

Anson Environmental Ltd.

Environmental Audits
Hazardous Waste
Asbestos Management
Groundwater Remediation
Storage Tank Management
Impact Statements
Wetland Investigations

256 Main Street
Northport, NY 11768
516-757-7090
(fax) 516-757-1229

September 17, 1992

Mr. Tom Taccone, Project Manager
United States Environmental Protection Agency
Region II
26 Federal Plaza
New York, NY 10278

Re: Anchor Chemical Superfund Site
Administrative Order No. II CERCLA-90208

Dear Mr. Taccone,

We have supplied to your office all the validated data available for the sampling conducted at the above referenced site. We would appreciate a copy of the validated data prepared for the oversight contractor, Alliance Technologies, for the samples which they split with us at the site.

This information will make our understanding and our files more complete for this project.

Very truly yours,



Dean Anson II
Co-Facility Coordinator

300777



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Very truly yours,



Dean Anson II
Co-Facility Coordinator

300778

2.3 Anticipated Activities

- The Alliance Project Manager will continue to coordinate with the EPA WAM and PRP's consultant to discuss project schedule and when the investigation will resume.
- Alliance will provide oversight during field activities once a new schedule is developed.

2.4 Laboratory Summary

- The following is a summary of the split sample collected by Alliance and sent to the laboratory for analysis:

Sample ID	Analysis	Date	Time	Matrix	Location	Lab
BGH84	TCL Extractables	6/11/91	14:00	Aqueous	Tank 16	American
BGH85	TCL Extractables	6/11/91	14:00	Aqueous	Tank 16	American
BGH86	TCL Volatiles	6/11/91	14:00	Aqueous	Tank 16	American
BGH87	TCL Volatiles	6/11/91	14:00	Aqueous	Tank 16	American

Have
split
Results

SUBG

VOL

2.4 Laboratory Summary

The following is a summary of the split samples accepted by Alliance and submitted to the laboratory for analysis.

	Sample ID	Date	Time	Matrix	Location	Lab
Have Split Results	BGG87	11/10/91	1106	Soil	CP-1	EEAST
	BGG88	11/10/91	1419	Soil	IB-3(30-34)	EEAST
	BGG89	11/10/91	0900	Rinsate	-	EEAST
	BGG90	11/10/91	1245	Soil	IB-3(25-27)	EEAST
Have Split Results	MBEH69	11/10/91	1106	Soil	CP-1	SKINER
	MBEH70	11/10/91	1436	Soil	IB-3(30-35)	SKINER
	MBEH71	11/10/91	0900	Rinsate	-	SKINER
	MBEH72	11/10/91	1250	Soil	IB-3(25-27)	SKINER

- During the week of April 20, 1992 Alliance observed ground water sampling from all monitoring wells at the site. Alliance collected split samples from MW-5 and MW-7.
- The Alliance Project Manager coordinated with the Alliance oversight personnel and the EPA WAM during all field activities.

2.2 Outstanding Issues and Potential Problem Areas

Continued delays in implementation of field activities by PRP is making scheduling of activities and laboratories difficult for Alliance.

2.3 Anticipated Activities

- Alliance will continue to track the status of split samples.

2.4 Laboratory Summary

The following is a summary of the split samples accepted by Alliance and submitted to the laboratory for analysis.

SAMPLE ID	DATE	TIME	MATRIX	LOCATION	LAB
BGG68	4/22/92	1315	Water	MW-7	NYTEST
BGG69	4/22/92	1610	Water	MW-5	NYTEST
BGG70	4/22/92	1800	Water	Rinsate	NYTEST
MBEH85	4/22/92	1315	Water	MW-7	CHEMTEC
MBEH86	4/22/92	1610	Water	MW-5	CHEMTEC
MBEH87	4/22/92	1800	Water	Rinsate	CHEMTEC

Alliance was informed by Fritz Mazzola that the cesspool would not be sampled since the underground utilities had not been marked off and the skid mounted rig was not available for that weekend (August 24, 1991); thus, interior boring work will not continue at that time. Work may continue Labor Day weekend.

Alliance observed that some of the augers being placed on the truck after all the work was completed had sand on them. Alliance had asked earlier if all augers had been steam-cleaned prior to the crew's departure from the site, and was informed by MPC that they had been.

- The Alliance Project Manager continued coordination with the EPA WAM on project status. Under EPA direction, work at this site is on hold pending resolution of continual delays by the PRP.

2.2 Outstanding Issues and Potential Problem Areas

- The lack of a defined project schedule continues to affect Alliance's ability to develop due dates for its deliverables under this Work Assignment. It is expected that the project schedule will become more definite as the project progresses.

2.3 Anticipated Activities

- The Alliance Project Manager will continue to coordinate with the EPA WAM to discuss project schedule and when the investigation will resume.
- Alliance will provide oversight during field activities once a new schedule is developed.

2.4 Laboratory Summary

The following is a summary of the split samples accepted by Alliance and submitted to the laboratory for analysis:

	Sample ID	Date	Time	Matrix	Location	Lab
Have Split Results	BGG81	8/11/91	9:10	Rinsate	RB-01	INTECH
	BGG81	8/11/91	9:15	Rinsate	RB-01	INTECH
	BGG83	8/11/91	10:08	Sediment	DW-1	INTECH
	BGG83	8/11/91	10:45	Sediment	DW-1	INTECH
Have Split Results	MBEH75	8/11/91	10:45	Sediment	DW-1	Betz
	MBEH74	8/11/91	9:17	Rinsate	RB-01	Betz
	MBEH74	8/11/91	9:18	Rinsate	RB-01	Betz

2.4 Laboratory Summary

The following is a summary of the split samples accepted by Alliance and submitted to the laboratory for analysis.

Sample ID	Date	Time	Matrix	Location	Lab
BGG87	11/10/91	1106	Soil	CP-1	EEAST
BGG88	11/10/91	1419	Soil	IB-3(30-34)	EEAST
BGG89	11/10/91	0900	Rinsate	-	EEAST
BGG90	11/10/91	1245	Soil	IB-3(25-27)	EEAST
MBEH69	11/10/91	1106	Soil	CP-1	SKINER
MBEH70	11/10/91	1436	Soil	IB-3(30-35)	SKINER
MBEH71	11/10/91	0900	Rinsate	-	SKINER
MBEH72	11/10/91	1250	Soil	IB-3(25-27)	SKINER

2.3 Anticipated Activities

- The Alliance Project Manager will continue to coordinate with the EPA WAM and PRP's consultant to discuss project schedule and when the investigation will resume.
- Alliance will provide oversight during field activities once a new schedule is developed.

2.4 Laboratory Summary

- The following is a summary of the split sample collected by Alliance and sent to the laboratory for analysis:

Sample ID	Analysis	Date	Time	Matrix	Location	Lab
BGH84	TCL Extractables	6/11/91	14:00	Aqueous	Tank 16	American
BGH85	TCL Extractables	6/11/91	14:00	Aqueous	Tank 16	American
BGH86	TCL Volatiles	6/11/91	14:00	Aqueous	Tank 16	American
BGH87	TCL Volatiles	6/11/91	14:00	Aqueous	Tank 16	American

- During the week of April 20, 1992 Alliance observed ground water sampling from all monitoring wells at the site. Alliance collected split samples from MW-5 and MW-7.
- The Alliance Project Manager coordinated with the Alliance oversight personnel and the EPA WAM during all field activities.

2.2 Outstanding Issues and Potential Problem Areas

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2.3 Anticipated Activities

- Alliance will continue to track the status of split samples.

2.4 Laboratory Summary

The following is a summary of the split samples accepted by Alliance and submitted to the laboratory for analysis.

SAMPLE ID	DATE	TIME	MATRIX	LOCATION	LAB
BGG68	4/22/92	1315	Water	MW-7	NYTEST
BGG69	4/22/92	1610	Water	MW-5	NYTEST
BGG70	4/22/92	1800	Water	Rinsate	NYTEST
MBEH85	4/22/92	1315	Water	MW-7	CHEMTEC
MBEH86	4/22/92	1610	Water	MW-5	CHEMTEC
MBEH87	4/22/92	1800	Water	Rinsate	CHEMTEC

2.3 Anticipated Activities

- Alliance will provide oversight of future field activities.
- Alliance will continue to track the status of split samples.

Laboratory Summary

The following is a summary of the split samples accepted by Alliance and submitted to the laboratory for analysis.

Sample ID	Date	Time	Matrix	Location	Lab
BGG93	01/5/92	1120	Water	Rinsate	RECRA
BGG94	01/5/92	1013	Soil	IB-2(9-11)	RECRA
BGG95	01/5/92	1400	Soil	IB-2(49-51)	RECRA
MBEH80	01/5/92	1120	Water	Rinsate	BETZ
MBEH81	01/5/92	1013	Soil	IB-2(9-11)	BETZ
MBEH82	01/5/92	1400	Soil	IB-2(49-51)	BETZ

2.5 Deliverable Schedule

Deliverable	Due Date	Date Delivered
Work Plan	12/25/89	12/22/89
Monthly Progress Report #25	01/21/92	01/21/92
Letter Report Review of RI/FS Work Plan	2/10/90	2/9/90
Letter Report Review of Revised RI/FS Work Plan and POP	7/25/90	7/25/90
Letter Report Review of Revised POP	1/2/91	1/4/91
Draft Oversight Work Plan	1/91	1/23/91
Final Oversight Work Plan	3/28/91	3/28/91
Draft Final Report	TBD	
Final Report	TBD	

TBD = To be determined

300786

- Alliance will continue to track the status of split samples.

Laboratory Summary

The following is a summary of the split samples accepted by Alliance and submitted to the laboratory for analysis.

SAMPLE ID	DATE	TIME	MATRIX	LOCATION	LAB
BGG67	3/10/92	0950	Soil	MW-5D (5'-7')	IEA
BGH91	3/19/92	1137	Soil	MW-7D (56'-58')	IEA
BGH93	3/19/92	1545	Water	Rinsate	IEA
MBEH83	3/10/92	0950	Soil	MW-5D (5'-7')	S&S
097985	3/19/92	1137	Soil	MW-7D (56'-58')	EPA-ESD
097986	3/19/92	1545	Water	Rinsate	EPA-ESD

2.5 Deliverable Schedule

Deliverable	Due Date	Date Delivered
Work Plan	12/25/89	12/22/89
Monthly Progress Report #27	3/20/92	3/20/92
Letter Report Review of RI/FS Work Plan	2/10/90	2/9/90
Letter Report Review of Revised RI/FS Work Plan and POP	7/25/90	7/25/90
Letter Report Review of Revised POP	1/2/91	1/4/91
Draft Oversight Work Plan	1/91	1/23/91
Final Oversight Work Plan	3/28/91	3/28/91
RI Review	TBD	
Final RI Review	TBD	
Draft FS Review	TBD	
Final FS Review	TBD	

TBD = To be determined

Alliance was informed by Fritz Mazzola that the cesspool would not be sampled since the underground utilities had not been marked off and the skid mounted rig was not available for that weekend (August 24, 1991); thus, interior boring work will not continue at that time. Work may continue Labor Day weekend.

Alliance observed that some of the augers being placed on the truck after all the work was completed had sand on them. Alliance had asked earlier if all augers had been steam-cleaned prior to the crew's departure from the site, and was informed by MPC that they had been.

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BGG81	8/11/91	9:15	Rinsate	RB-01	INTECH
BGG83	8/11/91	10:08	Sediment	DW-1	INTECH
BGG83	8/11/91	10:45	Sediment	DW-1	INTECH
MBEH75	8/11/91	10:45	Sediment	DW-1	Betz
MBEH74	8/11/91	9:17	Rinsate	RB-01	Betz
MBEH74	8/11/91	9:18	Rinsate	RB-01	Betz

2.4 Laboratory Summary

The following is a summary of the split samples accepted by Alliance and submitted to the laboratory for analysis.

Sample ID	Date	Time	Matrix	Location	Lab
BGG91	12/7/91	1630	Water	Rinsate	ENVSYS
BGG92	12/7/91	1645	Soil	IB-6(40-42)	ENVSYS
BGG99	12/7/91	1455	Soil	IB-6(30-32)	ENVSYS
MBEH73	12/7/91	1630	Water	Rinsate	SKINER
MBEH78	12/7/91	1645	Soil	IB-6(40-42)	SKINER
MBEH79	12/7/91	1445	Soil	IB-6(30-32)	SKINER

Deliverable Schedule

Deliverable	Due Date	Date Delivered
Work Plan	12/25/89	12/22/89
Monthly Progress Report #24	12/20/91	12/20/91
Letter Report Review of RI/FS Work Plan	2/10/90	2/9/90
Letter Report Review of Revised RI/FS Work Plan and POP	7/25/90	7/25/90
Letter Report Review of Revised POP	1/2/91	1/4/91
Draft Oversight Work Plan	1/91	1/23/91
Final Oversight Work Plan	3/28/91	3/28/91
Draft Final Report	TBD	
Final Report	TBD	

TBD = To be determined

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Copy mailed to
Susan Stolott on
9/30/92 for Risk Assess.

September 21, 1992

Mr. Tom Taccone, Project Manager
United States Environmental Protection Agency
Region II
26 Federal Plaza
New York, NY 10278

Re: Anchor Chemical Superfund Site
Administrative Order No. II CERCLA-90208

Dear Mr. Taccone,

Enclosed please find the validated data from the soil samples taken from indoor borings #3 and 4. The samples were originally taken in November, 1991. There were no compounds identified as present in detectable quantities.

We trust this information is satisfactory for your purposes.

Very truly yours,



Dean Anson II
Co-Facility Coordinator

Enclosure

cc: A. Sanders, Spiegel Associates
F. Werfel, Spiegel Associates
R. Leland, Esq., Rosenman & Colin
J. O'Brien, Esq., Anchor Chemical
J. Doyle, Esq., USEPA

300790



VOLATILE ORGANIC ANALYSIS - ALL SOLIDS REPORTED ON A DRY WEIGHT BASIS										-page 1-
Sample Number	1094 (10-12)	1094 (15-17)	Field Blank #1	1093 (26-27)	1093 (30-32)	1093 (36-37)	Field Blank #2	Trip Blank		
Laboratory Sample Number	11061-01	11061-02	11061-03	11060-04	11060-05	11060-06	11060-08	11060-09		
Benzene			Field Blank				Field Blank	Trip Blank		
Ethylbenzene										
Methyl Chloride										
Chloroethane										
1,1-Dichloroethane										
1,2-Dichloroethane										
Total 1,2-Dichloroethane										
Chloroform										
Carbon Disulfide										
1,1-Trichloroethane										
1,1,1-Trichloroethane										
Carbon Tetrachloride										
Vinyl Acetate										
Bromochloromethane										
1,1,2-Trichloroethane										
1,2-Dichloropropane										
Trans-1,3-Dichloropropene										
Trichloroethene										
Bromoacetaldehyde										
1,1,2-Trichloroethane										
Isobutylene										

NOTES:

- 0 Compound was not detected.
- 1 This compound should be considered "not-detected" since it was detected in a blank at a similar level.
- 2 Barely detectable result - Compound may or may not be present in this sample.
- 3 Quantitation is approximate due to limitation identified during the quality assurance review (data validation).
- 4 This compound was not detected, but the quantitation limit is probably higher due to a low bias identified during the quality assurance review.

300791

VOLATILE ORGANIC ANALYSIS - ANALYTICAL RESULTS - ALL SOLIDS REPORTED ON A DRY WEIGHT BASIS										-PAGE 2
Sample Number		1004 (10-12/1) 1004 (15-17/1)	Field Blank 01 1003 (25-27/1)	1003 (30-32/1)	1003 (35-37/1)	Field Blank 02	Trip Blank			
Laboratory Sample Number		11061-01	11061-02	11061-03	11060-04	11060-06	11060-08			11060-09
Remarks			Field Blank				Field Blank			Trip Blank
Units	ug/kg	ug/kg	ug/L	ug/kg	ug/kg	ug/kg	ug/L	ug/L	ug/L	
VOLATILE COMPOUNDS										
	Quantitation Limit									
1,1,1,2,2-Pentachloroethane	5			0.3	0.3	0.3	0	0	0	0
Bromobenzene	5			0.3	0.3	0.3	0	0	0	0
2-Hexanone	10			0.3	0.3	0.3	0	0	0	0
4-Ethyl-2-Pentanone	10			0.3	0.3	0.3	0	0	0	0
Tetrachloroethene	5			0.3	0.3	0.3	0	0	0	0
Toluene	5		0.3	0.3	0.3	0.3	0	0	0	0
Chlorobenzene	5			0.3	0.3	0.3	0	0	0	0
Ethylbenzene	5			0.3	0.3	0.3	0	0	0	0
Styrene	5			0.3	0.3	0.3	0	0	0	0
Total Styrenes	5			0.3	0.3	0.3	0	0	0	0
Quantitation Limit Multiplier		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Date of Sample Collection		11/9/91	11/9/91	11/10/91	11/10/91	11/10/91	11/10/91	11/10/91	11/10/91	11/10/91
Date Sample Received by Laboratory		11/11/91	11/11/91	11/11/91	11/11/91	11/11/91	11/11/91	11/11/91	11/11/91	11/11/91
Date of Sample Analysis		11/19/91	11/19/91	11/23/91	11/22/91	11/22/91	11/13/91	11/13/91	11/13/91	11/13/91
Instrument Used for Analysis		5995-C	5995-C	5995-C	5995-C	5995-C	5995-C	5995-C	5995-C	5995-C

NOTES:

0 Compound was not detected.

1 This compound should be considered "not-detected" since it was detected in a blank at a similar level.

2 Unreliable result - Compound may or may not be present in this sample.

3 Quantitation is approximate due to limitations identified during the quality assurance review (data validation).

4 This compound was not detected, but the quantitation limit is probably higher due to a low bias identified during the quality assurance review.

300792

EXTRACTABLE ORGANIC ANALYSIS - ANALYTICAL RESULTS - ALL SOLIDS REPORTED ON A DRY WEIGHT BASIS													-page 4-		
Anon Environmental Sample Number		1004 (10-12)		1004 (15-17)		Field Blank 01		1003 (25-27)		1003 (30-34)		1003 (35-39)		Field Blank 02	
Laboratory Sample Number		11061-01		11061-02		11061-03		11060-03		11060-05		11060-07		11060-09	
Remarks						Field Blank								Field Blank	
Units		ug/kg		ug/kg		ug/L		ug/kg		ug/kg		ug/kg		ug/L	
SEMI-VOLATILE COMPOUNDS		Quantitation Limit (ug)		Quantitation Limit (ug)		Quantitation Limit (ug)		Quantitation Limit (ug)		Quantitation Limit (ug)		Quantitation Limit (ug)		Quantitation Limit (ug)	
Hexachlorocyclopentadiene		10		330										NA	
2,4,6-Trichlorophenol		10		330										NA	
2,4,5-Trichlorophenol		50		1600										NA	
2-Chloronaphthalene		10		330										NA	
2-Nitraniline		50		1600										NA	
Dimethylphthalate		10		330										NA	
Acenaphthylene		10		330										NA	
3-Nitraniline		50		1600										NA	
Acenaphthene		10		330										NA	
2,4-Dinitrophenol		50		1600										NA	
4-Nitrophenol		50		1600										NA	
Dibenzofuran		10		330										NA	
2,4-Dinitrochlorobenzene		10		330										NA	
2,6-Dinitrochlorobenzene		10		330										NA	
Diethylphthalate		10		330										NA	
4-Chlorophenyl phenyl ether		10		330										NA	
Fluorene		10		330										NA	
4-Nitraniline		50		1600										NA	
4,6-Dinitro-2-Naphthol		50		1600										NA	
4-Nitroendiphenylamine		10		330										NA	
4-Bromophenyl phenyl ether		10		330										NA	
Hexachlorobenzene		10		330										NA	
Pentachlorophenol		50		1600										NA	
Phenanthrene		10		330										NA	

NOTES:

- Compound was not detected.
- 0 This compound should be considered "not-detected" since it was detected in a blank at a smaller level.
- 1 Available result - Compound may or may not be present in this sample.
- 2 Quantitation is approximate due to limitations identified during the quality assurance review (data validation).
- 3 This compound was not detected, but the quantitation limit is probably higher due to a low bias identified during the quality assurance review.

EXTRACTABLE ORGANIC ANALYSIS - ANALYTICAL RESULTS - ALL SOLIDS REPORTED ON A DRY WEIGHT BASIS												-page 5
Sample Number		1084 (10-12-7)		1084 (15-17-7)		Field Blank #1		1083 (30-34-7)		Field Blank #2		
Jacon Environmental Sample Number		11061-01		11061-02		11061-03		11060-05		11060-08		
Laboratory Sample Number						Field Blank				Field Blank		
Remarks												
Units		ug/kg		ug/kg		ug/L		ug/kg		ug/L		
SEMI-VOLATILE COMPOUNDS		Quantitation Limit (ug)		Quantitation Limit (ug)								
Naphthalene		10		330						NA		
1,4-Dichlorobenzene		10		330						NA		
Fluoranthene		10		330						NA		
Pyrene		10		330						NA		
1-Methylpyrene		10		330						NA		
3,3'-Dichlorobenzidine		20		660						NA		
Benz(a)anthracene		10		330						NA		
1-Methyl-2-Ethylpyrene		10		330		3.2		330 U		340 U		
Chrysene		10		330						NA		
1,4-Dichlorobenzene		10		330						NA		
Benz(b)fluoranthene		10		330						NA		
Benz(k)fluoranthene		10		330						NA		
Benz(a)pyrene		10		330						NA		
Indene(1,2,3-cd)pyrene		10		330						NA		
Dibenz(a,h)anthracene		10		330						NA		
Benz(g,h,i)perylene		10		330						NA		
Quantitation Limit Multiplier		1.00		1.00		1.00		1.00		1.00		
Date of Sample Collection		11/09/91		11/09/91		11/09/91		11/10/91		11/10/91		
Date Sample Received by Laboratory		11/11/91		11/11/91		11/11/91		11/11/91		11/11/91		
Date Sample Extracted		11/15/91		11/15/91		11/15/91		11/15/91		11/15/91		
Date of Sample Analysis		11/20/91		11/20/91		11/20/91		11/21/91		11/20/91		
Instrument Used for Analysis		GC/MS		GC/MS		GC/MS		GC/MS		GC/MS		

NOTES:

- Compound was not detected.
- 0 This compound should be considered "not-detected" since it was detected in a blank at a similar level.
- 1 Unreliable result - Compound may or may not be present in this sample.
- 2 Quantitation is approximate due to limitations identified during the quality assurance review (data validation).
- 3 This compound was not detected, but the quantitation limit is probably higher due to a low bias identified during the quality assurance review.

CLP - TENTATIVELY IDENTIFIED COMPOUNDS - ESTIMATED CONCENTRATIONS - ALL SOLIDS REPORTED ON A DRY WEIGHT BASIS											
-page 6											
Sample Number											
Laboratory Sample Number											
Results											
Units											
COMPOUNDS											
VOLATILE COMPONENTS											
Lab Artifact											
SEMI-VOLATILE COMPONENTS											
Unknown C7014											
Alkyl Condensation											
Unknown											

NOTES:

- Compound was not detected.
- U This compound should be considered "not-detected" since it was detected in a blank at a similar level.
- R Unreliable result - Compound may or may not be present in this sample.
- J Quantitation is approximate due to limitations identified during the quality assurance review (data validation).
- UJ This compound was not detected, but the quantitation limit is probably higher due to a low bias identified during the quality assurance review.

EXTRACTABLE ORGANIC ANALYSIS - ANALYTICAL RESULTS - ALL SOLIDS REPORTED ON A DRY WEIGHT BASIS											
Insect Environmental Sample Number		1000 (10-12-77)		1004 (15-17-77)		1003 (25-27-77)		1003 (30-34-77)		1003 (35-39-77)	
Laboratory Sample Number		11001-01		11001-02		11001-03		11001-05		11001-07	
Remarks	ug/kg	Field Blank		Field Blank		Field Blank		Field Blank		Field Blank	
		ug/l		ug/l		ug/l		ug/l		ug/l	
Pesticides	Quantitation Limit (ug)	Quantitation Limit (ug)	Quantitation Limit (ug)	Quantitation Limit (ug)	Quantitation Limit (ug)	Quantitation Limit (ug)	Quantitation Limit (ug)	Quantitation Limit (ug)	Quantitation Limit (ug)	Quantitation Limit (ug)	Quantitation Limit (ug)
alpha-BHC	0.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
beta-BHC	0.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
delta-BHC	0.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
gamma-BHC (Lindane)	0.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Heptachlor	0.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Aldrin	0.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Heptachlor Epoxide	0.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Endosulfan I	0.05	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
Disdrin	0.10	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
4,4'-DDE	0.10	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
Endrin	0.10	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
Endosulfan II	0.10	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
4,4'-DDD	0.10	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
Endosulfan Sulfate	0.10	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
4,4'-DDT	0.10	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
Heptachlor	0.50	00.0	00.0	00.0	00.0	00.0	00.0	00.0	00.0	00.0	00.0
Endrin Ketone	0.10	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
Endrin aldehyde	0.10	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
alpha-Chlordane	0.50	00.0	00.0	00.0	00.0	00.0	00.0	00.0	00.0	00.0	00.0
gamma-Chlordane	0.50	00.0	00.0	00.0	00.0	00.0	00.0	00.0	00.0	00.0	00.0
Terphenyl	1.0	160	160	160	160	160	160	160	160	160	160

NOTES:

- Compound was not detected.
- U This compound should be considered "not-detected" since it was detected in a blank at a similar level.
- N Verifiable result - Compound may or may not be present in this sample.
- J Quantitation is approximate due to limitations identified during the quality assurance review (data validation).
- QJ This compound was not detected, but the quantitation limit is probably higher due to a low bias identified during the quality assurance review.
- NA Not analyzed.

EXTRACTABLE ORGANIC ANALYSIS - ANALYTICAL RESULTS - ALL SAMPLES REPORTED ON A DRY WEIGHT BASIS

-page 8-

		1004 (10-12'')1.04 (15-17'')		1003 (25-27'')	1003 (30-34'')	1003 (35-39'')	Field Blank 02 11060-99	Trip Blank
		11061-01	11061-02	11061-03	11060-05	11060-07	11060-09	
Samples		ug/kg	ug/kg	ug/L	ug/kg	ug/kg	ug/L	ug/L
Units								
PCBs	Quantitation Limit (ug)	Quantitation Limit (ug)	Quantitation Limit (ug)	Quantitation Limit (ug)	Quantitation Limit (ug)	Quantitation Limit (ug)	Quantitation Limit (ug)	Quantitation Limit (ug)
Jarelor-1016	0.5	0						0
Jarelor-1221	0.5	0						0
Jarelor-1222	0.5	0						0
Jarelor-1242	0.5	0						0
Jarelor-1246	0.5	0						0
Jarelor-1254	1.0	160						0
Jarelor-1260	1.0	160						0
Quantitation Limit Multiplier		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Date of Sample Collection		11/9/91	11/9/91	11/10/91	11/10/91	11/10/91	11/10/91	11/10/91
Date Sample Received by Laboratory		11/11/91	11/11/91	11/11/91	11/11/91	11/11/91	11/11/91	11/11/91
Date Sample Extracted		11/13/91	11/13/91	11/13/91	11/15/91	11/15/91	11/15/91	11/15/91
Date of Sample Analysis		11/20/91	11/20/91	11/20/91	11/20/91	11/20/91	11/20/91	11/20/91

NOTES:

- Compound was not detected.

0 This compound should be considered "not-detected" since it was detected in a blank at a similar level.

1 Unreliable result - Compound may or may not be present in this sample.

2 Quantization is approximate due to limitations identified during the quality assurance review (data validation).

03 This compound was not detected, but the quantization limit is probably higher due to a low bias identified during the quality assurance review.

04 Not analyzed.

300798

INORGANIC ANALYSIS - ANALYTICAL RESULTS - ALL SOLIDS REPORTED ON A DRY WEIGHT BASIS												-page 1	
Inogen Environmental Sample Number		Field Blank #1		Field Blank #2		1003 (25-27)		1003 (30-34)		1004 (10-12)		1004 (15-17)	
Laboratory Sample Number		00619-005		00619-005		00619-015		00619-025		00619-035		00619-065	
Percent Solids		-		-		91.9%		91.7%		97.0%		90.7%	
Notes		-		-		-		-		-		-	
INORGANIC ELEMENTS		Detection Limit (ug)	Detection Limit (mg)	Field Blank	Field Blank	Field Blank	Field Blank	Field Blank	Field Blank	Field Blank	Field Blank	Field Blank	Field Blank
Aluminum	P	72.0	7.2	102.0	102.0	1550.0	2130.0	97.7%	97.0%	90.7%	90.4%	90.4%	90.4%
Antimony	P	45.0	4.5										
Arsenic	F	2.0	0.2			0.06	0.45	0.00	0.00	0.57	0.24		
Barium	P	3.0	0.3			5.0	12.3	7.6	3.9	3.9	3.1		
Beryllium	P	1.0	0.1	6.0	6.0	0.36.0	0.34.0	0.41.0	0.20.0	0.30.0	0.30.0		
Cadmium	P	4.0	0.4				0.59	0.92	0.92				
Calcium	P	30.0	3.0	100	131	37.3.0	74.0.0	32.1.0	33.6.0	73.6.0			
Chromium	P	7.0	0.7			3.0.0	6.0.3	9.6.3	2.7.0	2.9.0			
Cobalt	P	10.0	1.0				1.6						
Copper	P	2.0	0.2	0.0	5.0	1.5.0	3.5.0	2.2.0	2.5.0	1.0.0			
Iron	P	9.0	0.9	74.0.0	62.0.0	2110	6360	9140	0410	3100			
Lead	F	1.0	0.1		1.4	1.2.0	0.94.0	1.0.0	1.9.0	0.83.0			
Magnesium	P	40.0	4.0	61.0	40.0	127.3	473.3	152.3	179.3	154.3			
Manganese	P	1.0	0.1	1.0	1.0	26.9	93.3	47.9	49.0	33.2			
Mercury	CV	0.2	0.1										
Nickel	P	12.0	1.2				1.5						
Potassium	P	2100	210				220						
Selenium	F	4.0	0.4										
Silver	P	6.0	0.6										
Sodium	P	4050	405										
Thallium	F	2.0	0.2										
Vanadium	P	4.0	0.4			2.0	6.0	6.1	3.4	1.9			
Zinc	P	2.0	0.2		7.0	2.0.0	0.9.3	12.9.3	5.0.3	4.1.3			
Cyanide	A	10	2.0										
Phenols	A	2000	2000										

NOTES:

- Element was not detected.
- This analysis should be considered "not detected" unless it was detected in a blank at a similar level.
- Unreliable result - Analyte may or may not be present in this sample.
- Quantitation is approximate due to limitations identified during the quality assurance review (data validation).
- This analysis was not detected, but the quantitation limit is probably higher due to a low bias identified during the quality assurance review.

ANALYTICAL METHODS

P Inductively Coupled Plasma
F Graphite Furnace Atomic Absorption
CV Cold Vapor Atomic Absorption
A Auto Analyzer

Anson Environmental Ltd.

Environmental Audits
Hazardous Waste
Asbestos Management
Groundwater Remediation
Storage Tank Management
Impact Statements
Wetland Investigations

September 24, 1992

256 Main Street
Northport, NY 11768
516-757-7090
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Mr. Tom Taccone, Project Manager
United States Environmental Protection Agency
Region II
26 Federal Plaza
New York, NY 10278

Re: Anchor Chemical Superfund Site
Administrative Order No. II CERCLA-90208

Dear Mr. Taccone,

In response to our telephone conversation of September 23rd, this letter is intended to clarify the sampling requirements and the data forwarded to you.

In the Work Plan, page 25, Section 4.4, the requirements for sampling the sediment in the nine original drywells were outlined. The validated data of the sampling results for that task were included in our prior data package in the section entitled "Drywell Sediment Sampling". The samples are labelled by drywell number and constitute the first 8 pages of data in that section.

The next 12 pages are the validated data for the additional borings into drywell #1 (25-27' and 30-32'), drywell #6 (30-32' and 35-37') and drywell #7 (40-42', 45-47' and 55-57'). The sample marked drywell #7A is a duplicate sample. This is the additional sampling mentioned in Section 4.4 (Task 4) on page 25 of the Work Plan as well as the first paragraph of Section 4.6 (Task 6) on page 26.

I trust this clarifies the drywell sampling requirements. We have included another copy of this section of the validated data package. We are compiling the Statements of Work from the laboratories and will forward them under separate cover to you and Alliance Technology as you requested.

Very truly yours,



Dean Anson II
Co-Facility Coordinator

cc: A. Sanders, Spiegel Associates
F. Werfel, Spiegel Associates
R. Leland, Esq., Rosenman & Colin
J. O'Brien, Esq., Anchor Chemical
J. Doyle, Esq., USEPA

300800



Drywell sediment sampling

300801

EXTRACTABLE ORGANIC ANALYSIS - ANALYTICAL RESULTS - ALL SOLIDS REPORTED ON A DRY WEIGHT BASIS

-page 3

Aroclor Environmental Sample Number			0402	0403	0404	Trip Blank 010	0401	0405	0406	0407	0408	0409	0410	0411	Trip Blank 011	0415/RS0
Laboratory Sample Number			0095-01	0095-02	0095-03	0095-04	0103-01	0103-02	0103-03	0103-04	0103-05	0103-06	0103-07	0103-10	0103-11	0103-00
Remarks			Analyzed Twice	Analyzed Twice	Analyzed Twice		Analyzed Twice	Analyzed Twice			Analyzed Twice					Duplicate of 0401
Units			ug/Kg	ug/Kg	ug/Kg	ug/L	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/L	ug/L	ug/Kg
SEMI-VOLATILE COMPOUNDS	Quant. Limit (ug)	Quant. Limit (Sol)														Analyzed Twice
Phenol	10	330				NA									NA	
bis(2-Chloroethyl)ether	10	330				NA									NA	
2-Chlorophenol	10	330				NA									NA	
1,3-Dichlorobenzene	10	330				NA									NA	
1,4-Dichlorobenzene	10	330				NA									NA	
Benzyl Alcohol	10	330				NA									NA	
1,2-Dichlorobenzene	10	330				NA									NA	
2-Nitrophenol	10	330				NA									NA	
bis(2-Chloroisopropyl)ether	10	330				NA									NA	
4-Nitrophenol	10	330				NA									NA	
N-Nitroso-di-n-Propylamine	10	330				NA	UJ/UJ								NA	UJ/UJ
Hexachloroethane	10	330				NA									NA	
Nitrobenzene	10	330				NA									NA	
Isophorone	10	330				NA									NA	
2-Nitrophenol	10	330				NA									NA	
2,4-Dinitrophenol	10	330				NA									NA	
Benzoic Acid	50	1650				NA		53 J/73 J							NA	
bis(2-Chloroethoxy)ethane	10	330				NA									NA	
2,4-Dichlorophenol	10	330				NA									NA	
1,2,4-Trichlorobenzene	10	330				NA	UJ/UJ								NA	UJ/UJ
Naphthalene	10	330	9000/9500			NA									NA	
4-Chloroaniline	10	330				NA									NA	
Hexachlorobutadiene	10	330				NA									NA	
4-Chloro-3-Nitrophenol	10	330				NA									NA	
2-Nitrophenol	10	330	4100/3900			NA									NA	

300802.

EXTRACTABLE ORGANIC ANALYSIS - ANALYTICAL RESULTS			ALL SOLIDS REPORTED ON A DRY WEIGHT BASIS													-page 4
Anson Environmental Sample Number			DA02	DA03	DA04	Trip Blank 010	DA01	DA05	DA06	DA07	DA08	DA09	DA010	DA011	Trip Blank 011	DA012/MSD
Laboratory Sample Number			0095-01	0095-02	0095-03	0095-04	0103-01	0103-02	0103-03	0103-04	0103-05	0103-06	0103-07	0103-10	0103-11	0103-08
Remarks			Analyzed Twice	Analyzed Twice	Analyzed Twice		Analyzed Twice	Analyzed Twice			Analyzed Twice					Duplicate of DA01
Units			ug/Kg	ug/Kg	ug/Kg	ug/L	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/L	ug/L	ug/Kg
SEMI-VOLATILE COMPOUNDS	Quant. Limit (ug)	Quant. Limit (Sol)														Analyzed Twice
Hexachlorocyclopentadiene	10	330				NA									NA	
2,4,6-Trichlorophenol	10	330				NA									NA	
2,4,5-Trichlorophenol	50	1650				NA									NA	
2-Chloronaphthalene	10	330				NA									NA	
2-Nitroaniline	50	1650	N/-	N/-		NA			X	X	N/-	N	N		NA	-/N
Bis(2-ethylphthalate	10	330				NA									NA	
Acenaphthylene	10	330				NA									NA	
3-Nitroaniline	50	1650				NA									NA	
Acenaphthene	10	330				NA									NA	
2,4-Dinitrophenol	50	1650				NA									NA	
4-Nitrophenol	50	1650				NA									NA	
Bibenzofuran	10	330				NA									NA	
2,4-Dinitrotoluene	10	330				NA									NA	
2,6-Dinitrotoluene	10	330				NA									NA	
Bis(2-ethylphthalate	10	330				NA									NA	
4-Chlorophenylphenylether	10	330				NA									NA	
Fluorene	10	330				NA									NA	
4-Nitroaniline	50	1650				NA									NA	
4,6-Dinitro-2-Nitrophenol	50	1650				NA									NA	
3-Nitro-4-phenylamine	10	330				NA									NA	
4-Bromophenylphenylether	10	330				NA									NA	
Hexachlorobenzene	10	330				NA									NA	
Pentachlorophenol	50	1650				NA									NA	
Phenanthrene	10	330	370 J/320 J		260 J/310 J	NA					1000 J/1500 J	260 J	190 J		NA	70 J/81 J

300803

EXTRACTABLE ORGANIC ANALYSIS - ANALYTICAL RESULTS			ALL SOLIDS REPORTED ON A DRY WEIGHT BASIS													-page 5
Anson Environmental Sample Number			DM2	DM3	DM4	Trip Blank B10	DM1	DM5	DM6	DM7	DM8	DM9	DRAIN	DB-1	Trip Blank B11	DM10S/MSD
Laboratory Sample Number			0095-01	0095-02	0095-03	0095-04	0103-01	0103-02	0103-03	0103-04	0103-05	0103-06	0103-07	0103-10	0103-11	0103-00
Remarks			Analyzed Twice	Analyzed Twice	Analyzed Twice		Analyzed Twice	Analyzed Twice			Analyzed Twice					Duplicate of DM1
Units			ug/Kg	ug/Kg	ug/Kg	ug/L	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/L	ug/L	ug/Kg
SEMI-VOLATILE COMPOUNDS	Quant. Limit (Aq)	Quant. Limit (Sol)														Analyzed Twice
Anthracene	10	330				NA					390 J/-				NA	
01-n-Butylphthalate	10	330	2400 J/2500 J			NA		63 J/72 J					400 J		NA	-/47 J
Fluoranthene	10	330	300 J/-		700 J/810 J	NA					3700/3400	440 J	410 J		NA	110 J/140 J
Pyrene	10	330			790 J/860 J	NA		-/34 J			3700/4500	340 J	320 J		NA	100 J/240 J
Butylbenzylphthalate	10	330	5100/5200	1100 J/1100 J		NA		64 J/40 J	5100			370 J	300 J		NA	100 J/170 J
3,3'-Dichlorobenzidine	20	660				NA		03/-							NA	03/-
Benzo(a)anthracene	10	330			-/490 J	NA		03/-			1600 J/-				NA	03/-
bis(2-Ethylhexyl)phthalate	10	330	25,000/27,000	26,000/ 21,000	7900 U/ 5000 U	NA	9700 U/ 11,000 U	1500 U/ 1000 U	26,000	5500 U	9600 U/ 12,000 U	5000 U	2700 U		NA	6300 U/ 5900 U
Chrysene	10	330			520 J/590 J	NA		03/-			1900 J/2000 J	250 J	230 J		NA	120 J/110 J
01-n-Octylphthalate	10	330	03/03	03/03	03/03	NA	03/03	03/03			03/03				NA	160 J/03
Benzo(b)fluoranthene	10	330	03/03	03/03	1000 J/1000 J	NA	03/03	03/03			2900 J/2700 J				NA	110 J/120 J
Benzo(k)fluoranthene	10	330	03/03	03/03	560 J/560 J	NA	03/03	03/03			1700 J/1700 J				NA	72 J/70 J
Benzo(a)pyrene	10	330	03/03	03/03	580 J/590 J	NA	03/03	03/03			1400 J/1100 J				NA	03/03
Indeno(1,2,3-cd)pyrene	10	330	03/03	03/03	03/03	NA	03/03	03/03			03/1500 J			0	NA	03/03
Dibenz(a,h)anthracene	10	330	03/03	03/03	03/03	NA	03/03	03/03			03/03			0	NA	03/03
Benzo(g,h,i)perylene	10	330	03/03	03/03	03/03	NA	03/03	03/03			03/03			0	NA	03/03
Quantitation Limit Multiplier			8.40	9.09	6.97	NA	6.67	1.03	9.09	5.45	9.09	6.97	5.76	1.00	NA	1.03
Date of Sample Collection			0/10/91	0/10/91	0/10/91	NA	0/11/91	0/11/91	0/11/91	0/11/91	0/11/91	0/11/91	0/11/91	0/11/91	NA	0/11/91
Date Sample Received by Laboratory			0/11/91	0/11/91	0/11/91	NA	0/12/91	0/12/91	0/12/91	0/12/91	0/12/91	0/12/91	0/12/91	0/12/91	NA	0/12/91
Date Sample Extracted			0/14/91	0/14/91	0/14/91	NA	0/14/91	0/14/91	0/14/91	0/14/91	0/14/91	0/14/91	0/14/91	0/14/91	NA	0/14/91
Date of Sample Analysis			0/20 & 0/29	0/20 & 0/29	0/30 & 0/31	NA	0/30 & 0/31	0/24 & 0/30	0/27/91	0/27/91	0/27 & 0/29	0/27/91	0/20/91	0/23/91	NA	0/23 & 0/20
Instrument Used for Analysis			MS-59950	MS-59950	MS-59950	NA	MS-59950	MS-59950	MS-59950	MS-59950	MS-59950	MS-59950	MS-59950	MS-59950	NA	MS-59950

300804

CLP - TENTATIVELY IDENTIFIED COMPOUNDS - ESTIMATED CONCENTRATIONS - ALL SOLIDS REPORTED ON A DRY WEIGHT BASIS														-page 6
Anson Environmental Sample Number	DM2	DM3	DM4	Trip Blank 010	DM1	DM5	DM6	DM7	DM8	DM9	DATA	DP-1	Trip Blank 011	DM1
Laboratory Sample Number	0095-01	0095-02	0095-03	0095-04	0103-01	0103-02	0103-03	0103-04	0103-05	0103-06	0103-07	0103-10	0103-11	0103-08
Remarks														
Units	ug/Kg	ug/Kg	ug/Kg	ug/L	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/L	ug/L	ug/Kg
VOLATILE COMPONENTS				-	-	-	-	-	-	-	-	-	-	NA
Hexane	10,000 J													
Unknown Hydrocarbons (Number of Peaks)	55,000(5) J	71,500(10) J												
C9H12 Alkylbenzene	440,000(4) J	6000 J												
Laboratory Artifacts			10 R		5 R		8 R	10 R	10 R	23 R				
SEMI-VOLATILE COMPONENTS				NA								-	NA	
Saturated Hydrocarbon (Number of Peaks)	246,000(13) J/ 351,500(13) J	90,000(15) J/ 77,900(15) J	4000(3) J/ 3400(3) J		12,970(7) J/ 14,200(5) J		1500(1) J	910(1) J	67,000(4) J/ 61,300(3) J	1200(1) J				7220(13) J/ 10,200(15) J
C9H12 Alkylbenzenes	29,500(5) J/ 92,000(4) J	15,600(2) J/ 6300 J												
Unknowns (Number of Peaks)	100,300(4) J/ 151,000(5) J	12,800(2) J/ 15,600(4) J	4140(3) J/ 3420(2) J		7370(3) J/ 9200(3) J	4250(13) J/ 3530(13) J	24,500(3) J		16,000(8) J/ 11,000(6) J	9560(5) J	6730(4) J			6960(8) J/ 3300(4) J
Benzhydronaphthalene Isomer	2800 J/ 11,000 J	4500 J/ 11,000 J												
Alkyl-substituted Cyclohexane	3100 J/ 13,000 J	13,500 J/ 11,100 J			3300 J/-									
Hexadecanoic Acid	-/179,000 J													
Alkyl-substituted Phenol		3600 J/ 2700 J/3000 J												
Oxygenated PAH														
C18H22 Alkylbenzene		-/2100 J	1600 J/ 2500 J											
1-Phenyl-1,2-propanediol					240 J/270 J			1500 J/1500	930 J					

300805

EXTRACTABLE ORGANIC ANALYSIS - ANALYTICAL RESULTS - ALL SOLIDS REPORTED ON A DRY WEIGHT BASIS															-page 7
Anson Environmental Sample Number			0002	0003	0004	Trip Blank 010	0001	0005	0006	0007	0008	0009	0010	00-1	0001
Laboratory Sample Number			0095-01	0095-02	0095-03	0095-04	0103-01	0103-02	0103-03	0103-04	0103-05	0103-06	0103-07	0103-10	0103-11
Remarks															
Units			ug/kg	ug/kg	ug/kg	ug/L	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/L	ug/L
PESTICIDES															
	Quant. Limit (ug)	Quant. Limit (Sol)													
alpha-BHC	0.05	0	103			NA	NA							NA	
beta-BHC	0.05	0		03	03	NA	NA	03	03	03	03	0.2 J	03		NA
delta-BHC	0.05	0		0	0	NA	NA	0	0	0	0	0	0		NA
gamma-BHC (Lindane)	0.05	0				NA	NA								NA
Heptachlor	0.05	0		03	03	NA	NA	03	03	03	03	03	03		NA
Aldrin	0.05	0		03	03	NA	NA	03	03	03	03	03	03		NA
Heptachlor Epoxide	0.05	0		03	03	NA	NA	03	03	03	03	03	03		NA
Endosulfan I	0.05	0				NA	NA								NA
Dieldrin	0.10	16	106 J	07 J	16 J	NA	NA	03	10 J	19 J	02 J	03	03		NA
4,4'-DDE	0.10	16	106 J	41 J	50 J	NA	NA	03	75 J	10 J	00 J	03	03		NA
Endrin	0.10	16	36			NA	NA				12 J				NA
Endosulfan II	0.10	16		0	0	NA	NA	0	0	0	0	0	0		NA
4,4'-DDD	0.10	16		0	0	NA	NA	0	0	0	0	0	0		NA
Endosulfan Sulfate	0.10	16		0	0	NA	NA	0	0	0	0	0	0		NA
4,4'-DDT	0.10	16		03	03	NA	NA	03	03	03	03	03	03		NA
Heptachlor	0.50	00	22 J	39 J	126 J	NA	NA	03	24 J	7.5 J	52 J	14 J	03		NA
Endrin Ketone	0.10	16		0	0	NA	NA	0	0	0	0	0	0		NA
alpha-Chlordane	0.50	00		03	03	NA	NA	03	03	03	03	03	03		NA
gamma-Chlordane	0.50	00		03	03	NA	NA	03	03	3.4 J	29 J	03	03		NA
Toxaphene	1.0	160				NA	NA								NA

300806

EXTRACTABLE ORGANIC ANALYSIS - ANALYTICAL RESULTS - ALL SOLIDS REPORTED ON A DRY WEIGHT BASIS

-page 8

Anson Environmental Sample Number	0002	0003	0004	Trip Blank 010	0001	0005	0006	0007	0008	0009	0010	0011	0012	0013	0014
Laboratory Sample Number	0095-01	0095-02	0095-03	0095-04	0103-01	0103-02	0103-03	0103-04	0103-05	0103-06	0103-07	0103-10	0103-11	0103-00	0103-00
Remarks															
Units	mg/Lg	mg/Lg	mg/Lg	mg/L	mg/Lg	mg/Lg	mg/Lg	mg/Lg	mg/Lg	mg/Lg	mg/Lg	mg/L	mg/L	mg/Lg	mg/Lg
PCBs	Quant. Limit (Aq)	Quant. Limit (Sol)													
Aroclor-1016	0.5	00		NA	NA								NA		
Aroclor-1221	0.5	00		NA	NA								NA		
Aroclor-1232	0.5	00		NA	NA								NA		
Aroclor-1242	0.5	00		NA	NA								NA		
Aroclor-1248	0.5	00		NA	NA								NA		
Aroclor-1254	1.0	160		NA	NA								NA		
Aroclor-1260	1.0	160		NA	NA								NA		
Quantitation Limit Multiplier	0.69	0.75	0.50	NA	NA	0.43	0.75	0.49	0.74	0.59	0.40	1.00	NA	0.54	
Date of Sample Collection	8/10/91	8/10/91	8/10/91	NA	NA	8/11/91	8/11/91	8/11/91	8/11/91	8/11/91	8/11/91	8/11/91	NA	8/11/91	
Date Sample Received by Laboratory	8/11/91	8/11/91	8/11/91	8/11/91	8/11/91	8/11/91	8/12/91	8/12/91	8/12/91	8/12/91	8/12/91	8/12/91	NA	8/12/91	
Date Sample Extracted	8/14/91	8/14/91	8/14/91	8/14/91	8/14/91	8/14/91	8/14/91	8/14/91	8/14/91	8/14/91	8/14/91	8/14/91	NA	8/14/91	
Date of Sample Analysis	8/27/91	8/28/91	8/28/91	8/28/91	8/28/91	8/28/91	8/28/91	8/28/91	8/28/91	8/28/91	8/28/91	8/27/91	NA	8/27/91	

NOTES:

- Compound was not detected.
- 0 This compound should be considered "not-detected" since it was detected in a blank at a similar level.
- 0 Unreliable result - Compound may or may not be present in this sample.
- J Quantitation is approximate due to limitations identified during the quality assurance review (data validation).
- 03 This compound was not detected, but the quantitation limit is probably higher due to a low bias identified during the quality assurance review.

300807

Environmental Sample Number			DW #1	DW #2	DW #3	DW #4	Field Blank
Laboratory Sample Number			00690-01S	00690-02S	00690-03S	00690-04S	00690-011S
Percent Solids			84.2%	59.0%	78.3%	76.4%	0.0%
Units			mg/Kg	mg/Kg	mg/Kg	mg/Kg	ug/L
INORGANIC ELEMENTS	Detection Limit	Detection Limit (Sol)					Field Blank
Mercury	CV	0.2	0.1				
Cyanide	A	10	1.0				

NOTES:

- Element was not detected.
- U This analyte should be considered "not-detected" since it was detected in a blank at a similar level.
- R Unreliable result - Analyte may or may not be present in this sample.
- J Quantitation is approximate due to limitations identified during the quality assurance review (data validation).
- UJ This analyte was not detected, but the quantitation limit is probably higher due to a low bias identified during the quality assurance review.

ANALYTICAL METHOD:

CV - Cold Vapor Atomic Absorption
A - Auto Analyzer

300808

VOLATILE ORGANIC ANALYSIS - ANALYTICAL RESULTS - ALL SOLIDS REPORTED ON A DRY WEIGHT BASIS															-9-	
Ames Environmental Sample Number			BM01 25'-27'	BM01 30'-32'	Field Blank 021	BM06 35'-37'	BM06 38'-32'	Trip Blank 022	Field Blank 022	BM07 40'-42'	BM07 45'-47'	BM07 55'-57'	BM07 45'-47'	Field Blank 023	Trip Blank 0231	Trip Blank 0232
Laboratory Sample Number			0200-01	0200-02	0200-03	0215-01	0215-02	0215-03	0215-04	0224-01	0224-02	0224-03	0224-04	0224-05	0224-06	0224-07
Remarks												Analyzed Twice	Duplicate of BM07 45'-47'			
Units			ug/kg	ug/kg	ug/L	ug/kg	ug/kg	ug/L	ug/L	ug/kg	ug/kg	ug/kg	ug/kg	ug/L	ug/L	ug
VOLATILE COMPOUNDS	Quantitation Limit (Aq)	Quantitation Limit (Sol)														
Chloromethane	10	10														
Bromomethane	10	10														
Vinyl Chloride	10	10														
Chloroethane	10	10										-/02				
Methylene Chloride	5	5	1500 U	1200 U	4 J	1000 U	5 U	4 J	4 J	5 U	5 U	6 U/7 U	5 U	4 J	4 J	5
Acetone	10	10	5400 R	4800 R	46 J	4200 R	22 R		58 J	5 U	5 R	9 R/11 R	3 R	22 J		
Carbon Disulfide	5	5														
1,1-Dichloroethane	5	5														
1,1-Dichloroethane	5	5														
Total 1,2-Dichloroethane	5	5														
Chloroform	5	5														
1,2-Dichloroethane	5	5														
2-Butanone	10	10														
1,1,1-Trichloroethane	5	5														
Carbon Tetrachloride	5	5														
Vinyl Acetate	10	10														
Bromodichloromethane	5	5														
1,1,2,2-Tetrachloroethane	5	5														
1,2-Dichloropropane	5	5														
trans-1,3-Dichloropropene	5	5														
Trichloroethane	5	5														
Dibromochloromethane	5	5														
1,1,2-Trichloroethane	5	5														
Benzene	5	5			03											

300809

VOLATILE ORGANIC ANALYSIS - ANALYTICAL RESULTS - ALL SOLIDS REPORTED ON A DRY WEIGHT BASIS															-94	
Amson Environmental Sample Number			BM1 25'-27'	BM1 30'-32'	Field Blank 021	BM6 35'-37'	BM6 30'-32'	Trip Blank 022	Field Blank 022	BM7 40'-42'	BM7 45'-47'	BM7 55'-57'	BM7A 45'-47'	Field Blank 023	Trip Blank 0231	Trip 02
Laboratory Sample Number			0200-01	0200-02	0200-03	0215-01	0215-02	0215-03	0215-04	0224-01	0224-02	0224-03	0224-04	0224-05	0224-06	022
Remarks												Analyzed Twice	Duplicate of BM7 45'-47'			
Units			ug/Kg	ug/Kg	ug/L	ug/Kg	ug/Kg	ug/L	ug/L	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/L	ug/L	ug
VOLATILE COMPOUNDS	Quantitation Limit (ug)	Quantitation Limit (Sol)														
cis-1,3-Dichloropropene	5	5														
Bromoform	5	5														
2-Hexanone	10	10														
4-Methyl-2-Pentanone	10	10														
Tetrachloroethene	5	5														
Toluene	5	5			UJ											
Chlorobenzene	5	5			UJ											
Ethylbenzene	5	5			UJ											
Styrene	5	5			UJ											
Total Xylenes	5	5			UJ											
Quantitation Limit Multiplier			130	130	1.0	130	1.1	1.0	1.0	1.0	1.0	1.2	1.0	1.0	1.0	1
Date of Sample Collection			8/21/91	8/21/91	8/21/91	8/22/91	8/22/91	8/22/91	8/22/91	8/23/91	8/23/91	8/23/91	8/23/91	8/23/91	8/23/91	8/2
Date Sample Received by Laboratory			8/22/91	8/22/91	8/22/91	8/23/91	8/23/91	8/23/91	8/23/91	8/24/91	8/24/91	8/24/91	8/24/91	8/24/91	8/24/91	8/2
Date of Sample Analysis			8/30/91	8/30/91	8/29/91	8/30/91	8/29/91	8/29/91	8/29/91	8/29/91	8/29/91	8/29 & 8/30	8/29/91	8/29/91	8/29/91	8/2
Instrument Used for Analysis			HS-5995 C	HS-5995 C	HS-5995 B	HS-5995 C	HS-5995 B	HS-5995 B	HS-5995 B	HS-5995 A	HS-5995 A	HS-5995 A	HS-5995 A	HS-5995 B	HS-5995 B	HS-5

NOTES:

- Compound was not detected.
- U This compound should be considered "not-detected" since it was detected in a blank at a similar level.
- B Unreliable result - Compound may or may not be present in this sample.
- J Quantitation is approximate due to limitations identified during the quality assurance review (data validation).
- UJ This compound was not detected, but the quantitation limit is probably higher due to a low bias identified during the quality assurance review.

300810

EXTRACTABLE ORGANIC ANALYSIS - ANALYTICAL RESULTS - ALL SOLIDS REPORTED ON A DRY WEIGHT BASIS															-94	
Anson Environmental Sample Number			BA01 25'-27'	BA01 30'-32'	Field Blank 021	BA06 35'-37'	BA06 30'-32'	Trip Blank 022	Field Blank 022	BA07 40'-42'	BA07 45'-47'	BA07 55'-57'	BA07A 45'-47'	Field Blank 023	Trip Blank 0231	Trip 02
Laboratory Sample Number			8200-01	8200-02	8200-03	8215-01	8215-02	8215-03	8215-04	8224-01	8224-02	8224-03	8224-04	8224-05	8224-06	822
Remarks																
Units			ug/Kg	ug/Kg	ug/L	ug/Kg	ug/Kg	ug/L	ug/L	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/L	ug/L	ug
SEMI-VOLATILE COMPOUNDS	Quantitation Limit (Aq)	Quantitation Limit (Sol)											Duplicate of BA07 45'-47'			
Phenol	10	330						NA							NA	N
bis(2-Chloroethyl)ether	10	330						NA							NA	N
2-Chlorophenol	10	330						NA							NA	N
1,3-Dichlorobenzene	10	330						NA							NA	N
1,4-Dichlorobenzene	10	330						NA							NA	N
Benzyl Alcohol	10	330						NA							NA	N
1,2-Dichlorobenzene	10	330						NA							NA	N
2-Ethylphenol	10	330						NA							NA	N
bis(2-Chloroisopropyl)ether	10	330						NA							NA	N
4-Ethylphenol	10	330						NA							NA	N
N-Nitroso-di-n-Propylamine	10	330						NA							NA	N
Hexachloroethane	10	330						NA							NA	N
Nitrobenzene	10	330						NA							NA	N
Isophorone	10	330						NA							NA	N
2-Nitrophenol	10	330						NA							NA	N
2,4-Dimethylphenol	10	330						NA							NA	N
Benzoic Acid	50	1650						NA							NA	N
bis(2-Chloroethoxy)methane	10	330						NA							NA	N
2,4-Dichlorophenol	10	330						NA							NA	N
1,2,4-Trichlorobenzene	10	330						NA							NA	N
Naphthalene	10	330						NA							NA	N
4-Chloroaniline	10	330						NA							NA	N
Hexachlorobutadiene	10	330						NA							NA	N
4-Chloro-3-Ethylphenol	10	330						NA							NA	N
2-Ethyl-naphthalene	10	330						NA							NA	N

300811

EXTRACTABLE ORGANIC ANALYSIS - ANALYTICAL RESULTS - ALL SOLIDS REPORTED ON A DRY WEIGHT BASIS

-page-

Anson Environmental Sample Number			BA01 25'-27'	BA01 30'-32'	Field Blank B21	BA06 35'-37'	BA06 30'-32'	Trip Blank B22	Field Blank B22	BA07 40'-42'	BA07 45'-47'	BA07 55'-57'	BA07A 45'-47'	Field Blank B23	Trip Blank B231	Trip B B23
Laboratory Sample Number			B200-01	B200-02	B200-03	B215-01	B215-02	B215-03	B215-04	B224-01	B224-02	B224-03	B224-04	B224-05	B224-06	B224-
Remarks																
Units			ug/Kg	ug/Kg	ug/L	ug/Kg	ug/Kg	ug/L	ug/L	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/L	ug/L	ug/L
SEMI-VOLATILE COMPOUNDS			Quantitation Limit (Aq)	Quantitation Limit (Sol)									Duplicate of BA07 45'-47'			
Hexachlorocyclopentadiene	10	330						NA							NA	NA
2,4,6-Trichlorophenol	10	330						NA							NA	NA
2,4,5-Trichlorophenol	50	1650						NA							NA	NA
2-Chloronaphthalene	10	330						NA							NA	NA
2-Nitroaniline	50	1650			0			NA							NA	NA
Diethylphthalate	10	330						NA							NA	NA
Acenaphthylene	10	330						NA							NA	NA
3-Nitroaniline	50	1650						NA							NA	NA
Acenaphthene	10	330						NA							NA	NA
2,4-Dinitrophenol	50	1650						NA							NA	NA
4-Nitrophenol	50	1650						NA							NA	NA
Nitrobenzofuran	10	330						NA							NA	NA
2,4-Dinitrotoluene	10	330						NA							NA	NA
2,6-Dinitrotoluene	10	330						NA							NA	NA
Diethylphthalate	10	330						NA							NA	NA
4-Chlorophenylphenylether	10	330						NA							NA	NA
Fluorene	10	330						NA							NA	NA
4-Nitroaniline	50	1650						NA							NA	NA
4,6-Dinitro-2-Ethylphenol	50	1650						NA							NA	NA
N-Nitrosodiphenylamine	10	330						NA							NA	NA
4-Bromophenylphenylether	10	330						NA							NA	NA
Hexachlorobenzene	10	330						NA							NA	NA
Pentachlorophenol	50	1650						NA							NA	NA
Phenanthrene	10	330						NA							NA	NA

300812

EXTRACTABLE ORGANIC ANALYSIS - ANALYTICAL RESULTS - ALL SOLIDS REPORTED ON A DRY WEIGHT BASIS														-page 13
Anson Environmental Sample Number	0401 25'-27'	0401 30'-32'	Field Blank 021	0406 35'-37'	0406 38'-32'	Trip Blank 022	Field Blank 022	0407 40'-42'	0407 45'-47'	0407 55'-57'	0407A 45'-47'	Field Blank 023	Trip Blank 0231	Trip Blank 0232
Laboratory Sample Number	0200-01	0200-02	0200-03	0215-01	0215-02	0215-03	0215-04	0224-01	0224-02	0224-03	0224-04	0224-05	0224-06	0224-07
Remarks														
Units	ug/kg	ug/kg	ug/L	ug/kg	ug/kg	ug/L	ug/L	ug/kg	ug/kg	ug/kg	ug/kg	ug/L	ug/L	ug/L
SEMI-VOLATILE COMPOUNDS	Quantitation Limit (ug)	Quantitation Limit (ug)									Duplicate of 0407 45'-47'			
Anthracene	10	330				NA							NA	NA
01-n-Butylphthalate	10	330				NA							NA	NA
Fluoranthene	10	330				NA							NA	NA
Pyrene	10	330				NA							NA	NA
Butylbenzylphthalate	10	330				NA							NA	NA
3,3'-Dichlorobenzidine	20	660				NA							NA	NA
Benzo(a)anthracene	10	330				NA							NA	NA
bis(2-ethylhexyl)phthalate	10	330	340 U	340 U	340 U	2100 U	NA		340 U				NA	NA
Chrysene	10	330				NA							NA	NA
01-n-Octylphthalate	10	330				NA							NA	NA
Benzo(h)fluoranthene	10	330				NA							NA	NA
Benzo(k)fluoranthene	10	330				NA							NA	NA
Benzo(a)pyrene	10	330				NA							NA	NA
Indeno(1,2,3-cd)pyrene	10	330				NA							NA	NA
Dibenz(a,h)anthracene	10	330				NA							NA	NA
Benzo(g,h,i)perylene	10	330				NA							NA	NA
Quantitation Limit Multiplier	1.03	1.03	1.00	1.03	1.06	NA	1.00	1.03	1.03	1.21	1.00	1.00	NA	NA
Date of Sample Collection	0/21/91	0/21/91	0/21/91	0/22/91	0/22/91	NA	0/22/91	0/23/91	0/23/91	0/23/91	0/23/91	0/23/91	NA	NA
Date Sample Received by Laboratory	0/22/91	0/22/91	0/22/91	0/23/91	0/23/91	NA	0/23/91	0/24/91	0/24/91	0/24/91	0/24/91	0/24/91	NA	NA
Date Sample Extracted	0/24/91	0/24/91	0/23/91	0/26/91	0/26/91	NA	0/27/91	0/26/91	0/26/91	0/26/91	0/26/91	0/26/91	NA	NA
Date of Sample Analysis	0/30/91	0/30/91	0/27/91	0/30/91	0/30/91	NA	0/30/91	0/30/91	0/30/91	0/30/91	0/30/91	0/30/91	NA	NA
Instrument Used for Analysis	HS-59950	HS-59950	HS-59950	HS-59950	HS-59950	NA	HS-59950	HS-59950	HS-59950	HS-59950	HS-59950	HS-59950	NA	NA

300813

CLP - TENTATIVELY IDENTIFIED COMPOUNDS - ESTIMATED CONCENTRATIONS - ALL SOLIDS REPORTED ON A DRY WEIGHT BASIS													-page 14
Aspen Environmental Sample Number	BM01 25'-27'	BM01 30'-32'	Field Blank	BM06 35'-37'	BM06 38'-32'	Trip Blank	Field Blank	BM07 40'-42'	BM07 45'-47'	BM07 55'-57'	BM07A 45'-47'	Field Blank	Trip Blank
Laboratory Sample Number	0200-01	0200-02	0200-03	0215-01	0215-02	0215-03	0215-04	0224-01	0224-02	0224-03	0224-04	0224-05	0224-06
Remarks													
Units	ug/kg	ug/kg	ug/L	ug/kg	ug/kg	ug/L	ug/L	ug/kg	ug/kg	ug/kg	ug/kg	ug/L	ug/L
COMPOUNDS										VOCs Twice	Duplicate of BM07 45'-47'		
VOLATILE COMPONENTS													
Hexane	000 B	000 R		000 A									5 J
Laboratory Artifacts			10 A			10 B	10 R	6 B	6 R	14 B/10 R	10 B	9 B	5 B
SEMI-VOLATILE COMPONENTS						NA							NA
Sulfur (S0)					450 J								
Unknown (Number of Peaks)					550(2) J								

NOTES:

- Compound was not detected.
- B This compound should be considered "not-detected" since it was detected in a blank at a similar level.
- R Durable result - Compound may or may not be present in this sample.
- J Quantitation is approximate due to limitations identified during the quality assurance review (data validation).
- BJ This compound was not detected, but the quantitation limit is probably higher due to a low bias identified during the quality assurance review.

