~ clean-up the holes in preparation for the 1:00 pour.

1200 Ready-mix truck arrives, containing 8400#'s sand and 215 gals. water. 3600#'s of bentonite is then added by hand to the top of the mixer – and mixed in.

1:00 anti-seep plug mixture is poured into AT&T trench D. unfortunately, the mixture comes out in bowling ball size clumps and large void spaces are apparent. The decision is made to add 50 gal. of water, but there is no effect.

1:15 Informed Larry Campbell of the problem, and he suggests that possibly the specifications are incorrect.

1:20 Meet with Dale Moss who informs me that a mixture of 30%/70% of Bentonite to Dry sand (as he interpreted ~~from~~ the specifications) was used in making the total mixture.

1:30 Informed Larry Campbell of the contents of the mixture, and he says that he talked to the Bentonite people and that too much sand and water had been added. He then recommends that a 7% total moisture to 4:1 sand/bentonite mixture be tried.

1:40 AT&T trench D is filled with the unspecified anti-seep plug mixture and back-filled. The remaining mixture is poured into AT&T trench C to empty the truck, which hardly fills the trench which continues to fill with moisture.

2:00 Dale Moss and I drive to the 4X corporation main office and meet with representative Harold Mulvey; to decide on the specification for mixing large batches of the newly specified mixture.

2:30 Dale Mow, Harold Mulvey and I drive to the mixing yard to experiment on a small scale with the new specifications. We then came up with the following prototype mixture:

Prototype:

9.6 lbs Dry Sand
2.4 lb Bentonite
.84 lb [illegible] { .4 lb moisture from sand
{ .44 lb added water
→ 7% of total

Final Mixture for 12/10/87 pour:

600 lb Bentonite
2500 lb Wet Sand (4% moisture content)
15 gal. Water

5:00 Returned to site and received permission from the Chicago + Northwestern Railroad Dispatcher to keep AT&T trenches A, B, and C opened but covered until tomorrow's pour.

5:05 Informed Larry Campbell of the status of the operation.

Scott M. Posadny

Thursday December 10, 1987

KRT Personnel: Scott M. Poradny
Larry M. Campbell

Weather conditions: Partly cloudy, cold

7:00 Arrived on site to find that AT&T trench B contains approx. 3592l. of yellow-green water. Informed workcrew not to perform any additional work on this trench until further notice.

7:15 Re-excavated AT&T trench D to remove the unspecified Bentonite/Sand/water plugging mixture. This was done with a Ford 555-A Back Hoe and hand labor. Rainwater runoff is pumped for AT&T trench C. Both completed at 9:30.

7:30 Informed Larry Campbell of the status of the operation, and was informed by him that he would contact the WDNR about the contents of AT&T trench B and the procedure thereafter.

8:15 Met Finley Engineering General Manager Ken Knuth, who is responsible for U.S. Sprint operations. He questioned why no plugging for U.S. Sprint was being done, and I explained to him that U.S. Sprint Project Manager Dean Cline had suspended all operations on 12/9/87 due to encountering chromium contaminated water in U.S. Sprint trenches A and B on 12/8/87. He then requested that the re-excavation and ~~plugging~~ of U.S. Sprint trench D be performed as previously authorized, and was obliged.

8:45 Re-excavation of U.S. Sprint trench D is begun with a Ford 555-A Back Hoe and Hand Labor. Completed at 9:30.

8:50 HX Corporation representative Harold Mulvey arrives to confirm Bentonite/Sand/Water mixture specifications.

9:00 Informed Larry Campbell of the status of the operation, and was told that he had not yet contacted the WDNR. He also asked me to have Ken Knuth telephone him to further discuss U.S. Sprint operations.

9:30 workcrew begins to form both AT&T and U.S. Sprint trench D according to plug specifications.

9:45 Ken Knuth informs me that Larry Campbell requests me to telephone him.

10:00 Telephoned Larry Campbell, who informs me that he will arrive in Appleton, WI at 12:00. He also informs me that no free-standing forms should be constructed; only forms built against undisturbed soil should be ~~constru~~ built.

10:10 Dale Moss informs me that 5 yds of the plug mixture is due at approx 1:00 and that he will construct the forms to LMC's instructions.

12:00 Pick-up Larry Campbell at airport.

12:30 Arrive at site with LMC to find the truck with the plug mix waiting for our go ahead.

12:35 2 1/2 yds are poured into AT&T trench D, with water from the truck being sprayed in as it leaves the chute.

14:00 1.25 yds of plug mixture is poured in U.S. Sprint trench D, using water that had collected in the trench as additional moisture.

14:15 1.25 yds of plug mixture is poured in AT&T trench C, using water that had re-accumulated in the trench as additional moisture.

Out of mixture at this time, Larry Campbell requests that an additional 5 gals of water in the next 5 yd batch. The WDNR representative also showed up at about this time.

15:00 water sample is taken from AT&T trench B (sample # B-W) and is prepared for total and hexavalent chromium and VOC analysis. The total chromium container contents is buffered to a pH<2 with 7 drops of Nitric Acid.

15:15 Field Blank is prepared in the same manner as sample # B-W; including buffering.

15:30 Shipping Blank is prepared in the same manner as the ~~sample~~ #BW; including buffering.

Also, The next ready-mix truck arrives at this time.

15:45 ~~US Sprint~~ trench D is topped off.

16:00 AT&T trench D is topped off

16:15 AT&T trench C is topped off.

16:30 AT&T trench A is filled as an additional ready mix truck arrives. The decision is then made to fill up the entire trench (the area behind the form) with the additional mixture.

16:45 I take Larry Campbell back to the airport

17:15 Return to find that AT&T and U.S. Sprint trench D has been back-filled, and that AT&T trench A has nearly been completed. Must leave at this time to drop samples off at Federal Express office.

18:00 Iced 2 samples, packaged in coolers with proper chain of custody forms and seals are taken to Outagamie County Airport for shipment via Federal Express.

18:30 Return to site to find AT&T trench A has been back-filled, but AT&T trench B remains ~~covered but~~ open - but covered.

Scott M. Poradny

Friday December 11, 1987

ERT Personnel : Scott M. Posadzy

Weather Conditions : Overcast, cold, raining

7:00 Return to site for final inspection of the back-filled trenches and to take photographs of AT&T trench B being back filled. In back-filling AT&T trench B, workmen had a hard time covering the water ~~displaced from the trenches~~ as being displaced by the soil - but accomplished the task.

9:00 Left Appleton, Wisconsin for Lombard, Illinois.

Scott M. Posadzy

Wednesday December 16, 1987

ERT PERSONNEL : SCOTT M. POSADZY

Weather Conditions : Overcast, cold, windy - blowing snow

12:15 Arrive in Appleton. Find Dean Cline hand digging designated trench E.

12:20 Inspected trenches (or I should say holes) G and H. The bottom of the trenches are undiscernable and are partially filled with water.

12:30 Dean Cline leaves site to see if Michels construction is available to come with a Back hoe and excavate the trenches.

12:45 Dean Cline says Michels will be here at 8:00am
12/17/87

1:00 Informed Larry Campbell of the status of the operation.

Scott M. Posadzy

Thursday December 17, 1987

ERT PERSONNEL: SCOTT M. POSADZY

Weather Conditions: Cold, overcast – partly cloudy

8:00 Arrive on site with Michels and Dean Cline of U.S. Sprint.

8:15 Excavation of U.S. SPRINT trench E is begun, using a Ford 555-A Back Hoe, Pipe located and hole completed at 9:10. Water is present.

9:15 Soil samples are taken from U.S. Sprint trench E. The samples are sample # E-1-US, E-2-US (Duplicate of E-1-US) and E-3-US (Background Sample). In addition a water sample was taken, and all samples were prepared for total and hexavalent chromium and VOC analysis. Sample E-3-US was taken at 9:20 and E-W-US at 9:25. The trench was backfilled immediately.

9:30 Excavation of U.S. Sprint trench F is begun, using a Ford 555-A Back Hoe. Pipe located and trench completed at 10:00. Water present is attributable to the surface snow and warming temperatures; thus no water sample will be taken.

10:00 Soil samples are taken from U.S. Sprint trench F. The samples are F-1-US and F-2-US (Background sample). F-1-US was taken at 10:00 and F-2-US at 10:05. Both samples were prepared for total and hexavalent chromium and VOC analysis. The trench was back-filled immediately.

- It is important to mention at this point that all samples having letter -①-US; refers to samples taken at the base of the steel conduit.

10:30 Excavation of U.S. Sprint trench H is begun, using a Ford 555-A Back Hoe. Pipe located and trench completed at 11:00. water is present.

11:00 Soil samples are taken from U.S. Sprint trench H. Samples taken are H-1-US, H-2-US (Background sample) and water sample H-W-US. H-1-US was taken at 11:00, H-2-US at 11:05, and H-W-US at 11:15. All samples were prepared for total and hexavalent chromium and VOC analysis. The trench was backfilled immediately.

11:30 Excavation of U.S. Sprint trench G is begun, using a Ford 555-A BackHoe. Pipe located and trench completed at 11:45. water is present.

11:45 Soil samples are taken from U.S. Sprint trench H. Samples taken are G-1-US (11:45), G-2-US (11:50 - Background sample) and G-W-US (12:00 - water sample). All samples were prepared for total and hexavalent chromium and VOC analysis. The trench was backfilled immediately.

- All water samples taken, were buffered to a pH<2 with seven drops of nitric acid for total chromium.

13:00 Informed Larry Campbell of the Status of the operation.

16:00 Field Blank is prepared by pouring deionized water over cleansed sampling utensils and collecting it into containers. The samples were thus prepared for total and hexavalent chromium and VOC analysis.

- All decon water was disposed of in the sump of the french drain.

16:15 Shipping Blank is prepared [illegible] for total and hexavalent chromium and VOC analyses. This is done by filling containers with the deionized water used in the decon procedures. This is part of the quality assurance program.

17:30 Iced samples are packaged in coolers with proper chain of custody forms and seals are taken to Outagamie County airport for shipment via Federal express.

Scott M. Pocadny

May 31, 1988 Scott Posedzy

Travelled to site to Collect sample of soil from AT&T ~~[illegible]~~ Plug B location Collected a Composite Soil Sample from 3 & 4' depths. Sent to Houston lab for EP Tox analysis.

Entry by Larry M. Campbell
based on oral description from
Scott Posodzy prior to his
resigning from ERT

LM Campbell

8-19-88

Notetaker - Glen Anderson ERT Lombard

0800 Arrive at site with Terry Smart & Mike Adkinson (ENSR Constructors). I just called Finley Engineering to see if Dale Goss is coming out. The secretary said he is on his way out. The weather is clear, calm, 60's.

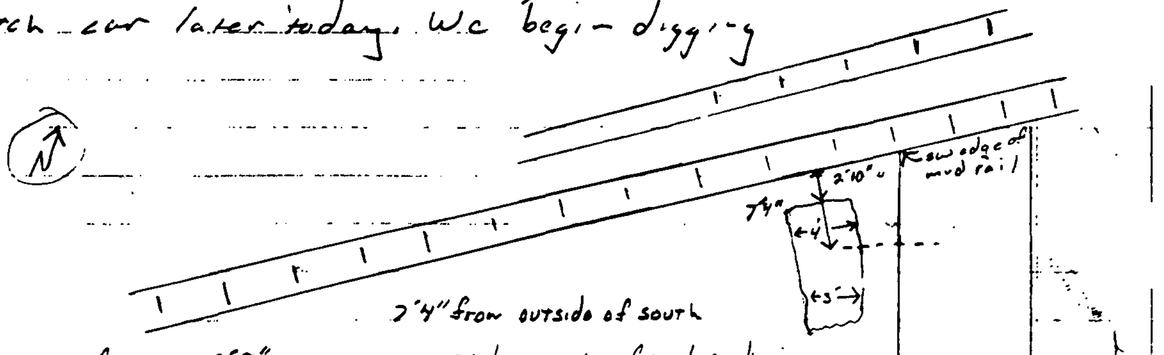
0810 It rained here last night so ground is slightly muddy. There is no standing water where we plan to excavate but standing water is north of tracks near sump/catch basin. Water has a green tint.

0815 I took photo of proposed excavation area. Photo taken from middle of Outagamie St. looking SW. Terry & Mike go to get backhoe

0833 Backhoe arrives

0840 Dale Gass arrives

0902 R.R. line (switch line) locater and scheduler arrive and locate line and inform us that the only train traffic expected is a switch car later today. We begin digging

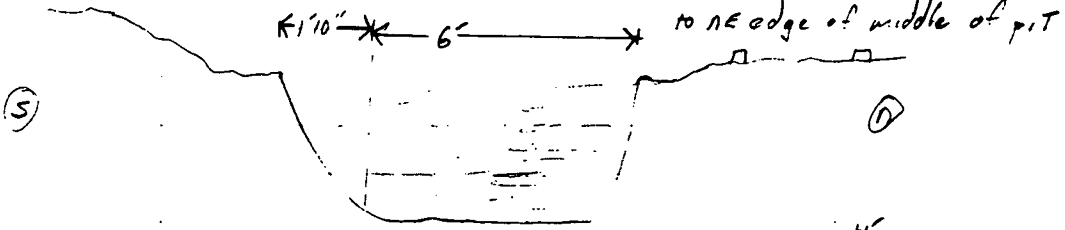


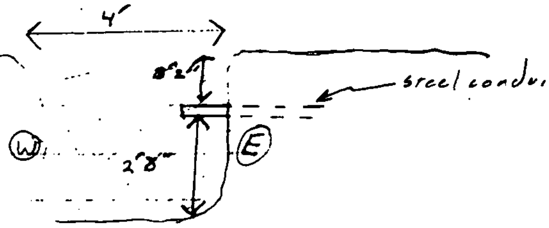
NE corner of pit is 9'8" from SW edge of mud rail

7'4" from outside of south rail to center of steel conduit

2'10" from outside of south rail to north edge of anti-seep pit.

