(804) 444-9566

114:JGN: gmc

1 4 JUL 1983

From: Commender, Atlantic Division, Mavel Facilities Engineering Commend

To: Commending Concret, Marine Corpe Rese, Comp Lejeune

Subj: Ground Water Menitoring Results, Rifle Range Area

Ref: (a) EPA National Interim Primary Brinking Water Regulations 46 GFR 141

Encl: (1) Center Analytical Services Analytical Results Report for Samples 27372-27378

- 1. Enclosure (1) is forwarded as results of analyses of samples collected in April 1983 by MCB CAMP LEJEURE personnel from the Rifle Range Chemical Dump, the Rifle Range Water Supply Wells, and the Rifle Range Water Treatment Plant finished water.
- 2. Enclosure (1) indicates a total organic contamination of 64 perts per billion (ppb) of chemical constituents from the total triheleunthene (TTME) family. This is considerably less than the 100 ppb maximum contaminant level set by reference (a).
- 3. Enclosure (1) indicates no contamination of the water supply walls.
- 4. Enclosure (1) indicates organic contouination at the chemical damp, primarily at Well #17. This contonination will be further addressed in the MACIP Program Confirmation Study which is anticipated to commune in FT-86.
- 5. LANTHAWFACKHOCOM point of contact is Mr. Jerry Wallmayer at (804) 444-9566 or AUTOWOM 564-9566

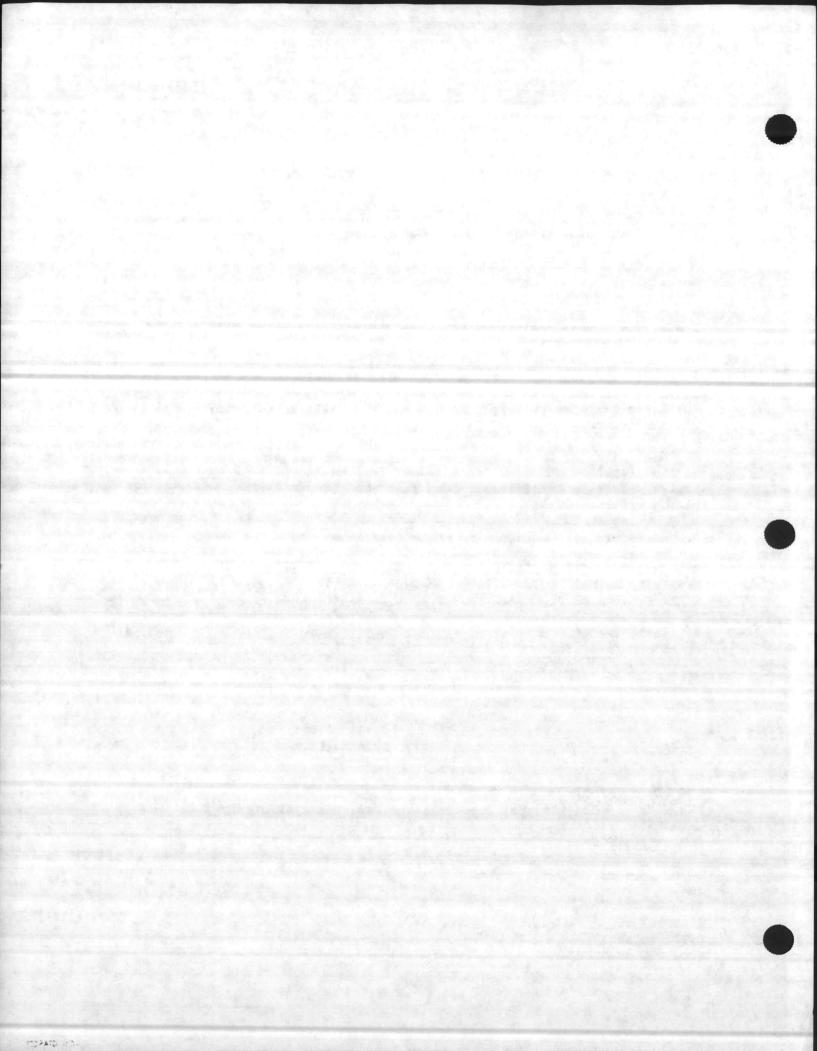
J. R. BAILEY By direction

Copy to: CMC (Code LFF-2) MCB CAMP LR_MUNE (Metural Resources and Revironmental Affairs) MAYERENYSA COMMANYACEMGCOM

Blind Copy to: 114 1142 1148 09B5(w/o encl) Doc. #0066f.

WATE MINES Office 7/13/783

250





2160 INDUSTRIAL DRIVE SALEM, VIRGINIA 24153 (703) 387-3995

- ANALYTICAL RESULTS REPORT -

Mr. David Goodwin Atlantic Division Code 1143 Naval Facilities Engineering Command Norfolk, VA 23511

Re: Water Analysis

CAS Commission No. 6094

REPORT DATE/NUMBER: 08 JUly 1983/99

SAMPLE COLLECTED: 19 April 1983: 1300

BY: Lachope/Hunekutt

SAMPLE RECEIVED AT LAB: 21 April 1983: 1500

ANALYSIS FOR:

Mercury (Hg), Silver (Ag), Arsenic (As), Beryllium (Be), Cadmium (Cd), Chromium (Cr), Copper (Cu), Nickel (Ni), Lead (Pb), Selenium (Se), Zinc (Zn), Antimony (Sb), and Thallium

(T1)

METHOD OF ANALYSIS: Re: Federal Register, Vol. 41, No. 232,

1 December 1976

The results are shown on the following page.

If you have any questions or comments concerning this report, please do not hesitate to contact us.

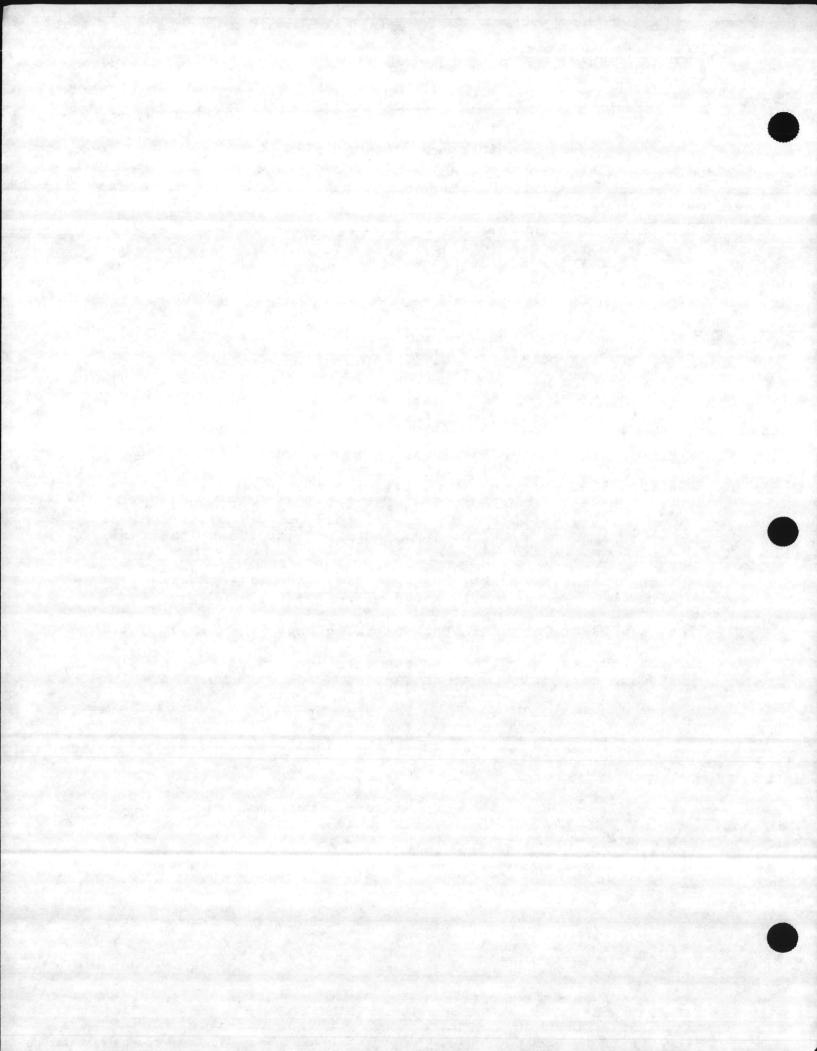
Prepared by:

CENTEC ANALYTICAL SERVICES

David F. Tompkins

Chemist

DFT/mls



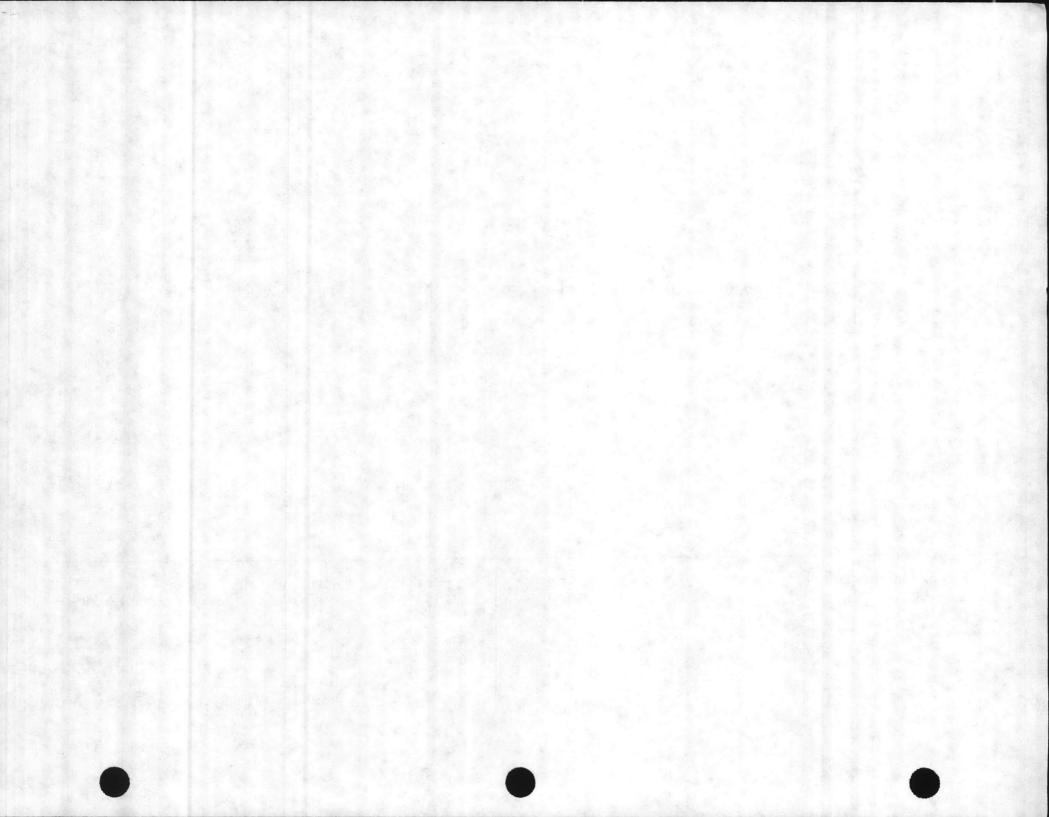
Marine Corps Base, Camp LeJeune, N.C. Naval Facilities Engineering Command 08 July 1983 Page 2

CAS No.	Description	Ag	As	Ве	Cd	Cr	Cu	Hg	Ni	Pb	Se	Zn	Sb	Tl
		(mg/1)	(mg/1)	(mg/l)	(mg/l)	(mg/l) (mg/1)	(mg/l)						

29372	Field # 15 Landfill L	0.0006	
29373	Field # 16 Landfill	0.0006	
29374	Field # 17 Landfill	<0.0005	
29375	RR-45	0.0006	
29376	RR-47	< 0.0005	
29377	RR-92	0.0006	
29378	Rifle Range <0.01 <0. finished water	001 <0.01 <0.01 <0.05 0.02 0.0007 <0.05 <0.001 < 0.005 0.08	<0.001 < 0.00

NAT

Da. No. : CLEJ-00675



Mead Como Cham

1A. REPORT OF DATA

·SAMPLE IDENTIFIER NUMBER: 29372

COMPUCHEM SAMPLE NUMBER: 349:

SUBMITTED TO:

Mr. David Thompson Centec 2160 Industrial Drive Salem, VA 24153

GERALD D. WRIGHT, CPIM
MANAGER, PRODUCTION PLANNING AND CONTROL

R. L. MYERS, PH.D. PRESIDENT

PAUL E. MILLS
DIRECTOR OF QUALITY ASSURANCE

JAMES J. ZOLDAK DIRECTOR OF LABORATORY OPERATIONS

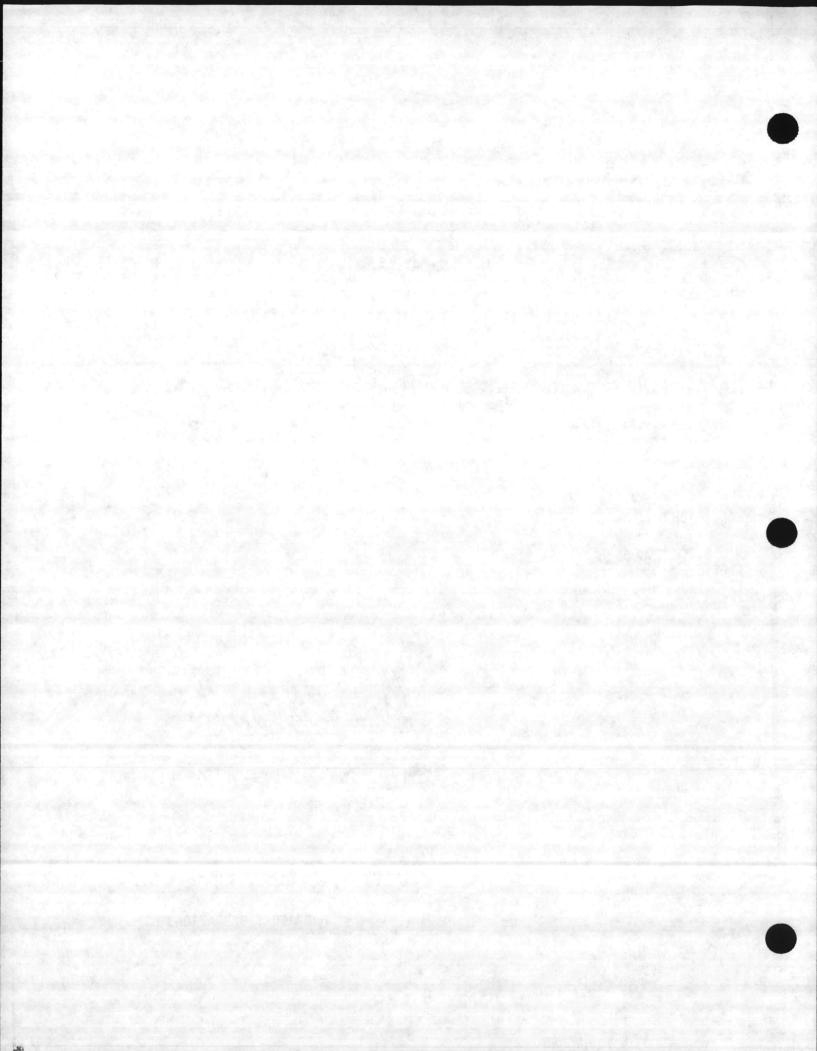
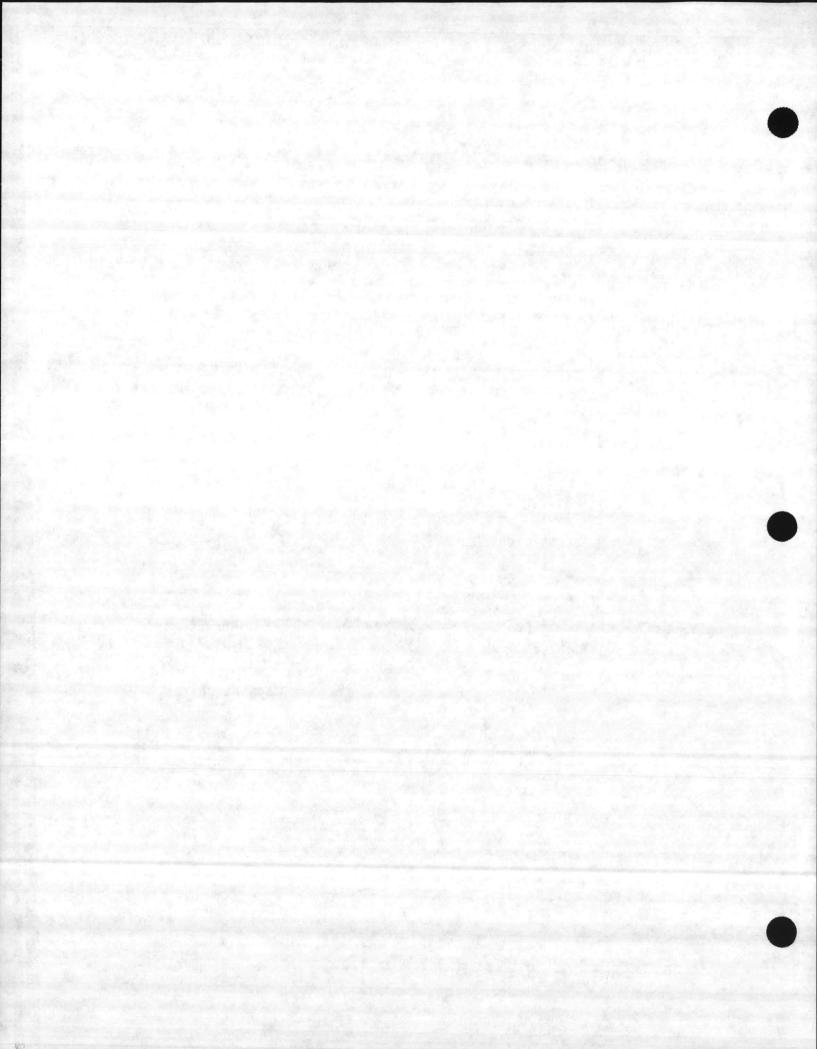
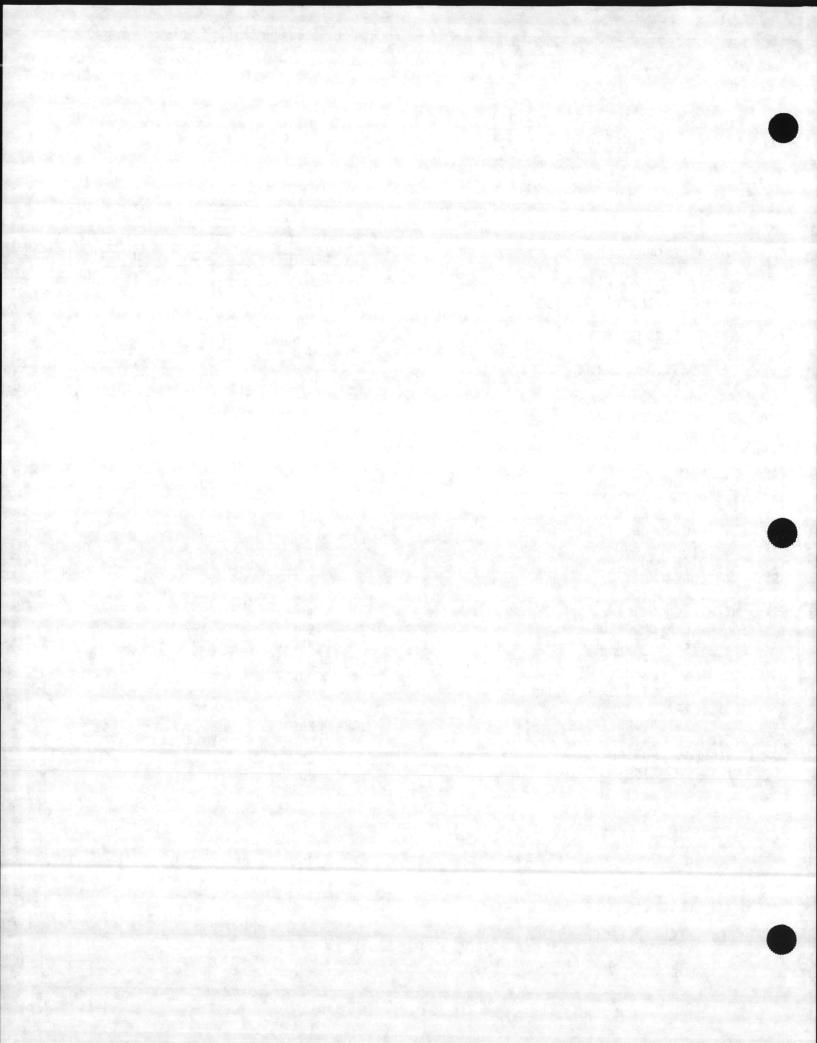


EXHIBIT I - LABORATORY CHRONICLE

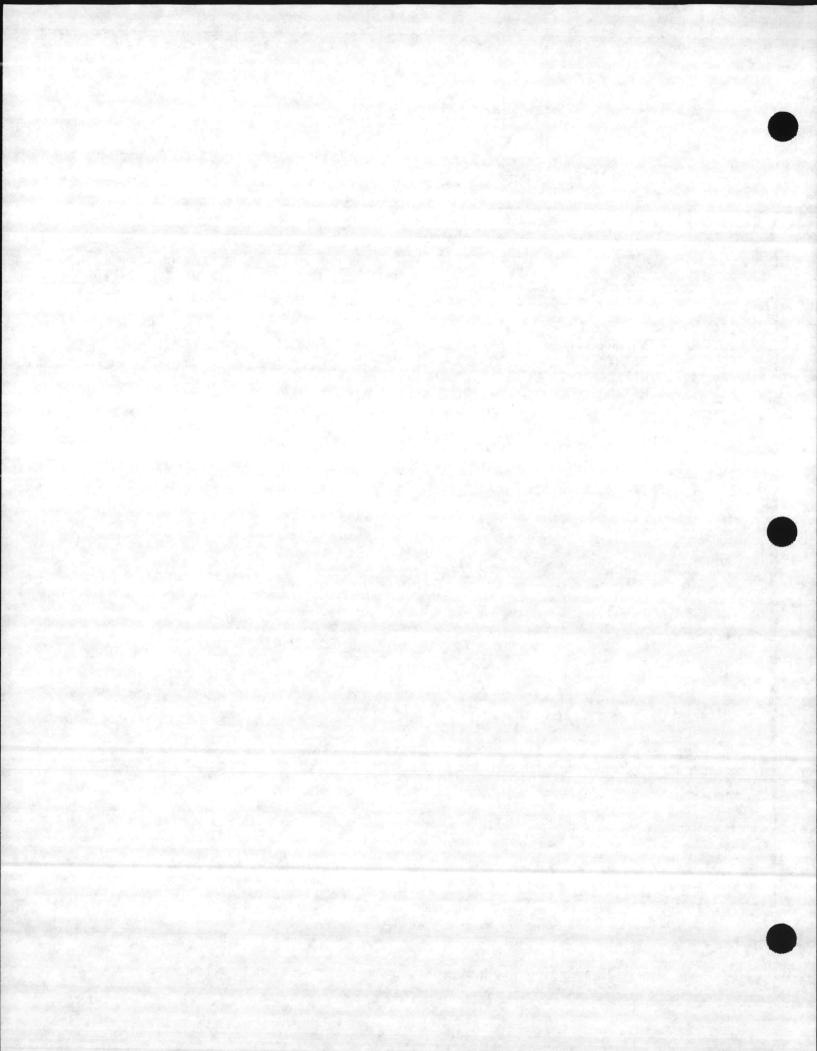
	<u>Date</u>
Received/Refrigerated	04/25/83
Organics	
Extracted	04/28/83
Analyzed	
1. Volatiles	04/28/83
. 2. Acids	04/29/83
3. Base/Neutrals	Not Requested
4. Pesticides/PCBS	05/02/83
Inorganics	
1. Metals	Not Requested
2. Cyanides	Not Requested
3. Phenols	· Not Paguested



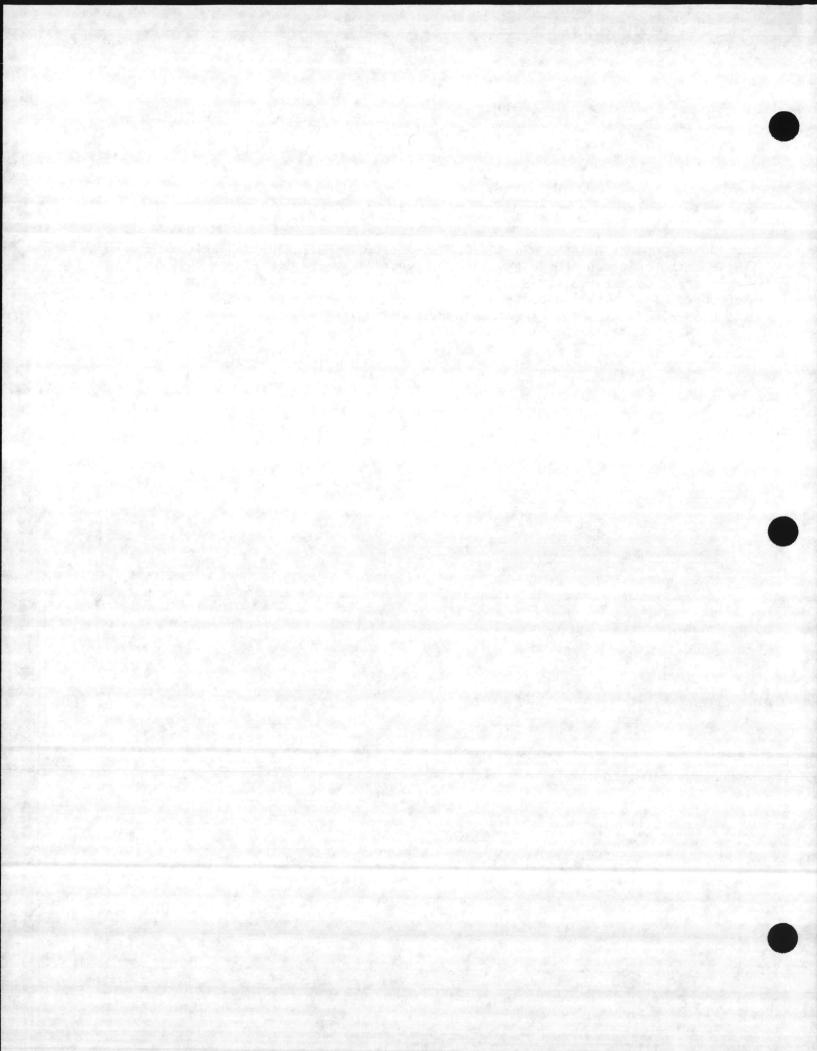
	VOLATILE ORGANICS	CONCENTRATION (UG/L)	DETECTION LIMIT (UG/L)	SCAN NUMBER
17.	ACROLEIN	BDL	100	
2V.	ACRYLONITRILE	BDL	100	
3V.		BDL	10	
4٧.	BIS (CHLOROMETHYL) ETHER	BDL	10	
57.		BDL	10	
6V.	CARBON TETRACHLORIDE	BDL	10	
7٧.	CHLOROBENZENE	BDL	10	
84.	CHLORODIBROMOMETHANE	BDL	10	
91.	CHLOROETHANE	BDL	10	
10V.	2-CHLOROETHYLVINYL ETHER	BDL	10	
11V.	CHLOROFORM	BDL	10	
	DICHLOROBROMOMETHANE	BDL	10	
	DICHLORODIFLUOROMETHANE	BDL	10	
14V.	1,1-DICHLOROETHANE	BDL	10	
157.	1,2-DICHLOROETHANE	BDL	10	
y ·.	1,1-DICHLOROETHYLENE	BDL	10	
1/1.	1,2-DICHLOROPROPANE	BDL	10	
187.	1,3-DICHLOROPROPYLENE	BDL	10	
194.	ETHYLBENZENE	BDL	10	
201.	METHYL BROMIDE	BDL	10	
217.	METHYL CHLORIDE	BDL	10	
22V.	METHYLENE CHLORIDE	BDL	10	
231.	1,1,2,2-TETRACHLOROETHANE	BDL	10	
24V.	TÈTRACHLOROETHYLENE	- BDL	10	
25V .	TOLUENE	BDL	10	
26V.	1,2-TRANS-DICHLOROETHYLENE	14	10	295
271.	1,1,1-TRICHLOROETHANE	BDL	10	
28V.	1,1,2-TRICHLOROETHANE	BDL	10	
29V	TRICHLOROETHYLENE	BDL	10	
30V.	TRICHLOROFLUOROMETHANE	BDL	10	
31V.	VINYL CHLORIDE	BDL	10	



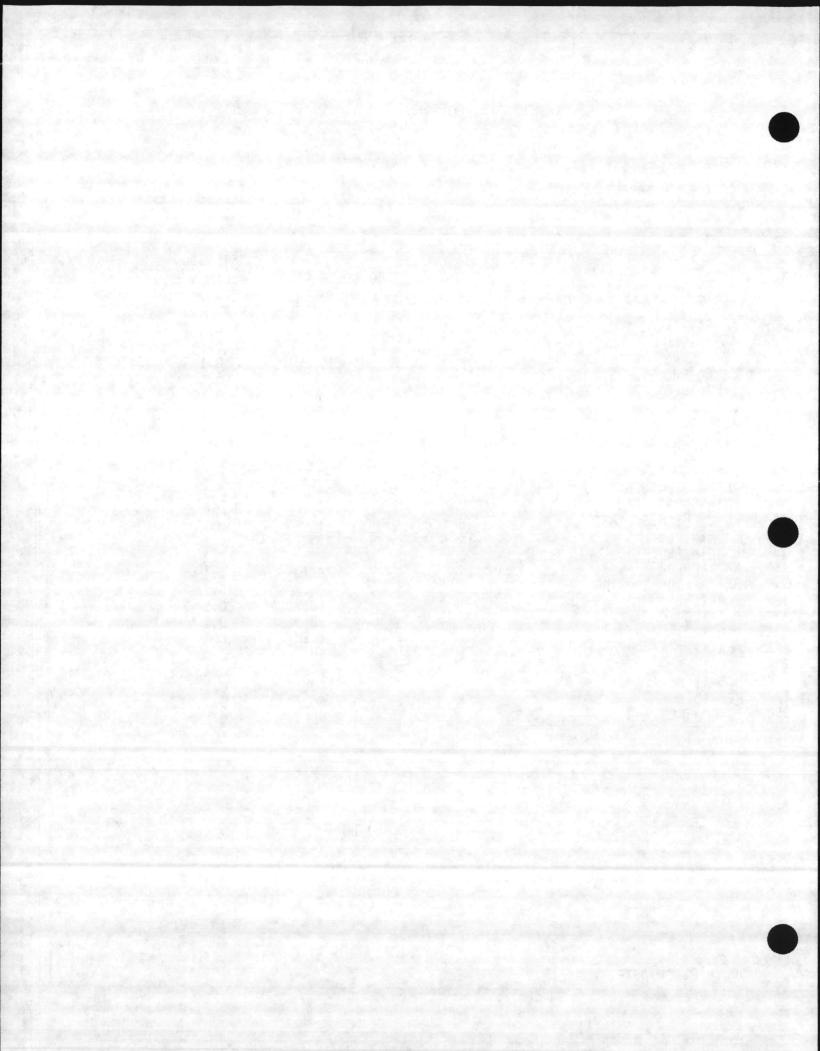
	ACID EXTRACTABLE ORGANICS	CONCENTRATION (UG/L)	DETECTION LIMIT (UG/L)	SCAN NUMBER
1A.	2-CHLOROPHENOL	BDL	25	
2A.	2,4-DICHLOROPHENOL	BDL	25	
3A.	2,4-DIMETHYLPHENOL	BDL	25	
4A.	4,6-DINITRO-O-CRESOL	BDL	250	
5A.	2,4-DINITROPHENOL	BDL	250	
6A.	2-NITROPHENOL	BDL	25	
7A.	4-NITROPHENOL	BDL	25	
8A.	P-CHLORO-M-CRESOL	BDL	25	
9A.	PENTACHLOROPHENOL	BDL	25	
10A.	PHENOL	BDL	25	
11A.	2,4,6-TRICHLOROPHENOL	BDL	. 25	



CompuChem employs Methods 624 and 625 for priority pollutant analysis. These methods were proposed by the U.S. E.P.A. in Volume 44 of the Federal Register on December 3, 1979. As these methods are currently in a "proposed" status, all aspects of the methods may not be validated until the U.S. E.P.A. promulgates the methods in "final" form.