300814

EXTRACTABLE ORGANIC ANALYSIS - ANALYTICAL RESULTS - ALL SOLIDS REPORTED ON A DRY WEIGHT BASIS														-page 15
Jason Environmental Sample Number	BA01 25'-27'	BA01 30'-32'	Field Blank	BA06 35'-37'	BA06 30'-32'	Trip Blank	Field Blank	BA07 40'-42'	BA07 45'-47'	BA07 55'-57'	BA07A 45'-47'	Field Blank	Trip Blank	Trip Blank
Laboratory Sample Number	0200-01	0200-02	0200-03	0215-01	0215-02	0215-03	0215-04	0224-01	0224-02	0224-03	0224-04	0224-05	0224-06	0224-07
Remarks														
Units	ug/kg	ug/kg	ug/L	ug/kg	ug/kg	ug/L	ug/L	ug/kg	ug/kg	ug/kg	ug/kg	ug/L	ug/L	ug/L
Pesticides	Quantitation Limit (ug)	Quantitation Limit (ug)									Duplicate of BA07 45'-47'			
alpha-BHC	0.05	0				NA							NA	NA
beta-BHC	0.05	0				NA							NA	NA
delta-BHC	0.05	0				NA							NA	NA
gamma-BHC (lindane)	0.05	0				NA							NA	NA
Heptachlor	0.05	0				NA							NA	NA
Aldrin	0.05	0				NA							NA	NA
Heptachlor Epoxide	0.05	0				NA							NA	NA
Endosulfan I	0.05	0				NA							NA	NA
Biodein	0.10	16				NA							NA	NA
4,4'-DDE	0.10	16				NA							NA	NA
Endrin	0.10	16				NA							NA	NA
Endosulfan II	0.10	16				NA							NA	NA
4,4'-DDD	0.10	16				NA							NA	NA
Endosulfan Sulfate	0.10	16				NA							NA	NA
4,4'-DDT	0.10	16				NA							NA	NA
Heptachlor	0.50	80				NA							NA	NA
Endrin Ketone	0.10	16				NA							NA	NA
alpha-Chlordane	0.50	80				NA							NA	NA
gamma-Chlordane	0.50	80				NA							NA	NA
Toxaphene	1.0	160				NA							NA	NA

300815

EXTRACTABLE ORGANIC ANALYSIS - ANALYTICAL RESULTS - ALL SOLIDS REPORTED ON A DRY WEIGHT BASIS														-page 16
Anson Environmental Sample Number	BM01 25'-27'	BM01 30'-32'	Field Blank	BM06 35'-37'	BM06 30'-32'	Trip Blank	Field Blank	BM07 40'-42'	BM07 45'-47'	BM07 55'-57'	BM07A 45'-47'	Field Blank	Trip Blank	Trip Blank
Laboratory Sample Number	0200-01	0200-02	0200-03	0215-01	0215-02	0215-03	0215-04	0224-01	0224-02	0224-03	0224-04	0224-05	0224-06	0224-07
Remarks														
Units	ug/Kg	ug/Kg	ug/L	ug/Kg	ug/Kg	ug/L	ug/L	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/L	ug/L	ug/L
PCBs	Quantitation limit (ug)	Quantitation limit (ug)									Duplicate of BM07 45'-47'			
Aroclor-1016	0.5	00				NA							NA	NA
Aroclor-1221	0.5	00				NA							NA	NA
Aroclor-1232	0.5	00				NA							NA	NA
Aroclor-1242	0.5	00				NA							NA	NA
Aroclor-1248	0.5	00				NA							NA	NA
Aroclor-1254	1.0	160				NA							NA	NA
Aroclor-1260	1.0	160				NA							NA	NA
Quantitation limit Multiplier	0.43	0.43	1.04	0.43	0.43	NA	1.02	0.43	0.43	0.50	0.43	1.00	NA	NA
Date of Sample Collection	8/21/91	8/21/91	8/21/91	8/22/91	8/22/91	NA	8/22/91	8/23/91	8/23/91	8/23/91	8/23/91	8/23/91	NA	NA
Date Sample Received by Laboratory	8/22/91	8/22/91	8/22/91	8/23/91	8/23/91	NA	8/23/91	8/24/91	8/24/91	8/24/91	8/24/91	8/24/91	NA	NA
Date Sample Extracted	8/24/91	8/24/91	8/26/91	8/26/91	8/26/91	NA	8/26/91	8/26/91	8/26/91	8/26/91	8/26/91	8/26/91	NA	NA
Date of Sample Analysis	9/13/91	9/13/91	9/4/91	9/5/91	9/5/91	NA	9/5/91	9/5/91	9/5/91	9/6/91	9/6/91	9/4/91	NA	NA

NOTES:

- Compound was not detected.
- 0 This compound should be considered "not-detected" since it was detected in a blank at a similar level.
- 1 Unreliable result - Compound may or may not be present in this sample.
- 2 Quantitation is approximate due to limitations identified during the quality assurance review (data validation).
- 03 This compound was not detected, but the quantitation limit is probably higher due to a low bias identified during the quality assurance review.

300816

B. INORGANIC TCL DATA

300817

INORGANIC ANALYSIS - ANALYTICAL RESULTS - ALL SOLIDS REPORTED ON A DRY WEIGHT BASIS										-page 1
Ascon Environmental Sample Number		RD-1	FB021	FB022	FB023	DM02	DM03	DM04	DM01	DM05
Laboratory Sample Number		01499-125 0103-10	01499-155 0200-03	01499-185 0215-04	01499-235 0224-05	00499-015 0095-01	00499-025 0095-02	00499-035 0095-03	00499-045 0103-01	00499-055 0103-02
Percent Solids		-	-	-	-	63.2%	79.0%	77.1%	86.6%	96.7%
Units		mg/L	mg/L	mg/L	mg/L	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
INORGANIC ELEMENTS	Detection Limit (Aq)	Detection Limit (Sol)	Time Blank	Field Blank	Field Blank	Field Blank				
Aluminum	P 23.0	4.6	126	114	116	126	7830 J	4850 J	2030 J	2630 J
Antimony	P 32.0	6.4					9.6 J	03	03	03
Arsenic	F 4.0	0.00					3.7 J	3.0 J	1.3 J	1.2 J
Barium	P 5.0	1.0				5.0	90.2	44	34.4	10.2
Beryllium	P 1.0	0.20	3.0	3.0	3.0	3.0	1.2 R	0.9 R	1.0 R	0.01 R
Cadmium	P 4.0	0.00					0.7 R	2.7 R	1.5 R	2.0 R
Calcium	P 77.0	15.4	160	104	190	145	16,300 J	22,900 J	7100 J	9700 J
Chromium	P 5.0	1.0		5.0	7.0	6.0	463 J	101 J	31.7 J	36.1 J
Cobalt	P 17.0	3.4					0.7	7.5		4.2
Copper	P 16.0	3.2					266 J	49.4 J	10.2 J	17.7 J
Iron	P 95.0	19.0		110		270	19,500 J	11,500 J	6630 J	6410 J
Lead	F/P 1.0/111	0.20/22.2				4.7	1210	607	154	124
Magnesium	P 110	23.6					9350 J	10,900 J	3460 J	5200 J
Manganese	P 2.0	0.40		4.0	2.0	7.0	152 J	94.1 J	55.9 J	54.6 J
Mercury	CV 0.20	0.10	0	0	0	0	0.21 J	0	0	0
Nickel	P 27.0	5.4					21.5 J	12.6 J	7.2 J	0.3 J
Potassium	P 810	162					459	332	207	327
Selenium	F 5.0	1.0								
Silver	P 7.0	1.4	0	0	0	0	0	0	0	0
Sodium	P 110	23.6	202	375	365	310	940 J	474 J	293 R	262 R
Thallium	F 1.0	0.20					0.33			
Vanadium	P 7.0	1.4					79.1 J	41.1 J	20.5 J	22.6 J
Zinc	P 12.0	2.4					1770 J	236 J	103 J	81.3 J
Cyanide	AS 10.0	2.3	0	0(5.5u)	0(7.7u)	0(5.0u)	430 J	0	0	0

NOTES:

- Element was not detected.
- 0 This analyte should be considered "not-detected" since it was detected in a blank at a similar level.
- 0 Unreliable result - Analyte may or may not be present in this sample.
- J Quantitation is approximate due to limitations identified during the quality assurance review (data validation).
- 03 This analyte was not detected, but the quantitation limit is probably higher due to low bias identified during the quality assurance review.
- (0x) This element was not analyzed for and not detected; however due to sample dilutions, the reported detection limit is equal to the "normal" detection limit multiplied by the factor in parentheses.

ANALYTICAL METHOD:

- P - Inductively Coupled Plasma
- F - Graphite Furnace Atomic Absorption
- CV - Cold Vapor Atomic Absorption
- AS - Auto Analyzer

300818

INORGANIC ANALYSIS - ANALYTICAL RESULTS - ALL SOLIDS REPORTED ON A DRY WEIGHT BASIS										-page 2
Anson Environmental Sample Number		BA06	BA07	BA08	BA09	BA10	BA10SD	BA01 25'-27'	BA01 30'-32'	BA06 35'-37'
Laboratory Sample Number		0103-03	00499-075 0103-04	00499-085 0103-05	00499-095 0103-06	00499-105 0103-07	00499-115 0103-08	00499-135 0200-01	00499-145 0200-02	00499-165 0215-01
Percent Solids		67.0%	82.4%	56.6%	83.1%	91.3%	79.7%	95.0%	96.3%	95.0%
Units		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
INORGANIC ELEMENTS		Detection Limit (Aq)	Detection Limit (Sol)				Duplicate of BA01			
Aluminum	P	23.0	4.6	9910 J	3310 J	11,100 J	2060 J	1410 J	2000 J	1530 J
Antimony	P	32.0	6.4	0J	0J	9.5 J	0J	0J	12 J	0J
Arsenic	F	4.0	0.00	(10x)	1.6 J	3.6 J	1.2 J	1.5 J	1.1 J	1.6 J
Barium	P	5.0	1.0	82.1	15.3	56.0	23.3	20.0	15.0	5.9
Beryllium	P	1.0	0.20	1.4 R	0.91 R	1.0 R	1.1 R	0.94 R	0.05 R	0.56 R
Cadmium	P	4.0	0.00	6.2 R	1.3 R	4.4 R	1.0 R	3.0 R	1.9 R	
Calcium	P	77.0	15.4	9210 J	0130 J	22,000 J	4220 J	3650 J	6340 J	76.6 R
Chromium	P	5.0	1.0	240 J	54.2 J	190 J	37.4 J	71.0 J	25.6 J	2.7 R
Cobalt	P	17.0	3.4	11.2	3.1	11.3	5.4	3.4		
Copper	P	16.0	3.2	80.2 J	27.0 J	130 J	41.7 J	44.4 J	15.9 J	2.6 J
Iron	P	95.0	19.0	20,400 J	7260 J	22,700 J	10,900 J	15,600 J	5000 J	2090 J
Lead	F/P	1.0/111	0.20/22.2	1120	157	1620	122	216	140	1.0
Magnesium	P	110	23.6	6070 J	3750 J	14,100 J	2010 J	1150 J	3990 J	225 J
Manganese	P	2.0	0.40	120 J	62.0 J	162 J	189 J	135 J	40.3 J	44.4 J
Mercury	CV	0.20	0.10	R	R	R	R	R	R	R
Nickel	P	27.0	5.4	10.9 J	9.3 J	20.4 J	11.3 J	17.4 J	5.9 J	
Potassium	P	810	162	615	106	540	260	215	249	175
Selenium	F	5.0	1.0							
Silver	P	7.0	1.4	R	R	R	R	R	R	R
Sodium	P	110	23.6	993 J	206 R	1240 J	447 J	494 J	234 R	75.2 R
Thallium	F	1.0	0.20	0.20 J						
Vanadium	P	7.0	1.4	71.2 J	10.6 J	81.0 J	20.4 J	17.0 J	10 J	2.0 J
Zinc	P	12.0	2.4	512 J	70.5 J	675 J	130 J	254 J	56.5 J	4.2 J
Cyanide	AS	10.0	2.3	R	2.9 J	R	R	R	R	R

NOTES:

- Element was not detected.
- R This analyte should be considered "not-detected" since it was detected in a blank at a similar level.
- R Unreliable result - Analyte may or may not be present in this sample.
- J Quantitation is approximate due to limitations identified during the quality assurance review (data validation).
- RJ This analyte was not detected, but the quantitation limit is probably higher due to low blues identified during the quality assurance review.
- (R) This element was not analyzed for and not detected; however, due to sample dilutions, the reported detection limit is equal to the "normal" detection limit multiplied by the factor in parentheses.

ANALYTICAL METHOD:

- P - Inductively Coupled Plasma
- F - Graphite Furnace Atomic Absorption
- CV - Cold Vapor Atomic Absorption
- AS - Auto Analyzer

300819

INORGANIC ANALYSIS - ANALYTICAL RESULTS - ALL SOLIDS REPORTED ON A DRY WEIGHT BASIS						-page 3	
Aroon Environmental Sample Number		00499-175	00499-195	00499-205	00499-215	00499-225	
Laboratory Sample Number		0215-02	0224-01	0224-02	0224-03	0224-04	
Remarks		96.1%	95.8%	97.4%	94.8%	97.4%	
Units		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
INORGANIC ELEMENTS		Detection limit (Aq)	Detection limit (Sol)				Duplicate of 00499(45'-47')
Aluminum	P	25.0	4.6	1570 J	1040 J	1680 J	870 J
Antimony	P	32.0	6.4	0.3	0.3	0.3	0.3
Arsenic	F	4.0	0.80	1.1 J	0.90 J	1.3 J	0.96 J
Barium	P	5.0	1.0	0.5	0.4	7.0	7.3
Beryllium	P	1.0	0.20	0.42 R	0.46 R	0.59 R	0.51 R
Cadmium	P	4.0	0.80				
Calcium	P	77.0	15.4	163 J	30.2 R	37.7 R	39.9 R
Chromium	P	5.0	1.0	7.6 J	3.7 R	3.5 R	3.2 R
Cobalt	P	17.0	3.4				
Copper	P	16.0	3.2	2.4 J			
Iron	P	95.0	19.0	2620 J	2790 J	2740 J	2520 J
Lead	F/P	1.0/111	0.20/22.2	6.7	1.0	0.70	0.84
Magnesium	P	110	22.0	255 J	129 J	95.9 J	110 J
Manganese	P	2.0	0.40	52.1 J	21.2 J	30.3 J	10.9 J
Mercury	CV	0.20	0.10	R	R	R	R
Nickel	P	27.0	5.4				
Potassium	P	810	162	147			
Selenium	F	5.0	1.0				
Silver	P	7.0	1.4	R	R	R	R
Sodium	P	110	22.0	104 J	80.0 J	94.1 J	80.3 J
Thallium	F	1.0	0.20			0.3	
Vanadium	P	7.0	1.4	3.0 J	2.0 J	2.7 J	2.2 J
Zinc	P	12.0	2.4	10.5 J	5.0 J	3.3 J	3.2 J
Cyanide	AS	10.0	2.3	R	R	R	R

NOTES:

- Element was not detected.
- 0 This analyte should be considered "not-detected" since it was detected in a blank at a similar level.
- 0 Unreliable result - Analyte may or may not be present in this sample.
- J Quantitation is approximate due to limitations identified during the quality assurance review (data validation).
- 0.3 This analyte was not detected, but the quantitation limit is probably higher due to low bias identified during the quality assurance review.
- (R) This element was not analyzed for and not detected; however, due to sample dilutions, the reported detection limit is equal to the "normal" detection limit multiplied by the factor in parentheses.

ANALYTICAL METHOD:

- P - Inductively Coupled Plasma
- F - Graphite Furnace Atomic Absorption
- CV - Cold Vapor Atomic Absorption
- AS - Auto Analyzer

300820

Anson Environmental, Ltd.

33 Gerard Street
Suite 100
Huntington, NY 11743

Fax Transmittal

Date: 21 Jul 93

Number of pages (including cover page): 5

To: Tom Taccone, USEPA

From: Fritz Gros-Daillon

Regarding: Anchor Chemical - Well 1-S Installation Log

Please contact us immediately if
transmission is incomplete.
516-351-3555

Comments: From Appendix G - Work Plan, 4/10/91
Roux Associates
(inside Appendix B)

PLEASE NOTE OUR NEW
FAX *
(516) 351-3615

300821

APPENDIX G

Well Logs for Well Installed by Lockwook, Kessler and Bartlett, Inc.

300822

Anson Environmental, Ltd.

33 Gerard Street
Suite 100
Huntington, NY 11743

Fax Transmittal

Date: 3 Nov 93

Number of pages (including cover page): 4

To: Tom Taccone, USEPA, Project Manager

From: Dean Anson, Anson Environmental

Regarding: Corrections to Anchor Chemical RI

Please contact us immediately if
transmission is incomplete.
516-351-3555

Comments: Attached please find the
three corrected charts
which we discussed. If
you have any questions, please call.
Thanks.
Dean

PLEASE NOTE OUR NEW
FAX *
(516) 351-3615

300826

Anchor Chemical Site
500 West John Street, Hicksville, NY
Table 3-3-Well Development Data

Well #	Installation Date	Development Date	1st Round		2nd Round	
			Sampling Date		Sampling Date	
1D	11/18/91	3/31/92-11/9/92	4/23/92		11/9/92	
1S	12/18/92	prior to sampling	4/23/92		11/10/92	
2	12/18/92	prior to sampling	4/23/92		11/10/92	
3	12/18/92	prior to sampling	4/23/92		11/10/92	
4	11/24/91	12/3/91	4/22/92		11/10/92	
5D	3/10/92	3/22/92	4/22/92		11/10/92	
5S		3/22/92	4/22/92		11/9/92	
6D	3/25/92	3/30/92-11/9/92	4/23/92		11/9/92	
6S	11/25/91	12/3/91-11/9/92	4/23/92		11/9/92	
7D	3/18/92	3/22/92	4/22/92		11/10/92	
7S	3/22/92	3/22/92	4/22/92		11/9/92	

300827

**Anchor Chemical Site
500 West John Street, Hicksville, New York**

**Table 4-6 Indoor Borings
OVM readings and samples selected**

Boring depth	IB #1	IB #2	IB #3	IB #4	IB #5	IB #6
5 ft - 7 ft	0	70			10.2	1.2
10 ft - 12 ft	8.6*	29*	1	6*	4	0.4
15 ft - 17 ft	32.4*	*		5*	6.1*	0.4
20 ft - 22 ft	2.3	1.6	0	3.8	20**	0.8
25 ft - 27 ft	0	1.4	6*	3	4.9	2.4
30 ft - 32 ft	1.6	0.5	17*	1	2	7.2*
35 ft - 37 ft	0.1		10*		6.1*	4
40 ft - 42 ft	0		1.2		1.6	3.2*
45 ft - 47 ft	0		0		1.6	2.1
50 ft - 52 ft	0		0		1	1.2
55 ft - 57 ft	0.9		0		1	1.2
60 ft - 62 ft	2.3		0		1	0.8

* = sample selected

**=sample not selected as a result of failure in decontamination procedure

Alliance Technologies concurred with sampling decision.

Problem corrected before next sample was taken.

300828

Anchor Chemical Site
500 West John Street
Hicksville, New York

Table 4-10 Specific Capacity Tests

Monitoring Well Identification	Test Date	Screened Interval (ft. below grade)	Hydraulic Conductivity (k) (gpd/ft)	Specific Capacity (Q/s) (gpm/ft)	Range of Transmissivity (T) (gpd/ft)
MW 6S	4/21/92	70.0 to 79.6	1,462	14.29	13,973 to 19,402
MW 7D	4/22/92	110.1 to 119.6	2,330	20.8	21,351 to 29,004
MW 7S	4/22/92	70.1 to 79.6	1,716	18.5	16,323 to 19,402
MW 4	4/22/92	71.0 to 80.6	1,991	18.8	19,117 to 26,148
MW 1D	4/21/92	110.1 to 119.6	1,758	16.7	16,630 to 22,914

Notes:

K determined in gpd/ft by converting cm/sec to m/s, then dividing by a conversion factor of 4.72×10 .

Q/s (specific capacity): rate of discharge divided by drawdown in feet (range of transmissivity): first number in column incorporates a coefficient of storage equal to 0.2, generally considered representative of unconfined aquifers.

T The second number represents a coefficient of storage equal to 0.01. This value was utilized due to the short duration and low pumpage rate of the tests.

300829

November 10, 1993

Thomas Taccone, Project Manager
United States Environmental Protection Agency
26 Federal Plaza
New York, NY 10278

Re: Validated Results from Cesspool Sampling
Anchor Chemical Superfund Site
Administrative Order No. II CERCLA-90208

Dear Mr. Taccone:

As you know, on September 20th we re-sampled the abandoned cesspool area in the front of the building at the Anchor Chemical Site. The laboratory results were received from Laboratory Resources and CEIMIC Laboratories. They were forwarded to Environmental Standards Inc. for validation.

Enclosed please find a copy of the quality assurance review and the summary of the analytical results. We trust this analysis will prove comparable to the results received by your oversight contractor, Alliance Technologies.

We look forward to receiving your additional comments on the Remedial Investigation report.

If you have any questions, please call me.

Very truly yours,



Dean Anson II
Co-Facility Coordinator

cc: M. Chen, NYSDEC (Albany)
A. Shah, NYSDEC (Stony Brook)
F. Werfel, Spiegel Associates
A. Sanders, Spiegel Associates
R. Leland, Esq., Rosenman and Colin
J. Doyle, Esq., USEPA
J. O'Brien, Esq., Anchor Chemical
J. Tillotson, Newsday
J. Greco, NYSDEC (Albany)

300830

Section 1 Quality Assurance Review

A. Organic Data

The organic analyses of four soil samples (including the matrix spike and matrix spike duplicate samples) and two aqueous samples (one trip blank and one field blank) were performed by Laboratory Resources, Inc., of Teterboro, New Jersey. These samples were collectively analyzed by CLP protocols for the Target Compound List (TCL) volatile organics, TCL semivolatile organics and TCL pesticides/PCBs. In addition, library searches were performed for 30 extraneous chromatographic peaks for the volatile and semivolatile fractions combined. The analytical results are presented in Section 2, Part A.

The findings offered in this report are based upon a review of holding times, blank analysis results, matrix spike and surrogate recoveries, GC/MS tuning, internal standard areas, target compound matching quality, calibrations, analytical sequence, GPC and Florisil cartridge check analyses, quantitation of positive results and overall system performance.

The analytical data were examined to determine data usability in accordance with the U.S. EPA Region II validation checklist SOP No. HW-6 (Revision #7) "CLP Organics Data Review and Preliminary Review." The analytical requirements and required deliverables specified in the CLP Statement of Work were met for this data set with the following exceptions and comments. It should be noted that the following items are contractual in nature and do not necessarily affect data usability. Usability is addressed in a subsequent section.

Correctable Deficiencies

1. The laboratory used abbreviated client sample numbers of all forms for the EPA Sample Number (SOW, Document OLM01.0, B-27).
2. The laboratory did not assign unique sample designations on all forms and raw data for two volatile method blanks (both VBLK23) and for two semivolatile method blanks (both SBLK01). In addition, the laboratory analysis for SBLK01 on 9/28/93 at 13:06 was designated as PBLK02 on Form V. All semivolatile method blanks should be designated using SBLK## (SOW, Document OLM01.0, B-28).

Noncorrectable Deficiency

- The laboratory did not evaluate surrogate retention times for the pesticide GPC spike sample GPC SPK9/23 and GPC Aroclor sample PCB9/23 as indicated on Form VIII Pesticide Analytical Sequence (SOW, Document OLM01.0, E-31). According to the raw data, the laboratory apparently did not add surrogates to GPC SPK9/23 and to GPC PCB9/23; however, the data reviewer did not qualify data since surrogates were added to the samples and method blanks.

Comment

- The data reviewer calculated 1-2% lower recoveries for the matrix spike/matrix spike duplicate recoveries for the volatile compounds using both the raw data and Form III. There was no impact on usability, however, since all recoveries (both reported by the laboratory and recalculated by the data reviewer) were within the specified criteria.

With regard to data usability, the principal areas of concern are blank results and calibrations. Based upon the data packages reviewed, the following organic data qualifiers are offered. It should be noted that the following organic data usability issues represent an interpretation of the quality control results obtained for the project samples. Quite often, data qualifications address issues relating to the sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance.

Organic Data Qualifiers

- Due to the presence of methylene chloride in the associated trip blank, the positive result for methylene chloride in sample CP#1 14-16' should be considered "not-detected" and has been flagged "U" on the data table. Since the result is reported at a concentration below the contract required quantitation limit (CRQL), the concentration that appears on the data tables has been raised to the CRQL with the appropriate "U" qualifier code.
- Although there is no direct reason to qualitatively question the positive results for bis(2-ethylhexyl)phthalate in samples CP#1 14-16' and CP#2 14-16, caution should be exercised when using these low-level results. Phthalate esters are common laboratory and field contaminants.
- The actual detection limits for chloromethane in all project samples and for 2-butanone and 4-methyl-2-pentanone in sample TB (trip blank) and FB (field blank) may be higher than reported and have been flagged "UJ" on the data tables. High percent differences (>25%) in the direction of a decrease in instrument sensitivity were observed between the response factors for these compounds in the associated continuing calibrations compared to the average response factors calculated from the associated initial multipoint calibration.
- The actual detection limits for the semivolatile compound indeno(1,2,3-cd)pyrene in all project samples may be higher than reported and have been flagged "UJ" on the data tables. A high percent difference (>25%) in the direction of an increase in instrument sensitivity was observed between the response factors for this compound in the associated continuing calibration compared to the average response factor calculated from the

300832



associated initial multipoint calibration. It should be noted that since the percent difference is in the direction of an increase in instrument sensitivity, the actual detection limit may be acceptable as reported.

- Per CLP reporting conventions, all results below the quantitation limits should be considered estimated and have been flagged "J" on the data tables.
- Tentatively Identified Compounds (TICs) have been examined and the results appear on the data tables as part of Section 2. Except for the volatile TIC identification for sample CP#1 14-16', no other volatile TICs were observed in the volatile organics analysis. All of the semivolatile TICs appear to be unknowns. The volatile TIC in sample CP#1 14-16' has been identified as trichlorotrifluoroethane, a common laboratory contaminant in refrigeration units, and has been flagged "U" on the sample data tables. This TIC was observed in volatile organics method blank VBLK23.

A complete support documentation of this organic quality assurance review is presented in Section 3A of this report. The Region II organics analysis data validation SOP checklist is presented in Section 4 of this report.

B. Inorganic Data

The inorganic analyses of four soil samples (including the matrix spike and laboratory duplicate samples) were performed by Ceimic Corporation of Narragansett, Rhode Island. These samples were analyzed by CLP protocols for the Target Analyte List (TAL) metals and cyanide as specified in Table 1. In addition, the soil samples were analyzed for non-CLP parameter total phenols as specified by SW846 Method 9065.

The analytical data were examined to determine data usability in accordance with the validation checklist in the U.S. EPA Region II SOP No. HW-2 (SOW Revision X), Feb. 1990, "Evaluation of the Metals Data for the Contract Laboratory Program (CLP)" based on SOW788, Rev. 2/89. The data were also examined with respect to completeness and compliance relative to the specified analytical requirements and data package deliverables as stated in SOW ILM03.0 and SW846 Method 9065.

The findings offered in this report are based upon a rigorous review of the sample holding times, blank analysis results, pre-digestion matrix spikes, laboratory duplicate analyses, quantitation of positive results, system performance, instrument sensitivity, initial and continuing calibrations, ICP interference checks and ICP serial dilutions. The analytical results are presented in Section 2, Part B.

Contractual criteria (CLP) and reporting requirements were met with the following exceptions and comments. It should be emphasized that the following items are contractual in nature and do not necessarily affect data usability. Usability is addressed in a subsequent section.

300833

Correctable Deficiency

- The laboratory did not provide the instrument detection limits (IDLs) summary form (Form X) for arsenic, lead, selenium and thallium (SOW, Document ILM03.0, B-32). These IDLs were obtained from the blank analysis summary forms (Form IIIs). However, it should be noted that the data reviewer could not verify that the IDLs had been determined within three months of sample analysis as required because of the missing summary forms.

Comments

1. The laboratory did not provide the raw data associated with the analysis for total phenols. Consequently, the validation of the total phenols was limited to the examination of the QC summary forms provided.
2. As mentioned in the case narrative, arsenic, lead, selenium, and thallium were determined using the ICP atomic emission spectroscopy (AES) method. These analytes were reported separately on Form IV-IN for the interference check sample for ICP analysis at a concentration of 100 µg/L. The laboratory also reported these analytes by ICP on the Form IIA initial and continuing calibration verification, Form IIB CRDL Standard for ICP, Form III Blank, Form VA Spike Sample Recovery, Form VI Duplicate, Form VII Laboratory Control Sample and Form IX ICP Serial Dilutions. The laboratory used proper quality control practices and provided the required deliverables for these analytes other than the IDL Form X mentioned previously (correctable deficiency).
3. The laboratory did not originally provide a copy of the Chain-of-Custody requesting the wet chemistry and inorganic analysis of the project samples. The date of sample receipt could not be verified, nor could the data reviewer determine if the samples were received at the proper temperature ($4^{\circ} \pm 2^{\circ}\text{C}$) for the total phenols and cyanide analysis until the Chain-of-Custody was faxed on November 1, 1993 to the data reviewer (Project Correspondence).

With regard to data usability, the principal areas of concern include blank contamination and pre-digestion matrix spikes. Based on a rigorous review of the data provided, the following data qualifiers are offered. These data qualifiers should be considered when evaluating the data. It should be noted that the following data usability issues represent an interpretation of the quality control results obtained for the project samples. Quite often, data qualifications address issues relating to the sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance.

300834



Inorganic Data Qualifiers

- Due to the presence of barium, selenium, chromium, sodium and zinc in various laboratory blanks, the results for these analytes in the following samples should be considered "not-detected" and have been flagged "U" on the data table. The analytical results below are usable to the extent that levels higher than those reported are not present in the samples. The reported positive results should now be considered the sample-specific detection limits for the analytes.

<u>Analyte</u>	<u>Applicable Samples</u>
barium	CP#1 14-16' and CP#2 14-16
selenium	CP#1 14-16'
chromium	CP#1 14-16' and CP#2 14-16
sodium	CP#1 14-16' and CP#2 14-16
zinc	CP#1 14-16' and CP#2 14-16

- The actual detection limit for silver in both project samples may be higher than reported and have been flagged "UJ" on the data tables. A low recovery (46.8%) was observed for silver in the pre-digestion matrix spike analysis associated with the project samples.

A complete support documentation for this inorganic quality assurance review is presented in Section 3B of this report. The Region II inorganics analysis data validation SOP checklist is presented in Section 5 of this report.

300835

C. Conclusions

This quality assurance review has identified several aspects of the analytical data that have required qualification. Overall, the majority of the data appears to represent good qualitative and quantitative analyses, although some analyses were qualified. To confidently use any of the analytical results from the data sets examined, the data users should understand the qualifications and limitations stated in this report.

Report prepared by:



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Report reviewed by:



Donald J. Lancaster
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Report reviewed and approved by:



Rock J. Vitale
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(215) 935-5577

Date: 10/29/93

300836



A. ORGANIC DATA

300837

VOLATILE ORGANIC ANALYSIS					
Anson Environmental Sample Number	CP#1 14-16 T309261-01	CP#2 14-16 T309261-02	FB T309261-03	14 T309261-04	
Laboratory Sample Number					
Remarks			Field Blank	Trip Blank	
Units	µg/Kg	µg/Kg	µg/Kg	µg/Kg	
VOLATILE COMPOUNDS	Quantitation Limit				
Chloromethane	10	UJ	UJ	UJ	
Bromomethane	10				
Vinyl Chloride	10				
Chloroethane	10				
Methylene Chloride	10	10 U		1J	
Acetone	10				
Carbon Disulfide	10				
1,1-Dichloroethane	10				
1,1-Dichloroethane	10				
Total 1,2-Dichloroethane	10				
Chloroform	10				
1,2-Dichloroethane	10				
2-Butanone	10		UJ	UJ	
1,1,1-Trichloroethane	10				
Carbon Tetrachloride	10				
Vinyl Acetate	10				
Bromodichloromethane	10				
1,1,2,2-Tetrachloroethane	10				
1,2-Dichloropropane	10				
Trans-1,3-Dichloropropene	10				
Trichloroethane	10				
Dibromochloromethane	10				
1,1,2-Trichloromethane	10				
Benzene	10				
cis-1,3-Dichloropropene	10				
Bromoform	10				
2-Hexanone	10				
4-Methyl-2-Pentanone	10		UJ	UJ	
Tetrachloroethane	10				
Toluene	10				
Chlorobenzene	10				

300838

VOLATILE ORGANIC ANALYSIS					
Anson Environmental Sample Number	CP#1 14-16'	CP#2 14-18	FB	T309261-04	
Laboratory Sample Number	T309261-01	T309261-02	T309261-03	Field Blank	Trip Blank
Remarks					
Units	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
VOLATILE COMPOUNDS		Quantitation Limit			
Ethylbenzene		10			
Styrene		10			
Total Xylenes		10			
Quantitation Limit Multiplier	1.00	1.00	1.00	1.00	1.00
Date of Sample Collection	9/20/93	9/20/93	9/20/93	9/20/93	9/20/93
Date Sample Received by Laboratory	9/21/93	9/21/93	9/21/93	9/21/93	9/21/93
Date of Sample Analysis	9/23/93	9/23/93	9/23/93	9/23/93	9/23/93
Instrument Used for Analysis	5995-C	5995-C	5995-C	5995-C	5995-C

300839

CLP - TENTATIVE IDENTIFIED COMPOUNDS					
Anson Environmental Sample Number	CP#1 14-16' T309261-01	CP#2 14-16' T309261-02	FL T309261-03	TB T309261-04	
Laboratory Sample Number			Field Blank	Trip Blank	
Remarks					
Units	µg/Kg	µg/Kg	µg/L	µg/L	
COMPOUNDS					
VOLATILE COMPONENTS					
Trichlorotrifluoroethane	5 U				
SEMIVOLATILE COMPONENTS					
Unknowns (Total Number of Peaks)	840 (2) J	690 J		NA	

300840

EXTRACTABLE ANALYSIS - ANALYTICAL RESULTS

Anson Environmental Sample Number		CP#1 14-16	CP#2 14-16	FB
Laboratory Sample Number		T309261-01	T309261-02	T309261-03
Remarks				Field Blank
Units		µg/Kg	µg/Kg	µg/L
SEMIVOLATILE COMPOUNDS		Quantitation Limit (Aq)	Quantitation Limit (Sol)	
Phenol		10	340	
bis(2-Chloroethyl)ether		10	340	
2-Chlorophenol		10	340	
1,3-Dichlorobenzene		10	340	
1,4-Dichlorobenzene		10	340	
Benzyl Alcohol		10	340	
1,2-Dichlorobenzene		10	340	
2-Methylphenol		10	340	
bis(2-Chloroisopropyl)ether		10	340	
4-Methylphenol		10	340	
N-Nitroso-di-n-Propylamine		10	340	
Hexachloroethane		10	340	
Nitrobenzene		10	340	
Isophorone		10	340	
2-Nitrophenol		10	340	
2,4-Dimethylphenol		10	340	
Benzoic Acid		25	860	
bis(2-Chloroethoxy)methane		10	340	
2,4-Dichlorophenol		10	340	
1,2,4-Trichlorobenzene		10	340	
Naphthalene		10	340	
4-Chloroaniline		10	340	
Hexachlorobutadiene		10	340	
4-Chloro-3-Methylphenol		10	340	
2-Methylnaphthalene		10	340	
Hexachlorocyclopentadiene		10	340	
2,4,5-Trichlorophenol		25	860	
2-Chloronaphthalene		10	340	
2-Nitroaniline		25	860	
Dimethylphthalate		10	340	
Acenaphthylene		10	340	

300841

EXTRACTAB

*NIC ANALYSIS - ANALYTICAL RESULTS

Anson Environmental... Sample Number		CP#1 14-16'	CP#2 14-16	FB
Laboratory Sample Number		T309261-01	T309261-02	T309261-03
Remarks				Field Blank
Units		µg/Kg	µg/Kg	µg/L
SEMIVOLATILE COMPOUNDS		Quantitation Limit (Aq)	Quantitation Limit (Sol)	
3-Nitroaniline	25	860		
Acenaphthene	10	340		
2,4-Dinitrophenol	25	860		
4-Nitrophenol	25	860		
Dibenzofuran	10	340		
2,4-Dinitrotoluene	10	340		
2,6-Dinitrotoluene	10	340		
Diethylphthalate	10	340		
4-Chlorophenylphenylether	10	340		
Fluorene	10	340		
4-Nitroaniline	25	860		
4,6-Dinitro-2-Methylphenol	25	860		
N-Nitrosodiphenylamine	10	340		
4-Bromophenylphenylether	10	340		
Hexachlorobenzene	10	340		
Pentachlorophenol	25	860		
Phenathrene	10	340		
Anthracene	10	340		
Di-n-Butylphthalate	10	340		
Fluoranthene	10	340		
Pyrene	10	340		
Butylbenzylphthalate	10	340		
3,3'-Dichlorobenzidine	10	340		
Benzo(a)anthracene	10	340		
1,2-Ethoxyphenylphthalate	10	340	190 J	140 J
Chrysene	10	340		
Di-n-Octylphthalate	10	340		
Benzo(b)fluoranthene	10	340		
Benzo(k)fluoranthene	10	340		
Benzo(a)pyrene	10	340		
Indeno(1,2,3-cd)pyrene	10	340	UJ	UJ

300842

EXTRACTABLE NIC ANALYSIS - ANALYTICAL RESULTS

Anson Environmental, Inc. Sample Number	CP#1 14-16'	CP#2 14-16'	FB
Laboratory Sample Number	T309261-01	T309261-02	T305261-03
Remarks			Field Blank
Units		$\mu\text{g/Kg}$	$\mu\text{g/L}$
SEMIVOLATILE COMPOUNDS	Quantitation Limit (Aq)	Quantitation Limit (Sol)	
Dibenz(a,h)anthracene	10	340	
Benzo(g,h,i)perylene	10	340	
Quantitation Limit Multiplier		1.00	1.00
Date of Sample Collection		9/20/93	9/20/93
Date Sample Received by Laboratory		9/21/93	9/21/93
Date Sample Extracted		9/23/93	9/23/93
Date of Sample Analysis		9/28/93	9/28/93
Instrument Used for Analysis		MSD/J	MSD/J

300843

NIC ANALYSIS - ANALYTICAL RESULTS					
EXTRACTABLE	Anson Environment...	Sample Number	CP#1 14-16'	CP#2 14-16	FB
	Laboratory Sample Number		T309261-01	T309261-02	T309261-03
Remarks					Field Blank
Units			µg/Kg	µg/Kg	µg/L
PESTICIDES	Quantitation Limit (Aq)	Quantitation Limit (Sol)			
alpha-BHC	0.05	1.7			
beta-BHC	0.05	1.7			
delta-BHC	0.05	1.7			
gamma-BHC (Lindane)	0.05	1.7			
Heptachlor	0.05	1.7			
Aldrin	0.05	1.7			
Heptachlor Epoxide	0.05	1.7			
Endosulfan I	0.05	1.7			
Dieldrin	0.10	1.7	3.4	7.5	
4,4'-DDE	0.10	3.4			
Endrin	0.10	3.4			
Endosulfan II	0.10	3.4			
4,4'-DDD	0.10	3.4			
Endosulfan Sulfate	0.10	3.4			
4,4'-DDT	0.10	3.4			
Methoxychlor	0.50	17		14 J	
Endrin Ketone	0.10	3.4			
Endrin Aldehyde	0.10	3.4			
alpha-Chlordane	.050	1.7			
gamma-Chlordane	.050	1.7			
Toxaphene	5.0	170			

300844

EXTRACTABLE ORGANIC ANALYSIS - ANALYTICAL RESULTS						
Anson Environment... Sample Number		CP#1 14-16"	CP#2 14-16	FB		
Laboratory Sample Number		T309261-01	T309261-02	T309261-03		
Remarks				Field Blank		
Units			µg/Kg	µg/Kg	µg/L	
PESTICIDES	Quantitation Limit (Aq)	Quantitation Limit (Sol)				
Aroclor-1016	1.0	34				
Aroclor-1221	2.0	69				
Aroclor-1232	1.0	34				
Aroclor-1242	1.0	34				
Aroclor-1248	1.0	34				
Aroclor-1254	1.0	34				
Aroclor-1260	1.0	34				
Quantitation Limit Multiplier			1.00	1.00	1.00	
Date of Sample Collection			9/20/93	9/20/93	9/20/93	
Date Sample Received by Laboratory			9/21/93	9/21/93	9/21/93	
Date Sample Extracted			9/23/93	9/23/93	9/23/93	
Date of Sample Analysis			9/30/93	9/30/93	9/30/93	

300845

B. INORGANIC DATA

300846

INORGANIC ANALYTICAL RESULTS

Anson Environmental Sample Number		CP#1 14-16' 930634-01	CP#2 14-16' 930634-02
Laboratory Sample Number			
Percent Solids		97.2%	97.0%
Units		mg/Kg	mg/Kg
INORGANIC ELEMENTS		Detection Limit (Sol)	
Aluminum	P	7.2	1120
Antimony	P	4.5	
Arsenic	P	0.2	0.81
Barium	P	0.3	3.7 U
Beryllium	P	0.15	0.22
Cadmium	P	0.61	
Calcium	P	3.8	1030
Chromium	P	0.7	4.3 U
Cobalt	P	1.0	0.59
Copper	P	0.2	2.7
Iron	P	0.9	3630
Lead	P	0.1	1.9
Magnesium	P	4.0	2640
Manganese	P	0.1	26.5
Mercury	CV	0.04	
Nickel	P	2.6	
Potassium	P	214	101
Selenium	P	0.4	0.47 U
Silver	P	0.15	UJ
Sodium	P	445	35.7 U
Thallium	P	0.61	
Vanadium	P	0.4	2.3
Zinc	P	0.2	4.2 U
Cyanide	A	0.99	
Phenols	A	2.0	

January 3, 1994

Mr. Kevin Kubik
USEPA
Bldg 209 ES-SM
2890 Woodbridge Avenue
Edison, NJ 08837

Re: Anchor Chemical Site, 500 West John Street, Hicksville
Administrative Order Index No. II CERCLA-90208

Dear Mr. Kubik,

Enclosed please find the additional information prepared by the data validator for the samples analyzed from indoor borings #1 and #2 from the above referenced site. There are two more sections:

Section 1-Commentary

Section 6-Chain of Custody Information

We trust this information is satisfactory for your purposes. If you have any further questions, please feel free to call us directly.

Very truly yours,



Dean Anson II
Co-Facility Coordinator

cc: ✓ Tom Taccone, Project Manager

300848

Section 1 Quality Assurance Review

A. Organic Data

The organic analyses of 9 soil samples and 3 aqueous samples (trip blanks and field blanks) were performed by Intech Biolabs of New Brunswick, New Jersey. These samples were collectively analyzed by CLP protocols (SOW288) for the Target Compound List (TCL) volatile organics, TCL semivolatile organics and TCL pesticides/PCBs. In addition, library searches were performed for up to 30 extraneous chromatographic peaks for the volatile and semivolatile fractions combined. The analytical results are presented in Section 2, Part A.

The findings offered in this report are based upon a review of holding times, blank analysis results, matrix spike and surrogate recoveries, GC/MS tuning, internal standard areas, target compound matching quality, calibrations, quantitation of positive results and overall system performance.

The analytical data were examined to determine data usability in accordance with the U.S. EPA Region II validation checklist SOP No. HW-6 (Revision #7) "CLP Organics Data Review and Preliminary Review." The analytical requirements and required deliverables specified in the CLP Statement of Work (SOW288) were met for this data set with several exceptions. It should be noted that the following items are contractual in nature and do not necessarily affect data usability. Usability is addressed in a subsequent section.

Correctable Deficiencies

1. The Anson Environmental sample numbers were not entered on the QC forms as they appear on the Chain-of-Custody for the volatile and pesticide/PCB fractions. In addition, the laboratory sample numbers were entered in the Anson Environmental number fields on all semivolatile QC forms.
2. Intech entered the value of 100 for the percent moisture for all aqueous volatile, semivolatile and pesticide/PCB method blanks and project samples on the sample Form I's. The percent moisture for aqueous samples should be left blank on the Form I's (SOW288, B-27).

Comments

1. The data reviewer could not exactly reproduce all positive results for the semivolatile analysis after taking specific sample weights and percent solids into account. However, all results calculated by the reviewer appear to be within 10% of the laboratory generated results.

300849

2. It should be noted that multiple field blanks were designated "Field Blanks." For the purpose of this report, the reviewer has referred to each as "Field Blanks" with the date the field blank was collected in parentheses to distinguish between the samples.
3. According to the Case Narratives, di-n-butylphthalate was contained in the semivolatile matrix spike solutions and shown on the quantitation report and chromatograms. However, this compound was not reported on either matrix spike/matrix spike duplicate Form I, and di-n-butylphthalate was not observed in the associated chromatograms or quantitation lists.
4. According to the Case Narratives, the concentrations of *trans*-1,3-dichloropropene and *cis*-1,3-dichloropropene are 92 and 106 percent, respectively, of the reported values in the standard solution mix. The reviewer has confirmed this comment by recalculating relative response factors for the compounds and data usability is not affected.

With regard to data usability, the principal areas of concern are blank results and calibrations. Based upon the data packages reviewed, the following organic data qualifiers are offered. It should be noted that the following data usability issues represent an interpretation of the quality control results obtained for the project samples. Quite often, data qualifications address issues relating to the sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance.

Organic Data Qualifiers

- Due to the presence of acetone and methylene chloride in field blanks, trip blanks and/or laboratory method blanks, the positive results for these compounds in samples IB#1 10-12', IB#1 15-17', IB#2 10-12', IB#2 15-17' and IB#2 5-7' should be considered "not-detected" and have been flagged "U" on the data tables (Section 2, Part A). For results reported at levels less than the CRQL, the result has been replaced with the CRQL with the appropriate "U" qualifier code.
- Although there is no direct reason to qualitatively question the reported results of bis(2-ethylhexyl)phthalate in samples IB#1 10-12' and IB#1 15-17', this compound is an extremely common field and laboratory contaminant. If these results are to be used in the decision-making process (i.e. risk assessment), caution should be used.
- The reported results for bis(2-ethylhexyl)phthalate in samples IB#1 10-12' and IB#1 15-17' should be considered estimated and have been flagged "J" on the data tables. A high percent difference (38.7%) was observed for bis(2-ethylhexyl)phthalate between the

300850

response factor used to calculate these results and the average response factor obtained from the initial multi-point calibration.

- Per CLP protocol, all positive results displaying instrument levels less than the CRQL have been flagged "J" on the sample data tables and should be considered estimated.
- Tentatively identified compounds (TICs) have been evaluated and are presented in Section 2. The TICs observed in the samples are mostly laboratory contaminants and unknowns.

A complete support documentation for this organic quality assurance review is presented in Section 3A of this report. The Region II organics analysis data validation checklist is presented in Section 4 of this report.

B. Inorganic Data

The inorganic analyses of 13 solid samples and 2 aqueous samples (field blanks) were performed by Ceimic Corporation of Narragansett, Rhode Island. These samples were analyzed by CLP protocols for the Target Analyte List (TAL) metals and cyanide as specified in Table 1. In addition, 4 soil samples and 2 field blanks were analyzed for non-CLP parameter total phenols as specified by SW846 Method 9065.

The analytical data were examined to determine data usability in accordance with the validation checklist in the U.S. EPA Region II SOP No. HW-2 (SOP Revision X), Feb. 1990, "Evaluation of the Metals Data for the Contract Laboratory Program (CLP)" based on SOW788, Rev. 2/89. The data were also examined with respect to completeness and compliance relative to the specified analytical requirements and data package deliverables as stated in SOW788.

The findings offered in this report are based upon a rigorous review of the sample holding times, blank analysis results, pre- and post-digestion matrix spikes, laboratory duplicate analyses, quantitation of positive results, system performance, instrument sensitivity, initial and continuing calibrations, ICP interference checks, ICP serial dilutions and graphite furnace duplicate burns. The analytical results are presented in Section 2, Part B.

Contractual criteria (CLP) and reporting requirements were met for this data package with several exceptions. It should be emphasized that the following items are contractual in nature and do not necessarily affect data usability. Usability is addressed in a subsequent section.

300851

Correctable Deficiencies

1. The complete Anson Environmental sample identifications were not utilized on the QC summary forms or in the cyanide raw data. The laboratory reported on the Case Narrative that software limitations prevented the laboratory from using the entire Anson Environmental sample number, and therefore, the laboratory modified the sample numbers.
2. The times of analysis did not appear in the raw data for the graphite furnace analysis or the mercury and cyanide raw data as required (SOW788, B-36).
3. The laboratory did not provide the raw data associated with the analysis for total phenols. Consequently, the validation of the total phenols analysis was limited to the examination of the QC summary forms provided.
4. The control limits for numerous analytes were not entered on the laboratory duplicate form (Form VI) for all sample or duplicate results reported at less than 5 times the Contract Required Detection Limit (CRDL).

Noncorrectable Deficiencies

1. Continuing calibration verifications (CCVs) and continuing calibration blanks (CCBs) were not performed before samples were analyzed. The CLP protocol requires that a CCV and CCB be performed at the beginning of each analytical sequence (SOW788, E-4).
2. EPA Region II requires a matrix spike analysis to be performed on a field blank if the only aqueous samples are field blanks. The laboratory did not perform this for the field blanks submitted with this data set.

With regard to data usability, the principal areas of concern include field and laboratory blank contamination, serial dilution analysis results, laboratory duplicate analysis results, Contract Required Detection Limit (CRDL) standards and pre- and post-digestion matrix spikes. Based on a rigorous review of the data provided, the following qualifiers are offered. These data qualifiers should be considered when evaluating the data. It should be noted that the following data usability issues represent an interpretation of the quality control results obtained for the project samples. Quite often, data qualifications address issues relating to the sample matrix problems. Similarly, the validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance.

300852

Inorganic Data Qualifiers

- Due to the presence of calcium, chromium and sodium in various laboratory blanks, the results for these analytes in the following samples should be considered "not-detected" and have been flagged "U" on the data tables. The analytical results below are usable to the extent that levels higher than those reported are not present in the samples. For all intents and purposes, the reported positive results should now be considered the detection limits.

<u>Analyte</u>	<u>Affected Sample(s)</u>
calcium and sodium	IB#2 15-17'
chromium	IB#1 15-17', IB#2 10-12' and IB#2 15-17'

- Due to the presence of beryllium, copper, nickel and silver in the field blanks, the results for the analytes in the following samples are unreliable and have been flagged "R" on the data tables. The analytical results below are usable to the extent that levels higher than those reported are not present in the samples. For all intents and purposes, the reported positive results should now be considered the detection limits.

<u>Analyte</u>	<u>Affected Samples</u>
beryllium and copper	All soil samples
nickel	IB#1 10-12', IB#2 15-17' and IB#2 10-12'
silver	IB#1 10-12', IB#1 15-17' and IB#2 15-17'

- The reported results for cadmium in samples IB#1 10-12' and IB#1 15-17' and for mercury in samples DW7 and DW8 should be considered estimated and have been flagged "J" on the data tables. High recoveries (130% and 150%) were obtained for cadmium and mercury in the 2-times the CRDL standard associated with the aforementioned samples.
- The reported detection limits for selenium in samples Field Blanks (1/4/92), Field Blanks (1/5/92) and IB#1 15-17' may be biased low and have been flagged "UJ" on the data tables. A low recovery (59.0%) was obtained for selenium in the 2-times CRDL standard associated with the aforementioned samples.

300853

- The reported results for barium in samples IB#1 10-12', IB#1 15-17' and IB#2 10-12' should be considered estimated and have been flagged "J" on the data tables. A high percent difference (45.9%) was obtained for barium in the associated serial dilution sample.
- The reported result for chromium in sample IB#1 10-12' should be considered estimated and has been flagged "J" on the data tables. A low recovery (65.5%) was obtained for chromium in the associated matrix spike sample.
- The reported result for chromium in sample IB#1 10-12' should be considered estimated and has been flagged "J" on the data tables. A high relative percent difference (72.7%) was obtained for chromium in the associated laboratory duplicate sample.
- The reported detection limits for selenium in samples IB#1 15-17' and IB#2 10-12' may be biased low and have been flagged "UJ" on the data tables. Actual detection limits for selenium in the samples may be higher than those reported by the laboratory. Low recoveries (<85%) were obtained for selenium in the associated post-digestion matrix spike sample.
- The reported detection limit for selenium in sample IB#1 15-17' has been flagged "UJ" on the data tables. High coefficients of variation (>20%) were obtained between duplicate injections for the associated post-digestion spike samples.

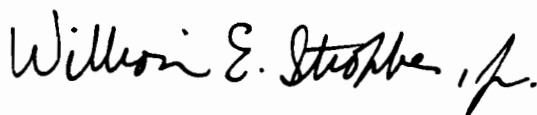
A complete support documentation for this inorganic quality assurance review is presented in Section 3B of this report. The Region II inorganics analysis data validation checklist is presented in Section 5 of this report.

300854

C. Conclusions

This quality assurance review has identified several aspects of the analytical data that have required qualification. Overall, the majority of the data appears to represent good qualitative and quantitative analyses, although some analyses were either qualified or rejected. To confidently use any of the analytical results from the data sets examined, the data users should understand the qualifications and limitations stated in this report.

Report prepared by:



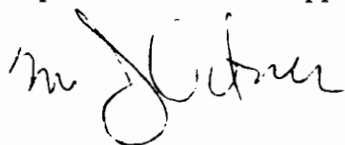
William S. Strohben, Jr.
Quality Assurance Chemist

Report reviewed by:



Donald J. Lancaster
Senior Quality Assurance Chemist

Report reviewed and approved by:



Rock J. Vitale
Quality Assurance Specialist/Principal

ENVIRONMENTAL STANDARDS, INC.
1220 Valley Forge Road
P.O. Box 911
Valley Forge, PA 19481

(215) 935-5577

Date:

3/2/92

300855

SECTION 6

CASE NARRATIVES AND CHAIN-OF-CUSTODIES

300856



LABORATORY RESOURCES, INC.

INTECH BIOLABS DIVISION

158 Tices Lane East Brunswick, New Jersey 08816 (908) 257-1050 Fax (908) 257-2790

CASE NARRATIVE

Lab Name: INTECH

Client: ANSON

Case No.: I201031

SDG No.: ANSON

The following samples are included in this Sample Delivery Group:

Intech Designation

Client Designation

I201031-01
I201031-02
I201031-03
I201031-04
I201031-05
I201031-06
I201031-07
I201031-08

IB # 1 10-12'
IB # 1 15-17'
FIELD BLANK
IB # 2 10-12'
IB # 2 15-17'
IB # 2 5-7'
FIELD BLANK
TRIP BLANK

Detailed Documentation of Problems Encountered With These Samples

Volatile Fraction:

1. Please note that the concentrations of trans-1,3-Dichloropropene and cis-1,3-Dichloropropene are 92 and 100 percent respectively from the theoretical value in the standard solution mix which is purchased from Supelco.
2. % RSD is greater than 30.0 % for one compound in Initial Calibration analyzed on 1-14-92. None of the compounds are CCC, it stands compliant.

Semivolatile Fraction:

1. Di-n-butyl phthalate is in the spiking solution which is purchased by Intech; therefore, it is shown on the quant report as well as on the chromatograms of MS/MSD for BNA fraction.
2. Please note that the calibration standards contain equal amounts of 3-Methylphenol and 4-Methylphenol. These two compounds coelute. Therefore, the calibration amount in all standards are doubled. For example, in the SST050 check standards 4-Methylphenol appears as 100 instead of 50. This is in the standards solution mix which is purchased by Intech from Protocol Analytical Supplies.

300857



LABORATORY RESOURCES, INC.

INTECH BIOLABS DIVISION

158 Tices Lane East Brunswick, New Jersey 08816 (908) 257-1050 Fax (908) 257-2790

3. % RSD for two compounds are greater than 30.0 % in the Initial Calibrations analyzed on 1-06-92 on Inst # 5995B. The compounds are not CCC, therefore it stands compliant.
4. % D for some compounds are greater than 25 % in Continuing Calibrations (data files: B8211). The compounds are not CCC, it stands compliant.

Pesticide/PCB Fraction:

1. Please note that according to EPA Public Domain software for data processing, the DBC calculations for samples are done by taking the average area of nine (9) standards (INDA, INDB, Toxaph, AR1660, AR1221, AR1232, AR1242, AR1248 and AR1254).
2. On form IX on primary column (RTx-1701) the %D is greater than 15% for a. Chlordane on the closing INDB analyzed on 1-16-92 at 12:23. The above compound was not found in any samples and the sequence was terminated and it stands compliant.
3. The %RSD for Aldrin and DBC is greater than 10 % on confirmation column (RTx5) analyzed on 1-14-92 to 1-16-92. None of the samples were quantitated on the confirmation column.
4. For liquid samples, DI water was used as a water sample, DI MS and DI MSD for Pest/PCB fraction.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.


Mohammad Amirsoleymani
CLP/SAS Manager

2-3-92
Date 2-03-92

300858

TOTAL METALS AND CYANIDE NARRATIVE

SDG: CATCH BASIN
Ceimic Lab ID: 920006

The following samples were received at Ceimic on 07 January 92:
CATCH BASIN, DW#5, DW#6, DW#7, DW#8, DW#9, IB#1 10-12, IB#1 10-12D, IB#1 10-12S, IB#1 15-17, IB#2 10-12, IB#2 15-17, FIELD BLANK (01-04-02), and FIELD BLANK (01-05-92).

The above samples were analyzed for total metals and cyanide in accordance with SOW 7/88.

Comments on Data Package:

QA/QC Samples:

EPA-LV ICV-1 (0691), ICV-2 (0590), ICV-3 (1190), ICV-4 (1290), ICV-5(0689) and ICV-6 (0789) were used for the ICV, CCV, and LCSW samples for the ICP and furnace metals, mercury, and cyanide. ICF LCS (0287) was used as the LCSS for Hg, ICP and furnace metals. ICF LCS (0789) was used as the LCSS for cyanide.

Observations:

Due to software limitations, client IDs have been modified on forms 13 and 14 as follows:

<u>Client ID</u>	<u>Modified ID</u>
CATCH BASIN	CATCHB
DW#5	DW5
DW#6	DW6
DW#7	DW7
DW#8	DW8
DW#9	DW9
IB#1 10-12	IB110
IB#1 10-12D	IB110D
IB#1 10-12S	IB110S
IB#1 15-17	IB115
IB#2 10-12	IB210
IB#2 15-17	IB215

Field blanks have been designated as FB0104 and FB0105, corresponding to the date on which they were sampled.

During the analysis for Selenium, the %RSD for sample IB# 15-17 was 20.8. As directed by SOW, we ran the sample a second time, which resulted in a %RSD of 21.9. As a result the sample is flagged with an M.

Deviation from SOW:

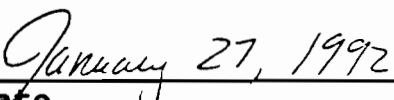
None

End of case narrative.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Releases of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or her designee, as verified by the following signature.



Phyllis Shiller
Inorganic Lab Manager



Date

300860

REPORT DATE: 95/03/31

COMPLETED ANALYSIS REPORT

PROJECT NO: 008

PROJECT NAME: ANCHOR CHEMICAL

EXPLANATIONS OF REMARK CODES

REMARK CODE	EXPLANATION
B	RESULTS BASED UPON COLONY COUNTS OUTSIDE ACCEPTABLE RANGE
J	ESTIMATED VALUE
K	ACTUAL VALUE KNOWN TO BE LESS THAN VALUE GIVEN
L	ACTUAL VALUE KNOWN TO BE GREATER THAN VALUE GIVEN
N	NO OBSERVABLE EFFECT CONCENTRATION < 0.3%
O	SAMPLED BUT NOT ANALYZED DUE TO LAB ACCIDENT
T	REPORTED VALUE LESS THAN CRITERIA OF DETECTION
U	REPORTING LIMIT

QA/QC REMARK CODES

CODE	EXPLANATION
QD	ACCURACY CHECK SAMPLE ABOVE UPPER ACCEPTANCE LIMIT
QE	ACCURACY CHECK SAMPLE BELOW LOWER ACCEPTANCE LIMIT
QF	PRECISION OF CALIBRATION CURVE LESS THAN ACCEPTANCE CRITERIA
QJ	ESTIMATED DETECTION LIMIT DUE TO INTERFERENCE
QK	CONTINUING CALIBRATION CHECK DOES NOT MEET ACCEPTANCE CRITERIA
QS	SPIKE RECOVERIES ABOVE UPPER ACCEPTANCE LIMIT
QR	SPIKE RECOVERIES BELOW LOWER ACCEPTANCE LIMIT
QP	SAMPLE REPLICATE PRECISION DOES NOT MEET ACCEPTANCE CRITERIA
QH	RECOMMENDED HOLDING TIMES EXCEEDED
QT	TENTATIVELY IDENTIFIED COMPOUND
QM	PRESENCE OF MATERIAL VERIFIED BUT NOT QUANTIFIED
QB	BLANK CONTAMINATED BY ANALYTE IN EXCESS OF ACCEPTANCE CRITERIA
QC	SAMPLE IMPROPERLY PRESERVED

LOCATION CODES FOR IDENTIFICATION OF SAMPLING POINTS AT INDUSTRIAL /
SANITARY FACILITIES, LANDFILLS, HAZARDOUS WASTE SITES.