5'4' from W edge of side walk to NE edge of middle of pit





8-19-88

0927 Switch engine passes by on north rail line. RR. reps have left.

0954 Excavation finished. Terry called redi-mix to order grout. Dispatcher was not in at the time but he left an order anyways. He will call him back shortly. Switch ~~drove~~ engine drove by

1002 Switch line for RR is visible along north face of excavat. and is not damaged in any way. It is 1'7" below exist grade

1021 Excavation was checked with hnu and no elevated readings were obtained

1030 Redi-Mix rep. just stopped by and said he's sending mix out soon. Mix formula is 2500 # sand (   ) to 600# bentonite (   ) and water will be added at site. Sand contains 3-4% water. Mix formula is per yard and 4 yards are being shipped. Source is Valley Redi-mix

1911 W. Wisconsin Ave
Appleton, Wi 54914
~~414~~ 800-236-8132

1218 Still waiting for redi-mix ~~B~~ There is ~ 1-2 gallons of water at bottom of pit. It has a green tint and at least some if not all of it came from steel conduit pipe

1317 Redi-mix truck arrives

1400 Approx. 1½' to 2' of grout has been poured and mixer truck is now filling up with water again. 85 gals of H_2O added

1410 Begin pouring

1432 Ran out of water again (170 gals added so far) approx. 3 ft of grout is in hole now.

1513 Backfilled w/ grout to exist grade. Approx (140-150 more gallons were added, a second redi-mix came at ~1445 carrying only water, he is now leaving). Mike is now spreading spoil around

1612 Finish spreading spoil and covered with ~ 4 yd³ of 3/4" crushed limestone. Terry & Mike begin seting up hi-pressure washer.

1640 Finish decon. Terry & Mike return pressure washer and backhoe. I remain to watch other eqpt.

1715 I leave for airport. Terry & Mike have returned and

8-19-88
finished loading eqpt.

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have

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anyways
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excavation
grade
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mix
600#
Sand
are

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ds³
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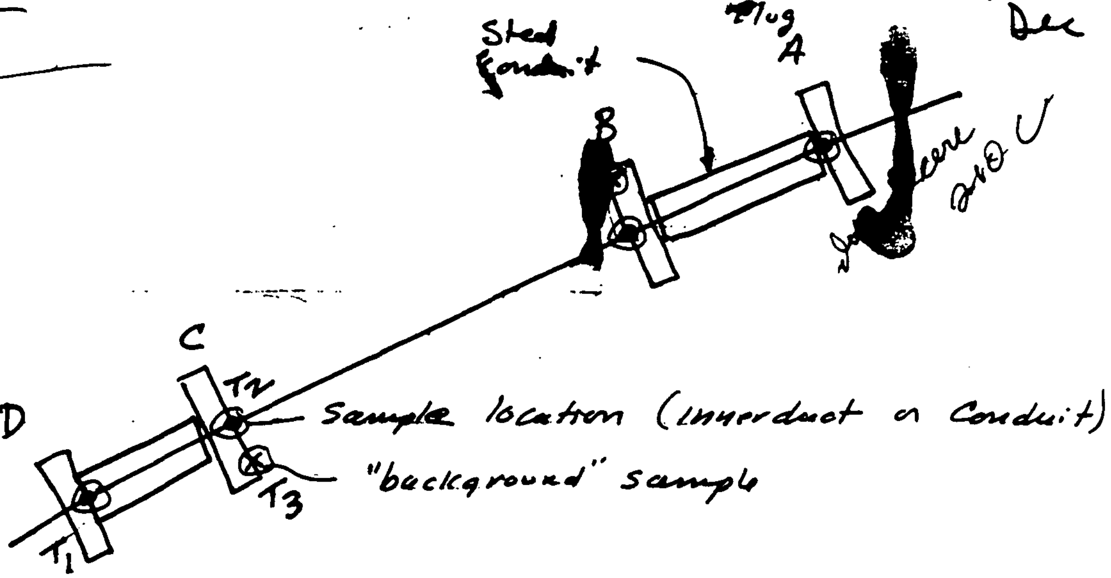
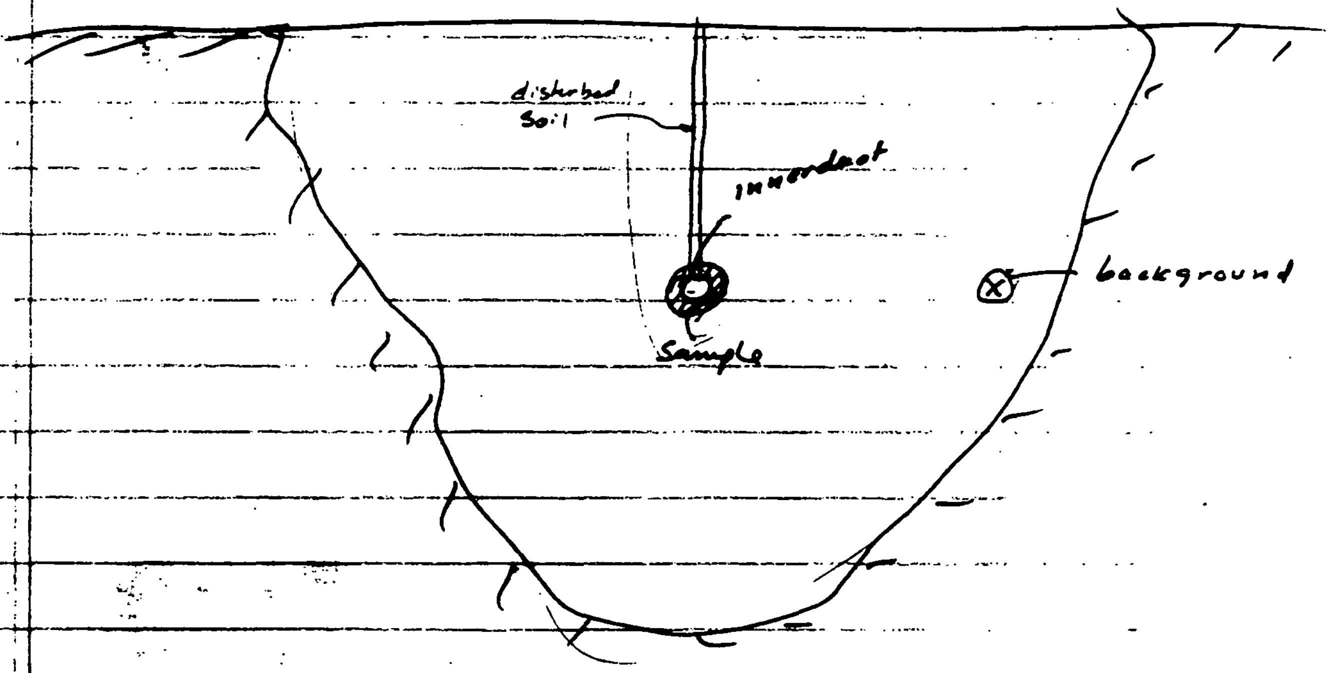
G41[illegible]-500

Dec 1987

SCOT





Analyze all for:
Total Cr
Hex Cr
VOC

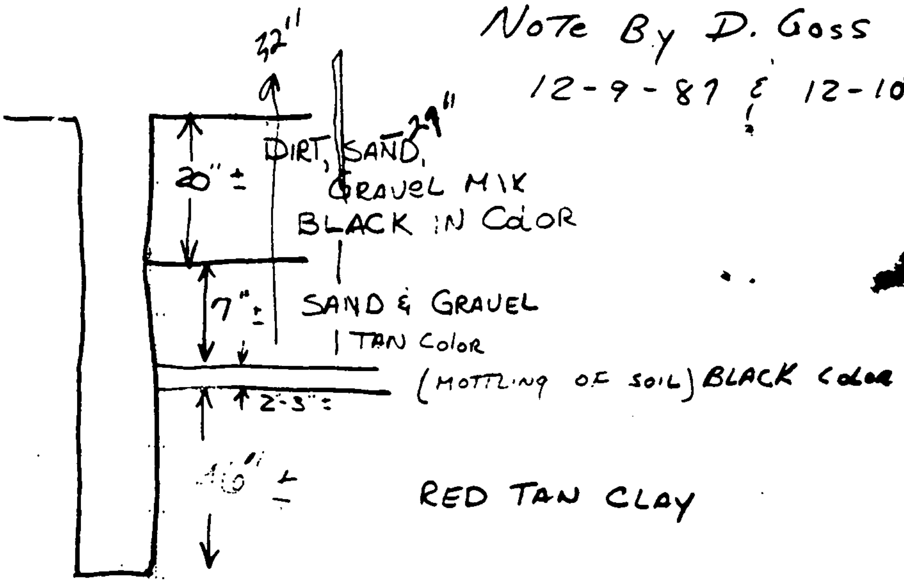
4 Samples (innerduct) ✓
2 " (background) ✓
1 duplicate ✓
1 Field Blank (water)
1 Trip Blank (water) ✓

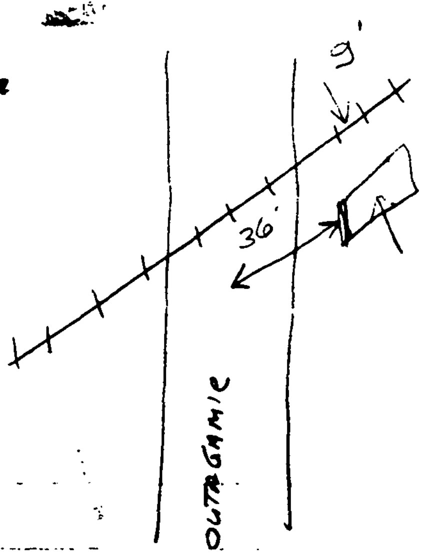
A141 NORTH SIDE OUTAGAMIE

Note By D. Goss F.E.C.

12-9-87 & 12-10-87

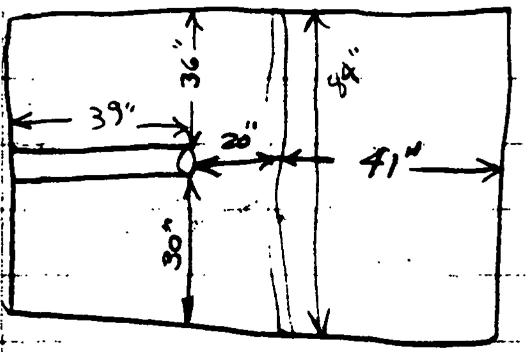
A





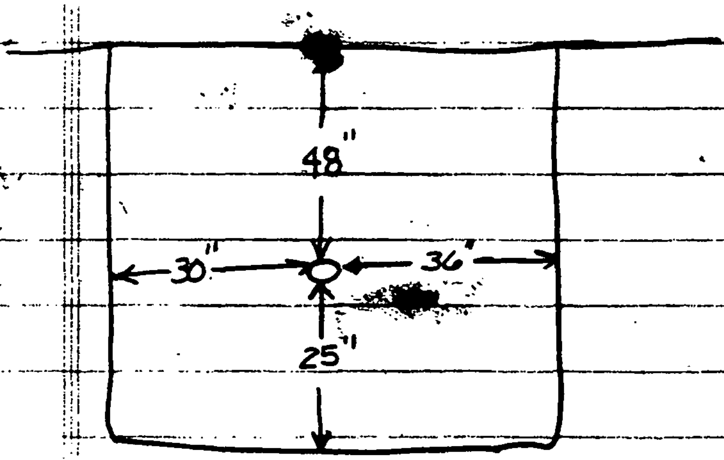
36' to ℄ OUTAGAMIE

9' ℄ RR



TOP VIEW

TO OUTAGAMIE



+6

END VIEW

TO ℄ ON OUTAGAMIE

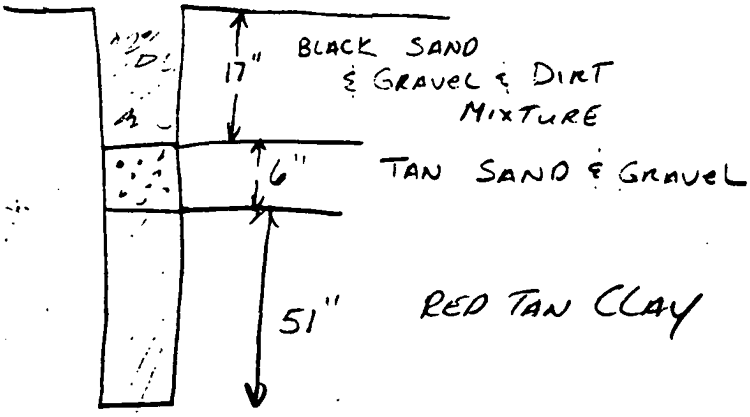
NORTH SIDE

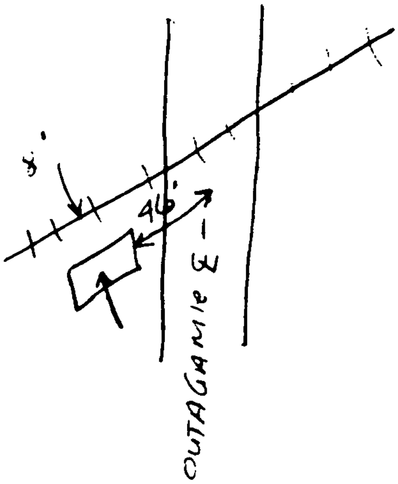
AT&1 SOUTH SIDE OUTAGAMIE

NOTES BY D. GOSS F.E.C.