	PESTICIDES/PCB'S	CONCENTRATION (UG/L)	DETECTION LIMIT (UG/L)
1P.	ALDRIN	BDL	0.1
2P.	ALPHA-BHC	BDL	0.1
3P.	BETA-BHC	BDL	0.1
4P.	GAMMA-BHC	BDL	0.1
5P.	*DELTA-BHC	BDL	0.1
6P.	CHLORDANE	BDL	0.1
7P.	4,4'-DDT	BDL	0.1
8P.	4,4'-DDE	BDL	0.1
<u>9</u> P.	4,4'-DDD	BDL	0.1
10P.	DIELDRIN	BDL	0.1
11P.	ALPHA-ENDOSULFAN	BDL	0.1
12P.	BETA-ENDOSULFAN	BDL	0.1
12p.	ENDOSULFAN SULFATE	BDL	0.1
	ENDRIN	BDL	0.1
15P.	ENDRIN ALDEHYDE	BDL	0.1
16P.	HEPTACHLOR	BDL	0.1
17P.	HEPTACHLOR EPOXIDE	BDL	0.1
18P.	PCB-1242	BDL	0.1
19P.	PCB-1254	BDL	0.1
20P.	PCB-1221 -	BDL	0.1
21P.	PCB-1232	- BDL	0.1
22P.	PCB-1248	BDL	0.1
23P.	PCB-1260	BDL	0.1
24P.	PCB-1016	BDL	0.1
25P.	TOXAPHENE	BDL	0.1



MeadCompuChem

1B. REPORT OF DATA

SAMPLE IDENTIFIER NUMBER: 29373

COMPUCHEM SAMPLE NUMBER: 3494

SUBMITTED TO:

Mr. David Thompson Centec 2160 Industrial Drive Salem, VA 24153

GERALD D. WRIGHT, CPIM
MANAGER, PRODUCTION PLANNING AND CONTROL

R. L. MYERS, PH.D. PRESIDENT

PAUL E. MILLS DIRECTOR OF QUALITY ASSURANCE

JAMES J. ZOLDAK
DIRECTOR OF LABORATORY OPERATIONS

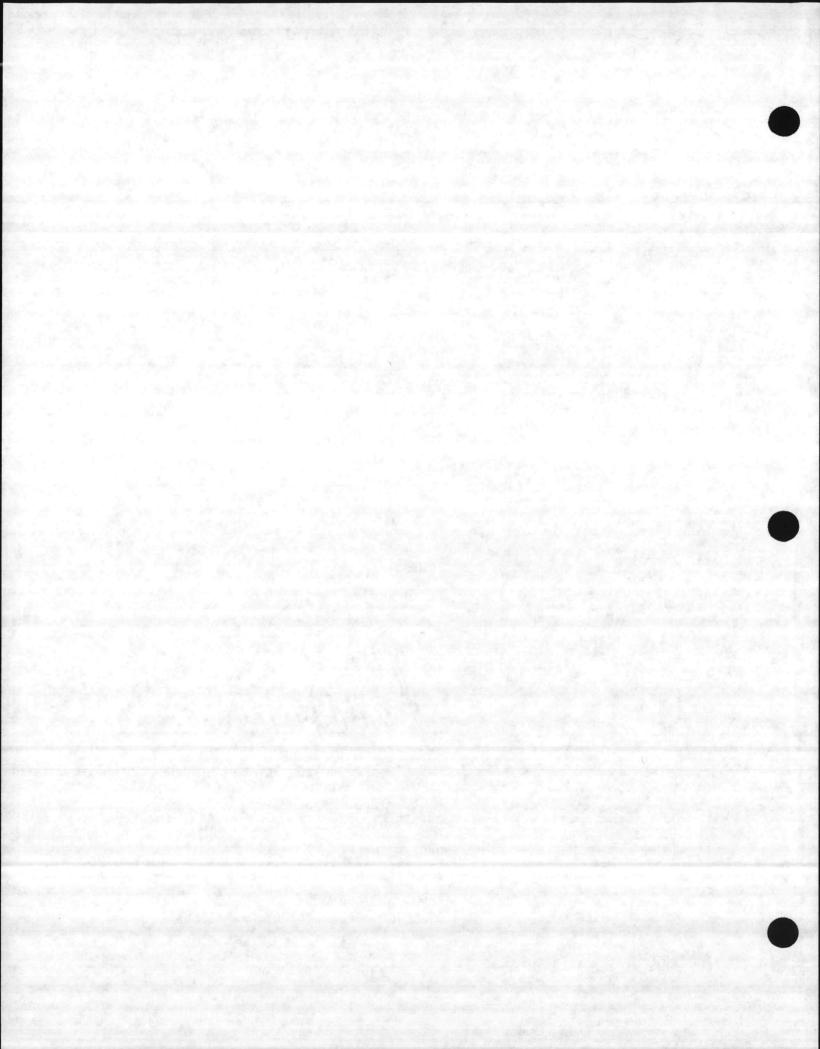
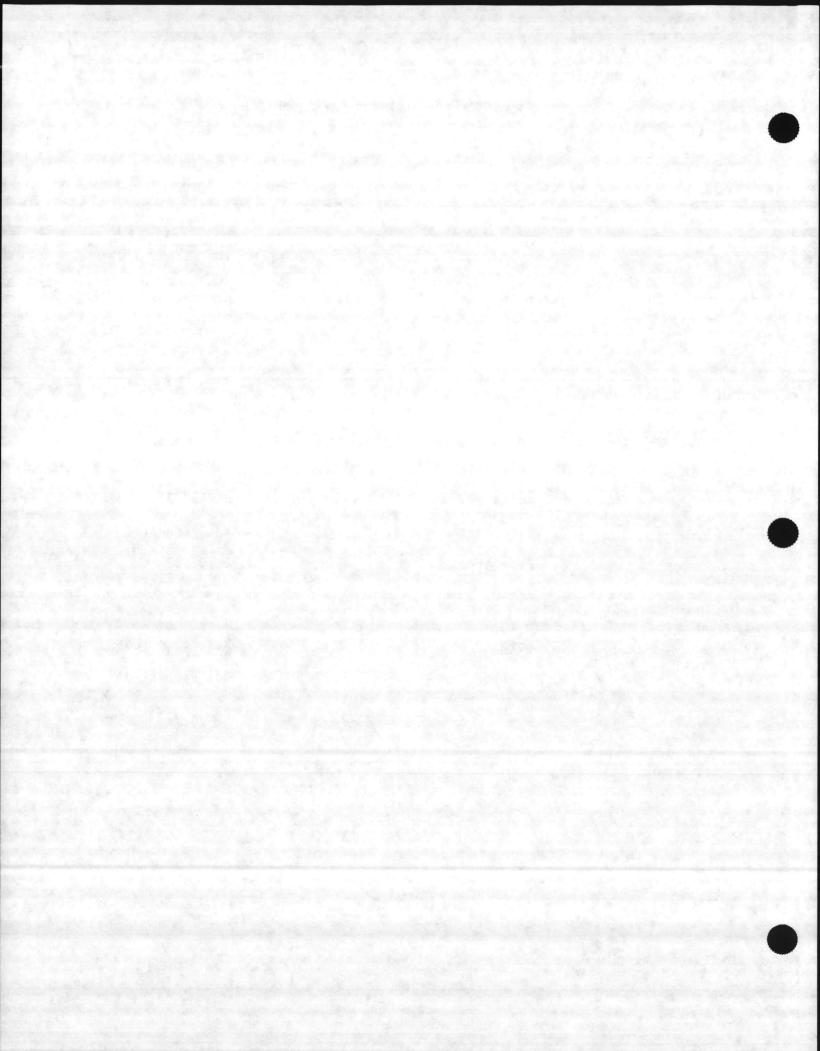
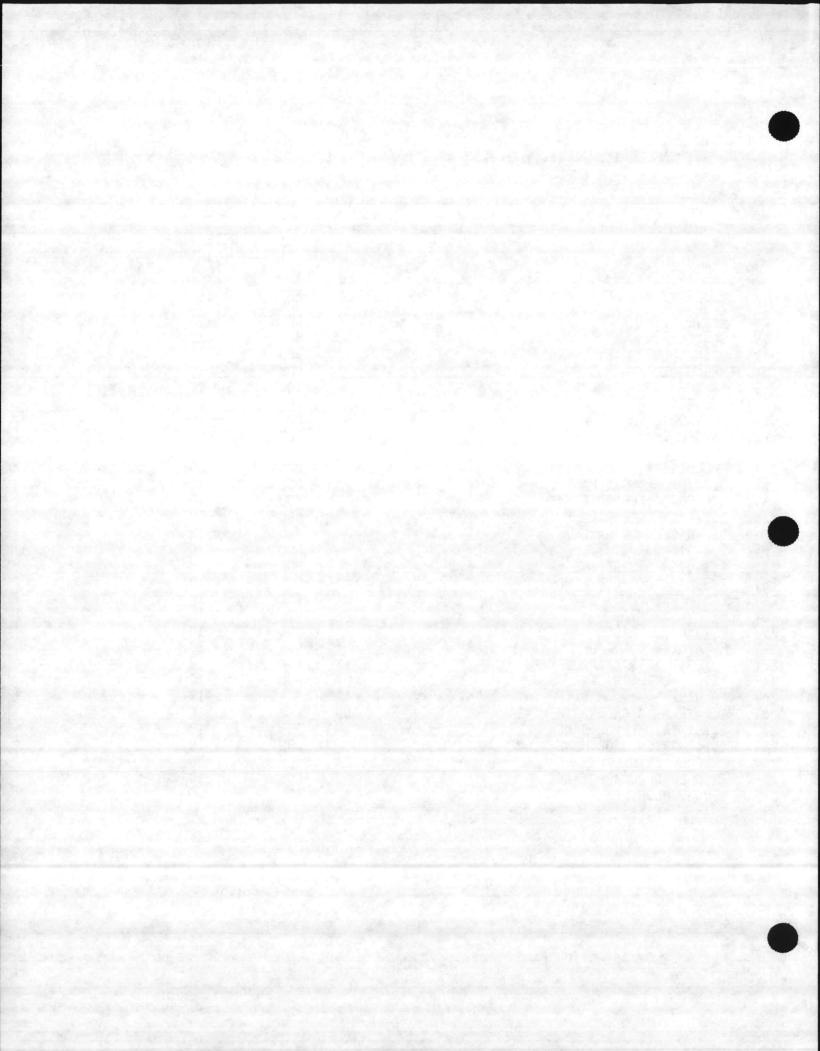


EXHIBIT I - LABORATORY CHRONICLE

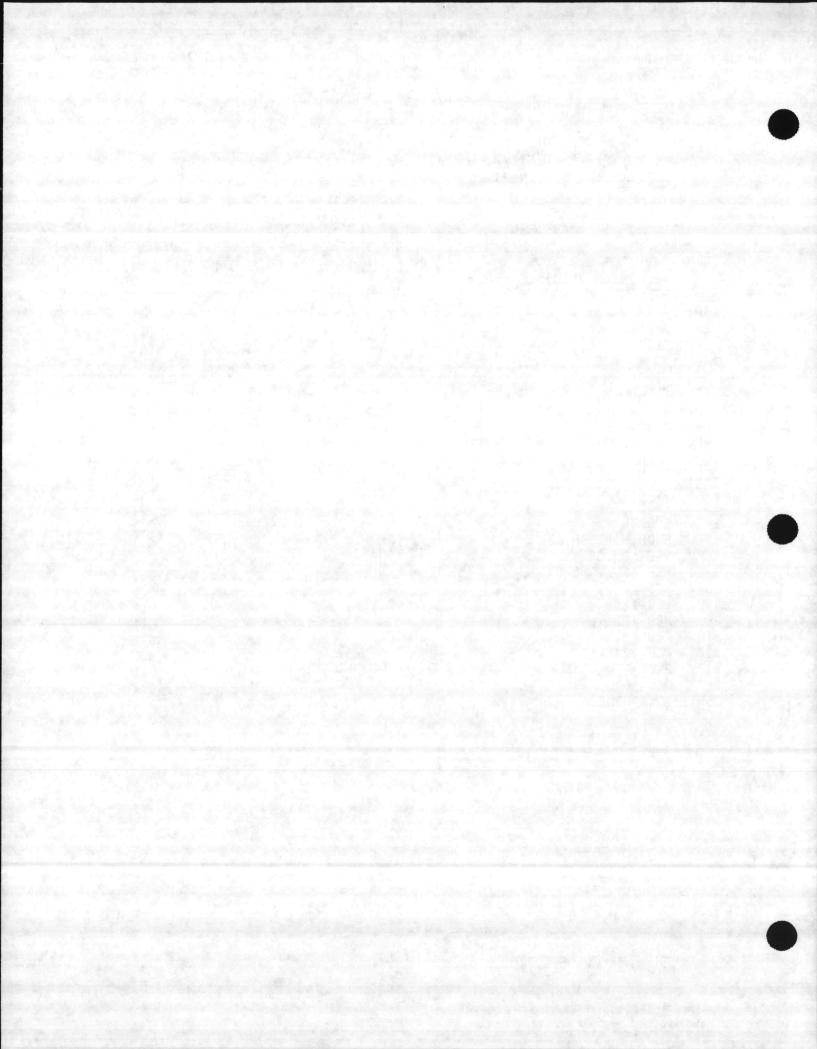
		<u>Date</u>
Receiv	ved/Refrigerated	04/25/83
Organi	cs	
Ε	xtracted	04/28/83
А	nalyzed .	
	1. Volatiles	04/28/83
	2. Acids	04/28/83
•	3. Base/Neutrals	Not Requested
	4. Pesticides/PCBS	05/02/83
Inorga	inics	
	1. Metals	Not Requested
	2. Cyanides	Not Requested
	3. Phenols	Not Requested



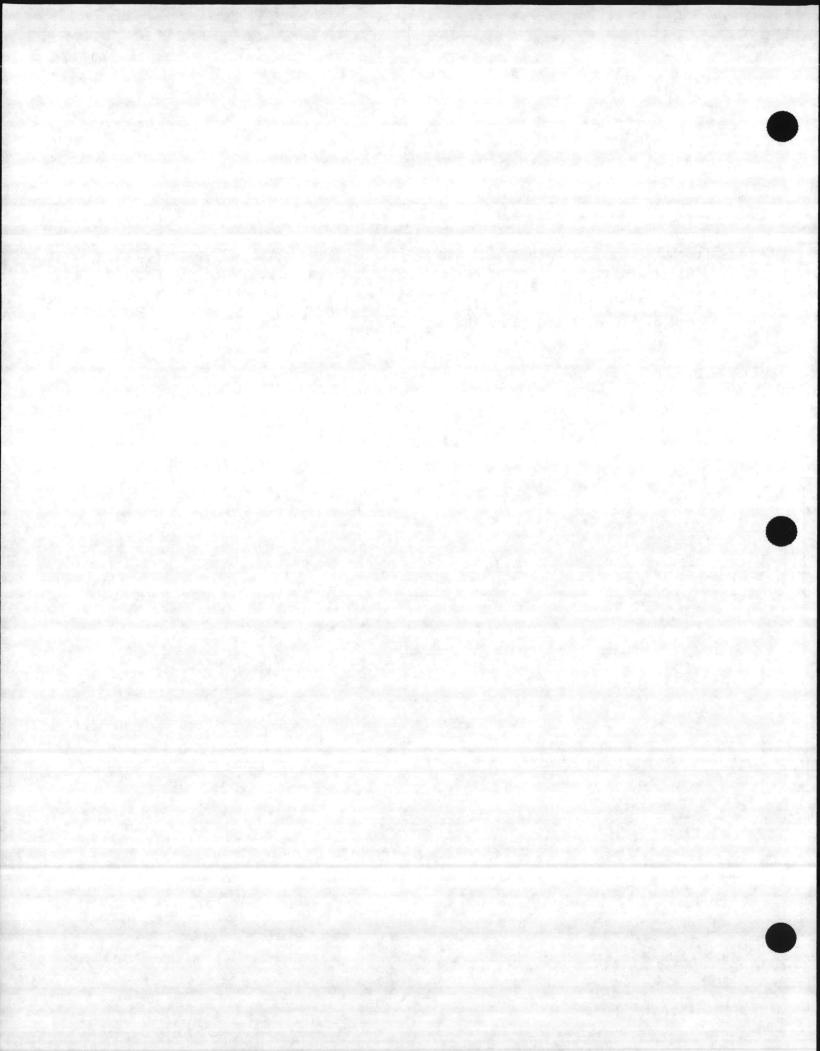
	VOLATILE ORGANICS	-	CONCENTRA' (UG/L)	TION	DETECTION LIMIT (UG/L)	SCAN NUMBER	
17.	ACROLEIN		BI	DL	100		
24.	ACRYLONITRILE		BI	DL	100		
34.	BENZENE		TO A CONTRACT OF THE PARTY OF T	DL	10		
4٧.	BIS (CHLOROMETHYL) ETHER			DL	10		
57.	BROMOFORM			DL	10	•	
6V)L	10		
7٧.	CHLOROBENZENE			DL	10		
87.	CHLORODIBROMOMETHANE			DL	10		
97.	CHLOROETHANE			DL	10		
107.	2-CHLOROETHYLVINYL ETHER		A YOUR CONTRACTOR OF THE PARTY	DL	10		
117.	CHLOROFORM			DL	10		
127.	DICHLOROBROMOMETHANE			DL	10		
	DICHLORODIFLUQROMETHANE			DL	10		
147.	1,1-DICHLOROETHANE			DL	10		
5V.	1,2-DICHLOROETHANE			DL	10		
16V.	1,1-DICHLOROETHYLENE)L	10		
177.	1,2-DICHLOROPROPANE			L	10		
187.	1,3-DICHLOROPROPYLENE		BI		10		
	ETHYLBENZENE			L	10		
207.	METHYL BROMIDE			L	10		
217.				L	10		
22V.	METHYLENE CHLORIDE		BI		10		
237.	1,1,2,2-TETRACHLOROETHANE		13		10	641	
247.	TETRACHLOROETHYLENE)L	10		
257.	TOLUENE		43		10	677	
26V.	1,2-TRANS-DICHLOROETHYLENE		450		10	301	
277.	1,1,1-TRICHLOROETHANE		BI)	10	301	
287.	1,1,2-TRICHLOROETHANE		BI		10		
297	TRICHLOROETHYLENE		31		10	470	
30V.	TRICHLOROFLUOROMETHANE			DL	10	470	
317.	VINYL CHLORIDE		BI		10		
DIA.	THIL CHECKIDE		DI	-	10		



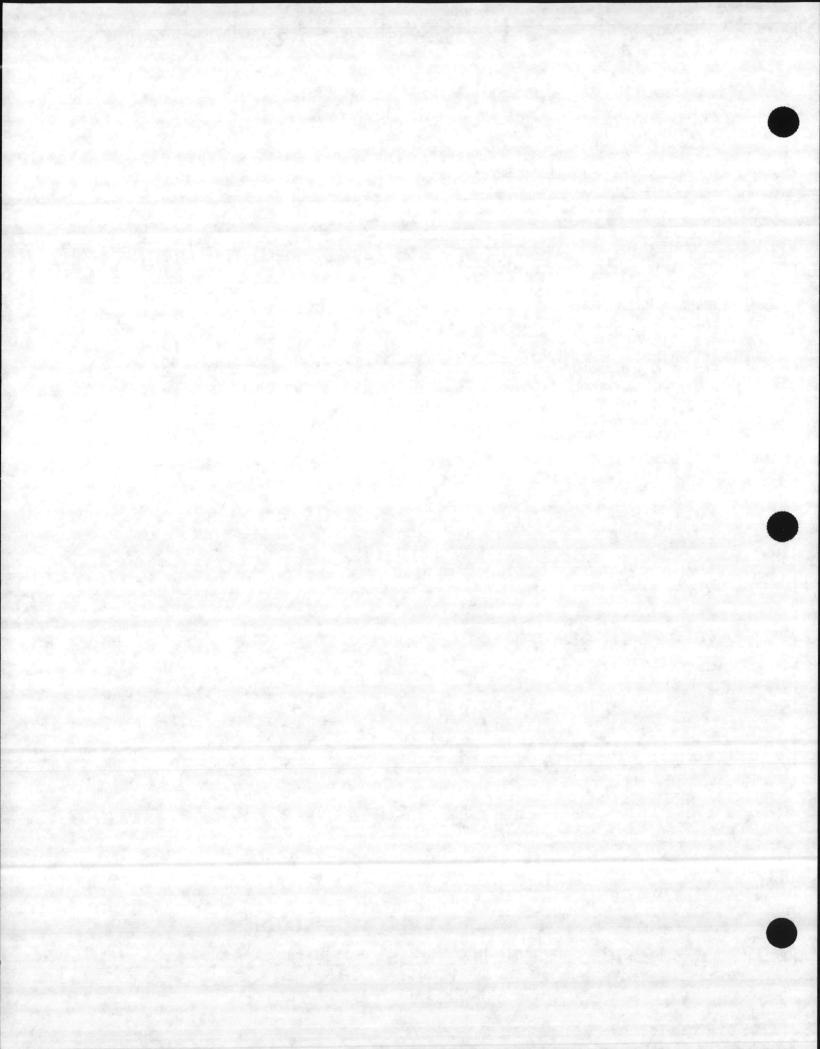
	PESTICIDES/PCB'S	CONCENTRATION (UG/L)	LIMIT (UG/L)
1P.	ALDRIN	BDL	0.1
2P.	ALPHA-BHC	BDL	0.1
3P.	BETA-BHC	BDL	0.1
4P.	GAMMA-BHC	BDL	0.1
5P.	DELTA-BHC	BDL	0.1
6P.	CHLORDANE	BDL	0.1
7P.	4,4'-DDT	BDL	0.1
8P.	4,4'-DDE	BDL .	0.1
9P.	4,4'-DDD	BDL	0.1
10P.	DIELDRIN	BDL	0.1
11P:	ALPHA-ENDOSULFAN	BDL	0.1
12P.	BETA-ENDOSULFAN	BDL	0.1
13P.	ENDOSULFAN SULFATE	BDL	0.1
14P.	ENDRIN	BDL	0.1
15P.	ENDRIN ALDEHYDE	BDL	0.1
16P.	HEPTACHLOR	BDL	0.1
17P.	HEPTACHLOR EPOXIDE	BDL	0.1
18P.	PCB-1242	BDL	0.1
19P.	PCB-1254	BDL	0.1
20P.	PCB-1221	BDL	0.1
21P.	PCB-1232	BDL	0.1
22P.	PCB-1248	BDL	0.1
23P.	PCB-1260	BDL	0.1
24P.	PCB-1016	BDL	0.1
25P.	TOXAPHENE	BDL	0.1



CompuChem employs Methods 624 and 625 for priority pollutant analysis. These methods were proposed by the U.S. E.P.A. in Volume 44 of the Federal Register on December 3, 1979. As these methods are currently in a "proposed" status, all aspects of the methods may not be validated until the U.S. E.P.A. promulgates the methods in "final" form.



	ACID EXTRACTABLE ORGANICS	CONCENTRATION (UG/L)	DETECTION LIMIT (UG/L)	SCAN NUMBER
1A.	2-CHLOROPHENOL	BDL	25	
2A.	2,4-DICHLOROPHENOL	BDL	25	
3A.	2,4-DIMETHYLPHENOL	BDL	25	
4A.	4,6-DINITRO-O-CRESOL	BDL	250	
5A.	2,4-DINITROPHENOL	BDL	250	
6A.	2-NITROPHENOL	BDL	25	
7A.	4-NITROPHENOL	BDL	25	
8A.	P-CHLORO-M-CRESOL	BDL	25	
9A.	PENTACHLOROPHENOL	BDL	25	
10A.	PHENOL	BDL	25	
11A	2,4,6-TRICHLOROPHENOL	BDL	25	
	가 보면 1000mm (Control of Control			



Mead Computinem

1C. REPORT OF DATA

SAMPLE IDENTIFIER NUMBER: 29374

COMPUCHEM SAMPLE NUMBER: 3495

SUBMITTED TO:

Mr. David Thompson Centec 2160 Industrial Drive Salem, VA 24153

GERALD D. WRIGHT, CPIM
MANAGER, PRODUCTION PLANNING AND CONTROL

R. L. MYERS, PH.D. PRESIDENT

PAUL E. MILLS DIRECTOR OF QUALITY ASSURANCE

JAMES J. ZOLDAK
DIRECTOR OF LABORATORY OPERATIONS

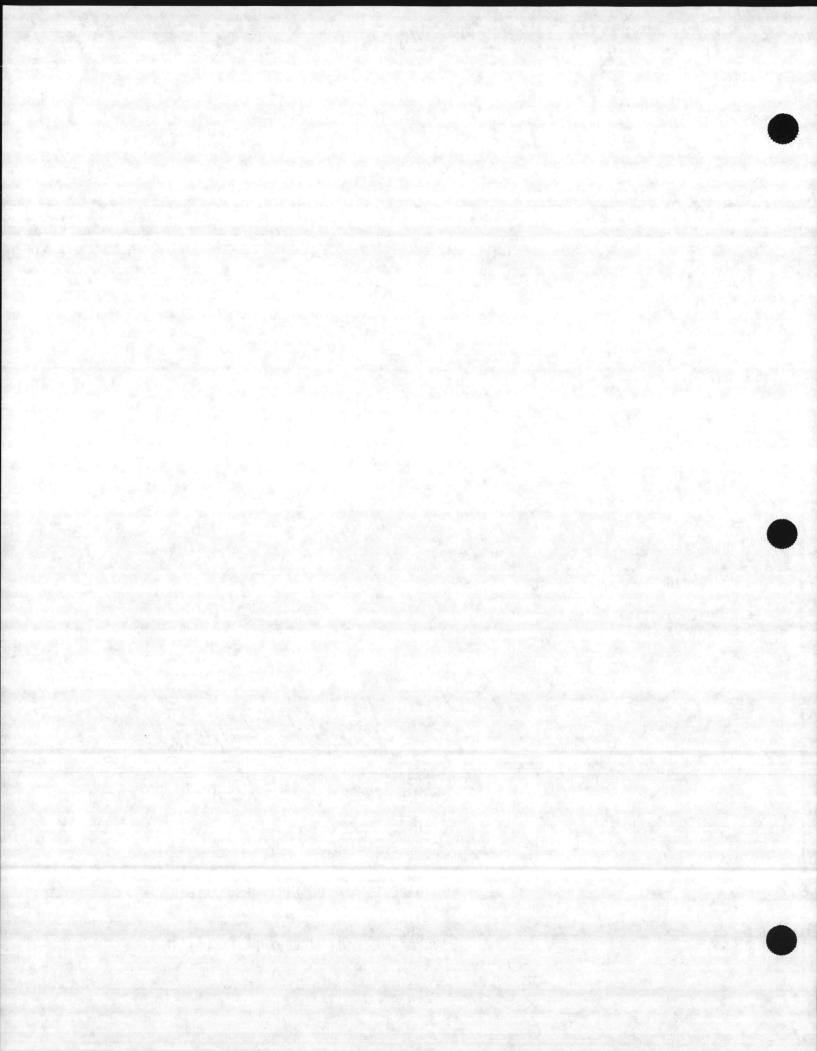


EXHIBIT I - LABORATORY CHRONICLE

SAMPLE IDENTIFIER: 29374 COMPUCHEM SAMPLE NUMBER: 3495

Received/Refrigerated 04/25/83

Organics

Extracted 04/28/83

Analyzed

1. Volatiles 04/28/83, 05/02/83 1

04/29/83

05/02/83

2. Acids

3. Base/Neutrals Not Requested

4. Pesticides/PCBS

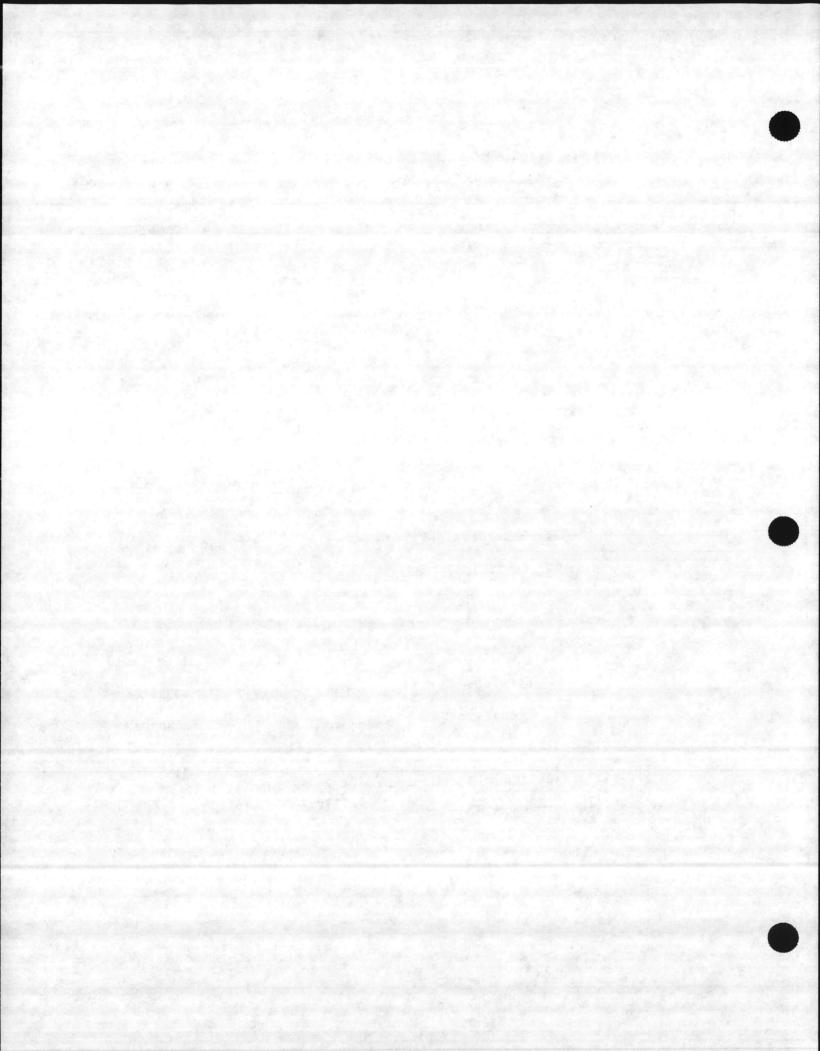
Inorganics

1. Metals Not Requested

Cyanides Not Requested

3. Phenols Not Requested

Volatile fraction run undiluted on 04/28/83, and at a 1:10 dilution on 05/02/83 due to an excessive concentration of 1,2-TRANS-DICHLOROETHYLENE.



	VOLATILE ORGANICS	CONCENTRATION (UG/L)	DETECTION LIMIT (UG/L)	SCAN NUMBER
17.	ACROLEIN	BDL	100	
27.		1.(1) (2) [1] [1] [1] [2] [2] [2] [2] [2] [2] [2] [2] [2] [2	100	
37.	BENZENE	BDL 13	100	
44.	BIS (CHLOROMETHYL) ETHER	그리 중 하면서 있는 건강에 하는 하는 것 하는 것 같아. 그리는 얼마나 없는 것이 없다고 있다.	10	479
5V.	BROMOFORM	BDL	10	
64.	CARBON TETRACHLORIDE	BDL	10	
7٧.	CHLOROBENZENE	BDL	10	
87.	CHLORODIBROMOMETHANE	BDL	10	
97.	CHLOROETHANE	BDL	10	
10 .	2-CHLOROETHYLVINYL ETHER	BDL	10	
117.	- CHLOROFORM	BDL	10	
12 .	DICHLOROBROMOMETHANE	BDL	10	
137.	DICHLORODIFLUOROMETHANE	BDL	10	
14V.	1,1-DICHLOROETHANE	BDL	10	
15V.	1,2-DICHLOROETHANE	BDL	10	
167.	1,1-DICHLOROETHYLENE	21	10	335
177.	1,2-DICHLOROPROPANE	BDL	10	
187.	1,3-DICHLOROPROPYLENE	BDL	10	
197.	ETHYLBENZENE	BDL	10	Supplied to
201.	METHYL BROMIDE	BDL	10	
217.	METHYL CHLORIDE	BDL	10	
22V.	METHYLENE CHLORIDE	BDL	10	
231.	1,1,2,2-TETRACHLOROETHANE	. BDL	10	
247.	TETRACHLOROETHYLENE	BDL	10	
25V.	TOLUENE	BDL	10	
267.	1,2-TRANS-DICHLOROETHYLENE	4,700 1 BDL	10	
277.	1,1,1-TRICHLOROETHANE		10	299
287.	1,1,2-TRICHLOROETHANE	BDL	10	
29V	TRICHLOROETHYLENE	. BDL	10	
30V.	TRICHLOROFLUOROMETHANE	BDL	10	
31V.	VINYL CHLORIDE	BDL	10	
		28	10	77

¹ Compound calculated from a 1:10 dilution BDL = BELOW DETECTION LIMIT

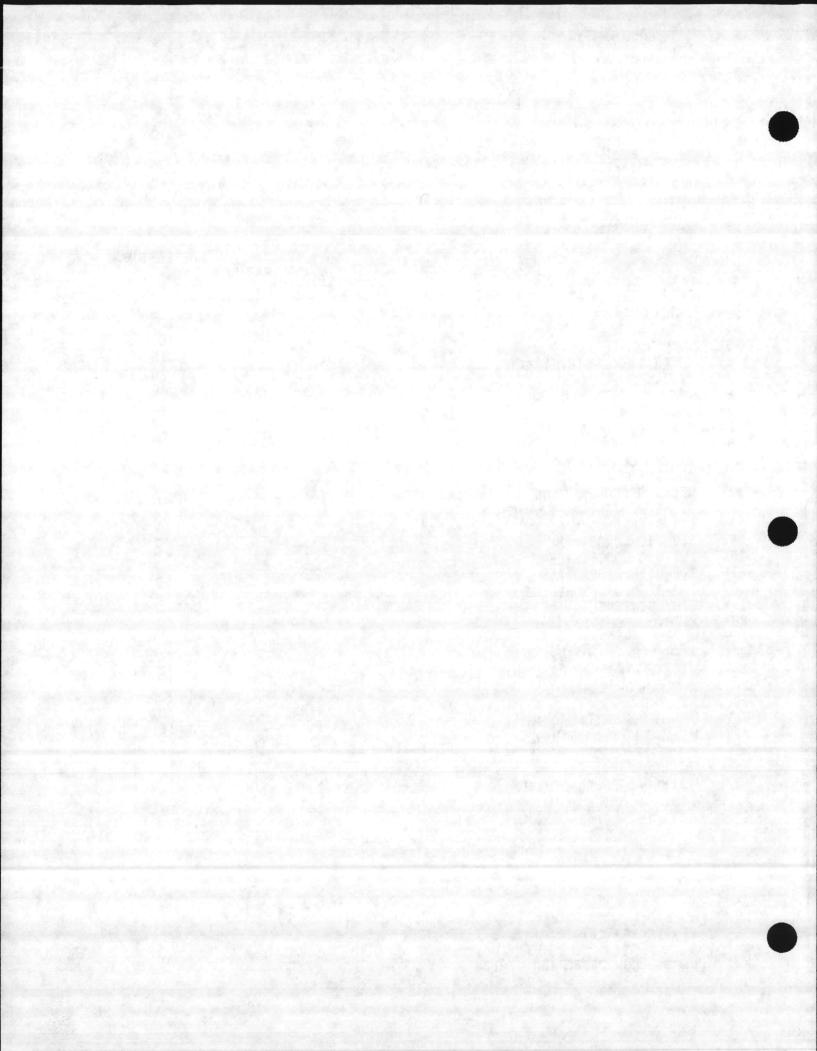
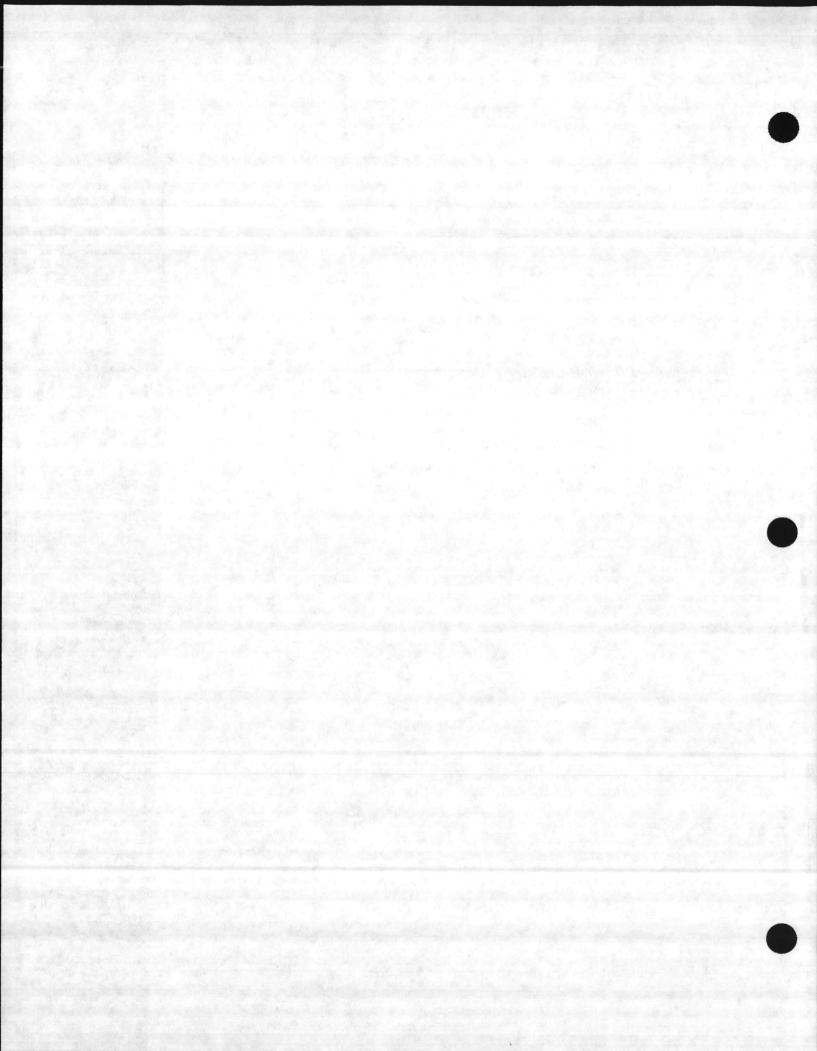