CODE NUMBERS	SAMPLING POINTS
1001 - 1050	EFFLUENT PIPE NUMBER 001 TO 050
1051 - 1099	OTHER EFFLUENTS SUCH AS COOLING TOWER DISCHARGE, DISCHARGE FROM HOLDING PONDS, ETC...
1100 - 1249	IN PLANT SAMPLES
1435 - 1454	SEPARATE INFLUENT POINTS/WATER SOURCES
15XX	INFLUENT ASSOCIATED WITH EFFLUENT 10XX
2000	BLANK FOR VOLATILE ORGANICS
3000 - 3099	GROUND WATER FROM WELL 01 TO 99
3100 - 3199	SEDIMENT SAMPLE (WATER BOTTOM)
3200 - 3299	SOIL SAMPLE
3300 - 3399	STREAM WATER SAMPLE
3400 - 3499	LAGOON SAMPLE
3500 - 3599	STORAGE TANK SAMPLE
3600 - 3699	LEACHATE SAMPLE
3700 - 3799	OTHER TYPE SAMPLE

300861

PROJECT NO: 008

STATION NO	DATE FROM TO	TIME OF DAY
BORING1	95/02/07	1220

DEPTH: 0000 SUBSTRATE: SEDIMENT
DESCRIPTION: BORING#1
DEPEN 30-32 + 1

BORINGB2 95/02/07 1510
DEPTH: 0000 SUBSTRATE: SEDIMENT
DESCRIPTION: BORINGB-2
DEPEN 35-37

BORING3 95/02/08 1200
DEPTH: 0000 SUBSTRATE: SEDIMENT
DESCRIPTION: BORING#3
DEPEN 37-39LF

NONE 95/02/08 0700
DEPTH: 0000 SUBSTRATE: AQUEOUS
DESCRIPTION: TRIP BLANK

NONE 95/02/08 1430
DEPTH: 0000 SUBSTRATE: AQUEOUS
DESCRIPTION: RIMSATE BLANK

NONE 95/02/08 1300
DEPTH: 0000 SUBSTRATE: AQUEOUS
DESCRIPTION: MW-5S
MS/MSD

COMPLETED ANALYSIS REPORT

PROJECT NAME: ANCHOR CHEMICAL

LABNO	PARNO	PARAMETER NAME	UNITS	CHEMISTRY	VALUE & REMARK	QA/QC REMARK
101913	999999	1,4-DIOXANE, VOA	MG/KG		9.2 U	
	999999	2-BUTOXYETHANOL, NVOA	MG/KG		.04 J	QM
101914	999999	1,4-DIOXANE, VOA	MG/KG		9.6 U	
	999999	2-BUTOXYETHANOL, NVOA	MG/KG		.12 J	QM
101916	999999	1,4-DIOXANE, VOA	MG/KG		9.4 U	
	999999	2-BUTOXYETHANOL, NVOA	MG/KG		.10 J	QM
101917	999999	2-BUTOXYETHANOL, NVOA	MG/L		.08 U	
	999999	1,4-DIOXANE, VOA	MG/L		0.1 U	
101918	999999	2-BUTOXYETHANOL, NVOA	MG/L		.002 J	QM
	999999	1,4-DIOXANE, VOA	MG/L		0.1 U	
101919	999999	2-BUTOXYETHANOL, VOA	MG/L		.003 J	QM
	999999	1,4-DIOXANE, NVA	MG/L		0.1 U	

***** END OF PROJECT *****

300862

CDM FEDERAL PROGRAMS CORPORATION
a subsidiary of Camp Dresser & McKee Inc.

June 15, 1995

Ms. Alison Devine
Region II ARCS Project Officer
U.S. Environmental Protection Agency
290 Broadway, 18th Floor, Room E34
New York, New York 1007-1866

PROJECT: ARCS II, CONTRACT No.: 68-W9-0024

DOCUMENT No.: 7720-070-EP-CGJK

SUBJECT: Letter Report
Summary of Split Sampling Results of Soil and Groundwater Samples
Anchor Chemical Site
Hicksville, New York
EPA Work Assignment 070-2PG1
Document Control No.: 7720-070-LR-CGJD

Dear Ms. Devine:

Enclosed please find the letter report entitled, "Summary of Split Sampling Results of Soil and Groundwater Samples, Anchor Chemical Site, Hicksville, New York", as partial fulfillment of reporting requirements for this work assignment. If you have any comments regarding this submittal, please contact Susan Boone of CDM FEDERAL PROGRAMS CORPORATION at (908) 757-9500 within two weeks from the date of this letter.

Sincerely,

CDM FEDERAL PROGRAMS CORPORATION


Robert D. Goltz, P.E.
ARCS II Program Manager

Enclosure

cc: T. Taccone, EPA RPM
S. Boone, CDM Federal WAM
P. Boyle, CDM Federal ARCS II TOM
J. Defranco, CDM Federal NYC
S. Kirchner, CDM Federal NWJY
NWJY Project file
Document Control, CDM Federal (2 copies)

300863

**LETTER REPORT
SUMMARY OF SPLIT SAMPLING RESULTS
OF SOIL AND GROUNDWATER SAMPLING
ANCHOR CHEMICAL SITE
HICKSVILLE, NEW YORK**

Prepared for

**U.S. ENVIRONMENTAL PROTECTION AGENCY
290 Broadway
New York, New York**

EPA Work Assignment No.:	:	070-2PG1
EPA Region	:	II
Site No.	:	2PG1
Contract No.	:	68-W9-0024
CDM Federal Programs Corporation		
Document No.	:	7720-(1)70-LR-CGJD
Report Prepared By	:	CDM FEDERAL PROGRAMS CORPORATION
Work Assignment Project Manager	:	Susan E. Boone
Telephone Number	:	(908) 757-9500
EPA Work Assignment Manager	:	Mr. Thomas Taccone
Telephone Number	:	(212) 264-9128
Date Prepared	:	June 15, 1995

CDM FEDERAL PROGRAMS CORPORATION
a subsidiary of Camp Dresser & McKee Inc.

June 15, 1995

Mr. Thomas Taccone
Work Assignment Manager
U.S. Environmental Protection Agency
290 Broadway, 20th Floor, Room W39
New York, New York 1007-1866

PROJECT: ARCS II, EPA Contract No.: 68-WP-0024
Work Assignment No.: 070-2PG1
Anchor Chemical Site
Hicksville, New York

DOCUMENT CONTROL No.: 7720-070-LR-CGJD

SUBJECT: Summary of Split Sampling Results of Soil and
Groundwater Samples

Dear Mr. Taccone:

CDM FEDERAL PROGRAMS CORPORATION (CDM Federal) has prepared a data summary table containing results of split samples received during field oversight activity performed on February 7 & 8, 1995. This report and data table represent an evaluation of the split sampling results and not a comparison with PRP data. It should also be noted that tentatively identified compounds (TICs) are not discussed in this report in accordance with the requirements discussed with you at the negotiations meeting on May 9, 1995.

The objective of this sampling event was to advance 3 soil borings, 2 vertical (to 37 feet below grade or to water table) and 1 angle boring to collect a sample from under the tanks below the building. Collection of 3 groundwater samples from existing monitoring wells was also planned. CDM Federal was to collect split samples of the 3 soil borings and a split sample of 1 of the 3 groundwater samples. Two of the three monitoring wells scheduled to be sampled were dry; a substitute well was chosen after conferring with EPA. CDM Federal collected 3 soil boring split samples and 1 monitoring well split sample.

The split samples include 3 soil samples collected from soil borings B-1 30-32', B-2 35-37', and B-3 37-39 LF, 1 groundwater sample collected from monitoring well MW-5S, 1 equipment rinsate blank from split spoon, and 1 trip blank. Samples B-3 37-39' and MW-5S

were used for laboratory quality control (QC) purposes. All samples were analyzed for full target compound list (TCL) organics with the exception of the trip blank which was analyzed for volatile organics only. All samples were also analyzed for 2-butoxyethanol and 1,4-dioxane. Samples were collected, handled and analyzed in accordance with the approved Brossman short form "Amended Revised Brossman Short Form Quality Assurance Project Plan Field Oversight Of Expanded Remedial Investigation Activities Anchor Chemical Site Hicksville, New York", dated November 1, 1994.

All samples were shipped to the laboratory in properly sealed shipping containers in accordance with established procedures and appropriate paperwork. All samples were received at the laboratory in good condition with custody seals intact and cooler temperature at or below 4°C. All samples were analyzed within the specified holding times.

Sample analyses performed by the laboratory were in accordance with USEPA Statement Of Work (SOW) for Organics Analysis Multi-Media Multi-Concentration Document Number OLM01.8 for TCL. The analysis of 2-butoxyethanol and 1,4-dioxane was performed by EPA's Environmental Services Division (ESD) laboratory in accordance with USEPA Test Methods For Evaluating Solid Wastes (SW846), method 8260. The sample results are tabulated in Table 1. Results from QC analyses are not reported in the table. All data results were validated by EPA-qualified data validators following Region II guidelines. All data qualifiers applied during data validation and/or by the laboratory are reported with the results in Table 1. Precision and accuracy results were within established QC criteria for the methods employed. The project completeness goal of ninety percent for analytical data was achieved.

Regulatory contaminant level values for Federal and state drinking water and soil regulations have also been provided in Table 1 as reference values. Relevant contamination level values were taken from the Federal Drinking Water Standards (Maximum Contaminant Levels; final and proposed) dated June 1992, and New York State Department of Environmental Conservation, Memorandum, HWR-92-4046 dated November 16, 1992.

Trip Blank

Methylene chloride (5 ug/l), and bromodichloromethane (2 ug/l) were detected at estimated concentrations. Chloroform (35 ug/l) was also detected. Contamination of the trip blank sample could indicate common laboratory contamination or possible cross-contamination of samples with regard to volatile compounds.

The presence of chloroform in the trip blank and the absence of this compound in all related samples and laboratory blanks may point to the source water for the trip blank as being potentially contaminated. HPLC-grade bottled water supplied by Fisher Scientific Lot No.: 910896 was the source of the trip blank water. Fisher Scientific's Technical Service Dept. was contacted about testing of their HPLC-grade water. Fisher stated that the HPLC-grade water is not tested on a lot to lot basis for chemical constituents and the water is handled in a

facility separate from other chemicals. The technical representative could not find any historical data pertaining to chloroform testing having been performed on HPLC-grade water.

A review of PRP data revealed the presence of chloroform in several of their field blanks even though associated samples had no evidence of chloroform contamination, therefore, the chloroform contamination could also have occurred on site.

Rinsate Blank

2-Butoxyethanol (2 ug/l), methylene chloride (4 ug/l), and carbon disulfide (41 ug/l) were detected at estimated concentrations. The concentrations were below Contract Required Quantitation Limits (CRQLs) or estimated due to data validation criteria. Methylene chloride and carbon disulfide are common laboratory contaminants. The presence of 2-Butoxyethanol could be site-related since this compound was not present in the trip blank or laboratory blanks.

MW-5S

2-Butoxyethanol (3 ug/l), 4-nitrophenol (1 ug/l), and di-n-octylphthalate (9 ug/l) were detected at estimated concentrations, no relevant regulatory levels are applicable. 1,1-Dichloroethane (3 ug/l) was detected at an estimated concentration less than relevant regulatory level. Bis(2-ethylhexyl)phthalate (26 ug/l) was detected at an estimated concentration, and 1,1,1-trichloroethane (32 ug/l) were detected at concentrations greater than drinking water Maximum Contamination Levels (MCLs) for federal and New York, respectively.

B-1, 30-32'

2-Butoxyethanol (0.04 mg/kg) was detected at an estimated concentration; no relevant regulatory level is applicable. Methylene chloride (0.012 mg/kg), acetone (0.017 mg/kg), Di-n-butylphthalate (0.037 mg/kg), and bis(2-ethylhexyl)phthalate (0.056 mg/kg) were detected at estimated concentrations less than relevant regulatory levels.

B-2, 35-37'

2-Butoxyethanol (0.12 mg/kg) was detected at an estimated concentration; no relevant regulatory level is applicable. Methylene chloride (0.013 mg/kg), and acetone (0.021 mg/kg) were detected at estimated concentrations less than relevant regulatory levels.

B-3, 37-39 LF Below Tanks

2-Butoxyethanol (0.10 mg/kg) was detected at an estimated concentration; no relevant regulatory level is applicable. Methylene chloride (0.013 mg/kg), acetone (0.015 mg/kg), and Bis(2-ethylhexyl)phthalate (0.056 mg/kg) were detected at an estimated concentration less than relevant regulatory levels.

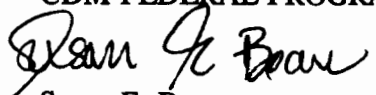
1,4-Dioxane, a compound of concern for this site, was not detected in any of the environmental or quality control samples.

The data results for the split samples taken during this event are comparable to historical results found in the PRP RI report dated September 1993 prepared by Anson Environmental Ltd.

If you have any comments or questions regarding this letter, please do not hesitate to call me at (908) 757-9500.

Sincerely,

CDM FEDERAL PROGRAMS CORPORATION



Susan E. Boone
Work Assignment Manager

Enclosure

TABLE 1
ANCHOR CHEMICAL SITE
SPLIT SAMPLING RESULTS FOR
SOIL AND GROUNDWATER SAMPLES
ORGANICS DETECTED

COMPOUND	CAS No.	WATER SAMPLE RESULTS				SOIL SAMPLE RESULTS						
		FEDERAL MCLs (1)		NEW YORK (1)	SAMPLING LOCATIONS			USEPA (2)	NEW YORK (2)	SAMPLING LOCATIONS		
		Drinking water MCL	MCLG	Drinking water MCL	TRIP BLANK	RINSATE BLANK	MW-5S Ground- water	HEALTH- BASED SYSTEMIC(S) OR CARCENOGENIC(C)	Soil Cleanup PROTECT GROUND- WATER QUALITY	B-1 30-32'	B-2 35-37'	B-3 37-39 LF BELOW TANKS Soil
		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ppm	ppm	mg/kg	mg/kg	mg/kg
2-BUTOXYETHANOL	111-76-2	---	---	---	**	2 J	3 J	---	---	0.04 J	0.12 J	0.10 J
METHYLENE CHLORIDE	75-09-2	5	zero	5	5 J	4 J	**	93(C) & 5000(S)	0.1	0.012 UJ	0.013 UJ	0.013 UJ
ACETONE	67-64-1	---	---	---	**	**	**	8000(S)	0.11	0.017 UJ	0.021 UJ	0.015 UJ
CHLOROFORM	67-66-3	---	---	---	35	**	**	114(C) & 800(S)	0.30	**	**	**
BROMODICHLOROMETHANE	75-27-4	---	---	---	2 J	**	**	---	---	**	**	**
CARBON DISULFIDE	75-15-0	---	---	---	**	41 J	**	8000(S)	2.7	**	**	**
1,1-DICHLOROETHANE	75-34-3	---	---	5	**	**	3 J	---	0.2	**	**	**
1,1,1-TRICHLOROETHANE	71-55-6	200	200	5	**	**	32	7000(S)	0.78	**	**	**
4-NITROPHENOL	100-02-7	---	---	---	**	**	1 J	---	0.1	**	**	**
DI-N-OCTYLPHTHALATE	117-84-0	---	---	---	**	**	9 J	2000(S)	120.0	**	**	**
DI-N-BUTYLPHTHALATE	84-74-2	---	---	---	**	**	**	8000(S)	8.1	0.037 J	**	**
BIS(2-ETHYLHEXYL)PHTHALATE	117-81-7	6	zero	---	**	**	26 J	50(C) & 2000(S)	435.0	0.056 J	**	0.056 J

I = Value estimated due to QC exceedance or reported value less than contract required quantitation limit (CRQL).

Value estimated due to QC exceedance and less than 10 times associated blank contamination

MCL = Maximum Contamination Level

MCLG = Maximum Contamination Level Goal

--- = No relevant regulations are applicable.

*** = Compound was not detected (not analyzed in trip blank).

(1) Federal Drinking Water Standards (Maximum Contamination Levels; final and proposed) dated June 1992

- (1) Federal Drinking Water Standards (Maximum Contamination Levels), final proposal, dated June 1992
- (2) New York State Department of Environmental Conservation, Memorandum, HWR-92-4046 dated November 16, 1992

Anson Environmental Ltd.

**33 Gerard Street
Huntington, NY 11743
516-351-3555
516-351-3615 (fax)**

Fax Transmittal

Date: July 20, 1995

Number of Pages (including cover page) 2

To: Lora Taccone

From: Cynthia for Dean Anson

Regarding: Table 1-2 - Anchor Chemical

Please contact immediately if
transmission is incomplete.

Comments: _____

300870

Table 1-2 Volatile Organic Compounds Detected at Quantifiable Concentrations in Groundwater at the Anchor Chemical Site (concentrations in µg/L) (Roux 1991)

Date sampled	12/14/82	6/15/83	1/30/84	7/10/84	11/1/84	2/26/85	10/27/87	6/22/89	2/1/91
Sampled by:	LKB	LKB	LKB	LKB	LKB	LKB	ROUX	ROUX	ROUX
Parameter									
Well No. 1									
Methylene Chloride	9	<5	<5	<5	<2	<2	-	-	-
1,1-Dichloroethane	12	<5	8	<5	4	<2	-	4	-
1,1,1-Trichloroethane	800	180	1000	400	65	26	21.2	59	<1
Trichloroethylene	19	2	3	<1	<1	<1	-	-	-
Tetrachloroethylene	48	5	2	<1	<1	<1	-	-	-
Chloroform	<1	<1	<1	10	<1	<1	-	-	-
Well No. 2									
1,1-Dichloroethane	-	-	-	-	-	-	-	<1	-
1,1,1-Trichloroethane	6	<1	3	<1	<1	<1	1.5	<2	<1
Xylene	-	-	-	-	-	-	1.5	-	-
Well No. 3									
Methylene Chloride	<5	<5	<1	<5	<2	<2	†	-	-
1,1-Dichloroethylene	800	250	-	-	-	-	-	-	-
1,1-Dichloroethane	350	50	5	<5	<2	<2	-	<2	-
1,1,1-Trichloroethane	24000	7000	80	60	7	4	-	8	9
Trichloroethylene	55	10	<1	<1	<1	<1	-	-	-
Tetrachloroethylene	1100	410	3	<1	<1	<1	-	-	-
Chlorodibromomethane	170	9	<1	<1	<1	<1	-	-	-
1,2-Dichloroethylene	100	17	<5	<5	<2	<2	-	-	-
Chloroform	12	2	<1	<1	<1	<1	-	-	-
1,2-Dichloroethane	31	<5	<5	<5	<2	<2	-	-	-
Benzene	-	3	<1	<1	<1	<1	-	-	-
Toluene	-	2	<2	<2	<2	<2	-	-	-
Acetone	-	110	<20	<10	<10	<10	-	-	-

* Not Analyzed For
 - No Data Available
 † Not Sampled

300871

**WORK PLAN
REMEDIAL INVESTIGATION AND
FEASIBILITY STUDY**

**Anchor Chemical Site
Hicksville, New York**

May 4, 1990

Prepared for:

**Spiegel Associates
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300872

Doc #SA11603Y.2.2

ROUX

CONTENTS

1.0	INTRODUCTION	1
2.0	INITIAL SITE EVALUATION	3
2.1	Regional Hydrogeology	3
2.2	Site Description	4
2.3	Site History	8
2.4	Results of Previous Investigations	15
3.0	PROJECT PLANNING	17
3.1	RI Tasks	17
3.2	Additional Tasks	18
3.2.1	Preliminary Health and Environmental Risk Assessment	18
3.2.1.1	Approach	19
3.2.1.2	Data Review and Site Visit	20
3.2.1.3	Hazard Identification	22
3.2.1.4	Exposure Assessment	23
3.2.1.4.1	Identification of Potential Human and Environmental Receptors	23
3.2.1.4.2	Identification of Migration Pathways	24
3.2.1.4.3	Identification of Exposure Routes	26
3.2.1.4.4	Estimation of Exposure Point Concentrations	27
3.2.1.4.5	Estimation of Average Daily Intake	28
3.2.1.4.6	Preparation of Exposure Profiles	29
3.2.1.4.7	Dose-Response Assessment	30
3.2.1.5	Risk Characterization	30
3.2.1.6	Uncertainty Analysis	32
3.2.1.7	Conclusions and Recommendations	33
3.2.2	Preliminary Scoping of Possible Remedial Alternatives	33
3.2.3	Preliminary Identification of ARARs	34
3.3	Data Quality Objectives	35
4.0	RI/FS TASKS	36
4.1	Task 1 - Investigation of Site History	36
4.2	Task 2 - Installation of Monitoring Wells	36
4.3	Task 3 - Characterization of Ground-Water and Sediment Based on Target Compound Analysis	38
4.4	Task 4 - Drilling of Soil Borings and Sampling of Soil and Ground Water	39
4.5	Data Analysis and RI Report	41
4.6	Task 5 - Identification of Alternatives	43
4.6.1	Subtask A - Preliminary Identification of Potentially Feasible Remedial Alternatives	43
4.6.2	Subtask B - Identification of ARARs	44
4.6.3	Subtask C - Health and Environmental Risk Assessment	46

4.7	Task 6 - Development of Alternatives	49
4.7.1	Subtask A - Assessment of the Need for Interim Response Actions	49
4.7.2	Subtask B - Identify Potential Remedial Technologies and Development of Remedial Alternatives	49
4.8	Task 7 - Initial Screening of Alternatives	51
4.8.1	Subtask A - Criteria for Initial Screening	51
4.8.2	Subtask B - Meeting to Discuss Alternatives	53
4.9	Task 8 - Post-Screening Field Investigation	53
4.10	Task 9 - Detailed Analysis of Alternatives	54
4.10.1	Subtask A - Analysis of Alternatives	54
4.10.1.1	Effectiveness	55
4.10.1.1.1	Short-term Effectiveness	55
4.10.1.1.2	Long-term Effectiveness and Permanence	56
4.10.1.1.3	Reduction of Toxicity, Mobility, and Volume	56
4.10.1.1.4	Overall Protection of Human Health and the Environment	58
4.10.1.2	Implementability	58
4.10.1.3	Cost	59
4.10.1.3.1	Capital Costs	59
4.10.1.3.2	Annual Costs	60
4.10.1.3.3	Present Worth Analysis	60
4.10.1.3.4	Sensitivity Analysis	60
4.10.1.4	Compliance with ARARs	61
4.10.1.5	Community Acceptance	62
4.10.2	Subtask B - Comparative Analysis	62
4.11	Preliminary and Final Feasibility Study Reports	63
4.11.1	Preliminary Feasibility Study Report	63
4.11.2	Final Feasibility Study Report	63
5.0	SITE PROCEDURES AND MANAGEMENT	64
5.1	Site Security	64
5.2	Decontamination Procedures	65
5.3	Quality Assurance	66
5.3.1	Quality Assurance Officer	66
5.3.2	Laboratory Procedures	66
5.3.3	Data Validation	67
5.4	Sample Handling	67
5.5	Blanks and Split Samples	68
5.6	Record Keeping	69
5.7	Enforcement of Safety Procedures	71
5.8	Coordination of Field Activities	72
6.0	PROJECT MANAGEMENT AND SCHEDULE	73
6.1	Organization and Staffing	73
6.2	Project Schedule	75

300874

Doc #SA11603Y.2.2

7.0	HEALTH AND SAFETY PLAN	77
7.1	Employee Training	77
7.2	General Safe Work Practices	77
7.3	Personal Protective Equipment	79
7.4	Levels of Protection	79
7.5	Medical Program	82
7.6	Community Safety	84
8.0	REFERENCES	85

300875

Doc #SA11603Y.2.2

TABLES

1. History of Occupancy Anchor Chemical Site
2. List of Principal Products made and raw materials consumed, by Anchor Chemical Company in 1977
3. Underground Storage Tank Data, Anchor Chemical Site
4. Volatile Organic Compounds detected at quantifiable concentrations in ground-water samples at the Anchor Chemical Site by Lockwood, Kessler, and Bartlett, Inc.
5. Volatile Organic Compounds detected at quantifiable concentrations in ground-water samples at the Anchor Chemical Site by Roux Associates, Inc.
6. Summary of Sampling Program
7. Proposed RI Format
8. Proposed FS Format

FIGURES

1. Location of Anchor Chemical Site
2. Locations of Public Supply Wells within a 2-mile Radius
3. Location of MEK Spill
4. Locations of Ground-water Monitoring Wells Installed to Monitor MEK Spill
5. Past Facility use at Anchor Chemical Site
6. Locations of underground storage tanks at Anchor Chemical Site
7. Proposed locations of Wells and Borings at the Anchor Chemical Site
8. USEPA Monitoring Well Specifications
9. Proposed Meter Box configuration for Monitoring Wells
10. Project Staffing and Organization
11. Remedial Investigation Schedule
12. Route to Central General Hospital

PLATES

1. Land Use in the Area of Anchor Chemical Site

APPENDICES

- A. Protocols for Field Procedures
- B. Chain-of-Custody Form, Sample Label, Custody Seal
- C. Resumes of Key Personnel
- D. Analytical Results of Sampling Done by Roux Associates, Inc.
- E. Analytical Results of Sampling Done by Lockwood, Kessler and Bartlett, Inc.
- F. Reference Documentation

300876

Doc #SA11603Y.2.2

Roux Associates, Inc. (Roux Associates) was first retained by Ruskin, Schlissel, Moscou, Evans, and Faltischek, P.C., then counsel to the Site owner, in October 1987 to conduct further ground-water sampling at the Site. This sampling was performed to determine whether or not organic contaminants were still present. Roux Associates was subsequently retained by Spiegel Associates to prepare this Work Plan and carry out the RI/FS.

The objectives of the RI/FS are to characterize the Site with regard to the extent of soil and/or ground-water contamination which have resulted from past activities at the Site, to evaluate alternatives for remediation, and to provide the technical basis for choosing a preferred remedial alternative. This Work Plan describes the Site and its history, the tasks that will be accomplished, the procedures to be followed in conducting the investigation, and the personnel who will be involved. A Health and Safety Plan is also included.

300877

Doc #SA11603Y.2.2

2.0 INITIAL SITE EVALUATION

2.1 Regional Hydrogeology

Nassau County, Long Island is located in the Coastal Plain physiographic province. There are three major water-bearing units underlying Nassau County (from shallow to deep): the upper glacial or water-table aquifer, Magothy aquifer, and Lloyd aquifer. These aquifers are the only source of fresh water for most of Nassau County. The locations of public water supply wells within two miles of the Site are shown in Figure 2.

In general, ground water under Nassau County flows downward from the water-table aquifer into deeper aquifers in the central portion of the County. As the flow migrates deeper, it becomes more horizontal and moves either north or south from the ground-water divide, an imaginary plane where water moves vertically downward to impermeable bedrock (or the bottom of the ground-water reservoir). This divide trends roughly east-west along the center of Long Island. As the water moves toward the north and south shores of the Island, it moves horizontally and then upwards towards discharge areas in Long Island Sound and the Atlantic Ocean. The Lloyd aquifer is the deepest aquifer. It is overlain by a thick confining clay (the Raritan) through which water moves extremely slowly from the overlying Magothy aquifer (Jensen and Soren, 1974).

The Magothy aquifer overlies the Lloyd aquifer/Raritan clay (Raritan Formation) and underlies the Upper Glacial aquifer. The Magothy is not present in northwestern Nassau County and it increases to over 1,000 feet in southern Nassau County. Wells in the

300878

Magothy commonly yield greater than 1,000 gallons per minute (gpm). Along the north shore, where the Magothy is absent, it has been replaced by upper glacial deposits. In general, the Upper Glacial aquifer is hydraulically connected to the underlying Magothy aquifer except in areas where clay layers such as the Gardiner's Clay (south shore) are present. The hydraulic connection between the two aquifers allows water to move readily through the Upper Glacial aquifer down into the Magothy aquifer, dependent upon the hydraulic gradient between the two aquifers.

Recharge to the Magothy from the upper glacial (water-table) aquifer occurs in the central portion of the County. Ground water in the water-table aquifer near the ground-water divide has a higher hydraulic head than ground water in the Magothy aquifer which causes water to move downward toward the base of the Magothy. Water moving from the Upper Glacial aquifer can flow into the middle and upper portions of the Magothy aquifer to the north and south of the divide.

2.2 Site Description

The Anchor Chemical Site includes a two-story building located on 1.5 acres of land. Land use in the area is predominantly commercial and recreational (Plate 1). The Site is bordered to the west by Stokvis Multiton Corp., a manufacturer of materials handling equipment, and to the south by West John Street. Located on West John Street, across from the Anchor Chemical Site, is Franklin Ribbon & Carbon Co., Inc., a typewriter supply shipping firm; Konig Seats, an automotive seat importing/exporting company; Reliance Utilities, an oil company; and Universal Shellac, a manufacturer of abrasive products.

300879

Traversing west along the street are the Fishman Co., housewares, and General Instruments Corp., a large manufacturer of semi-conductors. To the north and east, Anchor Chemical is bordered by Cantiague Park. The park covers approximately 125 acres and contains various recreational facilities.

A spill of approximately 3,700 gallons of methyl ethyl ketone (MEK) occurred at 530 West John Street in January of 1982, and a recovery program was conducted in 1984. Several monitoring wells were installed at that facility in conjunction with the MEK cleanup (Figures 3 and 4). Monitoring wells were also installed at 600 West John Street in conjunction with a ground-water remediation program to remove volatile organic compounds (VOCs) at that facility (Figures 3 and 4). Both of these facilities are located west of Anchor Chemical. To the east of the Site in Cantiague Park there is a ground-water recharge basin (Figures 1 and 2).

The building, which has been used as a manufacturing facility and as a warehouse, has included two solvent blending rooms, a product packaging room, several container and drum storage areas, a testing laboratory and offices (Figure 5). The 17 underground storage tanks, which are made of steel and vary from 550 to 4,000 gallons in size, are located beneath the former mixing rooms (Figure 6).

Below-grade utilities at the Site include drywells, previous cesspools (now out of service) and sewer and water lines. The locations of the drywells, the unused cesspools, and the sewer and water lines are shown on Figure 7. The out of service cesspools and the water line are both located under the parking area at the front of the building.

300880

Doc #SA11603Y.2.2

The Site is located just south of Long Island's regional ground-water divide in an area underlain by the Glacial Formation, the Magothy Formation, the Raritan Clay and the Lloyd Aquifer. These units rest on bedrock that dips southward towards the Atlantic Ocean.

The Site lies just west of the center of the large mound of the potentiometric surface of the Magothy aquifer in Nassau County. Mounds in the aquifer potentiometric surface indicate recharge from the Upper Glacial aquifer. The location of the Site with respect to this surface indicates that recharge is occurring to the Magothy from the Upper Glacial aquifer near the Site (Doriski, 1987). The locations of public water supply wells within two miles of the Site are shown in Figure 2. No private wells are known to be located in the vicinity of the Site (Myott, 1990).

Climatological data is provided for Nassau County as recorded at Mineola. Average temperatures are 33 degrees F and 72 degrees F for winter and summer, respectively. Total annual precipitation averages 42 inches, half of which falls between April and September. The average annual snowfall is 27 inches (Wulforst 1987).

The soils in the area of the Site are classed by the United States Department of Agriculture (USPA) Soil Conservation Service (SCS) as Urban Land (Wulforst, 1987). This soil association consists mainly of areas covered by man made structures and paving. Very few undisturbed sites are in this unit. Soils of minor extent visible in exposed areas consist of the Hempstead, Enfield, and Riverhead series. These soils consist of loam to sandy loam

300881

Doc #SA11603Y.2.2

soils which are generally steep, well drained and have slopes less than 3 percent. The areas in which they occur are generally lawns, gardens, small playgrounds, border strips along streets and sidewalks and a few vacant lots. The Site itself is, again, completely paved, but is likely to be underlain by these permeable and well drained soils.

The entire surface of the Site is paved so that all precipitation which occurs will drain as run-off. The run-off is collected in dry wells on the Site. These dry wells are not connected to any pipe or sewage system, but instead drain directly into the soils.

The average depth to water in this area is approximately 50 feet to 60 feet, which puts the water table at approximately 75 feet to 85 feet above mean sea level. County water-table maps (Koszalka, 1975) indicate that the general direction of ground-water flow in the area is from north-northeast to south-southwest. The presence of the ground-water recharge basin just to the east of the Site suggests the possibility that the ground-water flow direction to the Upper Glacial aquifer may be somewhat more to the west than the general county-wide trend. This will be determined in the course of the field investigation. In their 1985 report, LKB estimated the rate of horizontal ground-water flow at the Site, based on water levels measured in the three on-site wells, to be 0.45 feet per day (Lockwood, Kessler, & Bartlett, Inc. 1985).

There is no documented presence of wetlands in the area of the Site. The southern portions of Nassau County contain wetlands in the tidal flat areas, but these areas are not close to the Site.

300882

Doc #SA11603Y.2.2

2.3 Site History

Information provided in this Site History was obtained from the following sources:

<u>Source</u>	<u>Personnel</u>
Speigel Associates	P. McGill
Nassau County Department of Health (NCDH) Files	L. Lutzker
Office of the Fire Marshall Files	R. Magee
U.S. Environmental Protection Agency Files	J. Doyle
Long Island Regional Planning Board	A. Kunz
Bogut, Chetkof & O'Brien	J. O'Brien
Anchor/Lith Kem-Ko	W. Lesser

At the time of this report, New York State Department of Environmental Conservation (NYSDEC) records were not available for review. A Freedom of Information request was filed with the NYSDEC on January 23, 1990 (Roux Associates, Inc., 1990). The NYSDEC records are scheduled to be reviewed on May 7, 1990. All pertinent information obtained during this review will be submitted as an Addendum to this Work Plan.

A list of the references is provided in Section 8.0 of this Work Plan. All referenced documents cited in this section or applicable portions thereof are provided in Appendix F.

300883

Doc #SA11603Y.2.2

Prior to 1964, the block of land situated east of Cantiaque Rock Road and north of West John Street, which includes both the Site and Cantiaque Park, was privately owned farmland left fallow. During the early 1960's, the land which is now the park was deeded to the Town of Oyster Bay, and the adjacent property along West John Street was rezoned for industrial use (Kunz, 1990) A history of occupancy of the Site is presented in Table 1.

K.B. Company has owned the Site since September 31, 1964. During 1964, the existing two-story building was constructed for the use of Anchor Chemical Company who occupied/leased the Site until 1978. Anchor Chemical Company operated a facility for the blending and packing of chemicals for the graphic arts industry (NCDH, 1983a). A list of the products made and raw materials used is provided in Table 2 (Anchor Chemical Co. 1977). Seventeen underground storage tanks were installed at the Site by the Franklin Company for Anchor Chemical in 1964. The seventeen tanks were used to store the chemicals and solvents listed in Table 3 (Klein, 1981). The storage tanks are located beneath the former solvent mixing rooms as shown in Figure 5. A diagram of the tank layout is shown in Figure 6 (Klein, 1981). Table 3 gives the capacities, construction, and the products contained in each of the underground storage tanks at the Site. Also included is all the available data on the testing and decommissioning of the tanks.

In addition to the underground storage tanks, there were also seven above ground-storage tanks ranging in size from 550 to 1500 gallons, located in the blending rooms, that were reported to contain the same chemical products listed in Table 3 (NCDH, 1981).

300884

Doc #SA11603Y.2.2

A 1977 industrial chemical survey indicated that the company purchased and used 50,000 gallons (g) of methylene chloride, 13,000 g of 1,1,1-trichloroethane; 13,000 g ethylbenzene; 270 g of petroleum tars; 40 g dyes and organic pigment; 50,000 g of petroleum naphthas; 20,000 g of ethylene glycol monoethylether; 2000 g of glycerine glycols and 10,000 g of nonionic ethoxylated alcohol per year (NCDH, 1977).

In 1977, NCDH determined that floor drains in the mixing rooms were connected to a storm water drywell in the parking area north of the facility. Water from washing of chemical spills in these rooms was discharged into the drywell (NCDH, 1983a). A sampling of the drywell by NCDH in 1977 revealed the presence of the following chemicals and concentrations:

<u>Chemical</u>	<u>Concentrations (parts per billion)</u>
1,1,1 trichloroethane	2500
Trichloroethylene	> 15000
Tetrachloroethylene	> 20000

Subsequently, a spill prevention plan was submitted to NCDH and all lines leading from the building to the drywell were sealed (NCDH, 1983a and Jasser, 1977).

In 1978, Anchor Chemical was purchased by Chessco Industries, Inc. and became known as Anchor/Lith Kem-Ko. The facility operations remained the same as previously until 1985 when Anchor/Lith Kem-Ko ceased operations at the Site (NCDH, 1983a).

300885

Doc #SA11603Y.2.2

According to Mr. Lesser, an employee, during the period (1978-1985) that Anchor/Lith Kem-Ko operated the facility, chemicals were blended in the rooms above the underground storage tank area (Figure 10) and packaged by a gravity feed machine. Samples of the mixtures were tested in the adjoining laboratory. The remainder of the building was used for storage and office space. Mr. Lesser also stated that there were no chemical spills during Anchor/Lith Kem-Ko's operation of the facility.

Anchor Chemical Company and later Anchor/Lith Kem-Ko maintained a New York State Certificate to Operate an Air Contamination Source which was first filed for on May 28, 1974 (NYSDEC, 1983a). No violations were on file at NCDH.

In May of 1981, Anchor/Lith Kem-Ko received a notice from the Nassau County Fire Marshall that they were in violation of Nassau County Fire Prevention Ordinance No. 51-81 Article III, which requires that all underground storage tanks containing flammable or combustible liquids be registered with the County Fire Marshall. Provisions for registration require that tanks be hydrostatically tested to determine if a leak of flammable or combustible liquid exists. If testing results indicate the presence of a leak, tanks shall either be repaired prior to further use or taken out of service. Anchor/Lith Kem-Ko had neither tested their tanks nor registered them with the County Fire Marshall prior to receipt of

300886

Doc #SA11603Y.2.2

the Notice of Violation (Office of the Fire Marshall, 1981). NCDH records indicate that 5 out of 14 tanks tested in 1981 failed air over product tests. These five tanks were:

<u>Tank No.</u>	<u>Contents</u>
5	Naphthol spirits
6	Acetone
8	Mineral spirits*
11	Isopropyl alcohol
15	Textile spirits

*1,1,1-trichloroethane had been reported earlier (1965 and 1975)

These five tanks were taken out of service and decommissioned. (Office of the Fire Marshall, 1981, NCDH, 1983b and NCDH, 1983c).

In 1982, NCDH informed Anchor/Lith Kem-Ko of a possible violation of Environmental Conservation Laws, Article 17, Section 1720401, concerning point discharges of chemicals, and requested they provide plans for an investigation of the possible contamination of soil and ground water (NCDH, 1982a). LKB of Syosset, New York was retained to conduct the investigation (Lockwood, Kessler & Bartlett, 1985).

Three monitoring wells were installed by LKB in September of 1982 (Appendix G). Soil samples collected by NCDH contained up to 490 parts per billion (ppb) methylene chloride and 22 ppb 1,1,1-trichloroethane (1,1,1-TCA) (NCDH, 1982b). Ground-water samples collected by NCDH and LKB contained up to 24,000 ppb 1,1,1-TCA, 1100 ppb tetrachloroethylene, 350 ppb dichloroethane, 41 ppb methylene chloride, and 55 ppb trichloroethylene. Chlorodibromomethane was detected in Well 3 at concentrations up to 170 ppb (Lockwood, Kessler & Bartlett, 1985 and NCDH, 1982b.)

300887

Doc #SA11603Y.2.2

1,1,1-TCA and methylene chloride were also stored in underground tanks that had not been previously tested by the facility. NCDH requested that these two tanks be tested and that Anchor/Lith Kem-Ko provide a ground-water clean up plan by December 1, 1982 (NCDH, 1982c). Testing of the remaining tanks in December of 1982 indicated that tank No. 3, which contained methylene chloride, was leaking (NCDH, 1983c).

NCDH records indicate that five of the leaking tanks (No. 5, 6, 8, 11 and 15) were abandoned in place and filled with concrete slurry in accordance with county ordinance in 1983 (Nassau County Fire Commissioner, 1984).

In January 1983, the Site was included on the NYSDEC list of hazardous waste Sites in Nassau County, and on the National Priorities List (NYSDEC, 1983b). A Phase I report was prepared for NYSDEC by Woodward Clyde Consultants, Inc., and was dated September 1983 (McGill, 1990).

Continued monitoring of ground water at the Site by LKB through 1984 indicated a apparent decrease in the concentration of contaminants in the ground water sampled. In their 1985 report, LKB concluded that the contaminants had moved off-site and were not traceable (Lockwood, Kessler & Bartlett, 1985).

300888

Doc #SA11603Y.2.2

NCDH records indicate that the decommissioning of the (12) remaining underground storage tanks by Barlo Equipment Corporation, was halted in August 1985 when Anchor/Lith Kem-Ko was evicted (NCDH, 1985; Lesser, 1990). Tank decommission/abandonment documents for the twelve tanks were not available from any of the sources listed at the beginning of Section 2.3.

From November 1985 to July/August 1988, the Site was leased to Emery Worldwide, a freight company, and was used as a warehouse (McGill, 1990).

In 1987, Roux Associates was retained to resample the wells. Samples were collected on October 27, 1989 from wells #1 and #2. Well #3 was not sampled due to the presence of a thick, paste-like clay lodged in the screen area which prevented proper purging. Four feet to five feet of silt was found at the bottom of wells #1 and #2; this did not, however, prevent the collection of water samples from these two wells. Well Number 3 was cleaned out so a sample could be collected, and a second round of sampling was conducted by Roux Associates in June 1989. Again, sediments were found in all the wells, although it was possible to obtain water samples. Well #1 and well #3 showed measurable quantities of 1,1,1-TCA, 59 ppb and 8 ppb, respectively. Well #1 also had 4 ppb of 1,1-dichloroethane.

In October 1989, the Site was leased to the current occupant, J.D. Brauner, a furniture manufacturer. The building is now used as a warehouse and retail sales room. Although some assembly of previously manufactured furniture components was observed during a Site inspection by Roux Associates, no actual manufacturing activities were observed.

300889

Doc #SA11603Y.2.2

Several improvements/renovations were undertaken prior to their occupancy including the installation of new windows, the gutting of offices and repaving the parking area (McGill, 1990).

2.4 Results of Previous Investigations

Water samples taken by the NCDH in July 1977 from standing liquid in the drywell at the north end of the Site contained 1,1,1-trichloroethane (2,500 ppb), trichloroethylene (> 1,500 ppb), and tetrachloroethylene (> 20,000 ppb). In response to the finding, Anchor Chemical Company sealed the surface drains in the mixing rooms which had drained to the northern dry well and started drumming drainage from delivery hoses. (Lockwood, Kessler, & Bartlett, 1985).

Ground-water samples were collected between November 1982 and February 1985 by LKB. The ground water was found to contain methylene chloride, 1,1-dichloroethylene, 1,1-dichloroethane, 1,1,1-trichloroethane, trichloroethylene, and tetrachloroethylene, at concentrations which ranged from 2 ppb to 24,000 ppb (Table 4). The laboratory reporting forms are given in Appendix E. Based on their sampling results over the three years, LKB concluded in their report that although the chemicals had come from the Site, the contamination had decreased over time (Lockwood, Kessler, and Bartlett, 1985).

A sampling of the water in wells #1 and #2 in October 1987 and in all three wells in June 1989 was performed by Roux Associates. The results are given in Table 5 and the Laboratory reporting forms for these two sampling events are contained in Appendix D.

300890

Doc #SA11603Y.2.2

All the chemicals detected in the ground water to date are VOCs. These consist predominantly of chlorinated hydrocarbons, except for acetone which was detected once, and traces of benzene, toluene, and xylenes which were also detected once.

300891

Doc #SA11603Y.2.2

3.0 PROJECT PLANNING

3.1 RI Tasks

The Remedial Investigation at Anchor Chemical will be divided into four main tasks:

Task 1 - Investigation of Site History

Task 2 - Installation of Monitoring Wells

Task 3 - Characterization of Ground Water and Sediment

Task 4 - Drilling of Soil Borings and Sampling of Soil and Ground Water

These tasks are described in detail in section 4.0 of this Work Plan. The tasks have been designated to provide the data necessary to characterize conditions at the Site and to meet the Data Quality Objectives.

With the exception of the review of the NYSDEC's files (scheduled for May 7, 1990), Task 1 is complete, and the Site history is presented in Section 2.3 of the Work Plan. All pertinent information which is obtained during the review of the NYSDEC's files will be submitted as an addendum to this Work Plan.

Task 2, the installation of the new monitoring wells, will be performed upon completion of Task 1. The additional wells, both shallow and deep, are necessary to determine the extent and severity of ground-water contamination at the Site. This task is particularly crucial due to the problems encountered in the past with the three existing wells.

Task 3 is the initial characterization of the quality of ground water and sediment at the Site. Ground-water samples will be analyzed for the compounds on the Target Compound List (TCL). Sediment samples will also be analyzed for TCL compounds. The data generated by this task will be used to develop the analytical program for Task 4.

Task 4 includes the drilling of soil borings and a second round of sampling of the ground-water wells to further delineate the contamination. The analytical program will be chosen based on the results of Task 3.

3.2 Additional Tasks

Concurrent with the performance of the RI Tasks outlined above, additional tasks will be performed. These tasks will include preparation of a preliminary health and environmental risk assessment, preliminary scoping of possible remedial alternatives, and a preliminary identification of "Applicable or Relevant and Appropriate Requirements" (ARARs).

3.2.1 Preliminary Health and Environmental Risk Assessment

In accordance with current regulatory guidance, a baseline risk assessment will be conducted as part of the remedial investigation (RI). The purpose of this risk assessment will be to address the potential human health and environmental risks associated with any non-native constituents identified in the soil and ground water at the Site.

300893

Doc #SA11603Y.2.2

3.2.1.1 Approach

A comprehensive site-specific risk assessment that will address both the potential human health and potential environmental effects of chemicals identified in soil and ground water associated with the Site will be conducted on behalf of Spiegel Associates. The risk assessment will be prepared in accordance with the Risk Assessment Guidance for Superfund, Volume I - Human Health Evaluation Manual (Part A) (USEPA, 1989). Health protective assumptions will be incorporated into the risk assessment approach. Each stage of the risk assessment will be built on previous assumptions. Therefore, the overall estimated risks associated with any projected exposure to chemicals of potential concern will tend to be an over-prediction. Tasks that will be incorporated into this assessment will include the following:

- A review of currently available data and a comprehensive Site inspection that will include identification of potential transport pathways and receptors and collection of relevant demographic data.
- Hazard identification to identify the chemicals of potential concern and to ascertain whether any of the chemicals identified are likely to result in an immediate (less than 5 years) and substantial public health or environmental hazard. A toxicity assessment for materials found above background levels on the Site will be conducted. Site-specific toxicity profiles based on the best available data will be prepared as part of the toxicity assessment. The profiles will include a discussion of dose-response effects.

300894

Doc #SA11603Y.2.2

- An exposure assessment that will include the following:
 - A migration pathway analysis;
 - Identification of potential human and environmental receptors;
 - Definition of possible exposure points and viable human exposure routes;
 - Estimation of potential dose to receptors.
- A risk characterization that will include an evaluation of potential site-specific dose-response relationships and will assess carcinogenic or non-carcinogenic risks associated with levels of exposure estimated in the exposure assessment.

This assessment will be completed when adequate data has been collected to permit all the regulatory requirements to be addressed. The overall goal of this assessment is to produce a document that will address the requirements of current USEPA guidance.

To address specific concerns of the USEPA, preliminary observations on potential public health concerns, if any, will be incorporated to permit the lay reader to have an understanding of the information available on this Site.

3.2.1.2 Data Review and Site Visit

The currently available Site history and analytical data have been reviewed and the Site has been visited prior to the preparation of this Work Plan. Unlike many Superfund sites, the

300895

Doc #SA11603Y.2.2

Site has no visual evidence of any potential environmental impairment such as decaying drums, liquid waste lagoons, solid waste piles or obvious buried disposal areas. On the contrary, the Site, with the exception of two small grassed areas at the front of the building, is totally paved. The importance of this will be discussed briefly in the proposed exposure assessment protocol.

When the building on the Site was originally constructed in 1964, underground storage tanks (USTs) were installed beneath the northeast corner of the edifice. It is known that several of these storage tanks leaked and as a result were deactivated. Known leaking tanks contained the following:

- Naphthol spirits-a mixture of various hydrocarbons, also called petroleum naptha;
- Mineral spirits-a mixture of paraffins, naphthenes, olefins and aromatics;
- Textile spirits (hexane);
- Acetone;
- Isopropyl alcohol; and
- Methylene chloride.

Ground-water samples collected between 1977 and 1985 indicate the presence of a number of chlorinated solvents, including 1,1,1-trichloroethane (TCA), trichloroethylene (TCE), tetrachloroethylene (PERC), methylene chloride, 1,1-dichloroethylene (DCE) and 1,1-dichloroethane (DCA). The presence of some of these compounds is not entirely consistent with reports of leaking USTs at this Site nor the inventory of chemicals used by

300896

Doc #SA11603Y.2.2

Anchor Chemical (NCDH, 1977). More recent ground-water samples collected in 1987 and 1989 by Roux Associates only indicated the presence of TCA and DCA.

3.2.1.3 Hazard Identification

The identification of potential hazards associated with site-related chemicals in the environment surrounding the Site will be limited to human health concerns. The data collected for each environmental medium will be presented both in raw form and in a summary format. At a minimum, the Hazard Identification section will contain the following:

- Identification of site-related chemicals in all media and, where possible, an indication of horizontal and vertical extent of these chemicals.
- Selection of indicator chemicals based on environmental mobility, inherent toxicity and prevalence of identified chemicals at the Site.
- Site-specific toxicity profiles for indicatory chemicals. The Site-specific toxicity profiles will be summaries of the potential human health impacts due to possible exposure to site-related chemicals. Dose-response information will be provided where available to assist in placing potential exposures into a realistic context. The toxicity profiles will also summarize the relevant ecotoxicity of the identified chemicals and place concentrations in context with known effects of these chemicals.

300897

Doc #SA11603Y.2.2

Based on historical Site information, several chlorinated solvents are likely to be included in the list of indicator chemicals. TCA and methylene chloride will almost certainly be included since records show that these solvents were stored in USTs that were subsequently shown to be leaking. Selection of other indicator chemicals will be based on data generated during the RI.

3.2.1.4 Exposure Assessment

The methodology to be adopted for the exposure assessment is sub-divided into six tasks:

- Identification of potential human and environmental receptors;
- Identification of possible migration pathways (exposure points);
- Identification of likely exposure routes (dose mechanism);
- Identification/Estimation of exposure point concentrations;
- Estimation of average daily intake; and
- Development of exposure profiles in which exposure point concentrations are compared to appropriate and relevant criteria that might include published standards, guidelines or policies, if available.

3.2.1.4.1 Identification of Potential Human and Environmental Receptors

A demographic survey of the area surrounding the Site will be conducted to collect information concerning potential human receptors, with special emphasis on the identification to sensitive human receptors, if any. Sensitive receptors include, but are not

300898

Doc #SA11603Y.2.2

limited to, children, the aged, and the infirm. The human receptor population will be identified on the basis of their potential for exposure to site-related chemicals. Consideration will be given to present conditions and probable future exposure conditions when identifying human receptor populations.

It was observed during the Site visit that other light industrial/commercial facilities were situated to the south and west of the Site, while the Site was bounded to the immediate north and east by public parkland. Thus, there is little likelihood of exposure under residential conditions now or in the foreseeable future. Any human exposure that could occur would be either in an occupational setting where the average worker is inherently healthy or occasional exposure of people visiting the park. It is not believed that sensitive individuals will be an issue at this Site, but this situation will be more fully explored within the risk assessment.

3.2.1.4.2 Identification of Migration Pathways

For exposure of a receptor to site-related chemicals to occur, a viable pathway must be established from the source term (on-site) to the receptor (onsite or offsite). The migration pathways will help identify points at which potential exposures to Site-related chemicals may occur. All potential migration pathways will be identified. The potential migration pathways include the following:

- Ground Water;
- Surface Water;

300899

Doc #SA11603Y.2.2

- Air;
- Soil or Sediment; and
- Food Chain.

Preliminary calculations and plausibility checks will evaluate the significance of all potential migration pathways. Those pathways in which the fate and transport of site-related chemicals are found to be insignificant will be dropped from further consideration.

Based on current knowledge of the Site, there are no surface water bodies on or close to the Site that are likely to serve as conduits for conducting any chemicals identified at this Site. Similarly, migration through the food chain appears to be remote because of Site location. The Site is covered with an impervious surface with the exception of a small grassed area. This grassed area is at some distance from the UST locations and thus is not liable to have surface concentrations of chemicals believed to be of concern at this Site. Fugitive dust comprising chemical-bearing soils is also not a probable migration pathway unless excavation occurs in the immediate vicinity of the USTs.

VOCs such as those found in a variety of solvents can occur in vapor form within the soil matrix as soil gas. Under certain conditions these soil gases can migrate into the atmosphere or infiltrate into buildings resulting in an exposure potential. Since the building is located directly over the USTs, migration of soil gases into the building will be considered as part of the risk assessment.

300900

Doc #SA11603Y.2.2

Historical information on the Site indicates varying concentrations of VOCs in groundwater. Although at this time there are no known wells in this section of Hicksville, migration in groundwater of any chemicals identified onsite will be considered as part of the exposure assessment.

3.2.1.4.3 Identification of Exposure Routes

At each point of potential exposure, the following exposure routes will be evaluated for applicability:

- Inhalation of volatile organics
- Ingestion of groundwater or soil containing non-native constituents; and
- Dermal absorption of chemical constituents from contact with groundwater, surface water or soil.

A preliminary evaluation of all exposure routes will be made. Those routes which are found to be insignificant or unrealistic will be dropped from further consideration. Current knowledge of the Site suggests that inhalation of VOCs and ingestion of, or dermal contact with groundwater are the most likely routes of exposure. Contact with groundwater can only occur if operational wells are identified close to the Site or there is groundwater discharge to surface water.

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3.2.1.4.4 Estimation of Exposure Point Concentrations

The identification and estimation of exposure point concentrations will be performed with a health-protective bias. In this instance, "health-protective" means that the assumptions, data, and methodologies used will be rational but will bias the risk assessment towards over estimating exposure point concentrations. Exposure point concentrations will be identified for each migration pathway for both present and possible future conditions. For on-site locations, exposure point concentrations will be identified through the use of sampling data at that point or estimated using verifiable, media-specific modeling techniques. The exposure point concentrations described for on-site locations will represent the ambient concentration (background concentration plus concentrations contributed by leaks or spills that have occurred at this Site).

For off-site locations, exposure point concentrations will be measured or estimated to describe the contribution of the Site to ambient concentrations. Background concentrations, generally considered to be concentrations of a chemical found in the sampled media at some point upgradient from the established release point, will be determined on a site-specific basis.

The identification and estimation of exposure point concentrations will be conducted in the following manner:

- Selection of analytical data representative of actual or potential exposures; and

300902

Doc #SA11603Y.2.2

- Identification of exposure point concentrations, using the averages of appropriate data to be representative of concentrations in a given area.

Given the current level of information regarding the Site, it is recognized that a ground-water model may be needed to provide exposure point concentrations. The preliminary review of the data conducted to prepare this Work Plan indicates that there is currently insufficient information to use numerical models to estimate exposure point concentrations related to the aquifer systems present at the Site. Fate and transport modeling can be used as a tool to provide a better estimate of the dimensions of any plume identified, test plausible transport scenarios, and predict plume changes with time. The purpose of the selected model should be to aid in estimating the current and future boundaries of the plume. These predictions will aid in identifying potential exposure scenarios and assist in estimating possible levels of exposure.

Some of the potential indicator chemicals at the Site could undergo either anaerobic or aerobic biodegradation as well as photodegradation. The impact of degradation pathways and products will be discussed in terms of the potential dose to human and environmental receptors.

3.2.1.4.5 Estimation of Average Daily Intake

The guidance provided by the Superfund Public Health Assessment Manual (USEPA, 1986) suggests that intakes received via different exposure routes should be summed and averaged over the exposure period to provide an average daily intake of each site-related chemical.

300903

Doc #SA11603Y.2.2

While this may provide an estimate of total intake it may not be appropriate to use the information in this format for estimating potential risk. Absorption of indicator chemicals via different exposure routes can result in toxicological effects in different target organs. Any limitations of the summing approach will be discussed for each of the site-related indicator chemicals.

3.2.1.4.6 Preparation of Exposure Profiles

In preparing exposure profiles it is assumed that a multi-media chemical transport scenario is appropriate. The exposure profiles of a receptor will consist of the following:

- Identification and description of each receptor;
- Identification of all exposure points for all site-related indicator chemicals;
- Identification of migration pathways at each exposure point for each site-related chemical; and
- Identification of magnitude, frequency and duration of exposure for each site-related chemical at each exposure point, currently and in the foreseeable future (based on information on population mobility).

300904

Doc #SA11603Y.2.2

3.2.1.4.7 Dose-Response Assessment

Dose-response data for each site-related chemical will be collected and presented in a summary table consisting of the following:

- The name and chemical abstract service (CAS) number (if available) of each site-related chemical.
- The reference dose (RfD), the acceptable intake-chronic (AIC), acceptable intake-subchronic (AIS) and the carcinogenic potency factor (CPF) for site-related indicator chemicals as defined by the U.S. Environmental Protection Agency (USEPA), where available. For any site-related indicator chemicals for which appropriate values have not been assigned site-specific values will be derived.
- The reference for each value reported.
- The target organ(s) and/or health effects for which the threshold dose was derived (when a threshold dose is removed).
- The USEPA carcinogen assessment group (CAG) classification of each site-related chemical considered to possess carcinogenic properties.

3.2.1.5 Risk Characterization

All identified and estimated exposure point concentrations for each site-specific chemical at each exposure point will be compared to:

300305

Doc #SA11603Y.2.2

- Applicable and relevant exposure standards
- Health and/or established guidelines or policies (where such guidelines or policies exist)
- Proposed guidelines developed by Roux Associates, Inc. in the case that no such standards, guidelines or policies exist for the site-specific indicator chemical. Proposed guidelines will only be developed in the case that sufficient toxicological information exists concerning the chemical.

The total risk for a receptor will be estimated, if appropriate, using the exposure profile defined as part of the risk assessment. Both threshold and non-threshold (carcinogenic) human health risks will be characterized for each site-related chemical.

Threshold (non-carcinogenic) health effects will be characterized by estimating Hazard Indices (HI). An initial screening will be conducted by including all site-specific indicator chemicals. The approach that will be adopted will be to use a total hazard index of 2 as the decision point for looking at indicator chemicals on an individual basis. Based on the decision point, individual HIs would be calculated for indicator chemicals to determine whether any indicator chemicals individually pose an unreasonable risk.

For assumed nonthreshold (carcinogenic) risks, site-related indicator chemicals with Class A or B carcinogenic ranking as defined by the CAG will be used to calculate estimated incremental lifetime cancer risks for each site-related chemical based on the receptor's

300906

Doc #SA11603Y.2.2

exposure profile. The estimated incremental lifetime cancer risk for individual indicator chemicals used as plausible exposure scenarios will be discussed using an incremental lifetime cancer HI level of 10^{-5} for comparative purposes.

3.2.1.6 Uncertainty Analysis

Human health risks posed by a defined set of circumstances may be evaluated quantitatively. The precision of these estimates is limited by the size and quality of the database. Often, these limitations can be overcome by defining a range of extremes. Due to the use of these extremes, there are varying degrees of uncertainty associated with estimating the risks from chemical exposure. These uncertainties will be compensated for in the risk assessment by making health-protective assumptions where necessary.

This section will address the issue of uncertainty inherent within the risk assessment. Specifically, uncertainty associated with the following areas will be addressed:

- Receptor populations;
- Ground-Water database;
- Fate and transport estimates;
- Exposure estimates;
- Toxicological data and risk characterization; and
- Complex interactions of uncertainty elements.

300907

Doc #SA11603Y.2.2

3.2.1.7 Conclusions and Recommendations

Implications of the estimated risks associated with potential exposures will be presented. In drawing conclusions the following, at a minimum, will be noted:

- Any exposure point concentration which exceeds corresponding standards, guidelines, or policies
- The need, if any, for reducing exposure point concentrations by a remedial response action.

Uncertainties associated with the estimates of risk will be addressed qualitatively to provide information on the level of confidence associated with the approaches used.

3.2.2 Preliminary Scoping of Possible Remedial Alternatives

Preliminary scoping of remedial alternatives will be based on the compounds listed in Section 3.2.1, which are known to have leaked from the underground tanks at the Site. As additional data becomes available during the performance of the RI, additional remedial alternatives may be considered.

300908

Doc #SA11603Y.2.2

To date, all the chemicals detected in the groundwater are VOCs. If the results of the groundwater investigation confirm that only VOCs are present, then treatability testing for groundwater treatment may not be necessary, since analytical results usually provide sufficient information from which to size a packed tower air stripper and to prepare a comparative cost estimate.

If VOCs are present in the soils, then a pilot test to evaluate the effectiveness of in situ vapor extraction may be conducted. The need for and effectiveness of a pilot test will be determined after a review of data collected during the Site investigation. Data to be evaluated include soil type, particle size distribution, concentration of volatile compounds, presence of non-volatile contaminants, and depth to groundwater. This discussion will be included in the RI Report.

3.2.3 Preliminary Identification of ARARs

Possible ARARs which may be applicable to the Site include the following:

- The Ground-Water Protection Strategy;
- The Ground-Water Classification Guidelines;
- The Safe Drinking Water Act; and
- New York State Ambient Water Quality Standards and Guidance Values.

A more complete list of possible ARARs is given in Section 4.6.2.

300909

Doc #SA11603Y.2.2

3.3 Data Quality Objectives

The overall objective of the RI/FS is to determine the nature and extent of the threat posed by the past release of hazardous substances at the Site, and ultimately to select a remedial alternative which mitigates the threat to human health and the environment. The data collected during the RI must be sufficiently precise and accurate to be used to accomplish the goals of the RI/FS.

300910

Doc #SA11603Y.2.2

4.0 RI/FS TASKS

The RI tasks (Tasks 1 - 4) have been designed to provide reliable data on the current quality of the ground water at the Site and to determine whether or not the known source of contamination at the Site, specifically the past leaks from the five underground storage tanks, represent a continuing source of contamination to the ground water. For this reason, the field tasks (Tasks 2 - 4) have been organized to examine the ground-water quality first, followed by sediment and soil quality.

4.1 Task 1 - Investigation of Site History

A thorough examination of all documented past activities relating to chemical usage and disposal at the Site is currently underway and will be continued as Task 1. All pertinent records at the NYSDEC, NCDH, Fire Marshall and USEPA offices have been or will be reviewed. In addition, all pertinent records in the possession of Anchor/Lith Kem-Ko have been requested and all records which can be obtained from them have been reviewed. The results of the investigation of the Site history are given in Section 2.3.