12-10-87

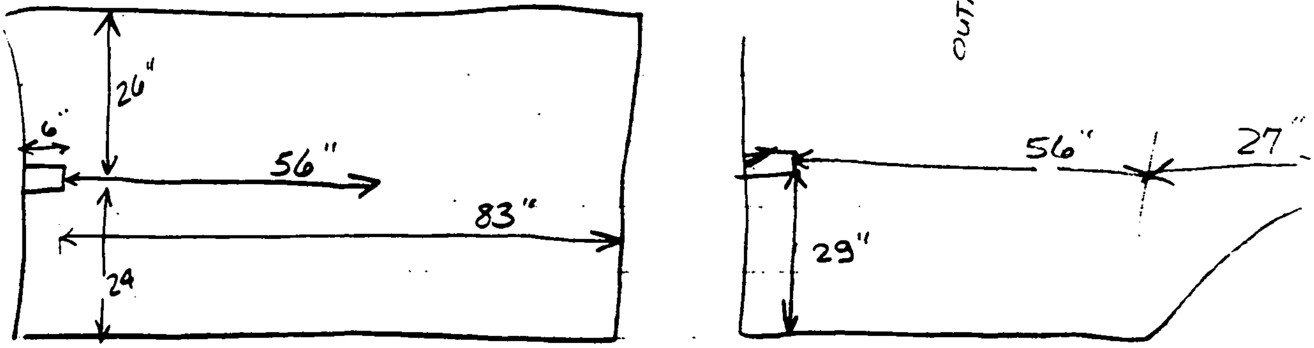
B





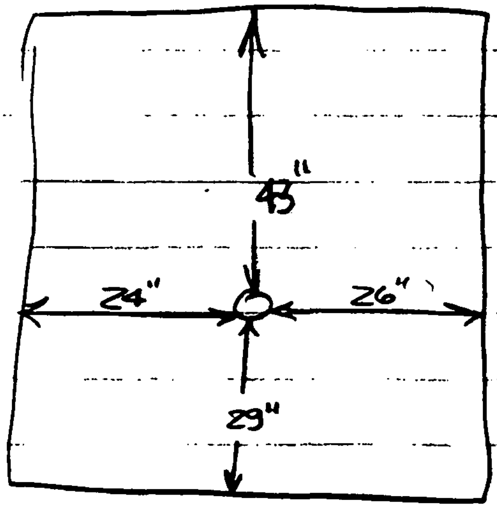
46 F

8' TO ℄ [illegible]



TO OUTAGAMIE

74

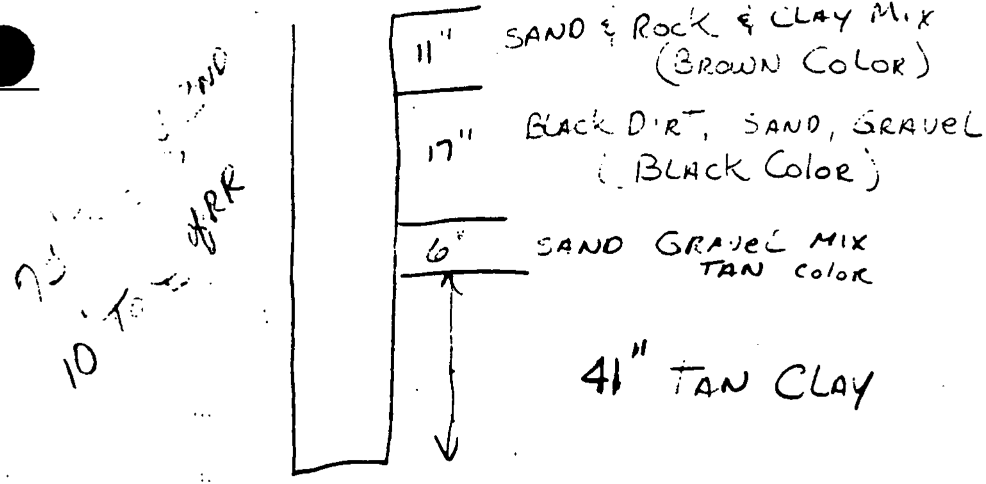


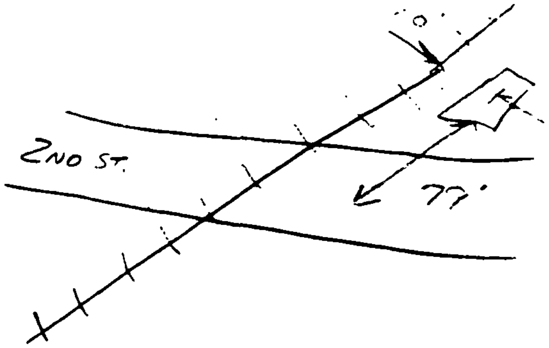
SOUTH SIDE OUTAGAMIE ST.

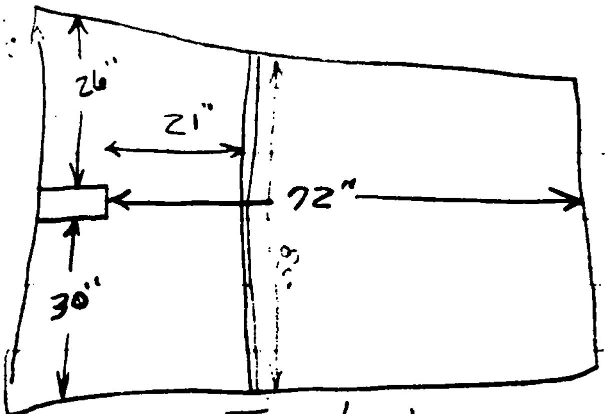
AT&T NORTH SIDE 2ND ST.

NOTES BY D. GOSS
12-9-87 & 12-10-87

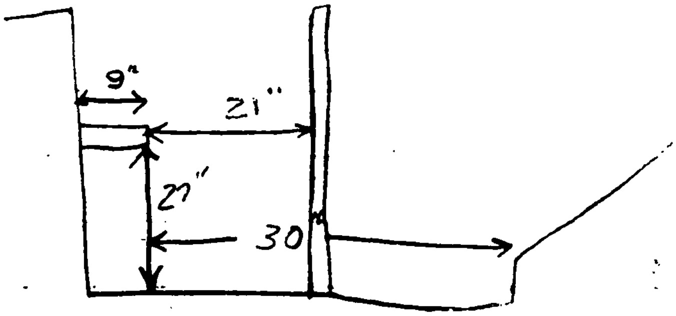
C

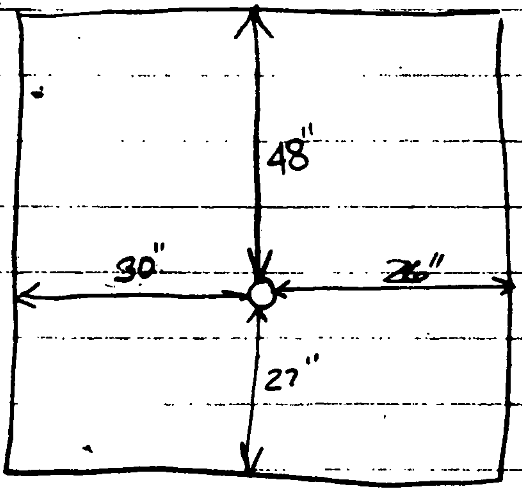






Top View





Look To ℄ of 2ND ST.

9:50 12/10/87

HOLE (D)

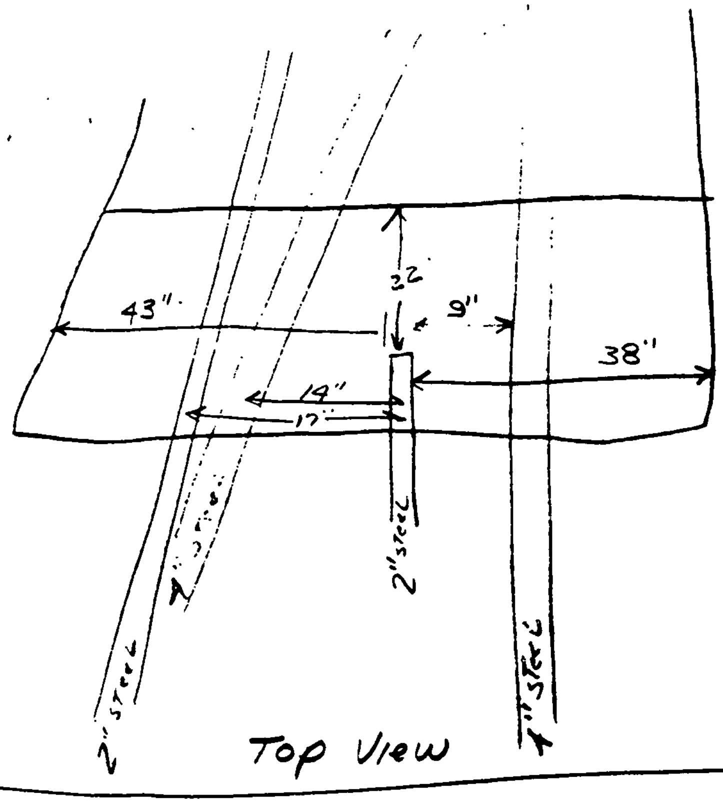
SOUTH SIDE 2ND ST

NOTES BY D. GOSS F.E

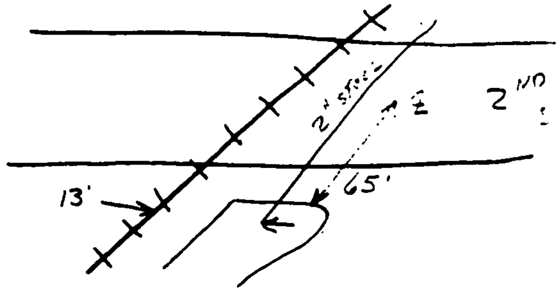
PLYWOOD FORMS TO BE
PLACE SHOWN IN RED
AT TIME OF POUR

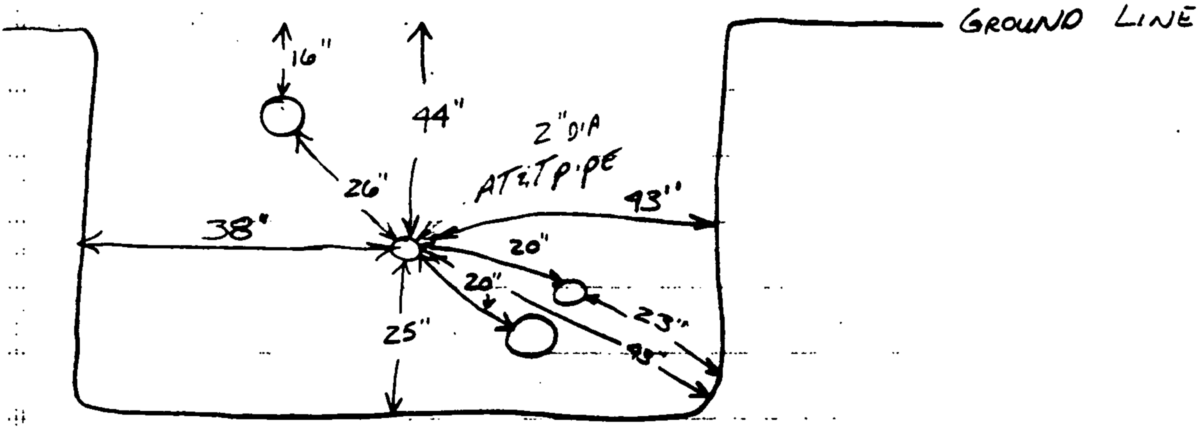
START POUR ____________

FINISH POUR ____________

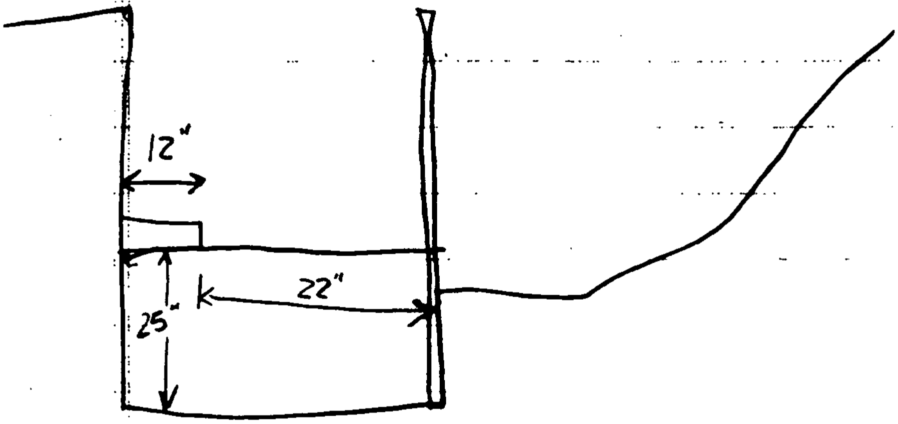


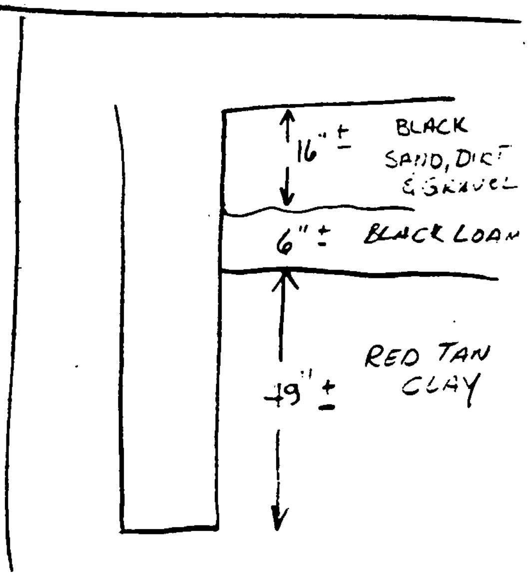
TOP VIEW





℄ END VIEW
TO 2ND ST.