EXHIBIT II - THE

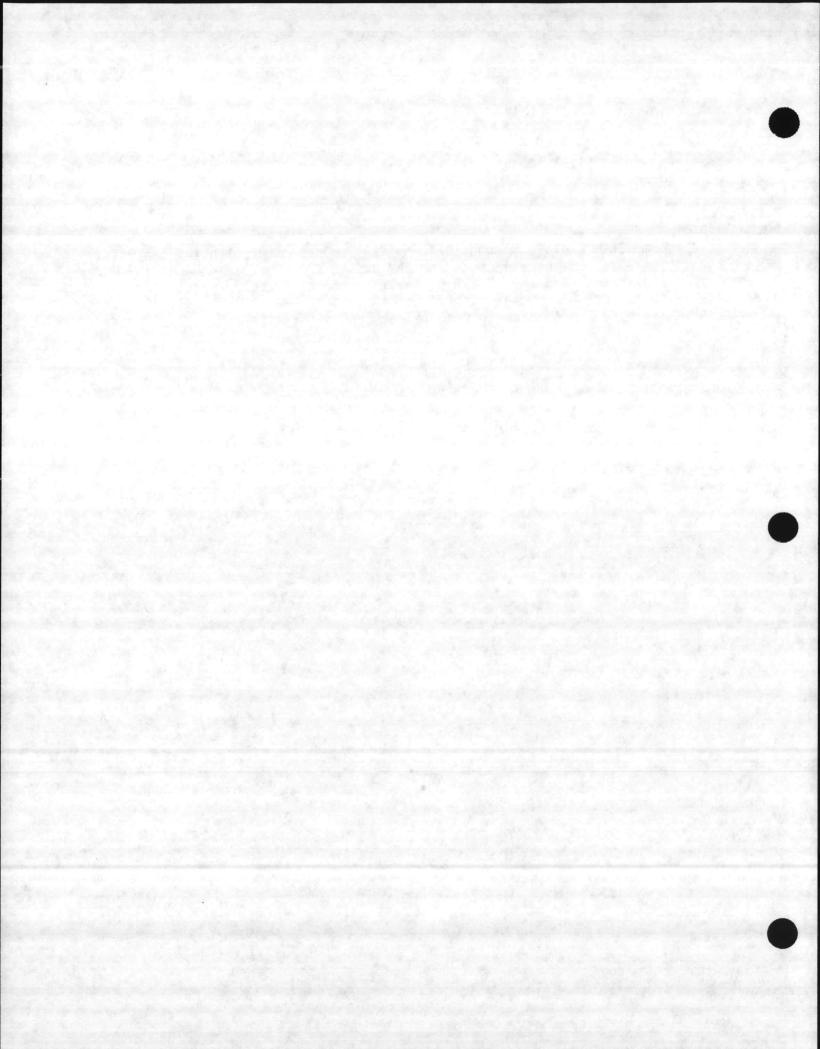
SAMPLE IDENTIFIER: 29374 COMPUCHEM SAMPLE NUMBER: 3495

ACID EXTRACTABLE ORGANICS

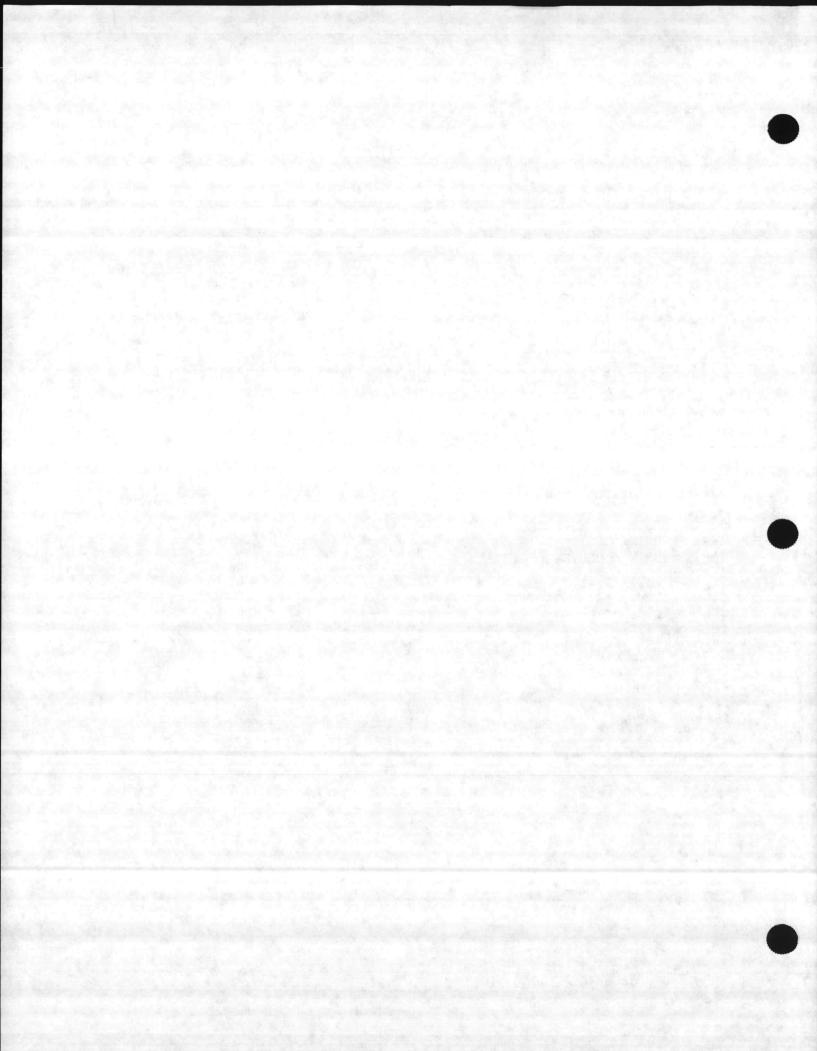
- 1A. 2-CHLOROPHENOL
- 2A. 2,4-DICHLOROPHENOL
- 3A. 2,4-DIMETHYLPHENOL
- 4A. 4,6-DINITRO-O-CRESOL
- 5A. 2,4-DINITROPHENOL
- 2-NITROPHENOL 6A.
- 7A. 4-NITROPHENOL
- 8A. P-CHLORO-M-CRESOL
- 9A. PENTACHLOROPHENOL 10A. PHENOL
- 11A: 2,4,6-TRICHLOROPHENOL



CompuChem employs Methods 624 and 625 for priority pollutant analysis. These methods were proposed by the U.S. E.P.A. in Volume 44 of the Federal Register on December 3, 1979. As these methods are currently in a "proposed" status, all aspects of the methods may not be validated until the U.S. E.P.A. promulgates the methods in "final" form.



	PESTICIDES/PCB'S	CONCENTRATION (UG/L)	DETECTION LIMIT (UG/L)
1P.	ALDRIN	BDL	0.1
2P.	ALPHA-BHC	BDL	0.1
3P.	BETA-BHC	BDL	0.1
4P.	GAMMA-BHC	BDL	0.1
5P.	DELTA-BHC	BDL	0.1
6P.	CHLORDANE	BDL	0.1
7P.	4,4'-DDT	BDL	0.1
8P.	4,4'-DDE	BDL	0.1
9P.	4,4'-DDD	BDL	0.1
10P	DIELDRIN	BDL	0.1
11P.	ALPHA-ENDOSULFAN	BDL	0.1
12P.	BETA-ENDOSULFAN	BDL	0.1
13P.	ENDOSULFAN SULFATE	BDL	0.1
14P.	ENDRIN	BDL	0.1
15P.	ENDRIN ALDEHYDE	BDL	0.1
16P.	HEPTACHLOR	BDL	0.1
17P. 18P.	HEPTACHLOR EPOXIDE	BDL	0.1
19P.	PCB-1242	BDL	0.1
20P.	PCB-1254	BDL	0.1
21P.	PCB-1221	BDL	0.1
22P.	PCB-1232	BDL	0.1
23P.	PCB-1248	BDL	0.1
24P.	PCB-1260	BDL	0.1
25P.	PCB-1016 TOXAPHENE	BDL	0.1
LOF.	TUNAPHENE	BDL	0.1



Mead CompuChem

1D. REPORT OF DATA

SAMPLE IDENTIFIER NUMBER: 29375

COMPUCHEM SAMPLE NUMBER: 3496

SUBMITTED TO:

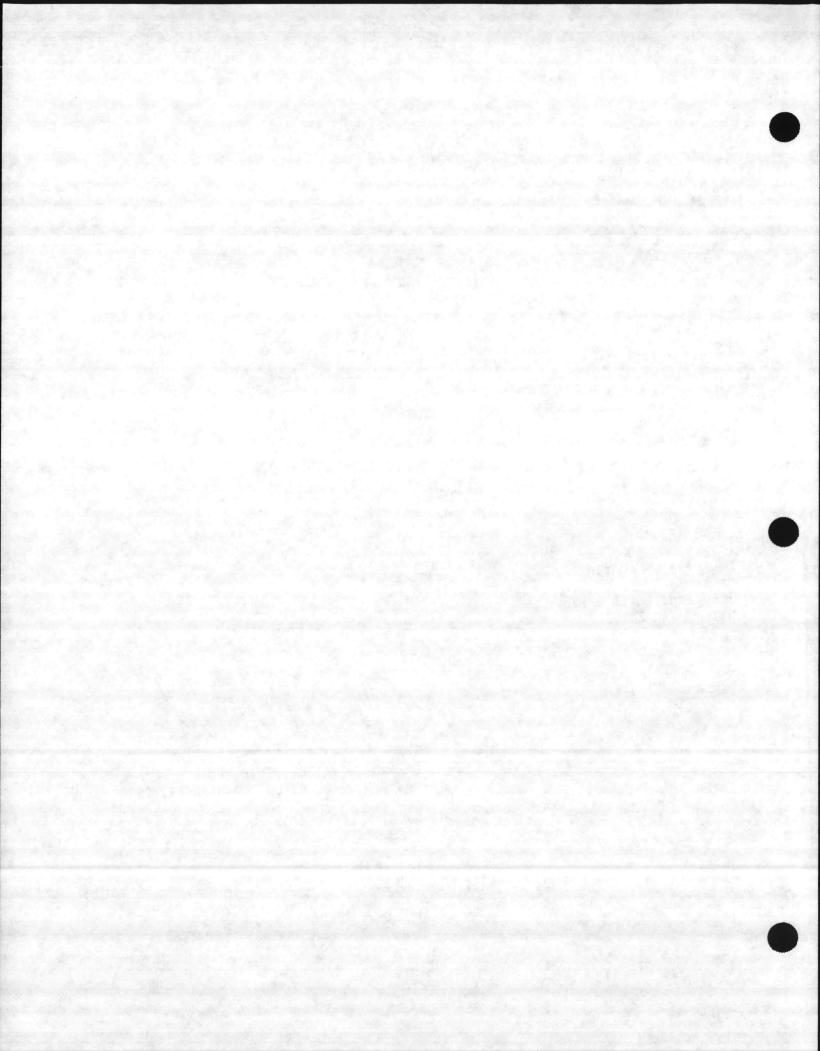
Mr. David Thompson Centec 2160 Industrial Drive Salem, VA 24153

GERALD D. WRIGHT, CPIM
MANAGER, PRODUCTION PLANNING AND CONTROL

R. L. MYERS, PH.D. PRESIDENT

PAUL E. MILLS DIRECTOR OF QUALITY ASSURANCE

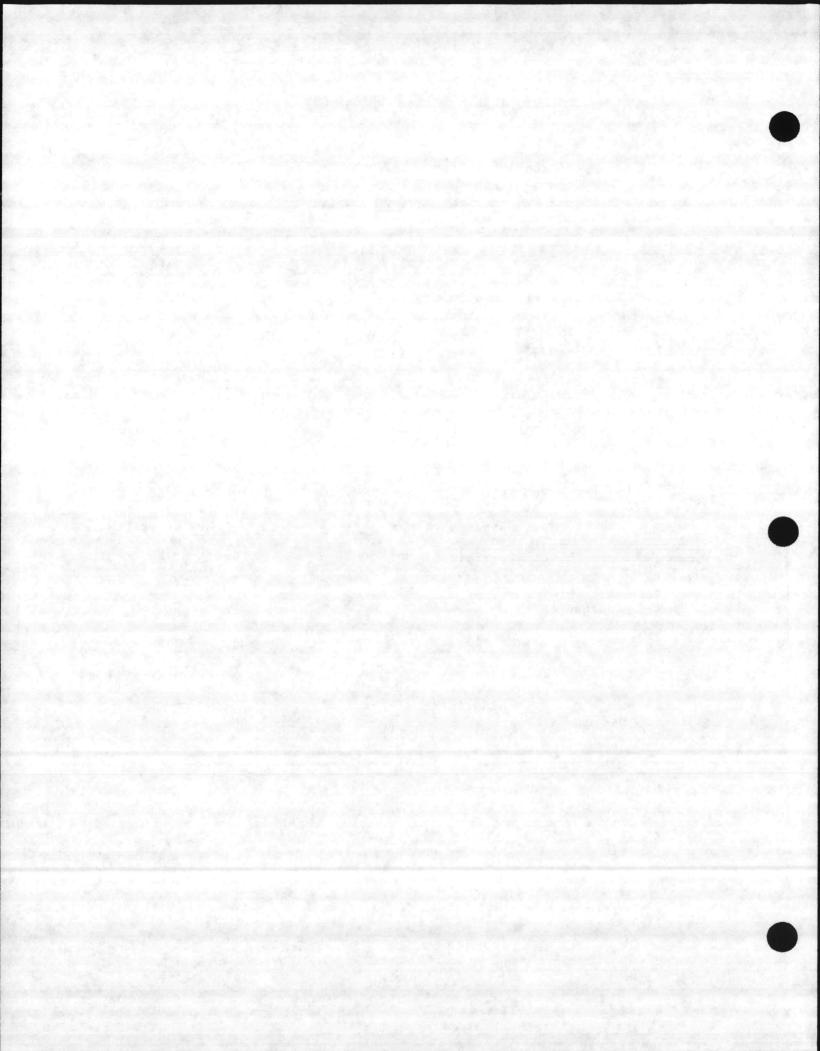
JAMES J. ZOLDAK
DIRECTOR OF LABORATORY OPERATIONS



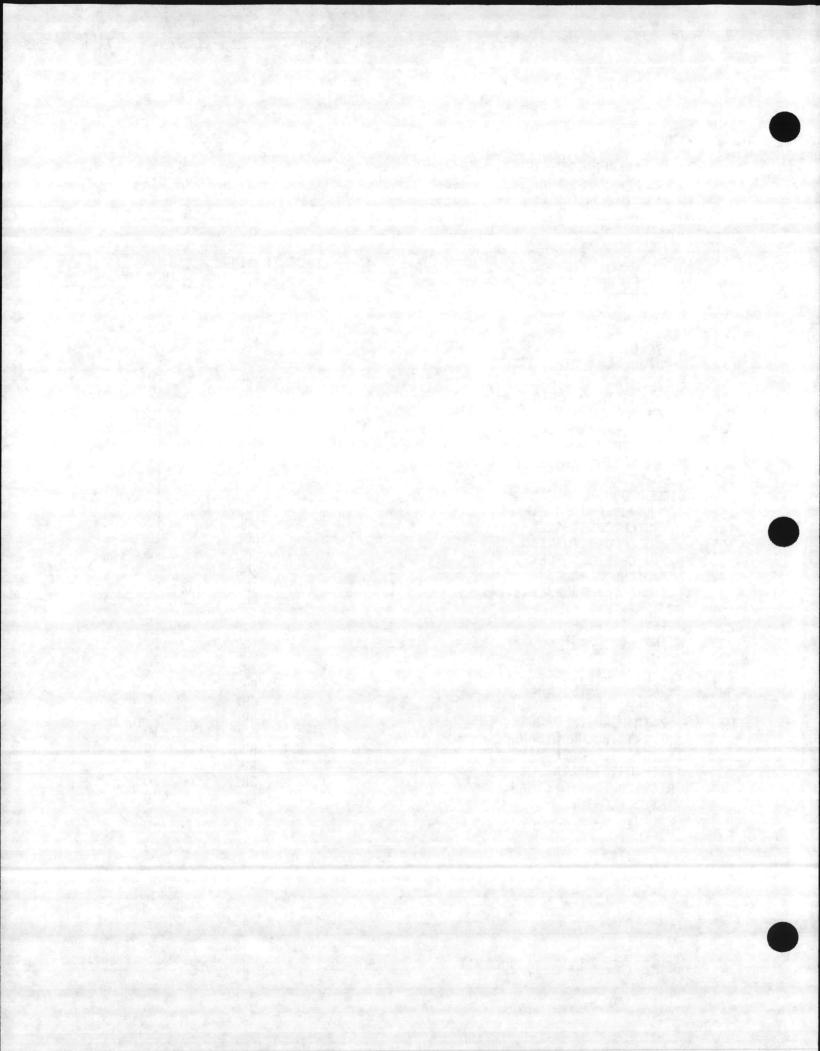
Dec. No.: CLEJ-00675-3,04-07/14/83

EXHIBIT I - LABORATORY CHRONICLE

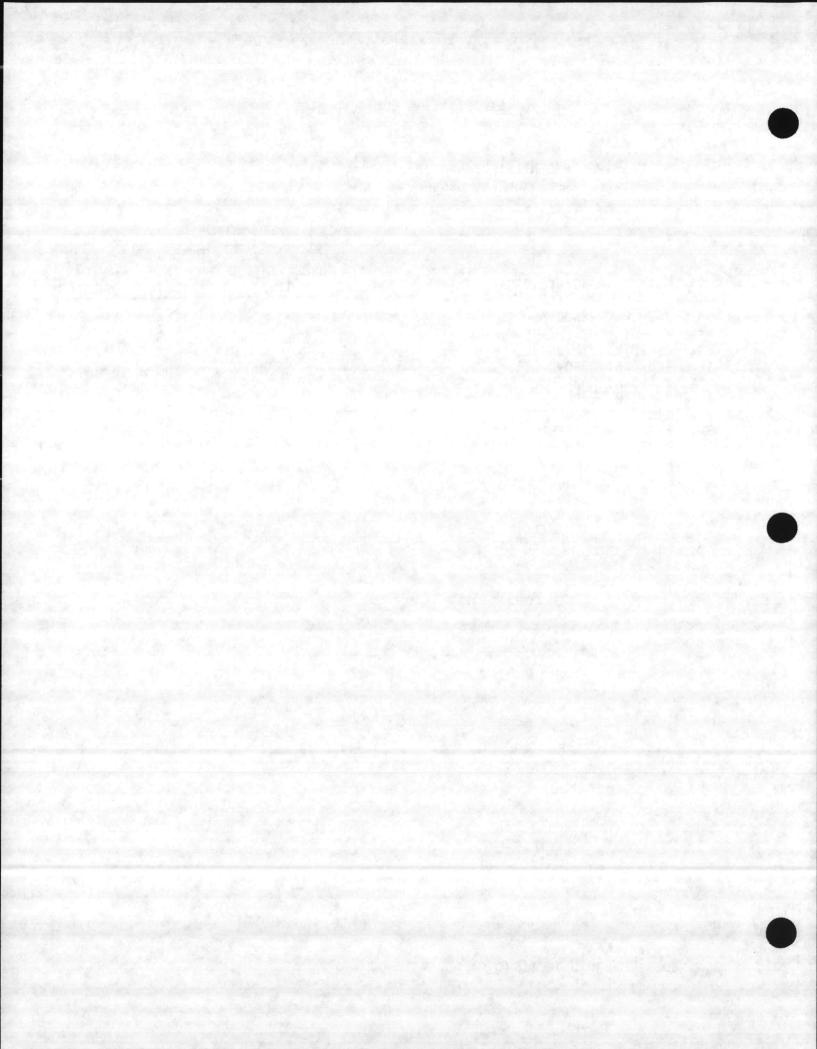
		<u>Date</u>
Rece	eived/Refrigerated	04/25/83
0		
urga	nics	
	Extracted	04/28/83
	Analyzed	
	1. Volatiles	04/28/83
	2. Acids	04/29/83
	3. Base/Neutrals	Not Requested
	4. Pesticides/PCBS	05/02/83
Inor	ganics	
	1. Metals	Not Requested
	2. Cyanides	Not Requested
	3. Phenols	Not Requested



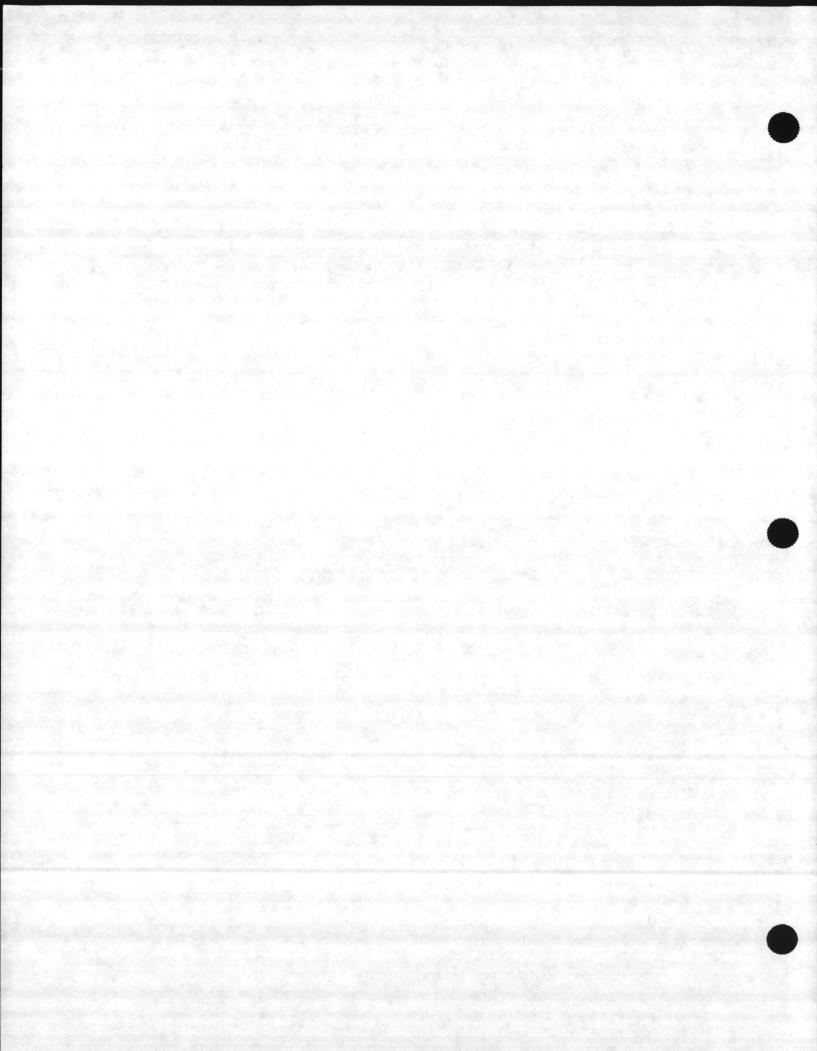
	VOLATILE ORGANICS	CONCENTRATION (UG/L)	DETECTION LIMIT (UG/L)	SCAN NUMBER
17.	ACROLEIN	BDL	100	
24.	ACRYLONITRILE	BDL	100	
37.		BDL	10	
47.	BIS (CHLOROMETHYL) ETHER	BDL	10	
57.	BROMOFORM	BDL	10	
6V.	CARBON TETRACHLORIDE	BDL	10	
77.		BDL	10	
87.		BDL	10	
97.		BDL	10	
107.		BDL ·	10	
	-CHLOROFORM	BDL	10	
127.		BDL	10	
124.	DICHLORODIFLUOROMETHANE	BDL	10	
147.		BDL	10	
157.		BDL	10	
167.	1,1-DICHLOROETHYLENE	BDL	10	
177.	1,2-DICHLOROPROPANE	BDL	10	
187.		BDL	10	
197.		BDL	10	
207.		BDL	10	
217.		BDL	10	
22V.		BDL	10	
237.		- BDL	10	
247.		BDL	10	
		BDL	10	
257.	1,2-TRANS-DICHLOROETHYLENE	BDL	10	
26V.	1,1,1-TRICHLOROETHANE	BDL	10	
271.		BDL	10	
287.	TRICHLOROETHYLENE	BDL	10	
297	TRICHLOROFLUOROMETHANE	BDL	10	
30V.	VINYL CHLORIDE	BDL	10	



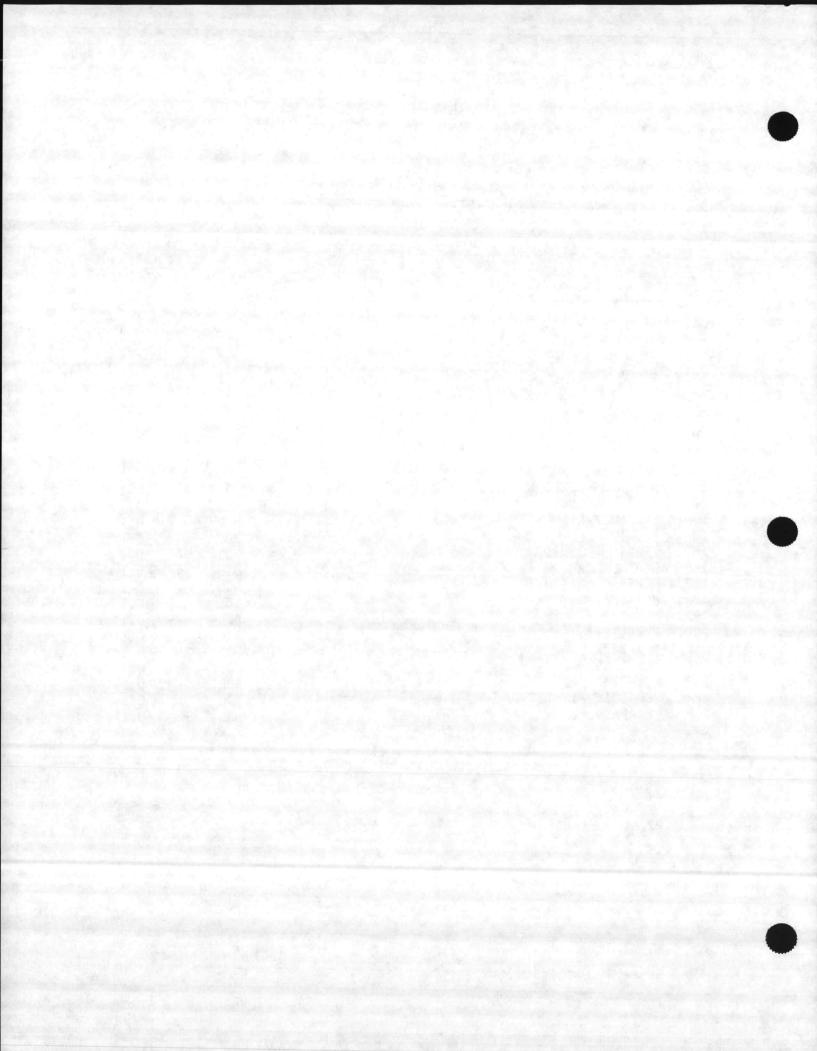
	ACID EXTRACTABLE ORGANICS	CONCENTRATION (UG/L)	DETECTION LIMIT (UG/L)	SCAN NUMBER
1A.	2-CHLOROPHENOL	BDL	25	
2A.	2,4-DICHLOROPHENOL	BDL	25	
3A.	2,4-DIMETHYLPHENOL	BDL	25	
4A.	4,6-DINITRO-O-CRESOL	BDL	250	Carlo Carlo
5A.		BDL	250	
6A.		BDL	25	
7A.		BDL	25	
8A.		BDL	25	
9A.		BDL	25	
10A.	PHENOL	BDL	25	
11A:	2,4,6-TRICHLOROPHENOL	BDL	25	



CompuChem employs Methods 624 and 625 for priority pollutant analysis. These methods were proposed by the U.S. E.P.A. in Volume 44 of the Federal Register on December 3, 1979. As these methods are currently in a "proposed" status, all aspects of the methods may not be validated until the U.S. E.P.A. promulgates the methods in "final" form.