4.2 Task 2 - Installation of Monitoring Wells

A total of seven ground-water monitoring wells will be installed at the Site (Figure 7). Four wells (MW-4, MW-5, MW-6 and MW-7) will be screened in the Upper Glacial aquifer at approximately 70 feet below land surface, and three (MW-1D, MW-5D, and MW-7D)

300911

Doc #SA11603Y.2.2

screened in the Magothy aquifer at approximately 140 feet below land surface to form three shallow/deep monitoring well clusters at locations MW-1, MW-5 and MW-7. As per USEPA guidance, the screened intervals will not be across the water table.

The monitoring wells will be drilled using a truck mounted hollow stem auger rig. Upon completion of the borehole, a 4-inch diameter stainless steel (304 or 316 gauge) casing with a 10-foot long screen will be installed through the auger. When the screen and casing are in place, a clean, graded silica sand will be used to pack the annular space around the screen. At the well clusters, the deep well will be installed first. A photoionization meter will be used to scan the split spoon samples for each well. The screened interval for the shallow well will then be chosen to test the zone that shows the highest readings.

When the well screen has been properly sand packed, two feet of bentonite pellets will be placed immediately over the filter pack to seal the annular space. The remainder of the annular space will then be grouted with a cement/bentonite slurry to two feet below grade. Well MW-6 will be finished above grade as shown on Figure 8. Well clusters MW-1, MW-5, and MW-7 will be finished flush with grade, have locking caps installed, and protective meter boxes cemented in place over each well (Figure 9). USEPA guidelines will be followed for all steps of well drilling and construction; drill cuttings will be stored on site and samples analyzed prior to disposal.

Upon completion, each well will be developed by surging and pumping to remove any fine sediment from around the screen zone and to establish a connection between the aquifer and well. Development will continue until the water is less than 50 nephelometric turbidity

300912

Doc #SA11603Y.2.2

units (NTUs), as required by the NYSDEC. The development water will be sampled, tested for volatile organics, and disposed of in one of the existing drywells onsite.

The monitoring well locations and elevations will be surveyed by a New York State Licensed Land Surveyor to the nearest 0.01 feet with a closure of ± 0.05 feet for the Site. The elevation measuring point will be marked on each well casing and all water level measurements will be referenced to this point. All elevations and depths, including well casings, will be referenced to mean sea level.

Water levels in all the wells will be measured using a steel tape at least three times; once after development and prior to each of the two ground-water sampling event. If necessary, an electronic well sounder will be used for the deep wells. Information on the vertical hydraulic gradient will be provided from the three monitoring well clusters. The responsiveness of each well to water-level fluctuations in the aquifer will be tested by measuring recovery rates after pumping; if necessary, a slug test(s) will be performed to determine hydraulic conductivity.

4.3 Task 3 - Characterization of Ground-Water and Sediment Based on Target Compound Analysis

Two weeks after the monitoring wells have been installed and developed, ground water will be sampled and analyzed following USEPA protocols to determine the quality of the ground water at the Site. The ground-water samples will be analyzed for the compounds on the Target Compound List (TCL) plus the thirty highest peaks of a forward library

300913

Doc #SA11603Y.2.2

search. Analyses for Target Analyte List (TAL) parameters will be performed on unfiltered samples. The initial characterization will also include the collection and analysis of sediment and sludges in the seven original drywells and in the non-operational cesspool. These eight samples will also be analyzed for TCL compounds. A USEPA Contract Laboratory Program (CLP) laboratory will be retained for all analyses, and all analytical data will be validated by an independent validator (other than the laboratory which performed the analyses). A summary of the proposed analytical RI program is given in Table 6.

4.4 Task 4 - Drilling of Soil Borings and Sampling of Soil and Ground Water

Six soil borings will be drilled at possible contamination source areas and a background area and the locations will be surveyed by a licensed surveyor. This includes borings in three of the newer drywells from which sediment had not been sampled as well as borings near the underground chemical storage tank area as shown on Figure 3. An attempt will be made to obtain soil borings inside the building using a skid mounted drilling rig. If this is not possible, two to three borings will be angle borings under the former chemical storage tanks. The vertical borings will be drilled to the water table; the angle borings will be as long as is necessary to sample under the tanks which leaked. If soil contamination is discovered in the underground storage tank area, additional borings will be made to the south of the area to determine the extent of the soil contamination. Outdoor drilling will be accomplished using a truck-mounted hollow stem auger rig. Split-spoon soil samples will be collected at five-foot intervals from land surface to the bottom of the borings.

300914

Doc #SA11603Y.2.2

A hydrogeologist will log each core sample in detail and will include any qualitative signs of contamination (odor, staining, etc). The split-spoon sampler will be steam cleaned between samples to avoid cross contamination. All split-spoon samples taken during the installation of wells or drilling of soil borings will be screened at five foot intervals using a portable photoionization meter to assess relative concentrations of VOCs in each sample. Only the deep well in each cluster will be tested in this manner, and MW-5D will be logged continuously.

Three or four of the soil samples will be selected for laboratory analysis from each borehole. A second round of ground-water sampling of all wells will also occur at this time. An attempt will be made to redevelop the three presently existing wells (MW-1, MW-2 and MW-3). If these three wells can be redeveloped, they will be fitted with locking caps, and sampled during the second round of ground-water sampling. If MW-1 and MW-2 cannot be used they will be replaced by new wells located as close to their present position as possible. Data from the first round of ground-water and sediment sampling will be analyzed so that an appropriate analytical suite for the second round can be selected. The selected suite of analytical parameters will be those compounds on the TCL that were detected below method detection limits by Roux Associates, or the USEPA, in the ground-water, soil, and sediment samples during Task 3. A USEPA CLP Laboratory will be used for all analyses.

300915

Doc #SA11603Y.2.2

4.5 Data Analysis and RI Report

All data obtained during the RI along with any pertinent data from previous investigations, will be compiled, analyzed, interpreted and presented as a draft report. The report will, at a minimum, include the following:

- an executive summary;
- an introduction;
- a detailed Site description and history, including the history of each storage tank indicating the chemicals contained and if and when the tank leaked;
- a detailed description of all work accomplished;
- a site plan showing locations of all wells and borings with the surveyor's reference points and a coordinate grid to locate sample locations;
- a detailed description of regional and site-specific geology;
- geologic logs of all borings, including surveyed location of the boring and elevation of the top of the casing and the ground surface OVA readings, depth to ground water, casing specifications, screened interval, and types of material used;
- geologic cross-sections compiled from the boring logs;
- well installation diagrams;
- a table of well construction details;
- a description of ground-water flow;
- a table of all water-level data;

300916

Doc #SA11603Y.2.2

- hydrogeologic cross-sections;
- a discussion of ground-water quality and contaminant transport;
- tables of all analytical results including detection limits with differentiation between compounds detected below detection limits and those not detected, with ground-water analyses reported in ppb and soil analyses reported in parts per million (ppm);
- maps to show the extent of organic compounds in soil;
- a detailed map (1" = 10') of the Site showing locations of tanks and associated piping, sampling locations and levels of any detected compounds in the soil;
- a detailed map of the Site indicating the uses of various areas of the Site and building including the locations of surface drains and sewer pipes;
- piezometric surface contour maps (1" = 50') for the shallow and deep wells for each of two rounds of water-level measurements;
- isoconcentration maps (1" = 50') for total volatile organics and for any single contaminant consistently detected in the shallow or deep wells;
- a surveyor's report listing ground elevations, locations on grid, elevations of top of casings and ground-water level reference point elevations for sampling locations.
- a discussion of the results, findings and conclusions of the investigation; and
- recommendations for additional investigative work or bench studies, if any are warranted.

300917

Doc #SA11603Y.2.2

To facilitate USEPA personnel review and approval of the RI, the recommended USEPA RI Report Format will be followed to the extent appropriate for this program. An outline of the report format is presented in Table 7.

After review and comment on the draft report by agency representatives, a final RI report will be prepared and distributed appropriately.

4.6 Task 5 - Identification of Alternatives

This first task of the Feasibility Study will begin as soon as data from the RI becomes available.

4.6.1 Subtask A - Preliminary Identification of Potentially Feasible Remedial Alternatives

In accordance with the "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA" (USEPA, October 1988), a preliminary range of remedial action alternatives and associated technologies, will be identified after the initial Site characterization information has been analyzed. Once these preliminary alternatives and technologies are identified, additional data required to conduct the technical evaluation can be obtained. Additional data collection may include additional soil borings and soil samples, additional monitoring wells and ground-water samples, and treatability studies.

If required, revisions to the Work Plan will be made to incorporate any additional activities which are not included in this Work Plan.

300918

Doc #SA11603Y.2.2

4.6.2 Subtask B - Identification of ARARs

The identification of ARARs, which is an ongoing process throughout the RI/FS process, will be initiated after the first phase of the Site characterization information has been analyzed. This step is carried out in conjunction with Subtask A - Identification of Potentially Feasible Remedial Alternatives. Three different categories of ARARs will be evaluated.

- o Ambient or Chemical Specific Requirements:

Health- or risk-based numerical values or methodologies which, when applied to site-specific conditions, result in the establishment of numerical values. These values establish the acceptable amount or concentration of a chemical that may be found in, or discharged to, the ambient environment.

- o Performance, Design, or other Action Specific Requirements:

Technology- or activity-based requirements or limitations on actions taken with respect to hazardous wastes.

- o Location-Specific Requirements:

Restrictions placed on the concentration of hazardous substances or the conduct of activities solely because they occur in special locations.

300919

Doc #SA11603Y.2.2

A preliminary list of potential ARARs is given below. This list is only preliminary and may be either expanded or shortened based on the quality of data generated during the RI.

Federal

- Resource Conservation Recovery Act (RCRA) Groundwater Protection Standards (40 CFR 264, Subpart F).
- Safe Drinking Water Act, National Primary Drinking Water Regulations, Maximum Contaminant Levels (MCLs) (40 CFR 141.11-141.16).
- Occupational Safety and Health Standards (OSHA) (29 CFR Part 1910).
- Clean Water Act (CWA), Ambient Water Quality Criteria.
- Safe Drinking Water Act: Sole-Source Aquifer Requirements (40 CFR 149).

State

- 6 NYCRR Part 703 - NYSDEC Groundwater Quality Regulation
- 6 NYCRR Part 750-757 - Implementation of NPDES Program in NYS
- 6 NYCRR Parts 701, 702 - Surface Water Quality Standards and 704
- Technical and Operations Guidance Series (TOGS)
 - 85-W-40; July 12, 1985 - Analytical Detectability for Toxic Pollutants
 - 1.1.1; April 1, 1987 - Ambient Water Quality Standards and Guidance Values
 - 1.6.1; April 1, 1987 - Regional Authorization for Temporary Discharges
 - 2.1.2; April 1, 1987 - Underground Injection/Recirculation (UIR) at Groundwater

Remediation Sites

300920

Doc #SA11603Y.2.2

- 6 NYCRR Part 201 - Permits and Certificates
- 6 NYCRR Part 212 - General Process Emission Sources
- 6 NYCRR Part 257 - Air Quality Standards
- NYSDOH PWS 69 - Organic Chemical Action Steps for Drinking Water
- Part 5 of the State Sanitary Code, Drinking Water Supplies
- Part 170 of Title 10 of the NYCRR, Water Supply Sources
- Five Environmental Health Manual items dealing with chemical contamination of public drinking water supplies
- Draft documentation for the generic organic chemical standards in drinking water
- NYSDOH Interim Report of Point-of-Use Activated Carbon Treatment Systems.

4.6.3 Subtask C - Health and Environmental Risk Assessment

After the data collected in the RI have been analyzed, a risk assessment will be performed. The work plan for the risk assessment will be submitted as a separate document and will be prepared based upon appropriate USEPA and State guidance.

The risk assessment will consist of a baseline public health evaluation. The purpose of the baseline public health evaluation is to characterize current and potential health impacts, if any, due to releases or threat of release of chemicals of concern from the Site. The results of the public health evaluation of baseline Site conditions will be used as the basis for the initiation and formulation of performance goals.

300921

Doc #SA11603Y.2.2

The baseline evaluation typically involves five steps to conduct the analysis. However, as stated in the "Superfund Public Health Evaluation Manual" (USEPA, 1986), the procedure may differ at different sites because some of the steps (or parts of steps) do not necessarily apply to some sites. The steps involved in the baseline health evaluation are briefly discussed below.

o Step 1 - Selection of Indicator Chemicals

Indicator chemicals are selected, if necessary, from a list of chemicals present at the Site. Indicator chemicals are selected to identify in a representative manner those chemicals that pose the greatest potential public health risk. Existing analytical data and additional data obtained during the RI will be used to compile a list of chemicals and concentration ranges found at the Site. From this list, indicator chemicals will be ultimately selected based upon chemical toxicity information, physical/chemical factors, and measured concentrations at the Site.

o Step 2 - Assessment of Exposure Point Concentrations of Indicator Chemicals

The estimation of indicator chemical exposure point concentrations requires the identification of exposure pathways, sources of release and release media, and the identification of possible human exposure points. Following the estimation of exposure concentrations, comparisons to ARARs are conducted.

300922

Doc #SA11603Y.2.2

- o Step 3 - Estimating Human Intake

To assess potential adverse health effects, the human intake (or dose) of chemicals will be calculated for each applicable route of exposure. Standard assumptions for air and water intake will be used where appropriate.

- o Step 4 - Toxicity Assessment

The toxicity of each indicator chemical is evaluated. Toxicity data are used in the next step to assess potential public health impacts.

- o Step 5 - Risk Characterization

The risk characterization combines all the exposure and toxicity information developed in steps 1 through 4 to define potential carcinogenic and noncarcinogenic risks. The methodology for determining carcinogenic and noncarcinogenic risks differs.

As previously stated, the Work Plan for the baseline risk assessment will be submitted separately to the USEPA since the procedures required for the risk assessment will depend upon, to some extent, the contaminants detected, pathways and ARARs. The steps outlined above serve as a general procedure from which the baseline risk assessment may follow. However, the procedure may be modified somewhat, depending upon the results of the RI. If so, the work plan will identify any variations of the above procedure and will include a more detailed discussion of the methodology used to conduct the baseline risk evaluation.

300923

Doc #SA11603Y.2.2

4.7 Task 6 - Development of Alternatives

4.7.1 Subtask A - Assessment of the Need for Interim Response Actions

Based upon the results of the RI, Roux Associates will assess the need for an interim response action at the Site and will make recommendations to the USEPA for their determination. Considerations will include (1) the extent of contamination currently existing, as described in the RI; (2) the potential for and pathways of exposure to contaminants of concern; (3) the level of exposure; (4) technical feasibility and implementability; and (5) time required for implementation. In addition, the nature and extent of contamination will be assessed to determine the applicability of operable units for Site remediation.

4.7.2 Subtask B - Identify Potential Remedial Technologies and Development of Remedial Alternatives

Based upon the findings of the RI, a list of potential remedial technologies for the Site will be compiled. Both on-site and off-site options will be evaluated, if applicable. Remedial technologies will be considered based upon technical feasibility and site-specific considerations. Technologies determined to be ineffective, extremely difficult to implement, require unreasonable time periods to attain remediation goals, or rely on insufficiently

300924

Doc #SA11603Y.2.2

developed technologies will be eliminated from further consideration. Remedial technologies remaining after the preliminary examination will be developed to form a limited number of potentially feasible alternatives for Site remediation. Alternatives developed may address operable units or the Site as a whole.

In accordance with the Guidance for Conducting Remedial Investigations and Feasibility Studies under Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (USEPA, October 1988), the following types of alternatives for source control actions will be developed to the extent practicable.

- o A number of treatment alternatives ranging from one that would eliminate or minimize to the extent feasible the need for long-term management (including monitoring) at a Site to one that would use treatment as a primary component of an alternative* to address the principal threats at the Site.

* Alternatives for which treatment is a principal element and could include containment elements as well.

- o One or more alternatives that involve containment of waste with little or no treatment but protect human health and the environment by preventing potential exposure and/or by reducing contaminant mobility.

- o A no-action alternative

300925

Doc #SA11603Y.2.2

4.8 Task 7 - Initial Screening of Alternatives

4.8.1 Subtask A - Criteria for Initial Screening

Alternatives developed under Task 6 will be subject to an initial screening. Three broad considerations will be used as a basis for the initial screening of remedial alternatives: effectiveness, implementability, and cost.

o Effectiveness Evaluation

The effectiveness of each alternative in protecting human health and environment will be evaluated. More specifically, short and long-term components of protectiveness and the reductions in toxicity, mobility, or volume of each alternative will be assessed.

o Implementability Evaluation

The implementability of each alternative will be evaluated. Both technical and administrative feasibility of constructing, operating, and maintaining a remedial action alternative will be considered. An alternative which is determined to be technically unfeasible will be eliminated from further consideration.

300926

Doc #SA11603Y.2.2

o Cost Evaluation

Both capital and operation/maintenance costs will be considered, where appropriate, in the cost evaluation of the alternatives. Comparative estimates between alternatives will be made. Alternatives whose costs far exceed those of other alternatives providing similar levels of protection will be eliminated from further consideration.

Innovative alternative technologies will be carried through the screening procedure if there is reasonable belief that they offer potential for better treatment, performance, or implementability; fewer or less adverse impacts than other available approaches; or lower costs for similar levels of performance than demonstrated treatment technologies. These technologies must also meet the CERCLA - required objectives of protecting human health and the environment through the significant and permanent reduction in the volume, toxicity or mobility of the hazardous substances at the Site.

Alternatives selected for further evaluation will, where practicable, preserve the range of treatment and containment technologies initially developed. As required by the NCP, the no-action alternative will be carried throughout the Feasibility Study.

300927

Doc #SA11603Y.2.2

4.8.2 Subtask B - Meeting to Discuss Alternatives

Roux Associates shall meet with USEPA after the completion of Subtask A to discuss the alternatives which pass through the initial screening. The results of these discussions will be used to help define the need for post-screening field investigations as described in the next section.

4.9 Task 8 - Post-Screening Field Investigation

It is possible that, after the initial screening of the remedial alternatives, data gaps will be identified that will have to be filled before the detailed evaluation of alternatives can be undertaken. Since the need for such additional information cannot be determined in advance, the scope of work cannot be specified in this Work Plan.

To minimize the probability that post-screening field investigations will be needed, field decisions such as the installation of additional soil borings will be made during the initial RI by the Field Manager to cover all aspects of the data requirements for the FS. However, some types of additional work will not be apparent until laboratory analytical results are received. If, upon review of Site screening data, it becomes apparent that additional work is necessary, a separate work plan will be developed at that time to address those needs.

Additional field investigations will only be undertaken during this phase if they are essential to conduct an adequate evaluation of remedial alternatives.

300928

Doc #SA11603Y.2.2

In addition to field investigations, Roux Associates may recommend that laboratory and/or bench-scale studies be conducted at this time. Generally, laboratory and bench-scale studies are used to evaluate the treatability of site-specific compounds using various treatment methods. The need for laboratory or bench-scale testing will be identified during the development of remedial alternatives.

4.10 Task 9 - Detailed Analysis of Alternatives

A detailed evaluation will be conducted on the limited number of alternatives that remain after the initial screening. As a first step in the detailed analysis, each alternative is evaluated against the following factors: effectiveness, implementability, cost, compliance with ARAR, and community acceptance. After each alternative has been assessed against the above criteria, a comparative analysis is conducted among the alternatives to assess the relative performance of each alternative with respect to the same criterion.

4.10.1 Subtask A - Analysis of Alternatives

The evaluation criteria for conducting the individual alternative analysis are discussed in more detail below.

300929

Doc #SA11603Y.2.2

4.10.1.1 Effectiveness

The following factors will be considered during the effectiveness analysis of each alternative:

- Short-term effectiveness;
- Long-term effectiveness and permanence;
- Reduction of toxicity, mobility, and volume; and
- Overall protection of human health and the environment.

4.10.1.1.1 Short-term Effectiveness

This evaluation criterion addresses the effects of the remedial alternative during the construction and implementation stage. For each alternative, the following considerations will be addressed:

- Protection of community during the remedial action;
- Protection of workers during the remedial action;
- Environmental impacts; and
- Time to achieve remedial response objectives.

300930

Doc #SA11603Y.2.2

4.10.1.1.2 Long-term Effectiveness and Permanence

An evaluation of the long-term effectiveness and permanence of each alternative will be conducted to determine the risk remaining at the Site after the response objectives have been met. For each alternative, the following components will be addressed:

- Magnitude of remaining risk - an assessment of the residual risk remaining from untreated waste or treatment residuals at the conclusion of remedial activities.
- Adequacy of controls - an assessment of the adequacy and suitability of controls, if any, utilized to manage treatment residuals or untreated wastes that remain at the Site.
- Reliability of controls - an assessment of the long-term reliability of management controls for providing continued protection from residuals.

4.10.1.1.3 Reduction of Toxicity, Mobility, and Volume

As stated in the Interim Guidance on Superfund Selection of Remedy (OSWER Directive No. 9355.0-19, December 29, 1986), remedies that use treatment to permanently and significantly reduce the toxicity, mobility, or volume are preferred over remedies that do not

300931

Doc #SA11603Y.2.2

use such treatment. In addition, the Superfund Amendments and Reauthorization Act (SARA) requires that the USEPA select a remedy that utilizes permanent solutions and alternative treatment technologies, or resource recovery technologies, to the maximum extent practicable.

Therefore, each alternative will be assessed to determine its potential for the reduction of volume, toxicity and mobility of hazardous constituents. The evaluation will focus upon the following:

- the treatment processes, the remedies they will employ, and the materials they will treat;
- the amount of hazardous materials that will be destroyed or treated, including how principal threats will be addressed;
- the degree of expected reduction in toxicity, mobility, or volume measured as a percentage of reduction (or order of magnitude);
- the degree to which treatment will be irreversible; and
- the type and quantity of treatment residuals that will remain following treatments.

300932

Doc #SA11603Y.2.2

4.10.1.1.4 Overall Protection of Human Health and the Environment

Each alternatives overall protectiveness will be assessed by determining how protection is achieved and how Site risks are reduced. The analyses will include a determination of how each source of contamination is eliminated, reduced, or controlled for each alternative.

4.10.1.2 Implementability

A detailed analysis of each alternative with respect to implementability will be conducted. Technical and administrative feasibility of implementing an alternative and availability of services will be considered.

- Technical Feasibility - determine the ability to construct the technology, the reliability of the technology, operation and maintenance requirements, and monitoring considerations.
- Administrative Feasibility - determine requirements to coordinate remedial activities with other agencies and permit requirements.
- Availability of Services and Materials - determine the availability of treatment, storage capacity and disposal services; availability of equipment and specialists; and availability of prospective technologies.

300933

Doc #SA11603Y.2.2

4.10.1.3 Cost

A detailed cost analysis will be conducted for each alternative. Costs will be estimated to an accuracy of +50 percent to -30 percent and will be prepared based upon available data from the RI, treatability studies and other available sources of information. Costs developed with accuracies other than +50 percent to -30 percent will be identified as such in the FS.

The cost estimate of each alternative will consist of an evaluation of capital costs and annual costs. Present worth costs are then calculated assuming a 30-year operational period. A cost sensitivity analysis may be conducted if there is sufficient uncertainty concerning specific assumptions. Costs will be estimated in accordance with the procedures outlined in the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA (USEPA, March 1988 Draft) as described below.

4.10.1.3.1 Capital Costs

Capital costs will include both direct (construction) and indirect (nonconstruction and overhead) costs. Direct costs may consist of expenditures for equipment, labor, and materials required to install remedial actions. Indirect costs may include expenditures for engineering, financial, and other services that are not part of actual installation activities but are required to complete the installation of remedial alternatives.

300934

Doc #SA11603Y.2.2

4.10.1.3.2 Annual Costs

Annual costs consist of those postconstruction costs required to ensure the continued operation and effectiveness of a remedial action. Considerations for annual costs may include: operating labor costs; maintenance materials and labor costs; auxiliary materials and utilities; disposal of residues; purchased services; administrative costs; insurance, taxes, and licensing costs; maintenance reserve and contingency funds; rehabilitation costs; and costs of periodic Site review if wastes remaining above health-based levels are left at the Site.

4.10.1.3.3 Present Worth Analysis

Present-worth costs are calculated assuming a 30-year operational period. Remedial alternatives are then compared using the present worth cost.

4.10.1.3.4 Sensitivity Analysis

If there is sufficient uncertainty regarding assumptions used for cost estimates, individual costs may be evaluated through a sensitivity analysis. The following factors may be considered in conducting a sensitivity analysis:

- the effective life of a remedial action;
- operation and maintenance costs;

300935

Doc #SA11603Y.2.2

- duration of cleanup;
- volume of contaminated material, given the uncertainty of Site conditions;
- other design parameters; and
- discount rate.

4.10.1.4 Compliance with ARARs

Each alternative will be evaluated to determine its compliance with applicable or relevant and appropriate Federal and State requirements. The following considerations will be made for each alternative during the detailed analysis of ARARs:

- compliance with chemical-specific ARARs;
- compliance with action-specific ARARs;
- compliance with location-specific ARARs; and
- compliance with appropriate criteria, advisors, and guidelines.

Each alternative will be assessed to determine whether it attains or exceeds ARARs. Section 121 (d) (4) of CERCLA identifies six circumstances under which ARARs may be waived:

- The remedial action selected is only a part of a total remedial action where the final remedy will attain the ARAR upon completion.

300936

Doc #SA11603Y.2.2

- Compliance with the ARAR will result in a greater risk to human health and the environment than alternative options.
- Compliance with the ARAR is technically impracticable from an engineering perspective.
- An alternative remedial action will attain an equivalent standard of performance through the use of another method or approach.
- The ARAR is a State requirement that the State has not consistently applied (or demonstrated the intent to apply consistently) in similar circumstances.

4.10.1.5 Community Acceptance

This evaluation will consist of the incorporation of public comments/concerns into each alternative assessment. There is no formal opportunity for public comment during the preparation of the RI/FS, hence, most public concerns will be addressed in the Record of Decision (ROD).

4.10.2 Subtask B - Comparative Analysis

Once the alternatives have been individually evaluated, a comparative analysis will then be conducted among alternatives using the same evaluation criteria. The comparative analysis

300937

Doc #SA11603Y.2.2

allows for the identification of advantages and disadvantages of each alternative relative to one another. Among the key comparisons that will be made is the examination of the relationship between protectiveness and costs of remedial alternatives providing similar levels of protection.

4.11 Preliminary and Final Feasibility Study Reports

4.11.1 Preliminary Feasibility Study Report

Upon completion of Sections 4.0 through 4.10 a preliminary FS report will be submitted to USEPA. This report will contain a conceptual design of the remedial alternative(s) selected. A proposed outline of the report is presented on Table 5.

4.11.2 Final Feasibility Study Report

When Roux Associates has received all comments from USEPA on the preliminary FS report, a final report will be prepared which incorporates or discusses comments, as appropriate. It is envisioned that several meetings with the USEPA may be a necessary part of the final report preparation.

300938

Doc #SA11603Y.2.2

5.0 SITE PROCEDURES AND MANAGEMENT

There are a number of considerations that must be addressed when conducting a Remedial Investigation. These include security for the drilling rig and other equipment left onsite overnight; equipment decontamination procedures; quality assurance for all field work; enforcement of safety procedures; and coordination of investigation activities with the proper client and regulatory agency personnel. The proposed approach to each of these Site management problems is discussed below.

5.1 Site Security

Because the Site is fenced, security should not be a problem. At night, the drilling rig will remain on the Site. Soil samples and supplies will be stored in the building on Site or in a suitable locked facility, such as a trailer brought to the Site.

All sampling equipment, sample bottles, field notes, and water-level measuring equipment will be the responsibility of the Field Manager (hydrogeologist) and will be locked in his field vehicle or other secure location. It is Roux Associates' policy to duplicate all field notes on a daily basis and keep the duplicate set in a secure place away from the Site.

300939

Doc #SA11603Y.2.2

5.2 Decontamination Procedures

Decontamination will be accomplished at a central staging area. Wash water will be obtained from the nearest hydrant or tap. Decontamination procedures for specific items are described below.

Sampling Devices

Split-spoon core samplers and pumps will be cleaned between uses with a steam cleaner and scrub brush, and rinsed with distilled water. All equipment will be decontaminated following protocols in Appendix A.

Tools

Tools such as wrenches and shovels used during the drilling operations which come into contact with sediment and/or water from a boring will be decontaminated following the protocols in Appendix A.

Heavy Equipment

Drilling rigs will be washed with water under high pressure. The rig will be decontaminated before entering the Site and before leaving the Site. However, those components in direct contact with contaminants, such as auger flights, will be decontaminated with a steam cleaner between holes to prevent cross contamination.

300940

Doc #SA11603Y.2.2

5.3 Quality Assurance

5.3.1 Quality Assurance Officer

All field work will be done by, or under the direct supervision of, an experienced Hydrogeologist from Roux Associates. A Quality Assurance (QA) Officer will be assigned to this project. The QA Officer will be present for critical phases, will inspect Site activities, review procedures to ensure that all protocols are being followed, inspect field notes, check chain-of-custody forms and observe sampling activities. The QA Officer will prepare Quality Assurance Reports that will be submitted to the Project Manager. The QA Officer will have no other responsibilities with regard to this project other than quality assurance.

The Field Manager will have direct responsibility for following all protocols, for ensuring that the Health and Safety Plan are followed, ensuring that all wells are constructed to specification and properly developed. The USEPA's satisfaction with well construction will be the ultimate criterion for acceptance.

5.3.2 Laboratory Procedures

Roux Associates will select an analytical laboratory for the Site which is included in the NYSDEC "Technically Acceptable Laboratory List". As required, CLP Scope of Work

300941

Doc #SA11603Y.2.2

(SOW) for organics (February 1988) and CLP SOW for inorganics (July 1988) will be followed for all TCL analyses. If deviation from CLP protocol is required for any analyses, the USEPA QA/QC Officer and Project Manager will be notified.

All analytical data will be validated by a qualified laboratory (other than the laboratory performing the analyses) as discussed in the following section.

5.3.3 Data Validation

As part of the quality assurance program, 100% of all analytical data will be validated by a qualified party (other than the laboratory which conducted the analyses). Data will be reviewed in accordance with USEPA data validation criteria and procedures. Any data inconsistencies which are encountered will be reported to Roux Associates immediately. A Data Validation Report will be submitted to the USEPA Project Manager.

5.4 Sample Handling

All samples (soil and water) will be collected according to the appropriate protocols (Appendix A).

Samples will be placed in the appropriate precleaned jars or bottles provided by the laboratory for the specific analyses to be performed. All jars and bottles will be prelabeled with the following:

300942

Doc #SA11603Y.2.2

- a unique code number (recorded in the field book);
- the boring or well number;
- depth (if appropriate);
- type of sample;
- date and time of collection; and
- name of person collecting sample.

Bottles or jars will be sealed with the custody seal, placed in plastic bags and packed in ice at 4°C. Ice chests will have been precleaned and kept closed until needed. When sampling is completed for the day, all ice chests will be drained of water and repacked with fresh ice. Copies of the chain-of-custody forms will be placed inside the chests. The chests will then be sealed and taken directly to the laboratory, or to Federal Express, by the geologist.

The following day the laboratory will report the receipt of the chest, condition of the chest, and condition of the samples to Roux Associates. Any damaged samples will be retaken on the following day and shipped to the laboratory.

5.5 Blanks and Split Samples

Trip blanks, field equipment rinse blanks, duplicate samples, and split samples will be used to verify the quality of the field sampling and laboratory results. A brief description of each is given below.

300943

Doc #SA11603Y.2.2

- Trip blank: a sample of demonstrated analyte-free water sealed in a 40-ml vial with a Teflon-lined septum. Trip blanks are analyzed only for volatile organics, and are taken at a frequency of one per day when sampling for volatile organics in an aqueous medium.
- Field equipment rinse blank: a sample of demonstrated analyte-free water which was poured over each decontaminated piece of equipment, or bowls and pans used to homogenize samples into the sample container, and which is then analyzed for the analytes of concern. One equipment rinse blank is taken for each type of equipment used each day of sampling and shipped with the samples collected that day.
- Environmental duplicate samples: samples collected to demonstrate the reproducibility of sampling technique for each matrix separate from any duplicates run by the laboratory to measure analytical precision. Both types of duplicate samples will be taken at a frequency of at least 5% (1 in 20) for each specific sampling or analytical method.
- Split samples: are taken when two or more parties wish to have a portion of the same sample. Samples will be split with USEPA at their request.

5.6 Record Keeping

All information pertinent to field activities will be recorded in a bound, waterproof field book. Duplicates of all notes will be prepared each night and kept in a secure place away from the Site. Proper documentation will consist of all field personnel maintaining detailed records of all work accomplished including:

300944

Doc #SA11603Y.2.2

- date and time of work events;
- purpose of work;
- names and addresses of people relevant to project;
- description of all methods;
- description of all samples;
- number and size of samples;
- description of sampling point;
- date and time of collection of sample;
- sample collector's name;
- reference to Site map;
- field observations; and
- any field measurements with portable instruments.

Photographs will be used to document the hydrogeologist's observations where appropriate. Items such as the date/time, location, and sequential number of the photograph and roll number will be recorded in the field book.

Each sample collected in the field will be labeled using waterproof ink. The label will include the following as a minimum:

- a unique code number (recorded in the field book);
- the boring or well number;
- depth (if appropriate);

300945

- type of sample;
- date and time of collection; and
- name of person collecting sample.

The hydrogeologist will transfer this information to the log book after filling out the label.

The number of persons involved in collecting and handling samples will be kept to a minimum. Roux Associates will use a team of two people (a hydrogeologist and technician) to purge wells and collect the samples.

Strict chain-of-custody procedures will be maintained for each sample. This chain-of-custody will comply with approved procedures.

5.7 Enforcement of Safety Procedures

It will be the responsibility of the Field Manager to enforce the established health and safety procedures. All Site workers, including all subcontractors, will be given oral and written instructions regarding Site health and safety procedures. The Field Manager will, if necessary, stop ongoing work any time an unsafe condition occurs until the condition is corrected. Health and safety procedures are explained in the following section of this proposal.

300946

Doc #SA11603Y.2.2

5.8 Coordination of Field Activities

The Field Manager will be responsible for coordination of all Site activities. These include: scheduling of subcontractors, implementation and enforcement of health and safety program, supervision of all field activities, inspection of well construction, preparing detailed logs, ensuring that all tasks are carried out in a timely and efficient manner, and keeping the Project Manager up to date on all activities and cost incurred to date. The Field Manager will have the authority to suspend all field activities for health and safety considerations.

300947

Doc #SA11603Y.2.2

6.0 PROJECT MANAGEMENT AND SCHEDULE

6.1 Organization and Staffing

The RI/FS for the Anchor Chemical Site will be managed by Roux Associates, as the prime contractor. The overall project staffing and organization is shown in Figure 10. Resumes of Key Personnel are given in Appendix C. The duties of the Roux Associates personnel to be assigned to this project are as follows:

Project Manager - Paul Roux will have overall responsibility for the project. He will plan the project, review all data collected and assist with interpretations and report preparation. Mr. Roux will work on remedial alternative screening and will be available for meetings as requested.

Remedial Investigation Task Manager - Karen Swanson will have overall responsibility for all aspects of the RI portion of the project and will be the contact for USEPA on all RI project matters. Dr. Swanson will plan and direct the field investigation, be present on Site to observe major activities, review all data generated, write reports and meet with USEPA and others as requested. She will work closely with the Field Manager on day-to-day problems and review of activities.

300948

Doc #SA11603Y.2.2

Feasibility Study Task Manager - Deborah Mosconi will be the Task Manager for the FS portion of the project. Ms. Mosconi will coordinate with the RI Task Manager to obtain data as it becomes available and to guide additional tasks in the RI to satisfy the needs of the FS.

Quality Assurance Officer - Michael DeCillis will be the Quality Assurance Officer for this project. Mr. DeCillis will inspect each major phase of the field work to ensure that all protocols are followed, and will prepare QA reports to be submitted to the Project Manager.

Principal Engineer - Bhoj Roopnarine will review chemical and hydrogeologic data and assist the Project and Task Managers in interpretations and report preparation where appropriate during both the Remedial Investigation and Feasibility Studies. Mr. Roopnarine will assist in the screening and selection of remedial alternatives, and will be available for meetings as requested.

Health and Safety Officer - Linda Wilson will be the Health and Safety Officer for this project. Ms. Wilson will prepare the Health and Safety Plan which provides specific procedures to be implemented for personal protection. She will revise the Health and Safety Plan, if required, based on the findings of preliminary Site investigation.

Field Manager (Hydrogeologist) - John Sheehan will be responsible for the drilling and sampling program, including inspection of drilling equipment and supplies prior to start of job, inspection of existing wells, decisions regarding necessary changes in well construction

300949

Doc #SA11603Y.2.2

to meet actual field conditions, supervision of all drilling, logging of all samples, inspection of well construction activities, preparation of detailed logs, measurement of water levels when no drilling is in progress, coordination of drilling and sampling activities with other Site activities, and implementation and enforcement of health and safety programs. A technician will be available to assist Mr. Sheehan with the health and safety program as needed.

Geologist/Technician - Roux Associates' geologists and technicians will assist where necessary with water-level measurements, photoionization measurements, sampling, pick-up and delivery of equipment and samples to facilitate field operations, and decontamination of core barrels and other equipment.

Data Validator - All data will be validated by an independent validator according to the USEPA Region II CERCLA Quality Assurance Manual.

6.2 Project Schedule

The proposed schedule for the Site Characterization portion of the project is shown on Figure 11. A schedule for the Feasibility Study and any Post Screening Field Investigations that may be necessary will be prepared as part of the RI final report.

300950

Doc #SA11603Y.2.2

Any unavoidable delays (weather, equipment failure) will be offset by working extra time and weekends, if necessary. Oral and/or written reports to the client's representative and the USEPA will explain schedule problems, if any occur, and detailed steps taken to stay within the overall schedule.

300951

Doc #SA11603Y.2.2

7.0 HEALTH AND SAFETY PLAN

7.1 Employee Training

All personnel required to be on Site shall have completed the required 40 hour USEPA approved health and safety training program for hazardous waste sites prior to Site entry and start of the field investigation. This includes all Roux Associates personnel, including managers and all subcontractors hired to complete the scope of work. In addition, all personnel will be given a copy of the site-specific health and safety plan and will be required to review and sign-off stating such. A general briefing, including an explanation of the Health and Safety Plan (with a question and answer period), will be given prior to Site entry. Any updates made to the health and safety plan during the investigation will be conveyed to all personnel. OSHA standards (29 CFR 1920.120) will be met.

7.2 General Safe Work Practices

- Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand to mouth contact and ingestion of material is prohibited onsite except in specified areas.
- Hands must be washed thoroughly upon leaving the Site area before eating, drinking, or any other activities. This will be done in the decontamination staging area.

300952

Doc #SA11603Y.2.2

- Contaminated protective equipment shall not be removed from the Site until it has been decontaminated or properly packaged and labeled.
- Portable or fixed emergency shower/eyewash stations shall be located in the decontamination staging area.
- No excessive facial hair, which interferes with a satisfactory fit of respiratory equipment, will be allowed on personnel that may be required to wear respiratory protective equipment.
- An emergency first aid kit and fire extinguisher shall be onsite at all times.
- All respiratory protection selected to be used onsite shall meet NIOSH/MSHA requirements for the existing contaminants.
- Any skin contact with surface and ground water shall be avoided (tyvek suits, rubber gloves, leather boots).
- No contact lenses may be worn onsite.

300953

Doc #SA11603Y.2.2

7.3 Personal Protective Equipment

Based on background data from previous investigations at the Site, Level D will be worn for the entire investigation. Photoionization readings will be made during certain tasks where fumes or chemical dust are a possibility and otherwise at the discretion of the Safety Officer or Field Manager. If needed, Level C protection will be available at Roux Associates offices. It is not expected that Level A or B protection will be required. If such equipment is needed for certain tasks, the work plan will be modified to either obtain the equipment or subcontract the task.

7.4 Levels of Protection

The level of protection selected is based primarily on:

- o type(s) and measured concentration(s) of the chemical substances(s) in the ambient atmosphere and its toxicity. The portable photoionization meter will be used to conduct these measurements.
- o potential or measured exposure to substances in air, splashes of liquids, or other direct contact with material due to work being performed.

300954

Doc #SA11603Y.2.2

A. Level D Protection

1. Personal protective equipment

- Coveralls
- Gloves*
- Boots/shoes, leather or chemical-resistant, steel toe and shank
- Boots (outer), chemical-resistant (disposable*)
- Safety glasses or chemical splash goggles*
- Hard hat**
- Escape mask*

* Optional

** During Drilling

2. Criteria for selection

Readings on the photoionization meter are less than 5 ppm in the breathing zone.

Work functions preclude splashes, immersion, or potential for unexpected inhalation of any chemicals.

300955

Doc #SA11603Y.2.2

B. Level C Protection

1. Personal protective equipment

- Full-face, air-purifying, canister-equipped respirator (MSHA/NIOSH approved)
- Chemical-resistant clothing (coverall; hooded, two- piece chemical splash suit; chemical-resistant hood and apron; disposable chemical-resistant coveralls)
- Coveralls*
- Gloves (outer), chemical-resistant
- Gloves (inner), chemical-resistant*
- Boots (outer), chemical-resistant, steel toe and shank*
- Boots (outer), chemical-resistant (disposable*)
- Hard hat (face shield*)
- Escape mask*
- 2-Way radio communications (intrinsically safe)

*Optional

2. Criteria for selection

- Total vapor readings register between 5 ppm and 25 ppm on photoionization instruments such as the Photovac Tip II and Century OVA System.

300956

Doc #SA11603Y.2.2

- Measured air concentrations of identified substances will be reduced by the respirator to at or below the substance's exposure limit, and the concentration is within the service limit of the canister.
- Atmospheric contaminant concentrations do not exceed Immediately Dangerous to Life and Health (IDLH) levels.
- Atmospheric contaminants, liquid splashes, or other direct contact will not adversely affect the small area of skin left unprotected by chemical-resistant clothing.
- Job functions have been determined not to require self-contained breathing apparatus.
- Air will be monitored periodically.

If Level A or B protection is required, the work plan will be modified.

7.5 Medical Program

To safeguard the health of field personnel, a medical program has been developed, established, and maintained. This program has two essential components: routine health care and emergency treatment.

300957

Doc #SA11603Y.2.2

A. Routine Health Care

For personnel engaged in activities that may result in exposure to hazardous materials, medical examinations to establish the individual's state of health, baseline physiological data, and ability to wear personnel protective equipment are required. Roux Associates personnel undergo such routine physicals on a yearly basis.

B. Emergency Medical Care and Treatment

The Site Health and Safety Plan addresses emergency medical care and treatment of field personnel, including possible exposures to toxic substances and injuries due to accidents or physical problems. The following items have been included in emergency care provisions:

1. The name, address, and telephone number of Central General Hospital will be conspicuously posted at the drilling rig. A map (Figure 12) and directions for locating the facility, plus the travel time, will be posted at the Site.
2. The hospital's ability to provide care and treatment of personnel exposed or suspected of being exposed to toxic (or otherwise hazardous) substances will be ascertained.
3. All administrative arrangements for accepting patients will be made in advance with the hospital.

300958

Doc #SA11603Y.2.2

4. The telephone numbers for ambulance, police, fire and emergency which are given below and procedures for obtaining these services will be conspicuously posted. The numbers are:

Ambulance: 931-0026 (Hicksville Fire Department)

Fire: 933-6444 Police: 365-0500 (2nd Precinct)

Central General Hospital: 681-8900

5. Clean wash water and basic first aid equipment will be readily available at the Site.

7.6 Community Safety

It is anticipated that the performance of the RI will have little or no impact on the community. The Site is surrounded by a fence, thereby minimizing the potential for unwarranted Site access and/or injury. Access will be restricted to authorized personnel only.

During the monitor well drilling and soil boring, however, there is some risk of releasing volatile organic compounds to the atmosphere. In order to address this concern, perimeter monitoring will be implemented to assure that action levels are not exceeded beyond the Site boundaries. If the perimeter levels are exceeded, corrective measures will be undertaken until concentrations are below action levels. The work area action level will be 200 ppm above background. The perimeter action level will be background, as determined prior to the start of any drilling.

300959

8.0 REFERENCES

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300960

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Doc #SA11603Y.2.2

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300962

Doc #SA11603Y.2.2

Table 1. History of Occupancy, Anchor Chemical Site
500 West John Street, Hicksville, New York

<u>Years</u>	<u>Name</u>	<u>Type of Business</u>
Prior To 1964	----	Farmland left fallow
1964 - 1978	Anchor Chemical Company	Blend & package chemicals for the graphic arts industry
1978 - 1985	Anchor/Lith Kem-Ko	Blend & package chemicals for the graphic arts industry
1985 - 1988	Emery Worldwide Freight	Shipping company
1989 - Present	J.D. Brauner	Furniture Manufacturer

Source: Spiegel Associates (McGill, 1990)

300964

TABLE 2.

List of Principal Products Made and Raw Materials Consumed by Anchor Chemical Company in 1977. (Source: NCDH Files).

PRINCIPAL PRODUCTSRAW MATERIALS

Fountain Mix #18

Water; gum arabic 14° baume solution; chrome alum
50% zinc nitrate solution; ethyloxilated alcohol
surfactant 6

Maxi Kleen

Water; citric acid; 62% solution chromium
chloride; 70% solution hydroxyacetic acid;
glycerine.

On the Press

Isopropyl alcohol; ethylene glycol; cuprous
chloride; HCL.

PD Gum

Water; gum arabic 14% baume solution; phosphoric
acid.

P.P.C. #1 100 Gal.

Water; monosodium phosphate; isopropyl alcohol;
buty cellosolve; ethylene glycol; glycerine;
phosphoric acid.

Velvee

Water; SL-62 (biodegradable surfactant); isopropyl
alcohol; ionol concentrate.

TAME

Water; sodium citrate; citric acid; gum arabic 14°
baume solution; ethylene glycol; butyl cellosolve;
IPA Union Carbide emulsion L7001.

Textile Spirits
Naphthol Spirits
Mineral Spirits
Methylene Chloride
Acetone
Solvatone
V.M. & P Naptha
1,1,1 Trichloroethane
Diethyl Glycol
Ethyl Acetate

Doc #SA11603Y.2.2

300965

Table 3. Underground Storage Tank Data, Anchor Chemical Site, Hicksville, New York.

Tank Number	Capacity (gallons)	Construction	Product(s)	Date Installed	Date Tested	Test Results	Abandoned/Decommissioned
1	3,000	steel	Napthol Spirits (1)	1964	1981	passed	
2	3,000	steel	Mineral Spirits (2) Aromatic 100 (3)	1964	1981	passed	
3	3,000	steel	Methylene Chloride	1964	1982	failed	
4	3,000	steel	Textile Spirits (Hexane)	1964	1981	passed	
5	4,000	steel	Napthol Spirits	1964	1981	failed	1983
6	2,000	steel	Acetone Solvaton	1964	1981	failed	1983
7	2,000	steel	Cellosolve (2-Ethoxyethanol)	1964	1981	passed	
8	1,500	steel	1,1,1-Trichloroethane Mineral Spirits	1964	1981	failed	1983
9	1,500	steel	Diethyl Glycol	1964	1983	passed	
10	1,500	steel	Mineral Spirits 66 Cellosolve	1964	1981	passed	
11	1,500	steel	Isopropyl alcohol	1964	1981	failed	1983
12	1,500	steel	1,1,1-Trichloroethane	1964	1983	passed	
13	1,500	steel	Ethyl acetate Isopropanol	1964	1981	passed	
14	1,000	steel	Butyl cellosolve (2-Butoxyethanol)	1964	1981	passed	
15	4,000	steel	Textile Spirits	1964	1981	failed	1983
16	1,000	steel	VM&P Naptha (2)	1964	1981	passed	
17	550	steel	Acetone	1964	1981	passed	

3000
66
66
66

(1) Hydrocarbon mixture; also called petroleum naphtha
(2) Mix of hydrocarbons of the methane series, also called VM&P Naptha
(3) Mix of aromatic hydrocarbons, C8-C10

Table 4. Volatile Organic Compounds Detected at Quantifiable Concentrations in Ground-Water Samples at the Anchor Chemical Site by Lockwood, Kessler & Bartlett, Inc.

Date Sampled: 12/14/82 6/15/83 1/30/84 7/10/84 11/1/84 2/28/85						
Parameter (Concentrations in ug/L)						
<u>Well No. 1</u>						
Methylene chloride	9	<5	<5	<5	<2	<2
1,1-Dichloroethane	12	<5	8	<5	4	<2
1,1,1-Trichloroethane	800	180	1000	400	65	26
Trichloroethylene	19	2	3	<1	<1	<1
Tetrachloroethylene	48	5	2	<1	<1	<1
Chloroform	<1	<1	<1	10	<1	<1
<u>Well No. 2</u>						
1,1,1-Trichloroethane	6	<1	3	<1	<1	<1
<u>Well No. 3</u>						
Methylene chloride	<5	<5	<1	<5	<2	<2
1,1-Dichloroethylene	800	250	*	*	*	*
1,1-Dichloroethane	350	50	5	<5	<2	<2
1,1,1-Trichloroethane	24000	7000	80	60	7	4
Trichloroethylene	55	10	<1	<1	<1	<1
Tetrachloroethylene	1100	410	3	<1	<1	<1
Chlorodibromomethane	170	9	<1	<1	<1	<1
1,2-Dichloroethylene	100	17	<5	<5	<2	<2
Chloroform	12	2	<1	<1	<1	<1
1,2-Dichloroethane	31	<5	<5	<5	<2	<2
Benzene	*	3	<1	<1	<1	<1
Toluene	*	2	<2	<2	<2	<2
Acetone	*	110	<20	<10	<10	<10

* Not analyzed for

The less than symbol (<) indicates that the parameter of interest is present at a concentration less than the stated value and possibly not present at all. The value is a function of the limitations of the analytical instrumentation and the physical and chemical testing procedures.

300967

Table 5. Volatile Organic Compounds Detected at Quantifiable Concentrations in Ground-Water Samples at the Anchor Chemical Site by Roux Associates, Inc.

	Well 1	Well 2	Well 3
Compound (Concentrations in ug/L)			
<u>October 27, 1987</u>			
1,1,1-Trichloroethane	21.2	1.5	*
Xylene	<1	1.5	*
<u>June 22, 1989</u>			
1,1-Dichloroethane	4	<2	<2
1,1,1-Trichloroethane	59	<1	8

* Not sampled

300968

Table 6 Summary of Sampling Program, Anchor Chemical Site, Hicksville, New York

<u>Matrix</u>	<u>No. Samples</u>	<u>Analytes</u>	<u>Analytical Methods</u>
<u>Ground Water</u>			
Round 1:	7 samples 1 field blank 1 trip blank/day 1 environmental duplicate	non-volatile TCL compounds VOCs	CLP-SOW USEPA Method 524
Round 2:	10 samples 1 field blank 1 trip blank/day 1 environmental duplicate	parameters of concern determined during round 1	CLP-SOW
<u>Soil/Sediment</u>			
Round 1:	6 drywell samples 1 cesspool sample 1 field blank 1 environmental duplicate	non-volatile TCL compounds VOCs	CLP-SOW USEPA Method 524
Round 2:	18 samples 1 field blank 1 environmental duplicate	parameters of concern determined during round 1	CLP-SOW

300969

Table 7

Proposed RI Format

Executive Summary

1. Introduction
 - 1.1 Purpose of Report
 - 1.2 Site Background
 - 1.2.1 Site Description
 - 1.2.2 Site History
 - 1.2.3 Previous Investigations
 - 1.3 Report Organization
2. Study Area Investigation
 - 2.1 Surface Features (topographic mapping, etc.) (natural and manmade features)
 - 2.2 Contaminant Source Investigations
 - 2.3 Meteorological Investigations
 - 2.4 Surface-Water and Sediment Investigations
 - 2.5 Geological Investigations
 - 2.6 Soil and Vadose Zone Investigations
 - 2.7 Ground-Water Investigations
3. Physical Characteristics of the Study Area
 - 3.1 Surface Features
 - 3.2 Meteorology
 - 3.3 Surface-Water Hydrology
 - 3.4 Geology
 - 3.5 Soils
 - 3.6 Hydrogeology
 - 3.7 Demography and Land Use
4. Nature and Extent of Contamination
 - 4.1 Sources (lagoons, sludges, tanks, etc.)
 - 4.2 Soils and Vadose Zone
 - 4.3 Ground Water
 - 4.4 Surface Water and Sediments
 - 4.5 Air
5. Contaminant Fate and Transport
 - 5.1 Potential Routes of Migration (i.e., air, ground water, etc.)
 - 5.2 Contaminant Persistence
 - 5.3 Contaminant Migration
6. Baseline Risk Assessment
 - 6.1 Public Health Evaluation
 - 6.1.1 Exposure Assessment
 - 6.1.2 Toxicity Assessment
 - 6.1.3 Risk Characterization

300970

- 7. Summary and Conclusions
 - 7.1 Summary
 - 7.1.1 Nature and Extent of Contamination
 - 7.1.2 Fate and Transport
 - 7.1.3 Risk Assessment
 - 7.2 Conclusions
 - 7.2.1 Data Limitations and Recommendations for Future Work
 - 7.2.2 Recommended Remedial Action Objectives

Appendices

- A. Technical Memoranda on Field Activities (if available)
- B. Analytical Data and QA/QC Evaluation Results
- C. Risk Assessment Methods

300971

Table 8 Proposed FS Format

Executive Summary

1. Introduction
 - 1.1 Purpose and Organization of Report
 - 1.2 Background Information (Summarized from RI Report)
 - 1.2.1 Site Description
 - 1.2.2 Site History
 - 1.2.3 Nature and Extent of Contamination
 - 1.2.5 Baseline Risk Assessment

2. Identification and Screening of Technologies
 - 2.1 Introduction
 - 2.2 Remedial Action Objectives -
 - Contaminants of interest
 - Allowable exposure based on risk assessment
 - Allowable exposure based on ARARs
 - Development of remedial action objectives
 - 2.3 General Response Actions
 - 2.4 Identification and Screening of Technology Types and Process Options
 - 2.4.1 Identification and Screening of Technologies
 - 2.4.2 Evaluation of Technologies and Selection of Representative Technologies

3. Development and Screening of Alternatives
 - 3.1 Development of Alternatives
 - 3.2 Screening of Alternatives
 - 3.2.1 Introduction
 - 3.2.2 Alternative 1
 - Description
 - Evaluation
 - Effectiveness
 - Implementability
 - Cost
 - 3.2.3 Alternative 2
 - Description
 - Evaluation
 - 3.2.4 Alternative 3
 - 3.2.5 Summary of Screening

4. Detailed Analysis of Alternatives
 - 4.1 Introduction
 - 4.2 Alternative Analysis
 - 4.2.1 Alternative 1
 - 4.2.1.1 Description
 - 4.2.1.2 Assessment

300972

- Short-Term Effectiveness
- Long-Term Effectiveness and Permanence
- Reduction of Mobility, Toxicity, and Volume
- Implementability
- Cost
- Compliance with ARARs
- Overall Protection
- Community Acceptance

4.2.2 Alternative 2

4.2.2.1 Description

4.2.2.2 Assessment

4.2.3 Alternative 3

4.2.4 Summary of Alternatives Analysis

4.3 Comparison Among Alternatives

4.3.1 Short-Term Effectiveness

4.3.2 Long-Term Effectiveness and Permanence

4.3.3 Reduction of Toxicity, Mobility, and Volume

4.3.4 Implementability

4.3.5 Cost

4.3.6 Compliance with ARARs

4.3.7 Overall Protection

4.3.8 Community Acceptance

4.3.9 Summary of comparisons among alternatives

4.4 Summary of Detailed Analysis

5. Recommended Remedial Action

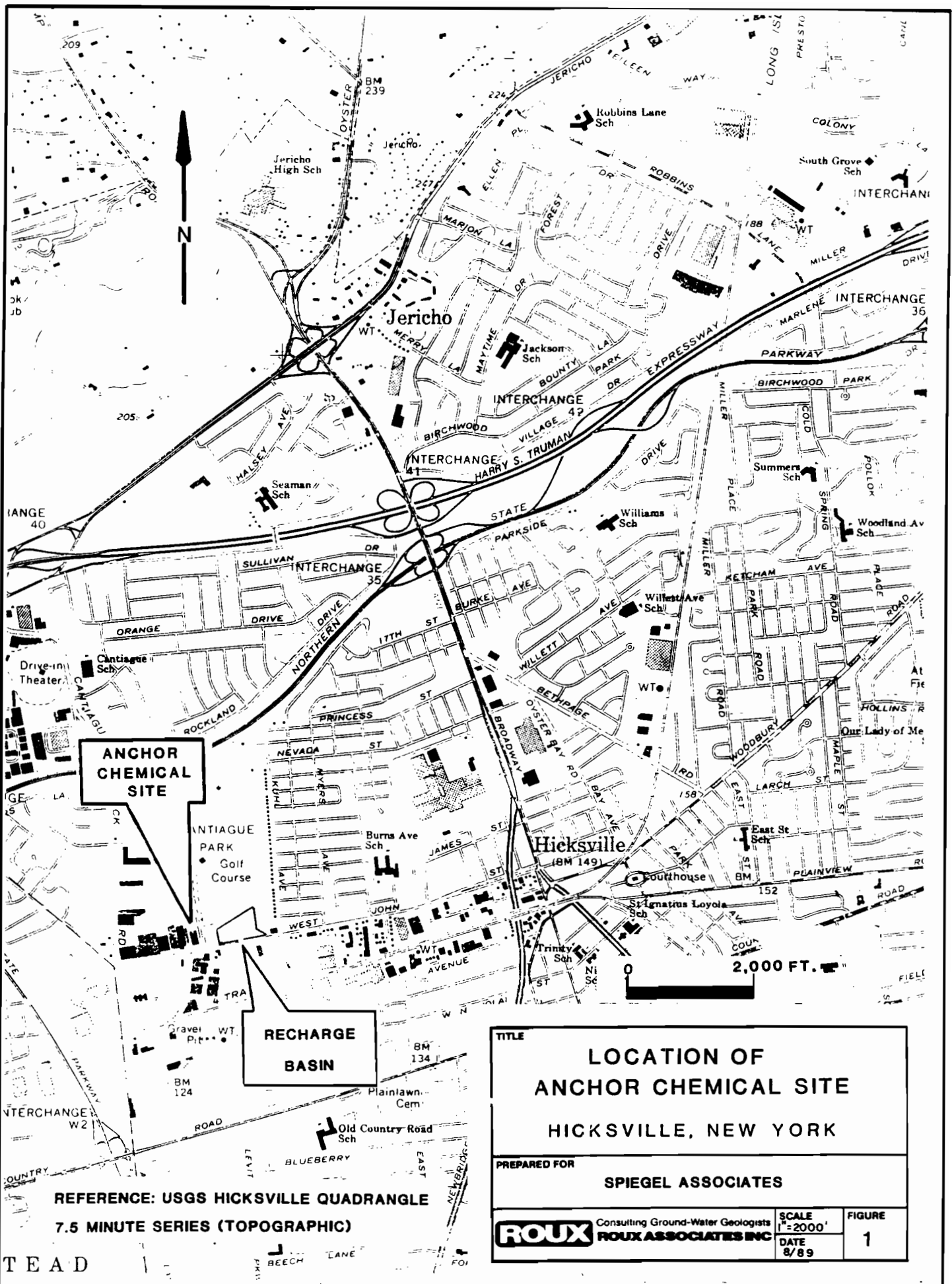
Bibliography

Appendices

300973

FIGURES

300974



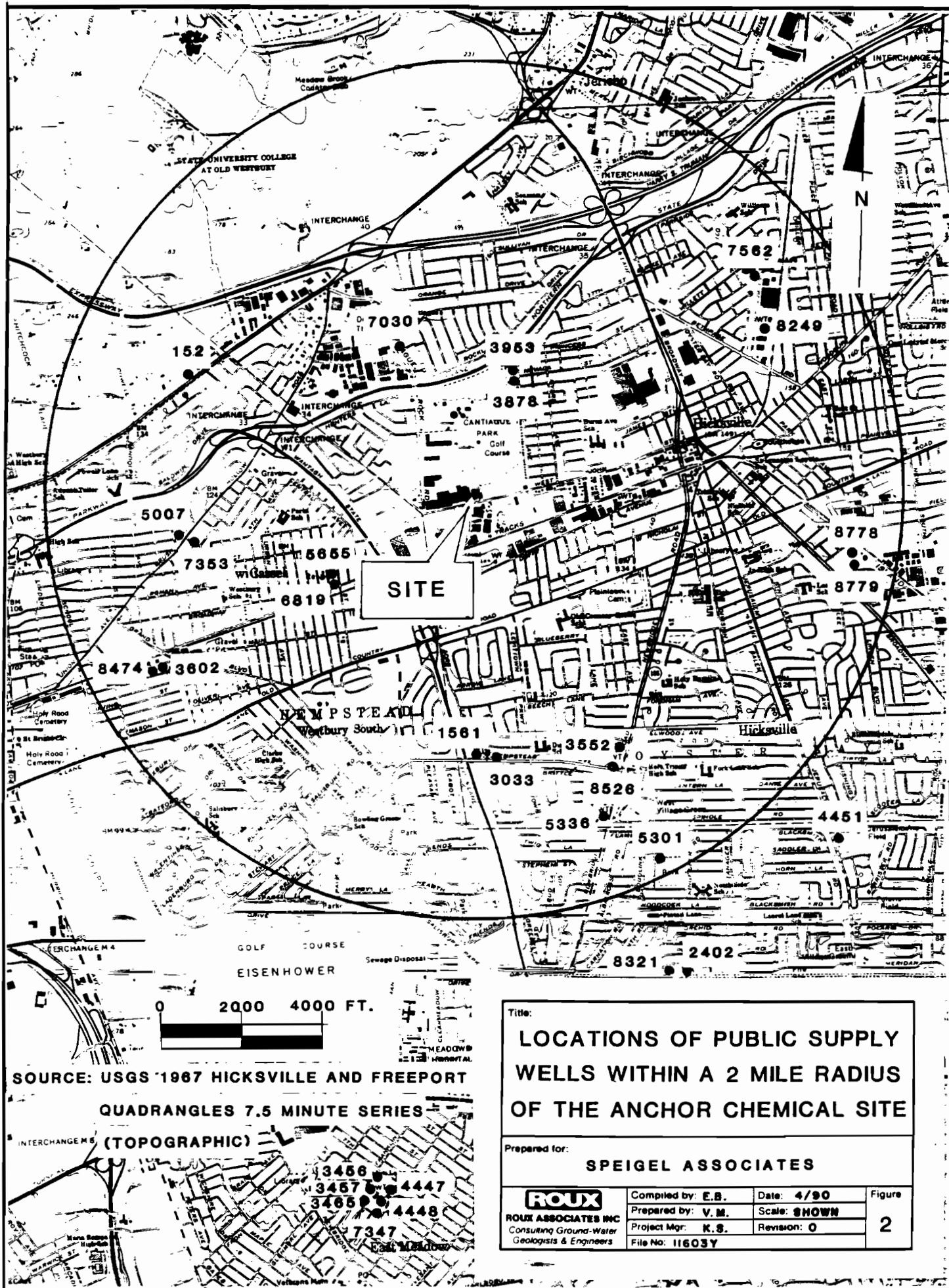
ANCHOR
CHEMICAL
SITE

RECHARGE
BASIN

TITLE		
LOCATION OF ANCHOR CHEMICAL SITE HICKSVILLE, NEW YORK		
PREPARED FOR		
SPIEGEL ASSOCIATES		
ROUX	Consulting Ground-Water Geologists	SCALE 1"=2000'
	ROUX ASSOCIATES INC	DATE 8/89
		FIGURE 1