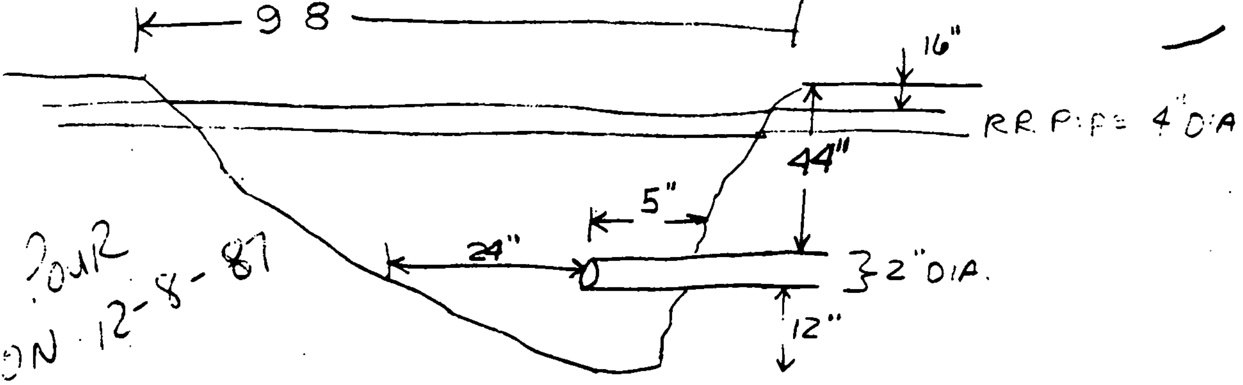
TIME 2:24 PM Dec 8 1987

Notes By D.Goss BEFORE DAM & CASE

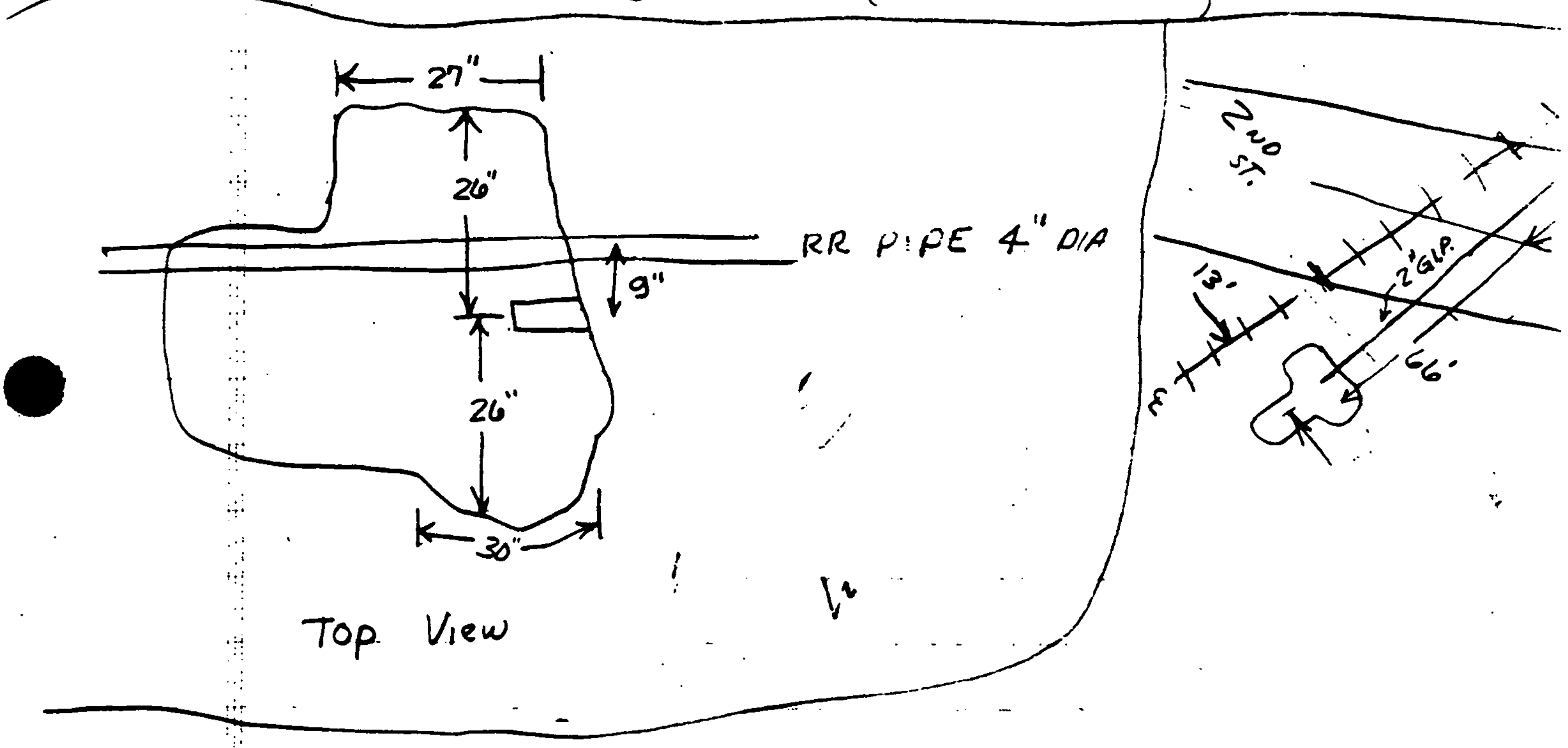
NEED TO FORM Hole To SPEC.

PIT D

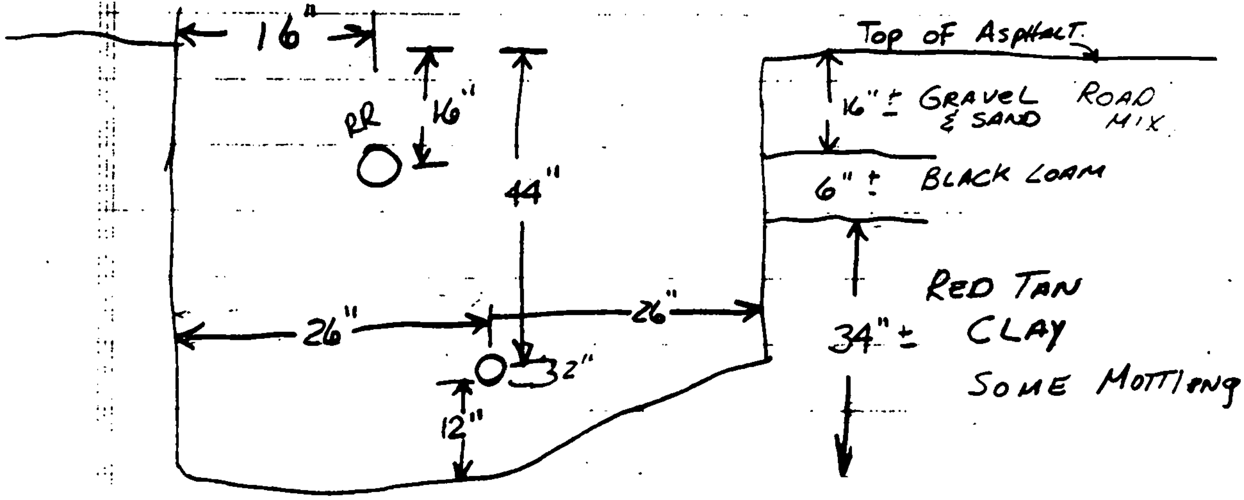
No POUR ON 12-8-87



LOOKING NORTH (TOWARDS TRACKS)