	PESTICIDES/PCB'S	CONCENTRATION (UG/L)	DETECTION LIMIT (UG/L)
1P.	#####################################	BDL	0.1
2P.	ALPHA-BHC	BDL	0.1
3P.	BETA-BHC	BDL	0.1
4P.	GAMMA-BHC	BDL	0.1
5P.	DELTA-BHC	BDL	0.1
6P.		BDL	0.1
7P.	4,4'-DDT	BDL	0.1
8P.	4,4'-DDE	BDL.	0.1
9P.	4,4'-DDD	BDL	0.1
10P.	DIELDRIN	BDL	0.1
IIP.	ALPHA-ENDOSULFAN	BDL	0.1
12P.	BETA-ENDOSULFAN	BDL	0.1
13P.	ENDOSULFAN SULFATE	BDL	0.1
14P.	ENDRIN	BDL	0.1
15P.	ENDRIN ALDEHYDE	BDL	0.1
16P.	HEPTACHLOR	BDL	0.1
17P.	HEPTACHLOR EPOXIDE	BDL	0.1
18P.	PCB-1242	BDL	0.1
19P.	PCB-1254	BDL	0.1
20P.	PCB-1221	BDL	0.1
21P.	PCB-1232	BDL	0.1
22P.	PCB-1248	BDL	0.1
23P.	PCB-1260	BDL	0.1
24P.	PCB-1016	BDL	0.1
25P.	TOXAPHENE	BDL	0.1



Mead CompuChem

1E. REPORT OF DATA

SAMPLE IDENTIFIER NUMBER: 29376

COMPUCHEM SAMPLE NUMBER: 3497

SUBMITTED TO:

Mr. David Thompson Centec 2160 Industrial Drive Salem, VA 24153

GERALD D. WRIGHT, CPIM
MANAGER, PRODUCTION PLANNING AND CONTROL

R. L. MYERS, PH.D.

PRESIDENT

PAUL E. MILLS DIRECTOR OF QUALITY ASSURANCE

JAMES J. ZOLDAK
DIRECTOR OF LABORATORY OPERATIONS

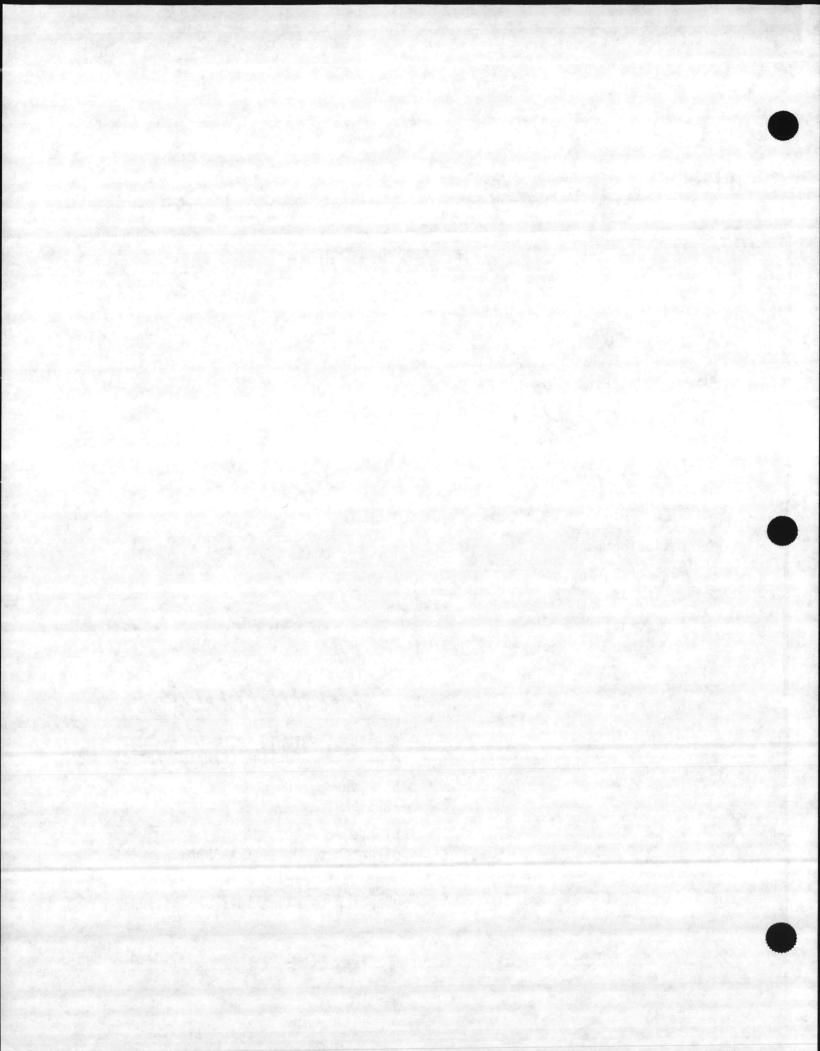


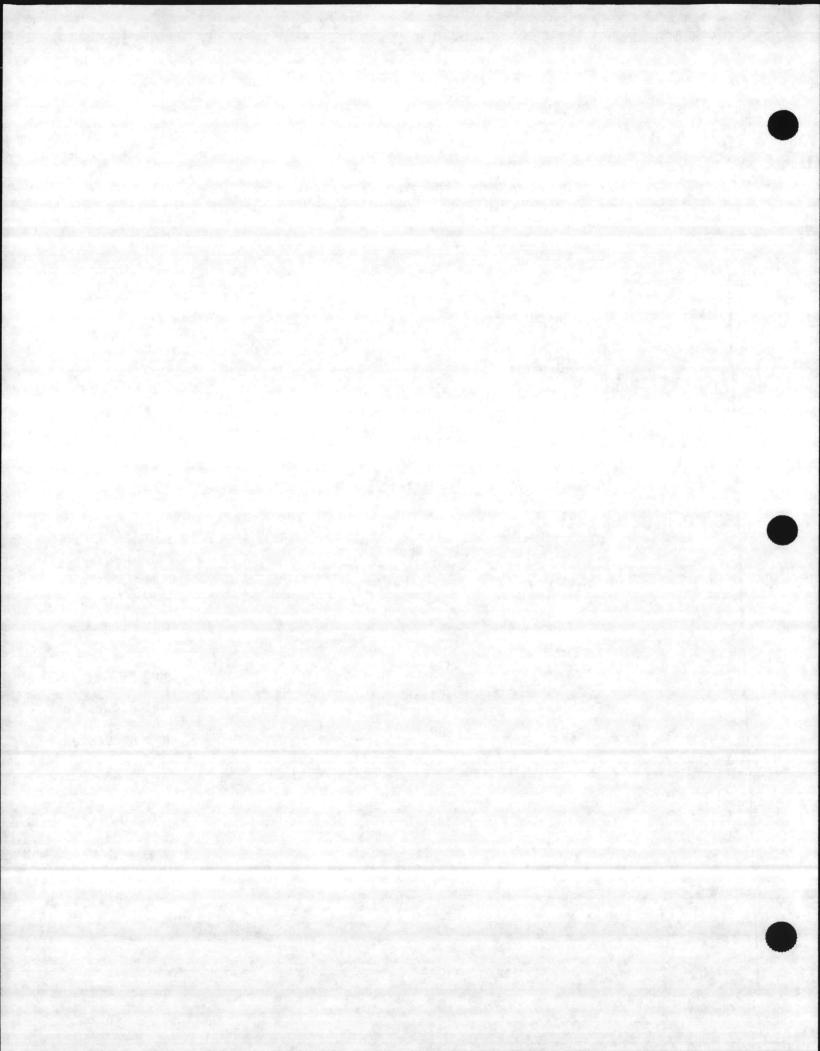
EXHIBIT I - LABORATORY CHRONICLE

SAMPLE IDENTIFIER: 29376 COMPUCHEM SAMPLE NUMBER: 3497

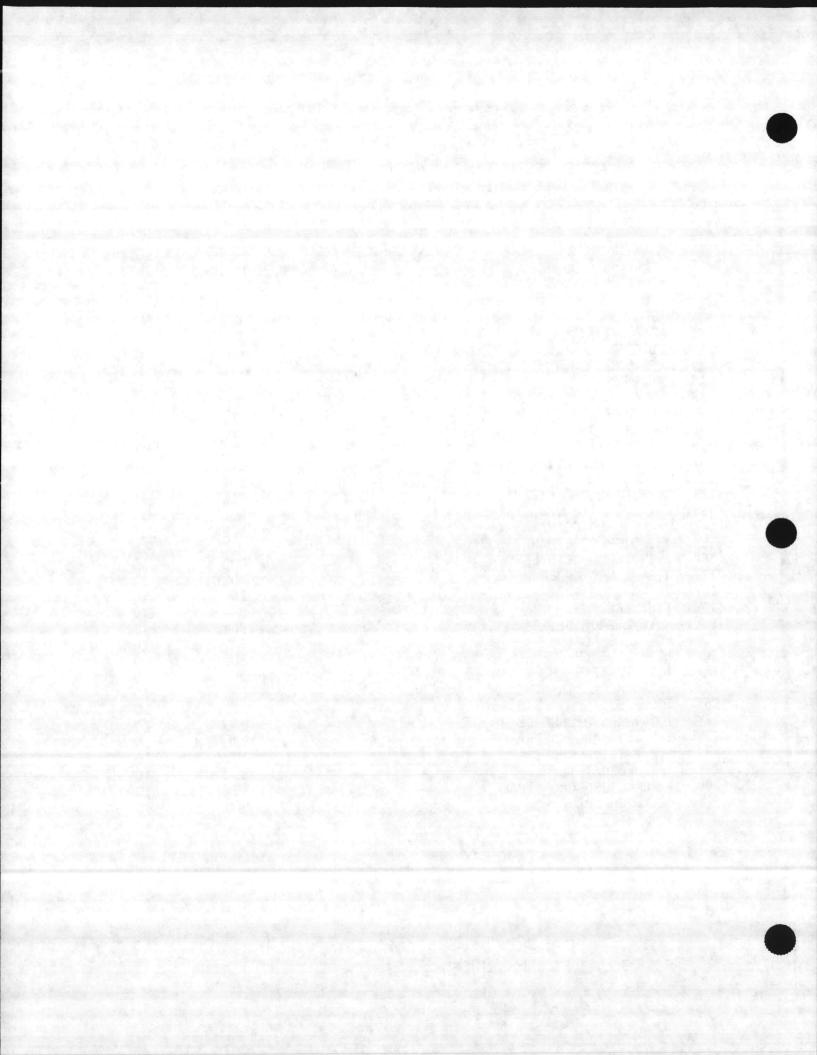
	Date
Received/Refrigerated	04/25/83
Organics	
Extracted	04/28/83
Analyzed	
1. Volatiles	04/29/83
2. Acids	04/29/83
3. Base/Neutrals	Not Requested
4. Pesticides/PCBS	05/02/83

Inorganics

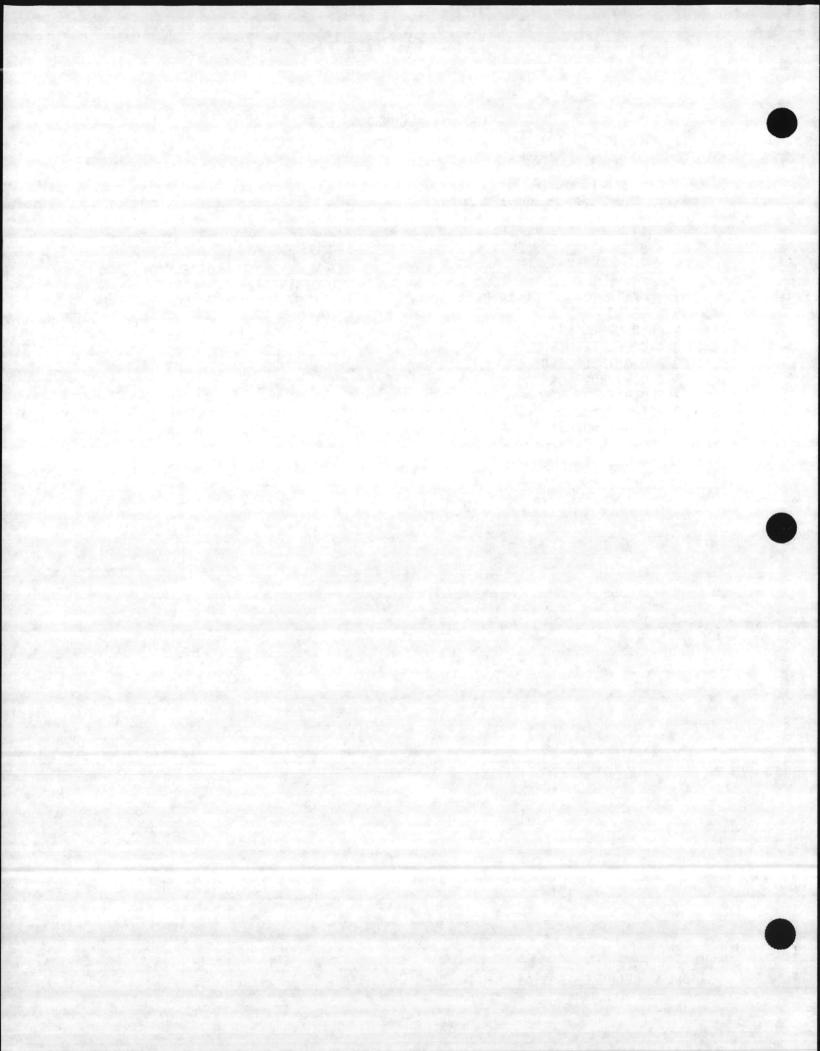
1.	Metals	Not Requested
2.	Cyanides	Not Requested
3.	Pheno1s	Not Requested



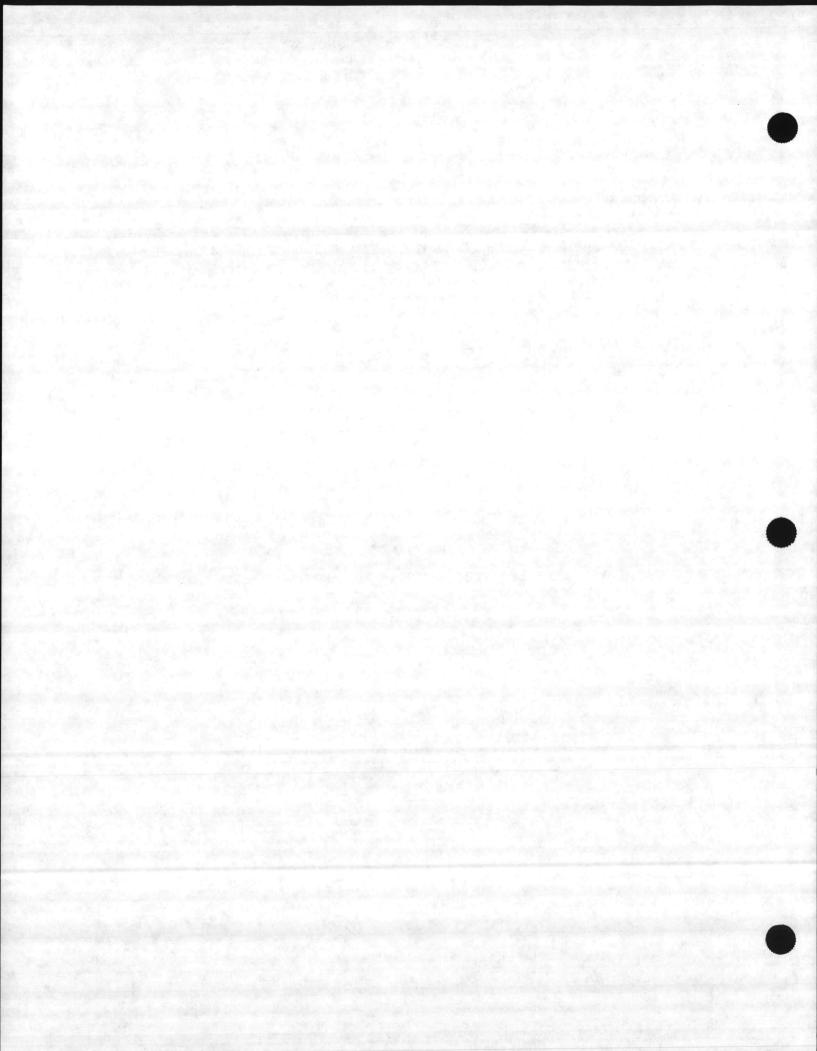
	VOLATILE ORGANICS	CONCENTRATION (UG/L)	DETECTION LIMIT (UG/L)	SCAN NUMBER
17.	ACROLEIN	BDL ·	100	
2V.		BDL	100	
3V.	BENZENE	BDL	10	
44.		BDL	10	
5V.		BDL	10	
6V.		BDL	10	
74.		BDL	10	
84.	CHLORODIBROMOMETHANE	BDL	10	
94.	CHLOROETHANE	BDL	10	
10V.	2-CHLOROETHYLVINYL ETHER	BDL	10	
114.	CHLOROFORM	BDL	10	
12V.		BDL	10	
13V.		BDL	10	
14V.	1,1-DICHLOROETHANE	BDL	10	
15V.	1,2-DICHLOROETHANE	BDL	10	
16V.	1,1-DICHLOROETHYLENE	BDL	10	
177.	1,2-DICHLOROPROPANE	BDL	10	
18V.	1,3-DICHLOROPROPYLENE	BDL	10	
19V.	ETHYLBENZENE	BDL	10	
20V.	METHYL BROMIDE	BDL	10	
21V.	METHYL CHLORIDE	BDL	10	
22V.	METHYLENE CHLORIDE	BDL	10	
23V.	1,1,2,2-TETRACHLOROETHANE	BDL	10	
	TETRACHLOROETHYLENE	BDL	10	
257.	TOLUENE	BDL	10	
26V.	1,2-TRANS-DICHLOROETHYLENE	BDL	10	
277.	1,1,1-TRICHLOROETHANE	BDL	10	
28V.	1,1,2-TRICHLOROETHANE	BDL	10	
297	TRICHLOROETHYLENE	BDL	10	
30V.	TRICHLOROFLUOROMETHANE	BDL	10	
	VINYL CHLORIDE	BDL	10	



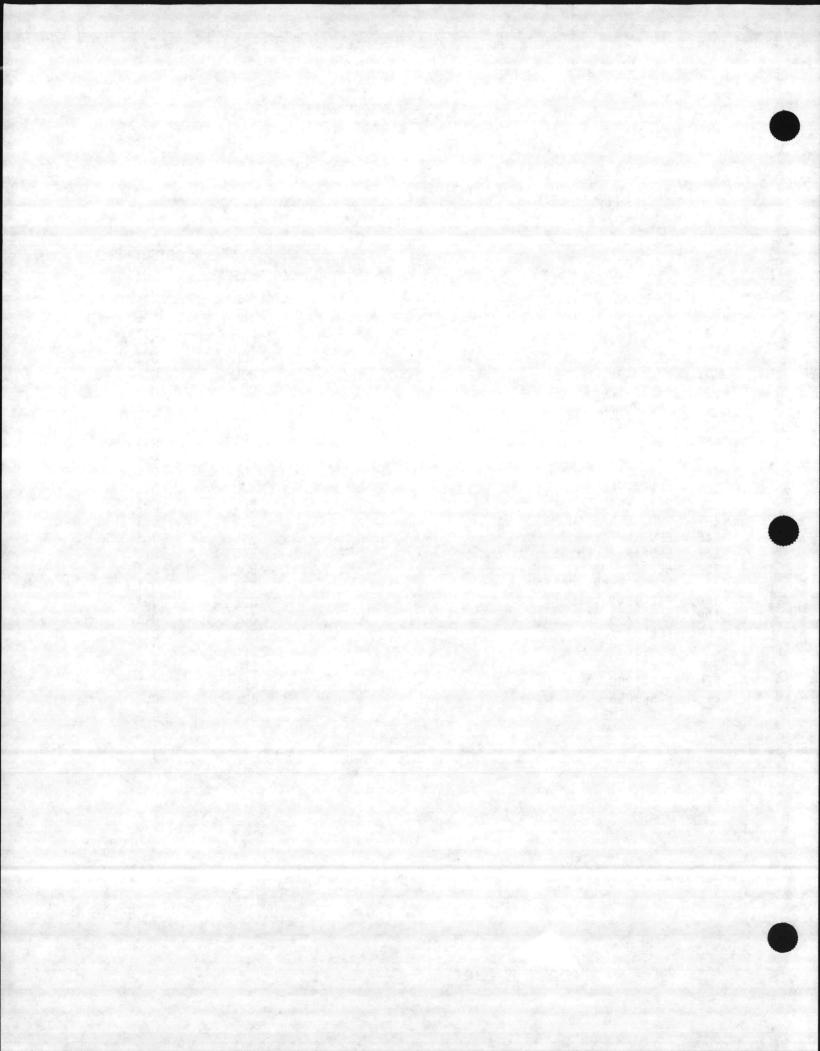
	ACID EXTRACTABLE ORGANICS	CONCENTRATION (UG/L)	DETECTION LIMIT (UG/L)	SCAN NUMBER
1A.	2-CHLOROPHENOL	BDL	25	
2A.	2,4-DICHLOROPHENOL	BDL	25	
3A.	2,4-DIMETHYLPHENOL	BDL	25	
4A.	4,6-DINITRO-O-CRESOL	BDL	250	
5A.	2,4-DINITROPHENOL	BDL	250	
6A.	2-NITROPHENOL	BDL	25	
	4-NITROPHENOL	BDL	25	
	P-CHLORO-M-CRESOL	BDL	25	
9A.	PENTACHLOROPHENOL	BDL	25	
	- PHENOL	BDL	25 -	
11A.	2,4,6-TRICHLOROPHENOL	BDL	25	



CompuChem employs Methods 624 and 625 for priority pollutant analysis. These methods were proposed by the U.S. E.P.A. in Volume 44 of the Federal Register on December 3, 1979. As these methods are currently in a "proposed" status, all aspects of the methods may not be validated until the U.S. E.P.A. promulgates the methods in "final" form.



	PESTICIDES/PCB'S	CONCENTRATION (UG/L)	DETECTION LIMIT (UG/L)
1P.	ALDRIN	BDL	0.1
2P.	ALPHA-BHC	BDL	0.1
3P.	BETA-BHC	BDL	0.1
4P.	GAMMA-BHC	BDL	0.1
5P.	DELTA-BHC	BDL	0.1
6P.	CHLORDANE	BDL	0.1
7P.	4,4'-DDT	BDL .	0.1
8P.	4,4'-DDE	BDL	0.1
9P.	4,4'-DDD	BDL	0.1
10P:	DIELDRIN	BDL	0.1
11P.	ALPHA-ENDOSULFAN	BDL	0.1
12P.	BETA-ENDOSULFAN	BDL	0.1
13P.	ENDOSULFAN SULFATE	BDL	0.1
14P.	ENDRIN	BDL	0.1
15P.	ENDRIN ALDEHYDE	BDL	0.1
16P.	HEPTACHLOR	BDL	0.1
17P.	HEPTACHLOR EPOXIDE	BDL	0.1
18P.	PCB-1242	BDL	0.1
19P.	PCB-1254	BDL	0.1
20P.	PCB-1221	BDL	0.1
21P.	PCB-1232	BDL	0.1
22P.	PCB-1248	BDL	0.1
23P.	PCB-1260	BDL	0.1
24P.	PCB-1016	BDL	0.1
25P.	TOXAPHENE	BDL	0.1



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1F. REPORT OF DATA

SAMPLE IDENTIFIER NUMBER: 29377

COMPUCHEM SAMPLE NUMBER: 3498

SUBMITTED TO:

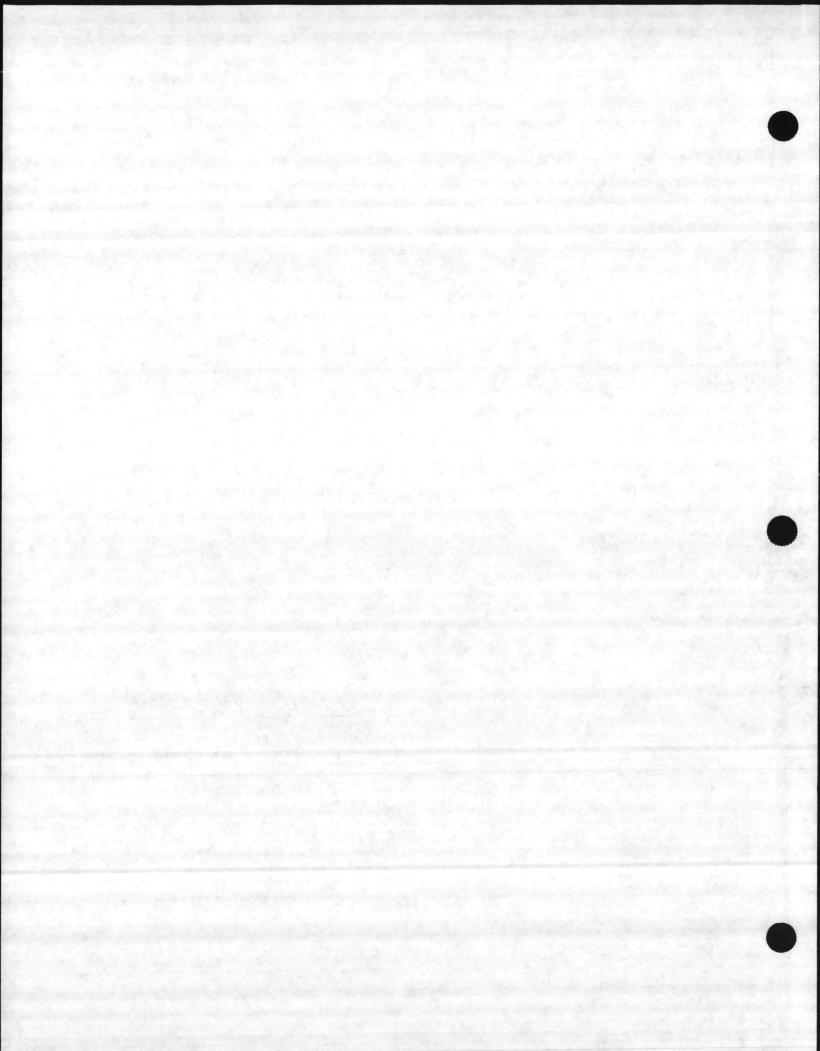
Mr. David Thompson Centec 2160 Industrial Drive Salem, VA 24153

GERALD D. WRIGHT, CPIM
MANAGER, PRODUCTION PLANNING AND CONTROL

R. L. MYERS, PH.D. PRESIDENT

PAUL E. MILLS DIRECTOR OF QUALITY ASSURANCE

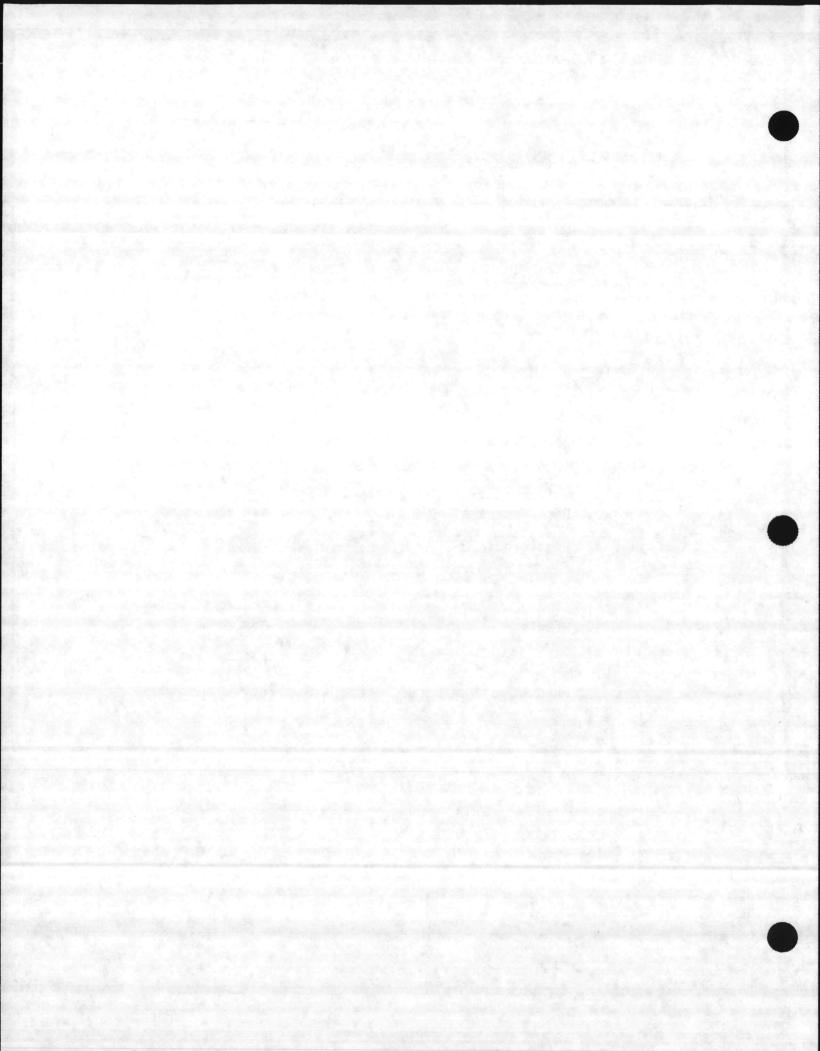
JAMES J. ZOLDAK DIRECTOR OF LABORATORY OPERATIONS



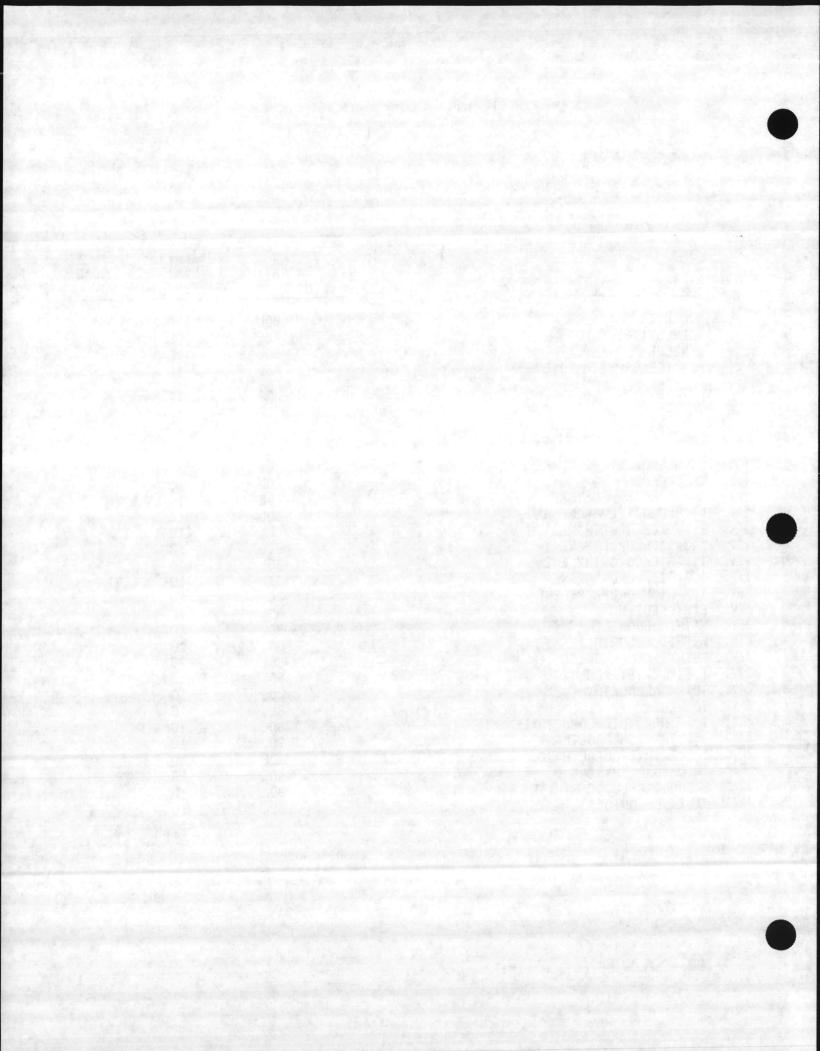
Dec. No.: CLET-CO675-3.04-07/14/83

EXHIBIT I - LABORATORY CHRONICLE

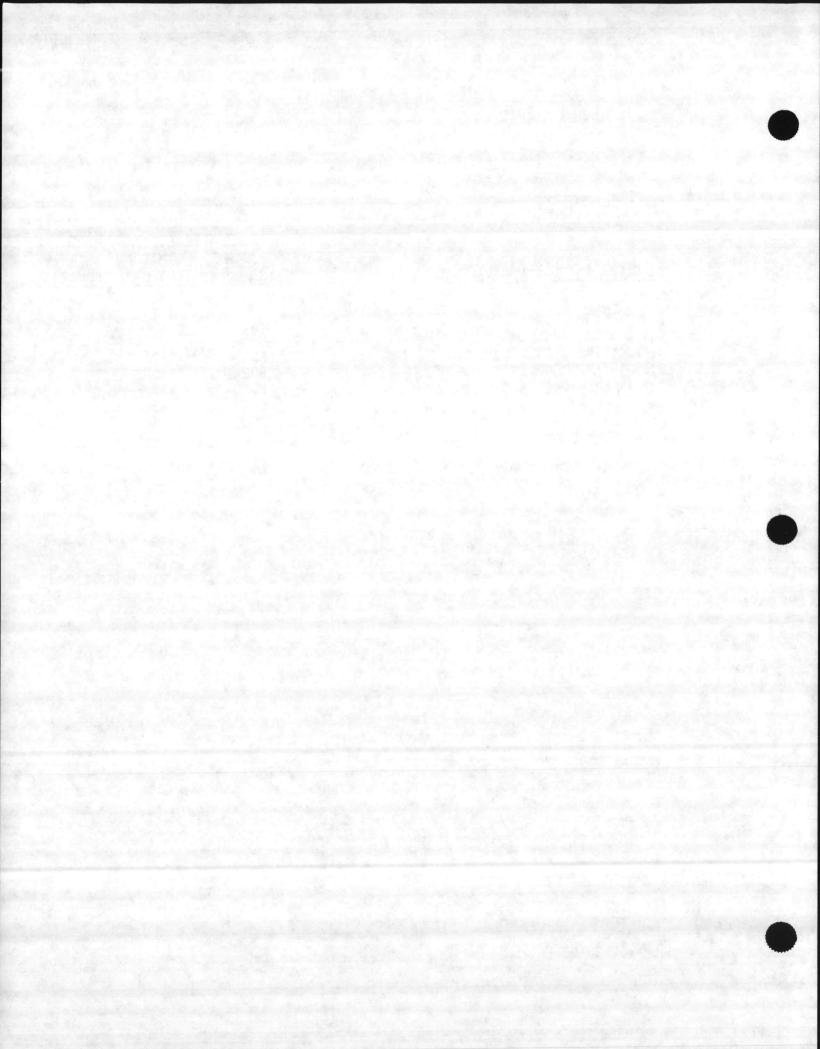
		Date
Received/Refrige	rated	04/25/83
Organics		
Extracted		04/28/83
Analyzed		
1. Vol	atiles	04/29/83
2. Aci	ds	04/29/83
3. Bas	e/Neutrals	Not Requested
4. Pes	ticides/PCBS	05/02/83
Inorganics		
1. Met	als	Not Requested
2. Cya	nides	Not Requested
3. Phe	nols	Not Requested



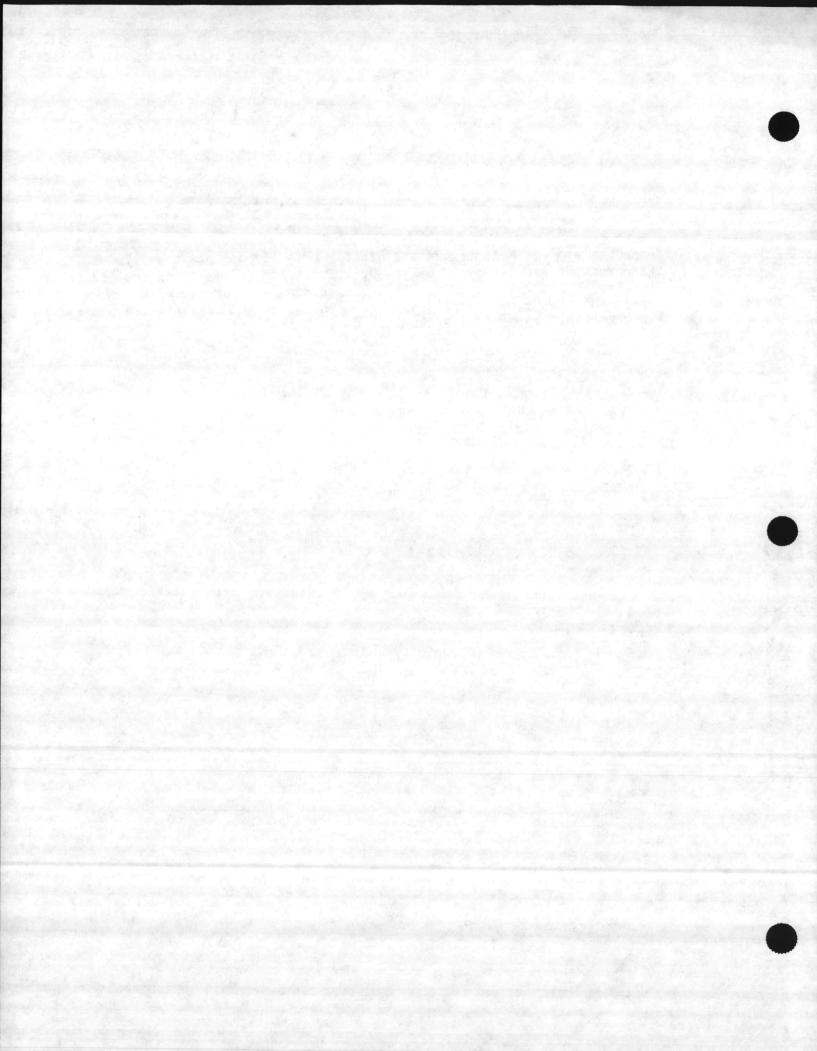
	VOLATILE ORGANICS	CONCENTRATION (UG/L)	DETECTION LIMIT (UG/L)	SCAN NUMBER
17.	ACROLEIN	BDL	100	
24.	ACRYLONITRILE	BDL	100	
34.		BDL	10	
44.		BDL	10	
5V.		BDL	10	
6V.	CARBON TETRACHLORIDE	BDL	10	
74.		BDL	10	
87.	CHLORODIBROMOMETHANE	BDL	10	
97.	CHLOROETHANE	BDL	10	
107.	2-CHLOROETHYLVINYL ETHER	BDL	10	
117.	CHLOROFORM	BDL	10	
12V.	DICHLOROBROMOMETHANE	BDL	10	
137.	DICHLORODIFLUOROMETHANE	BDL	10	
147.	1,1-DICHLOROETHANE	BDL	10	
15V.	1,2-DICHLOROETHANE	BDL	10	
16V.	1,1-DICHLOROETHYLENE	BDL	10	
177.	1,2-DICHLOROPROPANE	BDL	10	
18V.	1,3-DICHLOROPROPYLENE	BDL	10	
197.	ETHYLBENZENE	BDL	10	
	METHYL BROMIDE	BDL	10	
217.	METHYL CHLORIDE -	BDL	10	
22V.	METHYLENE CHLORIDE	. BDL	10	
23V.	1,1,2,2-TETRACHLOROETHANE	BDL	10	
24V.	TETRACHLOROETHYLENE	BDL	10	
25V.	TOLUENE	BDL	10	
26V.	1,2-TRANS-DICHLOROETHYLENE	BDL	10	
277.	1,1,1-TRICHLOROETHANE	BDL	10	
287.	1,1,2-TRICHLOROETHANE	BDL	10	
297	TRICHLOROETHYLENE	BDL	10	
304.	TRICHLOROFLUOROMETHANE	BDL	10	
317.	VINYL CHLORIDE	BDL	10	



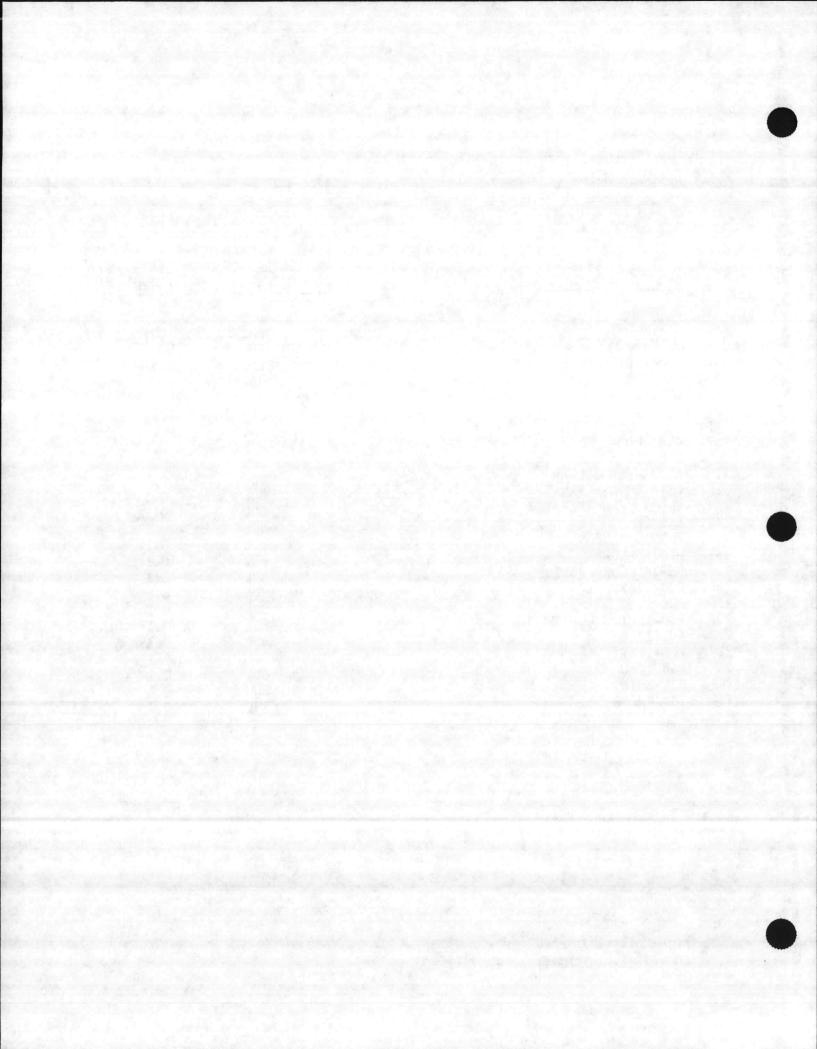
	ACID EXTRACTABLE ORGANICS	CONCENTRATION (UG/L)	DETECTION LIMIT (UG/L)	SCAN NUMBER
1A.	2-CHLOROPHENOL	BDL	25	
2A.	2,4-DICHLOROPHENOL	BDL	25	Share the p
3A.	2,4-DIMETHYLPHENOL	BDL	25	
4A.	4,6-DINITRO-O-CRESOL	BDL	250	
5A.	2,4-DINITROPHENOL	BDL	250	
	2-NITROPHENOL	BDL	25	
7A.	4-NITROPHENOL	BDL	25	
8A.	P-CHLORO-M-CRESOL	BDL	25	
9A.	PENTACHLOROPHENOL	BDL	25	
10A.	PHENOL	BDL	25	
11A.	2,4,6-TRICHLOROPHENOL	BDL	25	



CompuChem employs Methods 624 and 625 for priority pollutant analysis. These methods were proposed by the U.S. E.P.A. in Volume 44 of the Federal Register on December 3, 1979. As these methods are currently in a "proposed" status, all aspects of the methods may not be validated until the U.S. E.P.A. promulgates the methods in "final" form.