REFERENCE: USGS HICKSVILLE QUADRANGLE
7.5 MINUTE SERIES (TOPOGRAPHIC)

300975



Title:

LOCATIONS OF PUBLIC SUPPLY WELLS WITHIN A 2 MILE RADIUS OF THE ANCHOR CHEMICAL SITE

Prepared for:

SPEIGEL ASSOCIATES

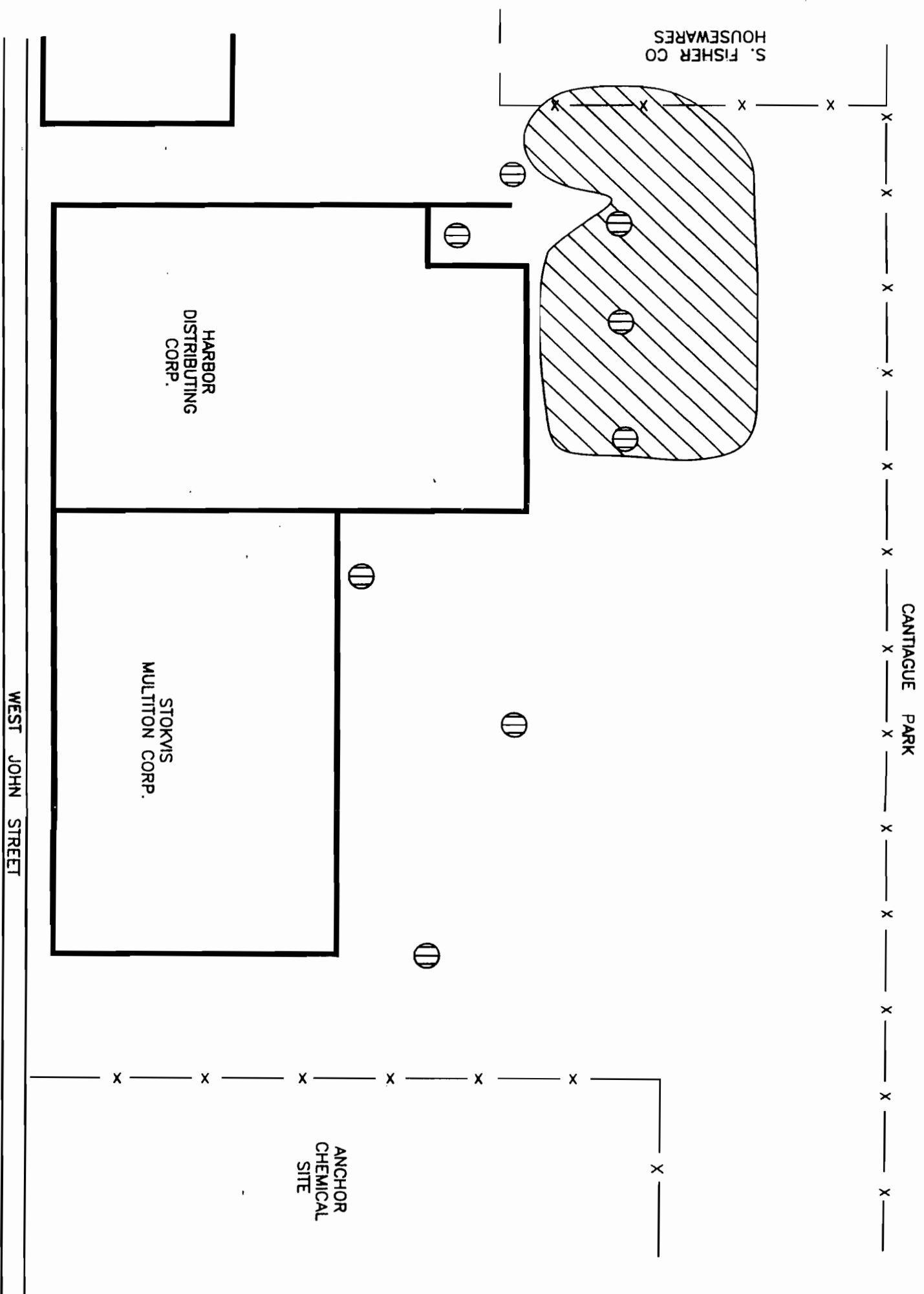
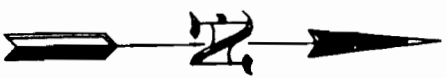
ROUX
ROUX ASSOCIATES INC
Consulting Ground-Water
Geologists & Engineers

Compiled by: **E.B.**
Prepared by: **V.M.**
Project Mgr: **K.S.**
File No: **11603Y**

Date: **4/90**
Scale: **SHOWN**
Revision: **0**

Figure
2

300976



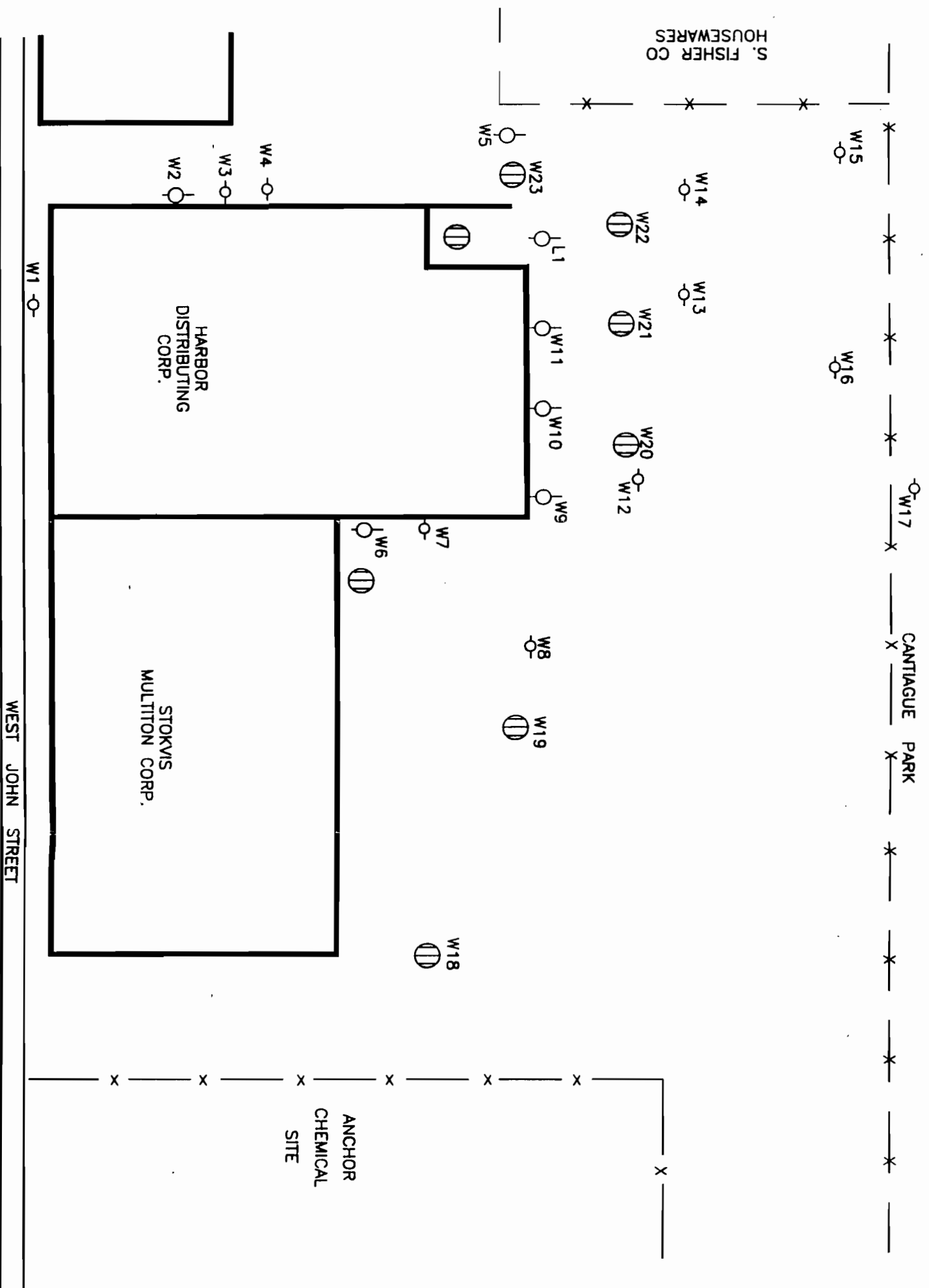
SOURCE: ROY F. WESTON, INC.
(NO SCALE GIVEN)

LOCATION OF MEK SPILL
300977

Prepared for:

SPIEGEL ASSOCIATES

ROY F. WESTON ROY F. WESTON ASSOCIATES INC. Consulting Geotechnical Engineers & Engineers	Completed by: K. S.	Date: 4/90	Figure 3
	Prepared by: S. W.	Scale:	
	Project mgr: K. S.	Revision: U	
	File No: 11603 Y		



EXPLANATION

W12 DRY WELL (8' x 12')

W9 6" WELL

W1 1.75" WELL

Title:

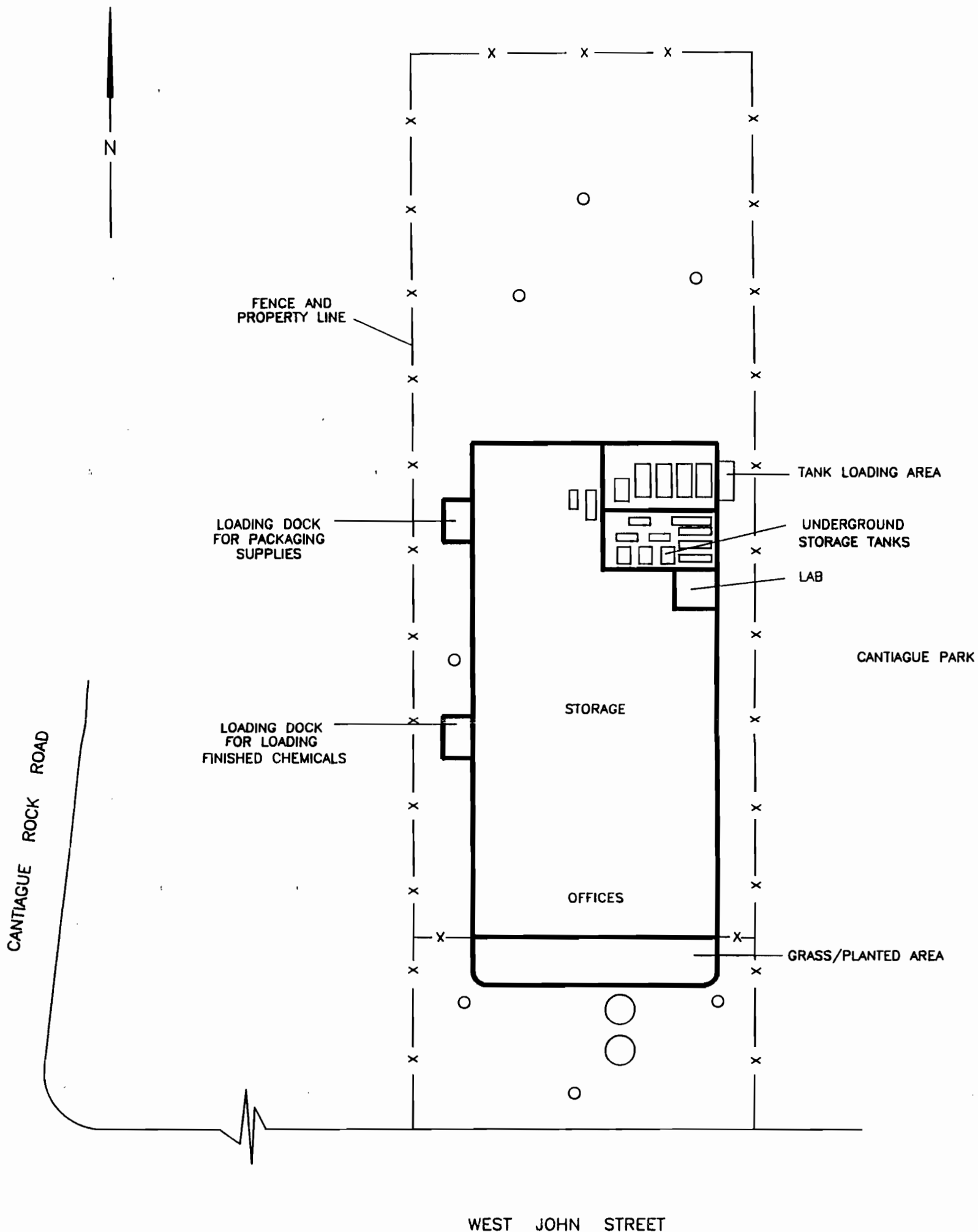
LOCATION OF GROUND-WATER MONITORING WELLS INSTALLED TO MONITOR MEK SPILL

Prepared for:

SPIEGEL ASSOCIATES

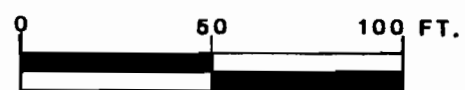
ROUX	Completed by: K.S.	Date: 4/80	Figure
ROUX ASSOCIATES INC.	Prepared by: S.W.	Scale:	
Consulting Ground-Water	Project Mgr: K.S.	Revision: 0	
Geologists & Engineers	File No: 11603Y		4

SOURCE: ROY F. WESTRON, INC.
(NO SCALE GIVEN)



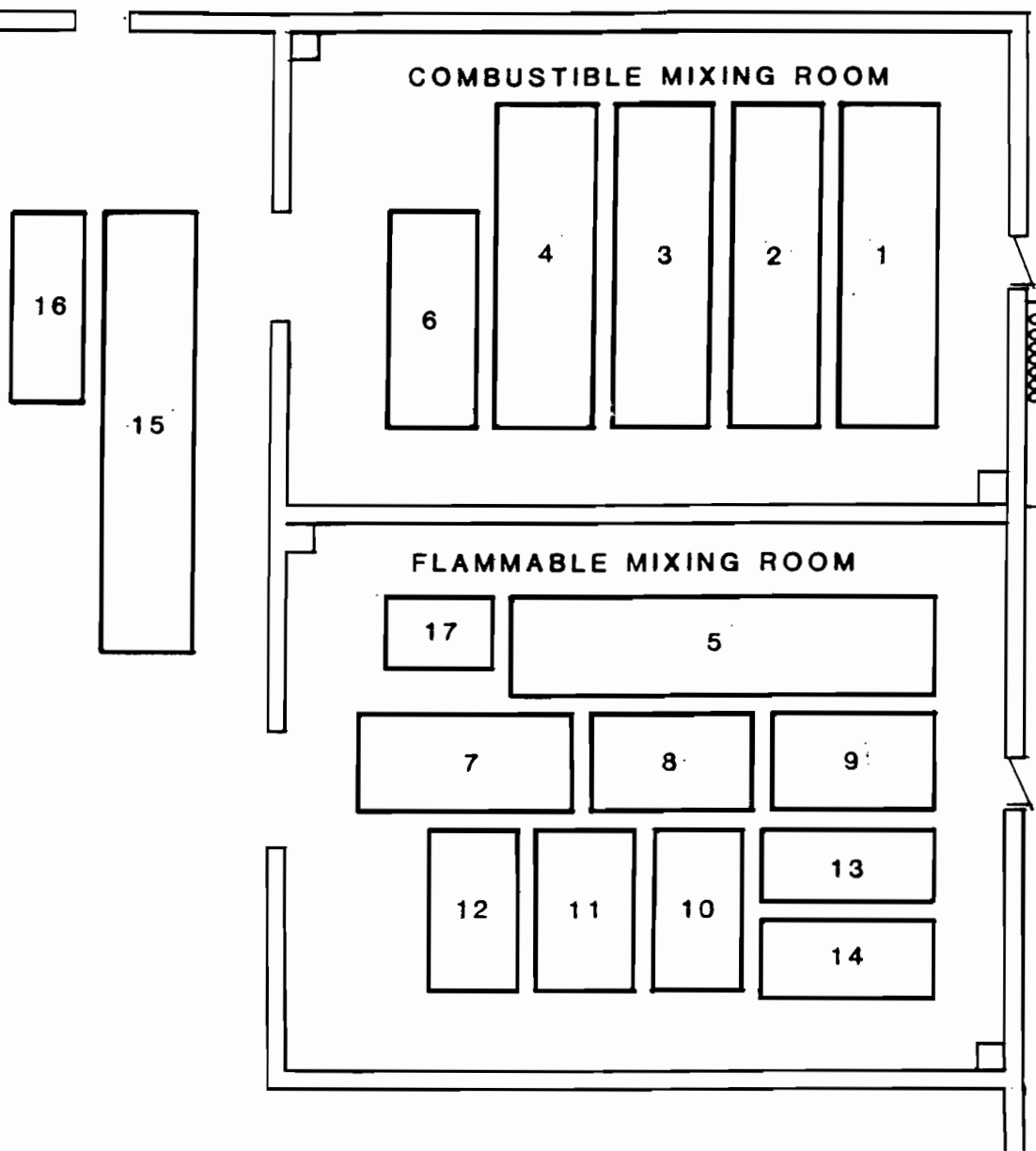
EXPLANATION

- DRY WELL
- CESSPOOLS



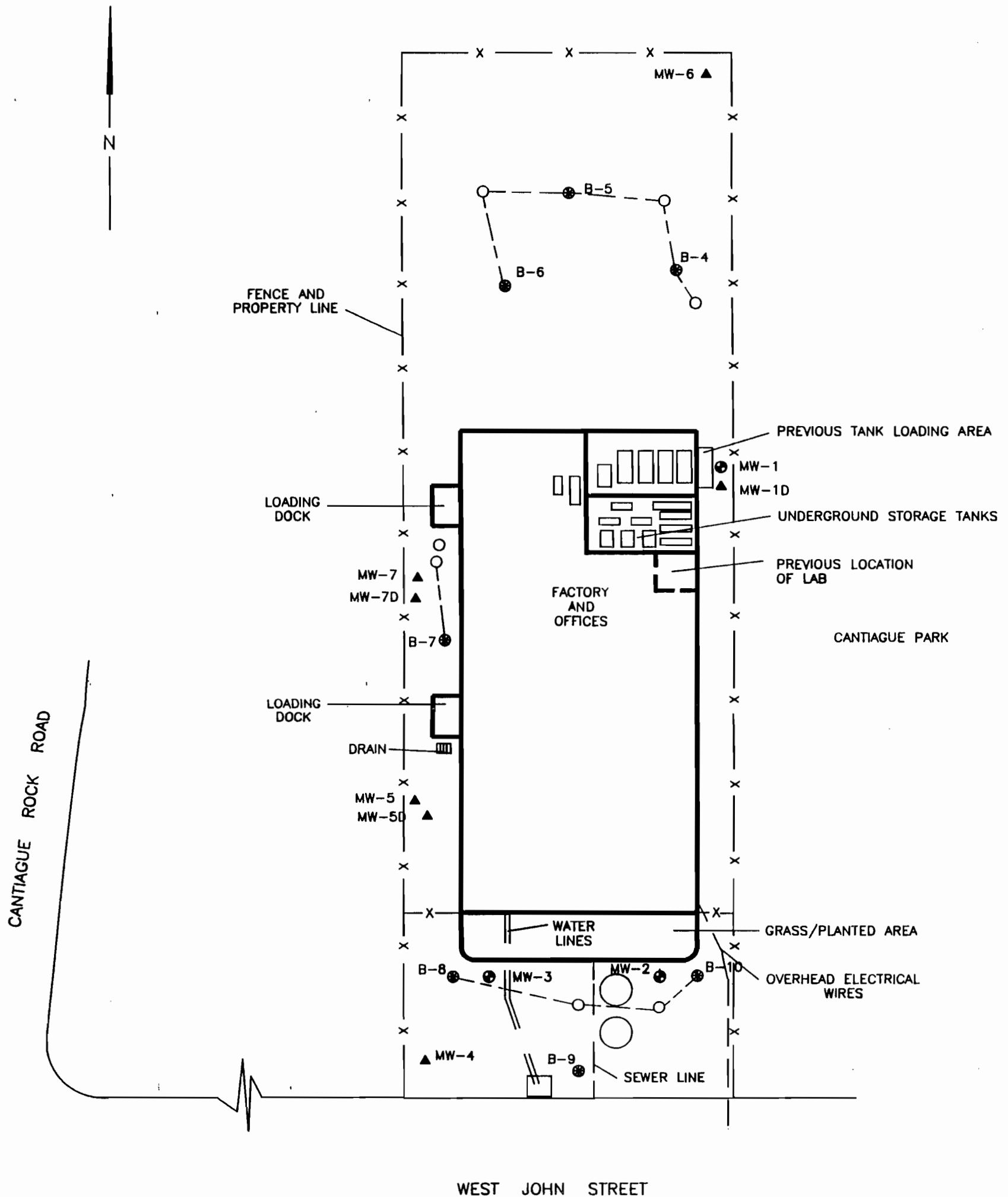
Title:			
PAST FACILITY USE AT ANCHOR CHEMICAL SITE			
Prepared for:			
SPIEGEL ASSOCIATES			
ROUX ROUX ASSOCIATES INC Consulting Ground-Water Geologists & Engineers	Compiled by: K. S.	Date: 5/90	Figure 5
	Prepared by: C.L.	Scale: SHOWN	
	Project Mgr: K. S.	Revision: 0	
	File No: 11603Y		

300979



Title:			
ARRANGEMENT OF UNDERGROUND STORAGE TANKS AT ANCHOR CHEMICAL SITE			
Prepared for:			
SPIEGEL ASSOCIATES			
ROUX ROUX ASSOCIATES INC Cassealing Ground-Water Geologists & Engineers	Compiled by: E. B.	Date: 4/90	Figure
	Prepared by: V. M.	Scale: SHOWN	
	Project Mgr: K. S.	Revision: 0	
File No: 11603Y		6	

300980.

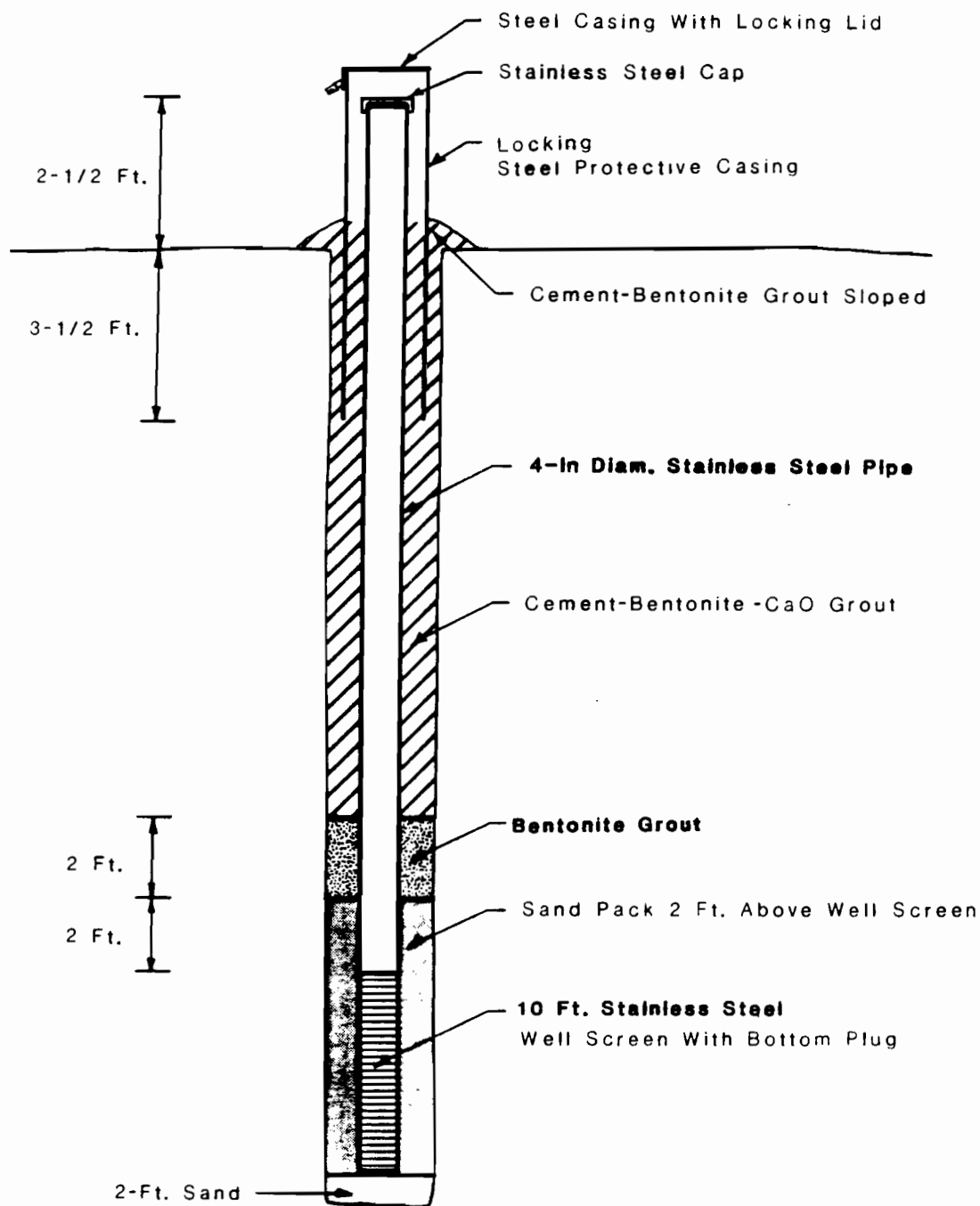


- EXPLANATION**
- B-5 ○ EXISTING DRYWELL, SEDIMENT SAMPLES
 - LOCATION OF UNUSED CESSPOOLS
 - MW-3 ● EXISTING WELL LOCATION AND DESIGNATION
 - MW-4 ▲ PROPOSED WELL LOCATION AND DESIGNATION
 - B-4 ● PROPOSED SOIL BORING IN DRYWELL LOCATION AND DESIGNATION
 - PVC DRAIN LINES

NOTE: SOIL BORINGS B-1, B-2, B-3 LOCATED UNDER THE UNDERGROUND STORAGE TANKS. SOIL BORING B-11 IN UNUSED CESSPOOL

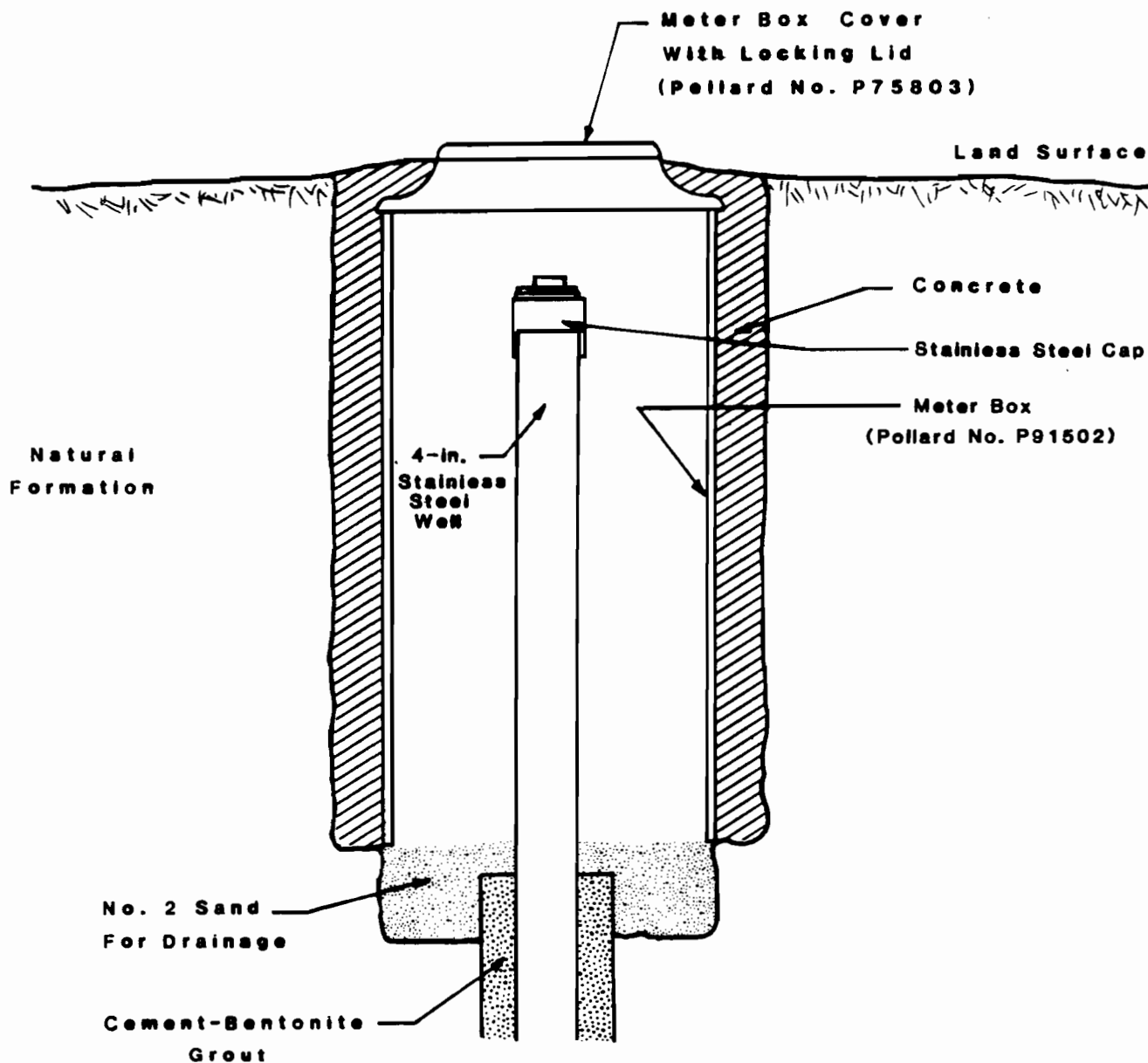
PROPOSED LOCATIONS OF WELLS AND BORINGS AT THE ANCHOR CHEMICAL SITE			
Prepared for: SPIEGEL ASSOCIATES			
ROUX ROUX ASSOCIATES INC Consulting Ground-Water Geologists & Engineers	Compiled by: K.S.	Date: 4/90	Figure 7
	Prepared by: C.L.	Scale: AS SHOWN	
	Project Mgr: K.S.	Revision: 0	
	File No: 11603Y		

300981



TITLE USEPA MONITORING WELL SPECIFICATIONS			
PREPARED FOR SPIEGEL ASSOCIATES			
ROUX Consulting Ground-Water Geologists ROUX ASSOCIATES INC.	SCALE SHOWN	FIGURE 8	
	DATE 8 / 89		

300982



TITLE		
PROPOSED METER BOX CONFIGURATION FOR MONITORING WELLS		
PREPARED FOR		
SPIEGEL ASSOCIATES		
ROUX Consulting Ground-Water Geologists ROUX ASSOCIATES INC.	SCALE NONE	FIGURE
	DATE 8/89	9

300983

FIGURE 10
PROJECT STAFFING
AND ORGANIZATION
ANCHOR CHEMICAL SITE, HICKSVILLE, NY

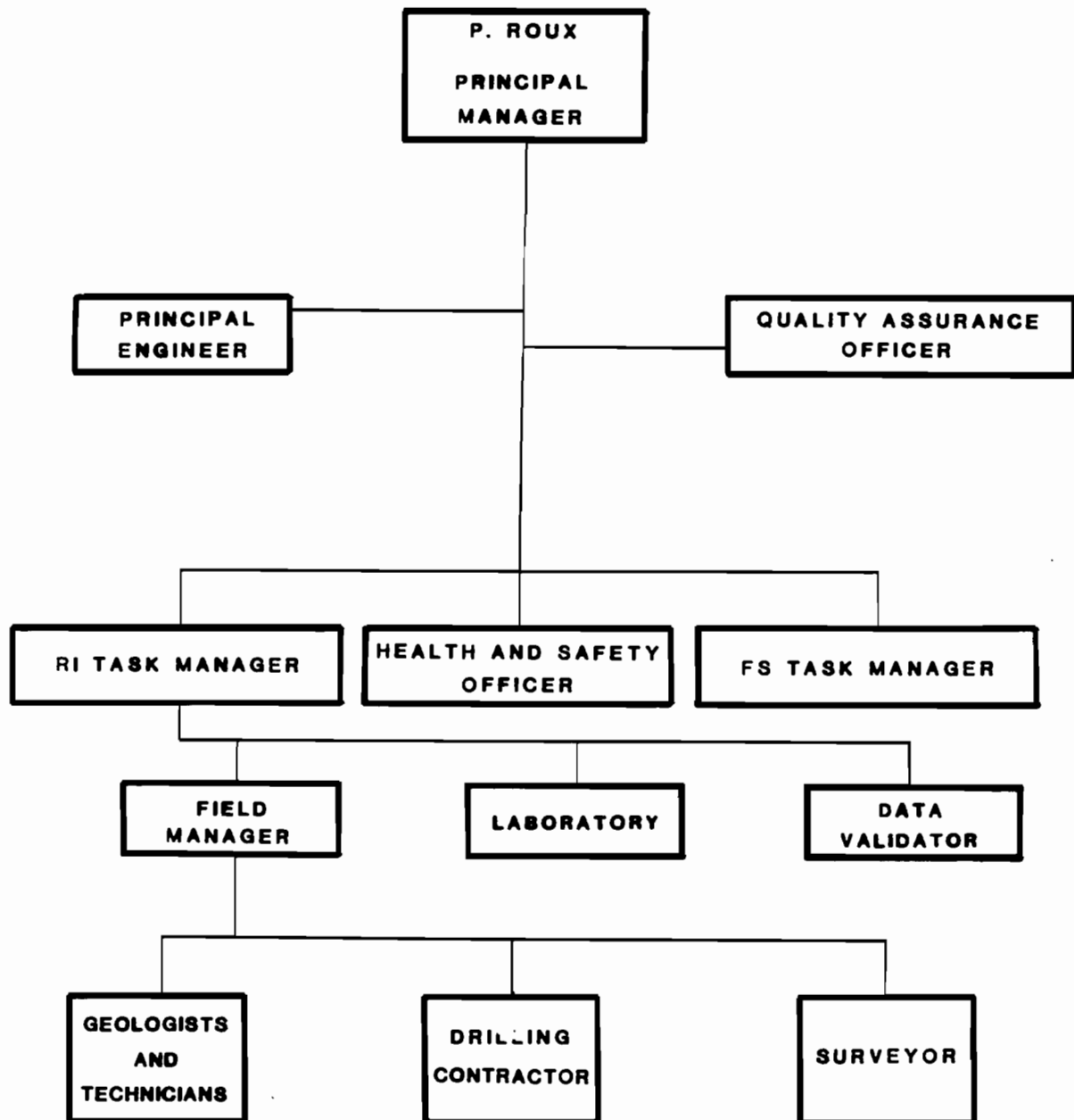
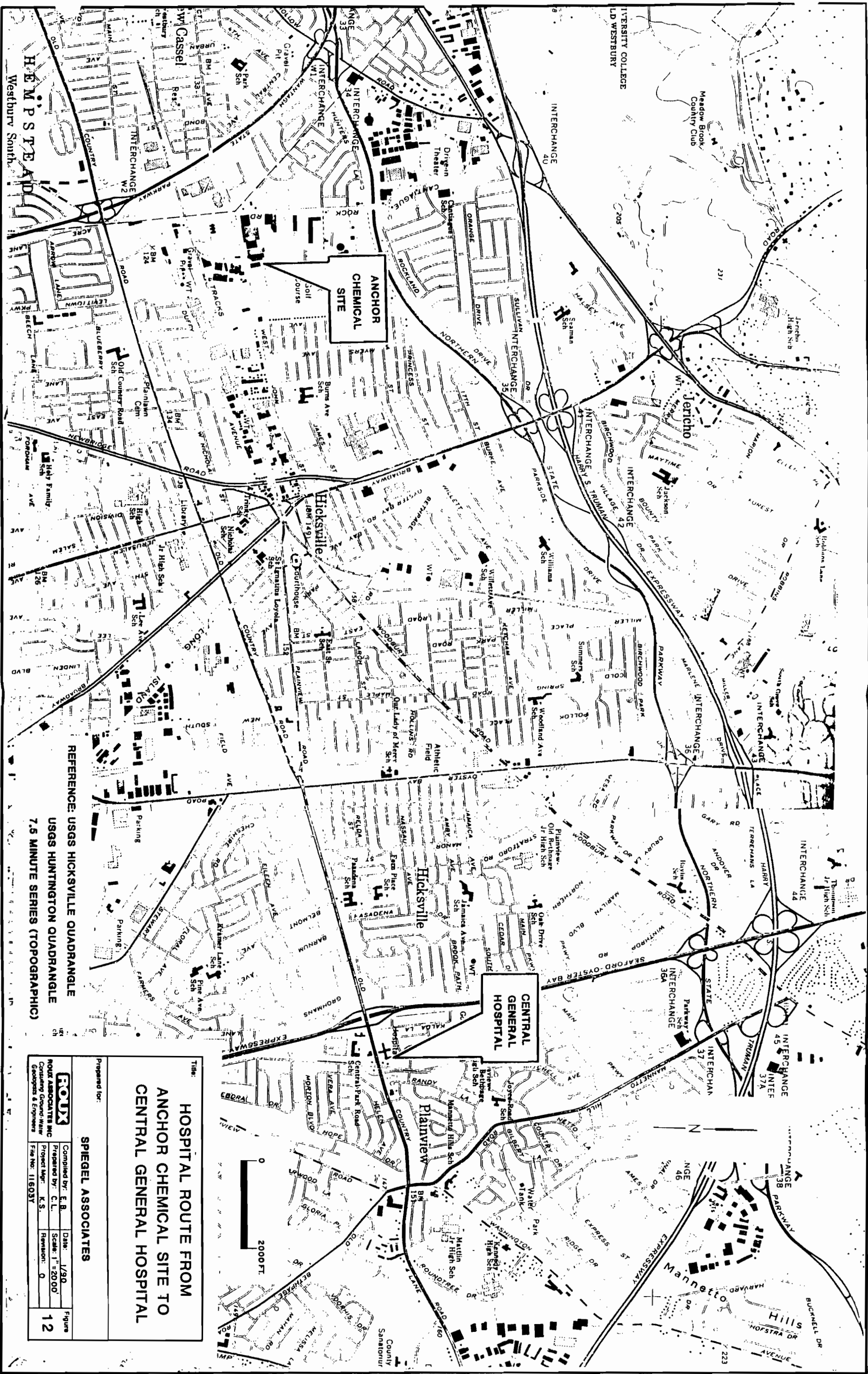


FIGURE 11 - REMEDIAL INVESTIGATION SCHEDULE
ANCHOR CHEMICAL SITE, HICKSVILLE, NY

WEEKS

	1	2	3	4	5	6	7	10	11	12	13	22	23	24	33	34	35	36	37	38	39
TASK 1	●	●	●	●																	
TASK 2					●	●	●														
TASK 3								●	●	●											
TASK 4												●	●	●							
DATA ANALYSIS AND REPORT															●	●	●	●	●	●	●

NOTE: (1) A SCHEDULE FOR THE FS WILL BE PREPARED AND SUBMITTED AS PART OF THE RI REPORT.
(2) THERE WILL BE A TWO-WEEK DELAY FOLLOWING TASK 2 TO ALLOW FOR WELL RECOVERY
AND AN EIGHT-WEEK DELAY FOLLOWING TASKS 3 AND 4 TO ALLOW FOR SAMPLE ANALYSIS
AND DATA VALIDATION.



**HOSPITAL ROUTE FROM
ANCHOR CHEMICAL SITE TO
CENTRAL GENERAL HOSPITAL**

SPIEGEL ASSOCIATES

Prepared for:		SPEIGEL ASSOCIATES	
Prepared by:		E. B.	
Project Manager:		C. L.	
Date:		1/30	
Scale:		1" = 2000'	
Revision:		0	
Figure		12	

APPENDIX A

Protocols for Field Procedures

300987

SAMPLING EQUIPMENT DECONTAMINATION PROCEDURE

- (1) wash and scrub with detergent;
- (2) tap water rinse;
- (3) *rinse with 10% HNO_3 (metal samples only);
- (4) tap water rinse;
- (5) acetone only rinse, or methanol followed by hexane;
- (6) deionized water rinse (demonstrated analyte-free);
- (7) air dry;
- (8) wrap in aluminum foil.

* If using carbon steel split spoons, a 1% HNO_3 rinse may be used instead of 10% to reduce the possibility of leaching metals from the spoon itself.

300988

SEDIMENT SAMPLING OF DRYWELLS

- (1) Take all necessary precautions to ensure personnel safety. Carefully inspect the area to identify safe sampling locations. Always wear a lifeline and appropriate personal protective equipment.
- (2) Record sample locations and numbers in field notebook.
- (3) Make sure all sampling equipment has been thoroughly precleaned and establish a clean area for decontamination.
- (4) Use appropriate sampling bottles provided by the laboratory, as required for each sampling (labels, chain-of-custody, place on ice, etc.).
- (5) Use a hand auger with extension rod or pipe to collect sediment samples. Auger or drive pipe to desired depth. If pipe is used, seal open end before withdrawal to avoid loss of sample. Remove sample onto new polyethylene sheeting using disposable vinyl gloves and stainless steel spoons or rod, as appropriate.
- (6) Segregate representative portion of the sample. Log the sample in detail and record sediment characteristics (color, odor, consistency, texture, density, layering, and mineralogy).

300989

(7) For non-volatiles only, the homogenization of soil/sediment samples is performed in the following manner:

- a. Remove rocks, twigs, leaves, and other debris;
- b. Soil/sediment is removed from the sampling device and placed in a stainless steel pan, then thoroughly mixed using a stainless steel spoon;
- c. Scrape sides, corners, and bottom of pan, roll to middle of pan and initially mix;
- d. The sample is then quartered and moved to the four corners of the pan. Each quarter of the sample is mixed individually, and then rolled to the center of the pan and mixed again.

(8) Collect samples into bottles and seal with custody seal. Label each bottle with:

- a unique code number (recorded in the field book);
- the boring or well number;
- depth (if appropriate);
- type of sample;
- date and time of collection; and
- name of person collecting sample.

Record all information in field notebook. Place each bottle in separate plastic bag, seal the bag, and place on ice immediately if required.

300990

- (9) Maintain the samples in a secure area at ambient conditions and deliver to the laboratory within twenty-four hours along with chain-of-custody form.
- (10) Discard all rags, gloves, polyethylene sheeting, etc. in an appropriate manner. Clean all sampling equipment in decontamination area prior to reuse.

300991

GROUND WATER SAMPLING PROCEDURE - VOLATILE ORGANICS
AND OTHER CONSTITUENTS

- (1) Identify the well and enter presampling information in the field notebook and on the sampling form. Fill out other items on sampling form.
- (2) Inspect protective casing and note any items of concern such as missing lock or bent casing.
- (3) Cut a slit in one corner of a dedicated polyethylene sheet and slip it over and around the well or place near the well, creating a clean surface onto which the sampling equipment can be positioned. Do not kick, transfer, drop or in any way let soil or other material fall onto this sheet unless it comes from inside the well. Do not place any meters, tools, equipment, etc., on the sheet unless they have been cleaned with a clean rag to remove any sediments.
- (4) Clean the top of the well off with a clean rag and remove the cap or plug, placing it on a clean surface.
- (5) Clean the steel tape with distilled water and measure the depth to water. Record this and compute the volume of water in the well.

300992

- (6) Existing wells will be purged by the hydrogeologist on site. All monitoring wells will be pumped or bailed before sampling and a minimum three casing volumes will be removed if the recharge rate is adequate to accomplish this within a reasonable amount of time. Hand bailers, submersible pumps, etc. will be clean and sediment-free prior to use.
- (7) Record the physical appearance of the water on the field data form (color, odor, turbidity, etc.) as it is pumped or bailed. Turbidity should be less than 50 NTUs before sample is taken.
- (8) Prepare the bottles for receiving their samples (labels, place on ice, etc.).
- (9) After the well has been purged and developed, a teflon or stainless steel bailer with a 10 foot leader of stainless steel wire or polypropylene monofilament cord will be used to collect the ground-water sample. All sampling equipment must have been thoroughly decontaminated per procedure on page A-1. Immediately prior to lowering the bailer in the well, rinse three volumes of distilled water through the bailer. In addition, the first three bailer volumes obtained from the well will be properly discarded after use in the well.
- (10) Lower the bailer into the well gently, making certain to only submerge it far enough to fill it completely.

300993

- (11) Before the first sample is collected, measure and record the temperature, conductivity, pH, and the physical appearance of the water.
- (12) Standard 40 ml, precleaned, volatile organic sample bottles with teflon caps are required. Fill the bottles to the top creating a convex surface with no air bubbles. Acidify samples with HCL to pH <2 by adding 1:1 HCL drop by drop. The correct number of drops should be determined on a third portion of sample water of equal volume. Place the cap on tightly. Gently turn the bottle over and tap lightly on the soft surface to insure that no air bubbles are present.
- (13) Fill the other containers provided by the laboratory according to directions.
- (14) Label the bottle with location number, date and other pertinent information. Record all information on the sampling data form. Cool the sample immediately on ice. Maintain the samples in a secure area and deliver to the laboratory within 24 hours.
- (15) Replace the well cap and cover the well, locking the protective cap.
- (16) Rinse out the bailer and/or pump with clean water.
- (17) Discard the cord, rags, gloves, etc. in an appropriate manner.
- (18) Complete sampling data form.

300994

CONTINUOUS SEDIMENT SAMPLING PROTOCOLS

- (1) Split-spoon core samplers are used to collect continuous sediment samples. A hollow stem auger rig is generally used. The split-spoon samples are driven 1.5 or 2 feet at a time into undisturbed sediments by a standard 140-lb. weight. The geologist records the number of blows per six inches of penetration.
- (2) The geologist opens the spoon on a polyethylene sheet, measures the recovery, logs the core in detail, separates the wash from the true sample and removes the sample from the split-spoon using disposable vinyl gloves and stainless steel spoons.
- (3) For non-volatiles only, the sediment is homogenized using the following method:
 - a. Remove rocks, twigs, leaves, and other debris;
 - b. Soil/sediment is removed from the sampling device and placed in a stainless steel pan, then thoroughly mixed using a stainless steel spoon;
 - c. Scrape sides, corners, and bottom of pan, roll to middle of pan and initially mix;
 - d. The sample is then quartered and moved to the four corners of the pan. Each quarter of the sample is mixed individually, and then rolled to the center of the pan and mixed again.

300995

- (4) The sample jar is labelled with all pertinent information. In addition, the geologist will ensure that:
- * samples are taken at appropriate depths;
 - * unrepresentative portions of the sample are discarded properly;
 - * that the sampler is decontaminated properly between use; and
 - * the driller used proper methods during sample collection and does not use oil or grease on tools entering the borehole.
- (5) The sample is placed in a precleaned laboratory supplied EPA-approved jar or vial (whichever is appropriate for compounds being analyzed) and placed on ice.
- (6) Cross contamination is avoided by using as many split-spoon samplers as possible and by thoroughly decontaminating each between samples. Cross contamination is also minimized as samples are collected ahead of the drilled hole.

300996

APPENDIX B

Chain-of-Custody Form,
Sample Label, Custody Seal

300997

ROUX ASSOCIATES

CHAIN OF CUSTODY RECORD

Project No. _____

Project Title _____

Sample Source _____

Collectors Name _____ / _____
print signature

Field Information _____

Method Of Shipping _____

Relinquished By:

sign _____

for _____

Date/Time _____

Received By:

sign _____

for _____

Date/Time _____

Sample Designation	Sample Location	Date	Time	Analyte	No. Of Containers

Comments:

300998

SAMPLE LABEL

Sample Number _____

Well/Boring Number _____

Depth of Sample _____

Sample Matrix _____

Date _____

Time _____

Initials _____

CUSTODY SEAL

DATE _____

SIGNATURE _____

ROUX

The Huntington Atrium
775 Park Avenue
Suite 255
Huntington, New York 11743
516-673-7200

301000

APPENDIX C

Resumes of Key Personnel

301001

PAUL H. ROUX
President

EDUCATION

M.A. Geology, 1978, Queens College, City University of New York
B.S. Engineering Science, 1968, C.W. Post College, Long Island University

PROFESSIONAL SOCIETIES

National Water Well Association, Ground-Water Technology Division
American Institute of Professional Geologists (Executive Committee, Northeast Section
1980-1982)
American Institute of Hydrology

PROFESSIONAL EXPERIENCE

1981 - Date	President Roux Associates Inc.
1979 - 1981	Senior Hydrogeologist Stauffer Chemical Company
1972 - 1979	Hydrogeologist and Senior Hydrogeologist Geraghty & Miller, Inc.
1970 - 1972	Engineer Spectral Data Corporation
1967 - 1970	Research Assistant Science Engineering Research Group, Long Island University

KEY PROJECT EXPERIENCE

- o Directed the Remedial Investigation/Feasibility Studies (RI/FS) for several hazardous waste sites listed on the National Priorities List and several state Superfund sites.
- o Planned and directed several studies to define areas vulnerable to ground water contamination from pesticide application.
- o Planned and directed a monitoring well drilling and sampling program to determine the potential for pesticide leaching under various soil and hydrogeologic conditions.
- o Evaluated ground-water conditions at over 100 industrial plant sites throughout the United States to determine existing and potential problems.
- o Developed ground-water contamination abatement systems and monitoring programs at numerous industrial sites.

301002

- o Advised client management on corporate responses to ground-water portions of RCRA, SDWA (UIC), and CERCLA, including determination of reportable facilities and development of monitoring programs.
- o Negotiated ground-water and hazardous waste matters with EPA and state regulatory agency personnel in Connecticut, Delaware, Kentucky, Massachusetts, Michigan, New Jersey, New York, Nevada, Ohio, and Tennessee.
- o Served on the Chemical Manufacturers Association's Ground-Water Management and Superfund task groups.
- o Determined the effectiveness of an emergency clean-up of a 7000 gallon PCB spill near a public supply well-field in New Jersey.
- o Established the sources and distribution of organic solvents polluting a public supply well in the Old Bridge and Farrington aquifers in South Brunswick, New Jersey.
- o Designed and supervised the installation of a system of pumping wells to control contaminated ground water at a major industrial waste treatment facility in southern New Jersey.
- o Evaluated the impact of waste disposal facilities on the ground-water resources of Gloucester and Camden Counties, New Jersey for the U.S. EPA.
- o Designed a ground-water removal and reinjection system for an in situ bioreclamation program at a chemical plant in northern New Jersey.
- o Evaluated the impact of waste disposal on the ground-water resources of Westchester County, New York.
- o Carried out water supply development projects for numerous clients including: East Orange and Fairlawn, N.J., Middletown and Weston, CT., Shell Oil Co., Union Carbide and the Puerto Rico Water Resources Authority.

PUBLICATIONS

The Nature and Movement of Leachate from Two Solid Waste Disposal Sites in the Northeast, 1975, Abstracts, Northeast Section, 10th Annual Meeting of the Geological Society of America, p.12.

Earth Resistivity Surveys - A Method for Defining Ground-Water Contamination, 1975, Ground Water, v.13, no.2, pp. 145-150.

Electrical Resistivity Evaluations at Solid Waste Disposal Facilities, 1978, Report SW-729, Office of Solid Waste, U.S. Environmental Protection Agency, Washington D.C., 94 pp.

301003

Procedures Manual for Ground Water Monitoring at Solid Waste Disposal Facilities, 1977, Rept. SW-611, Office of Solid Waste, U.S. Environmental Protection Agency, Washington D.C., 269 pp. (Contributing Author).

Availability, Utilization and Contamination of Ground Water in Gloucester and Camden Counties, New Jersey, 1977, Office of Solid Waste Management Programs, U.S. Environmental Protection Agency, Washington D.C., 153 pp.

The Report to Congress; Waste Disposal Practices and Their Effects on Ground Water, 1977, Office of Solid Waste Management Programs, U.S. Environmental Protection Agency, Washington D.C. 512 pp. (Contributing Author).

Ground Water Monitoring at Solid Waste Disposal Sites - Two Case Studies, 1978, Proceedings of University Seminar on Pollution and Water Resources. v. XI. Columbia University - State of New Jersey, New York - Trenton, pp. 11-32.

Definition and Monitoring of an Industrial Ground-Water Pollution Problem, 1978, Masters Thesis, Queens College, City University of New York, 70 pp.

Investigation of Organic Contamination of Ground Water in South Brunswick Township, New Jersey, 1980, Ground Water, v. 18, no.5, pp. 464-471.

Aquifer Decontamination for Volatile Organics - A Case History, 1981, Ground Water, v. 19, no. 5, pp. 495-504.

An Electrical Conductivity Survey at a Superfund Hazardous Waste Site, 1984, Pollution Equipment News, v. 17, no.3, pp. 84-85.

Hydrogeologic Site Assessment vs. Reality at One Chemical Plant, 1984, Proceedings from The Fourth National Symposium and Exposition on Aquifer Restoration and Ground-Water Monitoring, National Water Well Association.

Impact of Site Hydrogeology on In Situ Remediation Strategies, 1985, Proceedings of the Hazpro '85 Conference, Baltimore, Maryland pp. 274-287.

Sensitivity Analysis for Pesticide Application on a Regional Scale, 1986, Proceedings from the National Water Well Association Conference on Agricultural Impacts on Ground Water, Omaha, Nebraska.

REGISTRATION

Certified Professional Hydrogeologist, American Institute of Hydrology
Certified Professional Geologist, American Institute of Professional Geologists
Certified Professional Geologist, Indiana and North Carolina

KAREN A. SWANSON
Senior Geochemist

EDUCATION

Ph.D. Geochemistry, 1988, The Pennsylvania State University
M.S. Geology, 1979, University of Pennsylvania
B.S. Chemistry, 1976, Worcester Polytechnic Institute

PROFESSIONAL SOCIETIES

American Chemical Society
Geological Society of America
National Water Well Association

PROFESSIONAL EXPERIENCE

1989 - Date	Senior Geochemist Roux Associates, Inc.
1988 - 1989	Research Scientist and Section Chief Bureau of Aquifer Protection New Jersey Department of Environmental Protection (NJDEP)
1987 - 1988	Section Chief Environmental Cleanup Responsibility Act (ECRA) Section Bureau of Ground Water Quality Management NJDEP
1986 - 1987	Supervising Geologist ECRA Section NJDEP
1985 - 1986	Senior Geologist Bureau of Ground Water Quality Management NJDEP
1979 - 1984	Research Assistant Pennsylvania State University
1977 (Summer)	Chemist Sandoz Crop Protection Company
1973 - 1975 (Summers)	Analytical Chemist Sandoz Pharmaceuticals Company

301005

KEY PROJECT EXPERIENCE

- o Reviewed and revised New Jersey ground-water standards and regulations based on current technical literature.
- o Coordinated with other state and federal agencies on ground-water issues.
- o Supervised eleven geologists involved in review of sampling and cleanup plans for the ECRA Program.
- o Evaluated hydrogeologic data to determine the extent of ground-water contamination at industrial facilities.
- o Issued ground-water discharge permits under the New Jersey Pollutant Discharge Elimination System (NJPDES).
- o Designed ground-water monitoring programs.
- o Evaluated RCRA Part A and Part B permit applications and determined RCRA status of hazardous waste facilities.
- o Synthesized organic compounds for development of insecticides and herbicides.
- o Assayed raw materials and finished products using spectrophotometry, chromatography and wet chemistry methods.

PUBLICATIONS

Swanson, K.A. and A.H. Johnson (1980). "Trace Metal Budgets for a Forested Watershed in the New Jersey Pine Barrens", *Water Resources Research* 43, p. 373-376.

Turner, R.S., K.A. Swanson, and I. Demir (1980). "Lead Retention and Movement in the New Jersey Pine Barrens" (abstr.), *Geological Society of America Abstracts with Programs* 12, p. 88-89.

CONTINUING EDUCATION

"Management II", NJDEP Division of Personnel, Trenton, New Jersey, October - November, 1988.

"Management I", NJDEP Division of Personnel, Trenton, New Jersey, June 1988

"Advanced Interpretation of Mass Spectra", short course sponsored by Finnigan MAT Institute, Trenton, New Jersey, February 29 - March 4, 1988.

New Jersey Certified Public Manager Program, Levels I - III, sponsored by the NJ Department of Personnel and Rutgers University, Princeton, NJ, September 1987 - June 1988.

"Groundwater Modeling Methodology and Application", Short Course sponsored by The International Groundwater Modeling Center of the Holcomb Research Institute, New York, NY, September 8-12, 1986.

"Groundwater Pollution and Hydrology", Short Course sponsored by Princeton Associates, Princeton, NJ, July 8-12, 1985.

"RCRA Reauthorization and Part B Permit Writing", sponsored by USEPA, Kingston, NY, April 22-25, 1985.

CERTIFICATION

OSHA approved 40 Hour Health and Safety Training Course for Hazardous Waste Operations.

DEBORAH MOSCONI
Hydrogeologist

EDUCATION

M.S. Geology, 1987, The Pennsylvania State University
B.S. Geology, 1984, State University of New York at Oneonta

PROFESSIONAL SOCIETIES

National Water Well Association
Association of Ground Water Scientists and Engineers

PROFESSIONAL EXPERIENCE

1988 - Date	Hydrogeologist Roux Associates, Inc.
1987 - 1988	Hydrogeologist ERT, Inc.
1984 - 1986	Hydrogeologist Meiser and Earl/Hydrogeologists, Inc.
1984 - 1986	Graduate Research and Teaching Assistant The Pennsylvania State University

KEY PROJECT EXPERIENCE

- o Project hydrogeologist responsible for characterization of ground-water hydrogeology in RCRA compliance project for coal tar refinery in Illinois. Responsibilities included conducting field investigations such as monitoring well installation and pumping tests to determine the feasibility of ground-water recovery systems; ground-water quality and hydrogeologic data interpretation and preparation of quarterly ground-water assessment reports.
- o Project hydrogeologist for the Feasibility Study (FS) for a wood treating facility in Washington, conducted in accordance with the National Contingency Plan under CERCLA. Responsibilities included technical evaluation of previous RI data; detailed evaluation of remedial technologies suitable for site remediation; evaluation and recommendation of ground-water and free product recovery systems; preparation of feasibility study report, including detailed cost estimates and regulatory review; and engineering design of expedited response action which consisted of free product recovery systems for interim site remediation.

301008

- o Project coordinator for the Feasibility Study of a chemical manufacturing facility listed on the National Priorities List, conducted in accordance with the National Contingency Plan under CERCLA. Responsibilities included technical evaluation of remedial technologies and development of remedial alternatives for contaminated ground water, soil, wastewater impoundments and wetland areas; coordination of project personnel; and preparation of Feasibility Study Report.
- o Conducted feasibility study for a former fuel storage terminal in New York State, listed on the National Priorities list. Study was conducted in accordance with CERCLA and NYSDEC guidelines.
- o Project Hydrogeologist for remedial investigation several gasoline service stations. Conducted ground-water monitoring, supervised tank removals evaluated remedial activities and prepared quarterly reports.
- o Conducted background and field investigations of several commercial facilities to determine the potential for environmental liability for the purpose of real estate transactions.
- o Conducted field investigations and a ground-water modeling study to characterize ground-water contamination within a fractured bedrock aquifer caused by a road salt stockpile. Field studies included supervision of monitoring well installation; collection and interpretation of water-table elevation data; ground-water sampling and water-quality data interpretation; terrain conductivity surveying; and collection and analysis of pumping test data. Field data were then used in a ground-water modeling study to predict those areas which would potentially be affected in the future.
- o Conducted landfill expansion study. Responsibilities included test drilling and monitoring well installation, geophysical surveying, hydrogeologic interpretation and preliminary landfill design.
- o Conducted hydrogeologic investigation of coal strip mine site; including test drilling, ground-water sampling, water-quality data interpretation and hydrogeologic data interpretation. Data were used to evaluate the environmental impacts of strip mining on ground water and surface water both on-site and off-site.
- o Characterized and hydrogeology of strip mine sites for mine permitting applications. Evaluated site geology, ground-water and surface-water flow systems, and the potential for adverse environmental impacts associated with proposed strip mining.

CONTINUING EDUCATION

Ground-Water Treatment Technology, National Water Well Association

Superfund RI/FS Workshop, U.S. Environmental Protection Agency, Office of Emergency and Remedial Response.

301009

CERTIFICATION

40 hour OSHA Health and Safety Training Course for Hazardous Waste Operations

MICHAEL A. DECILLIS
Principal Hydrogeologist and QA/QC Officer

EDUCATION

M.S. Hydrogeology and Earth Science, Adelphi University, 1980
B.S. Earth Science and Biology, Adelphi University, 1976

PROFESSIONAL SOCIETIES

American Geophysical Union
Association of Ground Water Scientists and Engineers (NWWA)
American Association for the Advancement of Science
The New York Academy of Sciences

PROFESSIONAL EXPERIENCE

1989 - Date	Principal Hydrogeologist and QA/QC Officer Roux Associates, Inc. Huntington, New York
1978 - 1989	Associate/Principal Hydrogeologist Geraghty & Miller Inc. Plainview, New York
1976 - 1977	Hydrogeologist Environmental Associates Burlington, Vermont

KEY PROJECT EXPERIENCE

- o Quality Assurance/Quality Control (QA/QC) officer, providing technical oversight of and guidance in hydrogeologic investigations involving resource development, hazardous waste contamination, and pesticide contamination. Responsibilities extended from pre start-up stage prior to and including the preparation of proposals and work plans throughout the investigations to completion and submission of end products. Involvement included the formulation of methodologies and analytical procedures to evaluate and characterize hydrogeologic systems, and, as needed, quantify flow and transport conditions.
- o Principal Modeler, ground-water flow and solute transport modeling of a coastal plain aquifer at a Superfund landfill in new Jersey. The modeling was performed to evaluate previous modeling studies, to evaluate flow and water-quality conditions as they related to public supply wells and surface-water bodies, and to formulate ground-water management and remediation strategies. The model also provided a tool to facilitate negotiations and settlement in litigation proceedings involving municipal, state and Federal agencies.
- o Principal Modeler, ground-water flow and solute transport modeling of a glacial outwash aquifer at a Superfund landfill in Long Island, New York. The modeling was

conducted as a ground-water management study to delineate ground-water flow and to evaluate transport and fate of leachate and volatile organic compound plumes emanating from the landfill. Remediation strategies were evaluated and the model was used to assist negotiations and settlement in litigative proceedings involving state regulatory agencies. Initial involvement began as field hydrogeologist supervising initial phases of study to characterize ground-water flow and quality around the landfill. Developed work plan for additional on-site and off-site investigations.