Top View

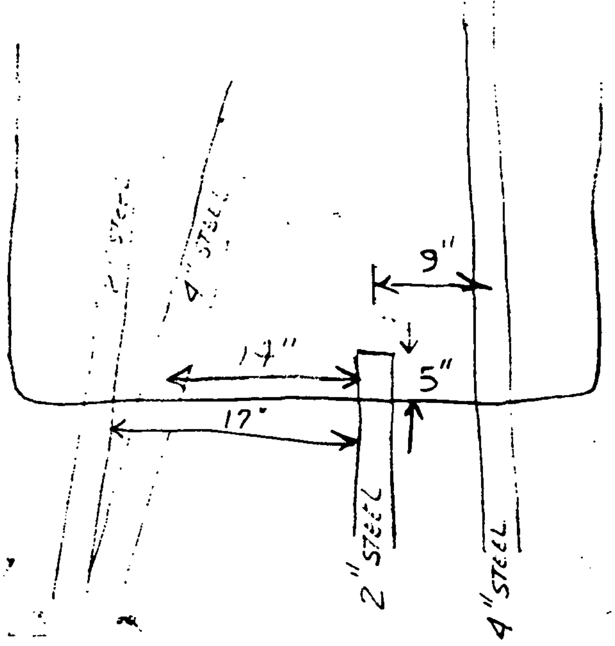


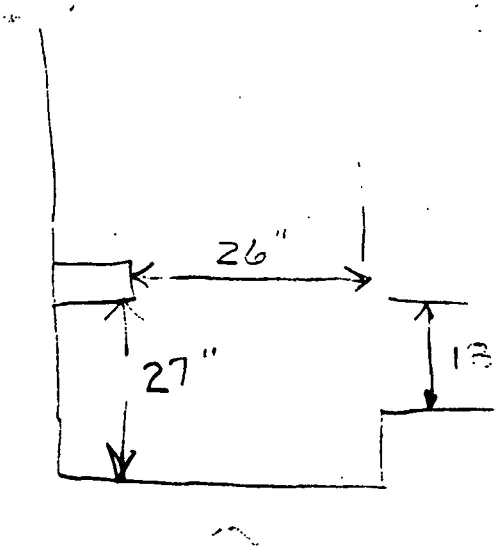
END VIEW (To ROAD

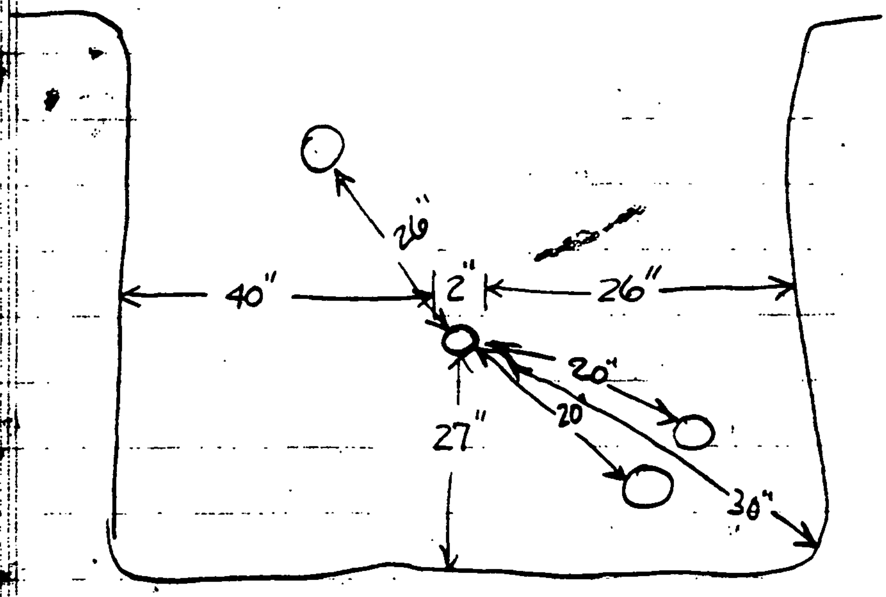
Ⓓ Dec 9-1987

Pit D

Pour Made
12-9-87
Will
Remove

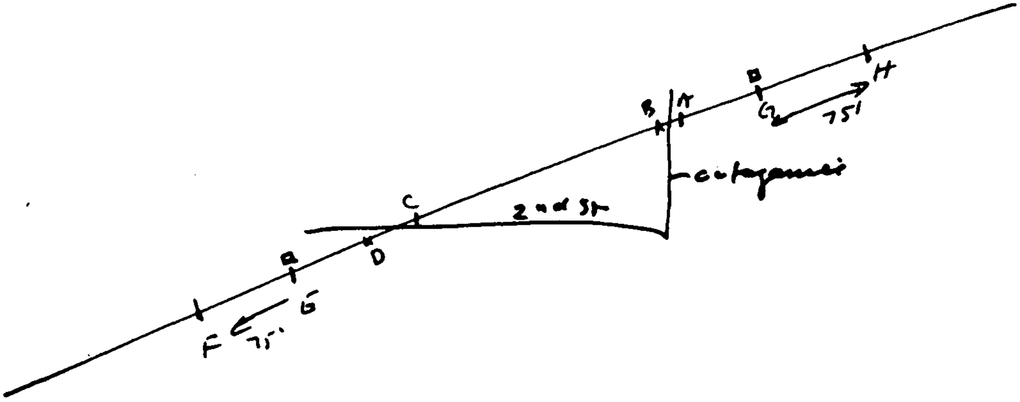


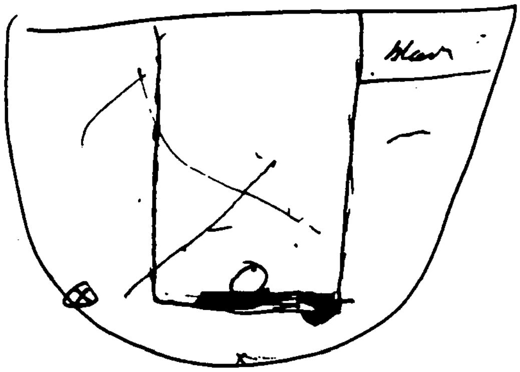




G 417-520

Spring





2 Samples at each location
4 x 2 = 8 Samples
1 dupl
1 F blank
1 F. blank
11

Analyze for Total + Hex Chrome
VOCs
expedited turnaround verbal results

U.S. SPRINT

pit D-US

H-W-US

B-W-U.S

A-1

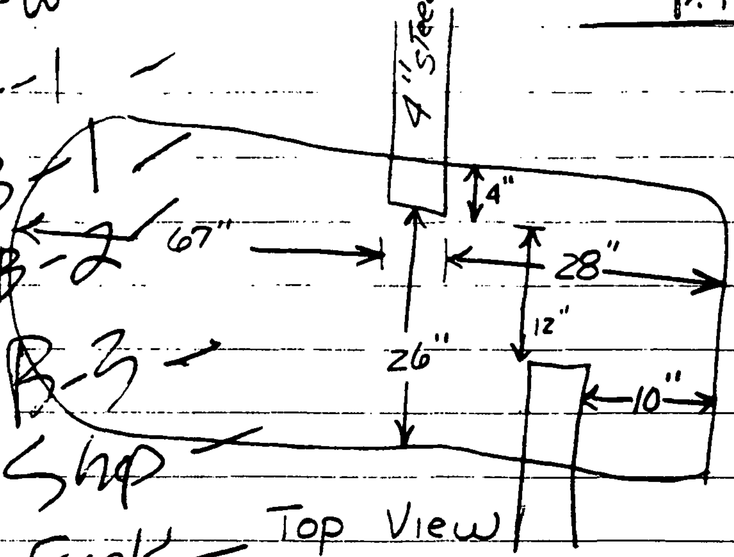
B-1

B-2

B-3

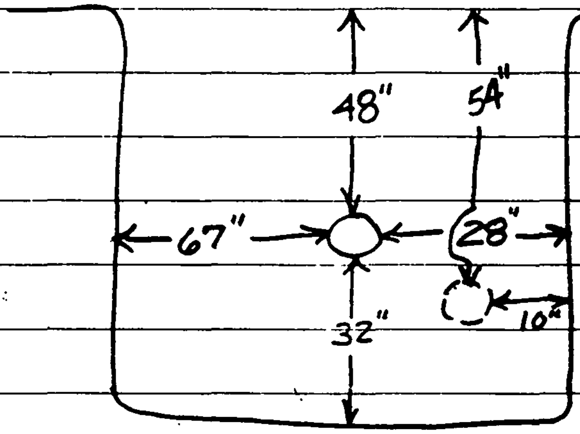
Ship

Flek



Top View

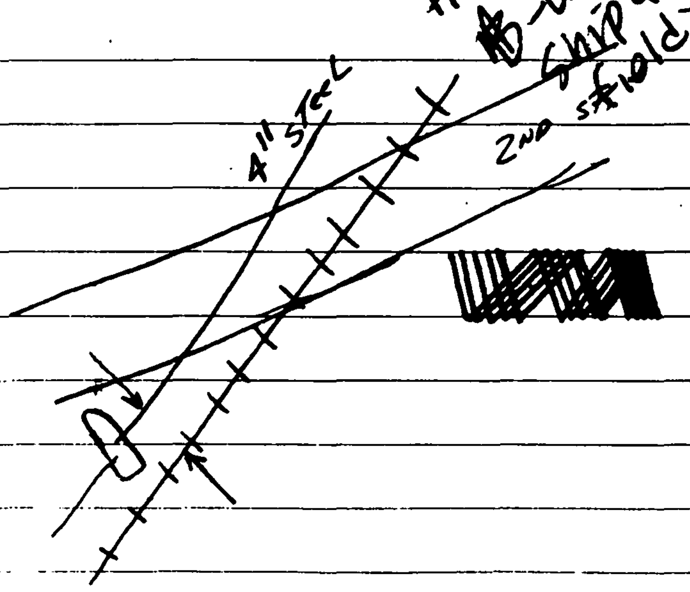
B-1-US
~~[illegible]~~
B3-US
B2-US
C1-US
C2-US
D1-US
A1-US

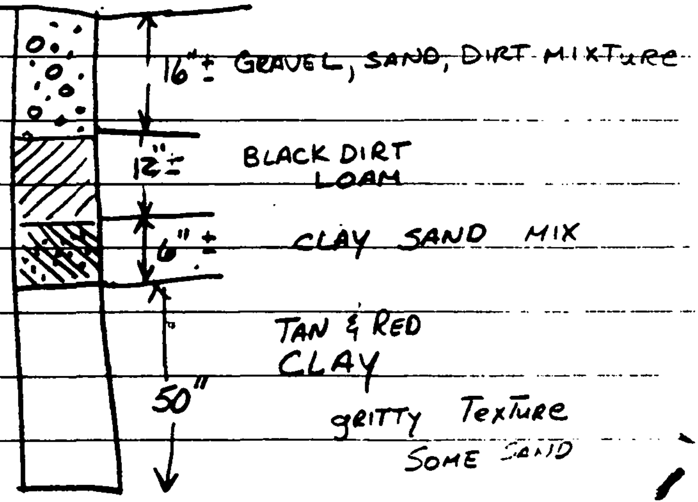


END VIEW

C2-US
B-1
B2-US
B-1
B-2
A-1-US
A-1
B-3-US
B-3
D-1-US
C1-US

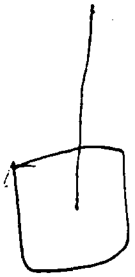
A-W-US
B-W-US
Ship &

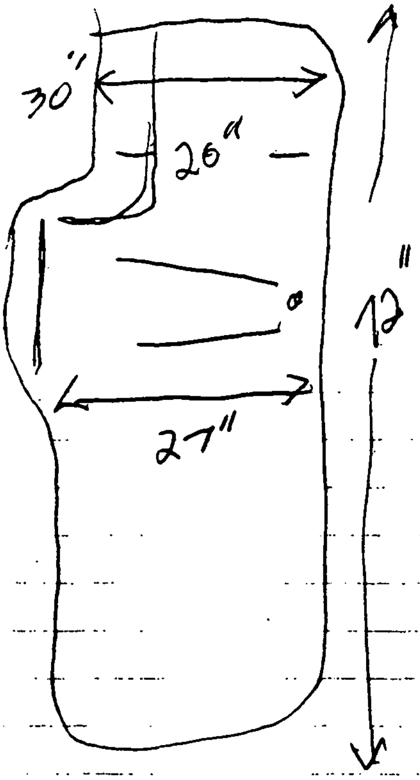


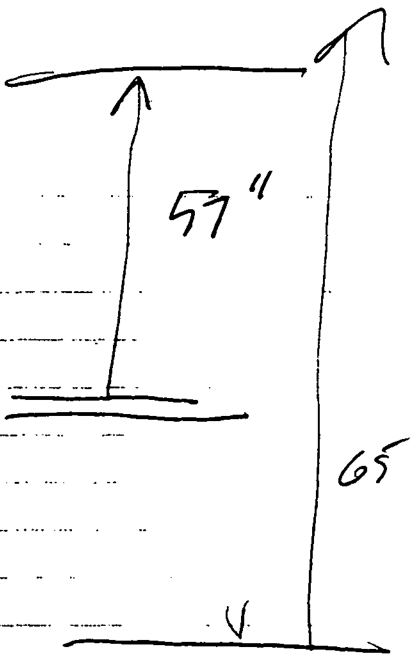


U.S. SPRINT Hole Ⓔ → E-US

125' ℄ of 2"







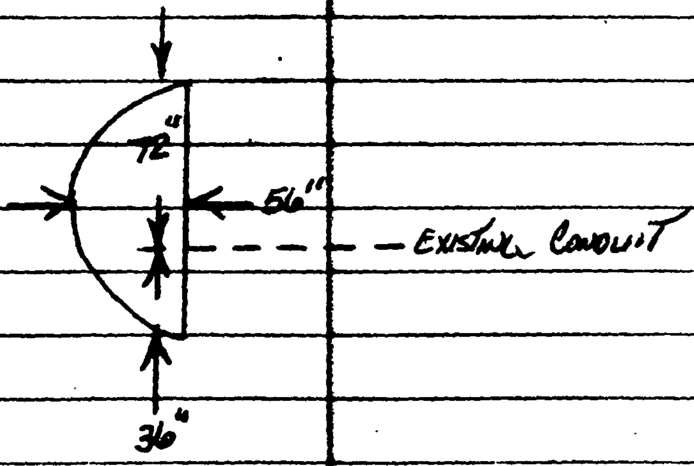
E-US EUS

PLUG LOCATION 87' SOUTH OF ℄ ON SECOND ST.
ALONG THE WEST SIDE OF C+NW RR.

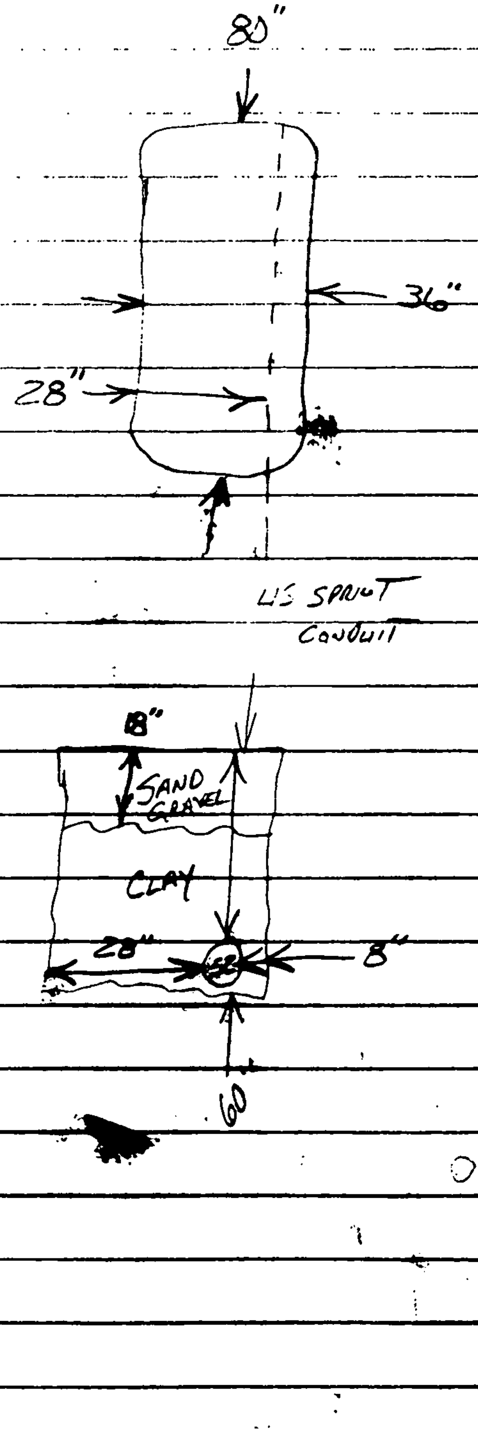
DEPTH OF HOLE 78"
WIDTH 56"
LENGTH OF HOLE 108"

18" SAND GRAVEL MIX (TOPSOIL)
48" CLAY TYPE

HOLE DEPTH BELOW US SPRINT CONDUIT 24"
FILLING COMPOUND 24" ABOVE CONDUIT
REMAINING 2' FILLED WITH EXISTING MATERIAL



#2



F US

#1 125 FROM ℄ OF 2ND. ST.
86 TO HOLE #2

F US

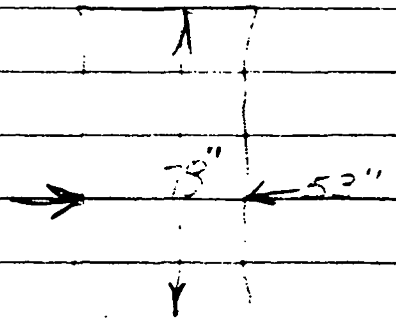
#4 92' North of Outagamie

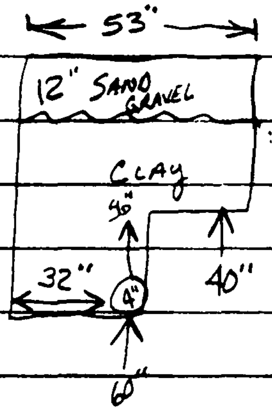
#G

Samples Taken 3' North of [illegible]

Footings

GUS

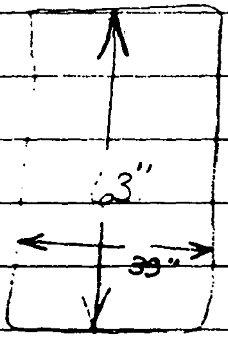


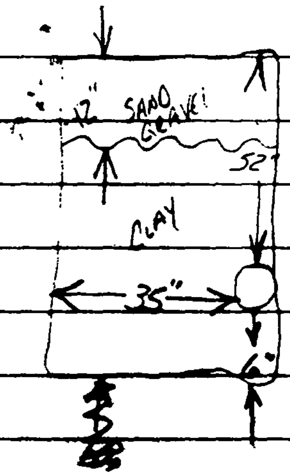


#3 R6'' [illegible]

#H

AUS





PROJECT DIARY

AT&T APPLETON, WI SITE

Larry M Campbell
Project Mgr

Proj. No. ~~G41T~~ 0550-029

SEP 22 1987

25

L. M. CAMPBELL

(9/22/87) Angelo Basile & John Siegla (312) 621-5256
Cable Crew
AT+T - Chicago

mtg. @ site on Tues. 9/29 @ 1:00 (@ Appleton Holiday Inn)
↳ an area where AT+T has laid some cable
↳ some indication that the soil may be contaminated
CORNER OF MELVIN ST. and Outagamie Ave. → an area about 1 block long. (little bit south of Appleton).

Appleton, Wisc. (near Green Bay)
- need a scope of work and budget

1979 - chromic acid spill, may have contaminated the area (Macthe, Appleton, contaminated the area)

- John
  - coming down along the Chicago - NW railroad tracks
  - activated the hazardous waste material
  → CNW apparently knew this was a problem (apparently WDNR knew there was a spill)
    - hearsay that there were some workmen who were killed (while working from Sprint) in this area (Sprint line is further away from the track)
    - have leased an easement from the CNW railroad (beyond the ballast, approx. 7 1/2' off the track

Terry L. Hegeman, Wisc. Dept. of Natural Resources
hazardous waste specialist (414) 497-3055
Finley Engineering did some consulting work for AT+T.
- ph, hex. chrome
- cable is laid 42" deep, plowed in place.
- concerns are:
  1. effect on workers doing cable maintenance
  2. effect on cable

G417-100

22 Sept 87 Call to Terry Hegeman WDNR
[illegible] AM

Cable laid in area adj. to CNW RR

area adjacent to plating facility that release

Contaminated mat'l into G.W. under

Sampling also has low levels of VOCs

State has installed ~~to~~ GW colln system +

~~treatment~~ to clean up problem.

AT&T + Sprint broke part of collection system

∴ provided path for migration - Should install migration blocks

site May be included as NPL

AT&T May be ~~Sprint~~ PRP because of trench that allows migration.