	PESTICIDES/PCB'S	CONCENTRATION (UG/L)	DETECTION LIMIT (UG/L)
1P.		BDL	0.1
2P.	ALPHA-BHC	BDL	0.1
3P.		BDL	0.1
4P.		BDL	0.1
5P.		BDL	0.1
6P.	CHLORDANE	BDL	0.1
7P.	4,4'-DDT	BDL	0.1
8P.	4,4'-DDE	BDL	0.1
9P.	4,4'-DDD	BDL	0.1
10P.		BDL	0.1
11P.		BDL	0.1
12P.	BETA-ENDOSULFAN	BDL	0.1
13P.		BDL	0.1
14P.	ENDRIN	BDL .	0.1
15P.	ENDRIN ALDEHYDE	BDL	0.1
16P.	HEPTACHLOR	BDL	0.1
17P.	HEPTACHLOR EPOXIDE	BDL	0.1
18P.	PCB-1242	BDL	0.1
19P.	PCB-1254	BDL	0.1
20P.	PCB-1221	BDL	0.1
21P. 22P.	PCB-1232 -	BDL	0.1
	PCB-1248	BDL	0.1
23P.	PCB-1260	. BDL	0.1
24P.	PCB-1016	BDL	0.1
25P.	TOXAPHENE	BDL	0.1



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1A. REPORT OF DATA

SAMPLE IDENTIFIER NUMBER: 29378

COMPUCHEM SAMPLE NUMBER: 3499

BMITTED TO:

Mr. David Thompson Centec 2160 Industrial Drive Salem, VA 24153

GERALD D. WRIGHT, CPIM
MANAGER, PRODUCTION PLANNING AND CONTROL

R. L. MYERS, PH.D. PRESIDENT

PAUL E. MILLS DIRECTOR OF QUALITY ASSURANCE

JAMES J. ZOLDAK
DIRECTOR OF LABORATORY OPERATIONS

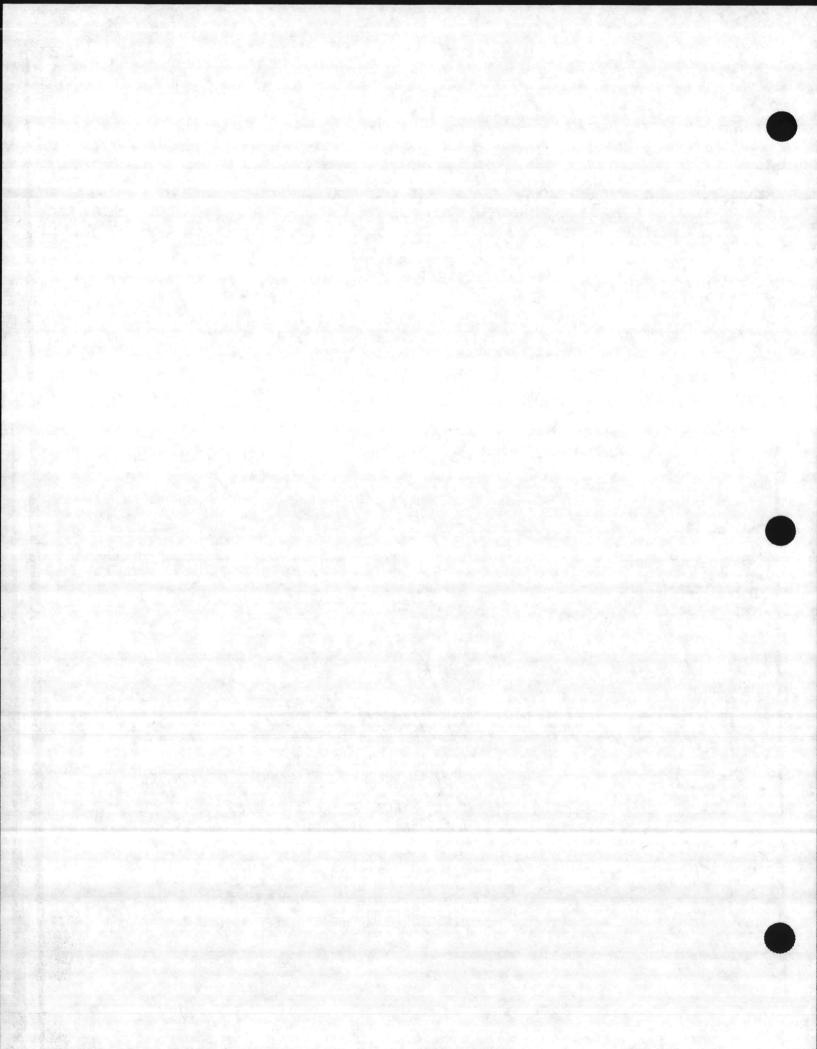
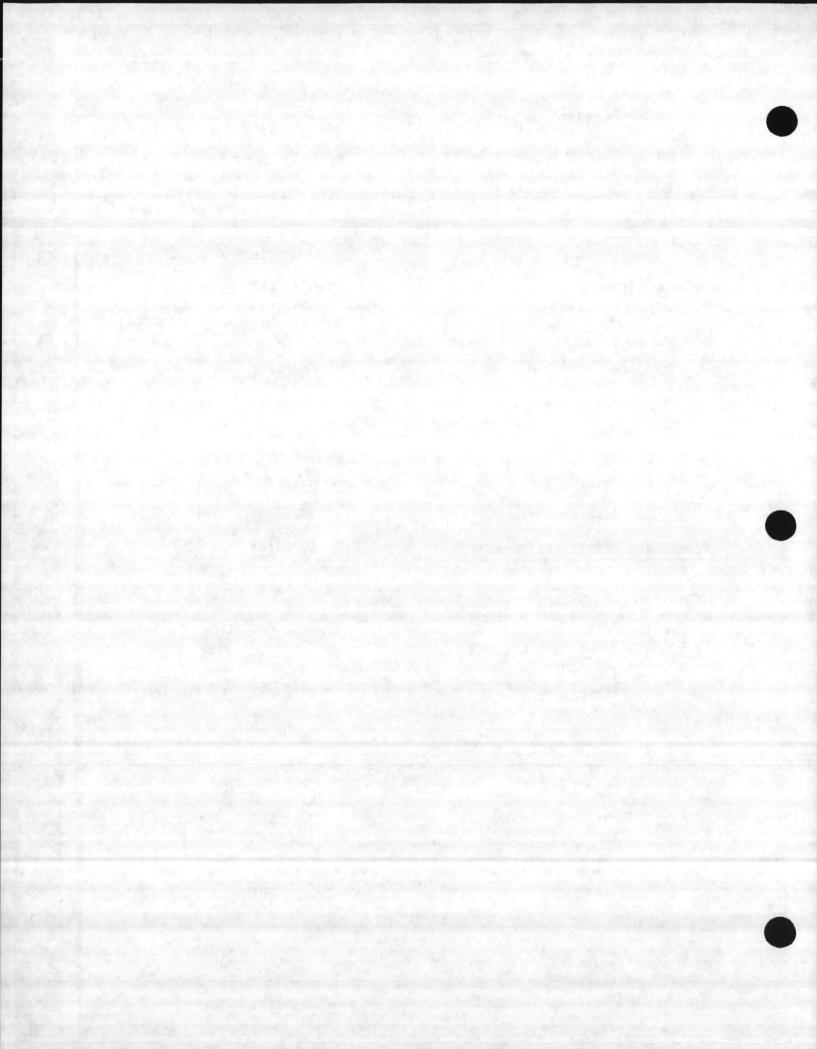
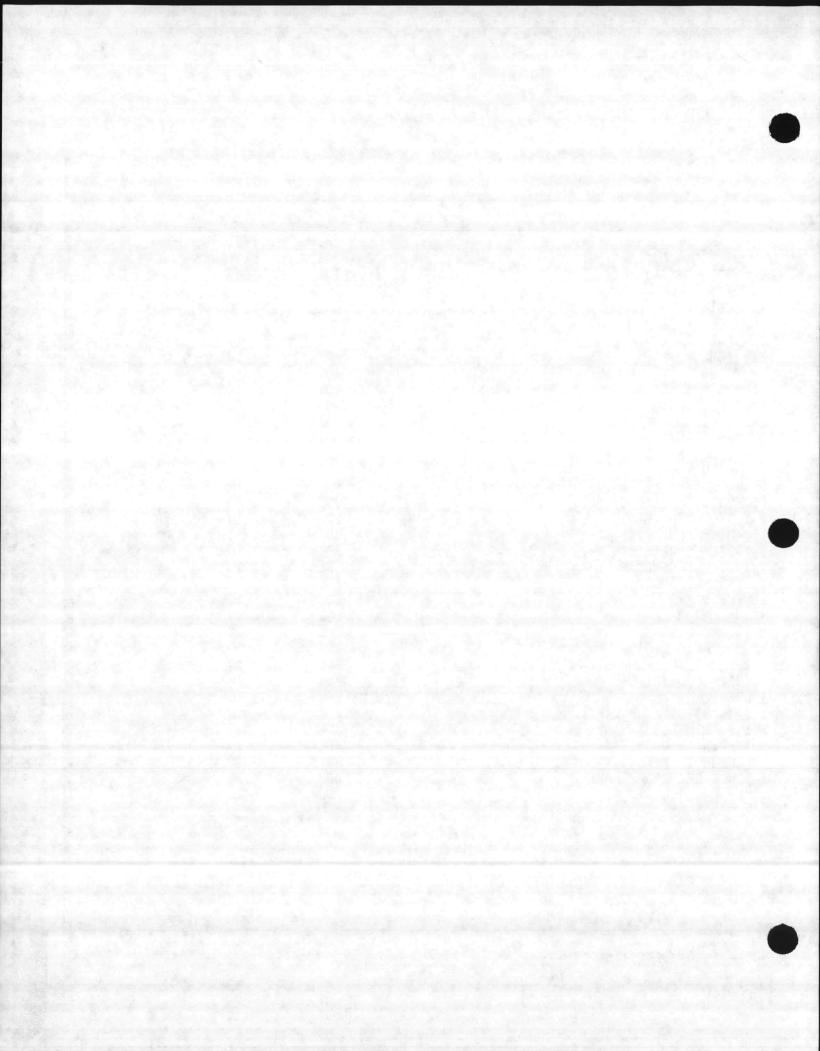


EXHIBIT I - LABORATORY CHRONICLE

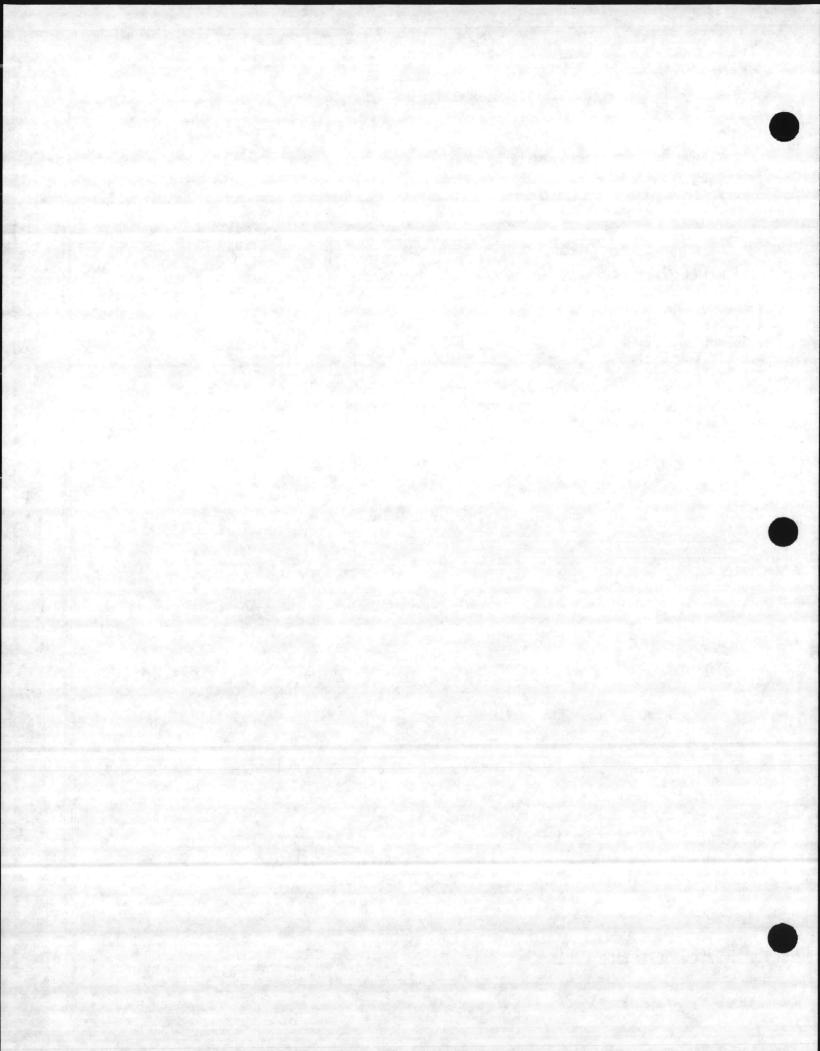
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04/25/83
04/28/83
04/29/83
05/02/83
05/06/83
05/06/83
Not Requested
04/27/83
04/29/83



	VOLATILE ORGANICS	CONCENTRATION (UG/L)	DETECTION LIMIT (UG/L)	SCAN NUMBER
17.	ACROLEIN	BDL	100	
2V.	ACRYLONITRILE	BDL	100	
3V.	BENZENE	BDL	10	
47.	BIS (CHLOROMETHYL) ETHER	BDL	10	
5V.	BROMOFORM	BDL	10	
6V.	CARBON TETRACHLORIDE	BDL	10	
77.	CHLOROBENZENE	BDL	10	
84.	CHLORODIBROMOMETHANE	BDL	10	
97.	CHLOROETHANE	BDL	10	
OV.	2-CHLOROETHYLVINYL ETHER	BDL	10	
	CHLOROFORM	50	10	319
.2V.	DICHLOROBROMOMETHANE	14	10	406
137.	DICHLORODIFLUOROMETHANE	BDL	10	
	1.1-DICHLOROETHANE	BDL	10	
: 5	1,2-DICHLOROETHANE	BDL	10	
167.	1,1-DICHLOROETHYLENE	BDL	10	
177.	1,2-DICHLOROPROPANE	BDL	10	
	1,3-DICHLOROPROPYLENE	BDL	10	
	ETHYLBENZENE	BDL	10	
204.	METHYL BROMIDE	BDL	10	
217.	METHYL CHLORIDE	BDL	10	
224.	METHYLENE CHLORIDE	BDL	10	
237.	1,1,2,2-TETRACHLOROETHANE	- BDL	10	
247.	TETRACHLOROETHYLENE	BDL	. 10	
25V.	TOLUENE	BDL	10	
26V.	1,2-TRANS-DICHLOROETHYLENE	BDL	10	
274.	1,1,1-TRICHLOROETHANE	BDL	10	
28V.	1,1,2-TRICHLOROETHANE	BDL	10	
	TRICHLOROETHYLENE	BDL	10	
304.	TRICHLOROFLUOROMETHANE	BDL	10	
31V.	VINYL CHLORIDE	BDL	10	



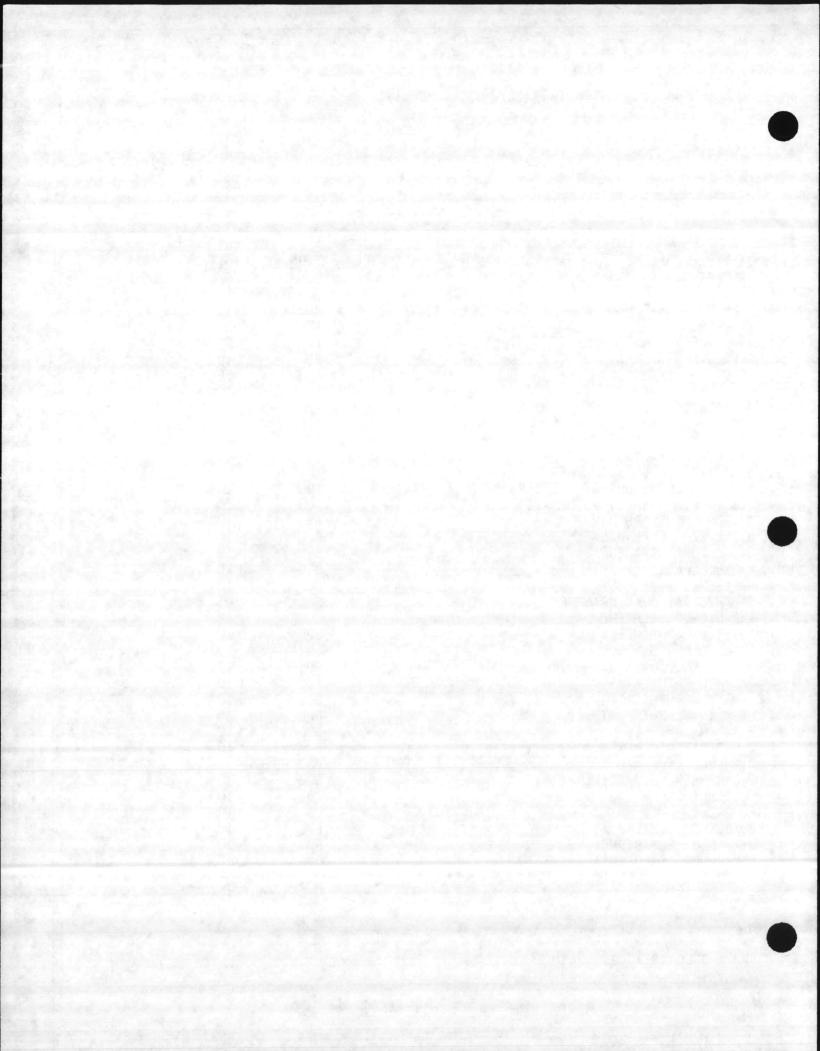
ACID EXTRACTABLE ORGANICS	CONCENTRATION (UG/L)	DETECTION LIMIT (UG/L)	SCAN NUMBER
2-CHLOROPHENOL	BDL	25	
2,4-DICHLOROPHENOL	BDL		
2,4-DIMETHYLPHENOL	BDL	25	
4,6-DINITRO-O-CRESOL	BDL	250	
2,4-DINITROPHENOL	BDL	250	
2-NITROPHENOL	BDL	25	
4-NITROPHENOL	BDL	25	
P-CHLORO-M-CRESOL	BDL	25	
PENTACHLOROPHENOL	BDL	25	
	BDL	25	
2,4,6-TRICHLOROPHENOL	BDL	25	
	2-CHLOROPHENOL 2,4-DICHLOROPHENOL 2,4-DIMETHYLPHENOL 4,6-DINITRO-O-CRESOL 2,4-DINITROPHENOL 2-NITROPHENOL	ACID EXTRACTABLE ORGANICS 2-CHLOROPHENOL 2,4-DICHLOROPHENOL 2,4-DIMETHYLPHENOL 4,6-DINITRO-O-CRESOL 2,4-DINITROPHENOL BDL 2-NITROPHENOL BDL 4-NITROPHENOL BDL 4-NITROPHENOL BDL P-CHLORO-M-CRESOL BDL BDL BDL BDL BDL BDL BDL B	ACID EXTRACTABLE ORGANICS CONCENTRATION (UG/L) 2-CHLOROPHENOL 2,4-DICHLOROPHENOL 2,4-DIMETHYLPHENOL 4,6-DINITRO-0-CRESOL 2,4-DINITROPHENOL BDL 250 2,4-DINITROPHENOL BDL 250 2-NITROPHENOL BDL 250 4-NITROPHENOL BDL 25 P-CHLORO-M-CRESOL BDL 25 PENTACHLOROPHENOL BDL 25 PENTACHLOROPHENOL BDL 25 PHENOL BDL 25 BDL 25



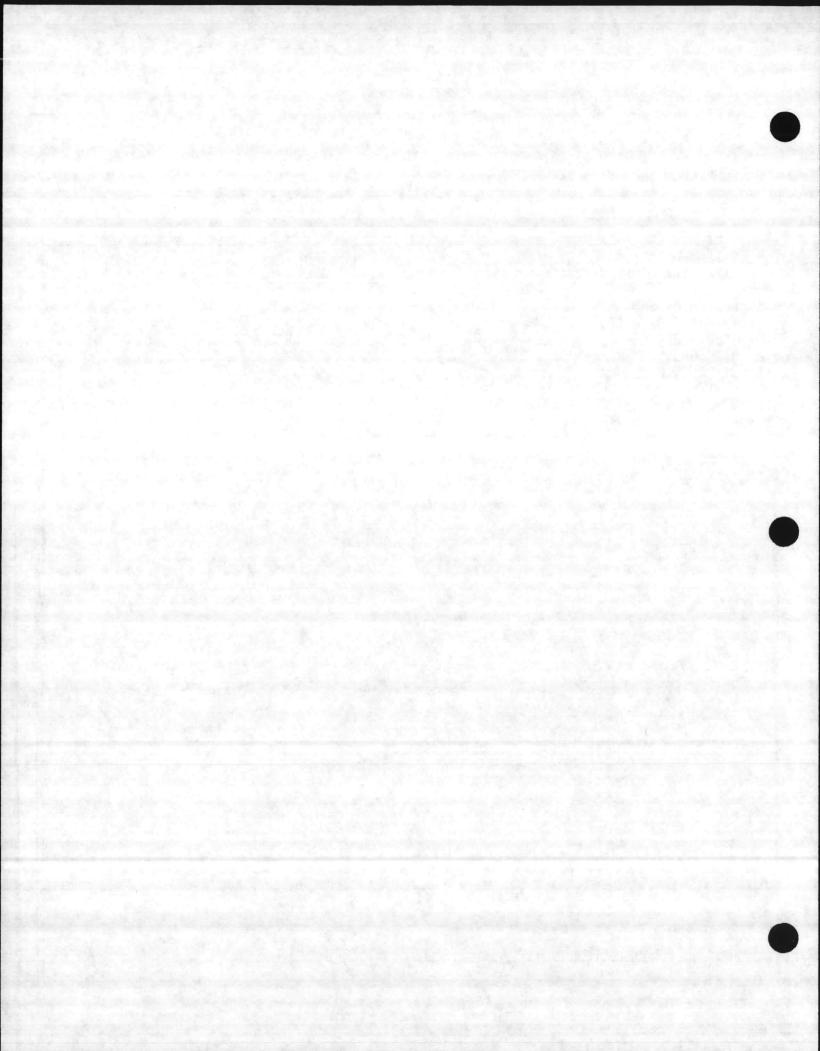
SAMPLE IDENTIFIER: 29378 COMPUCHEM SAMPLE NUMBER: 3499

	BASE-NEUTRAL EXTRACTABLE ORGANICS	CONCENTRATION (UG/L)	DETECTION LIMIT (UG/L)	SCAN NUMBER
13.	ACENAPHTHENE	BDL	10	
28.	ACENAPHTHYLENE	BDL	10	
38.	ANTHRACENE	BDL	10	
43.	BENZIDINE	BDL	10	
58.	BENZO (A) ANTHRACENE	BDL	10	
68.	BENZO (A) PYRENE	BDL	10	
7B.	3,4-BENZOFLUORANTHENE	BDL	10	
88.	BÉNZO (GHI) PERYLENE	BDL	25	
. 9B.	BENZO (K) FLUORANTHENE	BDL	10	
10B.	BIS (2-CHLOROETHOXY) METHANE	BDL	10	
11B.	BIS (2-GHLOROETHYL) ETHER	BDL	10	
	BIS (2-CHLOROISOPROPYL) ETHER	BDL	10	
13B.	BIS (2-ETHYLHEXYL-) PHTHALATE	BDL	10	
	4-BROMOPHENYL PHENYL ETHER	BDL	10	
	BUTYL BENZYL PHTHALATE	BDL	10	
16B.	2-CHLORONAPHTHALENE	BDL	10	
17B.	4-CHLOROPHENYL PHENYL ETHER	BDL	10	
₹8B.	CHRYSENE	BDL	10	
19B.	DIBENZO (A,H) ANTHRACENE	BDL	25	
19B. 20B.	1,2-DICHLOROBENZENE	BDL	10	
21B.	1,3-DICHLOROBENZENE	BDL	10	
	1,4-DICHLOROBENZENE	BDL	10	
23B.	3,3'-DICHLOROBENZIDINE	BDL	10	
24B.	DIETHYL PHTHALATE	BDL ·	10	
25B.	DIMETHYL PHTHALATE	BDL	10	
26B.	DI-N-BUTYL PHTHALATE	BDL	10	
27B.	2.4-DINITROTOLUENE	. BDL	10	
28B.	2,6-DINITROTOLUENE	BDL	10	
29B.	DI-N-OCTYL PHTHALATE	BDL	10	
30B.	1,2-DIPHENYLHYDRAZINE	BDL	10	
31B.	FLUORANTHENE	BDL	10	
32B.	FLUORENE	BDL	10	
33B.	HEXACHLOROBENZENE	BDL	10	
34B.	HEXACHLOROBUTADIENE	BDL	10	
35B.	HEXACHLOROCYCLOPENTADIENE	BDL	10	

Continued...