- o Principal Modeler, ground-water flow and solute transport modeling of a terminal moraine aquifer at a Superfund landfill in Long Island, New York. The purpose of the modeling was to formulate ground-water management strategies pertaining to the possible extend and impact of a plume emanating from potential source areas within the landfill, particularly with respect to potential contamination of a public supply well.
- o Project Manager, ground-water flow modeling a coastal plain aquifer at a RCRA Facilities Investigation site in New Jersey. The modeling was performed to identify the most effective remedial alternative to control off-site migration of contaminated ground water following closure of a series of waste-water lagoons. Control was achieved by demonstrating that a hydraulic barrier to flow was established using a series of pumping wells.
- o Ground-water flow modeling at the Rocky Mountain Arsenal, Denver, Colorado. The model as used to evaluate remedial alternatives including pumping and injection scenarios, some in conjunction with slurry walls. The model was provided a tool to support arguments and negotiations in litigative proceedings.
- o Principal Modeler, ground-water flow modeling of an alluvial aquifer at an industrial site in Kansas. The model was used to formulate ground-water management and remediation strategies to capture inorganics and metals contaminated ground water.
- o Principal Modeler, ground-water flow and solute transport modeling of alluvial aquifers at industrial sites in Ohio and Massachusetts. The model were used to evaluate flow paths and the potential distances that volatile organic compounds could migrate from area of the sites prior to concentrations diminishing to nondetectable levels.
- o Principal Modeler, ground-water flow and solute transport model of a glacial outwash aquifer for a commercial site in Long Island, New York. Modeling was undertaken to evaluate remediation schemes to contain a volatile organic compounds plume and provide a negotiating tool for litigation proceedings and state regulatory agencies.
- o Principal Modeler, ground-water flow and solute transport modeling of an alluvial aquifer at an industrial site in Indiana. The objective of the study was to provide the client with ground-water management and remediation strategies regarding off-site migration of inorganics and metals contaminated ground water. Particular consideration was given to the potential threat of contamination to nearby supply wells and a surface-water body.
- o Principal Modeler, ground-water flow model of a fractured, bedrock aquifer at an industrial site in New Jersey. The model was undertaken as part of a consent decree

with state regulatory agencies to establish a buffer zone around the plant site and surrounding area banning additional pumpage. The ban was called for in order to maintain the hydraulic control of contaminated ground water established via pumping supply wells at the plant.

- o Principal Modeler, ground-water flow and solute transport modeling of an alluvial aquifer at an industrial site in New Jersey. The model was used to evaluate flow and transport migration pathway and to develop an ECRA cleanup plan.
- o Principal Modeler, ground-water flow modeling of an alluvial aquifer at an industrial site in Kansas. As part of a state regulatory agency order, the model was used to formulate ground-water management strategies regarding remediation and location of new supply wells.
- o Model Development and Principal Modeler, ground-water solute transport models for modeling "generic" hydrogeologic environments for an industrial client. The client used the study as a "in-house" decision-making tool to determine water-quality conditions and environmental risks associated with the addition of methanol to gasoline in the event of gasoline spills, leaks, and tank failures in various hydrogeologic environments.
- o Principal Reviewer, ground-water flow and solute transport modeling study conducted by consulting firm proposing to locate a landfill proximate to a water-supply well in Lafayette Township, New Jersey. Modeling was conducted for litigation support for location of proposed landfill and demonstration of no impact on water supply. Review highlighted modeling inadequacies, short comings, and misuses which resulted in the withdrawal of proposed landfill and termination of litigation.
- o Principal Investigator, development of data characterizing hydrogeologic environment of the Pinelands, New Jersey for ground-water protection. Information included construction of water-table and unsaturated zone thickness maps, drainage basins, hydrogeologic cross sections, and other pertinent hydrologic materials.
- o Principal Investigator, development of hydrogeologic data as part of a 201 investigation for a developer on Long Island, New York. Information included characterization of ground-water flow within and between aquifers, and the identification of recharge and discharge boundary conditions.
- o Project Manager, task coordinator of activities of environmental consulting and engineering firms, law firms, and regulatory agencies as part of an information compilation study for USEPA. Activities included the preparation of monthly task summaries, reports and information (news) letters, and budget management.
- o Principal Modeler, ground-water flow and solute transport modeling of a valley-fill aquifer at a water-supply company site in Connecticut. The objectives of the study were to evaluate remedial alternatives and to develop supplemental water supplies. The modeling analyses were also presented to support arguments and negotiations in litigative proceedings involving the potentially responsible party for the contamination of the client's public water-supply well.

- o Principal Modeler, ground-water flow modeling of an alluvial aquifer at a water-supply company site in Massachusetts. The model was constructed to evaluate potential contaminant migration pathways to supply wells and for possible use in litigative proceedings.
- o Principal Modeler, ground-water flow modeling of an alluvial/coastal plain aquifer at a potential industrial site in Puerto Rico. The client used the model as an "in-house" decision-making tool for potential development of a plant. The information obtained from the model was used to develop ground-water management strategies including locations and pumpage rates of supply wells, impacts on existing public and domestic supply wells, and concerns regarding salt-water encroachment.
- o Principal Modeler, ground-water transport modeling to evaluate volatile organic compounds plume dimensions under various hydrogeologic environments for the Applied Physics Laboratory. The modeling was also used to provide information for, and corroborate modeling results for Dr. Emil O. Frind, University of Waterloo, Canada.
- o Principal Modeler, ground-water flow modeling of an alluvial aquifer at an industrial site in Connecticut. The client used the model as an "in-house" decision-making tool regarding resource development. The study evaluated the availability of increased water demands and impacts under existing flow and water-quality conditions.
- o Principal Modeler, ground-water flow modeling of a valley-fill aquifer at a water-supply company site in Connecticut. The model was undertaken to address the concerns of state regulatory agencies and evaluated the drawdown effects and capture zone of proposed additional diversions.
- o Principal Modeler, ground-water flow modeling of an alluvial aquifer at an industrial site in New Jersey. The model was constructed to obtain information regarding the impacts of proposed, additional diversions on the current flow system in support of a permit for increased water supply.
- o Principal Modeler, ground-water flow modeling of unconsolidated aquifers at water company sites in New Jersey and Florida. The models were constructed to provide technical support for permits for increased diversions. The concerns addressed in the model included locations and pumpage rates of supply wells, impacts on existing supply wells, concerns regarding salt-water encroachment, impacts on surface-water bodies and wetlands, and decreased stream flows in drainage basins.
- o Principal Modeler, ground-water flow modeling of a valley-fill aquifer at a water-supply company site in Connecticut. The client used the model as an "in-house" decision-making tool to investigate the feasibility of recharging reservoir water to, and recovery from the aquifer.
- o Project Manager, hydrogeologic field investigations of landfills on Long Island and upstate New York. The studies were to develop flow-system and water-quality data in support of a New York State Part 360 permit application and/or site closure in accordance with New York State Part 360 requirements. Ground-water flow modeling

was also used to evaluate potential migration pathways for contaminants and to ascertain capture zones for hypothetical remedial wells.

- o Supervised hydrogeologic field services related to the investigation of hazardous-waste storage and disposal facilities in New Jersey. As part of the study ground-water flow modeling was used to evaluate these conditions.
- o Supervised hydrogeologic field investigations involving ground-water supply contamination and resource development in Connecticut. Ground-water models were also to facilitate the study and evaluate these conditions.
- o Supervised hydrogeologic field investigation at a former power utility site on Long Island, New York. The investigation was implemented to characterize ground-water flow and quality in the glacial outwash aquifer.
- o Designed, implemented, and/or analyzed aquifer tests for numerous sites throughout the United States. The aquifer tests were conducted in unconsolidated and consolidated, unconfined and confined flow systems.
- o Evaluated probable impacts on ground-water and surface-water bodies accompanying a large-scale sewerage project in Long Island, New York. Part of the investigation included the implementation and analyses of pumping tests to characterize aquifer parameters, and the use of quantitative analytical techniques to evaluate resource impacts.

SEMINARS AND COURSES

- o Assisted in preparation of and took initial IBM PC Applications in Ground Water Pollution and Hydrogeology course by Dr. Robert Cleary.
- o Preparation and presentation of the Practical Applications of Modeling to Ground-Water Problems section of the Geraghty & Miller Fundamentals of Ground-Water Contamination seminars.

PUBLICATIONS

DeCillis, M.A., 1989, Computer Modeling for a Ground-Water Management Study, Salinas Fan, Puerto Rico, Master Thesis, Adelphi University.

Walton, W.C., Kobina Atobrah, M.A. DeCillis, and W.J. SeEVERS, 1982, Generic Solute Transport Modeling in Ground-Water contamination, EOS, Vol. 63, No. 45.

SeEVERS, W.J., Kobina Atobrah, and M.A. DeCillis, 1983, a Simple and Cost Effective Model to Predict the Movement of Contaminated Ground Water, EOS, Vol. 64, No. 12.

REGISTRATIONS

Certified Professional Geologist: American Institute of Professional Geologists
Registered Professional Geologist: Tennessee No. TN0343
Arkansas No. 522

BHOJ N. ROOPNARINE, P.E.
Principal Engineer

EDUCATION

M.S. Sanitary Engineering, 1978, University of Strathclyde, Scotland
B.S. Civil Engineering, 1973, University of Guyana

PROFESSIONAL SOCIETIES

American Society of Civil Engineers
National Society of Professional Engineers
Water Pollution Control Federation

PROFESSIONAL EXPERIENCE

1989 - Date	Principal Engineer Roux Associates Huntington, New York
1989	Senior Project Manager Metcalf & Eddy Branchburg, New Jersey
1987 - 1989	Deputy Chief Engineer Hackensack Meadowlands Development Commission Lyndhurst, New Jersey
1984- 1987	Senior Environmental Engineer/Project Manager Camp, Dresser & McKee Edison, New Jersey
1982 - 1984	Project Engineer PQA Engineering Co. Riverdale, New Jersey
1979 - 1982	Project Engineer M. Disko Associates Union, New Jersey
1973 - 1979	Engineer, Guyana Water Authority Georgetown, Guyana

KEY PROJECT EXPERIENCE

- o Managed the design of a ground water withdrawal, pretreatment and treatment system for a U.S. Army Facility in North New Jersey. Treatment included heavy metal removal by electrochemical precipitation, clarification and sand filtration, and volatiles removal by air stripping and carbon adsorption.

301017

- o Managed the Remedial Investigation and Feasibility Study for a landfill in Burlington County, New Jersey. Project includes well installation, sampling of soils, soil gas, surface water and ground water, ground water modeling, endangerment assessment, bench scale treatability studies, remedial design, and construction management.
- o Served as Project Manager for Remedial Investigation and Feasibility Study (RI/FS) of a U.S. Army landfill in South New Jersey. Included in the RI/FS was an evaluation of remedial response objectives, treatability studies, evaluation of remedial design alternatives, and conceptual design.
- o Designed a 200,000 gpd industrial waste treatment and disposal for an industrial facility for an industrial client in New Jersey. Project included research, bench scale treatability studies, design, and services during construction.
- o Designed odor control systems with packed tower, chemical addition and carbon adsorption for the Ocean City Wastewater Treatment Plant.
- o Designed ground water treatment facilities ranging from 600 gpm to 2,000 gpm. Process design included air stripping, chemical precipitation, filtration, and disinfection.
- o Served as Project Engineer for engineering, design, and field services for the implementation of emergency site improvement at the Essex County landfill and the HMDC balefill at the Hackensack Meadowlands Development Commission of New Jersey.
- o Served as Senior Design Engineer for the design, permitting and construction of the award-winning 54 acre double-lined Gloucester County Regional Landfills, and the 72 acre double-lined Cumberland County Regional Landfill. Prepared construction drawings, specifications and cost estimates for the two New Jersey landfills.
- o Managed the expansion, design and vertical modification of the Cape May County Landfill in New Jersey. Designed the leachate collection and storage systems, and prepared the Operation Plan for the first double-lined landfill in New Jersey.
- o Served as Project Engineer for the Cape May County sludge composting facility in New Jersey, including air supply, exhaust, and odor control systems.
- o Served as Project Engineer for the design of the Wanaque tertiary wastewater treatment plant and the Seven Mile wastewater treatment plant.
- o Designed 4 lined, industrial waste storage lagoons, including monitoring wells and leak detection system, for a large industrial facility in New Jersey.
- o Directed the planning, design and implementation of engineering projects for the Hackensack Meadowlands Development Commission, New Jersey. Performed analysis and prepared reports on environment impact assessments for major development projects in the Hackensack Meadowlands District.

- o Designed and supervised construction of elevated and ground storage tanks, distribution networks and pumping stations for potable water supply.
- o Managed the operations of a water utility district serving 100,000 people.
- o Prepared the Operations and Maintenance Manual for a 1 mgd extended aeration wastewater treatment plant.

SEMINARS AND COURSES

- o Remedial Response Health and Safety Training Course, Roy F. Weston, Pennsylvania, March 1986.
- o Supervisor Course for Hazardous Waste Site Operations Health & Safety Training, Metcalf & Eddy, June 1989.

REGISTRATIONS

Professional Engineer, New Jersey, New York (Pending)
Professional Planner, New Jersey

LINDA M. WILSON
Project Scientist

EDUCATION

M.S. Toxicology, 1984, St. John's University
B.S. Environmental Science, 1978, Cornell University

PROFESSIONAL EXPERIENCE

1989 - Date Project Scientist
 Roux Associates, Inc.

1988 - 1989 Senior Environmental Scientist
 TRC Environmental Consultants, Inc.

1986 - 1988 Operations Manager
 Hygienetics, Inc.

KEY PROJECT EXPERIENCE

Quality Assurance

- o Conduct audits for compliance with Good Laboratory Practice (GLP) standards for U.S. Environmental Protection Agency, Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) and Toxic Substance Control Act (TOSCA).
- o Project Manager responsible for Quality Assurance for asbestos investigations within 800 New York City Transit Authority facilities.
- o Conducted in-house training seminars on New York City Local Law 76/85 and New York State Industrial Code 56.

Project Management

- o Managed Industrial Hygiene & Asbestos Abatement projects from contract administration through design, technical specifications, field work and final documentation report.
- o Performed research to accumulate data to update Material Safety Data Sheets to ensure compliance with OSHA regulations for a major industrial client.
- o Conducted tenant awareness meetings sponsored by Real Estate management agents. These meetings answered tenant's questions and concerns regarding asbestos removal in their building.
- o Implemented Operations and Maintenance Programs for high rise buildings in NYC in response to Public Law 76/85.

CERTIFICATION

New York City Department of Environmental Protection Asbestos Investigator
NIOSH 582 Airborne Asbestos Sampling and Evaluation Techniques

301020

JOHN C. SHEEHAN
Staff Hydrogeologist

EDUCATION

B.S. Geology 1985, C.W. Post College of Long Island University

PROFESSIONAL SOCIETIES

National Water Well Association
American Association of Petroleum Geologists

PROFESSIONAL EXPERIENCE

1987 - Date	Staff Hydrogeologist Roux Associates Inc.
1985 - 1986	Hydrologic Field Technician U.S. Geological Survey

KEY PROJECT EXPERIENCE

- o Hydrogeologist supervising the installation, development and sampling of monitoring wells at several NYSDEC Superfund Sites.
- o Conducted surface resistivity and electro-magnetic surveys at 25 NYSDEC Superfund Sites.
- o Participated in the installation, development and sampling of monitoring wells at a NYSDEC Superfund site, Glen Head, NY.
- o Participated in an investigation to determine soil and ground-water characteristics at a proposed landfill site in Manorville, NY.
- o Collected and logged soil samples as part of an investigation to determine the extent of unsaturated zone contamination at a specialty metals manufacturing plant in Connecticut.
- o Participated in an investigation designed to address the environmental effect of past disposal practices at a manufacturing facility in Queens, NY.

CERTIFICATION

OSHA approved 40 hour health and safety training course for hazardous waste operations

301021

APPENDIX D

Analytical Results of Sampling Done
by Roux Associates, Inc.

301022



PEDNEAULT ASSOCIATES, INC. TESTING LABORATORIES
1615 NINTH AVENUE P O BOX 205 BOHEMIA, N.Y. 11716 (516) 467-8477
AFTER 5 P.M. (516) 567-5579

November 18, 1987

TO: Roux Associates
11 Stewart Avenue
Huntington, NY 11743

Date: Collected 10/28/87 Analyzed 10/28-11/17/87 Report 11/18/87

Sampling Point

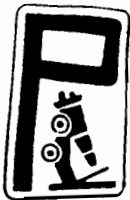
1. Anchor/Litho - Well #1
2. Anchor/Litho - Well #2
- 3.
- 4.
- 5.

Parameters	1	2	3	4	5
Trifluorotrichloroethane ug/l	< 1.0	< 1.0			
Chloroform ug/l	< 1.0	< 1.0			
1,1,1 Trichloroethane ug/l	21.2	1.5			
Carbon Tetrachloride ug/l	< 1.0	< 1.0			
1,1,2 Trichloroethylene ug/l	< 1.0	< 1.0			
Bromodichloromethane ug/l	< 5.0	< 5.0			
Dibromochloromethane ug/l	< 5.0	< 5.0			
Tetrachloroethylene ug/l	< 1.0	< 1.0			
Bromoform ug/l	< 10	< 10			
Acetone mg/l	< 1.0	< 1.0			
Methyl Ethyl Ketone mg/l	< 1.0	< 1.0			
Methyl Isobutyl Ketone mg/l	< 1.0	< 1.0			

301023

JOHN PEDNEAULT
Lab Director

Lab Number 43481



PEDNEAULT ASSOCIATES, INC. TESTING LABORATORIES
1615 NINTH AVENUE P O BOX 205 BOHEMIA, N.Y. 11716 (516) 467-8477
AFTER 5 P.M. (516) 567-5579

November 18, 1987

TO: Roux Associates
11 Stewart Avenue
Huntington, NY 11743

Date: Collected .. 10/28/87 .. Analyzed .. 10/28-11/17/87 .. Report .. 11/18/87 ..

Sampling Point

1. Anchor/Litho - Well #1
2. Anchor/Litho - Well #2
- 3.
- 4.
- 5.

Parameters		1	2	3	4	5
Benzene	ug/l	< 1.0	< 1.0			
Toluene	ug/l	< 1.0	< 1.0			
Xylene	ug/l	< 1.0	1.5			
Ethylbenzene	ug/l	< 1.0	< 1.0			
Chlorobenzene	ug/l	< 1.0	< 1.0			
Dichlorobenzene	ug/l	< 1.0	< 1.0			

301024

Lab Number 43481

JOHN PEDNEAULT
Lab Director

377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (516) 422-5777

LAB NO. C891828/1

06/26/89

Roux Associates, Inc.
775 Park Ave., Suite 255
Huntington, NY 11743

ATTN: Paul Roux

SOURCE OF SAMPLE: 500 W. St. John Street, Project #14001
COLLECTED BY: Client DATE COL'D: 06/22/89 RECEIVED: 06/22/89

SAMPLE: Water sample, MW-1, 1300

ANALYTICAL PARAMETERS

Chloromethane	ug/L	<1
Bromomethane	ug/L	<1
Dichlorodifluomethane	ug/L	<1
Vinyl Chloride	ug/L	<1
Chloroethane	ug/L	<1
Methylene Chloride	ug/L	<2
Trichlorofluomethane	ug/L	<2
11 Dichloroethene	ug/L	<2
11 Dichloroethane	ug/L	4
12 Dichloroethene	ug/L	<2
Chloroform	ug/L	<1
12 Dichloroethane	ug/L	<2
111 Trichloroethane	ug/L	59
Carbon Tetrachloride	ug/L	<1
Bromodichloromethane	ug/L	<1
12 Dichloropropane	ug/L	<2
t 13 Dichloropropene	ug/L	<2
Trichloroethylene	ug/L	<1
Chlorodibromomethane	ug/L	<1
112 Trichloroethane	ug/L	<2
c 13 Dichloropropene	ug/L	<2
2chloroethvinylether	ug/L	<2
Bromoform	ug/L	<2
1122Tetrachloroethan	ug/L	<2
Tetrachloroethene	ug/L	<1

ANALYTICAL PARAMETERS

Chlorobenzene	ug/L	<1
13 Dichlorobenzene	ug/L	<2
12 Dichlorobenzene	ug/L	<2
14 Dichlorobenzene	ug/L	<2
Benzene	ug/L	<1
Toluene	ug/L	<2
Ethyl Benzene	ug/L	<1
m Xylene	ug/L	<2
o+p Xylene	ug/L	<4

CC:

REMARKS:

301025

DIRECTOR

377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (516) 422-5777

LAB NO. C891828/2

06/26/89

Roux Associates, Inc.
775 Park Ave., Suite 255
Huntington, NY 11743

ATTN: Paul Roux

SOURCE OF SAMPLE: 500 W. St. John Street, Project #14001
COLLECTED BY: Client DATE COL'D: 06/22/89 RECEIVED: 06/22/89

SAMPLE: Water sample, MW-2, 1200

ANALYTICAL PARAMETERS

Chloromethane	ug/L	<1
Bromomethane	ug/L	<1
Dichlorodifluomethane	ug/L	<1
Vinyl Chloride	ug/L	<1
Chloroethane	ug/L	<1
Methylene Chloride	ug/L	<2
Trichlorofluomethane	ug/L	<2
11 Dichloroethene	ug/L	<2
11 Dichloroethane	ug/L	<2
12 Dichloroethene	ug/L	<2
Chloroform	ug/L	<1
12 Dichloroethane	ug/L	<2
111 Trichloroethane	ug/L	<1
Carbon Tetrachloride	ug/L	<1
Bromodichloromethane	ug/L	<1
12 Dichloropropane	ug/L	<2
t 13 Dichloropropene	ug/L	<2
Trichloroethylene	ug/L	<1
Chlorodibromomethane	ug/L	<1
112 Trichloroethane	ug/L	<2
c 13 Dichloropropene	ug/L	<2
2chloroethvinylether	ug/L	<2
Bromoform	ug/L	<2
1122Tetrachloroethan	ug/L	<2
Tetrachloroethene	ug/L	<1

ANALYTICAL PARAMETERS

Chlorobenzene	ug/L	<1
13 Dichlorobenzene	ug/L	<2
12 Dichlorobenzene	ug/L	<2
14 Dichlorobenzene	ug/L	<2
Benzene	ug/L	<1
Toluene	ug/L	<2
Ethyl Benzene	ug/L	<1
m Xylene	ug/L	<2
o+p Xylene	ug/L	<4

CC:

REMARKS:

301026

DIRECTOR

377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (516) 422-5777

LAB NO. C891828/3

06/26/89

Roux Associates, Inc.
775 Park Ave., Suite 255
Huntington, NY 11743
ATTN: Paul Roux

SOURCE OF SAMPLE: 500 W. St. John Street, Project #14001
COLLECTED BY: Client
DATE COL'D: 06/22/89 RECEIVED: 06/22/89

SAMPLE: Water sample, MW-3, 1205

ANALYTICAL PARAMETERS

Chlorobenzene	ug/L	<1
Bromomethane	ug/L	<2
13 Dichlorobenzene	ug/L	<2
12 Dichlorobenzene	ug/L	<2
14 Dichlorobenzene	ug/L	<2
Benzene	ug/L	<1
Toluene	ug/L	<2
Ethyl Benzene	ug/L	<1
m Xylene	ug/L	<2
o+p Xylene	ug/L	<4

ANALYTICAL PARAMETERS

Chloromethane	ug/L	<1
Bromomethane	ug/L	<1
Dichlorodifluoromethane	ug/L	<1
Vinyl Chloride	ug/L	<1
Chloroethane	ug/L	<1
Methylene Chloride	ug/L	<2
Trichlorofluoromethane	ug/L	<2
11 Dichloroethene	ug/L	<2
12 Dichloroethene	ug/L	<2
Chloroform	ug/L	<1
12 Dichloroethane	ug/L	<2
111 Trichloroethane	ug/L	8
Carbon Tetrachloride	ug/L	<1
Bromodichloromethane	ug/L	<1
12 Dichloropropane	ug/L	<2
13 Dichloropropane	ug/L	<2
Trichloroethylene	ug/L	<1
Chlorodibromomethane	ug/L	<1
112 Trichloroethane	ug/L	<2
c 13 Dichloropropene	ug/L	<2
2chloroethvinylether	ug/L	<2
Bromoform	ug/L	<2
1122Tetrachloroethan	ug/L	<2
Tetrachloroethene	ug/L	<1

CC:

REMARKS:

301027

DIRECTOR

APPENDIX E

Analytical Results of Sampling Done
by Lockwood, Kessler and Bartlett, Inc.

301028

ECOTEST LABORATORIES, INC.

170 CENTRAL AVE. • UNIT 1 • FARMINGDALE, N.Y. 11735 • (516) 752-9055

Lockwood, Kessler & Bartlett, Inc.

NOV 15 1982

Nov. 10, 1982

Lockwood Kessler & Bartlett, Inc.
1 Aerial Way
Syosset, New York

NOV 10 1982

SOURCE OF SAMPLE Same

COLLECTED BY: Client, 11/1/82 RECEIVED: 11/1/82

SAMPLE#1: Well# 1 Anchor/Lith Kem Rd. LAB# C921469/1
SAMPLE#2: Well# 2 Anchor/Lith Kem Rd. LAB# C921489/2

ANALYTICAL PARAMETERS	#1	#2
Total Hydrocarbons (Aliphatic, C5 to C10) µg/L	<10	<10
Benzene, µg/L	<1	<1
Toluene, µg/L	<2	<2
Ethyl Benzene, µg/L	<2	<2
P-xylene, µg/L	<2	<2
M-xylene, µg/L	<2	<2
O-xylene, µg/L	<2	<2

REMARKS Sample #1 had 3 unknown peaks, possibly volatile halogenated hydrocarbons in the pgb range. Sample #2 had 1 unknown peak, possibly a volatile halogenated hydrocarbon in the low pgb range.

DIRECTOR 

301029

ECOTEST LABORATORIES, INC.

170 CENTRAL AVE. • UNIT 1 • FARMINGDALE, N.Y. 11735 • (516) 752-9055

Jan. 3, 1983

Lockwood Kessler & Bartlett
1 Aerial Ways
Syosset, New York

SOURCE OF SAMPLE: Anchor/Lith Kemco
COLLECTED BY: Client RECEIVED: 12/14/82

SAMPLE#1: Well #1

LAB# C821684

ANALYTICAL PARAMETERS

#1

1,1,2-Trichloro-1,2,2 Tri-fluoroethane, µg/L	<1
Methylene Chloride, µg/L	9
1,1-Dichloroethene, µg/L	<5
1,1-Dichloroethane, µg/L	12
1,2-Dichloroethene, µg/L	<5
Chloroform, µg/L	<1
1,1,1-Trichloroethane, µg/L	800
Carbon Tetrachloride, µg/L	<1
1,2-Dichloroethane, µg/L	<5
Trichloroethylene, µg/L	19
1,2-Dichloropropane, µg/L	<5
Bromodichloromethane, µg/L	<1
Tetrachloroethylene, µg/L	48.
Chlorodibromomethane, µg/L	<1
Bromoform, µg/L	<2

REMARKS:

DIRECTOR

Thomas R. Gault

301030

ECOTEST LABORATORIES, INC.

170 CENTRAL AVE. • UNIT 1 • FARMINGDALE, N.Y. 11735 • (516) 752-9055

Jan. 3, 1983

Lockwood Kessler & Bartlett
1 Aerial Ways
Syosset, New York

SOURCE OF SAMPLE: Anchor/Lith Kem Co.
COLLECTED BY: Client RECEIVED: 12/14/82

SAMPLE#1: Well #2
SAMPLE#2: Well #3

LAB# C821675/1
LAB# C821675/2

ANALYTICAL PARAMETERS	#1	#2
1,1,2-Trichloro-1,2,2 Tri- fluoroethane, µg/L	<1	<2
Methylene Chloride, µg/L	<5	<5
1,1-Dichloroethene, µg/L	<5	800
1,1-Dichloroethane, µg/L	<5	350
1,2-Dichloroethene, µg/L	<5	100
Chloroform, µg/L	<1	12
1,1,1-Trichloroethane, µg/L	6	24000
Carbon Tetrachloride, µg/L	<1	<20
1,2-Dichloroethane, µg/L	<5	31
Trichloroethylene, µg/L	<1	55
1,2-Dichloropropane, µg/L	<5	<5
Bromodichloromethane, µg/L	<1	<20
Tetrachloroethylene, µg/L	<1	1100
Chlorodibromomethane, µg/L	<1	170
Bromoform, µg/L	<1	<5

REMARKS:

DIRECTOR *Thomas R. South*

301031

ECOTEST LABORATORIES, INC.

170 CENTRAL AVE. • UNIT 1 • FARMINGDALE, N.Y. 11735 • (516) 752-9055

June 23, 1983

Lockwood, Kessler & Bartlett
1 Aerial Ways
Syosset, NY 11791

Lockwood, Kessler &

RECEIVED
JUN 27
REGULATORY

COLLECTED BY: Client RECEIVED: 6/15/83

SAMPLE#1: Well #1
SAMPLE#2: Well #2
SAMPLE#3: Well #3

LAB#C830890/1
LAB#C830890/2
LAB#C830890/3

ANALYTICAL PARAMETERS	#1	#2	#3
1,1,2-Trichloro-1,2,2 Tri-fluoroethane, µg/L	<1	<1	<1
Methylene Chloride, µg/L	<5	<5	<5
1,1-Dichloroethene, µg/L	<5	<5	250
1,1-Dichloroethane, µg/L	<5	<5	50
1,2-Dichloroethene, µg/L	<5	<5	17
Chloroform, µg/L	<1	<1	2
1,1,1-Trichloroethane, µg/L	180	<1	7000
Carbon Tetrachloride, µg/L	<1	<1	<1
1,2-Dichloroethane, µg/L	<5	<5	<5
Trichloroethylene, µg/L	2	<1	10
1,2-Dichloropropane, µg/L	<5	<5	<5
Bromodichloromethane, µg/L	<1	<1	<1
Tetrachloroethylene, µg/L	5	<1	410
Chlorodibromomethane, µg/L	<1	<1	9
Bromoform, µg/L	<2	<2	<2
Benzene, µg/L	<1	<1	3
Toluene, µg/L	<2	<2	2
Ethyl Benzene, µg/L	<1	<1	<1
m-xylene, µg/L	<2	<2	<2
o-p-xylene, µg/L	<4	<4	<4
m-Dichlorobenzene, µg/L	<2	<2	<2
o-Dichlorobenzene, µg/L	<2	<2	<2
p-Dichlorobenzene, µg/L	<2	<2	<2
Acetone, µg/L	<50	<50	110
Methyl Ethyl Ketone, µg/L	<20	<20	<20
Methyl Isobutyl Ketone, µg/L	<20	<20	<20
Pentane, µg/L	<2	<2	<2
Hexane, µg/L	<2	<2	<2
Heptane, µg/L	<2	<2	<2
Octane, µg/L	<2	<2	<2
Nonane, µg/L	<2	<2	<2
Decane, µg/L	<2	<2	<2

DIRECTOR

J. Amel

301032

ECOTEST LABORATORIES, INC.

170 CENTRAL AVE. • UNIT 1 • FARMINGDALE, N.Y. 11735 • (516) 752-9055

Feb. 15, 1984

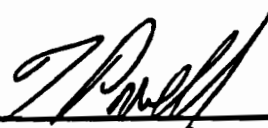
Lockwood, Kessler & Bartlett
1 Aerial Way
Syosset, NY 11791

SOURCE OF SAMPLE: Anchor/Lith Kem-Ko, Hicksville
COLLECTED: 1/30/84 BY: Client RECEIVED: 1/30/84

SAMPLE#1: Well #1 LAB#C840140/1
SAMPLE#2: Well #2 LAB#C840140/2
SAMPLE#3: Well #3 LAB#C840140/3

ANALYTICAL PARAMETERS	#1	#2	#3
Vinyl Chloride, µg/L	<1	<1	<1
1,1,2-Trichloro-1,2,2 Tri- fluoroethane, µg/L	<1	<1	<1
Methylene Chloride, µg/L	<5	<5	<5
1,1-Dichloroethane, µg/L	8	<5	5
1,2-dichloroethene, µg/L	<5	<5	<5
Chloroform, µg/L	<1	<1	<1
1,1,1-Trichloroethane, µg/L	1000	3	80
Carbon Tetrachloride, µg/L	<1	<1	<1
1,2-Dichloroethane, µg/L	<5	<5	<5
Trichloroethylene, µg/L	3	<1	<1
1,2-Dichloropropane, µg/L	<5	<5	<5
Bromodichloromethane, µg/L	<1	<1	<1
Tetrachloroethylene, µg/L	2	<1	3
Chlorodibromomethane, µg/L	<1	<1	<1
Bromoform, µg/L	<2	<2	<2
Benzene, µg/L	<1	<1	<1
Toluene, µg/L	<2	<2	<2
Ethyl Benzene, µg/L	<1	<1	<1
m-xylene, µg/L	<2	<2	<2
o+p-xylene, µg/L	<4	<4	<4
m-Dichlorobenzene, µg/L	<2	<2	<2
o-Dichlorobenzene, µg/L	<2	<2	<2
p-Dichlorobenzene, µg/L	<2	<2	<2
Acetane, µg/L	<20	<20	<20
Methyl Ethyl Ketone, µg/L	<20	<20	<20
Methyl Iso Butyl Ketone, µg/L	<20	<20	<20

DIRECTOR



301033

ECOTEST LABORATORIES, INC.

377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (516) 422-5777

Lockwood, Kessler & Bartlett
RECEIVED
JUL 20 1984

July 18, 1984

Lockwood, Kessler & Bartlett
One Aerial Ways
Syosset, NY 11791

SOURCE OF SAMPLE: Anchor/Lith kem-ko
COLLECTED: 7/10/84 BY: RP/LKB RECEIVED: 7/10/84

SAMPLE#1: Well #1 IAB#C841139/1
SAMPLE#2: Well #2 IAB#C841139/2
SAMPLE#3: Well #3 IAB#C841139/3

ANALYTICAL PARAMETERS	#1	#2	#3
Vinyl Chloride, µg/L	<1	<1	<1
1,1,2-Trichloro-1,2,2 Tri- fluoroethane, µg/L	<1	<1	<1
Methylene Chloride, µg/L	<5	<5	<5
1,1-Dichloroethane, µg/L	<5	<5	<5
1,2-dichloroethane, µg/L	<5	<5	<5
Chloroform, µg/L	10	<1	<1
1,1,1-Trichloroethane, µg/L	400	<1	60
Carbon Tetrachloride, µg/L	<1	<1	<1
1,2-Dichloroethane, µg/L	<5	<5	<5
Trichloroethylene, µg/L	<1	<1	<1
1,2-Dichloropropane, µg/L	<5	<5	<5
Bromodichloromethane, µg/L	<1	<1	<1
Tetrachloroethylene, µg/L	<1	<1	<1
Chlorodibromomethane, µg/L	<1	<1	<1
Bromoform, µg/L	<2	<2	<2
Benzene, µg/L	<1	<1	<1
Toluene, µg/L	<2	<2	<2
Ethyl Benzene, µg/L	<1	<1	<1
m-xylene, µg/L	<2	<2	<2
o+p-xylene, µg/L	<4	<4	<4
m-Dichlorobenzene, µg/L	<2	<2	<2
o-Dichlorobenzene, µg/L	<2	<2	<2
p-Dichlorobenzene, µg/L	<2	<2	<2
Acetone, µg/L	<10	<10	<10
Methyl Ethyl Ketone, µg/L	<10	<10	<10
Methyl Iso Butyl Ketone, µg/L	<10	<10	<10

DIRECTOR

301034

377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (516) 422-5777

Nov. 15, 1984

Lockwood, Kessler & Bartlett
1 Aerial Ways
Syosset, NY 11791

Lockwood, Kessler & Bartlett

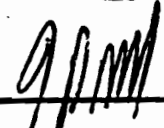
RECEIVED
NOV 20 1984
RECEIVED

SOURCE OF SAMPLE: Anchor/Lith

COLLECTED: 11/1/84 BY: RP/LKB RECEIVED: 11/1/84

SAMPLE#1: Well #1 LAB#C842148/1
SAMPLE#2: Well #2 LAB#C842148/2
SAMPLE#3: Well #3 LAB#C842148/3

ANALYTICAL PARAMETERS	#1	#2	#3
Vinyl Chloride, µg/L	<1	<1	<1
1,1,2-Trichloro-1,2,2 Tri- fluoroethane, µg/L	<1	<1	<1
Methylene Chloride, µg/L	<2	<2	<2
1,1-Dichloroethane, µg/L	4	<2	<2
1,2-dichloroethene, µg/L	<2	<2	<2
Chloroform, µg/L	<1	<1	<1
1,1,1-Trichloroethane, µg/L	65	<1	7
Carbon Tetrachloride, µg/L	<1	<1	<1
1,2-Dichloroethane, µg/L	<2	<2	<2
Trichloroethylene, µg/L	<1	<1	<1
1,2-Dichloropropane, µg/L	<2	<2	<2
Bromodichloromethane, µg/L	<1	<1	<1
Tetrachloroethylene, µg/L	<1	<1	<1
Chlorodibromomethane, µg/L	<1	<1	<1
Bromoform, µg/L	<2	<2	<2
Benzene, µg/L	<1	<1	<1
Toluene, µg/L	<2	<2	<2
Ethyl Benzene, µg/L	<1	<1	<1
m-Xylene, µg/L	<2	<2	<2
o+p-Xylene, µg/L	<4	<4	<4
m-Dichlorobenzene, µg/L	<2	<2	<2
o-Dichlorobenzene, µg/L	<2	<2	<2
p-Dichlorobenzene, µg/L	<2	<2	<2
Acetone, µg/L	<10	<10	<10
Methyl Ethyl Ketone, µg/L	<10	<10	<10
Methyl Iso Butyl Ketone, µg/L	<10	<10	<10

DIRECTOR 

301035

377 SHEFFIELD AVE. • N. BABYLON, N.Y. 11703 • (516) 422-5777

March 18, 1985

Lockwood, Kessler and Bartlett
1 Aerial Ways
Syosset, NY 11791

SOURCE OF SAMPLE: Anchor/Lith Wells

COLLECTED: 2/28/85

BY: Client

RECEIVED: 2/28/85

SAMPLE#1: Well #1
SAMPLE#2: Well #2
SAMPLE#3: Well #3LAB#C850456/1
LAB#C850456/2
LAB#C850456/3

ANALYTICAL PARAMETERS

	#1	#2	#3
Vinyl Chloride, µg/L	<1	<1	<1
1,1,2-Trichloro-1,2,2 Tri- fluoroethane, µg/L	<1	<1	<1
Methylene Chloride, µg/L	<2	<2	<2
1,1-Dichloroethane, µg/L	<2	<2	<2
1,2-dichloroethane, µg/L	<2	<2	<2
Chloroform, µg/L	<1	<1	<1
1,1,1-Trichloroethane, µg/L	26	<1	4
Carbon Tetrachloride, µg/L	<1	<1	<1
1,2-Dichloroethane, µg/L	<2	<2	<2
Trichloroethylene, µg/L	<1	<1	<1
1,2-Dichloropropane, µg/L	<2	<2	<2
Bromodichloromethane, µg/L	<1	<1	<1
Tetrachloroethylene, µg/L	<1	<1	<1
Chlorodibromomethane, µg/L	<1	<1	<1
Bromoform, µg/L	<2	<2	<2
Benzene, µg/L	<1	<1	<1
Toluene, µg/L	<2	<2	<2
Ethyl Benzene, µg/L	<1	<1	<1
m-xylene, µg/L	<2	<2	<2
o-p-xylene, µg/L	<4	<4	<4
m-dichlorobenzene, µg/L	<2	<2	<2
o-dichlorobenzene, µg/L	<2	<2	<2
p-dichlorobenzene, µg/L	<2	<2	<2
Acetone, µg/L	<10	<10	<10
Methyl Ethyl Ketone, µg/L	<10	<10	<10
Methyl Iso Butyl Ketone, µg/L	<10	<10	<10

DIRECTOR

301036

APPENDIX F

Reference Documentation

301037

Anchor Chemical Company, 1977. Production Data (Source: NCDH Files)

301038

DANGEROUS CHEMICALS



DON'T USE products containing

BENZENE (Benzol)

Why you should not use

Highly poisonous. Flammable and explosive. Highly toxic coal tar solvent. Damages blood. Can cause cancer. Inhalation of concentrated vapors can lead to death. Contact with skin must be avoided. Swells rubber. Personnel and plant hazard.

CARBON TETRACHLORIDE

Highly poisonous. Deadly vapors. Produces phosgene gas in heat. Contact with skin should be avoided. May be fatal if inhaled or swallowed. Fair solvent. Swells rubber. Personnel hazard.

CARBON DISULFIDE

Highly flammable and explosive. Highly poisonous. Extremely disagreeable odor. Personnel and plant hazard.

GASOLINE

Highly flammable. Explosive. Can cause lead poisoning. Poor solvency. Can cause dermatitis. Personnel and plant hazard.

KEROSENE

Causes dermatitis. Poor solvent. Dries slow. Causes rust. Swells natural rubber and most synthetics. Personnel hazard.

TURPENTINE

METHANOL (Wood alcohol)

Highly poisonous. Affects optic nerves. Causes dermatitis. Corrodes lead and type. Warps wood blocks. Personnel hazard.

TOLUENE (Toluol)

Flammable and highly toxic coal tar solvent. Dissolves and swells rubber. Can cause dermatitis. Personnel and plant hazard.

XYLENE (Xylol)

Flammable and highly toxic coal tar solvent. Dissolves and swells rubber. Can cause dermatitis. Personnel and plant hazard.

TRICHLORETHYLENE PERCHLOROETHYLENE

Poisonous. Can cause dermatitis. Prolonged inhalation of excessive amounts of toxic vapor can cause irritation of eyes and mucous membranes. Can break down when exposed to open flame to phosgene gas and hydrogen chloride. Swells rubber.

LYE

Extremely caustic. Contact with skin causes serious burns. Splash in eyes causes blindness. Requires special protective clothing. Personnel hazard.

NAPHTHA BENZINE

Petroleum solvents. Highly flammable and explosive. Causes dermatitis. Poor solvency. Swells natural rubber. Personnel and plant hazard.

What it is commonly used for

Hard Dried Ink Remover

Type cleaner

Glass Removers (Rollers & Blankets)

Cleaning film

Press Wash (Rollers & Blankets)

Type Wash (non-flammable)

Degreaser

Blanket Lock Remover

Type Wash

Press Wash (Rollers & Blankets)

Degreaser

Roller Wash

Press Wash

Litho Plate Wash

Type Wash

Type Wash

Press Wash (Rollers & Blankets)

Press Wash (Rollers & Blankets)

Type Wash (non-flammable)

Press Wash (Rollers & Blankets)

Glass Remover (Rollers & Blankets)

Blanket Wash

DO USE these safer Anchor replacements to reduce the hazards

Solv-A-Ton Rx A

Aled Plate Wash
Anchor Type Wash
Anc-Sol Rx 81

Wash R228
Randisolv

Film-Klean

Kendu
Litho Solvent
ZEV
A-60 Solvent

Solvent #95

Robinol

Wash R228
Kendu

Aled Plate Wash
Anchor Type Wash
Anc-Sol Rx 81
Fotopoly

Litho Solvent
Pressolv
Anc-Sol Rx 81
Kendu

Robinol

Pressolv

ZEV
Litho Solvent
Anc-Sol Rx 81

Ancotine

Aled Plate Wash
Anchor Type Wash

Aled Plate Wash
Anchor Type Wash

Pressolv
Litho Solvent
Anc-Sol Rx 81
A-60 Solvent

Pressolv
Litho Solvent
Anc-Sol Rx 81
A-60 Solvent

Solvent #95

Pressolv
Litho Solvent
Anc-Sol Rx 81
A-60 Solvent

Wash R228
Solv-A-Ton Rx A

A-60 Solvent
Litho Solvent
Anc-Sol Rx 81
Wash R228

Cleaner S

Solvent #
Typosol
Fotopoly

A-60 Solv
Velvee

Robinol

Wash R22
Murolene
Ronolene
Blanco

Robinol

D.R.D.

Velvee

Solvent #
Typosol
Robinol

Wash R228
Murolene
Ronolene
A-60 Solvent

D.R.D.

Wash R228

A-60 Solvent
Wash R228
Ronolene

Solvent #9

Typosol
Solvent #9

Typosol
Solvent #9

Wash R228
Ronolene
Murolene
ZEV

Wash R228
Ronolene
Murolene
ZEV

Robinol

Wash R228
Ronolene
Murolene
ZEV

Randisolv
Velvee

ZEV
Murolene
Ronolene
Kendu

Distributed as a service by

Anchor has compiled the information in this chart from the most reliable sources available. However, the company cannot accept responsibility for omissions, errors, or unauthorized use. For further information on safe Anchor replacements for these dangerous chemicals, contact Anchor Chemical Co., Inc., Hicksville, N.Y., 11801, U.S.A., or your

301039

Jasser, A.A., 1977, Letter to M. Mangino, NCDH. (Source: Rosenman & Colin Files)



October 5, 1977

Mr. Michael Mangino,
Abatement Officer
Nassau County Department of Health
Water Pollution Division
240 Old Country Road
Mineola, New York 11501

Dear Mr. Mangino:

This will confirm our conversation of Wednesday, September 28, held in my office. Mr. Sama of your office was present.

After an inspection of the premises, a discussion was held as to the suggested means of preventing run-off of solvent from the tank wagons making a delivery to us and a means of sealing the surface of the drains in each of our mixing rooms. After you left, I took the following steps to comply with your suggestions:

- 1) I arranged for a contractor to be hired to seal the surface of each of the drains - one in our combustible mixing room and the other in the flammable mixing room. We expect that the work will be completed before the end of October.
- 2) I talked to our staff to caution them about spillage and how to avoid it. They are to see that any drainage from hoses is caught into pails and then put into drums. Very small spillage will be picked-up with an oil-absorbant.
- 3) Our Production Manager is to talk to each of the drivers who make deliveries to point out to them the danger of spillage and to set up a program of avoidance each time a delivery is made.

This means that a pail will be placed on each connection point so that any drops that fall from the connection will be caught in a container and not allowed to run on the ground. Mr. Stein, our Production Manager, intends to talk to the drivers every time there is a delivery.

301041



ANCHOR
CHEMICAL CO., INC.

-2-

Mr. Michael Mangino,
Abatement Officer
Nassau County Department of Health October 5, 1977

I want to assure you, Mr. Mangino, that we at Anchor are aware of the water pollution problems that the County has endured and that we shall do everything in our power to prevent any occurrence at Anchor which could contribute to this water pollution. I appreciated your coming in and discussing the matter with me in an objective manner. You can be sure that the steps I have outlined above will be completed before the end of this month.

Yours very truly,

ANCHOR CHEMICAL CO., INC.


Alfred A. Jasser
President

AAJ/10

301042

Klein. W.T. 1981. The Franklin Company Contractors, Inc. Letter to D. Larsen,
Anchor/Lith Kem-Ko. 8/20/81. (Source: Rosenman & Colin Files)

301043

THE FRANKLIN COMPANY CONTRACTORS, INC.

52-09 58TH STREET
WOODSIDE, N.Y. 11377

GASOLINE TANK AND
PUMP INSTALLATIONS

INDUSTRIAL
LIQUID STORAGE
SYSTEMS

Mr. Duane Larsen
Anchor/Lith Chemco
46 Harriet Place
Lynbrook, N.Y. 11563

Aug. 20, 1981

Re: 500 West John Street
Hicksville, N.Y.

Dear Mr. Larsen:

Responding to our recent telephone conversation and a search of our files we have found and copied our record of the final invoice to Anchor Chemical for the tank installation.

Apparently the tanks were purchased by Anchor as we have no record of being invoiced for them. We did receive and set the tanks.

There is no record of a building permit in our files

We have also located a drawing used during installation. My recollection is that changes were made during construction to suite the conditions and desires of the customer.

We have attached the items mentioned above and hope they prove helpful.

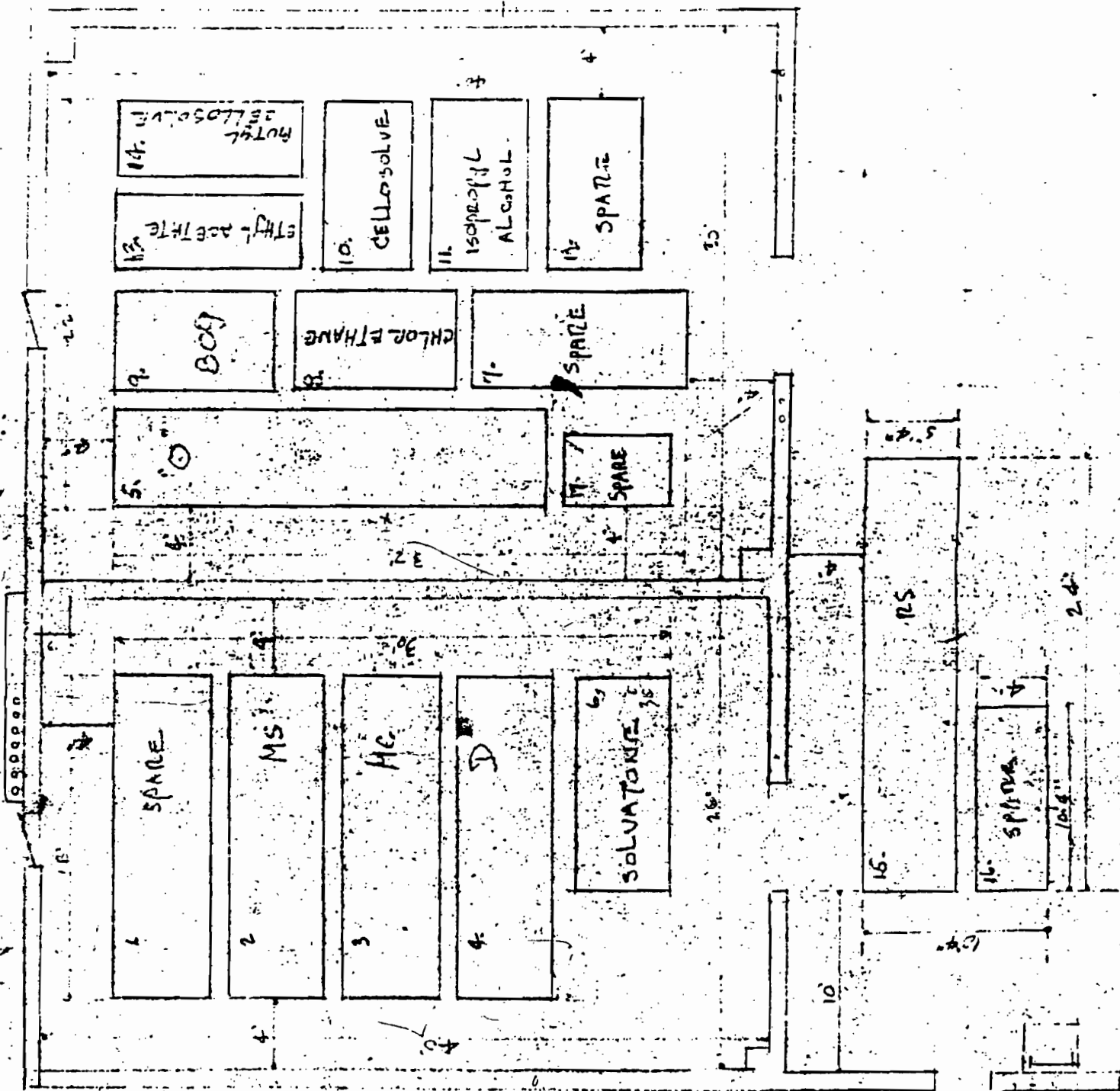
Very truly yours,

The Franklin Comp. Cont. Inc.


William T Klein, Pres.

WTK:ed
Enc.(3) 2 drawings,
1 copy of our billing record.

301044



301045

Kunz, A. 1990. Long Island Regional Planning Board. Telephone conversation with E. Beacon, Roux Associates, Inc. January 5, 1990

301046

TELEPHONE CONVERSATION RECORD

DATE: 1/5/90 **TIME:** 11:30 **PROJECT:** 11603Y
FROM: Ellen Beacon **TO:** Arthur Kunz
COMPANY: Roux Associates, Inc. **COMPANY:** LI Regional Planning Board
TEL. NO: 673-7200 **TEL. NO:** 360-5190
RE: 500 W. John Street, Hicksville (Y11603)

I asked Mr. Kunz if he knew when the industrial park was built and what previously occupied the site. Mr. Kunz explained that the land was owned privately until 1960-1 when the town was deeded the land for Cantique Park. At this time the remaining land was rezoned for industrial use. Prior to the erection of the facility in 1964, the land was farmland that was left fallow.

Lesser, W.C. Anchor/LithKemKo, 1990, Meeting with Roux Associates, Inc. April 19, 1990.

301048

FRANCIS T. PURCELL
COUNTY EXECUTIVE



Tom Handani Page 1 of 19

THOMAS J. VARELAS
SHERIFF

JOSEPH J. SANTACROCE
UNDER SHERIFF

COUNTY OF NASSAU
SHERIFF'S DEPARTMENT
240 OLD COUNTRY ROAD
MINEOLA, N. Y. 11501
TELEPHONE 516 535-2186

DISTRICT COURT - COUNTY OF NASSAU

KOBAR CONSTRUCTION CORP

File No. 8560899

Petitioner,

-against-

CHESSCO INDUSTRIES INC

ANCHOR/LITHKEMKO

Respondent,

Respondent Undertenant

NOTICE TO VACATE

TAKE NOTICE that a final judgment has been entered in the above proceeding awarding the Petitioner possession of the real property which you now occupy, and that a warrant has been issued directing that the Petitioner be put in possession. Please be advised that if you have not vacated the premises after seventy-two hours have elapsed from the date of the service of this notice, your possessions will be removed to the curb in compliance with the Court Order.

Thomas J. Varelas
Sheriff of Nassau County

DATED: _____

MINEOLA, N.Y.

Aug 27 19 *85*

By _____

Deputy Sheriff

301049

DISTRICT COURT OF THE COUNTY OF NASSAU

State of New York,

FIRST

District MINEOLA

Part

Index No. L & T

SP3162/85

KOBAR CONSTRUCTION CORP.

270 North Broadway

Hicksville, NY 11802

Petitioner

Landlord

Address

CHESSCO INDUSTRIES, INC. ^{against}

500 W. John Street, Hicksville, NY

Respondent Tenant

Address

ANCHOR/LITHKEMKO

500 W. John Street, Hicksville, NY

Respondent Undertenant

Address

First name of Tenant and/or Undertenant being fictitious and unknown to petitioner,
Person intended being in possession of the premises herein described

WARRANT

Non-Payment

TO THE SHERIFF OF THE ABOVE DISTRICT COURT, GREETING:

WHEREAS a petition in the above entitled proceeding was presented to this court on behalf of
KOBAR CONSTRUCTION CORP. landlord of the premises described herein,
 for a final judgment to recover possession of said premises and for a warrant to remove
CHESSCO INDUSTRIES, INC. respondent tenant, and
ANCHOR/LITHKEMKO respondent undertenant
 from the building ~~KOBAR~~ ~~ANCHOR~~
 and premises known as No. 500 West John Street, Hicksville, New York,

county of Nassau, upon the ground that the rent of said premises was then
 past due and although duly demanded remained unpaid in violation of the agreement under which the premises
 were held and that said respondents did hold over and continue in possession of said premises after default in pay-
 ment of said rent and without the permission of the landlord or the petitioner and a notice of petition was duly
 issued out of this court directed to the respondents specifying the time and place of the hearing of the petition, and
 proof of service of the notice of petition and petition was presented, and the respondents having failed to interpose
 or establish any defense, the court did thereupon render final judgment awarding to the petitioner landlord, among
 other things, the delivery of the possession of the said property,

THEREFORE, in the name of the People of the State of New York you are hereby commanded to remove
 said respondent tenant

and all other persons from said premises and put petitioner landlord in said petition named in full possession
 thereof.

WITNESS, Hon. **JOSEPH C. CALABRESE**
 court at the county of Nassau dated the

one of the judges of our said

19 day of August 19 85.

J. D. C.

Salvatore Benisatto
 935-1903

95 AUG 22 11:56

301050

8560899

Index No. L & T SP3162/85
 District Court of the County of Nassau
 State of New York, First District
 Mineola Part
 KOBAR CONSTRUCTION CORP.,

PETITIONER
 LANDLORD

against
 CHESSCO INDUSTRIES, INC.

RESPONDENT
 TENANT

ANCHOR/LITHEMCO,

RESPONDENT
 UNDERTENANT

Warrant - Non-Payment

Issued

19

RETURN

Pursuant to the command of the within warrant, I have this day put the petitioner landlord in said petition named into full possession of the premises within mentioned.

19

Sheriff

NOTICE

This warrant can only be executed between the hour of sunrise and sunset.

301051



ANCHOR
CHEMICAL CO., INC.

October 5, 1977

Mr. Michael Mangino,
Abatement Officer
Nassau County Department of Health
Water Pollution Division
240 Old Country Road
Mineola, New York 11501

Dear Mr. Mangino:

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301052



ANCHOR
CHEMICAL CO., INC.

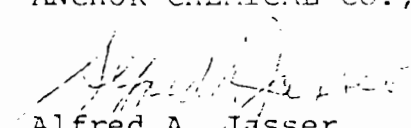
-2-

Mr. Michael Mangino,
Abatement Officer
Nassau County Department of Health October 5, 1977

I want to assure you, Mr. Mangino, that we at Anchor are aware of the water pollution problems that the County has endured and that we shall do everything in our power to prevent any occurrence at Anchor which could contribute to this water pollution. I appreciated your coming in and discussing the matter with me in an objective manner. You can be sure that the steps I have outlined above will be completed before the end of this month.

Yours very truly,

ANCHOR CHEMICAL CO., INC.


Alfred A. Jasser
President

AAJ/lo

301053

EXXON COMPANY, U.S.A.
A DIVISION OF EXXON CORPORATION

DATE ISSUED: 11/07/88
SUPERSEDES DATE: 05/02/88

MATERIAL SAFETY DATA SHEET

EXXON COMPANY, U.S.A. P.O. BOX 2180 HOUSTON, TX 77252-2180

A. IDENTIFICATION AND EMERGENCY INFORMATION

PRODUCT NAME
AROMATIC 100

Comb

PRODUCT CODE
132030 - 00652

CHEMICAL NAME
Petroleum Solvent

CAS NUMBER
64742-95-6

PRODUCT APPEARANCE AND ODOR
Clear water-white liquid
Aromatic hydrocarbon odor

EMERGENCY TELEPHONE NUMBER
(713) 656-3424

B. COMPONENTS AND HAZARD INFORMATION

COMPONENTS

CAS NO. OF
COMPONENTS APPROXIMATE
CONCENTRATION

This product can be defined as:
Light aromatic solvent naphtha
(petroleum)

64742-95-6 100%

It consists predominantly of C8-C10 aromatic hydrocarbons,
primarily C9.

This product contains:
Xylene

1330-20-7 Approximately 5 mass %

See Section E for Health and Hazard Information.

See Section H for additional Environmental Information.

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM (HMIS)

Health Flammability Reactivity BASIS
1 2 0 Recommended by Exxon

EXPOSURE LIMIT FOR TOTAL PRODUCT BASIS
50 ppm (245 mg/m3) for an Recommended by Exxon
8-hour workday

C. PRIMARY ROUTES OF ENTRY AND EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT

If splashed into the eyes, flush with clear water for 15 minutes or until irritation subsides. If irritation persists, call a physician.

SKIN

In case of skin contact, remove any contaminated clothing and wash skin thoroughly with soap and water.

INHALATION

If overcome by vapor, remove from exposure and call a physician immediately. If breathing is irregular or has stopped, start resuscitation, administer oxygen, if available.

301054

INGESTION

If ingested, DO NOT induce vomiting; call a physician immediately.

D. FIRE AND EXPLOSION HAZARD INFORMATION**FLASH POINT (MINIMUM)**

COMBUSTIBLE - Per DOT 49 CFR 173.115

41°C (106°F)

ASTM D 56, Tag Closed Cup

AUTOIGNITION TEMPERATURE

Approximately 471°C (880°F)

ASTM D 2155

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) - HAZARD IDENTIFICATION

Health Flammability Reactivity

BASIS

1

2

0

Recommended by Exxon

HANDLING PRECAUTIONS

This liquid is volatile and gives off invisible vapors. Either the liquid or vapor may settle in low areas or travel some distance along the ground or surface to ignition sources where they may ignite or explode.

Keep product away from ignition sources, such as heat, sparks, pilot lights, static electricity, and open flames.

FLAMMABLE OR EXPLOSIVE LIMITS (APPROXIMATE PERCENT BY VOLUME IN AIR)

Estimated values: Lower Flammable Limit 0.9% Upper Flammable Limit 7%

EXTINGUISHING MEDIA AND FIRE FIGHTING PROCEDURES

Foam, water spray (fog), dry chemical, carbon dioxide and vaporizing liquid type extinguishing agents may all be suitable for extinguishing fires involving this type of product, depending on size or potential size of fire and circumstances related to the situation. Plan fire protection and response strategy through consultation with local fire protection authorities or appropriate specialists.

The following procedures for this type of product are based on the recommendations in the National Fire Protection Association's "Fire Protection Guide on Hazardous Materials", Eighth Edition (1984):

Use dry chemical, foam or carbon dioxide. Water may be ineffective, but water should be used to keep fire-exposed containers cool. If a leak or spill has ignited, use water spray to disperse the vapors and to protect men attempting to stop a leak. Water spray may be used to flush spills away from exposures. Minimize breathing gases, vapor, fumes or decomposition products. Use supplied-air breathing equipment for enclosed or confined spaces or as otherwise needed.

NOTE: The inclusion of the phrase "water may be ineffective" is to indicate that although water can be used to cool and protect exposed material, water may not extinguish the fire unless used under favorable conditions by experienced fire fighters trained in fighting all types of flammable liquid fires.

DECOMPOSITION PRODUCTS UNDER FIRE CONDITIONS

Fumes, smoke, carbon monoxide, aldehydes and other decomposition products, in the case of incomplete combustion.

"EMPTY" CONTAINER WARNING

"Empty" containers retain residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Do not attempt to clean since residue is difficult to remove. "Empty" drums should be completely drained, properly bunged and promptly returned to a drum reconditioner. All other containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations. For work on tanks refer to Occupational Safety and Health Administration regulations, ANSI Z49.1, and other governmental and industrial references pertaining to cleaning, repairing, welding, or other contemplated operations.

301055

E. HEALTH AND HAZARD INFORMATION

VARIABILITY AMONG INDIVIDUALS

Health studies have shown that many petroleum hydrocarbons and synthetic lubricants pose potential human health risks which may vary from person to person. As a precaution, exposure to liquids, vapors, mists or fumes should be minimized.

EFFECTS OF OVEREXPOSURE (Signs and symptoms of exposure)

High vapor concentrations (greater than approximately 1000 ppm) are irritating to the eyes and the respiratory tract, may cause headaches and dizziness, are anesthetic, and may have other central nervous system effects including death.

NATURE OF HAZARD AND TOXICITY INFORMATION

Product contacting the eyes may cause eye irritation.

Product has a low order of acute oral and dermal toxicity, but minute amounts aspirated into the lungs during ingestion or vomiting may cause mild to severe pulmonary injury and possibly death.

This product is judged to have an acute oral LD50 (rat) greater than 5 g/kg of body weight, and an acute dermal LD50 (rabbit) greater than 3.16 g/kg of body weight.

PRE-EXISTING MEDICAL CONDITIONS WHICH MAY BE AGGRAVATED BY EXPOSURE

Petroleum Solvents/Petroleum Hydrocarbons - Skin contact may aggravate an existing dermatitis.

F. PHYSICAL DATA

The following data are approximate or typical values and should not be used for precise design purposes.