Sprint ~~dug~~ dug trench - filled w/ contaminated fluids

Clay Soil in area

Contaminants

~~MA~~ Methylene Chloride	16 000 ppb	Sprint trench ≈ 4 ft deep
tetra hydra furan Te~~trahydrofuran~~	36 ppb	
1-1-1 TC Ethane	18,000 ppb	
TC Ethylene	780 ppb	
Cr (total)	266,000 ppb	

WDNR sent sprint letter to AT&T:
Mr. Don Kraling
Waukesha WI

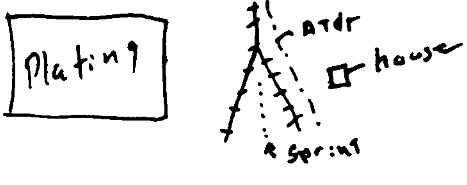
Site Scored initially ≤ 28.5 , being reviewed may be > 28.5

SARA allows + WDNR May use this as wild card site

Size ≈ 1 block long

House nearby , basement sump discharging contaminated ~~water~~ water.

Plating facility just stopped opns.



Terry to send LMC avail info incl. GW, remediation system, Concentrations.

10.1.87 Call John Seigla
2:50

Not in - on vacation until Monday

Talked to John ~~[illegible]~~ Gerding 621-5257 - he said to proceed

Don Kraling ~~414-547-0787~~ 521-7730

10.1.87 Call Don Kraling 414-521-7730
3:10

Briefed him on our plans. He had reviewed Work Plan - saw no problems. other than that Finley will locate line rather than AT&T.

LMC to check with Dale Goss through Finley's office.

10.1.87 Call Finley Engineering
3:20

Dale Goss has beeper 608-275-1180 *

Home 414-921-8045

10.5.87 Call Scott at HI 414-735-9955
1:30 P

Contacted ~~[illegible]~~ Dale: line locater not avail until Tues.

1. If drill w/i 18" Dale must expose line.
2. Who can dig w/o machine

10.5.87 4:30
10.6.87 8:30
Call John Seigla

Not in - Left message

10.6.87 Call from Scott
8:30

OVA won't work - has checked w/ Hazco.

.6.87 ~~Dr~~ Call from Scott
11:30

He got OVA to work. LMC had sent spare OVA via United Express to arrive about noon.
Scott said no liquid in collection sump

6 Oct 87 Disc w/ Mike

Described work for Appleton WI

John Seigla wants to issue PO from Chi

Mike would like all PO's through Greensboro.

Mike will call Seigla.

6 Oct 1:45 Call from John Seigla

Briefed John on going to field & progress (problems) to date.
He said Dale knew where line was & had line locating equip.
John had reviewed work plan - had no problems - has taken out P.O. No.

I told him Mike DeBartolo would like to talk to him + gave him ~~[illegible]~~ Mike's phone.

7 Oct 9:20 Call from Scott

Boring 1-4 complete water in 3+4 @ 3'
" gp 5-7 " all others dry
Will locate boring 8-10 N of track
No water in other boring n S Colln sump
Will sample N. colln sump.
Complete 1 pm - leave by 3 pm

Amy phone 717-0637 Unocal G301

10.8.87
10:40A Call from Vicki Smith

- Sample SB08-W - Total chrome Sample broken.
  Not enough sample to perform both Total + Hex chrom
  ~~possibly re-run~~

10.8.82
11:30 Call from Bo Blankfield

Has only 10-12 ml of total chrome sample. will try to run total, will probably have higher detect limit
the sample cap was broken + contents leaked.

10.13.87 Call from Bo

Sample		Total	Hex
SB01 mg/kg			
S-13 Broken Sample	(?)	280	350 mg/l
SB-04-W		42.2	74
SB-02		45 / dupl 43.7	285
		High	

will dbl check the hex values on 3 samples
will Telecopy results to me.

10.12.87 Scot Keller to Wilmington Lab.

re VOCs on soil samples - NO VOCs < 2.5 ppm
selected 6 soil + - water for VOC analysis
Results will be avail Thurs AM

10.13.87
10:45 Call John Sigler yes

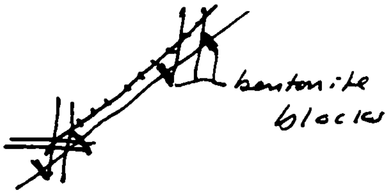
Not in

10.13.87 1:15 Disc w/ John Siegler

- He hasn't received PO yet for Appleton - accident contact Milk
- Were appraising him of lab status of samples
- We discussed installing the line blocks.

  John's supervisor thinks we should put blocks on both sides of both roads.

- John looking to ERT to recommend people to install blocks.



Told John that R&I Const. could do so if he desires. or we could hire chem waste or similar firm.

10.19.87 Disc w/ David Cherry of Finley Eng

Discussed issues of field / lab sampling

Also possible alternate routes, need for testing etc.

He will disc w/ John Siegler.

.20.87 Call to John Seigler
3 p.

Check out plans for add'l sampling

Disc w/ Seigler, + Cheng (Finley) + Scott

Laid out plan for 6-7 samples on short route + 3 samples on longer route.

John + Angelo + Scott to confer tomorrow.

10.26.87 Angelo Bane
1:30

? Method of digestion for total + Hex chrome. problems with higher Hex value than total.

10.26 Call to Bo
2:00

Samples were colored ∴ difficult to determine

Total: digest w/ acid

Hex: Soil + $\overset{\text{di}}{\text{water}}$ → $\overset{\text{extract 24 hrs}}{\text{Colorimetric}}$.

Other lab had reanalyzed sample for total – their results were compared to ERT's.

.26 Angelo.
2:10

Angelo suggests 1 sample only. extract w/ water then extract with acid to run total.

10.26 Disc w/ Bo

Described new samples coming from Phase 2 drilling being done today & tomorrow ≈

≈10 borings w/ hex/total from both soil & water

10.26 2:40 Disc w/ Tom Travie

Disc sampling being done at Appleton.

expect 10 Soil (9s + 1d) samples for VOC

12 water (9s, 1d, 1Fb, 1TB) samples. ..

probably only 6 waters (shallow borings, tight formation)

No VOC screening - analyze all on Rush basis

10.26 3 PM Call from Scott

finally got approval to sample at city hall

raining, OVA not working. ok now.

Will start tomorrow.

10.28.87 11:30 Disc. w/ Bo

He talked w/ Angelo Basile

for Hex - should have filtered to get out iron at other lab

They (other lab) will rerun test on soil sample from first phase

Angelo suggested an approach to do both hex & total on same sample.

Sounds ok, but Bo can't do & meet time schedule by Feb.

Had good talk with Angelo

29 Oct 87 Call from Bo

total Chrome 10 - 27 mg/kg approximately same as background.

#10	24
#9	23, 17
#8	18
1	14
2	10 10
3	25
4	15
5	12
6	14
7	17

2 Nov 87 Steve Johnson Finley Engineers

Inquiring as to status of Appleton sampling. Told him still waiting for labs, but preliminary oral results are negative for VOCs and at natural levels for chrome. Expect to notify them this afternoon that both routes are clean.

Call from Bo

2 Nov 87
2PM

← (Phase II) →

Sample #	Total mg/kg	Hex mg/kg
#SB-14	25	< 20
15	26	
16	40	
17	26	
18	28	
19	38	
20	40	
21	40	
22	48	
23 dup of 16	44	
24 W	< 0.04 mg/l	< 2 mg/l
blank	< 0.04	< 2

new revised data* for Hex (Ph I)

SB-01	< 20
2	< 20
3	< 20
4	89
5	< 20
6	↓
7	
8	
10	95
12 (dup 4)	104

* due to interference caused by Iron in soil

2 NOV 87 4pm Dixe w/ Bo

Bo said the new hex values on original samples are correct and supersede those originally sent. Bo will reissue the data package w/ corrected values.

Apparently contract lab did not subtract color blank results & got too high Hex chrom values. Probably also true on water samples, but none left so couldnt retest. He couldnt remember their incoming color.

Problems were caused by interference of Iron in Soil

3 NOV 87 8:30 Call from Steve Johnson

Do we have an answer yet.

Preliminary results indicate no problem.

3 NOV 87 10:30 Call Angelo

Reported limits of results in Phase II work

~~[illegible]~~ Angelo concerned that any hex is there suggests running hex extract on AA. IF get same result obtained then all is Total chrom (Trivalent)

3 NOV 87 10:40 Call to ~~[illegible]~~ Steve Johnson - Finley Eng. Co.

Advised that both routes were clean w/i normal limits expected for soils. Gave him ranges of Total, Hex chrome & VOCs. also max values for Ph. I Sampling.

Based on avail data we cant recommend one route over the other, but shaler route is close to spill & has more risk of possible impact from spill. we dont have enough GW elev or direction data to assess that impact.

3 NOV 82
1130

Call Bo

Per Angelo's request. We will now run total Cr. Analyses on Hex Cr. extract to see if the Hex Cr^{+6} @ < 20 ppm is really all Trivalent (Cr^{+3}).

4 NOV 82
10:30

Call from John Seigler

Advised John of analytical results and info provided to Steve Johnson. Based on our data, either alternate route is acceptable. ~~[illegible]~~ In fact, ~~all material to be left in place~~ because of low concentrations. ~~[illegible]~~ AT&T personnel (contractor) can install the plugs of steel pipes under Outagamie and Second Streets. Crews should restrict their activity within 50 ~~ft~~ of the streets - not to go toward chrome spill colln. sump.

AT&T will leave all existing line (inner duct and fiber cable) in the ground through the spill area. They plan to plug the steel conduit under Outagamie and Second Streets. Can do so with their standard contractor - don't need haz. waste training.

They will install new pull box (connector) east of Outagamie run through steel conduit to trench in city street / parkway. City has required U.S. Sprint to use same trench. Sprint has agreed to pay 1/2 of ERT costs for the investigation.

LMC recommended that we be present to document the closures at the streets and to take samples in immediate vicinity of innerduct to document chrome concentrations at time of closure - for use in future protection of AT&T.

Const. Schedule start Mon 9 Nov. Hope to complete by 23 Nov. John advised we need time to plan & mobilize.

11.11.87 Call Bo
10:30

1. Waiting on Total Cr of Cr^{+6} extract from MBA Phase II
2. Get data on Total Cr of Cr^{+6} Phase I samples
3. Need revised data pkg for Phase I analysis correcting MBA Cr^{+6} values (verbally reported 11.2.87)

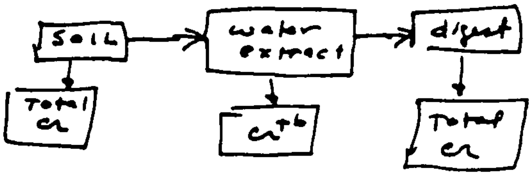
Call from Bo
MBA results for Phase II Total Cr are being sent today.

11.17.87 Called Bo
10

Data Reports should arrive today.
- Revised Phase I Hex Cr
- Total Cr of Hex Cr extract for Ph. I & II samples.

11.20.87 Call Bo.
9:45

1. Because Total Cr done by AA and ~~#~~ Cr^{+6} done by colorimetric analysis, DL of Total Cr is << DL Cr^{+6}
2. Process used



Typically found: Total Cr of extract << Total Cr of Soil
Because Cr^{+6} is soluble in H_2O, but Cr^{+3} is much less soluble

3. DL for Cr^{+6} < 20 ppm; but since DL for Tot'l Cr < 2 ppm for Same extract, Can Say that DL for Cr^{+6} is also < 2 ppm.

Bo is evaluating errors in data as reported verbally + on paper.
Specifically # SB 8, 10, 12 and Cr^{+6} for SB-4, 12, 8, 10.
Note SB 07 assigned lab # 7#$\overset{11}{a}$ to MBA, But SB-12 has no lab #.

11.20.87 Call John Seigla
Left Message

11.20.87 Call Dave Cheney - Finley Engineer
2:45

1. Advised that if he pulls existing cable, will need trained personnel because cable will be contaminated with chrome.
2. Dave plans to cut cable and Not remove cable in contaminated area. He will pull 2 miles of cable from up & down gradient of spill area. i.e., only cable that is not contaminated.
3. LMC advised that barriers can be installed by regular contractor, no need for special training if stay w/i 30-50 ft of roadways.
4. LMC to provide letter to Cheney describing method of blockage and equipment / materials needed so he can have contractor have on site.
5. ERT should be on site to sample area near cable & to inspect closure. Dave agrees. Will block cable on both sides of both streets.
6. Dave plans to ~~start~~ work on Monday 30 NOV 87 ERT to be onsite during that week.

3 NOV 87 11:00 Disc w/ Ken Kastman

1. Doesnt see any problem using bentonite w/ Chrome spill
2. Suggests using slurry or bentonite/sand mix.
   Maybe Sand w/ 20% bentonite, mixed dry in concrete
   truck, hydrated as discharged from chute.
3. Too expensive to use 100% bentonite pellets.
   Might also expand too much
4. Suggest hydrating before place in wet environment so
   chemicals don't exchange w/ Na bentonite
5. Am Colloid moved to ~~Buffalo Grove~~ Arlington Height 392-4600
   Mary Ellen Socks (Mktg) 506-6178
   Bill Alexander - Research
   Ed Odem - Soil Research

23 Nov 87 11:30 Call Ed Odem @ American Colloid
Doug Excell, Environment Div.

Suggest using Saline Seal reduced breakdown.
in chemical environment

Granular bentonite$^{25\%}$ + sand

Have 3000 # avail in Chicago warehouse $ 300 Ton

as 100 # bags on pallets.

24 Nov 87 2:15 Call from Bo Blankfield

Problem w/ data ~~Aof~~ is result of error at MBA

So MBA is rerunning SB04, SB12 for total + Hex on leachate.

Hope to get answer Verbal by Wed

25 Nov 10:45 Call from John Seigler

Described my conversation w/ Dave Cheney

~~Dave~~ John will not remove exist. cable until New bypass conduit is in place.

We can install blocks past ~~dec~~ near 10-11 ~~Nov~~ Dec or the following week

LMC to send letter of recommendation w/ cc to Cheney.