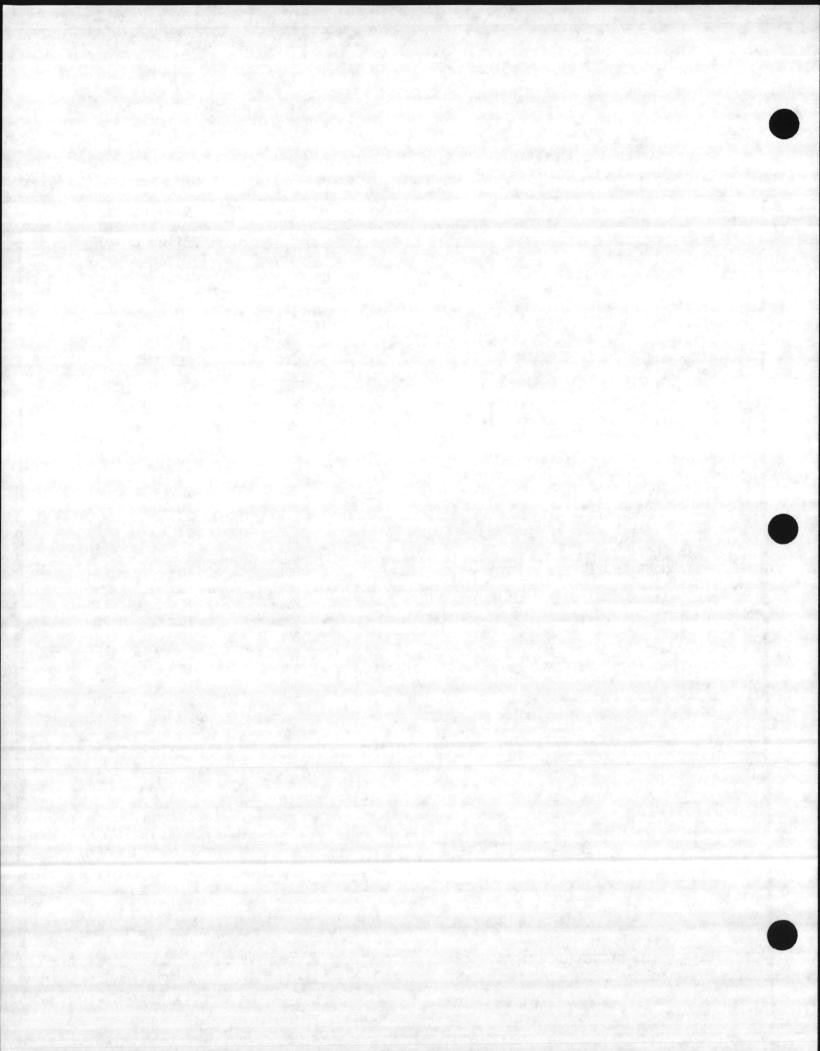
			DETECTION	
	BASE-NEUTRAL EXTRACTABLE ORGANICS (Continued)	CONCENTRATION (UG/L)	LIMIT (UG/L)	SCAN NUMBER
36B.	HEXACHLOROETHANE	BDL	10	
373.	INDENO (1,2,3-CD) PYRENE	BDL	25	
383.	ISOPHORONE	BDL	10	
398.	NAPHTHALENE .	BDL	10	
CB.	NITROBENZENE	BDL	10	
1B.	N-NITROSODIMETHYLAMINE	BDL	10	
128.	N-NITROSODI-N-PROPYLAMINE	BDL	10	
3B.	N-NITROSODIPHENYLAMINE	BDL	10	
4B.	PHENANTHRENE	BDL	10	
5B.	PYRENE	BDL	10	
-6B.	1,2,4-₹RICHLOROBENZENE	BDL	10	

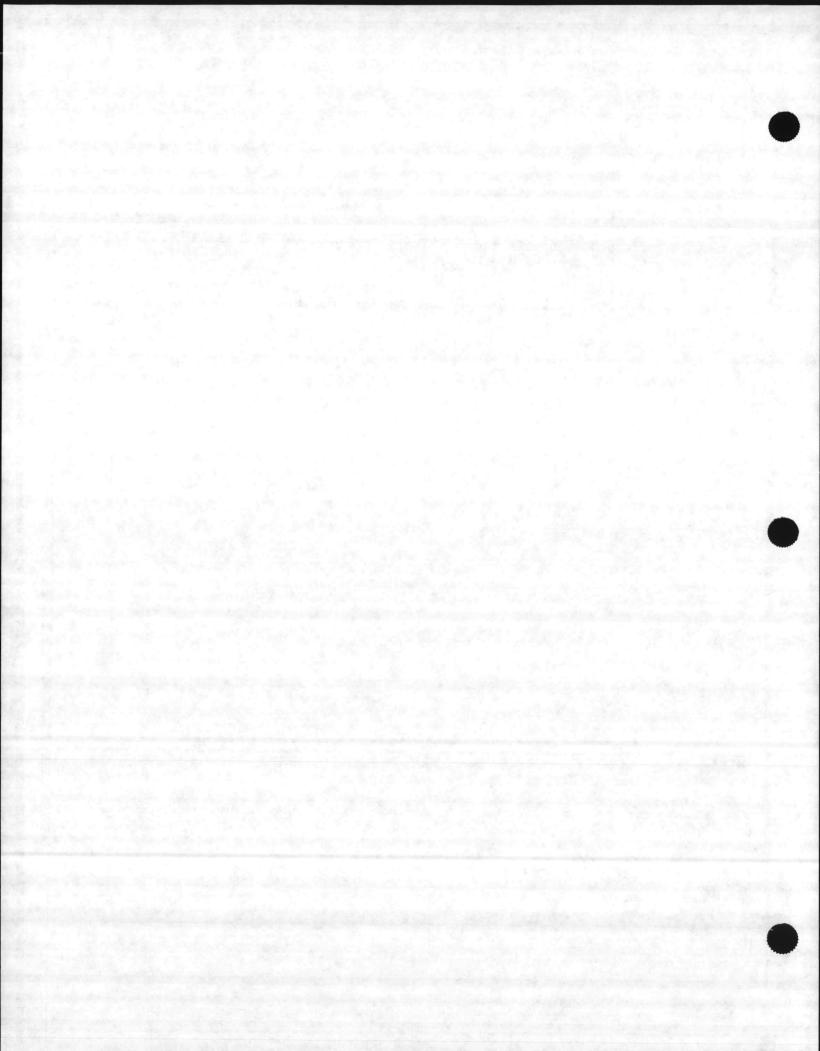


Dec. No.: CLEJ-00675-3.04-07/14/83

EXHIBIT II - COMPOUND LIST

	PESTICIDES/PCB'S	CONCENTRATION (UG/L)	DETECTION LIMIT (UG/L)	SCAN NUMBER
IP.	ALDRIN	BDL	10	
2P.	ALPHA-BHC	BDL	10	
3P.	BETA-BHC	BDL	10	
4P.	GAMMA-BHC	BDL	10	
5P.	DELTA-BHC	BDL	10	
6P.	CHLORDANE	BDL	10	
7P.	4,4'-DDT	BDL	10	
8P.	4,4'-DDE	BDL	10	
9P.	4,4'-DDD	BDL	10	
10P.	DIELDRIN	BDL	10	
11P.	ALPAA-ENDOSULFAN	BDL	10	
12P.	BETA-ENDOSULFAN	BDL	10	
13P-	ENDOSULFAN SULFATE	BDL	10	
14P.	ENDRIN	BDL	10	
15P.	ENDRIN ALDEHYDE	BDL	10	
16P.	HEPTACHLOR	BDL	10	
17P.	HEPTACHLOR EPOXIDE	BDL	10	
18P.	PCB-1242	BDL	10	
19P.	PCB-1254	BDL	10	
20P.	PCB-1221	BDL	10	
21P.	PCB-1232	BDL	10	
22P.	PCB-1248	BDL	10	
23P.	PCB-1260	BDL	10	
24P.	PCB-1016	BDL	10	
25P.	TOXAPHENE	BDL	10	





Dec. No.: CLET-CO675-3.04-07/14/83

EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29378
COMPUCHEM SAMPLE NUMBER: 3499

INORGANICS
PRIORITY POLLUTANTS

CONCENTRATION (MG/L)

DETECTION LIMIT (MG/L)

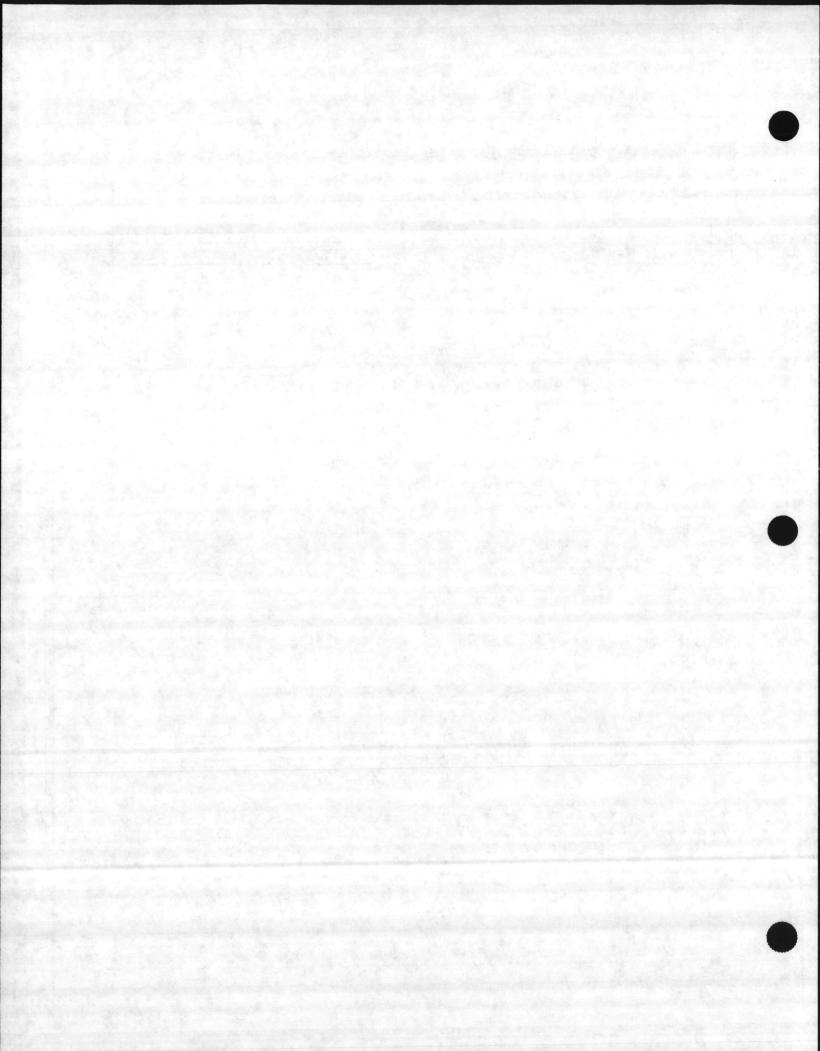
:44. CYANIDE, TOTAL

BDL

0.01

INORGANICS CONVENTIONALS

(NONE ORDERED)



SAMPLE IDENTIFIER: 29378 COMPUCHEM SAMPLE NUMBER: 3499

INORGANICS PRIORITY POLLUTANTS

CONCENTRATION (MG/L)

DETECTION LIMIT (MG/L)

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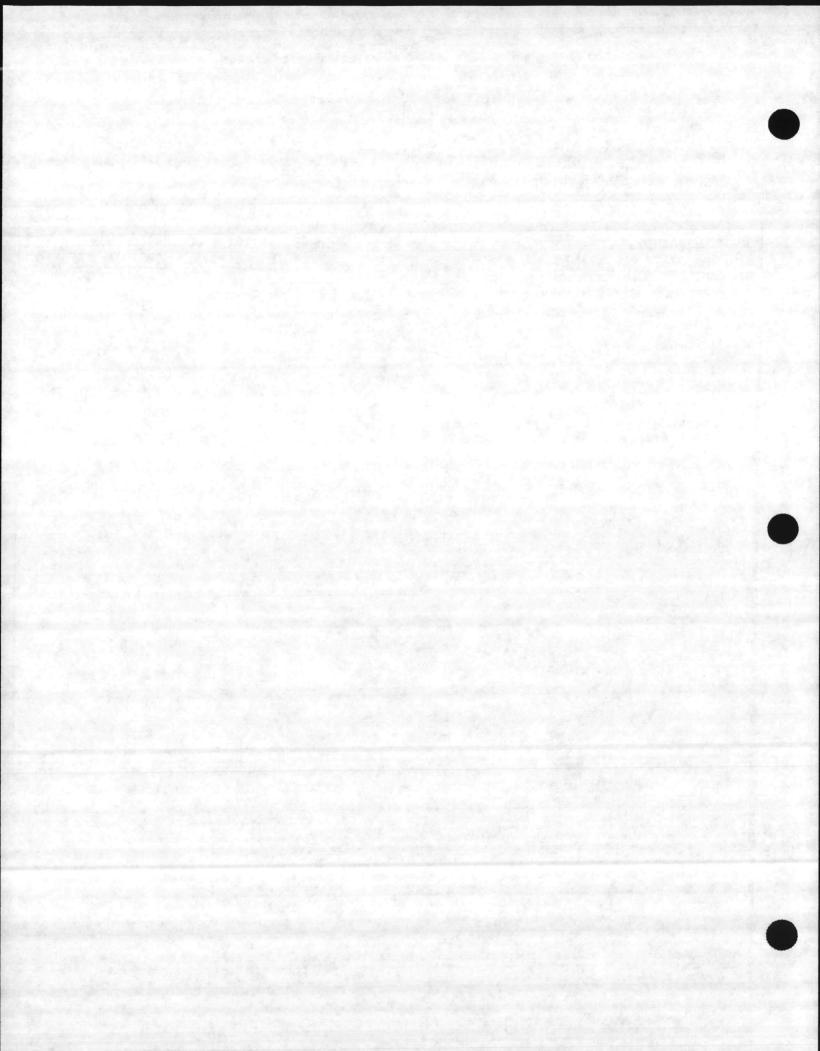
15. PHENOLS, TOTAL

BDL

0.01

INORGANICS CONVENTIONALS

(NONE REQUESTED)



(504) 444-9365

11300 1143CFB

8 JAN 1985

From: Commander, Atlantic Division, Maval Pacilities Engineering Command To: Commanding General, Marine Corps Base, Camp Lejuene

Subj: TESTING OF POTABLE WATER WELLS AND WATER TREATMENT PLANT

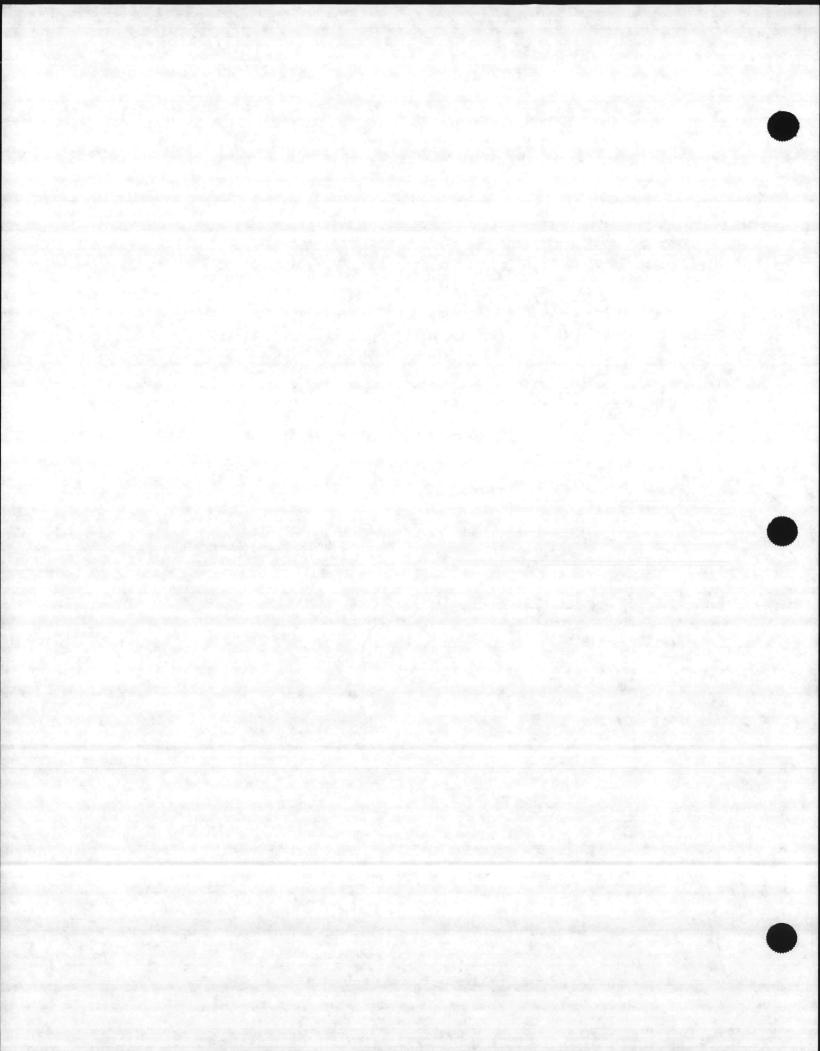
Ref: (a) LANTMAVFACENGCOM may 071346Z Dec 1984

Encl: (1) Reports #4, #7, #8, #10, and #12; Laboratory Analysis on Naval Samples by JTC Environmental Consultants, Inc.

1. Peference (a) forwarded preliminary results from testing of potable water wells and recommended additional sampling of Hadnot Point water treatment plant for volatile organics. Enclosure (1), a formal report of the sampling effort to date, is forwarded for your use. Our evaluation and recommendations will follow under separate cover.

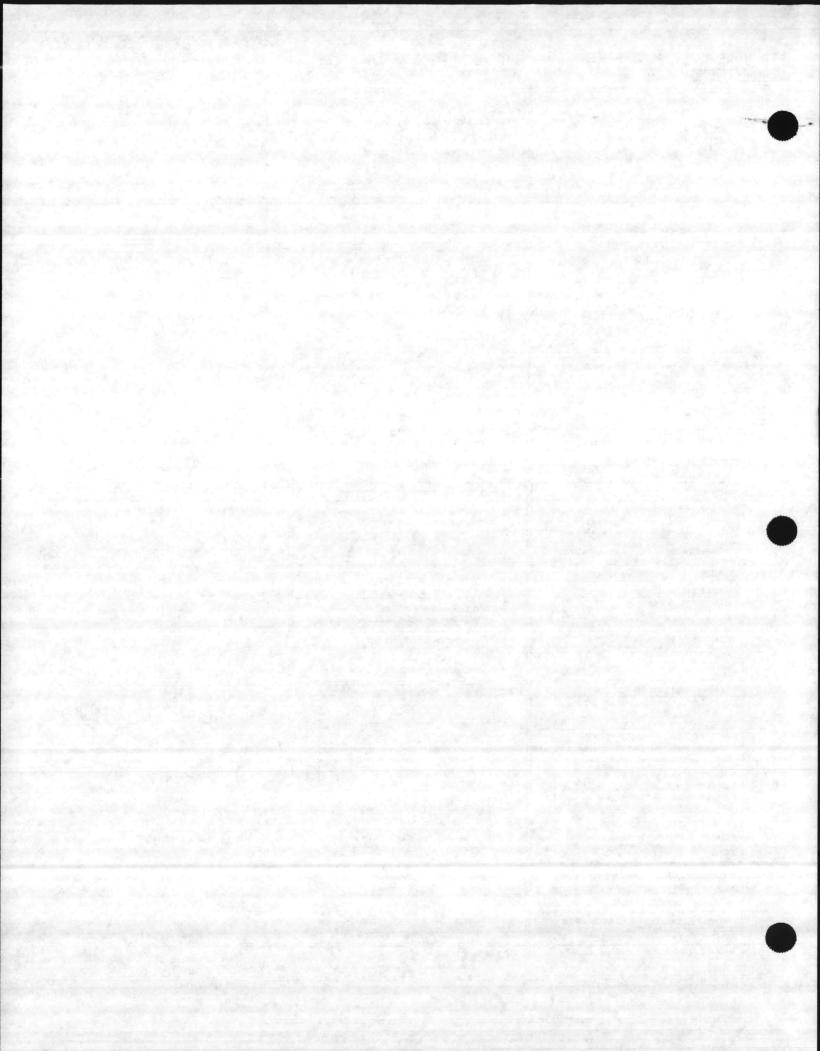
R. D. CROWSON P.E. Director, Utilities, Energy and and Environmental Division

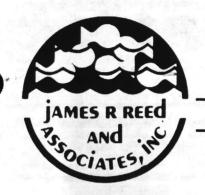
Copy to:
Environmental Science and Engineering (ESE)
P. O. Sox ESE
Gainsville, FL 32602
Attn: Russ Bowen
Blind Copy to:
114
1145
Doc #2663A/CFB/dhs.



Dec. No.: CLEJ-00 149-3.04-1/08/85

Formerly NAVEXOS 3789	indicated)
"OH (8C4) 444-4566	DATE
FACENGIOM 1143, NORFOCK	VA //8/84
	DEMINE ON FILE NO.
7515, WELL 602 (QCC	HE(K)
	REFERENCE
	The Market Control of the Control of
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	ENCLOSURE
OF STAFF - FACILITIES	J.R. REED LAG REPL
	(ANALYSIS BY GRANG
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	ON WELL 602
. ENDORSEMENT ON	SAMPLE OF 12/13/8
	MIT CERTIFY MAIL FILE
CONTRACT ADMINISTRATION	PERSONNEL
NAME & LOCATION OF SUPPLIER	REPORTED TO THIS COMMAND:
OF SUBJECT ITEMS	
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APPROPRIATION SYMBOL, SUBHEAD,	DETACHED FROM THIS COMMAND
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James R. Reed & Associates, Inc.

Environmental Testing & Consulting

813 forrest drive • newport news, virginia 23606 • (804) 599-6750

Laboratory Services Report

Commander

Attn: Code 1142/Goodwin

Atlantic Division

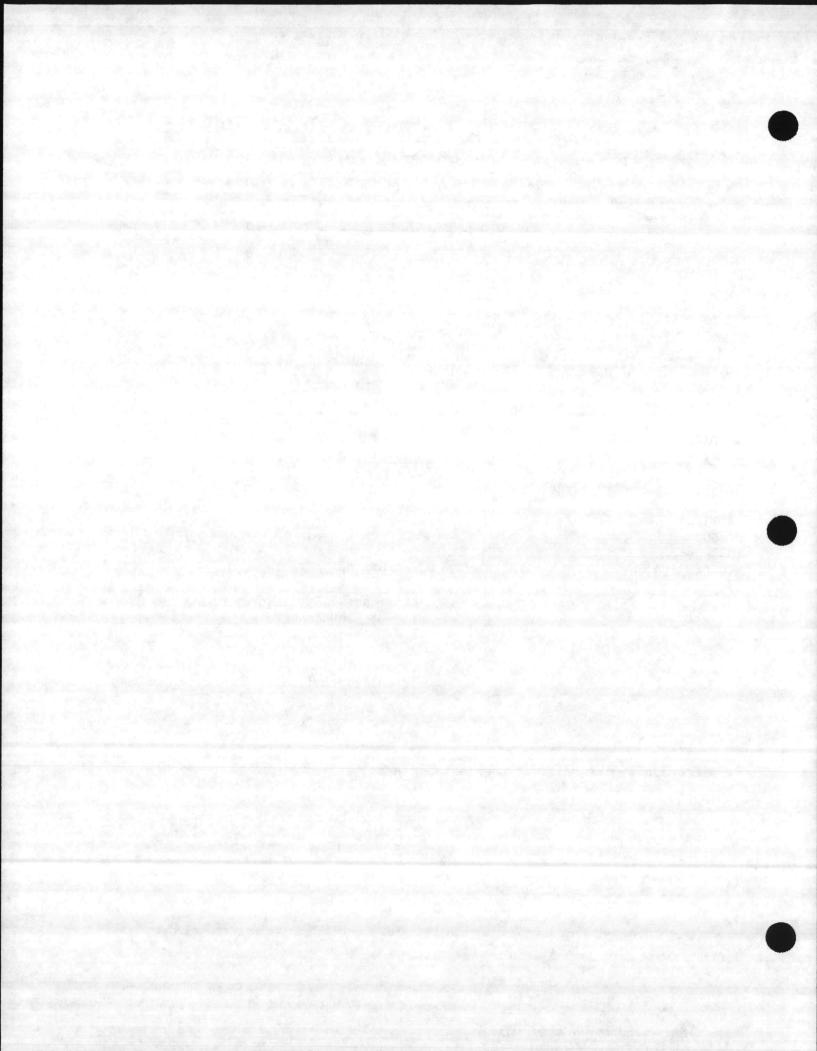
Naval Facilities Engineering CMD Norfolk, Virginia 23511

January 4, 1985

Sample Identification		Analyses	Re	esul	ts
Sample received 12/14	1/84		(/gu/	1)
12/13/84 HP 602					
1355 Betz					
MCB Camp Lejune		Purgeable Organics (cont.)			
		cis/trans-1,3-Dichloropropene	<	3.0	
		1,3-Dichlorobenzene	<	1.0	
		1,4-Dichlorobenzene	<	1.0	
		2-Chloroethylvinyl Ether		9.8	
		Vinyl Chloride			*
		Trichloroethylene	30	00	

Detection limits have not been established

Respectfully submitted,





James R. Reed & Associates, Inc.

Environmental Testing & Consulting

813 forrest drive • newport news, virginia 23606 • (804) 599-6750

Laboratory Services Report

Commander

Attn: Code 1142/Goodwin

Atlantic Division

Naval Facilities Engineering CMD

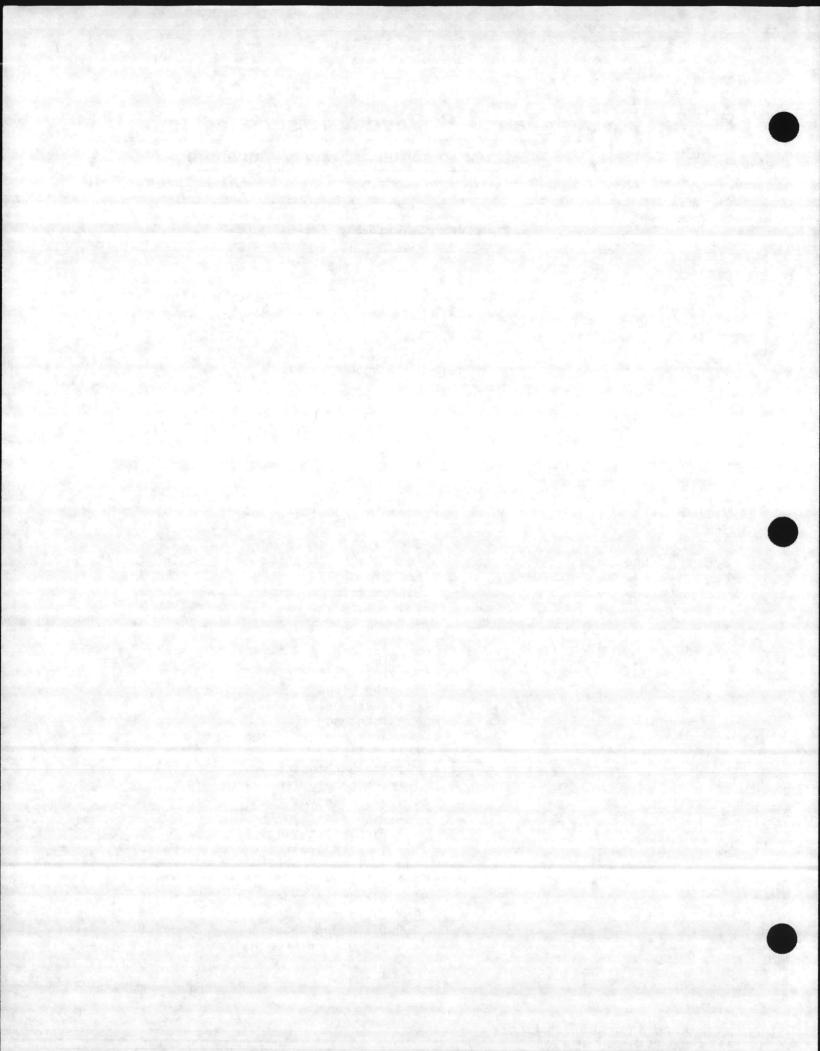
Norfolk, Virginia 23511

January 4, 1985

Sample Identification	<u>Analyses</u>	Results
Sample received 12/14/84		(µg/1)
12/13/84 HP 602	Purgeable Organics	
HP 602 1355 Betz MCB Camp Lejune	Bromodichloromethane Carbon Tetrachloride Bromoform Dibromochloromethane Chloroform Toluene Benzene Acrolein Acrylonitrile Chlorobenzene Chloroethane Ethylbenzene Bromomethane Chloromethane Methylene Chloride Tetrachloroethylene Trichlorofluoromethane 1,1-Dichloroethane 1,1-Dichloroethane 1,1-Trichloroethane 1,1,2-Trichloroethane 1,1,2-Trichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane	<1.0 <1.0 <2.0 <1.0 <1.0 <1.0 <1.0 <50 <50 <2.0 <2.0 <1.0 3.2 <1.0 34 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0
	1,2-Dichloropropane trans-1,2-Dichloroethylene	< 1.0 110

Respectfully submitted,

Chi in Le



Doc. No.: CLET-00149-3.04-1/08/85



DEPARTMENT OF THE NAVY

ATLANTIC DIVISION

NAVAL FACILITIES ENGINEERING COMMAND

NORFOLK, VIRGINIA 23511-6287

TELEPHONE NO.

(804) 444-9561 IN REPLY REFER TO:

6280 1142DPG

4 JAN 1985

MEMORANDUM FOR FILE

Subj: RESPONSE TO MCB VOA PROBLEM (EXCLUDING LOGISTICS)

4 Dec 1984: MCB Sampled/Shipped Untreated/Treated/Wells (Except Well 602 Sampled 30 Nov 1984).

5 Dec 1984: JTC received Untreated/Treated/Wells and reported results on Untreated/Treated (confirm problem).

6 Dec 1984: JTC reported results on Wells (Delineate Problems).

7 Dec 1984: Review LANTNAVFACENGCOM MSG (Preliminary Recommendations) and PAO O/A.

10 Dec 1984: MCB inform NC.

MCB sampled Treated/Wells.

11 Dec 1984: MCB Shipped Treated/Wells

(Prepared attached VOA Scope (Mid-Term Recommendations).

12 Dec 1984: JTC received Treated/Wells.

13 Dec 1984: MCB: Newspaper(s) and Sampled/Shipped QC/Untreated.

14 Dec 1984: MCB CG press conference, approve VOA Scope, begin daily sampling JTC resported results on Treated/Wells (confirm

Problem/Recommendations) and received QC/Untreated

Received/sent 2 QCs.

15 Dec 1984: MCB continued daily sampling.

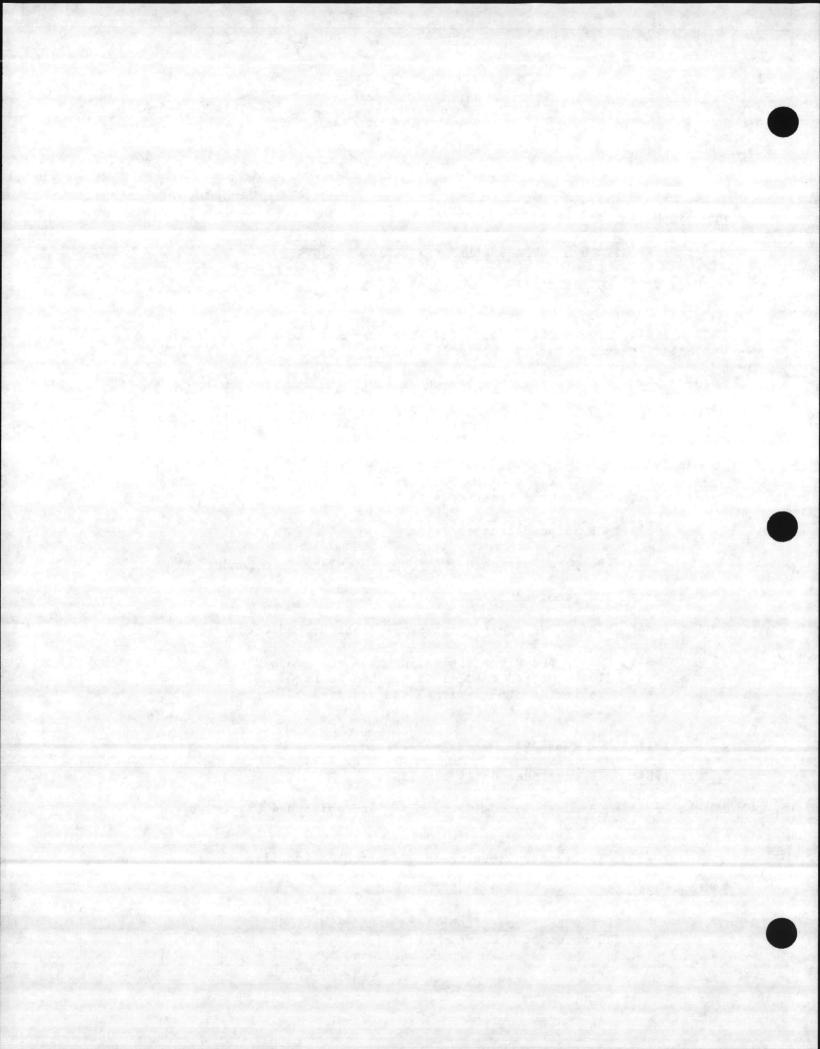
16 Dec 1984: MCB continued daily sampling.

17 Dec 1984: MCB continued daily sampling and shipped 4 Untreated (14-17 Dec 1984 samples).

JTC reported results on QC/Untreated (confirm Recommendations).

18 Dec 1984: MCB continued daily sampling.

Review ESE Scope (Long-term Recommendations)
JTC received 4 untreated.



Subj: RESPONSE TO MCB VOA PROBLEM (EXCLUDING LOGISTICS)

19 Dec 1984: MCB completed daily sampling and collected distribution sample (confirm flushout).

20 Dec 1984: JTC reported on 4 Untreated (confirm Recommendations).

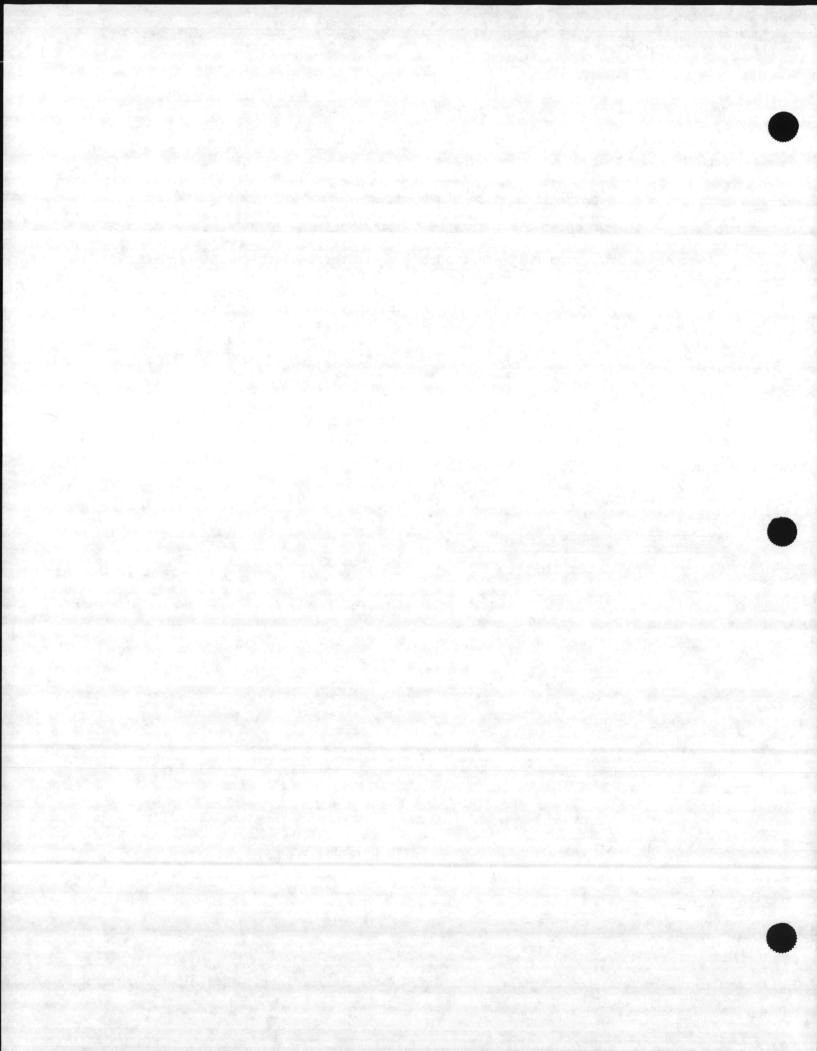
MCB shipped 2 Untreated 1 Distribution.

21 Dec 1984: JTC reported resulted on 2 untreated/1 distribution (confirm Recommendations).

Note: (1) 26 Samples, \$15,600.00 (Testing Only). (2) Jan 1985: Implementing VOA Scope (\$40K+).

D. P. GOODWIN, P.E. Code 1142 Utilities, Energy and Environmental Division

Copy to: 114 1143 1145 Doc #2687A/DPG/dhs.



ATTN: BOB ALEXANDAR, 3043

MCB CAMP LEJEUNE MONITORING

I. BACKGROUND: In response to ESE test results on Well 602:

- A. Week of 3 Dec 1984: Tested the seven wells (in the area) and the Water Plant (untreated/treated)
- B. Week of 10 Dec 1984: Resampled the seven wells and the Water Plant (treated), and started daily sampling of the Water Plant (untreated) for one week with the far end of the distribution (i.e., French Creek) also to be sampled (only) on the seventh day (to determine if distribution system clear). In addition, for Quality Control, a 3-way sample split will be performed on Well 602 between three laboratories; ESE, JTC and also Grangier (via the Reed Contract).

II. PROPOSED INTERIM MONITORING:

- A. Sample the other seven Water Plants (treated, preferably after reservoirs) for VOA only (to determine if the problem is limited to Hadnot Point). Estimate: 1 day to collect.
- B. Sample all of the about 100 wells (Excluding the seven wells above) for VOA to determine if problem is limited to the three wells. Estimate: 10 wells per day, i.e., 10 normal workdays (2 weeks) to collect, starting with the remaining wells in Hadnot Point, then Holcomb Boulevard.