BOILING RANGE

Approximately 152-168°C (306-335°F)

VAPOR PRESSURE

Less than 10 mm Hg @ 25°C
ASTM D 2879

SPECIFIC GRAVITY (15.6 C/15.6 C)

0.872

VAPOR DENSITY (AIR = 1)

Approximately 4.1

MOLECULAR WEIGHT

120

PERCENT VOLATILE BY VOLUME

100 @ 1 atm. and 25°C (77°F)

pH

Essentially neutral

EVAPORATION RATE @ 1 ATM. AND 25 C (77 F)

(n-BUTYL ACETATE = 1)
0.2

POUR, CONGEALING OR MELTING POINT

Less than -18°C (0°F)
Pour Point by ASTM D 97

SOLUBILITY IN WATER @ 1 ATM. AND 25 C (77 F)

Negligible; less than 0.1%

VISCOSITY

0.78 cP @ 25°C ASTM D 445

G. REACTIVITY

This product is stable and will not react violently with water. Hazardous polymerization will not occur. Avoid contact with strong oxidants such as liquid chlorine, concentrated oxygen, sodium hypochlorite or calcium hypochlorite.

301056

H. ENVIRONMENTAL INFORMATION

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Shut off and eliminate all ignition sources. Keep people away. Recover free product. Add sand, earth or other suitable absorbent to spill area. Minimize breathing vapors. Minimize skin contact. Ventilate confined spaces. Open all windows and doors. Keep product out of sewers and watercourses by diking or impounding. Advise authorities if product has entered or may enter sewers, watercourses, or extensive land areas. Assure conformity with applicable governmental regulations. Continue to observe precautions for volatile, combustible vapors from absorbed material.

THE FOLLOWING INFORMATION MAY BE USEFUL IN COMPLYING WITH VARIOUS STATE AND FEDERAL REGULATIONS UNDER VARIOUS ENVIRONMENTAL STATUTES:

REPORTABLE QUANTITY (RQ), EPA REGULATION 40 CFR 302 (CERCLA Section 102)

The RQ for cumene is 1 pound. This product contains approximately 5% cumene.

The RQ for ethylbenzene is 1,000 pounds. This product contains approximately 1.5% ethylbenzene.

The RQ for xylene is 1,000 pounds. This product contains approximately 5% xylene.

THRESHOLD PLANNING QUANTITY (TPQ), EPA REGULATION 40 CFR 355 (SARA Sections 301-304)

Not applicable

TOXIC CHEMICAL RELEASE REPORTING, EPA REGULATION 40 CFR 372 (SARA Sections 311-313)

This product contains approximately 5% cumene.

This product contains approximately 1.5% ethylbenzene.

This product contains approximately 5% xylene.

This product contains approximately 21% 1,2,4-Trimethyl benzene.

	Acute	Chronic	Fire	Pressure	Reactive	
EPA HAZARD CLASSIFICATION CODE:	Hazard	Hazard	Hazard	Hazard	Hazard	Not Applicable
	XXX		XXX			

I. PROTECTION AND PRECAUTIONS

VENTILATION

Use only with ventilation sufficient to prevent exceeding recommended exposure limit or buildup of explosive concentrations of vapor in air. Use explosion-proof equipment. No smoking or open lights.

RESPIRATORY PROTECTION

Use supplied-air respiratory protection in confined or enclosed spaces, if needed.

PROTECTIVE GLOVES

Use chemical-resistant gloves, if needed, to avoid prolonged or repeated skin contact.

EYE PROTECTION

Use splash goggles or face shield when eye contact may occur.

OTHER PROTECTIVE EQUIPMENT

Use chemical-resistant apron or other impervious clothing, if needed, to avoid contaminating regular clothing which could result in prolonged or repeated skin contact.

WORK PRACTICES / ENGINEERING CONTROLS

Keep containers and storage containers closed when not in use. Do not store near heat, sparks, flame or strong oxidants. To prevent fire or explosion risk from static accumulation and discharge, effectively ground product transfer system in accordance with the National Fire Protection Association standard for petroleum products.

PERSONAL HYGIENE

Minimize breathing vapor or mist. Avoid prolonged or repeated contact with skin. Remove contaminated clothing; launder or dry-clean before reuse. Remove contaminated shoes and thoroughly clean and dry before reuse. Cleanse skin thoroughly after contact, before breaks and meals, and at end of work period. Product is readily removed from skin by waterless hand cleaners followed by washing thoroughly with soap and water.

J. TRANSPORTATION AND OSHA RELATED LABEL INFORMATION

TRANSPORTATION INCIDENT INFORMATION

For further information relative to spills resulting from transportation incidents, refer to latest Department of Transportation Emergency Response Guidebook for Hazardous Materials Incidents, DOT P 5800.3.

DOT IDENTIFICATION NUMBER

UN 1255

OSHA REQUIRED LABEL INFORMATION

In compliance with hazard and right-to-know requirements, the following OSHA Hazard Warnings should be found on a label, bill of lading or invoice accompanying this shipment.

DANGER!

COMBUSTIBLE

Note: Product label will contain additional non-OSHA related information.

The information and recommendations contained herein are, to the best of Exxon's knowledge and belief, accurate and reliable as of the date issued. Exxon does not warrant or guarantee their accuracy or reliability, and Exxon shall not be liable for any loss or damage arising out of the use thereof.

The information and recommendations are offered for the user's consideration and examination, and it is the user's responsibility to satisfy itself that they are suitable and complete for its particular use. If buyer repackages this product, legal council should be consulted to insure proper health, safety and other necessary information is included on the container.

The Environmental Information included under Section H hereof as well as the Hazardous Materials Identification System (HMIS) and National Fire Protection Association (NFPA) ratings have been included by Exxon Company, U.S.A. in order to provide additional health and hazard classification information. The ratings recommended are based upon the criteria supplied by the developers of these rating systems, together with Exxon's interpretation of the available data.

FOR ADDITIONAL INFORMATION ON HEALTH EFFECTS CONTACT:

DIRECTOR OF INDUSTRIAL HYGIENE
EXXON COMPANY, U.S.A.
P. O. BOX 2180 ROOM 3157
HOUSTON, TX 77252-2180
(713) 656-2443

FOR OTHER PRODUCT INFORMATION CONTACT:

MANAGER, MARKETING TECHNICAL SERVICES
EXXON COMPANY, U.S.A.
P. O. BOX 2180 ROOM 2355
HOUSTON, TX 77252-2180
(713) 656-5949

301058

UNOCAL CHEMICALS DIVISION
PETROCHEMICALS GROUPProduct Name: NAPHTHOL SPIRITS 66/3
Product Code No: 11103Page 1 of 1
Issue Date: 3/1MANUFACTURER:UNOCAL CHEMICALS DIVISION
UNION OIL COMPANY OF CALIFORNIA
1345 N. MEACHAM
SCHAUMBURG, ILLINOIS 60196CONTACT FOR FURTHER INFORMATION:
MSDS COORDINATOR (312) 490-2500Transportation Emergencies:
Call CHEMTREC
(800) 424-9300 Cont.
(202) 483-7616 (Collect)
from Alaska & Hawaii
Health Emergencies:
CALL LOS ANGELES POISON
INFORMATION CENTER (24 hr)
(213) 664-2121PRODUCT IDENTIFICATIONPRODUCT NAME: NAPHTHOL SPIRITS 66/3SYNONYMS: AMSCO SOLV 1103GENERIC NAME: VOLATILE SOLVENTCHEMICAL FAMILY: HYDROCARBON MIXTUREDOT PROPER SHIPPING NAME: PETROLEUM NAPHTHAID NUMBER: UN1255DOT HAZARD CLASSIFICATION: COMBUSTIBLE LIQUIDCAS NUMBER: 64742-48-9SECTION I - HAZARDOUS INGREDIENTS/EXPOSURE LIMITS

LIMITS UNITS AGENCY TYP

STODDARD SOLVENT

8052-41-3

100.0000 PPM

ACGIH

T

200.0000 PPM

ACGIH

ST

500.0000 PPM

OSHA

T

SECTION II - EMERGENCY AND FIRST AID PROCEDURES

EMERGENCY

Have physician call LOS ANGELES POISON
INFORMATION CENTER (24 hrs.) (213) 664-2121EYE CONTACT:

IF IRRITATION OR REDNESS FROM EXPOSURE TO VAPORS DEVELOPS, MOVE VICTIM AWAY FROM EXPOSURE AND INTO FRESH AIR. IF IRRITATION OR REDNESS PERSISTS, SEEK MEDICAL ATTENTION. FOR DIRECT CONTACT, HOLD EYELIDS APART AND FLUSH THE AFFECTED EYE(S) WITH CLEAN WATER. SEEK MEDICAL ATTENTION.

SKIN CONTACT:

REMOVE CONTAMINATED CLOTHING. CLEANSE AFFECTED AREA(S) THOROUGHLY BY WASHING WITH MILD SOAP AND WATER. IF IRRITATION OR REDNESS DEVELOPS AND PERSISTS, SEEK MEDICAL ATTENTION.

301059

SECTION II - EMERGENCY AND FIRST AID PROCEDURES

EMERGENCY

Have physician call LOS ANGELES POISON
INFORMATION CENTER (24 hrs.) (213) 664-2121

INHALATION (BREATHING):

IF IRRITATION OF NOSE OR THROAT DEVELOPS, MOVE VICTIM AWAY FROM SOURCE OF EXPOSURE AND INTO FRESH AIR. IF IRRITATION PERSISTS, SEEK MEDICAL ATTENTION. IF VICTIM IS NOT BREATHING, ARTIFICIAL RESPIRATION SHOULD BE ADMINISTERED. IF BREATHING DIFFICULTIES DEVELOP, OXYGEN SHOULD BE ADMINISTERED BY QUALIFIED PERSONNEL. SEEK IMMEDIATE MEDICAL ATTENTION.

INGESTION (SWALLOWING):

ASPIRATION HAZARD: DO NOT INDUCE VOMITING OR GIVE ANYTHING BY MOUTH BECAUSE THIS MATERIAL CAN ENTER THE LUNGS AND CAUSE SEVERE LUNG DAMAGE. IF VICTIM IS DROWSY OR UNCONSCIOUS, PLACE ON THE LEFT SIDE WITH THE HEAD DOWN. IF POSSIBLE, DO NOT LEAVE VICTIM UNATTENDED. SEEK MEDICAL ATTENTION.

SECTION III - HEALTH HAZARDS/ROUTES OF ENTRY

EYE CONTACT:

THIS MATERIAL MAY CAUSE EYE IRRITATION. DIRECT CONTACT WITH THE LIQUID OR EXPOSURE TO VAPORS OR MISTS MAY CAUSE BURNING, TEARING AND REDNESS.

SKIN CONTACT:

THIS MATERIAL MAY CAUSE SKIN IRRITATION. PROLONGED OR REPEATED EXPOSURE TO THIS MATERIAL MAY CAUSE REDNESS, BURNING, AND DRYING AND CRACKING OF THE SKIN. NO HARMFUL EFFECTS HAVE BEEN DEMONSTRATED IN SKIN ABSORPTION STUDIES. PERSONS WITH PRE-EXISTING SKIN DISORDERS MAY BE MORE SUSCEPTIBLE TO THE EFFECTS OF THIS MATERIAL.

INHALATION (BREATHING):

BREATHING HIGH CONCENTRATIONS OF VAPORS OR MISTS MAY CAUSE IRRITATION OF THE NOSE AND THROAT. SIGNS OF NERVOUS SYSTEM DEPRESSION (E.G., DROWSINESS, DIZZINESS, LOSS OF COORDINATION, AND FATIGUE). RESPIRATORY SYMPTOMS ASSOCIATED WITH PRE-EXISTING LUNG DISORDERS (E.G., ASTHMA-LIKE CONDITIONS) MAY BE AGGRAVATED BY EXPOSURE TO THIS MATERIAL.

INGESTION (SWALLOWING):

INGESTION OF EXCESSIVE QUANTITIES MAY CAUSE IRRITATION OF THE DIGESTIVE TRACT. SIGNS OF NERVOUS SYSTEM DEPRESSION (E.G., DROWSINESS, DIZZINESS, LOSS OF COORDINATION, AND FATIGUE). ASPIRATION HAZARD - THIS MATERIAL CAN ENTER LUNGS DURING SWALLOWING OR VOMITING AND CAUSE LUNG INFLAMMATION AND DAMAGE.

COMMENTS:

THIS SUBSTANCE HAS NOT BEEN IDENTIFIED AS A CARCINOGEN OR PROBABLE CARCINOGEN BY NTP, IARC OR OSHA. REPORTS HAVE ASSOCIATED REPEATED AND PROLONGED OCCUPATIONAL OVEREXPOSURE TO SOLVENTS WITH PERMANENT BRAIN AND NERVOUS SYSTEM DAMAGE (SOMETIMES REFERRED TO AS SOLVENT OR PAINTERS' SYNDROME). INTENTIONAL MISUSE BY DELIBERATELY CONCENTRATING AND INHALING THIS PRODUCT MAY BE HARMFUL OR FATAL.

SECTION IV - SPECIAL PROTECTION INFORMATION

VENTILATION:

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IF CURRENT VENTILATION PRACTICES ARE NOT ADEQUATE FOR MINIMIZING EXPOSURES, ADDITIONAL VENTILATION OR EXHAUST SYSTEMS MAY BE REQUIRED. WHERE EXPLOSIVE MIXTURES MAY BE PRESENT, SYSTEMS SAFE FOR SUCH LOCATIONS SHOULD BE USED.

RESPIRATORY PROTECTION:

THE USE OF RESPIRATORY PROTECTION IS ADVISED WHEN CONCENTRATIONS EXCEED THE ESTABLISHED EXPOSURE LIMITS (SEE SECTION I). DEPENDING ON THE AIRBORNE CONCENTRATION, USE A RESPIRATOR OR GAS MASK WITH APPROPRIATE CARTRIDGES AND CANNISTERS (NIOSH APPROVED, IF AVAILABLE) OR SUPPLIED AIR EQUIPMENT.

PROTECTIVE GLOVES:

THE USE OF GLOVES IMPERMEABLE TO THE SPECIFIC MATERIAL HANDLED IS ADVISED TO PREVENT SKIN CONTACT AND POSSIBLE IRRITATION.

EYE PROTECTION:

APPROVED EYE PROTECTION TO SAFEGUARD AGAINST POTENTIAL EYE CONTACT, IRRITATION OR INJURY IS RECOMMENDED.

OTHER PROTECTIVE EQUIPMENT:

IT IS SUGGESTED THAT A SOURCE OF CLEAN WATER BE AVAILABLE IN WORK AREA FOR FLUSHING EYES AND SKIN. IMPERVIOUS CLOTHING SHOULD BE WORN AS NEEDED.

SECTION V - REACTIVITY DATA

STABILITY:

STABLE

INCOMPATIBILITY (MATERIALS TO AVOID):

THIS PRODUCT IS INCOMPATIBLE WITH STRONG ACIDS OR BASES, OXIDIZING AGENTS AND SELECTED AMINES.

HAZARDOUS DECOMPOSITION PRODUCTS:

COMBUSTION MAY YIELD CARBON MONOXIDE AND/OR CARBON DIOXIDE.

HAZARDOUS POLYMERIZATION:

WILL NOT OCCUR

SECTION VI - SPILL OR LEAK PROCEDURES

HIGHWAY OR RAILWAY SPILLS

Call CHEMTREC (800) 424-9300 Cont. U.S.

(Collect) (202) 483-7616 from Alaska & Haw

PRECAUTIONS IN CASE OF RELEASE OR SPILL:

STAY UPWIND AND AWAY FROM SPILL. KEEP ALL SOURCES OF IGNITION AND HOT METAL SURFACES AWAY FROM SPILL. IF SPILL IS INDOORS, VENTILATE AREA OF SPILL. KEEP OUT OF DRAINS, SEWERS OR WATERWAYS. USE SAND OR OTHER INERT MATERIAL TO DAM AND CONTAIN SPILL. DO NOT FLUSH AREA WITH WATER. FOR SMALL SPILLS, DO NOT FLUSH WITH WATER; USE ABSORBENT PADS. CALL SPILL RESPONSE TEAM IF LARGE SPILL. CONTACT FIRE AUTHORITIES AND APPROPRIATE STATE/LOCAL AGENCIES.

WASTE DISPOSAL METHOD:

DISPOSE OF PRODUCT IN ACCORDANCE WITH LOCAL, COUNTY, STATE, AND FEDERAL REGULATIONS.

301061

SECTION VII - STORAGE AND SPECIAL PRECAUTIONS

HANDLING AND STORAGE PRECAUTIONS:

KEEP CONTAINERS TIGHTLY CLOSED. KEEP CONTAINERS COOL, DRY, AND AWAY FROM SOURCES OF IGNITION. USE AND STORE THIS PRODUCT WITH ADEQUATE VENTILATION. AVOID INHALATION OF VAPORS AND PERSONAL CONTACT WITH THE PRODUCT. USE GOOD PERSONAL HYGIENE PRACTICE. "EMPTY" CONTAINERS RETAIN RESIDUE (LIQUID AND/OR VAPOR) AND CAN BE DANGEROUS. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. "EMPTY" DRUMS SHOULD BE COMPLETELY DRAINED, PROPERLY BUNGED AND PROMPTLY SHIPPED TO THE SUPPLIER OR A DRUM RECONDITIONER. ALL OTHER CONTAINERS SHOULD BE DISPOSED OF IN AN ENVIRONMENTALLY SAFE MANNER AND IN ACCORDANCE WITH GOVERNMENTAL REGULATIONS. BEFORE WORKING ON OR IN TANKS WHICH CONTAIN OR HAVE CONTAINED THIS PRODUCT, REFER TO OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS, ANSI Z49.1, AND OTHER GOVERNMENTAL AND INDUSTRIAL REFERENCES PERTAINING TO CLEANING, REPAIRING, WELDING, OR OTHER CONTEMPLATED OPERATIONS.

SECTION VIII - FIRE AND EXPLOSION HAZARD DATA

HAZARD RANKING

NFPA HEALTH HAZARD: 1
HAZARD FLAMMABILITY: 2
CLASS REACTIVITY: 0
OTHER: -

0 = LEAST
1 = SLIGHT
2 = MODERATE
3 = HIGH
4 = EXTREME

HMS HEALTH: 1
HAZARD FLAM: 2
CLASS REACT: 0
P.P.E.: -

LOWER EXPLOSIVE LIMIT (% VOL.)

1.0

UPPER EXPLOSIVE LIMIT (% VOL.)

6.0

FLASH POINT

104, TCC F

EXTINGUISHING MEDIA:

EXTINGUISH WITH DRY CHEMICAL, CO₂, WATER SPRAY OR FOAM.

FIRE & EXPLOSION HAZARDS:

THIS MATERIAL IS COMBUSTIBLE AND MAY BE IGNITED BY HEAT OR FLAME. THIS MATERIAL WILL BURN, BUT WILL NOT IGNITE READILY.

FIRE FIGHTING PROCEDURES:

THE USE OF A SCBA IS RECOMMENDED FOR FIRE FIGHTERS. WATER SPRAY MAY BE USEFUL IN MINIMIZING VAPORS AND COOLING CONTAINERS EXPOSED TO HEAT AND FLAME. AVOID SPREADING BURNING LIQUID WITH WATER USED FOR COOLING PURPOSES.

SECTION IX - PHYSICAL DATA

APPROX. BOILING POINT

316 TO 360 F

VAPOR DENSITY (AIR = 1)

4.9

VAPOR PRESSURE

2.9 MM HG @ 20C

EVAPORATION RATE (N-BUTYL ACETATE = 1)

0.21

% VOLATILE

100%

% SOLUBILITY IN WATER

NEGLECTIBLE (< 5%)

SPECIFIC GRAVITY (TEMP/TEMP)

0.772 (60F/60F)

APPEARANCE

CLEAR, LITTLE IF ANY COLOR

ODOR

CHARACTERISTIC

SECTION XI - DOCUMENTARY INFORMATION

ISSUE DATE: 3/11/88 PRODUCT CODE NO. 11103PREV. DATE: 6/16/87 PREV. PROD. CODE NO. 1103MSDS NO: 6289 PREV. MSDS NO: 856DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

The information in this document is believed to be correct as of the date issued. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THIS INFORMATION, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE.

This information and product are furnished on the condition that the person receiving them shall make his own determination as to the suitability of the product for his particular purpose and on the condition that he assume the risk of his use thereof.

301063

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HEXANE

THIS MSDS COMPLIES WITH 29 CFR 1910.1200 (THE HAZARD COMMUNICATION STANDARD)

Product Name: HEXANE *TEX*
CAS NUMBER: 110-54-3ANCHOR LITHKEMKO
50 INDUSTRIAL LOOP N
ORANGE PARK FL 32073

05 50 087 0472620-

PRODUCT: 2448000
INVOICE: 663040
INVOICE DATE: 10/26/89
TO: SAMEData Sheet No: 0004344-004
Prepared: 05/31/89
Supersedes: 03/04/86

ATTN: PLANT MGR./SAFETY DIR.

*Rec'd 11/9/89***SECTION II - PRODUCT IDENTIFICATION**

General or Generic ID: ALIPHATIC HYDROCARBON

DOT Hazard Classification: FLAMMABLE LIQUID (173.115)

SECTION III - COMPONENTSIF PRESENT, IARC, NTP AND OSHA CARCINOGENS AND CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SARA TITLE III SECTION 313 ARE IDENTIFIED IN THIS SECTION.
SEE DEFINITION PAGE FOR CLARIFICATION

INGREDIENT	% (by WT)	PEL	TLV	Note
HEXANE CAS #: 110-54-3	>95	50 PPM	50 PPM	(1)

Notes:

(1) NIOSH RECOMMENDS A LIMIT OF 100 PPM - 8 HOUR TIME WEIGHTED AVERAGE, 510 PPM CEILING. THESE LIMITS ARE FOR N-HEXANE. THE OSHA PEL AND THE ACGIH TLV FOR OTHER ISOMERS OF HEXANE IS 500 PPM, TWA; 1000 PPM SHORT TERM EXPOSURE LIMIT (STEL).

SECTION IV - PHYSICAL/SCIENCE DATA

Boiling Point	for PRODUCT	149.00 - 159.00 Deg F (65.00 - 70.55 Deg C) @ 760.00 mm Hg
Vapor Pressure	for PRODUCT	@ 125.00 mm Hg (20.00 Deg C) @ 68.00 Deg F
Specific Vapor Density	AIR = 1	3.0
Specific Gravity		.672 - .684 @ 60.00 Deg F (15.55 Deg C)
Percent Volatiles		100.00%
Evaporation Rate	(N-BUTYL ACETATE = 1)	9.00

SECTION V - FIRE AND EXPLOSION INFORMATION

FLASH POINT (TCC) -25.0 Deg F (-31.7 Deg C)

EXPLOSIVE LIMIT (PRODUCT) LOWER - 1.0%

EXTINGUISHING MEDIA: REGULAR FOAM OR CARBON DIOXIDE OR DRY CHEMICAL

HAZARDOUS DECOMPOSITION PRODUCTS: MAY FORM TOXIC MATERIALS: CARBON DIOXIDE AND CARBON MONOXIDE, VARIOUS HYDROCARBONS, ETC.

FIREFIGHTING PROCEDURES: WEAR SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN THE POSITIVE PRESSURE DEMAND MODE WHEN FIGHTING FIRES.

SPECIAL FIRE & EXPLOSION HAZARDS: MATERIAL IS HIGHLY VOLATILE AND READILY GIVES OFF VAPORS WHICH MAY TRAVEL ALONG THE GROUND OR BE MOVED BY VENTILATION AND IGNITED BY PILOT LIGHTS, OTHER FLAMES, SPARKS, HEATERS, SMOKING, ELECTRIC MOTORS, STATIC DISCHARGE, OR OTHER IGNITION SOURCES AT LOCATIONS DISTANT FROM MATERIAL HANDLING POINT.

NEVER USE WELDING OR CUTTING TORCH ON OR NEAR DRUM (EVEN EMPTY) BECAUSE PRODUCT (EVEN JUST RESIDUE) CAN IGNITE EXPLOSIVELY.

ALL FIVE GALLON PAILS AND LARGER METAL CONTAINERS INCLUDING TANK CARS AND TANK TRUCKS SHOULD BE GROUNDED AND/OR BONDED WHEN MATERIAL IS TRANSFERRED.

NFPA CODES: HEALTH- 1 FLAMMABILITY- 3 REACTIVITY- 0

SECTION VI - HEALTH HAZARD DATA

PERMISSIBLE EXPOSURE LEVEL	50	PPM
THRESHOLD LIMIT VALUE	50	PPM
SEE SECTION II		

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HEXANE

SECTION IV - HEALTH HAZARD DATA (Continued)**EFFECTS OF ACUTE OVEREXPOSURE: FOR PRODUCT**

EYES - CAN CAUSE SEVERE IRRITATION, REDNESS, TEARING, BLURRED VISION.
SKIN - PROLONGED OR REPEATED CONTACT CAN CAUSE MODERATE IRRITATION, DEFATTING, DERMATITIS.
BREATHING - EXCESSIVE INHALATION OF VAPORS CAN CAUSE NASAL AND RESPIRATORY IRRITATION, CENTRAL NERVOUS SYSTEM EFFECTS INCLUDING DIZZINESS, WEAKNESS, FATIGUE, NAUSEA, HEADACHE AND POSSIBLE UNCONSCIOUSNESS, AND EVEN DEATH.
SWALLOWING - CAN CAUSE GASTROINTESTINAL IRRITATION, NAUSEA, VOMITING, AND DIARRHEA. ASPIRATION OF MATERIAL INTO THE LUNGS CAN CAUSE CHEMICAL PNEUMONITIS WHICH CAN BE FATAL.

FIRST AID:

IF ON SKIN: THOROUGHLY WASH EXPOSED AREA WITH SOAP AND WATER. REMOVE CONTAMINATED CLOTHING. LAUNDER CONTAMINATED CLOTHING BEFORE RE-USE.
IF IN EYES: FLUSH WITH LARGE AMOUNTS OF WATER, LIFTING UPPER AND LOWER LIDS OCCASIONALLY, GET MEDICAL ATTENTION.
IF SWALLOWED: DO NOT INDUCE VOMITING, KEEP PERSON WARM, QUIET, AND GET MEDICAL ATTENTION. ASPIRATION OF MATERIAL INTO THE LUNGS DUE TO VOMITING CAN CAUSE CHEMICAL PNEUMONITIS WHICH CAN BE FATAL.
IF BREATHED: IF AFFECTED, REMOVE INDIVIDUAL TO FRESH AIR. IF BREATHING IS DIFFICULT, ADMINISTER OXYGEN. IF BREATHING HAS STOPPED GIVE ARTIFICIAL RESPIRATION. KEEP PERSON WARM, QUIET AND GET MEDICAL ATTENTION.

PRIMARY ROUTE(S) OF ENTRY:

INHALATION, SKIN CONTACT

EFFECTS OF CHRONIC OVEREXPOSURE: FOR PRODUCT

PROLONGED AND REPEATED EXPOSURE TO N-HEXANE MAY DAMAGE PERIPHERAL NERVE TISSUE (THAT OF THE ARMS AND LEGS) AND RESULT IN MUSCULAR WEAKNESS AND LOSS OF SENSATION IN THE EXTREMITIES (PERIPHERAL NEUROPATHY). METHYL ETHYL KETONE MAY POTENTIATE (SHORTEN THE TIME OF ONSET) PERIPHERAL NEUROPATHY CAUSED BY N-HEXANE.
OVEREXPOSURE TO THIS MATERIAL (OR ITS COMPONENTS) HAS BEEN SUGGESTED AS A CAUSE OF THE FOLLOWING EFFECTS IN HUMANS: CENTRAL NERVOUS SYSTEM EFFECTS

SECTION V - REACTIVITY DATA

HAZARDOUS POLYMERIZATION: CANNOT OCCUR

STABILITY: STABLE

INCOMPATIBILITY: AVOID CONTACT WITH: STRONG OXIDIZING AGENTS.

SECTION VI - SPILL OR LEAK PROCEDURES**STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:**

SMALL SPILL: ABSORB LIQUID ON PAPER, VERMICULITE, FLOOR ABSORBENT, OR OTHER ABSORBENT MATERIAL AND TRANSFER TO HOOD.

LARGE SPILL: ELIMINATE ALL IGNITION SOURCES (FLARES, FLAMES INCLUDING PILOT LIGHTS, ELECTRICAL SPARKS). PERSONS NOT WEARING PROTECTIVE EQUIPMENT SHOULD BE EXCLUDED FROM AREA OF SPILL UNTIL CLEAN-UP HAS BEEN COMPLETED. STOP SPILL AT SOURCE, DIKE AREA OF SPILL TO PREVENT SPREADING, PUMP LIQUID TO SALVAGE TANK. REMAINING LIQUID MAY BE TAKEN UP ON SAND, CLAY, EARTH, FLOOR ABSORBENT, OR OTHER ABSORBENT MATERIAL AND SHOVELED INTO CONTAINERS.

WASTE DISPOSAL METHOD:

SMALL SPILL: ALLOW VOLATILE PORTION TO EVAPORATE IN HOOD. ALLOW SUFFICIENT TIME FOR VAPORS TO COMPLETELY CLEAR HOOD DUCT WORK. DISPOSE OF REMAINING MATERIAL IN ACCORDANCE WITH APPLICABLE REGULATIONS.

LARGE SPILL: DESTROY BY LIQUID INCINERATION.

CONTAMINATED ABSORBENT MAY BE DEPOSITED IN A LANDFILL IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.

SECTION VII - PROTECTIVE EQUIPMENT TO BE USED

RESPIRATORY PROTECTION: IF WORKPLACE EXPOSURE LIMIT(S) OF PRODUCT OR ANY COMPONENT IS EXCEEDED (SEE SECTION II), A NIOSH/MSHA APPROVED AIR SUPPLIED RESPIRATOR IS ADVISED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. OSHA REGULATIONS ALSO PERMIT OTHER NIOSH/MSHA RESPIRATORS (NEGATIVE PRESSURE TYPE) UNDER SPECIFIED CONDITIONS (SEE YOUR SAFETY EQUIPMENT SUPPLIER). ENGINEERING OR ADMINISTRATIVE CONTROLS SHOULD BE IMPLEMENTED TO REDUCE EXPOSURE.

VENTILATION: PROVIDE SUFFICIENT MECHANICAL (GENERAL AND/OR LOCAL EXHAUST) VENTILATION TO MAINTAIN EXPOSURE BELOW TLV(S).

PROTECTIVE GLOVES: WEAR RESISTANT GLOVES SUCH AS: NITRILE RUBBER

EYE PROTECTION: CHEMICAL SPLASH GOGGLES IN COMPLIANCE WITH OSHA REGULATIONS ARE ADVISED; HOWEVER, OSHA REGULATIONS ALSO PERMIT OTHER TYPE SAFETY GLASSES. (CONSULT YOUR SAFETY EQUIPMENT SUPPLIER)

OTHER PROTECTIVE EQUIPMENT: TO PREVENT REPEATED OR PROLONGED SKIN CONTACT, WEAR IMPERVIOUS CLOTHING AND BOOTS.

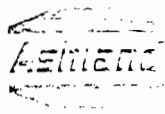
SECTION VIII - SPECIAL PRECAUTIONS OR OTHER COMMENTS

CONTAINERS OF THIS MATERIAL MAY BE HAZARDOUS WHEN EMPTIED. SINCE EMPTIED CONTAINERS RETAIN PRODUCT RESIDUES (VAPOR, LIQUID, AND/OR SOLID), ALL HAZARD PRECAUTIONS GIVEN IN THE DATA SHEET MUST BE OBSERVED.

THE INFORMATION ACCUMULATED HEREIN IS BELIEVED TO BE ACCURATE BUT IS NOT WARRANTED TO BE WHETHER ORIGINATING WITH THE COMPANY OR NOT. RECIPIENTS ARE ADVISED TO CONFIRM IN ADVANCE OF NEED THAT THE INFORMATION IS CURRENT, APPLICABLE, AND SUITABLE TO THEIR CIRCUMSTANCES.

301065

MATERIAL SAFETY
DATA SHEET



ASPHALT OVERCOAT, INC.

Subsidiary of Asphalt Co., Inc.

P.O. BOX 2219
COLUMBUS, OHIO 43216
OHIO 603 3331

Emergency
Telephone

1 (800) 274-5263 or
1-800-ASPHALT

COPYRIGHT 1989

LAST PAGE--SEE ATTACHMENT PAGE ENCLOSED--LAST PAGE

Page 18 of 19

301066

DEFINITIONS

This definition page is intended for use with Material Safety Data Sheets supplied by the Ashland Chemical Company. Recipients of these data sheets should consult the OSHA Safety and Health Standards (29 CFR 1910), particularly subpart G - Occupational Health and Environmental Control, and subpart I - Personal Protective Equipment, for general guidance on control of potential Occupational Health and Safety Hazards.

SECTION I PRODUCT IDENTIFICATION

GENERAL OR GENERIC ID: Chemical family or product description.

DOT HAZARD CLASSIFICATION: Product meets DOT criteria for hazards listed.

SECTION II COMPONENTS

Components are listed in this section if they present a physical or health hazard and are present at or above 1% in the mixture. If a component is identified as a CARCINOGEN by NTP, IARC or OSHA as of the date on the MSDS, it will be listed and footnoted in this section when present at or above 0.1% in the product. Negative conclusions concerning carcinogenicity are not reported. Additional health information may be found in Section V. Components subject to the reporting requirements of Section 313 of SARA Title III are identified in the footnotes in this section, along with typical percentages. Other components may be listed if deemed appropriate.

Exposure recommendations are for components. OSHA Permissible Exposure Limits (PELs) and American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs) appear on the line with the component identification. Other recommendations appear as footnotes.

SECTION III PHYSICAL DATA

BOILING POINT: Of product if known. The lowest value of the components is listed for mixtures.

VAPOR PRESSURE: Of product if known. The highest value of the components is listed for mixtures.

SPECIFIC VAPOR DENSITY: Compared to Air = 1. If Specific Vapor Density of product is not known, the value is expressed as lighter or heavier than air.

SPECIFIC GRAVITY: Compared to WATER = 1. If Specific Gravity of product is not known, the value is expressed as less than or greater than water.

pH: If applicable.

PERCENT VOLATILES: Percentage of material with initial boiling point below 425 degrees Fahrenheit.

EVAPORATION RATE: Indicated as faster or slower than ETHYL ETHER, unless otherwise stated.

SECTION IV FIRE AND EXPLOSION DATA

FLASH POINT: Method identified.

EXPLOSION LIMITS: For product if known. The lowest value of the components is listed for mixtures.

HAZARDOUS DECOMPOSITION PRODUCTS: Known or expected hazardous products resulting from heating, burning or other reactions.

SECTION IV (cont.)

EXTINGUISHING MEDIA: Following National Fire Protection Association criteria.

FIREFIGHTING PROCEDURES: Minimum equipment to protect firefighters from toxic products of vaporization, combustion or decomposition in fire situations. Other firefighting hazards may also be indicated.

SPECIAL FIRE AND EXPLOSION HAZARDS: States hazards not covered by other sections.

NFPA CODES: Hazard ratings assigned by the National Fire Protection Association.

SECTION V HEALTH HAZARD DATA

PERMISSIBLE EXPOSURE LIMIT: For product.

THRESHOLD LIMIT VALUE: For product.

EFFECTS OF ACUTE OVEREXPOSURE: Potential local and systemic effects due to single or short term overexposure to the eyes and skin or through inhalation or ingestion.

EFFECTS OF CHRONIC OVEREXPOSURE: Potential local and systemic effects due to repeated or long term overexposure to the eyes and skin or through inhalation or ingestion.

FIRST AID: Procedures to be followed when dealing with accidental overexposure.

PRIMARY ROUTE OF ENTRY: Based on properties and expected use.

SECTION VI REACTIVITY DATA

HAZARDOUS POLYMERIZATION: Conditions to avoid to prevent hazardous polymerization resulting in a large release of energy.

STABILITY: Conditions to avoid to prevent hazardous or violent decomposition.

INCOMPATIBILITY: Materials and conditions to avoid to prevent hazardous reactions.

SECTION VII SPILL OR LEAK PROCEDURES

Reasonable precautions to be taken and methods of containment, clean-up and disposal. Consult federal, state and local regulations for accepted procedures and any reporting or notification requirements.

SECTION VIII PROTECTIVE EQUIPMENT TO BE USED

Protective equipment which may be needed when handling the product.

SECTION IX SPECIAL PRECAUTIONS OR OTHER COMMENTS

Covers any relevant points not previously mentioned.

ADDITIONAL COMMENTS

Containers should be either reconditioned by CERTIFIED firms or properly disposed of by APPROVED firms. Disposal of containers should be in accordance with applicable laws and regulations. "EMPTY" drums should not be given to individuals. Serious accidents have resulted from the misuse of "EMPTYED" containers (drums, pails, etc.). Refer to Sections IV and IX.

301067

McGill, P. 1990. Telephone Conversation with E. Beacon, Roux Associates, Inc. January, 1990.

301068

Myott, D. 1990. Meeting with E. Beacon of Roux Associates, Inc. on April 5, 1990.

301069

MEETING NOTES

PROJECT NAME/NUMBER: ANCHOR CHEMICAL 11603Y

SUBJECT: Water Supply and domestic
Well locations Near the
Site

SHEET 1 OF 1

DATE: 4/5/90

INITIALS: _____

LOCATION: Nassau County Department of Health

ATTENDANCE:

[illegible][illegible]

Nassau County Fire Commission Office of the Fire Marshall, 1984. Letter to R. Pelino, Lockwood, Kessler & Bartlett dated January, 19, 1984. (Source: Rosenman & Colin Files)

301071

FRANCIS T. PURCELL
COUNTY EXECUTIVE



JOSEPH G. BOSLET, JR.
FIRE MARSHAL

BUREAU OF FIRE PREVENTION	
SCHOOL	663-5824
INDUSTRIAL	663-5815
INSTITUTIONAL	663-5820
GENERAL INSPECTION	663-5826

NASSAU COUNTY FIRE COMMISSION
OFFICE OF FIRE MARSHAL
899 JERUSALEM AVENUE
P.O. BOX 128
UNIONDALE, NEW YORK 11553

January 19, 1984
Inspection #GS-93-26

Ms. Rose Pelino
LKB Engineers
1 Aerial Way
Syosset, N. Y. 11791

Dear Ms. Pelino:

In answer to your request, this letter is to confirm that this office is in receipt of a statement submitted to this office by the Barlo Equipment Co. attesting to work performed in order to permanently abandon five(s) underground flammable liquid storage tanks at Anchor Lith Kem-Ko, 500 W. John Street, Hicksville. There were reportedly, two, 1,5000 gallon tanks abandoned in place by filling the tanks with a concrete slurry (NOTE: one, 1,500 gallon tank could only be filled to 65% capacity, the remaining tanks were filled to 100% capacity). This method of abandonment was done in accordance with the method previously approved by this office.

Very truly yours,

Richard J. Kelner
Fire Inspector
Industrial Division

David M. Bartow
Supervising Fire Inspector

RJK:emf

301072

BARLO EQUIPMENT CORPORATION

31 COMMERCIAL AVENUE
GARDEN CITY
LONG ISLAND, N.Y. 11533
PHONE 516-248-8484

October 14th, 1983

Office of the Fire Marshal
899 Jerusalem Avenue
P.O. Box 128
Uniondale, New York 11553

Attention: Mr. Dave Bartow

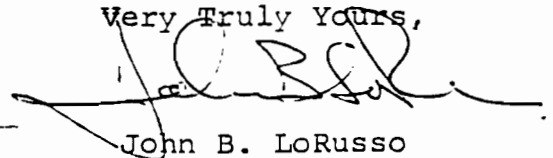
Dear Sir:

This is to inform you that the Tanks at Anchor Lith Kem-Ko have been filled with concrete Slurry as in accordance with your recommendations.

All tanks have been filled to 100% capacity. Only one tank; a 4,000 gallon, has been filled to 65% capacity due to a piping of check valve arrangement in tank.

Hoping this meets with your approval; I remain

Very Truly Yours,



John B. LoRusso

JBL/gl

301073'



LIQUID HANDLING EQUIPMENT AND SYSTEMS

NASSAU COUNTY FIRE COMMISSION

OFFICE OF FIRE MARSHAL

Bureau of Fire Prevention
 Industrial 516-292-4826
 Institutional 516-292-4829
 General Inspection 516-292-4824
 & 4831

JOSEPH G. BOSLET, JR.
 FIRE MARSHAL



899 JERUSALEM AVENUE
 P.O. BOX 128
 UNIONDALE, NEW YORK 11553

TO: NASSAU COUNTY FIRE MARSHAL INSP. NO. _____
 FROM: BARLO EQUIPMENT CORPORATION RE: ANCHOR-LITH KEM-KO
 91 COMMERCIAL AVENUE 500 WEST JOHN STREET
 GARDEN CITY, NEW YORK 11530 HICKSVILLE, NEW YORK 11801

The following underground bulk storage tanks, at the above-named location, have been: (CHECK THE ONE THAT APPLIES)

- ☐ A - Placed Temporarily out-of-service (filled with water)
☒ B - Abandoned in place (filled with an inert solid material)
☐ C - Removed from the premises

NO.	SIZE	CONST.	P	DATE	NO.	SIZE	CONST.	P	DATE
1	4,000 Gal	Steel		10/12/83	5	1,500 Gal	Steel		10/13/83
2	4,000 Gal	Steel		10/12/83	6				
3	2,000 Gal	Steel		10/13/83	7				
4	1,500 Gal	Steel		10/13/83	8				

All work has been done in accordance with the Nassau County Fire Prevention Ordinance, and Appendix C, of the National Fire Protection Association - N.F.P.A. - 30-1977.

JOHN B. LORUSSO

Name

Signature

HENRY M. SULLIVAN
 CTA PUBLIC, State of New York
 No. 015U4757295
 Qualified in Nassau County
 Commission Expires March 30, 1984

Notary Stamp

301074

County of NASSAU

State of NEW YORK

personally appeared before me this

14th day of October 19 83

Helen M. Sullivan
 Notary Signature

NCDH, 1977. Industrial Chemical Survey, Anchor Chemical Company (Source: NCDH Files)

301075

FEB 18 1977

INDUSTRIAL CHEMICAL SURVEY

Page 1 of 3

(A)

DIVISION OF POLE WATERS

PLEASE COMPLETE AND RETURN TO THE ABOVE ADDRESS, ATTENTION: INDUSTRIAL CHEMICAL SURVEY.

COMPANY NAME ALOR CHEMICAL CO., INC.		SIC CODE (if known) 2842	OFFICE USE 28 773
COMPANY MAILING ADDRESS 500 West John St.		CITY Hicksville	STATE New York
PLANT NAME (if different)		CONTACT NAME Alfred A. Jasser	TELEPHONE Area 516-433-08
PLANT ADDRESS (if different) Street		CITY	STATE
PRINCIPAL BUSINESS OF PLANT Blend and pack chemical specialties for Graphic Arts Industries		ZIP CODE 1180	

NOTE: (If parent company, give name and addresses of all divisions, subsidiaries, etc. located in New York State. A separate questionnaire is to be completed and submitted for each.)

PART II
Discharge Information

WATER	1. Does your plant discharge liquid wastes to a municipally owned sanitary sewer system? ☐ Yes Name of System _____	☐ Yes ☐ Yes ☐ Yes
	2. Is your facility permitted to discharge liquid wastes under a State (SPDES) or Federal (NPDES) permit? ☐ Yes Permit Number _____	
	3. Do you discharge liquid wastes in any other manner? ☐ Yes Explain _____	
	any of the above are "Yes": a. Do you discharge process or chemical wastes — (i.e. water used in manufacturing including direct contact cooling water and scrubber water)? ☐ Yes b. Do you discharge non-contact cooling water? ☐ Yes c. Do you discharge collected storm drainage only? ☐ Yes d. Do you discharge sanitary wastes only? ☒ Yes	
AIR	1. Does your facility have sources of possible emissions to the atmosphere? ☒ Yes	☒ Yes
	2. Enter Location and Facility Code as shown on your Air Pollution Control Application for Permits and Certification (If applicable) 2 8 2 4 0 0 0 1 7 2	
SOLID & CONCENTRATED LIQUID WASTES	1. List Name and Address of Firm (Including yourself) removing wastes other than office and cafeteria refuse. Name Master Sanitation Co. Address P.O. Box 625 Huntington NY 11743 Zip Code Name _____ Address _____ City _____ State _____ Zip Code	Active ☐ ☐
	2. List Location(s) of Landfill(s) owned and used by your facility. 1 NONE 2 NONE	
PESTICIDES	1. Does this facility: Manufacture Pesticides or Pesticide Product Ingredients? ☐ Yes Produce Pesticides or Pesticide Product Ingredients? ☐ Yes Formulate Pesticides? ☐ Yes Repackage Pesticides? ☐ Yes	☐ Yes ☐ Yes ☐ Yes ☐ Yes
	2. EPA Establishment Number 301076	

Complete all information for those substances your facility has used, produced, stored, distributed or otherwise disposed of since January 1, 1971. Do not include chemicals used only in analytical laboratory work. Enter the name and code from Table 1. If facility uses a substance in any of the Classes A - D which is not specified in the list, enter it as code class plus 99, e.g. B99 with name, usage, etc.

6/79- Rex Jasser relocated in Conn.
(203) 644-2577 - He is the one
one who can give information
on chemicals.

[illegible]

NATURE (Owner, Partner, or Officer)

DATE February 10, 1977

ALFRED

TITLE

all information for those substances your facility
chemicals used only in analytical laboratory work.

used, produced, stored, distributed or otherwise

used since January 1, 1971. On non

Substance/Trade Name Supplier and Address	CODE	AVERAGE ANNUAL USAGE	AMOUNT NOW ON HAND	(✓) GAL LB.	PURPOSE OF USE (State whether produced, stored, blended, packaged, distributed, no longer used, etc.)
ETHYLENE CHLORIDE	402	30,000	1500	✓	REMOVED WITH OTHER MATERIAL
11-TRICHLOROETHANOL	407	19,000	160	✓	PACKAGED BLENDING PACKAGES WITH OTHER MATERIAL
THYBENZENE	506	13,000	760	✓	BLENDING PACKAGES WITH OTHER MATERIAL
TRICHLOROMETHANE	502	240	50	✓	NEATLY PACKAGED WITH OTHER MATERIAL
AROMATIC PIGMENTS	524	40	20	✓	BLENDING WITH OTHER MATERIAL
ADDITION TO THE ABOVE SUBSTANCES NOT INCLUDED ARE:					
PETROLEUM DISTILLATES		50,000 gal		✓	
ETHYLENE GLYCOL MONOMETHYLETHYLETER		20,000 gal		✓	
GLYCERINE, GLYCOLS		2,000 gal		✓	
IONIC STABILIZED ALCOHOL ETHOXYLATED		10,000 gal		✓	

Final Discharge Point

- ☐ Sewers
☒ Cesspools
☐ Sumps or basins
☐ Drums
☐ Landfills
☐ Other

Recommended Action

- ☐ Immediate abatement
☒ Sample
☒ SPDES Application
☐ Reinspection
☐ Referred to _____
☐ No Action

STATIONARY COMBUSTION AND INCINERATION

- A. Heating System ☐ None ☒ Boiler ☐ Space Heaters
 B. Fuel ☐ Electric ☒ Gas ☐ Oil
 C. Incinerator ☐ Yes ☐ No

I hereby affirm under penalty of perjury that information provided on this form is true to the best of my knowledge and belief. False statements may be punishable as a Class A misdemeanor pursuant to Section 210.45 of the Penal Law.

Owner, Partner, or Officer

DATE

(Printed or typed)

TITLE

Alfred A. Jagger

pres.

301078

Inspectors Name

NCDH, 1981. Environmental Health Continuation Sheet (Source: NCDH Files)

301079

ENVIRONMENTAL
HEALTH

Continuation Sheet

Nassau County Health Department

Owner or
Agent :

Address:

Litt Gen Co

(Anchor Chemical)

Hecksville

Page 1 of 3

Inspector

DATE

COMMENTS

On 8/11/81 Walter Parrish of DEC called regarding tests in tanks ordered by NCFM for above facility.

There are 17 tanks, allegedly in vaults, under the building. The tanks were installed in 1964 and are used to hold fresh chemicals (solvents).

Mattiace Petrochemical is reportedly the supplier. According to our records the solvents are mixed and repackaged and supplied as cleaning materials to the printing trade.

16 of the tanks were hydrostatically tested (not Kent-More test) and 6 did not pass the test. However, the meaning of the test results is not clear. The 17th tank which was not tested, contained Methylene Chloride.

On 8/14/81 called Rich Kellner of NCFM office. Although tests showed something wrong, could be a vent failed or piping leaked (used 5 psi pressure). A drop in petrometers. If anything may have had slight products losses. Some tanks passed retest.

Failed system will be emptied; will have 1 year to decide to remove or permanently abandon. Tank sizes are 1000 - 4000 gal. Also 7 tanks in mixing room elevated off floor - 550 to 1500 gal.

Have me a run down on some of the

ENVIRONMENTAL
HEALTH

Continuation Sheet
Nassau County Health Department

Owner or
Agent :

Address:

Anchor Chemical
Kirkville

Page 2 of
Inspector

DATE: 1/27/77 COMMENTS

Inventory on the tank. There are listed below:
111 Toluene
VMEF 1000
Monomer 1000
Methyl Acetate
VMEF 3
Acetone
Methylene Chloride
Methosol 100
Mineral Spirits
Ethylene Glycol
Glycol Ether
2 Butyl oxethanol
Isopropyl Alcohol

Parent Corp will have to decide on disposition of tanks. Complicated by location of tanks under building. Building was constructed for Anchor Chemical and tanks designed in. Facility was described as very cooperative.

J.S.

301081

CHEMICAL TANKS

February 4, 1975

<u>TANK</u>	<u>DIM.</u>	<u>CAP.</u>	<u>PRODUCT</u>
1	64"D 18'L	3000	(1) N.S. 663 <i>naphthal spirits</i>
2	64"D 18'L	3000	(2) AROM 100
3	64"D 18'L	3000	(3) MC <i>methylchloride</i>
4	64"D 18'L	3000	(2) AROM 100
5	64"D 24'L	4000	(1) NS 663
6	64"D 12'L	2000	(12) Acetone
7	64"D 12'L	2000	(4) EE Cello
8	64"D 9'L	1500	(5) Chloro NU
9	64"D 9'L	1500	(12) ~~AROM 100~~ DEG.
10	64"D 9'L	1500	(6) EC
11	64"D 9'L	1500	(7) Iso. #99
12	64"D 9'L	1500	(8) Varsol 3
13	48"D 10'4"L	1000	(9) EA <i>ethyl acetate</i>
14	48"D 10'4"L	1000	EE Acetate <i>not used</i>
15	64"D 24'L	4000	(11) TEX
16	48"D 10'4"L	1000	(10) SP NAPH VM & P
17	48"D 6'L	550	EE Cello

OIL TANKSAPOL Ground

<u>TANK #</u>	<u>CAP.</u>	<u>GRADE</u>
L-1	550	M30+
L-2	550	M40+
L-3	1500	M 650
L-4	1500	A. O. 502
L-5	1000	M20+
L-6	1000	A.O. 302
L-7	550	M 157

301082

NCDH, 1982a. Letter from L. Sama to K. Leeds, Chessco Industries, Inc. dated January 26, 1982. (Source: USEPA Region II Files)

301083



FRANCIS T. PURCELL
County Executive

NASSAU COUNTY DEPARTMENT OF HEALTH

340 OLD COUNTRY ROAD, MINEOLA, N.Y. 11501

Page 1 of 2

JOHN J. BOWLING, M.D., M.P.H.
Commissioner

FRANCIS V. RADAR, R.E., M.C.E.
Deputy Commissioner
Division of Environmental Health

January 26, 1982

Mr. Kenneth W. Leeds, V.P.
Chessco Industries, Inc.
2425 Post Road
Southport, Conn. 06490

Re: Anchor/Lith-Ken-Ko
Hicksville, N.Y.

Dear Mr. Leeds:

This is in response to your letter of January 13, 1982 to our Mr. H. Welch regarding the status of the underground chemical storage tanks at your above-referenced facility. You should be made aware that the leaking tanks referenced in your letter and in the order from the Nassau County Fire Marshal's office of July 22, 1981, constitute point discharges of chemicals and may be in violation of the Environmental Conservation Law, Article 17, Section 17-0501.

The primary requirements of this office are to: (1) determine the extent of any contamination of the environment as a consequence of the discharges from the leaking tanks and (2) clean up the contamination.

Accordingly, please submit to this office by February 28, 1982, a plan to meet the foregoing requirements. We would strongly suggest you obtain the services of a professional engineer, licensed by the State of New York, to assist you with the plan submission. He should also be helpful to you in determining approximate costs.

This office will cooperate with you and your representatives in preparing your plans. Perhaps it would be of help to you to meet with us here to further discuss the situation. Please let me know.

Meanwhile, answers to the following questions would be helpful:

- (1) What products were formerly stored in the tanks which did not pass the hydrostatic tests?
- (2) Was tank #2 repaired? The Fire Marshal's order of July 22, 1981 indicates it failed, but it is registered as being in use.

If you have any questions, please call this office at 516-535-2406.

Very truly yours,

L. Sama
Public Health Engineer
Bureau of Land Resources Management

301084

LS:reg
cc: Gerald Robin, NYSDEC

NASSAU COUNTY DEPARTMENT OF HEALTH

TABLE I

Summary of Results of NCHD Sampling of
Anchor/Lith Kem-Ko
500 W. John Street, Hicksville, New York

A. Results of Soil Analyses* - September 13, 1982 Samples

Parameter	Well #1 Depth of Sample=50'	Well #2 Depth of Sample=65'
(1)	(2)	(3)
Methylene Chloride	490	410
1,1,1-Trichloroethane	< 20	22
Trichloroethylene	< 20	< 20
Tetrachloroethylene	< 20	< 20

* All results in parts per billion

B. Results of Groundwater Analyses**

Parameter	Well #1 9-21-82	Well #2 9-21-82/12-14-82	Well #3 9-21-82/12-14-82
(1)	(2)	(3)	(4)
Methylene Chloride	31	41/ < 5	7/NR***
Trichlorofluoromethane	< 1	< 1/ < 1	< 1/ 1
1,1-Dichloroethylene	5	5/ < 1	270/NR
1,1-Dichloroethane	27	27/ < 4	220/230
cis-1,2-Dichloroethylene	< 7	< 7/ < 1	28/64
Chloroform	1	1/ < 1	7/10
1,2-Dichloroethane	< 5	< 5/ < 4	25/28
1,1,1-Trichloroethane	440	440/ 5	11000/11000
Trichloroethylene	17	18/ < 1	39/43
c-1,3-Dichloropropene			
dibromochloromethane	< 1	1/ < 1	2/
1,1,2-Trichloroethane			
Tetrachloroethylene	43	42/ < 1	470/470

** All results in parts per billion

*** No Result due to technical reasons - Resample Suggested

301085

NCDH, 1982b. Division of Laboratories & Research, Environmental Health Laboratories.
Soil and Ground-Water Analytical Data from Anchor Lith Kem-Ko (Source: NCDH
Files)

301086

ANDERSON COUNTY DEPARTMENT OF HEALTH
DIVISION OF LABORATORIES & RESEARCH
ENVIRONMENTAL HEALTH LABORATORIES

RESULTS OF EXAMINATION

REPORTING LAB: TRACE ORGANICS

LAB ACCESS NO.: 201473

SOURCE: ANCHOR LITHKEMKO - 500 W. JOHN ST., HICKSVILLE WELL# 1 50FT

MATRIX: SOIL

DATE SAMPLED: 09/13/82

NR - NOT ANALYZED AT STABLE CONCENTRATION

NR - NOT ANALYZED

301087

NR - NO RESULT DUE TO TECHNICAL REASONS-RESAMPLE SUGGESTED

HANCOCK COUNTY DEPARTMENT OF HEALTH
DIVISION OF LABORATORIES & RESEARCH
ENVIRONMENTAL HEALTH LABORATORIES

RESULTS OF EXAMINATION

REPORTING LAB: TRACE ORGANICS

LAB ACCESS NO.: 201472

SOURCE: ANCHOR LITHIEMPO - 500 N. JOHN ST., HICKSVILLE WELL# 1 65FT

MATRIX: SOIL

DATE SAMPLED: 09-18-82

DETECTABLE CONCENTRATION

301088

DR - NOT ANALYZED

NR - NO RESULT DUE TO TECHNICAL PROBLEMS-PI SAMPLE SUGGESTED

VOLATILE HALOGENATED - GASES	MPC (ppb)	RESULTS (ppb)
CHLOROPHETHANE	NA	NA
1,1-DIFLUOROETHANE	NA	NA
1,1,1-TRIFLUOROETHANE	NA	NA
1,1,1-TRICHLOROETHANE	10	NA
CHLOROETHANE	NA	NA

VOLATILE HALOGENATED

METHYLENE CHLORIDE	120	410
TRICHLOROFLUOROMETHANE	20	< 20
1,1-DICHLOROETHYLENE	20	< 20
1,1-DICHLOROETHANE	200	< 200
1,1,2-DICHLOROETHYLENE	140	< 140
CHLOROFORM	20	< 20
1,2-DICHLOROETHANE	100	< 100
1,1,1-TRICHLOROETHANE	20	22
CARBONTETRACHLORIDE	20	< 20
1,2-DICHLOROPROPANE	NA	NA
BROMODICHLOROMETHANE	20	< 20
TRICHLOROETHYLENE	20	< 20
1,3-DICHLOROPROPENE		
DIBROMODICHLOROMETHANE	20	< 20
1,1,2-TRICHLOROETHANE		
1,1,3-DICHLOROPROPENE	NA	NA
BROMOFORM	20	< 20
1,1,2-TRICHLOROETHANE	20	< 20
1,1,2,2-TETRACHLOROETHANE	NA	NA

VOLATILE NON-HALOGENATED

BENZENE	80	< 80
TOLUENE	80	< 80
CHLOROBENZENE	100	< 100
ETHYLBENZENE	60	< 60
XYLENE	80	< 80
DICHLOROBENZENE	200	< 200

301089

NASSAU COUNTY DEPARTMENT OF HEALTH
DIVISION OF LABORATORIES & RESEARCH
ENVIRONMENTAL HEALTH LABORATORIES

RESULTS OF EXAMINATION

REPORTING LAB: TRACE ORGANICS

LAB ACCESS NO.: 201551

SOURCE: ANCHOR LITHKENNO, HICKSVILLE - WELL# 1

MATRIX: WATER

DATE SAMPLED: 09/21/82

MFC - MINIMUM REPORTABLE CONCENTRATION

NA - NOT ANALYZED

301090

NR - NO RESULT DUE TO TECHNICAL REASONS-RESAMPLE SUGGESTED

IONIC HALOGENATED - GASES	MPC (ppb)	RESULTS (ppb)
ACETYLENE	NA	NA
DICHLOROFLUOROMETHANE	NA	NA
PROPANE	NA	NA
VINYL CHLORIDE	10	NA
CHLOROETHANE	NA	NA

VOLATILE HALOGENATED

METHYLENE CHLORIDE	6	< 31
TRICHLOROFLUOROMETHANE	1	< 2
1,1-DICHLOROETHYLENE	1	< 2
1,1-DICHLOROETHANE	10	< 7
c-1,1,2-DICHLOROETHYLENE	7	< 7
CHLOROFORM	1	< 1
1,2-DICHLOROETHANE	5	< 5
1,1,1-TRICHLOROETHANE	1	< 440
CARBONTETRACHLORIDE	1	< 1
1,2-DICHLOROPROPANE	NA	NA
BROMODICHLOROMETHANE	1	< 1
TRICHLOROETHYLENE	1	< 17
c-1,3-DICHLOROPROPENE	1	< 1
DIBROMOCHLOROMETHANE	1	< 1
1,1,2-TRICHLOROETHANE	1	< 1
1-1,3-DICHLOROPROPENE	NA	NA
BROMOFORM	1	< 1
TETRACHLOROETHYLENE	1	< 43
1,1,2,2-TETRACHLOROETHANE	NA	NA

VOLATILE NON-HALOGENATED

BENZENE	4	< 4
TOLUENE	4	< 4
CHLOROBENZENE	5	< 5
ETHYLBENZENE	3	< 3
XYLENE	4	< 4
DICHLOROBENZENE	10	< 10

301091

NASSAU COUNTY DEPARTMENT OF HEALTH
DIVISION OF LABORATORIES & RESEARCH
ENVIRONMENTAL HEALTH LABORATORIES

RESULTS OF EXAMINATION

REPORTING LAB: TRACE ORGANICS

LAB ACCESS NO.: 201552

SOURCE: ANCHOR LITHKEMKO, HICKSVILLE - WELL# 2

MATRIX: WATER

DATE SAMPLED: 09/21/82

201552

MRC - MINIMUM REPORTABLE CONCENTRATION

NA - NOT ANALYZED

NR - NO RESULT DUE TO TECHNICAL REASONS-RESAMPLE SUGGESTED

301092

VOLATILE HALOGENATED - GASES

 MRC
(PPB)

 RESULTS
(PPB)

ACETONE	NA	NA
ETHYL ALCOHOL	NA	NA
ISOPROPYL ALCOHOL	NA	NA
DIETHYL ETHER	10	NA
DICHLOROETHANE	NA	NA

VOLATILE HALOGENATED

METHYLENE CHLORIDE	6	41
TRICHLOROFLUOROMETHANE	1	15
1,1-DICHLOROETHYLENE	1	27
1,1-DICHLOROETHANE	10	7
cis-1,2-DICHLOROETHYLENE	7	7
CHLOROFORM	1	1
1,2-DICHLOROETHANE	5	5
1,1,1-TRICHLOROETHANE	1	446
CARBONTETRACHLORIDE	1	1
1,2-DICHLOROPROPANE	NA	NA
EPICHLOROHYDRIN	1	1
TRICHLOROETHYLENE	1	18
cis-1,3-DICHLOROPROPENE	5	5
DIBROMOCHLOROMETHANE	1	1
1,1,2-TRICHLOROETHANE	1	1
trans-1,3-DICHLOROPROPENE	NA	NA
PERCHLOROFORM	1	1
TETRACHLOROETHYLENE	1	42
1,1,2,2-TETRACHLOROETHANE	NA	NA

VOLATILE NON-HALOGENATED

BENZENE	4	4
TOLUENE	4	4
CHLOROBENZENE	5	5
ETHYLBENZENE	3	3
XYLENE	4	4
DICHLOROBENZENE	10	10

NASSAU COUNTY DEPARTMENT OF HEALTH
DIVISION OF LABORATORIES & RESEARCH
ENVIRONMENTAL HEALTH LABORATORIES

RESULTS OF EXAMINATION

REPORTING LAB: TRACE ORGANICS

LAB ACCESS NO.: 201553

SOURCE: ANCHOR LITHIEMHO, HICKSVILLE - WELL# 3

MATERIAL: WATER

DATE SAMPLED: 09/21/82

MFC - MINIMUM REPORTABLE CONCENTRATION

NA - NOT ANALYZED

NR - NO RESULT DUE TO TECHNICAL REASONS-RESAMPLE SUGGESTED

301094

VOLEATILE HALOGENATED - GASES

NRD
ppb) RESULTS
ppb)

ALUMINUMETHANE	NA	NA
CHLOROFORM	NA	NA
PERFLUOROMETHANE	NA	NA
PERFLUOROETHANE	NA	NA

VOLEATILE HALOGENATED

METHYLENE CHLORIDE	6	6
TRICHLOROFLUOROMETHANE	1	1
1,1-DICHLOROETHYLENE	1	670
1,1-DICHLOROETHANE	10	200
c & t-1,2-DICHLOROETHYLENE	7	20
CHLOROFORM	1	1
1,2-DICHLOROETHANE	5	1000
1,1,1-TRICHLOROETHANE	1	1
CARBONTETRACHLORIDE	1	1
1,3-DICHLOROPROPANE	NA	NA
BROMODICHLOROMETHANE	1	1
TRICHLOROETHYLENE	1	39
c-1,3-DICHLOROPROPENE	1	2
DIBROMOCHLOROMETHANE	1	1
1,1,2-TRICHLOROETHANE	1	1
t-1,3-DICHLOROPROPENE	NA	NA
BROMOFORM	1	1
TETRACHLOROETHYLENE	1	470
1,1,2,2-TETRACHLOROETHANE	NA	NA

VOLEATILE NON-HALOGENATED

BENZENE	4	NR
TOLUENE	4	< 4
CHLOROBENZENE	5	< 5
ETHYLBENZENE	3	< 3
XYLENE	4	< 4
DICHLOROBENZENE	10	< 10

301095

HAMPSHIRE COUNTY DEPARTMENT OF HEALTH
DIVISION OF LABORATORIES & RESEARCH
ENVIRONMENTAL HEALTH LABORATORIES

RESULTS OF EXAMINATION

REPORTING LAB: TRACE ORGANICS

LAB ACCESS NO.: 202018

SOURCE: WELL# 3 - ANCHOR LITHIUM NO 500 N. JOHN ST., HICKSVILLE

MATRIX: WATER

DATE SAMPLED: 12/14/82

MR - MINIMUM REPORTABLE CONCENTRATION

NA - NOT ANALYZED

NR - NO RESULT DUE TO TECHNICAL REASONS-SAMPLE SUGGESTED

301096

CHEMICAL EXAMINATION FOR TRACE ORGANIC
CONSTITUENTS IN WATER, HAZARDOUS WASTES
AND SOLID WASTES

Page 11 of

Division of Laboratories and Research

State of Health

3 ☒ Special

4 ☐ Complaint

5 ☐ Other

Field No.