25 Nov 87 Call from Bo

	Reanalyzed Results		
SB04	Hex is	50	ppm
SB 12	" "	54	"
SB 08	" "	108	"

2 Dec 2pm Call from Dave Cheney

LMC Advised of excavation seepage block

2' larger than cable ∴ 4'L x 6'd x 2'w

Contractor has excavated 6 x 6 x 2 already deep. + conduit is in place.

Will backfill w/ Sand + 25-30% bentonite (Colloid TFS 81)

Will need about 3 yd of bentonite for 4 blocks

(also need 3 yd for Sprint)

He will advise ASAP after shipment is arranged.

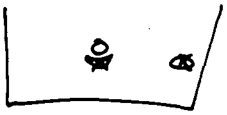
Dec
4:30   Call to Dave Cheng

~~[illegible]~~ Wants written approval of anti-seep block plan.

LMC to telecopy letter tomorrow

4 Dec
9:30   Disc w/ Scot V.

Sampling plans for Remediation blocks



Inside Trench   2 samples soil

Outside Trench   1 sample @ each

3x2= 6 samples + 1 dupl   ~~[illegible]~~ Cr $^{tot, +6}$

Trip + Field blank H_2O - 2   VOC

Disc w Cheng

Send changes by letter

4 Dec
11:30   Disc w/ Dave Cheng

Does he Plan to place trenches immediately adj. to end of conduit under ~~street~~? Yes

Conduit pad ≈ 5' deep   Immediate only 42"

4 Dec
1:30   Call Am Colloid   Doug Excell   392-46[illegible]

Shipping 1 ton to Finley

Will ship more from factory next week.

Add water to sand then add bentonite

Add water to 2-3% above optimum for Sand of 10-12%

∴ May need 12-15% water

4 Dec
3:55
Call from Dave Cheney

When will we get my letter re anti seep plugs?

Later today (Telecopied at 6:15 pm)

7 Dec
10:30
Call from Scot

1. Just arrived at site and met Dale Goss. Provided copy of letter to Dale
2. Anti Seep plug trenches have not been dug yet (good - we will inspect entire operation)
3. Dale wants to expose 6" to 12" of steel conduit to effect good plug seal w/ sand/bentonite mixture. LMC agrees as long as plug outside end of conduit is minimum of 1' thick.
4. Can they use plywood forms to contain sand/bentonite plug? Yes, but should be removed as backfill progresses so don't have void.
5. Backfill outside of plug can be excavated matl. Yes its not contaminated, so can be used as backfill.
6. Dale had not made arrangements for cement mixer yet. Bentonite has not arrived yet. It will be coming up with the lightguide cable.
7. Will probably only get 2 trenches excavated today. ∴ must send samples today + tomorrow. Will need field and trip blank each day.

7 Dec
12:00
Call from Dave Cheney

Can ERT collect same type sampling for the ~~AT~~ Spruit Trenches? Yes, but will ~~Need~~ need to check w/ AT&T. Dave will send letter of authorization

7 Dec 87
1:15

Call John Leigh

Advised John of Dave Cheney's request to sample Sprint trenches. Is this OK or a conflict?

John authorized our collecting of the samples from the Sprint trenches since AT&T and Sprint have entered into an agreement to share costs of our study. John would like to keep the Sprint sampling itemized separately. Can do - just establish second task #

7 Dec 87
2:10

Call from Scott Posadzy

1. Dug trench C & D @ Second street today
   Trench C is 3.5' wide - they will backfill over excav. volume.
   Told Scott that they can set forms to restrain thickness also
   but pull forms later
2. Told Scott to send VOCs to Wilmington & Chrome to Houston.
3. Authorized Scott to sample same type for Sprint line. Discuss w/ Sprint on-site coordinator, explain the type & method of sampling in trenches. Can do more or less depending on ~~AT~~ Sprint's needs.
4. Use following task numbers

   ~~##~~ 510 AT&T Field/Lab Remediation (start 12/6/87)
   520 Sprint Field/Lab Remediation (" ")
5. Sprint has junction box west of Outagamie St.
   they may want add'l sampling there. LMC says OK but their supervisor should contact LMC before proceeding.

7 Dec 87
4:00 Call from Scott P

-Dug 2 trenches today C&D & got samples. All are packaged for shipment to the labs

U.S. Sprint mgr Dean Cline wants add'l test performed. Mr Cline to call LMC for approval.

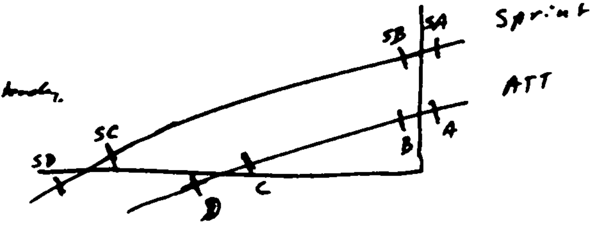
8 Dec 87
9:20 Call from Dean Cline U.S. Sprint

Wants to take add'l samples at splice vault. ≈ 100' SW of Second street. He will excavate pits for Scott to sample. LMC advised he could use conventional fence and backfill w/ excavated material. Scott will take samples on both sides of splice box. Analyze for Chrome (total & Hex) and VOC, same as other locations.

Dean Cline
PO Box 74
Fall Creek, WI 54742
715-877-2710

8 Dec 87
1:30 Call from Scott

He had sampled Trenches C&D yesterday. All other trenches were dug today. He has sampled Trench B, SB, SC, SD. Still has to sample Trenches A and SA. Contractor hopes to backfill all trenches this afternoon, Scott concerned since there is no fencing in place. Told him bentonite/sand backfill could be larger than specified if they have enough bentonite.



8 Dec 87
2:30

Call from Scott P

1. Sprint Const. Mgr (Dean Cline) called his Supervisor (Roy Smith)(?) who said to rely on ERT advice
2. Scott says he needed respirator in Sprint trench SA #3B

8 Dec 87
4 pm

Call to John Seigler

Explaining situation of water in Sprint trenches
ERT's been requested to provide advice to Sprint.
ERT wants to set up consulting agreement w/ Sprint.
John approved such arrangement. Just keep charges separate.

8 Dec 87
4:10

Call to Roy Smith US Sprint (414-259-1203 MKE)

Network 2000 in Greenfield WI
Fiberoptics Mgr. Dave Hay 608-273-3684
Madison

8 Dec 87
5

Call from Scott (Appleton H.I. 414 735 9955)

Collected all samples from trenches
AT&T will backfill Trench D
Sprint D US got water   C,B,A-US backfilled w/ excavated soil
AT&T D dry, C has water
Need Jars - Scott V to send

9 Dec
7:50 A

Call Dave Hay

Person in charge is Roy Smith in Naperville 312-416-0393
He is coordinating with AT&T. (Mgr off site Plants + Construction)

9 Dec 7:55 Call Roy Smith 312-416-0393

He's on vacation till Jan 88

Left message for Dean Cline

9 Dec 8:15 Call Mike DeBartolo

1. Explained situation at Appleton w/ Sprint
   He agreed that we should contract direct w/ Sprint
   Mike sees no problem in doing so.
2. Invoice for Appleton - Send direct to John Leigh.

9 Dec 9:30 Call from Scott

1. Sprint discontinuing plug installation
   they will contact ERT - have backfilled all trench
2. No trench backfilling w/ sand/bentonite yesterday
3. AT&T trench D is open (overnight)
   " C " open & 1/2 full of water (runoff)
   Reopened Trench A&B & will backfill today w/ bentonite

9 Dec 12:30 1:30 Call from Scott

Mix has been prepared & mixed in cement mix truck

Material is coming out in clumps, not smooth mixture.

Scott will add more water to try to smooth mixture

9 Dec 1:30 Call Doug Excell @ Am Colloid Out - Mr. Chris Jepsen 506-6187

explained situation

should reduce moisture content to 7-8%

Will work well at golf ball size

Could add more sand to break up particle size. Say 5-10%

9 Dec 1:45 Call Chris Jepsen @ Am Colloid 506-6187

mix should be on dry wt basis.

i.e. 25% bentonite = 25% of wt of Sand

15% moisture = 15% of wt of (Sand + bentonite)

example 100 # sand

x 25% = 25 # bentonite

125 # dry solids

x 15% 18.75 # water

143.75 # total

Sand = $\frac{100}{143.75}$ = 69.5% of Mix wt

bentonite = $\frac{25}{143.75}$ = 17.4% "

water $\frac{18.75}{143.75}$ = 13.0% "

100.0

9 Dec 2:10 pm Call from Scott

$\frac{358}{2400}$ = 14.9%

Bentonite 720 # /yd

Concentrate Sand 1680 # /yd

water 43 gal/yd x 8.33 #/gal = 358 #

2760 #

They placed mix in Trench D ≈ 4.5 ~~gal~~ yd^3

and remaining 1/2 yd^3 in Trench C

Scott & Dale are going to yard to make a trial mix.

LMC explained mix ~~to~~ percentage (above) recommended using only 7-8% moisture to start. Must account for moisture in sand also.

2·9·87
4:55 p.m.

Call from Scot

Bentonite 600 # Trial mix proportions.

Sand (4%) 2500 #

water 15 gal = 125 gal $\frac{125}{3100}$ = 4%

3225 #

Same mix w/ 20 gal/yd = $\frac{166}{2400}$ = 5.4

10 Dec 87
7:30

Call from Scot

Trench B ≈ 1/3 full of green water ≈ 100 gal

Trench C some rain water being pumped out.

Trench D excavating clumpy sand/bentonite mix. will be backfi

Trench A No water in trench

LMC instructed Scott to:

1. Concentrate on cleaning & backfilling Trenches A, C & D.
2. Notify Dal Goss that water in Trench B may be contaminated. May need to be stored in drums on site, tested & disposed as haz. waste. Need to prepare ~~for~~ with drums. Also pump must be decontaminated before reuse off site.
3. LMC will check w/ WDNR to see if can discharge water into collection sump

10 Dec 87
8:50

Call Terry Hageman (414) 497-3055

10 Dec 87
9:00

Call from Scott P

Finley rep on site - why not work for Sprint trenches.

Can we block second street in Sprint Trenches C & D

Dec 87 Call from Dave Cheney
9:20

Knuth
Ken ~~[illegible]~~ working Sprint 507-836-8515

Sprint needs more soil testing done

May need add'l 2 samples SW of 2nd St.

" " " 2 " NE of Outagamine

Take add'l sprint samples run expedited tests

Ken Knuth
PO Box 259
Slayton MN 56172

507-836-8515

10 Dec 87 Call from Terry Hegeman
10

Explained desire to dispose of 50± gal "green" water in oven sump. He will check + let me know.

LMC met Mr Hegeman at the site. He advised that we could not dispose of water in the sump. Must test and discharge as haz. waste if Total Chrome > 5 ppm. Otherwise can dispose on surface(?) or manhole(?)

Hegeman will contact AT&T to request a copy of our report.

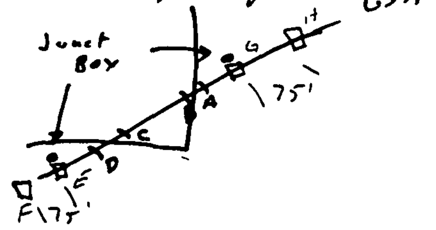
Hegeman says the state wants this site on the NPL. State will use its "wildcard" choice if necessary.

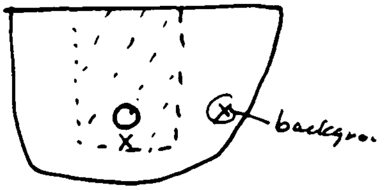
10 Dec 87 LMC On site
12:30

Decided to not form plug - let plug extend across excavation from side to side touching undisturbed soil. Backfilled w/ bentonite/sand mix in 3-6" layers - added water throughout + puddled w/ shovel. Initial batch had 15 gal added water ~~[illegible]~~ per yard. Added ≈ 200 gal/5 yd w/ hose. Second + 3rd trucks used 20 gal/yd + 200 gal/5yd.

Complete backfill of trenches D-US, D, C & A
Will backfill chrome trench B w/ excavated soil
until can return w/ Haz waste contractor.

Dean Cline w/ Sprint wants add'l samples on Sprint line before deciding where to put plugs. Will sample in trenches across operating line at junct boxes and 75' further out. In each trench, sample in trench backfill mat'l near conduit and in undisturbed mat'l 2' away.
Run ~~Co~~ Total Cr, Cr^{+6}, VOC expedited at each location
∴ 4 trench x 2 = 8 samples.





Dean will hand dig trenches for Scott P to sample. Will plan to sample on Tues 12.15.87. Dean to call me Fri or Monday.

11 Dec 87 1:30 Call from Ken Knuth of Finley

1. discussed results of sampling & field work yesterday
2. Told Ken of Dean Cline's plans for sampling US Sprint trench next Tues & Wed.
3. LMC will write proposal to Sprint for consulting services. ~~Testing~~ sampling, analysis, recommendation & possible remediation

14 Dec 87 3:40 Call to Laura Pomaly
Water Sample Trench B — Expedite

4 Dec 89 Disc w/ Ken Knuth - Finley
4:45

Trying to locate Dean Cline re site visit tomorrow. Ken says Dean was to have called me today (he didn't). Dean is scheduled to be at Appleton tomorrow.

LMC advised Ken of results of chrome sampling Generally 30-50 ppm Total Cr in trench backfill and natural background soil. Water in Trench A is ok, that in Trench B has 16 ppm Cr

Ken wants to take add'l samples to document lack of contamination. What about installing plug at trench A & B sum. - Still need haz. waste contractor.

Send proposal for work to Ken - he will forward it to Sprint for signature.

Sprint in KC Mo 816-941-5000
Jackie Coles (home phone) 816-941-5564

Sprint
901 E 104th st
KC Mo 64131

Dec 87 1 pm — Call from Scott P

2 Site trenches are full of water + snow + have to dig remainder.

Will have Contractor on site Thur w/ backhoe to dig all 4 pits + sample in one day.

17 Dec 87 1:15 — Call from Scott

All Samples taken in 4 trench, water in 3

9 Soils + 3 water, 2 QC types = 14 Samples.

Will be sent tonight

18 Dec — Call from Bo

They can run Cr analyses with lower detection limits. Should we do so for ~~latest~~ Appleton samples for Sprint – Yes do so.