III. COSTS (LANTNAVFACENGCOM FUNDING):

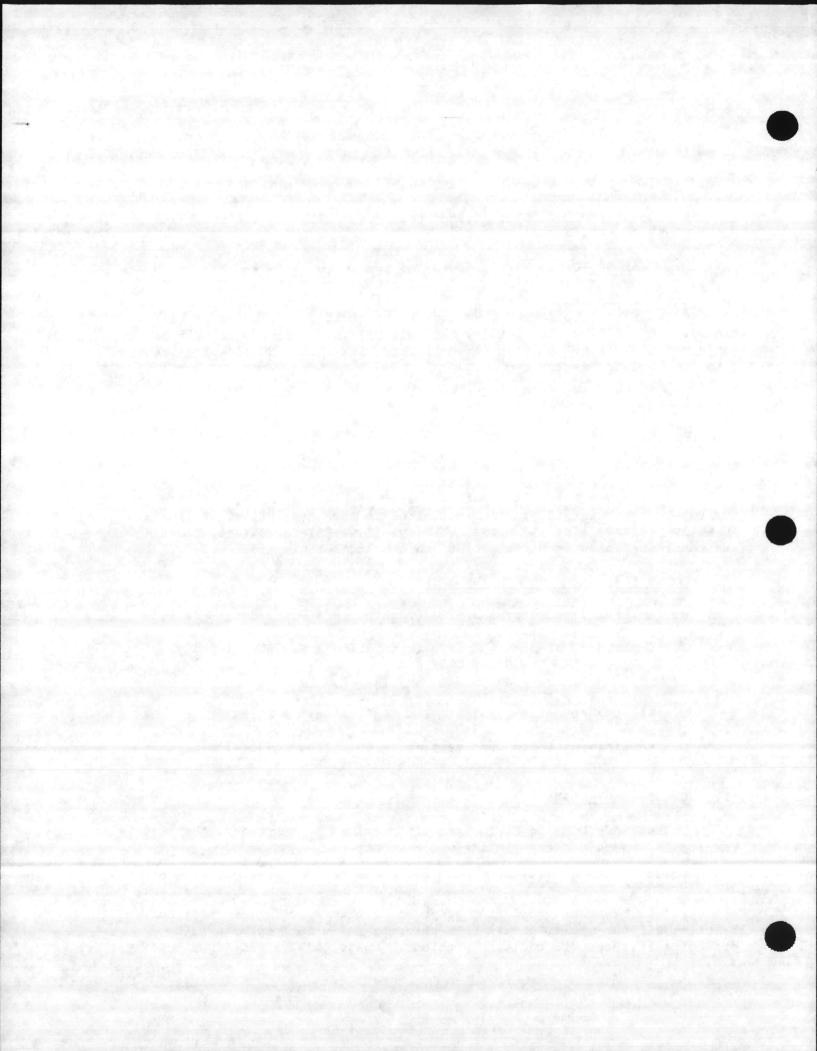
- A. Initial 9 samples: 8 X \$200 (routine) + \$600 (2 day) = \$2.2K
- B. Next 18 samples: 16 X \$600 (2 day) + 3 X Say \$300 (15 day) = Say \$10.5K Subtotal: Say \$12.7K
- C. First 7 proposed samples: 7 X \$600 (2 day) = \$4.2K
- D. Remaining '100 proposed samples: 100 X \$300 (15 day) = \$30K Total: \$46.9K Say \$47K

IV. CONTINGENCY PLANS:

LANTNAVFACENGCOM is evaluating alternatives to respond to the test results to insure a safe drinking water supply.

V. ADDITIONAL ESE WORK:

ESE to be tasked to define scope of problem/solution, in addition to sampling all the wells for all SDWA/priority pollutant parameters (to determine if there are addition problems. Costs (LANTNAVFACENGCOM funding): \$20-30K.



NORTH CAROLINA DEPARTMENT OF HUMAN RESOURCES DIVISION OF HEALTH SERVICES OCCUPATIONAL HEALTH LABORATORY

COMPANY: Camp Lejeune Water System

ADDRESS: Camp Lejeune, Onslow County, N.C. SERVICE REQUESTED: Volatile Organic Analysis

SAMPLE TAKEN ON: 02/19/85

SAMPLE TAKEN BY: Gaines Huneycutt/Q.C. Lab

SUBMITTED TO LABORATORY ON: 02/21/85 SUBMITTED BY: via Federal Express

DATE OF ANALYSIS: 02/21-22/85 ANALYZED BY: Vicki Painter

DATE REPORTED: 02/22/85

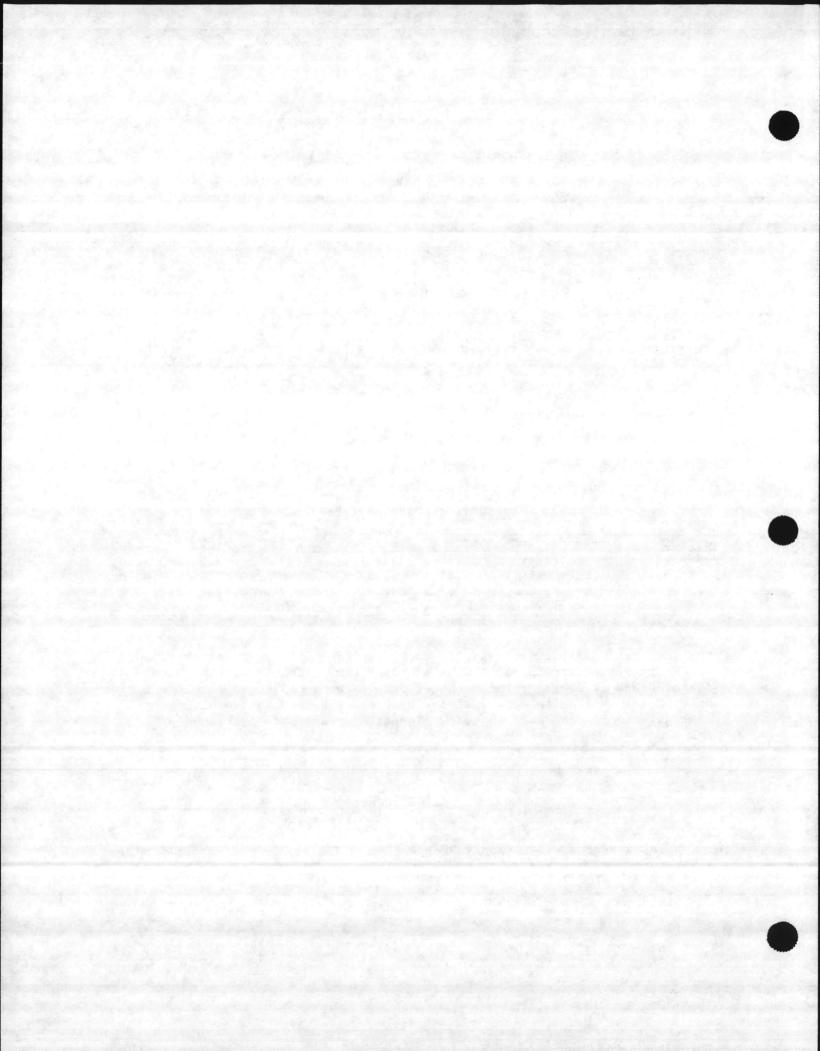
RESULTS IN PPB (ug/liter)

LOCATION	tran	s 1,2-DCE	TCE	TetraCE	CHC13	DiCBM	DiCBM
TT New Well		trace	53.53	26.17	<2.0	<2.0	<2.0
TT-26 Well		trace	3.91	55.17	<2.0	<2.0	<2.0
TT Water Plt.	Trt.	<2.0	<2.0	<2.0	0.9	2.1	3.2

COMMENTS: trans 1,2-DCE is trans 1,2-dichloroethene, TCE is trichloroethene, TetraCE is tetrachloroethene, CHCl3 is chloroform, DiCBM is dichlorobromomethane, DiBCM is dibromochloromethane. Samples were collected from the Tarawa Terrace System. Samples were analysed by purge and trap method utilizing a Hall detector in the halogen mode. Identifications were confirmed by GC/MS.

REPORTED BY The Aleck

cc. Charles Rundgren Water Supply Branch Mike Bell, ERO Fred Hill, ERO Environmental Epidemiology



in 1143

CORRECTED COPY

OUTINE

DOC. No.: CLET-00092-3.04-5/31/85

R 091431Z MAY 85 PSN 611190N18

FM CG MCB CAMP LEJEUNE NC

TO CHC WASHINGTON DC

INFO LANTHAVFACENGCOM NORFOLK VA

NAVHOSP CAMP LEJEUNE NC

UNCLAS //NO6280//

CMC_FOR LFL: LANTDIV FOR 614: NAVHOSP FOR PMU SUBJ: ANALYSES OF CAMP LEJEUNE WATER SUPPLY

A. CG MCB CAMP LEJEUNE NC D82305Z FEB 85

1. THIS MSG PROVIDES UPDATED STATUS OF SUBJ AS INDICATED IN REF AND ACTIONS TAKEN TO DATE:

A. EIGHT WELLS IN HADNOT POINT SYSTEM AND TWO WELLS IN TARAWA TERRACE (TT) SYSTEM REMAIN OFF-LINE DUE TO PRESENCE OF VOLATILE ORGANIC CHEMICALS (VOC) EXCEPT FOR IT NEW WELL AS DISCUSSED BELOW.

B. CONSTRUCTION BEGAN ON 29 APR FOR THE AUXILIARY RAW WATER LINE TO THE TARAWA TERRACE SYSTEM; EST COMPLETION DATE IS 1 JUN 85.

C. WATER CONSERVATION MEASURES HAVE BEEN ESTABLISHED FOR THE TO SYSTEM TO ALLOW THE SYSTEM TO MEET WATER DEMANDS PENDING COMPLETION OF THE CONSTRUCTION.

D. THE TT NEW WELL, WHICH HAD BEEN CLOSED FOLLOWING DETECTION OF VOC, WAS USED ON 22,23 AND 29 APR TO MAINTAIN WATER PRODUCTION AND AVOID SYSTEM SHUTDOWN. ON EACH OCCASION, VOC ANALYSES OF TT FINISHED WATER BY THE LANTDIV CONTRACT LABORATORY INDICATED CONCENTRATIONS LESS THAN THE DETECTION LIMIT OF 10 PPB.

E. A PRESS RELEASE REGARDING THE VOC SITUATION HAS BEEN

F. ADDITIONAL MONITORING AND LOCATION OF THE SOURCE OF VOC'S
HAS BEEN PURSUED THROUGH THE NACIP PROGRAM BY LANTDIV: A SCOPE OF WORK FOR THE SECOND ROUND SAMPLING HAS BEEN JOINTLY REVIEWED BY MCB
AND LANTDIV: NACIP SAMPLING IS ANTICIPATED TO BEGIN IN JULY AND
AUGUST.

G. LIMITED CAPABILITY IS ANTICIPATED TO BE AVAILABLE IN JUNE FOR YOU ANALYSES BY THE CAMP LEJEUNE WATER QUALITY CONTROL LABORATORY, NATURAL RESOURCES AND ENVIRONMENTAL AFFAIRS DIVISION.

DLVR: LANTNAVFACENGCOM NORFOLK VALISI ... INFO

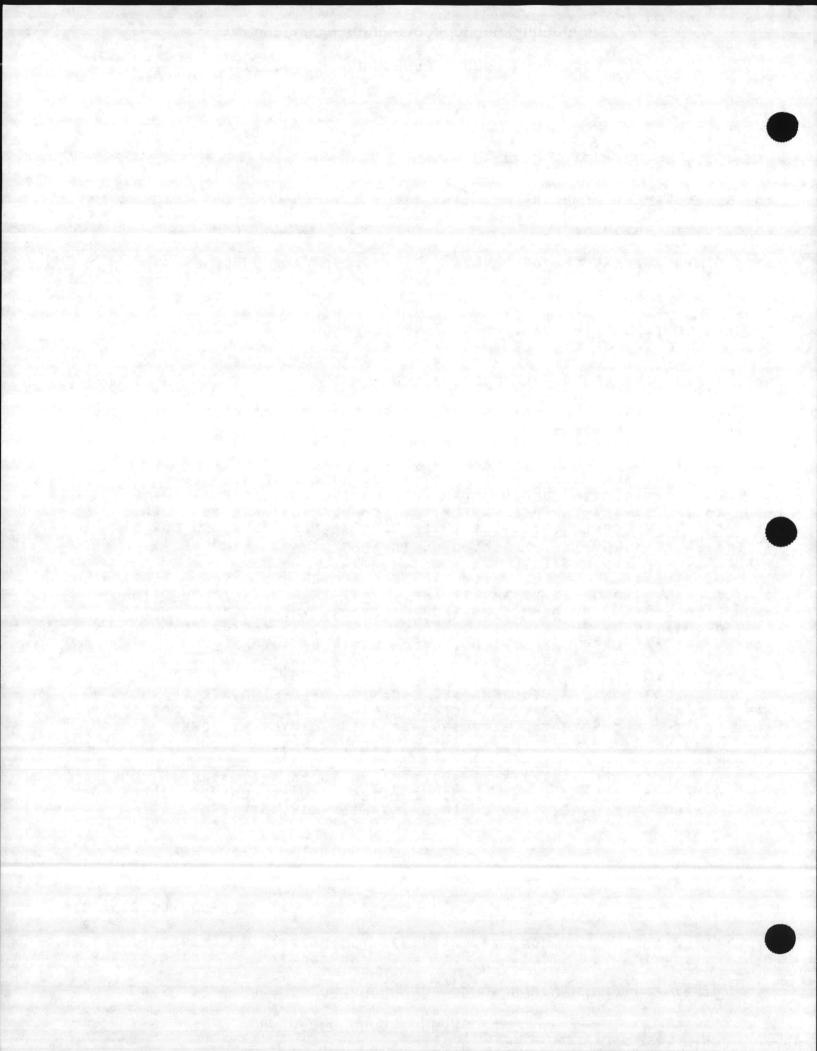
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611190/130 CSN: AUIA00917 1 OF 2 MATA0973 130/06:272

091431Z MAY 85 CG MCB CAMP LE

80 91 43

REPRODUCED AT GOVERNMENT EXPENSE



REPRODUCED AT GUVERNMEN ບບບບບບບບບບບບບບບບບບບບບບບບບບບ UNCLASSIFIED DOC NO CLEJ-0009 3.04-5/31/85 POC 15 MR. BOB ALEXANDER, MCB ENVIRONMENTAL ENGINEER, AV 484-

34/5925.

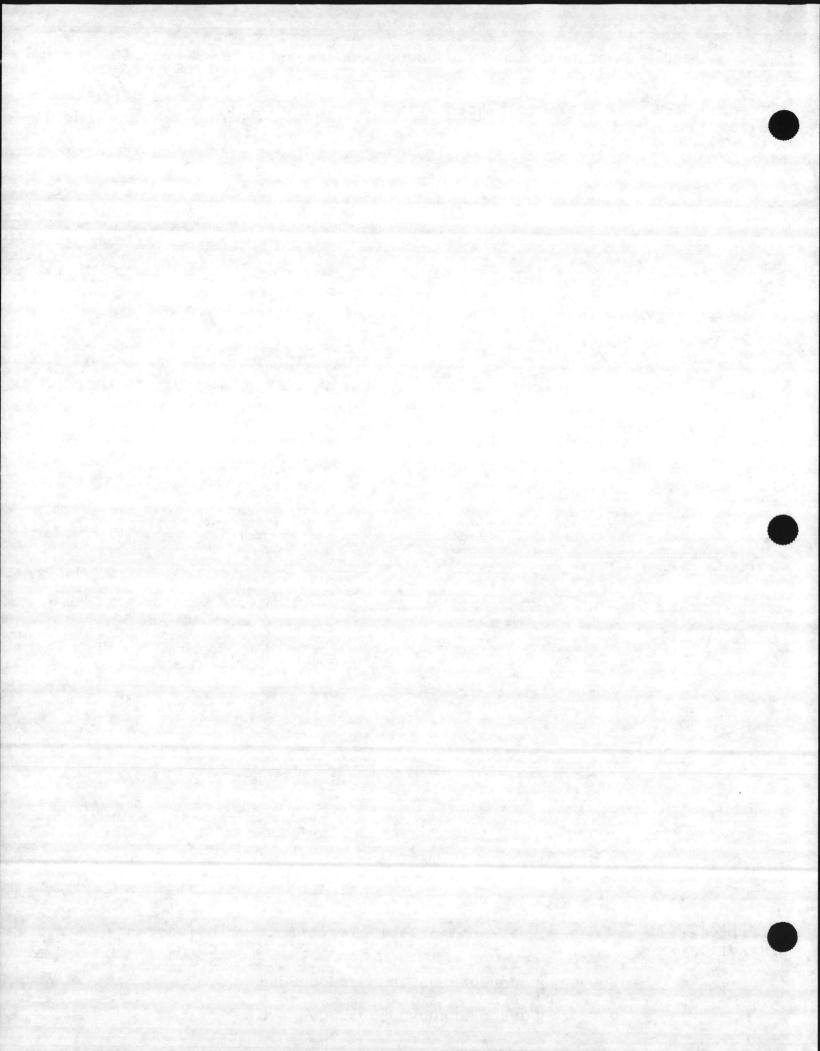
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091431Z MAY 85 CG MCB CAMP LE

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0K = 1143

ROUTINE

DOC NO: (LEJ-00092.

R 221534Z APR 85 PSN 419691N30

FM CG MCB CAMP LEJEUNE NC

TO LANTNAVFACENGCOM NORFOLK VA

UNCLAS //N06280//

LANTDIV FOR CODE 094: INFO 114

SUBJ: CONTRACT 81-B-3849, INSPECTION AND TESTING OF POL TANKS:

REQUEST FOR FIELD INVESTIGATION

- A. LANTDIV LTR 09A21B3:MLB:CLG N62470-B1-B-3849 DTD 1DEC83
- B. "CONFIRMATION STUDY TO DETERMINE EXISTENCE AND POSSIBLE MIGRATION

OF SPECIFIC CHEMICALS IN SITU", ENVIRONMENTAL SCIENCE AND ENGINEER-ING, GAINESVILLE, FL., JANUARY 1985 (NOTAL)

- 1. REF (A) PROVIDED CRITERIA FOR TESTING AND INSPECTION OF TANKS BASE-WIDE AND REQUESTED CLARIFICATION OF FULL SCOPE OF SERVICES FOR THE SUBJ CONTRACT.

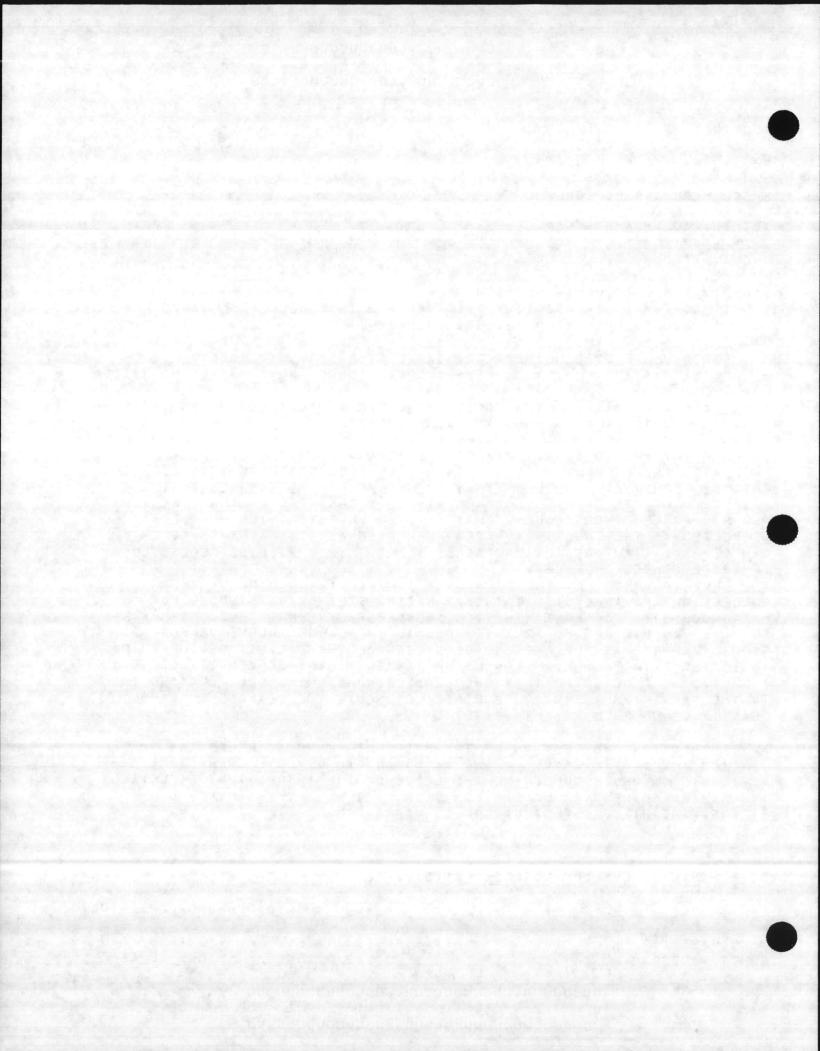
 THE SUBJ CONTRACT. REQUEST THAT THE SCOPE OF THE SUBJ CONTRACT ADDRESS ONLY THE MAIN FUEL FARMS AT MCB INDUSTRIAL AREA AND MCAS(H) NEW RIVER. FURTHER REQUEST THAT A FIELD INVESTIGATION BY THE A/E B COMPLETED AT THE INDUSTRIAL AREA FUEL FARM AS SOON AS ARRANGEMENTS CAN BE MADE. FUTURE WORK AT MCAS(H), NEW RIVER WILL BE REQUESTED BY SEPARATE CORRESPONDENCE.
- 2. REF (B) PROVIDED THE DATA FROM THE FIRST ROUND OF SAMPLE COLLECTION AND ANALYSIS AT THE 22 NACIP SITES BEING STUDIED FOR HAZARDOUS MATERIAL CONTAMINATION PROBLEMS. THE MAIN FUEL FARM WAS SELECTED AS ONE OF THE 22 SITES DUE TO THE LARGE VOLUME OF FUEL STORED AS WELL AS THE AGE AND CONDITION OF THE FACILITIES. REF (B) INDICATES EXTREMELY HIGH LEVELS OF BENZENE, ETHYLBENZENE, TOLUENE, AND LEAD WERE DETECTED IN A GROUNDWATER MONITORING WELL LOCATED IN IN THE TANK FARM AREA, AND FURTHER DOCUMENTS THE LEAKAGE OF LARGE QUANTITIES OF FUEL AT THIS SITE.
- 3. INSPECTION AND TESTING OF THE MAIN FUEL FARM IS NECESSARY TO CONFIRM THE SIGNIFICANCE OF THE LEAKS AND TO DEVELOP CORRECTIVE ACTIONS. IN ORDER TO DEFINE THE SCOPE OF THE INSPECTION, ESPECIALLY ITH REGARD TO REMOVAL OF EARTHEN BERMS COVERING THE TANKS AND PIPING, THE FIELD INVESTIGATION IS WARRANTED.

DLVR: LANTNAVFACENGCOM NORFOLK VALISI ... ACT

RTD:000-000/COPIES:0015

419691/113 CSN: AUIBOO983 1 OF 2 MATA1658 113/07:59Z 113/07:59Z 221534Z APR 85 CG MCB CAMP LE

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DOC NO: CLEJ -00092.

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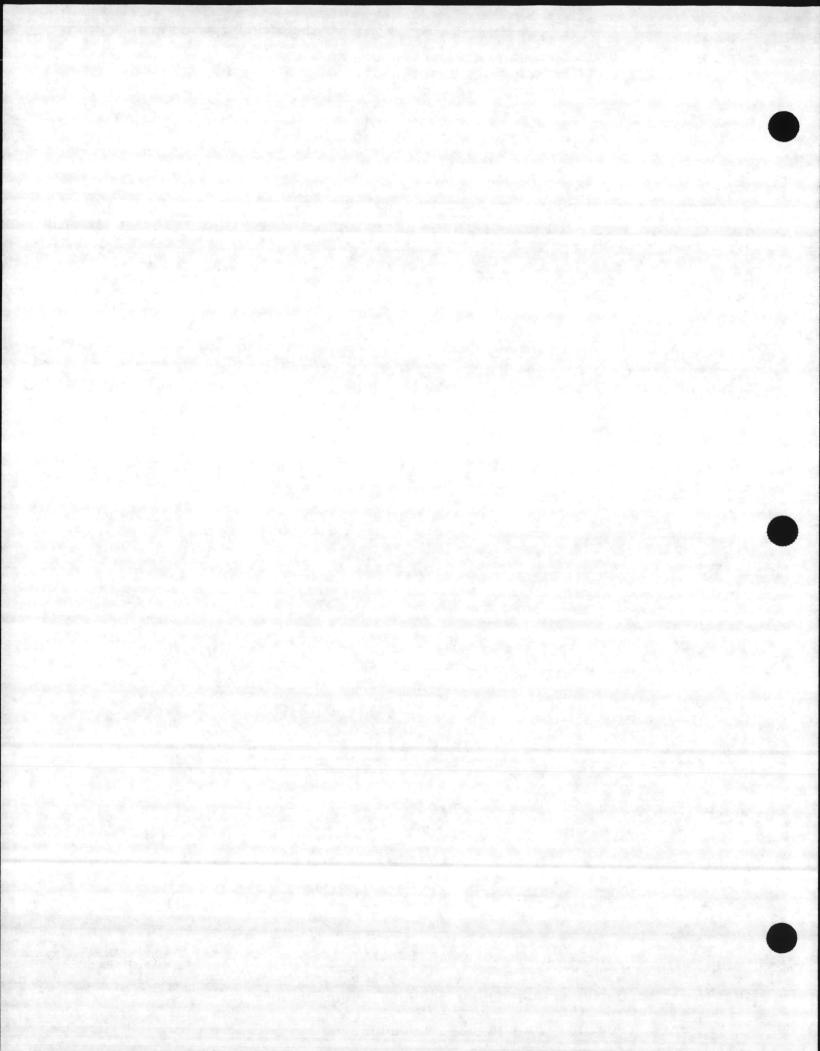
POC IS T. H. HANKINS JR, PW MECH ENG. AV 484-3738.

D.T

419691/113 CSN: AUIBO0983

2 OF 2 MATA1658 113/07:59Z

221534Z APR 85 CG MCB CAMP-LE -



DOC NO: CLEJ-00092-3.04-5/31/85

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R 081446Z APR 85 PSN 273106N19

FM LANTNAVFACENGCOM NORFOLK VA

TO CG MCB CAMP LEJEUNE NC

INFO CMC WASHINGTON DC

UNCLAS //ND6280//

SUBJ: NACIP STUDY OF CAMP LEJEUNE WATER SUPPLY SYSTEMS

A. CG MCB CAMP LEJEUNE NC 031847Z APR 85

B. LANTNAVFACENGCOM LTR 5090 1143CFB OF 27 MAR 1985

1. POAGM REQUESTED IN RCF A PARA 3A-E HAVE DEEN IDENTIFIED AN*
DISCUSSED IN REF B.

2. REF A PARA 3F - INTERIM MONITORING RECOMMENDATIONS FOR RAW WATER WILL BE MADE AFTER ENVIRONMENTAL SCIENCE AND ENGINEERING (ESE) INC. REVIEWS DATA COLLECTED TO DATE IN CONJUNCTION WITH ADDITIONAL FIELD SAMPLING AND LABORATORY DATA YET TO BE COMPILED.

. ANTICIPATE AWARD OF THIS EFFORT BY 15 JUL 85.

4. POC AT THIS CO MAND IS MS. CHERRYL BARNETT, AUTOVON 564-9566.
COMM (804) 444-9566.

BT

1143

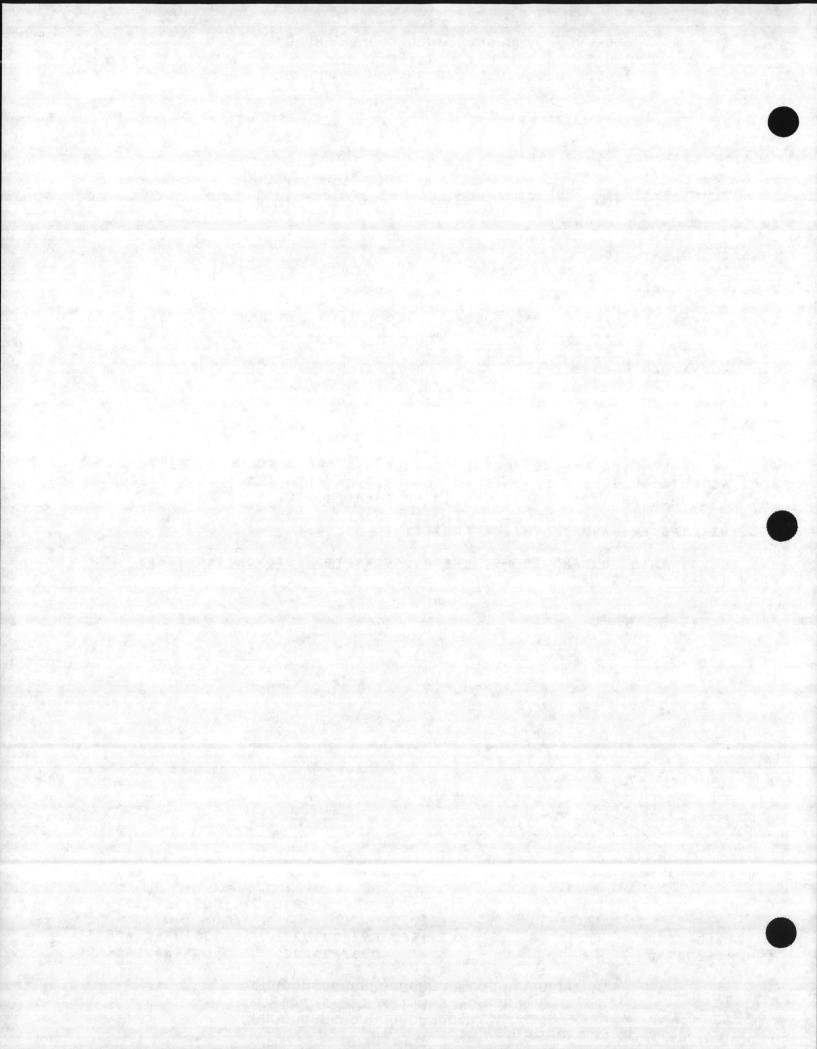
DLVR: LANTNAVFACENGCOM NORFOLK VA(15) ... ORIG

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273106/098 CSN:RXYY00240 1 OF 1 MATA1563 098/23:03Z 098/23:03Z 081446Z APR 85 Lantnavfacengc

36 37 124

REPRODUCED AT GOVERNMENT EXPENSE



DOC NO:CLEJ-00092-3.04-5/31/85

OUTINE

R 031847Z APR 85 PSN 233341N16

FM CG MCB CAMP LEJEUNE NC

TO LANTNAVFACENGCOM NORFOLK VA

INFO CMC WASHINGTON DC .

UNCLAS //N11000//

LANTDIV FOR 114; CMC FOR LFL
SUBJ: _NACIP STUDY OF CAMLEJ WATER SUPPLY SYSTEMS

- A. CG MCB CAMLEJ NC 082305Z FEB 85
- B. LANTDIV LTR 114: JGW: 55w 6280 DTD 10 MAY 83
- 1. REF (A) DESCRIBED ONGOING ACTIONS TO ADDRESS THE PRESENCE OF VOLATILE ORGANIC CHEMICALS (VOC) IN ISOLATED WATER SUPPLY WELLS AT CAMLEJ. VOC'S HAVE BEEN DETECTED IN TEN WELLS WHICH HAVE BEEN CLOSED; NOTHING HAS BEEN DETECTED IN 67 WELLS.
- 2. SHORT-TERM ACTIONS BEING TAKEN ARE:
- A. WELL CLOSURES HAVE NOT AFFECTED PRODUCTION OF WATER UPPLIES EXCEPT AT THE TARAWA TERRACE (TT) SYSTEM. SEVERAL ALTERNATIVES FOR PROVIDING AMPLE WATER TO TARAWA TERRACE HAVE BEEN REVIEWED INCLUDING AN AUXILIARY LINE TO THE TT SYSTEM FROM THE HOLCOMB BLVD PLANT.
- B. EXPEDITING INSTALLATION OF GAS CHROMATOGRAPH IN THE BASE LAB TO PROVIDE LOCAL TESTING CAPABILITY.
- C. PROCEEDING WITH THE HOLCOMB BLVD PLANT EXPANSION PROJ (82-2243) WHICH WILL SUPPLY ALL WATER TO TT AND MONTFORD PT WHEN COMPLETE. THIS PROJECT, HOWEVER, DOES NOT INCLUDE SOLUTIONS TO VOC PROBLEMS IN WELLS.
- 3. FOR MID/LONG-TERM ACTIONS, REQ THE SUBJ STUDY BE EXPEDITED AND THE FOLLOWING ISSUES BE ADDRESSED AS DESCRIBED IN REF (B).
- A. VERIFICATION OF EXISTENCE OF CONTAMINATION IN ALL WATER SUPPLY SYSTEMS. MOST WELLS IN THE EIGHT SYSTEMS HAVE BEEN SAMPLED ONCE. FOR THOSE SAMPLING LOCATIONS WHERE REPLICATE SAMPLES HAVE BEEN TAKEN, REPORTED VOC LEVELS HAVE VARIED GREATLY. THUS, THE VERIFICATION OF THE VOC'S IN ALL SYSTEMS APPEARS WARRANTED.