N No. (Public Water Supply Only)

Source Information (Please Print)

Premises Anchor Lithkemko

Address 500 W. John St.

Town Hicksville

Collection Point Well #2

Well No.

Date Collected

12 / 17

Date Received

12 / 14

Date Reported

Collection Time

11 : 29

Collected By:

V. Nigro

Sampler's Comments:

-sample transported in ice.

Bureau

1 ☒ Land Resources Management

2 ☐ Public Water Supply

3 ☐ Water Pollution Control

4 ☐ Environmental Sanitation

9 ☐ Other (specify)

SAMPLE TYPE

AGUEOUS

NON-AQUEOUS

1	Community Well	6	Surface Water	1	Soil
2	Non-Community Well	7	Waste Water	2	Sludge
3	Private Well	8	Industrial Effluent	3	Waste Solvent
4	Monitoring Well	9	Raw Supply Water	4	Oil
5	Drinking Water	10	Distribution Water	5	Other (specify)

ANALYSIS TYPE

A	Purgeable halogenated hydrocarbons	I	Phthalates
B	Purgeable halogenated hydrocarbons - gases	J	Herbicides
C	Purgeable nonhalogenated hydrocarbons	K	Nitrosamines
D	Halogenated pesticides	L	Benzidines
E	Polychlorinated biphenyls	M	Nitroaromatic hydrocarbons
F	Polycyclic aromatic hydrocarbons	N	Haloethers
G	Aldehydes + ketones	O	Chlorinated hydrocarbons
H	Phenols	P	Other (specify)

Examiner's Comments:

301097

NON-HALOGENATED - GASES

NRD
(ppb)

RESULTS
(ppb)

Page 12 of

ETHYLENE	NA	NA
PROPYLENE	NA	NA
BUTYLENE	NA	NA
PENTYLENE	10	NA
HEXYLENE	NA	NA

VOLATILE HALOGENATED

METHYLENE CHLORIDE	5	NR
TRICHLOROFLUOROMETHANE	1	1
1,1-DICHLOROETHYLENE	1	NR
1,1-DICHLOROETHANE	4	230
1,1,1,2-TETRACHLOROETHYLENE	1	64
CHLOROFORM	1	10
1,1,1,2-TETRACHLOROETHANE	1	< 1
1,1,2-DICHLOROETHANE	4	28
1,1,1-TRICHLOROETHANE	1	11000
CARBON TETRACHLORIDE	1	< 1
1,2-DICHLOROPROPANE	2	< 2
BROMODICHLOROMETHANE	1	< 1
TRICHLOROETHYLENE	1	43
1,1,3-DICHLOROPROPENE	1	< 1
DIBROMOCHLOROMETHANE	1	< 1
1,1,2-TRICHLOROETHANE	1	
1,1,3-DICHLOROPROPENE	NA	NA
BROMOFORM	1	< 1
TETRAHALOROETHYLENE	1	470
1,1,2,2-TETRACHLOROETHANE	NA	NA

VOLATILE NON-HALOGENATED

BENZENE	4	NR
TOLUENE	4	< 4
CHLOROBENZENE	5	< 5
ETHYL BENZENE	3	< 3
XYLENE (o,m,p)	4	< 4
DICHLOROBENZENE (o,m,p)	10	< 10

301098

NASSAU COUNTY DEPARTMENT OF HEALTH
DIVISION OF LABORATORIES & RESEARCH
ENVIRONMENTAL HEALTH LABORATORIES

RESULTS OF EXAMINATION

REPORTING LAB: TRACE ORGANICS

LAB ACCESS NO.: 202019

SOURCE: WELL# 2 - ANCHOR LITHKEMKO 500 W. JOHN ST., HICKSVILLE

MATRIX: WATER

DATE SAMPLED: 12/14/82

MRC - MINIMUM REPORTABLE CONCENTRATION

NA - NOT ANALYZED

NR - NO RESULT DUE TO TECHNICAL REASONS-RESAMPLE SUGGESTED

301099

VOLATILE HALOGENATED - GASES

MRC RESULTS
(PPM) (PPM)

Compound	MRC (PPM)	RESULTS (PPM)
BROMOMETHANE	10	NA
VINYL CHLORIDE	NA	NA
CHLOROETHANE	NA	NA

VOLATILE HALOGENATED

Compound	MRC (PPM)	RESULTS (PPM)
METHYLENE CHLORIDE	5	< 5
TRICHLOROFLUOROMETHANE	1	< 1
1,1-DICHLOROETHYLENE	1	< 1
1,1-DICHLOROETHANE	4	< 4
c & t-1,2-DICHLOROETHYLENE	1	< 1
CHLOROFORM	1	< 1
1,1,3-TRICHLOROTRIFLUOROETHANE	1	< 1
1,2-DICHLOROETHANE	4	< 4
1,1,1-TRICHLOROETHANE	1	5
CARBONTETRACHLORIDE	1	< 1
1,2-DICHLOROPROPANE	2	< 2
BROMODICHLOROMETHANE	1	< 1
TRICHLOROETHYLENE	1	< 1
c-1,3-DICHLOROPROPENE	1	< 1
DIBROMOCHLOROMETHANE	1	< 1
1,1,2-TRICHLOROETHANE	1	< 1
t-1,3-DICHLOROPROPENE	NA	NA
BROMOFORM	1	< 1
TETRACHLOROETHYLENE	1	< 1
1,1,2,2-TETRACHLOROETHANE	NA	NA

VOLATILE NON-HALOGENATED

Compound	MRC (PPM)	RESULTS (PPM)
BENZENE	4	< 4
TOLUENE	4	< 4
CHLOROBENZENE	5	< 5
ETHYLBENZENE	3	< 3
XYLENE (o,m,p)	4	< 4
DICHLOROBENZENE (o,m,p)	10	< 10

Westchester County Department of Health
 Summary of Results of NCHD Sampling of
 Anchor/Lith Kem-Kc
 500 W. John Street, Hicksville, New York

A. Results of Soil Analyses* - September 13, 1982 Samples

Parameter (1)	Well #1 Depth of Sample=50'	Well #1 Depth of Sample=65'
	(2)	(3)
Methylene Chloride	490	410
1,1,1-Trichloroethane	< 20	22
Trichloroethylene	< 20	< 20
Tetrachloroethylene	< 20	< 20

* All results in parts per billion

B. Results of Groundwater Analyses**

Parameter (1)	Well #1		Well #2		Well #3		
	9-21-82 (2)	6-8-83	9-21-82 (3)	12-14-82	6-8-83	9-21-82	12-14-82 6-
Methylene Chloride	31	NR	41	< 5	NR	7	NR
Trichlorofluoromethane	< 1	< 1	< 1	< 1	< 1	< 1	1
1,1-Dichloroethylene	5	< 1	5	< 1	< 1	270	NR
1,1-Dichloroethane	27	11	27	< 4	< 6	220	250
c&t-1,2-Dichloroethylene	< 7	< 4	< 7	< 1	< 4	28	64
Chloroform	1	< 1	1	< 1	< 1	7	10
1,2-Dichloroethane	< 5	< 12	< 5	< 4	< 12	25	28
1,1,1-Trichloroethane	440	160	440	5	< 1	11000	11000
Trichloroethylene	17	8	18	< 1	< 1	59	43
c-1,3-Dichloropropene) dibromochloromethane) 1,1,2-Trichloroethane)	< 1	< 1	1	< 1	< 1	2	< 1
Tetrachloroethylene	43	7	42	< 1	< 1	470	470

** All results in parts per billion

NR - No result due to technical reasons - Resample suggested

NCDH, 1982c. Letter to A. Angiola of Lockwood, Kessler & Bartlett dated November 16, 1982 (Source: USEPA Region II Files)

301102



FRANCIS T. PURCELL
County Executive

NASSAU COUNTY DEPARTMENT OF HEALTH

240 OLD COUNTRY ROAD, MINEOLA, N.Y. 11501

JOHN J. DEW, M.D., M.P.H.
Commissioner

FRANCIS V. ARDAR, P.E., M.C.E.
Deputy Commissioner
Division of Environmental Health

November 16, 1982

Mr. Alfred Angiola
Lockwood, Kessler & Bartlett, Inc.
One Aerial Way
Syosset, N.Y. 11791

Re: Groundwater Monitoring Program
at Anchor/Lith Ken Co in Hicksville

Dear Mr. Angiola:

This is in reference to the water samples we collected from the three monitoring wells at the above referenced facility on September 21, 1982. Copies of the results of these analyses are enclosed. Also enclosed are analytical results for the soil samples taken from well #1 at two depths during the well-boring operation.

All three well water samples appear to be contaminated with halogenated hydrocarbons, the most significant of which is 1,1,1 trichloroethane. The downstream well #3 in particular, has very high levels of this contaminant. The 50 ft. deep soil sample was found to be contaminated with methylene chloride only, whereas the 65 foot deep soil sample also contained 1,1,1 trichloroethane in addition to methylene chloride.

Your listing of the storage tanks and chemicals for the above facility dated May 27, 1982, indicates that methylene chloride is stored in tank #3 and 1,1,1 trichloroethane is stored in tank #12. Records at the Nassau County Fire Marshal's office indicate these tanks were not tested at the time testing was done and where other tanks were noted to be leaking. Consequently, it is imperative that leak tests be conducted immediately on the tanks containing methylene chloride and 1,1,1 trichloroethane.

If the tanks do not pass the tests, verify then the chemical products must be removed from them and the tanks taken out of service or replaced.

Since the groundwater appears to be heavily contaminated, as noted with well #3 in particular, it will be necessary for you to isolate and remove all the sources of the contamination and provide a means for removing the contaminants from the groundwater. Accordingly, we will expect to receive an approvable plan from you by December 1, 1982 for performing the above-mentioned cleanup.

301103

NCDH, 1983a. Data Supporting Request for Legal Action August 29, 1983 (Source:
Rosenman & Colin files)

301104

Regulatory Personnel: J. Schechter
L. Sama

Responsible Officer: J. Spiegel, Box 6, Hicksville, N.Y. 11801

1. Specific Violations: ECL Article 27, Section 0913 - Operating a hazardous waste disposal site without a permit.
2. Background Information: On February 2, 1983, a request for legal action against Anchor/Lith Kem-Ko was referred to Albert Machlin, P.E. Regional Engineer for Environmental Quality of the NYSDEC by F. V. Padar, P.E., M.C.E., Deputy Commissioner of the Division of Environmental Health of the Nassau County Department of Health.

Background information is provided below concerning the history of ownership of the property, previous operations at the site and summary of all sampling at the site.

3. History of Ownership: Records of this department indicate that the owner of site since September 31, 1964 (copy of deed enclosed) has been:

Kobar Construction Corporation
270 North Broadway
Hicksville, New York

The 1982 taxes for the site were paid by J. Spiegel, Box 6, Hicksville, New York 11801.

301105

4. History of Operations at the site: Records of this department indicate that from 1964 through 1977, the operator at the site was Anchor Chemical Co., Inc. In 1977, the president of the company was Alfred A. Jasser.

Anchor Chemical Co., Inc. blended and packed chemical specialties for the graphic arts industries. In 1964, seventeen underground storage tanks were purchased by Anchor Chemical Company and installed by the Franklin Company Contractors, Inc., 52-09 58th Street, Woodside, New York 11377. These tanks were used to store mineral spirits, methylene-chloride, solvent D (120 F), naphthol spirits, alcohol and acetone mixture, chloro-thene (1,1,1-trichloroethane), petroleum solvent, cellosolve, isopropyl alcohol, ethylacetate and butyl acetate.

Industrial chemical surveys provided by the facility in 1977 (copies enclosed) revealed that the company purchased and used 50,000 gallons of methylene chloride per year, 13,000 gallons of 1,1,1-trichloroethane, 13,000 gallons of ethylbenzene, 270 gallons of petroleum tars, 40 gallons of dyes and organic pigments, 50,000 gallons of petroleum naphthas, 20,000 gallons of ethylene glycol monoethylether, 2,000 gallons of glycerine glycols and 10,000 gallons of nonionic ethoxylated linear alcohol.

In June 1977, this department determined that floor drains in the combustible and flammable mixing rooms were connected to a stormwater drywell in the parking area north of the facility. Water from washing of spills in these rooms entered the drains and discharged into the drywell.

A sample of water in the drywell was obtained by this department on July 26, 1977 and analyzed by the New York State Department of Health, Division of Laboratories and Research. The results (copy enclosed) revealed the following chemicals present:

<u>Parameter</u>	<u>Results (ug/l)</u>
1,1,1-trichloroethane	2500
Trichloroethylene	> 15000
Tetrachloroethylene	> 20000

After meeting with representatives of this department in September 1977, the facility implemented a spill prevention plan and by November 1977 had sealed all lines leading from the building to the drywell (see attached letter of October 5, 1977 A.A. Jasser to M. Mangino).

In 1978, Anchor Chemical Co., Inc. was purchased by Anchor/Lith Kem Ko, Inc. who is the present operator at the site.

Anchor/Lith Kem Ko's involvement in this matter has already been detailed in the case report submitted February 2, 1983 as mentioned above.

A summary of this department's sampling of Anchor/Lith Kem Ko as provided in the February 2, 1983 case report is attached and includes the most

301106

Request for Legal Action
Kobar Construction Corp.

-3-

August 29, 1983

recent samples obtained from monitoring wells on site on June 8, 1983.
(see Table I)

5. Listing as a Hazardous Waste Site This site has been listed as a hazardous waste site in Region I. First notification of inclusion of this site in the list of hazardous waste sites in Nassau County was given in the attached letter of January 4, 1983 from T.M. Sanford, P.E., Senior Sanitary Engineer, Solid Waste Program, NYSDEC-Region I to R. Olzagasti, Division of Solid Waste, Site Investigation Section, NYSDEC-Central Office. The individual scoring sheet for this site is included with the letter and indicates a total score of 58 under the Superfund Ranking System.

A January 5, 1983 letter (copy enclosed) from F.V. Padar, Deputy Commissioner of NCDH to A. Machlin, NYSDEC confirms this department's request to include this site in the list of hazardous sites in Nassau County.

Enclosed is an article from the February 16, 1983 issue of Newsday that indicates this site was named as one of thirteen hazardous waste sites on Long Island that will be investigated under the State's special funding project (Superfund).

6. Additional Information - This site is located over the primary recharge area of Nassau County. Groundwater is located approximately sixty-five feet below grade and is contaminated with chlorinated hydrocarbons above New York State drinking water guidelines.

Spilled chlorinated hydrocarbons, such as those found contaminating the groundwater below this site (i.e. 1,1,1-trichloroethane, tetrachloroethylene, 1,1-dichloroethylene, and 1,1-dichloroethane) are categorized by the United States Environmental Protection Agency and the New York State Department of Environmental Conservation as hazardous wastes.

There are four public drinking water wells belonging to the Hicksville Water District located approximately one and one half miles in the direction of groundwater flow from this site.

Therefore this site represents a substantial present and potential hazard to the public health and the environment.

7. Recommendations

As required by Article 27, Section 1313, the owner of the site should develop and implement an inactive hazardous waste site remedial program to detail the extent of contamination at the site, and to provide a plan for cleanup and implementation schedule for the cleanup.

301107

Table I

Nassau County Department of Health
Summary of Results of NCHD Sampling of
Anchor/Lith Kem-Ko
500 W. John Street, Hicksville, New York

A. Results of Soil Analyses* - September 13, 1982 Samples

Parameter	Well #1 Depth of Sample=50'	Well #1 Depth of Sample=65'
(1)	(2)	(3)
Methylene Chloride	490	410
1,1,1-Trichloroethane	< 20	22
Trichloroethylene	< 20	< 20
Tetrachloroethylene	< 20	< 20

* All results in parts per billion

B. Results of Groundwater Analyses**

Parameter	Well #1		Well #2		Well #3	
	9-21-82	6-8-83	9-21-82	12-14-82	9-21-82	12-14-82
(1)	(2)		(3)		(4)	
Methylene Chloride	31	NR	41	< 5	NR	7
Trichlorofluoromethane	< 1	< 1	< 1	< 1	< 1	1
1,1-Dichloroethylene	5	< 1	5	< 1	< 1	NR
1,1-Dichloroethane	27	11	27	< 4	< 6	220
c&t-1,2-Dichloroethylene	< 7	< 4	< 7	< 1	< 4	28
Chloroform	1	< 1	1	< 1	< 1	7
1,2-Dichloroethane	< 5	< 12	< 5	< 4	< 12	25
1,1,1-Trichloroethane	440	160	440	5	< 1	11000
Trichloroethylene	17	8	18	< 1	< 1	39
c-1,3-Dichloropropene)						43
dibromochloromethane)	< 1	< 1	1	< 1	< 1	2
1,1,2-Trichloroethane)						< 1
Tetrachloroethylene	43	7	42	< 1	< 1	470

** All results in parts per billion

NR - No result due to technical reasons - Resample suggested

301108

NCDH, 1983b. Memorandum from L. Sama to G.E. Donohue (Source: USEPA Region II files)

301109

MEMORANDUM

NASSAU COUNTY DEPARTMENT OF HEALTH

200 Old Country Road

Mineola, New York 11501

To : G.E. Donohue

Date April 26, 1983

From : L. Sama

Subject : Information on Anchor/Lith-Kem-Ko, Hicksville
requested by J. Scherb in letter to you of
April 5, 1983

J. Scherb's Items *Our Comments

1. Information has been requested of the Fire Marshal's office 4/26/83.
2. See attachments A & B for diagrams of property.
 - A. Properties in area, including Anchor.
 - B. Anchor property showing well locations.
3. Proof of leaking tanks is contained in following attachments (C, D, E, F):
 - C. Letter of January 13, 1982 from Chessco Industries, owner of Anchor/Lith-Kem-Ko, with enclosures from Fire Marshal's office. Shows tanks 3, 5, 6, 8 and 11 & 15 to be leaking.
 - D. Letter of April 14, 1983 from Barlo Equip. Corp. to NCDH shows tank #3 to be leaking.
 - E. Internal memo at NCDH of February 10, 1983 regarding a meeting here on January 21, 1983 with Anchor/Lith-Kem-Ko and LKB. Reference was
 - F. Made to a schematic diagram provided by LKB representing tank storage conditions in 1965 and showed 111 Trichloroethane stored in tank #5, which later was shown to be leaking.

In summary, the following tanks were shown to be leaking or defective:

<u>Tank #</u>	<u>Contents**</u>
3	Methylene Chloride
5	Napthol Spirits
6	Acetone
8*	Mineral Spirits
11	Isopropyl Alcohol
15	Textile Spirits

301110

* 1965 Diagram shows 111 Trichloroethane storage. (Noted as Chloroethene Au.)
** Presently empty. Not used because of leaks.

J. Scherb's Item #Our Comments

4. The contents of leaking tank were confirmed by Attachment C as follows:

G. Internal file memo of meeting at NCDH of June 4, 1982 with admission by Anchor and LKB that leaking tanks 5, 6, 8, 11 and 15 contained chemicals listed in 3E above. Tank registration of October 6, 1981 from Fire Marshal's office (see 3C above) shows tank #5 to contain Methylene chloride. Table of May 27, 1982 by LKB also shows Methylene chloride listed for tank 3. Schematic diagram referred to in 3E above shows 111 Trichloroethane to have been stored in tank #5 at one time.
5. Groundwater Sampling - An affidavit has been forwarded to J. Scherb to obtain a warrant. *to Joe Scherb 4/26/83*
6. Tank registration copies are attached in 3C above, having been forwarded by Chessco with their letter of January 13, 1983 to NCDH.
7. Tanks 5, 6, 8, 11 and 15 are shown to be empty on the October 6, 1981 registration listing. Counsel for Anchor at a meeting at NCDH on January 21, 1983 reported that product was being removed from Tank 3 and it was capped (to prevent refilling). See February 10, 1983 memo referenced in 3E above. No other verification has been made of status of Tank 3.
8. Methylene chloride was listed in Tank 3 in a 1965 listing provided by LKB as referenced in 3E above and as referenced in 4G above. *Anchor CH2Cl2 was the product.*
9. The owners of the property and principal officer are:

Owner: Bancroft Construction Corp.
P.O. Box 6
Hicksville, N.Y. 11801

Principal Officer: Jerry Spiegel, Pres.

As per our telephone conversation with Mr. Grayson of Jerry Spiegel Associates. County records show Pence Construction Corp. as last owner with Jerry Spiegel, President and also that Jerry Spiegel paid the 1982 taxes on the property.
10. Upstream well data are presented in attachment H. There are three drinking water wells from approximately 1 mile N-NE and NW of the site. They are all deep wells, 419 to 535 ft. The only organic contaminant detected was 111 trichloroethane in one well, N38-6, at a concentration of 3 ppb.

A shallow monitoring well N1195, 116 ft. deep is 0.5 miles N-NW and contained only 1 ppb trichloroethylene.

301111

April 26, 1985

Item #10 Attach. HWell Sampling Upstream (North
of Anchor site)3 Public Water Wells

Well NT030 located approximately one mile NW at the intersection of Cantiague Rock Road and Saratoga Drive, Jericho Water District. Depth 535 ft. Last sampled 7/82, no organics noted. The well has a history of no organics in sample.

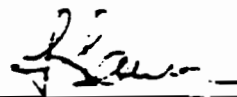
- Two wells located approximately 0.5 miles north east of West of Arch Ave. and Ohio Ave. intersection. Well N3955 (6-1) is located north of N3576 (6-2). Both Hicksville Water District. Well 6-1 last sampled 6/82. Depth 419 ft. ~ 3 ppb of 1,1,1 trichloroethane noted. Well 6-2 last sampled 3/83. No organics noted. depth 428 ft.

2 Monitoring Wells

One well (N1195) located approximately 0.5 mile north-northwest. East of Barry Drive and Cantiague Rock Road intersection. Last sampled 11-82. 1 ppb Trichloroethylene noted, depth 116 ft.

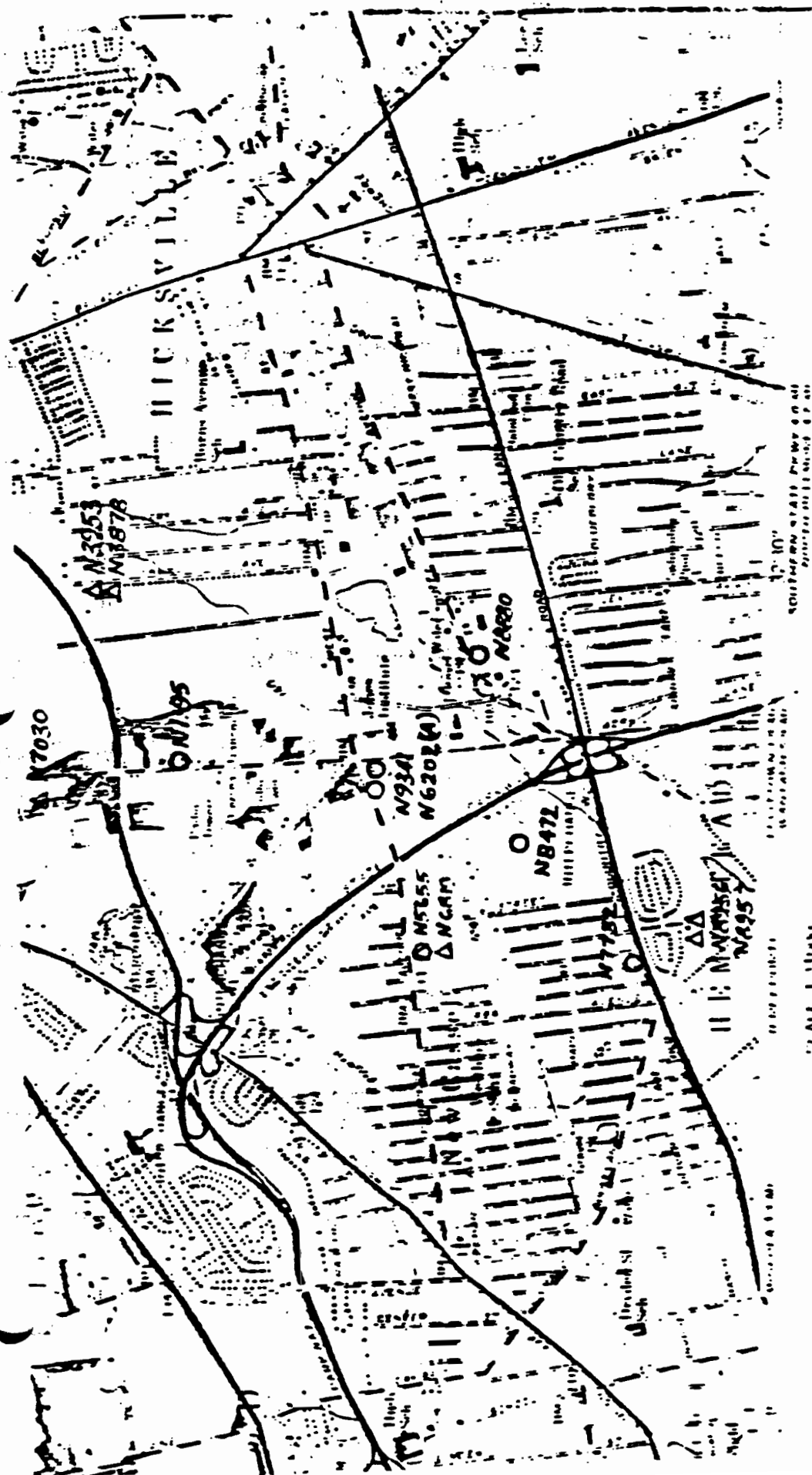
A groundwater sample was obtained by the Nassau County Department of Health on September 9 1982 from a well at 530 W. John Street, Hicksville approximately 280 ft. west of Anchor site. The well depth is 70.36 feet. The sample was taken at a depth of 64 ft. 11 in. Analysis of the sample by the Nassau County Department of Health Division of Laboratories and Research showed it to contain 13 ppb of tetrachloroethylene, 3 ppb of trichloroethylene and greater than 100 ppm of Methyl Ethyl Ketone. No 111 trichloroethane or methylene chloride were detected.

LS:ceg



301112





11. 22. 60.

O. Monitoring

A. PUBLIC

A. Abandoned

2010 211 UNIVERSITY

Pt 0000

RECEIVED

THE UNIVERSITY OF CHICAGO

THE NEW YORK PUBLIC LIBRARY
ASTOR LENOX TILDEN FOUNDATIONS
1009 FIFTH AVENUE
NEW YORK 17, N. Y.

THE UNIVERSITY OF CHICAGO LIBRARY

FOR SALE BY U.S. GEOLOGICAL SURVEY, WASHINGTON 25, D. C.

A suitable low building framework; material is available in most

301114

NCDH, 1983c. Data Supporting Request for Legal Action, January 26, 1983. (Source:
Rosenman & Colin Files)

301115



FRANCIS T. PURCELL
County Executive

NASSAU COUNTY DEPARTMENT OF HEALTH

240 OLD COUNTRY ROAD, MINEOLA, N.Y. 11501

Page 1 of 3

JOHN J. DOWLING, M.D., M.P.H.
Commissioner

FRANCIS V. PADAR, P.E., M.C.E.
Deputy Commissioner
Division of Environmental Health

Data Supporting Request for Legal Action Office of Industrial & Hazardous Wastes Management

Date of Request: January 26, 1983
Owner's Name : Chessco Industries, Inc.
Owner's Address: 2425 Post Road, Southport, Conn. 06490
Facility Name : Anchor/Lith Kem-Ko
Facility Address: 500 West John Street, Hicksville, N.Y. 11801
Responsible Officer: Walter C. Lesser, Director of Manufacturing

Regulatory Personnel:
L. Sama
J. Schechter

1. Specific Violations:

ECL 17-0501 - Leaks from underground storage tanks containing halogenated and non-halogenated hydrocarbons have contaminated the groundwater below the facility which is located at 500 W. John Street, Hicksville, New York.

The groundwater is contaminated with methylene chloride, 1,1,1-trichloroethane, tetrachloroethylene, and various other chlorinated hydrocarbons in contravention of the New York State Department of Environmental Conservation (NYSDEC) Standards.

2. Background Information:

The facility blends and packs chemicals for graphic arts industries. Seventeen underground storage tanks are located below the concrete floor of the building.

In August 1981, NYSDEC notified the Nassau County Department of Health (NCHD) that the Nassau County Fire Marshal's (NCFM) office had conducted tank tests at the facility in July and August of 1981. The results of the "air over product" tests indicated five tanks were leaking. These were taken out of service by the facility. They contained naphthol spirits (C₈-C₁₁), acetone, mineral spirits (C₇-C₁₂), isopropyl alcohol, and textile spirits (C₆, C₇). Nine other tanks passed the tests.

Three other tanks containing methylene chloride, diethylene glycol, and 1,1,1-trichloroethane were not tested because they are not flammable and thus do not fall under the jurisdiction of the NCFM.

301116

Request for Legal Action
Anchor/Lith Kem-Ko
500 West John St., Hicksville

Page 2 of 3
January 26, 1983
Page -2-

On January 16, 1982 the facility informed the NCHD of the results of the tank testing and their subsequent actions. On January 26, 1982 the NCHD notified the facility of a possible violation of the Environmental Conservation Laws and requested they provide plans for an investigation of the extent of contamination and to clean up any contamination of the environment. The plan was to have been submitted by February 28, 1982 (See attached letter of January 26, 1982).

In March 1982, the attorney for the facility, John F. Bogut of Saltzman, Bogut and Chetkof, 120 West Old Country Road, Hicksville, N.Y., notified NCHD that a consulting engineering firm had been retained by the facility.

On June 4, 1982 the consulting engineer, Lockwood, Kessler and Bartlett (LKB), Inc. of Syosset, New York met with NCHD and agreed to submit a plan for investigating the extent of contamination within two weeks.

On July 8, 1982 a groundwater monitoring plan was submitted by LKB and subsequently disapproved by NCHD on July 13, 1982.

On August 16, 1982 LKB submitted an approvable plan for a groundwater monitoring program, and subsequently installed three monitoring wells on September 13-15, 1982. Soil samples were taken by NCHD from one well on September 13, 1982. Samples of groundwater were obtained from the monitoring wells on September 21, 1982 by LKB, NCHD and the Hicksville Water District. Results of testing by NCHD indicated soil samples and groundwater samples to be contaminated with chlorinated hydrocarbons at levels up to 11 mg/l (ppm). The primary contaminants were 1,1,1 Trichloroethane, methylene chloride, and tetrachloroethylene (See attached letters of November 16, 1982 and January 11, 1983).

Since 1,1,1-Trichloroethene and methylene chloride are stored in underground storage tanks by the facility, NCHD requested on November 16, 1982 that the facility leak test the three storage tanks not previously tested by the NCFM (See Attached Letter). NCHD also requested that the facility provide a plan for cleaning up the groundwater by December 1, 1982. On November 24, 1982 the facility requested time to retest the wells, and agreed to test the tanks. On December 14, 1982 the wells were resampled. Analyses by NCHD confirmed the previous testing results (See Table I).

On December 12 and 14, 1982 the three tanks in question were tested for leaks by an "air over product" procedure. The methylene chloride tank was found to be leaking. The facility was requested and agreed to take the leaking tank out of service.

On January 21, 1983 a meeting was held with the facility to discuss the results of their consultant's monitoring program. Although the consultant agreed that the results of testing were essentially the same as NCHD's, the attorney for the facility refused to release the results to NCHD.

301117

Request for Legal Action
Anchor/Lith Kemo-Ko
500 West John St., Hicksville

Page 3 of 3
January 26, 1983
Page -3-

The attorney advised NCHD that the facility was not convinced that they were responsible for the groundwater contamination, and requested additional time to pursue the investigation of the sources of contamination. The consultant agreed to provide a schedule and plan for the continued investigation by January 28, 1983.

3. Facts Describing Respondent's Cooperation or Lack Thereof:

The respondent has been cooperative in that they hired a consulting engineer to determine the extent of contamination, installed three monitoring wells for sampling groundwater, and leak tested three underground storage tanks at the request of this department. However, they have failed to submit the results of their investigation to this department as requested on December 3, 1982 (see attached letter), on January 5, 1983 (see response dated January 6, 1983), and at the meeting of January 21, 1983.

4. Other Proceedings, If Any, Involving Respondent:

None

5. Recommendations

It is recommended that the facility be required to provide an engineering report detailing the extent of contamination at the site, including a plan for cleanup and an implementation schedule for the cleanup.

Attempts to gain voluntary compliance have failed, therefore we recommend you go directly to a hearing with a high priority, since this is adjacent to the MEK spill in Hicksville. It is further recommended that this matter be brought to the attention of the EPA. Since there may be significant contamination of the groundwater we request an expeditious remedy.

301118

NCDH, 1985. Environmental Health Continuation Sheet (Source: NCDH files).

301119

ENVIRONMENTAL
HEALTH
Continuation Sheet
Nassau County Health Department

Owner or
Agent : Anchor/LITHKEMKO
Address: Hicksville

Inspector

8-23-85 8-23-85 AT 9:00 AM Brian Hemenick of LKB
phoned This office. He advised me That on Friday
8-23-85 The 4" concrete floor had been broken up &
The vent line to Tank #1 had been exposed. IT was
filled with concrete. The Tank shell was exposed at
The vent line, but showed no signs of a break. The
Tank did show signs of stress & appeared to have been
filled with concrete. Near The Tank wall was
a puddle of concrete slurry which had risen to The
top of The sand fill. The origin of This ~~slurry~~ concrete
was not visible and is surmised to come from a
break ⁱⁿ The Tank wall That is not exposed. I
agreed to meet Mr. Hemenick at 10:00 AM To inspect
The excavation.

AT 9:50AM I met with Mr. Hemenick at The site.
The door was locked & The gates to The rear of The
site were also locked. Mr. Hemenick was surprised as
it was expected That The contractor would be present
to break The concrete floor to expose The remaining
Tanks so they could be filled with concrete slurry
by cutting a hole in The shell. (The fill lines are blocked.
Mr. Hemenick agreed to call when he discovered what The
problem was. He also confirmed The LITHKEMKO was
moving Their operation but still had chemicals stored in
The building. A sign in front of The property indicated
The site was for rent.

301120

ENVIRONMENTAL
HEALTH
Continuation Sheet
Nassau County Health Department

Owner or
Agent : Ancho/LITHKENKO
Address: HICKSVILLE

Inspector

DATE

TIME

8-2-82 AT 10:00 AM JOHN HENNINGSON TOLD ME THAT
LITHKENKO had been evicted by Jerry Spiegel Associates.
He does not expect work to continue for at least a
month on the filling of the Tanks. He will notify The
N.C. Fire Marshall's office.

J. Henningson

301121

NYSDEC, 1983a. Certificate to Operate an Air Contamination Source (Source: NCDH Files)

301122

N.Y.S. DEPARTMENT OF ENVIRONMENTAL CONSERVATION
NASSAU COUNTY DEPARTMENT OF HEALTH

02/0

282400 0172 00002 W I

LOCATION FAC EP

CERTIFICATE TO OPERATE AN AIR CONTAMINATION SOURCE
PROCESS, EXHAUST OR VENTILATION SYSTEM UNIT
RENEWAL APPLICATION

0 W N E R L I T H K E M K O 1) ANCHOR/CHEMICAL CO-INC 2) 500 W JOHN ST 3) HICKSVILLE (4) NY 5) 11801	F A C I L I T Y (6) ANCHOR/CHEMICAL CO-INC (7) 500 W JOHN ST (8) HICKSVILLE (9) 11801 (10) REP: A-45568-433-0800	(11) CONFIDENTIAL STATUS (12) COMPLIANCE STATUS DATE OF LAST CHANGE 07/19/82 (13) PRIOR CO ISSUE DATE 05/28/80 (14) PRIOR CO EXPIRATION DATE 05/27/83

EMISSION POINT 00002

(41) UTM-E: 622.7 KM. (42) STACK HEIGHT: 20 FT. (43) EXIT VELOCITY: 37.00 FT/SEC (44) SIC: 2842 (45) AGENCY-CODE-1: C (COU)
 (46) UTM-N: 513.6 KM. (47) HT ABV STRUC: 10 FT. (48) EXIT FLOW: 1500.00 ACFM (49) CO FEE: (50) AGENCY-CODE-2: C (COU)
 (51) GRND ELEV: 30 FT. (52) STK DIAM: 9X11 IN. (53) EXIT TEMP: 0 DEGR F (54) CO CONDITIONS: 1

UNIT I (55) HOURS/DAY: 4.0 (56) DAYS/YEAR: 250 (57) % OP BY SEASON: 25 25 25 25 (58) SOURCE CODE: A2101 MIXING OR BLENDING -
 (59) BLDG: (60) FLOOR NAME: (61) RULE 1: 205.00 (62) RULE 2:

PROCESS/UNIT (72) DESCRIPTION 1. BLENDING IN SEALED TANKS &
 DESCRIPTION 2. FILL SMALL CONTAINERS FROM TANK

CONTROL EQUIPMENT (73) TYPE: 001 FAN (74) MFG: UNKNOWN (75) ID: 01 (76) DATE INSTALLED: 09/64
 (77) DISPOSAL METHOD: (78) USEFUL LIFE: 30 YEARS

AIR CONTAMINANTS	CAS NUMBER	ENV RATING	E M I S S I O N S		% CONTROL EFFICIENCY	HRLY ACTUAL LBS/HOUR	ANNUAL EMISSIONS (LBS/YEAR)	
			ACTUAL	PERMISSIBLE			ACTUAL	10x
ORGANIC SOLVENTS	(035) NY930-00-0	(086) D	(087) .090	(088) 01 (089) 06 (090) .090 (091)	(092) .090	(093) 90.000	(094) 0	(095) 90

15) PRIOR COMMENTS (16) BY 1. 30111283 2. 3. 4. 5.	(17) DATE (18) BY (19) BY (20) DATE (21) COMPLIANCE (22) DATE OF NEXT ACTION (23) ISSUE DATE (24) EXPIRATION DATE (25) CO FEE

IRM REP'S SIGNATURE: DATE: 4-21-83

ISSUING OFFICER'S SIGNATURE: DATE: 5-1-83

NYSDEC, 1983b. Letter to R. Olazagasti NYSDEC Division of Solid Waste dated January 4, 1983. (Source: Rosenman & Colin Files)

301124

New York State Department of Environmental Conservation
Building 40
State University of New York
Stony Brook, NY 11794
(516) 751-7900

Page 1 of 2

File →

LS

JS

Return to Morris
for filing



Robert F. Flacke
Commissioner

January 4, 1983

Mr. Robert Olazagasti
Site Investigation Section
Division of Solid Waste
New York State Department of Environmental Conservation
50 Wolf Road
Albany, NY 12233

Dear Bob:

As a result of the public meeting of December 7, 1982 and subsequent discussions with Stan Juczak and Joe Schechter of the Nassau County Department of Health, we have revised and expanded the Region I hazardous waste sites which are located in Nassau County. Revisions resulting from the on-going discussions with James Pim of the Suffolk County Department of Health Services will be sent before the January 7, 1983 deadline.

<u>NAME</u>	<u>CODE NO.</u>	<u>SCORE</u>
Hooker Chemicals & Plastics	1-30004	90
Claremont Polychemical	NEW	90
*Old Bethpage Landfill	-----	86
Purex-Mitchel Field Area	1-30014	80
*Syosset Landfill	1-30011	78.5
Pasley Solvents	NEW	68
Mattiace Petrochemicals		
Glen Cove	NEW	68
Mattiace Petrochemicals (MFK)		
Hicksville	NEW	68
Applied Environmental Services	NEW	63
Liberty Industrial	1-30005	62
Genzale Plating	NEW	62
Simkins Industries	NEW	59
General Instrument Corp.	NEW	58
Anchor Chemical Corp.	NEW	58
Cerro Wire & Cable	1-30002	44.5
Denton Avenue Landfill	1-30008	29.5
Servo Corp. of America	1-30010	(DELETE)

*ON FEDERAL SUPERFUND

301125

Mr. Robert Olazagasti
January 4, 1983
Page Two

The individual scoring sheets for these sites will be forwarded to Albany via regular mail.

In addition to the above sites, there are two other major areas of environmental concern which have not been addressed in this evaluation. These two areas impact our sole source aquifer. The first category includes gasoline and oil spills, of which we have documented over 50 in Nassau County. The second category includes known existing contaminated leachate plumes emanating from unknown sources. There are approximately a half dozen of these plumes in Nassau County alone. Please indicate how these sites are to be factored into the State Superfund methodology.

I hope that this submittal satisfies your requirements relative to a comprehensive list of known hazardous waste sites within Nassau County. Similar information on Suffolk County will be forthcoming shortly.

Very truly yours,

Theodore M. Sanford

THEODORE M. SANFORD, P.E.
Senior Sanitary Engineer
Solid Waste Program

TMS:ebp

cc: A. Machlin

S. Juczak, NCDH ✓

301126

Office of the Fire Marshall, 1981a. Notice of Violation (Source: Rosenman & Colin Files)

301127

690 JERUSALEM AVENUE
P.O. BOX 128
UNIONDALE, NEW YORK 11553

NOTICE OF VIOLATION

BUREAU OF FIRE PREVENTION

#2, 3, 4

Insp. No. GS-93-26May 21, 1981

(Date)

TO Mr. Walter LesserAnchor/Lithkenko

NOTICE is hereby given of certain violations of the Nassau County Fire Prevention Ordinance existing on the premises located at:

500 West John StreetHicksville, New York 11801

Request is hereby made that said violations consisting of:

UNDERGROUND FLAMMABLE AND COMBUSTIBLE LIQUID TANKS

1. THE TANKS ARE NOT REGISTERED WITH THIS OFFICE. Flammable and combustible tanks shall be registered with the Fire Marshal, on forms provided.
2. OUR RECORDS INDICATE THAT THE UNDERGROUND BULK STORAGE TANKS HAVE NEVER BEEN HYDROSTATICALLY TESTED. Perform a hydrostatic test on all underground tanks in accordance with the requirements of this office. A FIRE MARSHAL MUST BE PRESENT WHEN THE TEST IS CONDUCTED.
3. THE VENT PIPES ARE EQUIPPED WITH THE WRONG TYPE OF VENT CAPS. Vent pipes shall be equipped with updraft type vent caps, or they shall be left open and uncapped.

301128

be corrected or removed forthwith. Failure to do so may subject you to the penalties as provided in the Nassau County Fire Prevention Ordinance.

David M. Bartow
- Supervising Fire Inspector

JOSEPH G. BOSLET, JR.
FIRE MARSHAL
COUNTY OF NASSAU

Michael J. Affrunti
Michael J. Affrunti,
By Fire Inspector

Office of the Fire Marshall, 1981b. Order to Remove Violations Forthwith (Source:
Rosenman & Colin Files)

301129

ORDER TO REMOVE VIOLATIONS FORTHWITH

July 22, 1981

Insp. No. GS-93-26

(Date)

TO MR. JAMES MEISTER, V.P.
ANCONA / LITHKEMKO

Inspection of the premises at: 500 WEST JOHN ST. HICKSVILLE NY

discloses the existence of certain violations of Article III of the Nassau County Fire Prevention Ordinances, No. 56-1962, As Amended November 19, 1979, consisting of the following.

TANK No. 15 (4,000 gal.) failed a hydrostatic test this date
THE PRODUCT IN THIS TANK WILL BE ALLOWED TO BE USED UNTIL TUESDAY 7/29/81 OR UNTIL
THE TANK IS MPTY. THIS TANK IS NOT TO BE REFILLED UNTIL THE SYSTEM
HAS BEEN REPAIRED AND RETESTED

TANK No. 6 (2,000 gal.) failed a hydrostatic test this date
All product is to be removed from this tank forthwith and this
system is not to be used until the system has been repaired and
RETESTED

TANKS No. 2 & No. 5 failed a hydrostatic test this date
All product is to be removed from the tanks and these systems
are not to be used until they have been repaired and retested

Received by Arthur W. Camp III

10- cells
7- BE

Pursuant to the authority given the undersigned under the provisions of the Nassau County Fire Prevention Ordinance, 56-1962, as Amended November 19, 1979.

YOU ARE HEREBY ORDERED TO REMOVE SAID VIOLATIONS FORTHWITH.

Failure to obey this written order may result in punishment as provided in Article III, Section 3.11 of the Nassau County Fire Prevention Ordinance 56-1962 which is as follows:

Any person, firm or corporation violating any provisions of this Article, or failing to comply with any order or regulation made thereunder, shall upon conviction be guilty of a misdemeanor punishable by a fine not exceeding five thousand dollars (\$5,000) or, by imprisonment for not more than thirty (30) days, or both, for each and every such violation. The imposition of the penalty for any violation of this Article shall not excuse the violation or permit it to continue, and each fifteen (15) days that the prohibition conditions are maintained shall constitute a separate offense.

7/22/81

Date
1000. 4-79 Rev. 5-80

Arthur W. Camp III #45

Witness: LR, JFM, PSL, T. Dardani
C.O.D.

301130

Office of the Fire Marshall, 1981c. Application for Underground Flammable/Combustible
Liquid Tank Registration (Source: Rosenman & Colin Files)

301131

JOSEPH G BOSLET
FIRE MARSHAL

OFFICE OF THE FIRE MARSHAL

399 JERUSALEM AVENUE
P.O. BOX 128
UNIONDALE, NEW YORK 11553
516 292-4826APPLICATION FOR UNDERGROUND FLAMMABLE/COMBUSTIBLE
LIQUID TANK REGISTRATIONDATE ISSUED 10-7-81 PERMIT NO. _____ INSP. NO. 45-93-4NAME OF APPLICANT Anchor/Lith-Kem-Ko, Inc.ADDRESS 500 West John Street, Hicksville, N.Y. 11801 TEL. NO. (516) 433-0800TANK LOCATION 500 West John Street, Hicksville, N.Y. 11801

D/B/A: NAME _____

ADDRESS _____ TEL. NO. _____

TANK NO.	SIZE	PRODUCT	DATE INSTALLED	DATE TESTED	CONSTRUCTION
1	3000	Naphthol Spirits	1964	7/22/81	~~Milled~~ Steel
2	3000	Aromatic 100	1964	8/6/81	~~Milled~~ Steel
3	3000	Methylene Chloride	1964	NO TEST	~~Milled~~ Steel
4	3000	Textile Spirits	1964	7/22/81	~~Milled~~ Steel
5	4000	EMPTY	1964	8/6/81	~~Milled~~ Steel
6	2000	EMPTY	1964	7/22/81	~~Milled~~ Steel
7	2000	Cellosolve	1964	7/22/81	~~Milled~~ Steel
8	1500	EMPTY	1964	8/6/81	~~Milled~~ Steel
9	1500	Diethylene Glycol	1964	NO TEST	~~Milled~~ Steel
10	1500	Mineral Spirits 66	1964	7/22/81	~~Milled~~ Steel

ANCHOR/LITH-KEM-KO, INC.
NAME OF APPLICANTKenneth W. Leeds, Vice Pres., Adm.
TITLE

SIGNATURE OF APPLICANT

ROBERT W. CAN: L
NOTARY PUBLIC State of New York
No. 30-0549231Qualified in Nassau County
Commission Expires March 30, 1983NOTARY
DATE 9-10-81

JOSEPH G. BOSLET
FIRE MARSHAL

OFFICE OF THE FIRE MARSHAL
899 JERUSALEM AVENUE
P.O. BOX 128
UNIONDALE, NEW YORK 11553
516 292-4826

APPLICATION FOR UNDERGROUND FLAMMABLE/COMBUSTIBLE
LIQUID TANK REGISTRATION

DATE ISSUED 10-7-81 PERMIT NO. _____ INSP. NO. 15-9326

NAME OF APPLICANT Anchor/Lith-Kem-Ko, Inc.

ADDRESS 500 West John Street, Hicksville, N.Y. 11801 TEL. NO. (516) 433-0800

TANK LOCATION 500 West John Street, Hicksville, N.Y. 11801

D/B/A: NAME _____

ADDRESS _____ TEL. NO. _____

TANK NO.	SIZE	PRODUCT	DATE INSTALLED	DATE TESTED	CONSTRUCTION
11	1500	EMPTY	1964	7/22/81	~~Welded~~ Steel
12	1500	1,1,1 Trichloro- ethane	1964	NO TEST	~~Welded~~ Steel
13	1500	Isopropanol	1964	7/22/81	~~Welded~~ Steel
14	1000	Butyl Cellosolve	1964	7/22/81	~~Welded~~ Steel
15	4000	EMPTY	1964	7/22/81	~~Welded~~ Steel
16	1000	VM&P Naphtha	1964	7/22/81	~~Welded~~ Steel
17	550	Acetone	1964	7/22/81	~~Welded~~ Steel

ANCHOR/LITH-KEM-KO, INC.
NAME OF APPLICANT

Kenneth W. Leeds, Vice Pres., Adm.
TITLE

SIGNATURE OF APPLICANT *Kenneth W. Leeds*

ROBERT W. CANE 1
NOTARY PUBLIC State of New York
No. 30-8549231
Qualified in Nassau County
Commission Expires March 30, 1983

Robert W. Cane
NOTARY

DATE 9-10-81

APPENDIX G

Well Logs for Well Installed by Lockwook, Kessler and Bartlett, Inc.

301134

Title

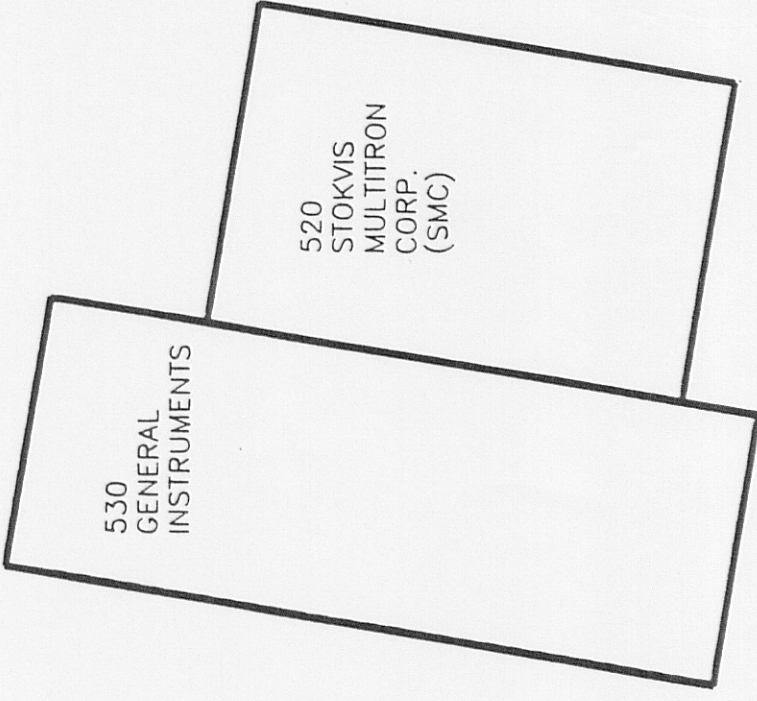
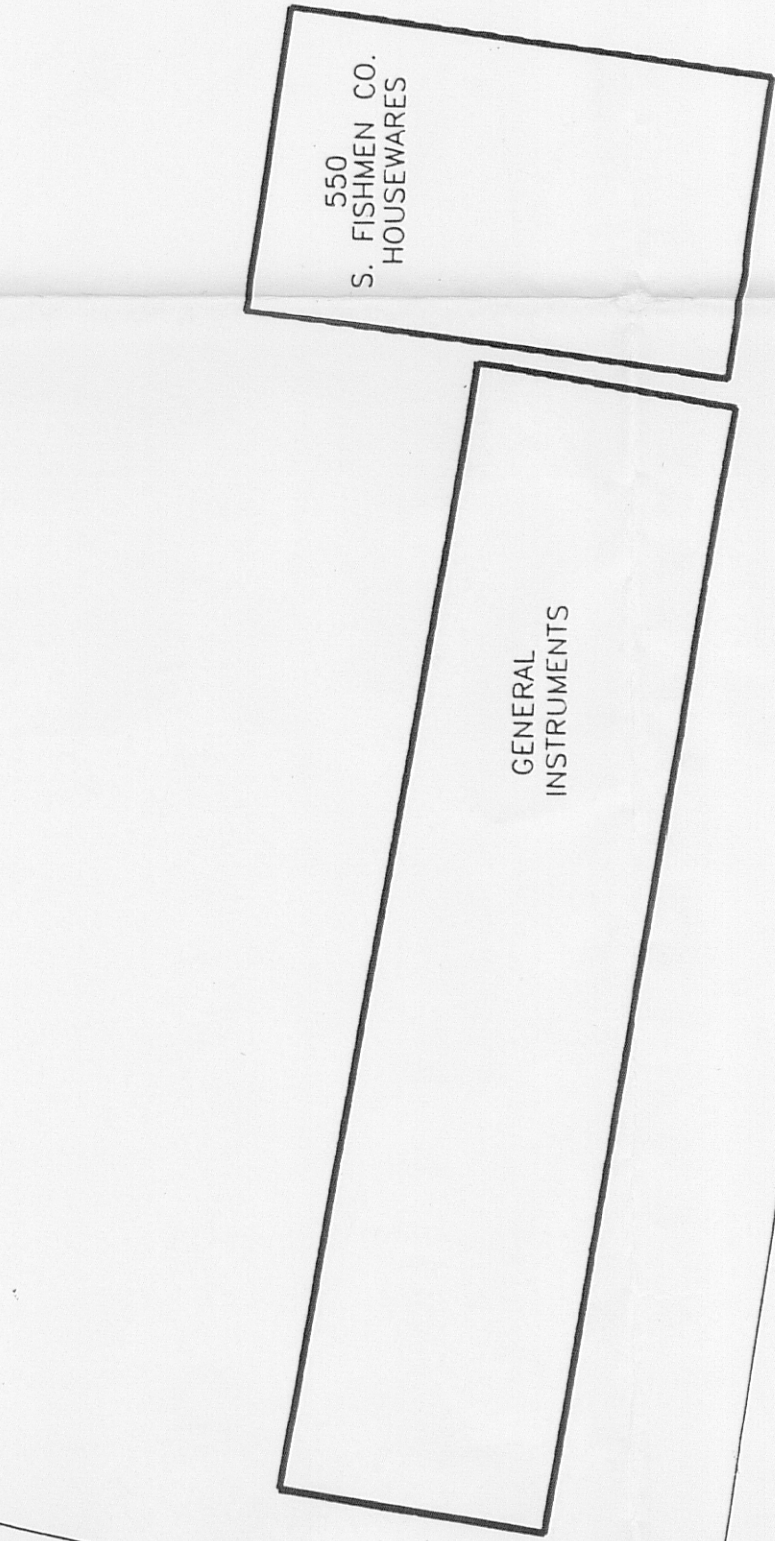
LAND USE IN THE AREA OF
ANCHOR CHEMICAL
HICKSVILLE, NEW YORK

Prepared for
SPIEGEL ASSOCIATES

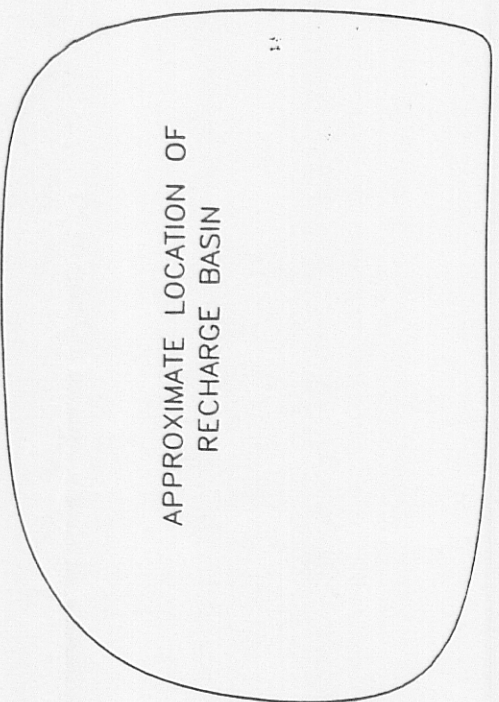
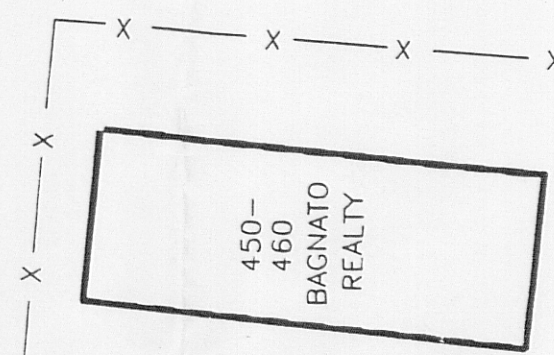
ROUX ASSOCIATES, INC. 1000 N. 1st St. Hicksville, NY 11803	Compld by	K S	Date	4/90	PLATE
	Prepared by	S W	Scale	SHOW	1
	Project Mgr	K S	Revision	0	
File No. 11603Y					



CANTIAGUE ROCK RD.

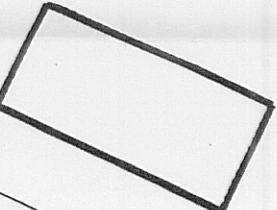
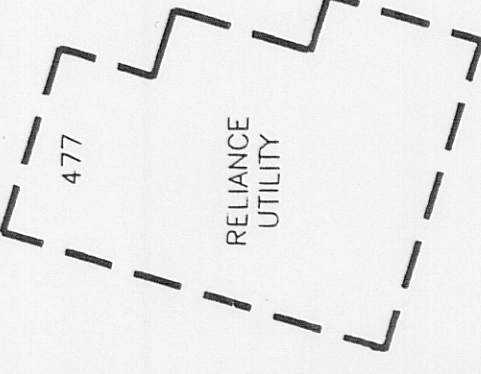
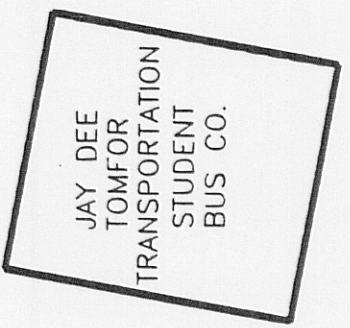
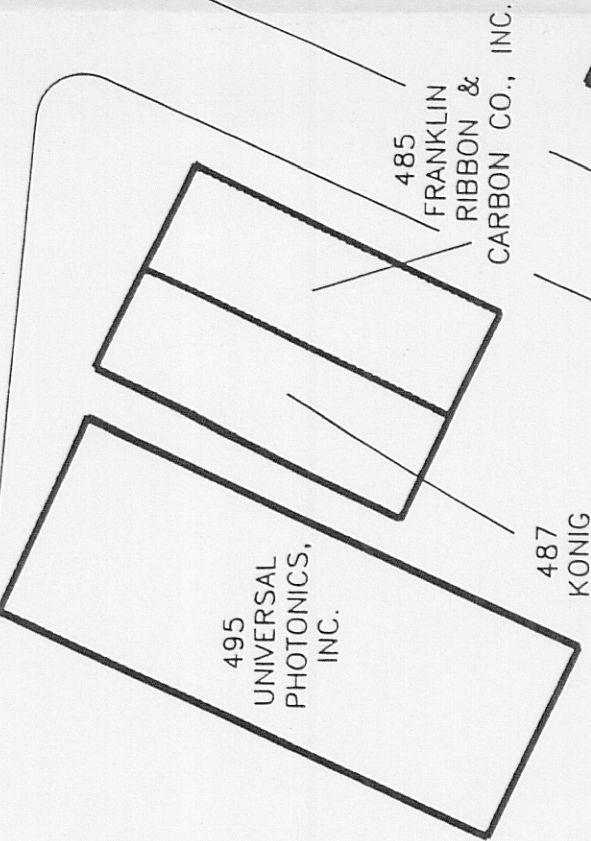
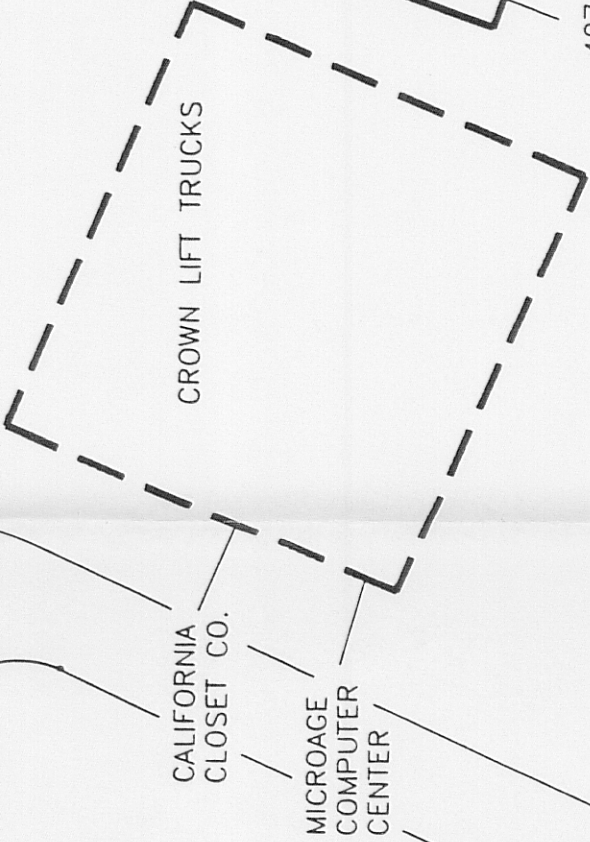


CANTIAGUE PARK



WESTBURY JEEP STORAGE LOT

W. JOHN STREET



ALPHA PLACE

487 KONIG IMPORTS NA

497 L.I.R. SIGNAL DEPOT

449W TWIN COUNTY RECYCLING CORP.

ASPHALT AND BLEND