Bo said Sample ~~B-00~~ E-W-US was broken upon arrival.

21 Dec — Call from Art Paradis via G. Smith

AT+T Appleton
6417-510
Water Volatiles
B-W Acetone 130 µg/l
Field Blank Toluene 4.7 µg/l
Shipping Blank 3.2 µg/l Toluene

22 Dec 87
4PM

Richard Schrantz
Finley Engineerin
1. Letter re results + opinions ~~on~~ to black migration
2. ~~Compre~~ prepare cost est to install plugs. (REI Construction)
Cost for 2 interior plugs plus possibly 1 or 2 more

1981 Engebretson Ave
Slayton MN

5 Jan 88
2PM

Call from Ben Humphrey
Relayed info of prelim analytical data of samples E.F.G.H.
doesn't appear to be need to install plugs further out than 2nd + Outagamie
Ben wants prelim data.

13 Jan
4:50

Call to Ben Humphrey
What is status REI Constr
Will call tomorrow
Advised of need for generator #
asked about sprint GRT contract

14 Jan
8:15-9:20

Call from Ben Humphries & Dave Cheney
Do we have to install ~~these~~ plug at locn B? Can we not do so and avoid being "generator" of Haz waste.

LMC recommended installing plugs at "B" to minimize migration under Outagamie St.

What risks to AT&T & Sprint from becoming "generator".
Some, but prob. minimal. AT&T is generator for many of their operations - both decomm. of plants & plant opns.

What to do next? LMC to write letter jointly to Finley (AT&T and Sprint) with bid for RCI Conservation with bid for plug installation. Mention need for AT&T and Sprint to get H.W Generator number. so both firms can identify who will sign manifest.

Construction practices may not require generation of Haz. waste. If backfill promptly, may have minimum inflow & ∴ not generate Haz waste liquids. Could drum excavated soils as possibly contaminated. Test for contamination (and disposal profile) - If not contaminated - dispose as "dirt" on site or in land fill. If contaminated, dispose as Haz. waste.

Dave Cheney ~~believes~~ thinks that John Sengler believes that all work has been completed. LMC to check with John & bring him up to speed.

14 Jan 3 pm Return Call to Ben Humphrey

Sprint is reviewing our proposal

Should have it signed & returned by early next week.

19 Jan 88 Call from Ben Humphrey

When will they get proposal.

LMC will issue today.

21 Jan 88 Call to Ben

told him of delay in proposal

19 Jan Disc w Dale Helmen

ID Generator No.

EPA ID No. 1

Fluids — Treated — reduce chrome
precipitate chrome

Soils — Landfilled

Profiles — RCRA waste characteristics

27 Jan
8:30A Call from Angelo Basile

1. Concerned about disposing of soil as contaminated
2. Would prefer to run EP tox on soil. If not contaminated, leave at surface
3 NJ allows the use of 100 ppm Cr in soils
4. Sergio waiting on breakdown of costs re Sprint

27 Jan
3:15 Call Ben Humphrey

Explained Angelo's concerns. & proposed course of action.
LMC will call Terry Hagman & explore state position
Sprint personnel are planning to review all options tomorrow
Also trying to figure out ~~who owes what~~ what they owe to AT&T

Call Dale Helmen

Waste may have come chrome sludge plating waste.
Chrome sludge waste (F006) is a listed waste. ∴ Concentrations
don't matter. Stripping cleaning wastes (F009)

7 Jan 88
4:20

Call Terry Hegeman WDNR

Explained planned approach to install remaining anti seep plugs.

Don't anticipate having contaminated water to dispose if are prepared to backfill promptly – Terry Agreed

Recognize that backfilled soil at Trench B & B-45 may be contaminated since mixed w/ chrome water when backfilled in Dec. Plan to obtain sample of soil, run EP Tox and classify as hazardous based on test results. If Cr < 5 ppm, then not hazardous. If so, then dispose on site – spread out at surface & cover w/ gravel if ok w/ C&NW RR. – Terry thought this approach was OK. But he wants to check with others in his office – LMC can check tomorrow.

Soil samples for EP Tox s/b from depth, say composite of 3' 4' & 5' samples, not composited w/ top 1 to 2'. LMC agreed.

Terry asked if he could get copies of data. LMC says – No must check w/ AT&T and Sprint. they may be reluctant. LMC described contamination in general terms. At Outagamie & Second Street & outside, no contamination above expected level for soil (Cr = 50 to 100 ppm). Soil near sumps Cr = 300 to 500 ppm. Water in B & B45 = 5.6 and 17 ppm.

Terry would like our data. May request it formally. or May ask USEPA to ~~supply it~~ obtain it from AT&T/Sprint. State has formally submitted the site to USEPA for NPL list. EPA has not listed it yet. however

Terry suggested we could prob. get emergency generator number over phone for disposal of soils, if necessary

Jan 88 Call Terry Hageman 414-497-3055
10:15

If soil does not fail EP Tox test and is therefore not a hazardous waste, WDNR has no objection to disposing of soil at the surface provided it is disposed between Outagamie & Second Streets.

28 Jan 88 Call Ben Humphrey
11:35

Explained results of call to WDNR. Discussed options for proceeding. Assume Sprint & AT&T will opt for leaving soil at site if can do so.

At request of Terry Hageman, specifically asked if Sprint would share the Appleton data with WDNR. LMC explained importance of being cooperative, but could anticipate AT&T & Sprint wanting to maintain confidentiality of data considering the ~~Supp~~ NPL possibility. My guess is that AT&T would not share data. Ben asked for my recommendation - LMC declined to make a recommendation - just discussed pros & cons.

LMC advised that WDNR has formally requested US EPA to rate and include Appleton on NPL (either by rating or a state selected wild card site)

28 Jan 88 ~~Hgg~~ Call Angelo Basil
1:55 P

Repeated results of disc w/ Terry Hageman & Ben Humphrey.

Asked Angelo if data could be presented to WDNR. Angelo felt report of facts, procedures etc. could go to WDNR but w/o discussion of interpretation. LMC to ask Seigla

State has asked for listing on NPL

Angelo agrees with proposed plan.

Jan 88 Call Seigla
2:30 Out till Fri. - left Messg

29 Jan 88 Call from Seigla
4 Explained results of files, plans, etc. Angelo's request
disc w/ Hageman, etc.
John feels we were on right track - Continue on.
John looks to Angelo for decision re AT&T policy - eg,
if not contaminated & don't need to dispose - don't do so.

5 Feb 88 Call from Ben Humphrey
10:15 1. He has not rec'd his copy of our invoice letter
LMC telecopied it to him today
2. LMC asked about Sprint plans.
Ben has not talked to Sprint personnel this week
so doesn't know their plan - he will contact them
3 LMC advised Ben the AT&T does not have contract
with Sprint yet & will not go to field w/o one.

12 Feb 88 Call Ben Humphrey
9 Am 1. What is status of Sprint re Appleton? Ben doesn't know.
2. LMC requested that Ben check w/ Sprint & encourage
them to sign the consulting agreement.
3. Also LMC requested info re general plans to proceed in
order to establish staffing plans

12 Feb 88 9:50 Call John Seigler

John doesn't have copy of invoice #1 — Sent to Finley also

Has rec'd copy of Confirmation notice for 1987 work

John will issue a local P.O. for add authorization.

John knows of ~~now~~ no problem w/ Sprint re ERT work.

John would like to close this project soon, but not high priority. LMC suggested it be done before end of Mar.

18 Feb 88 1:30 Call from Ben Humphrey

Sprint is sending letter soon explaining their plans. Being prepared by legal dept. Should receive next week.

Mar 88 Call Ben Humphrey

1. Don't have contract with Sprint
2. What to do about invoicing
3. What to do about reporting sprint data.

Ben will check w/ Sprint & get back

4 Mar 88 Call John Seigler

1. C.O. to Mike increased to $46.900

   Will need to increase authoriz for Jan invoice
2. Finley (D. Cherry) is proposing distribution of costs

   Expected soon next week
3. John will hand carry checks for payment.

7 Mar 88
AM

Call Dave Cheney 715 834 2605

1. Dave agrees w LMC assessment of situation & ~~w~~ LMC letters explaining understanding.
2. Dave will review my letter of 2/2/88 & recommend that AT&T pay their 50% share $ of Prog invoices 2 & 3. plus the AT&T specific charges.
3. LMC explains that AT&T is responsible for all charges except those specific for Sprint

9 Mar 88
11:30

Call from Joe Spaulding

Need to press AT&T to pay overdue bills

Paul checking daily

LMC to keep Jack informed

9 May 88
3 PM

Call Dave Cheney

he approved p AT&T payment of 1/2 of genl portion of invoices 2 & 3 plus AT&T Fed + chgs

22 043.52
9,816.15
31,859.67 ÷ 2 =

AT&T	Sprint
15 929.84	15 929.83
+ 7,003.47	8914.02
22, 933. 31	24, 843.85

Technically AT&T owes all except that specific for Sprint

i.e., 22,043.52
9,816.15
7003.47
38,863.14

9 May 88
3:30

Call John Sergla

Informed him of Cheney's recommendation. Asked for expedited payment. He agreed. Also has sent c.c. to Mike.

11 Mar 88 Call Jackie Coles
2:50 left message

11 Mar 88 Call John Zeigler
2:55 John agrees w/ Cheney's recommendations. He will walk through a check for payment next week

3/15/88 Call to Jackie Coles
10:30 A

1. Disc. plans for invoicing - LMC to issue invoices (copies) of those sent to AT&T w/ breakdown of Sprint charges. This seemed to be OK.
2. LMC asked Jackie to sign the contract (proposal) sent in December so we actually have a written contractual agreement w/ ERT & Sprint. He will have Legal look into this situation. Didn't see any reason why not
3. LMC asked about instructions re Final Report. Jackie felt they would probably want a separate report for Sprint data. He will check with the project mgr.

24 Mar 88
3:15 Call from Jackie Coles

Complete final report - joint report.
maybe separate remediation aspects for Sprint & AT&T

Agreement - Don't want to sign
Beth Fox 816-276-6854

He need documents to support invoice.

25 Mar 88 Call Ken Norris
Explain situation

1 Apr Call from Ken Norris
He has not been able to reach Lawyer Beth Fairchild

18 May
8:50A Call from Ken Norris
- Has not been able to contact the lawyer for Sprint
- He will send a demand letter
- LMC to send copy of invoices unpaid (prev. done, but Ken did not receive).
- LMC to describe data transmittal
- " " advise of add'l lab charges coming
- Ken will advise Henry Sawyer that he has been unsuccessful in collecting money

May
10:50

Call from David Cheney

1. What is status of Appleton proj. - Can we get it completed?
2. Advised Dave that U.S. Sprint hasn't/won't pay bills
   Dave will call Ken Kornath to check on this issue
3. ~~[illegible]~~ Dave requested that ERT proceed w/ completing the project for AT&T. LMC agreed we will continue in accordance w/ my Dec 87 plan for AT&T ~~site~~ lines only.
4. LMC to ~~start~~ scheduling etc. Keep John Seigler + Dave Cheney informed.
5. ERT to contact Dale Goss of Facility Engrs re field ~~[illegible]~~ assistance

May 88
12:45

Call from Jackie Coles

He has data since Jan 11

LMC reviewed process w/ Jackie

He will meet w/ legal today. He hopes to release these invoices for payment and close the matter this week.

LMC advised Jackie of late lab charges for sampling work conducted in late Dec of ≈ $1800 to $2000

May 88
:45

Call from Rodger Anderson AT&T

Had question about credit on Inv. 47681 of 3/14/88

Didn't understand that all credit of $872.84 on invoice was not reflected on pg 2 where only 798.51 was credited to "General".

In fact the ~~other~~ remaining credit of 74.33 was reflected in charges to AT&T and Sprint, but only net amounts are shown on pg 7.

Roger is reviewing so they can pay invoices!! - more than 60 days old.

21 July 88 Call Dave Cheney
3:10 Told him of our plans to complete installation of the anti seep plug, possibly next week
Dave said site has been proposed for NPL listing

26 July Call Jackie Coles at Sprint
10:30 1. Partial Check was to have been included in the June 20 letter!! $18,095.90
Jackie will check on this payment today & call me back
2. LMC asked if prep. of a final report would expedite payment of the other $18^K billed. Jackie said yes.
3. LMC advised that there are additional charges for lab testing - the ~~data~~ results of which have been previously transmitted.

27 July Call from Jackie Coles
8:40 Check being cut today Should receive by Monday Aug 1
Actually recd Thur Aug 4

15 Aug 88 Disc w/ Terry, John + Kevin
2 pm
explained situations
Kevin thinks we need to have qualified Contractor having 40 hr trng program

17 Aug 88 Call Mr Carl Howell
11:30
He has all 7 copies of this letter re Final Report

17 Aug 88 Call Terry Hegeman - changed position
4:30 p
Anette ~~[illegible]~~ Weissbach - New contact person
Notified Terry of our plans to install final bentonite plug for AT&T

18 Aug 88 Disc w Finley, Rod Schultz
4
Dale to be on site tomorrow - all ok

5 Oct 88 Call from Glen @ WCC
1. questioned sample # meaning at special pits in Phase III
2. Told him correct info. also had issued the final report yesterday.
3 WCC completed installation of the remaining trenches & are preparing their final report
4. Discussed our outstanding bills owed by Sprint
≈ $25-30K

31 OCT 3:55p Call Jackie Coles

3 NOV 10:N Call from Jackie Coles

- LMC to send final invoice for final report. Jackie will make 1 large payment.
- Report was satisfactory

29 Dec 88 2:50 pm Call to Jackie Coles

He approved invoices for payment
Will check payment status & call me back
Check in route to Accts Payable to be cut on 3 or 4 Jan 89. Check will be Fed Ex'd to LMC then (I had to pay).

13 Apr 89 10 c/t Annette Weissbach - WDNR

Send 4 copies of ATT Report
PO Box 10448
Greenbay WI 54307-0448
Gary Edelstein WDNR - Madison
EPA Mike Gifford - Chicago
} Annette will distribute