DLVR: LANTNAVFACENGCOM NORFOLK VA(15) . . . ACT

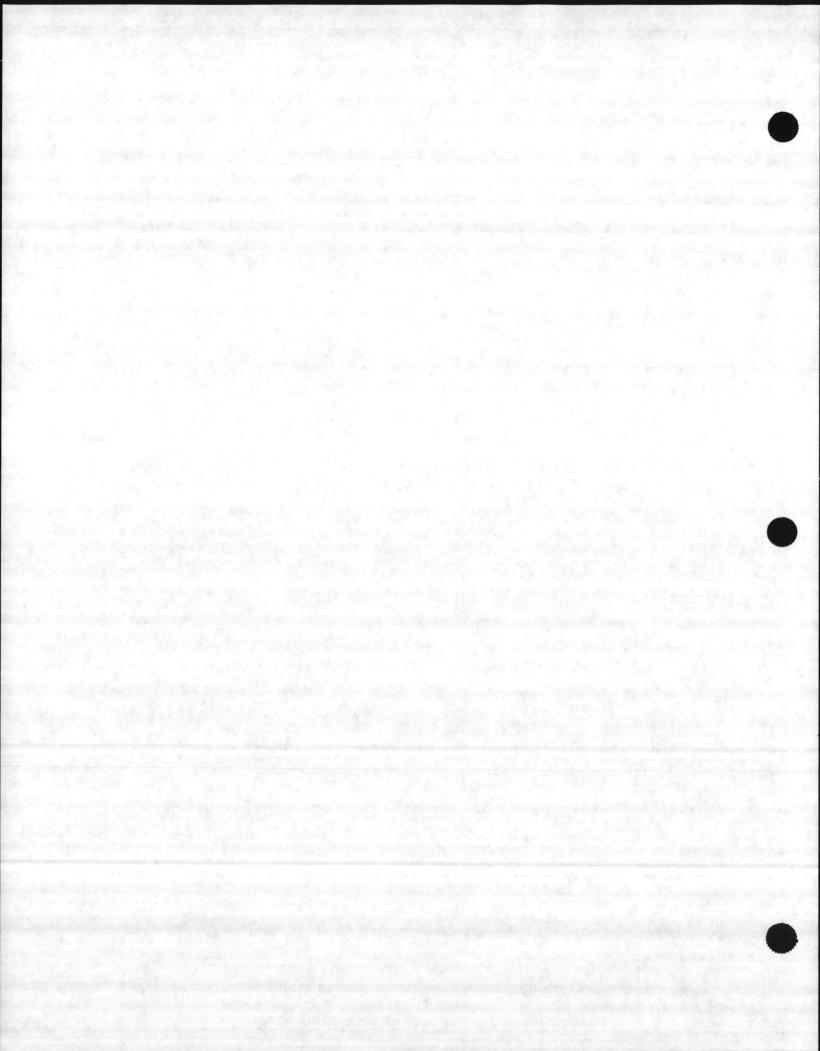
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1 OF 2 MATAO861 094/04:297

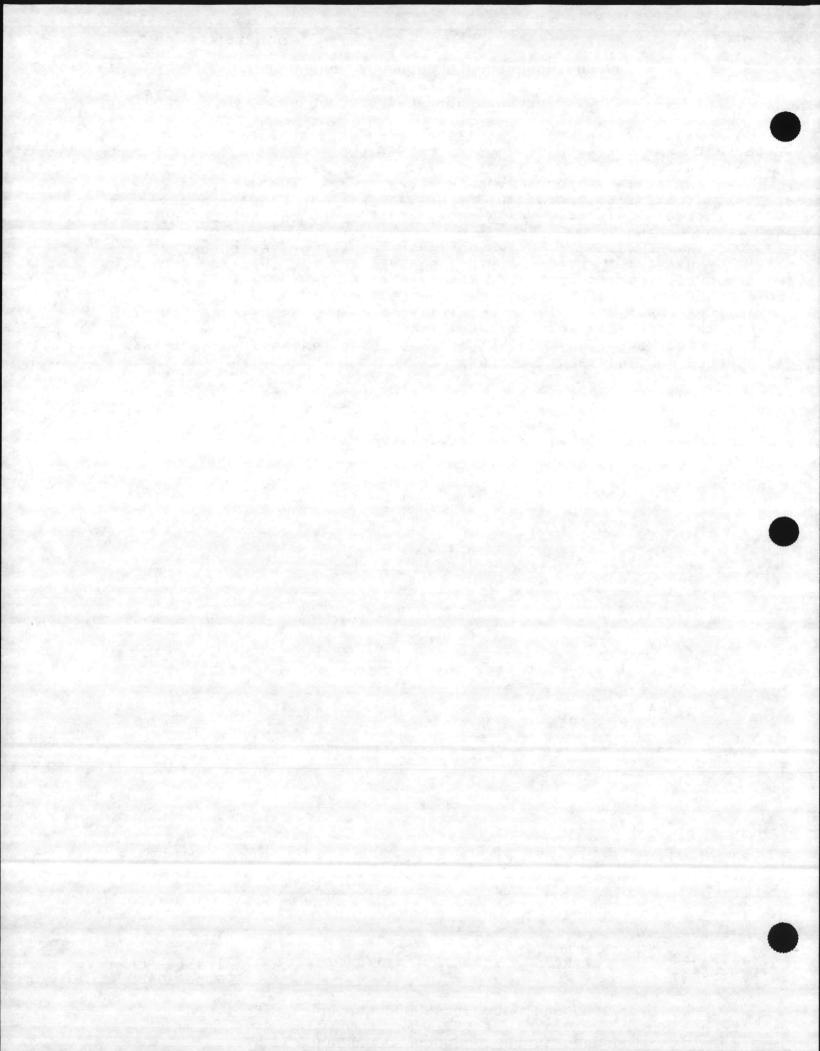
031847Z APR 85

- 14/20/95



- B. VERIFICATION OF THE LOCATION OF SOURCES OF VOC'S IN THE TEN WELLS WHICH HAVE BEEN CLOSED DUE TO DETECTABLE VOC'S: 601, 602, 603, 634, 637, 651, 652, 653, TT-26 AND TT NEW WELL.
- C. CHARACTERIZATION OF VOC PROBLEMS IN THE HADNOT PT, HOLCOMB BLVD AND IT SYSTEMS TO FIND THE EXTENT AND RATE OF MIGRATION OF VOC'S, INCLUDING MIGRATION FROM POSITIVE WELLS TO CLEAN WELLS DURING INCREASED PUMPING.
- D. IN THE VICINITY OF THE CONTAMINATED WELLS, REVIEW OF THE EXTENT OF USAGE AND EFFECTS OF TEST BORINGS AND THE IMPACTS OF ABANDONED WELLS TO DETERMINE THE POTENTIAL FOR INTER-AQUIFER EXCHANGE OF CONTAMINANTS VIA THESE ROUTES.
- E. PREPARATION OF THE FEASIBILITY STEP AND COST ESTIMATES FOR INTERIM AND LONG-TERM ALTERNATIVES.
- F. RECOMMENDATIONS FOR INTERIM AND LONG-TERM MONITORING OF RAW WATER WELLS AND TREATMENT SYSTEMS.
- 4. REQ YR ASSISTANCE IN DEVELOPMENT OF MILESTONES FOR EACH OF THE ABOVE ISSUES BY 22 APR 85.
- 5. POC IS MR. BOB ALEXANDER. AV 484-3034/5.

BT



UNITED STATES MARINE CORPS Marine Corps Base Camp Lejeune, North Carolina 28542-5001

6280/2 FAC

6 NOV 1535

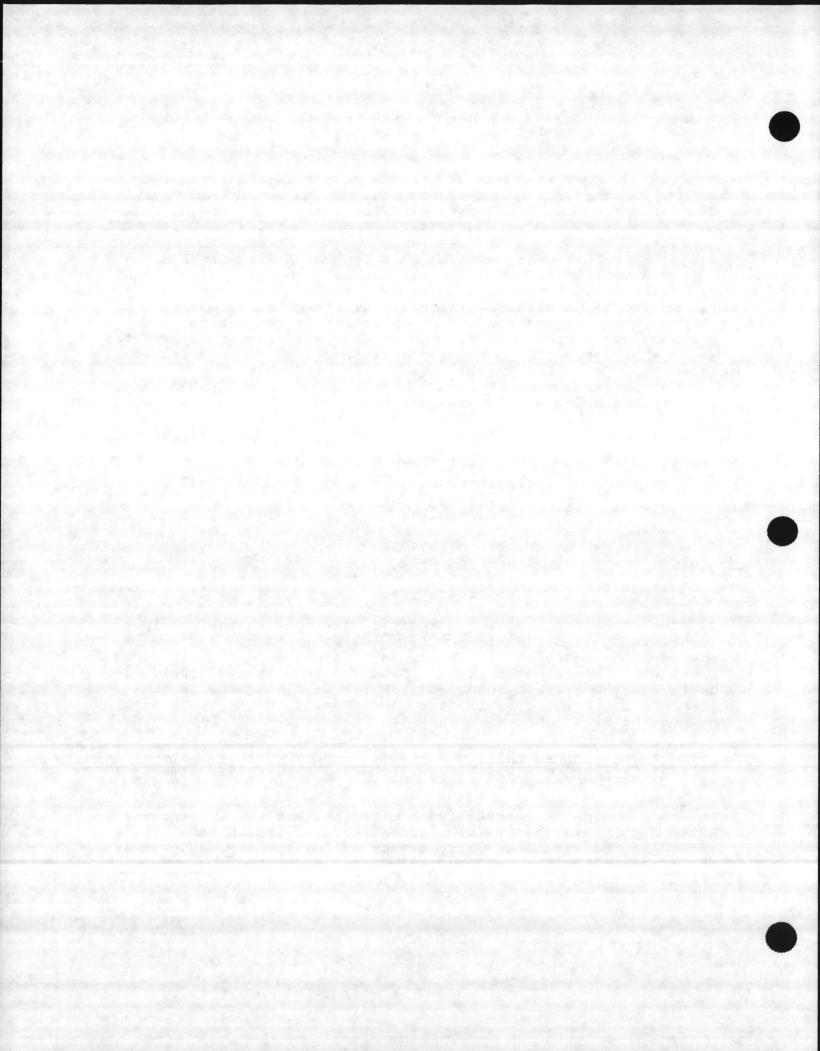
MEMORANDUM FOR THE COMMANDING GENERAL CHIEF OF STAFF

Subj: STATE OF NORTH CAROLINA DATA ON TARAWA TERRACE WATER SUPPLY WELLS

- 1. The North Carolina Division of Environmental Management (NCDEM) has reported results of their laboratory analyses of three Tarawa Terrace wells. The results are similar to previous NACIP analyses. NCDEM recommends we sample TT-25 on a recurrent basis.
- 2. The following data was reported:

Well	Parameter	Concentration	(parts per bi	llion)
TT-26 (closed)	Di-chloroe Methylcyclo Trichloroe Perchloreti	opentane thylene	1.6 0.42 27 1,100	
New Well (closed)	Trichloroe Perchloroe		0.20 4.0	
TT-25	Perchloroe	thylene	0.43	

- 3. The State reported the detection of Perchloroethylene in TT-25, which is currently supplying water to the TT system. However, the above concentration in TT-25 is below the level which can usually be detected by most laboratory analyses (2ppb). The basis for the State's recommendation for more sampling is that possible migration from the two closed wells toward TT-25 should be monitored. We concur.
- 4. We have not detected any organic compounds in the Tarawa Terrace finished water since we started taking weekly samples in July.
- 5. NCDEM usually reports these data to other State agencies: Water Supply Branch; Division of Health Services, Greenville, NC; and Solid and Hazardous Waste Branch, Wilmington, NC. These data are available to the public upon request to NCDEM.



Subj: STATE OF NORTH CAROLINA DATA ON TARAWA TERRACE WATER SUPPLY WELLS

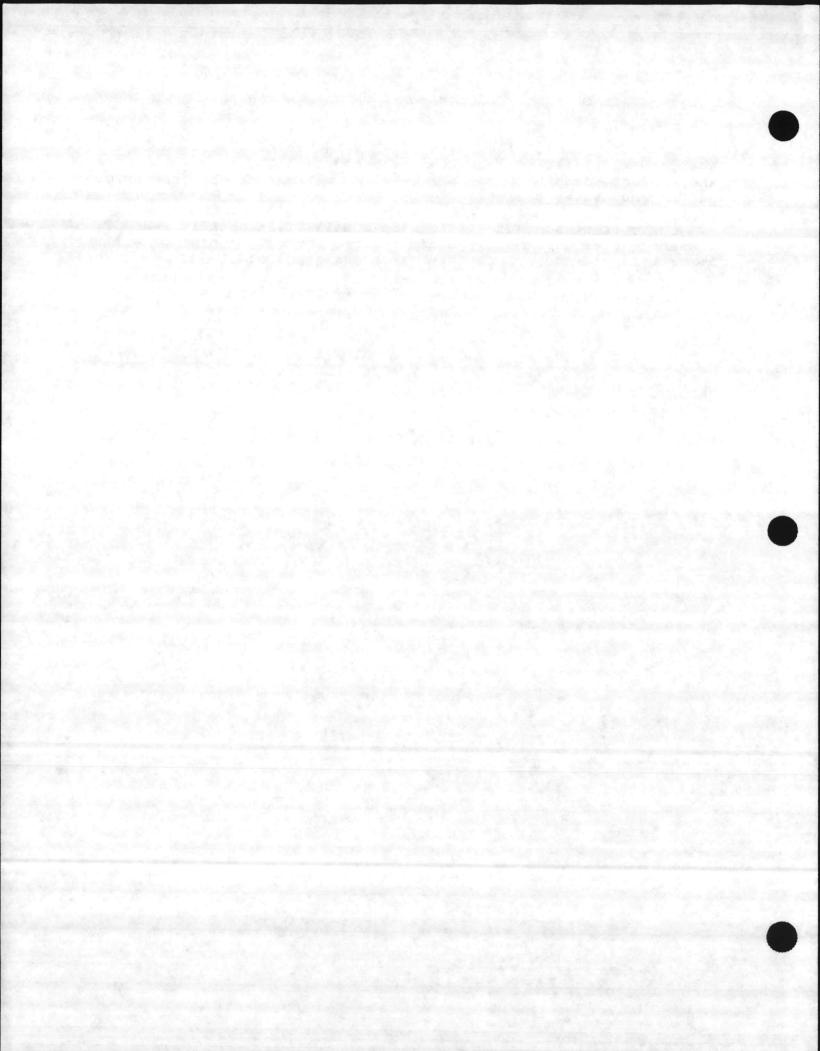
5. The above data, along with off-base monitoring well data, will be sent at a later date by the State to the ABC Cleaners to inform the company that the State believes the cleaners to be the source of TT groundwater pollution.

7. Cur current schedule is to sample well TT-25 monthly and finished water on a weekly basis. After several samples we will be better able to propose future testing needs of TT-25.

Very respectfully,

R. A. TIEBOUT AC/S, Facilities

Copy to: BMO NREAD Envengr



(PF4) 445-1=14

5000 11430FT

2 5 APR 1986

Action Protection Agency
Attn: Arthur C. Linton, P.E.
Pegional Federal Facilities Coordinator
"epica IV
TAS Courtland Street
Atlanta, CA 10365

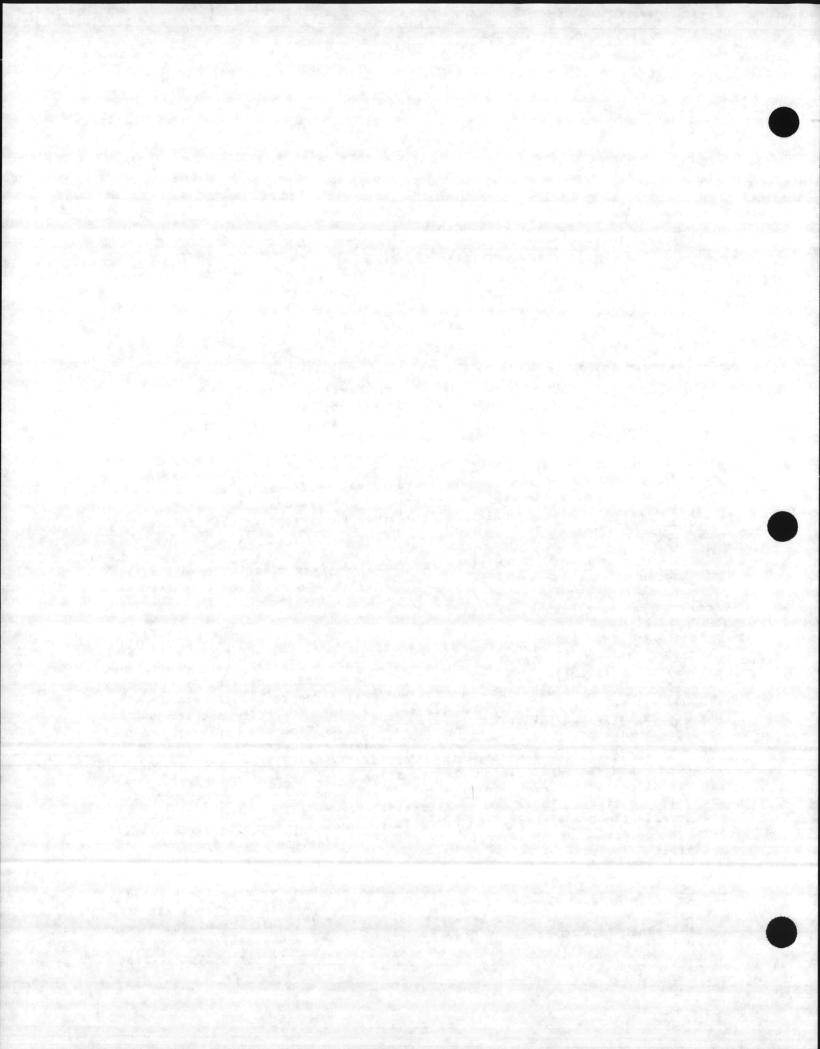
Centleven:

In response to both your letter of February 3, 1987 and subsequent conversations between Jim holdsway and harme bathis of your office and Paul Tabowall and Cherryl Tarmett of this office, we are enclosing all the analytical data from testing of the monitoring and potable wells at the berine Corps Base, Comp Lejeune. Enclosure (1) is a preliminary report from TACIF Phase II initial sampling prepared by Environmental Science and Engineering, Incorporated (EEE). Enclosure (2) is the set of lab reports from nampling conducted by Lamp Lejeune and analyses performed by our contract laboratory, JTC Savironmental Consultants, Incorporated. The State of North Carolina also did some sampling and enalyses; their reports are forwarded as enclosure (3).

Disco much of the data is still in raw form, we would like to present a brief discussion of each enclosure to provide you with some background on the objectives of the investigation, the time frames involved, and the resulting actions that have been taken.

is divided into three steps: verification, characterization, and development of feasible alternatives for remediation. The verification step is subdivided into three rounds of sampling. We believe that three rounds of data from a roundwater and surface water samples are the minimum requirement for decylon the existence of contamination and deleting a site from the NACIP program or proceeding with characterization and feasibility evaluation for the site. The contract for each step and round is independently negotiated; enclosure (1) is based on round one verification step sampling only. Since contamination has been verified in the hadnot foint area, we are proceeding with the next two steps in the study. Found two verification step rampling as well as characterization and feasibility steps in the Hadnot Point area are currently being supptiated. We have enclosed a proposed milestone chart for these sectivities as enclosure (4).

From receipt of FTL's raw analytical data, a comprehensive sampling program for Voletile Organic Compounds (VOCs) was initiated at all potable wells and water treatment plants. This began to December of 1994 with sampling of wells in the Badnot Point system. WC analyses on all wells was completed by Uprel 1985 and additional contamination was discovered in the Tarawa Torrace



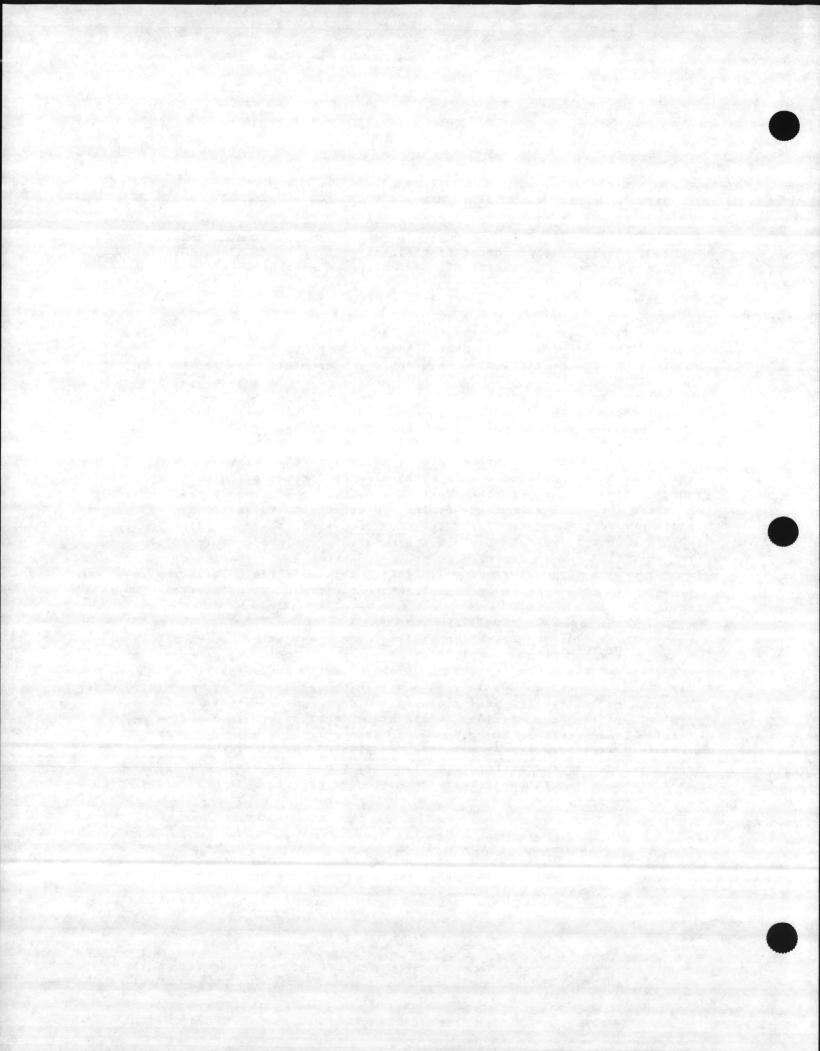
1143CL

system. After confirmatory sampling of all wells showing VCC contominants, in wells were shut down: ECL, FDC, FDC, FDC, FBA, GCT, FSI, GCC, GCC, GCC, and TT-Dev. Since July 1987. Camp be jound has conducted swelly sampling of the finished effluent from the Eadnot Point and Terrara Terrare plants and monthly sampling of TT-TS, the closest operational well to the two contaminated wells in Tarawa Terrace. In addition, they collected another round of samples from the Dadort Point wells in January 1986 and plant to sample all other wells for VCCs in the next month. To additional VCC problems have been discovered.

Additional sumples and analyses conducted by the State of Borth Carolina included potable units, treatment plants, and points in the elecular Content of and Tarawa Terrace distribution systems. The eramatic drop in VCC levels in the distribution system between February 8, 1985 to February 27, 1985 corresponds to the time the contaminated well 651 was shut down. As a quality control clock, camples were split between STC and the Morth Carolina laboratory on two occasions. These data have been compiled in enclosure (5).

The State consucted a separate investigation into the Tarava Ectrace contamination and concluded that a dry cleaner located off base is the likely source. We have not yet been provided a copy of their report or informed of any steps they will take to determine the extent of the contamination and to initiate repedial resource as required. Your support and coordination with the State on this patter would be appreciated to ensure that remedial resources are identified sed implemented to prevent further contamination of Samp Lejense's Tarava Terrace well field. This well field is corrently straiged to meet water demand requirements and rapid provaduater clearup is required.

the hope the enclosed information will alleviate any concerns you may have reparding the extent and schmittyly of our analytical procedures and the thoroughness of our investigation. Closure of the contaminated wells has eliminated detectable VOCs in the hadnot foint and Tarava Terrace distribution systems. We believe the well cleaures and the objoing sampling of treateent plant effluents and operational wells are effective interim measures to siminize human exposure to hazardous substances and we are proceeding with a study to identify permanent solutions as part of the PACIF program. Other issues raised in your letter regarding analytical parameters for PACIF sampling and the Mational Frierities List were addressed in our letter of February 6, 1986.



Sene HABERT

In a telephone conversation between Jie Feldaway, Cherryl Barnett, and Faul Pakowski of February 16, 1996, Fr. holdaway supported a review meeting at Camp Lejeune. be levite you to attend a briefing LSD will be giving at the start of additional confirmation study field activities. Our point of contact for the NACIP program, Cherryl Barnett, will let you know when the briefing in acheduled.

Sincerely,

J. F. BAILEY, P.F. lead, Environmental quality Branch Utilities, Emergy and Environmental Division Ly direction of the Commander

Inc!:

- (1) Swaluation of Data from First Pound of Verification Sample Collection and Analysis, Marine Corps Base, Camp Lejeune
- (2) JTC Lab Teports
- (3) State of Forth Carelina Lab Peports
- (A) Milestone Chart
- (T) Anrawa Terrace Later System, Comparison of Later Guality Pate

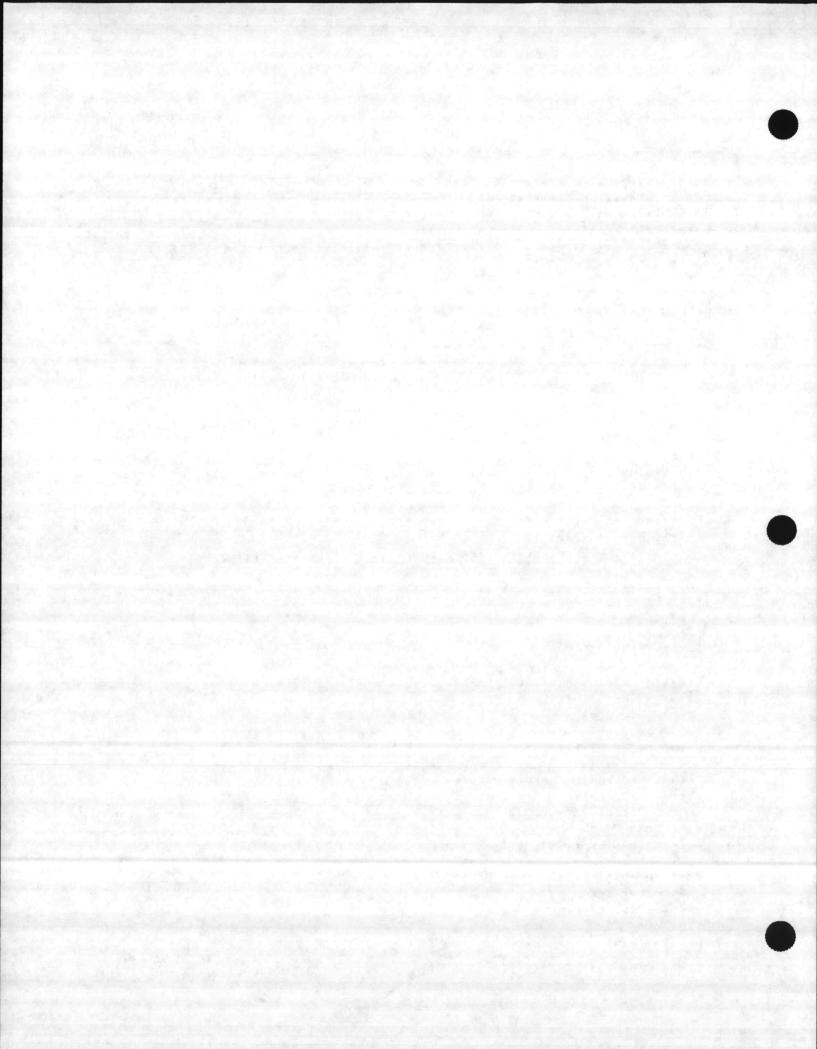
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MARCEE Comp Lejeune
CC (LIL)
CCC (CF-45)
CCCMANTACENCOM

Pivision of Environmental hangement (u/encls 1, 2, 4, 5 5) attms F. Paul Villiams
Firector
P.C. Box 27687
Faleigh, EC 2761147687

Pivison of Bealth Services (u/o encls)
Atto: Dr. Pocald E. Levine
Director
P.C. Box 2091
Saleigh, EC 27602-2091

Environmental Science and Engineering (w/encls 7, 3, & 5)
Incorporated
Attn: Tr. Euss Bown
F.C. Box ESE
Cairesville, FL 22607-3053

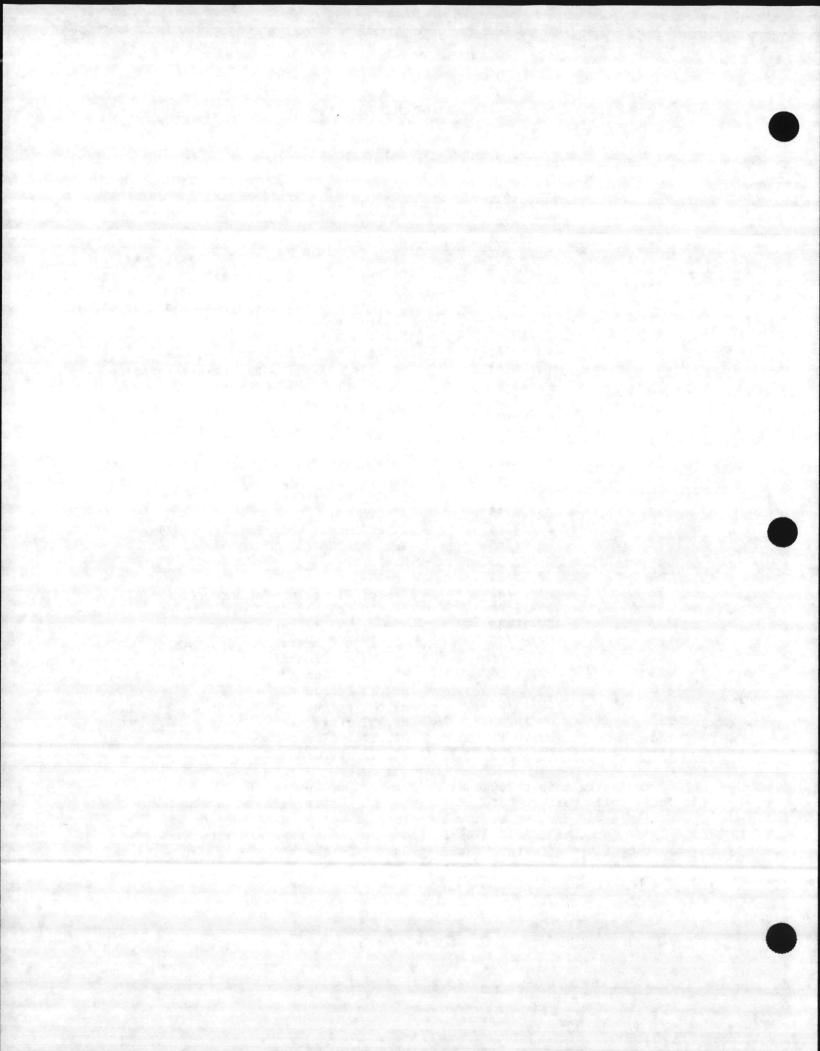
Elind Copy to: C9A21, 118, 114, 1141, 4145, 09BS (w/o encl), Doc 805117/drd



SUMMARY OF JTC LAB REPORTS

Report Number	Date Issued	Sample Description
4	12/18/84	HP-20 (1); potable wells in HP system
7	12/18/84	potable wells in HP system; HP-20
8	12/18/84	HP well 602; HP-20
10	12/20/84	HP-20
12	12/21/84	HP-20; FC-540 (distribution system)
17	02/06/85	potable wells in HP system
17 (addendum)	02/19/85	HP well 636
19	02/12/85	potable wells in other systems (including Tarawa Terrace (TT))
19 (addendum)	02/19/85	CHB new well
20	02/14/85	potable wells in other systems
26	03/08/85	potable wells; water treatment plants
29	02/14/85	TT wells; TT WTP effluent
36	03/18/85	WTP effluents; new wells
37	03/01/85	TT wells; TT WTP effluent
44	03/27/85	TT new well; TT WTP (samples taken before, during, and after pump tests on new well)
65	04/04/85	HP-20, TT effluent; wells LCH-4006 (2) & RR-227 (2)
66	04/26/85	HP-20, TT effluent
67	05/02/85	TT-39A (3)
72	05/20/85	TT effluent; Well RR-227; TT-39A
77	06/07/85	Well AS-106 (2)
84	07/05/85	HP-20 ·
86	07/05/85	HP-20
92	07/11/85	HP-20, TT effluents; Well TC-600 (2)
93	07/11/85	AS-110 (4), AS-2800 (distribution system)
97	07/11/85	HP-20, TT effluents
99	07/19/85	HP, TT effluents
101	07/29/85	HP, TT effluents
113	08/21/85	HP, TT effluents
120	08/21/85	HP, TT effluents
130	09/12/85	HP, TT effluents
132	09/18/85	HP, TT effluents
138	09/24/85	HP, TT effluents
141	09/24/85	HP, TT effluents

- (1) HP-20 is the Hadnot Point Water Treatment Plant (WTP).
- (2) These wells were out of service when the other wells were sampled VOC analysis was done on each well before it was brought back on line.
- (3) TT-39A (same as TT STT 39A) is the pump house that distributes Tarawa Terrace finished water. Sampling point is the same for TT WTP effluent.
- (4) AS-110 is the water treatment plant for the Marine Corps Air Station, New River.



SUMMARY OF JTC LAB REPORTS

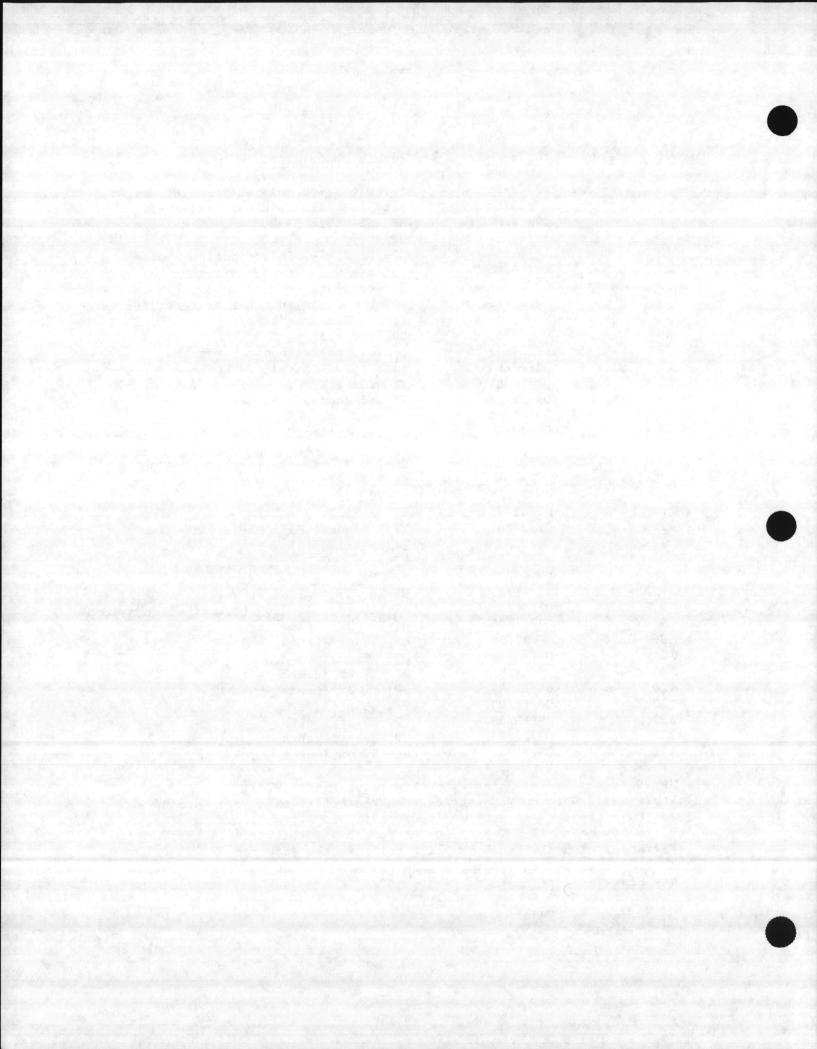
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44		03/27/85 .	TT new well; TT WTP (samples taken before,
			during, and after pump tests on new well)
6.	5	04/04/85	HP-20, TT effluent; wells LCH-4006 (2) &
			RR-227 (2)
66	5	04/26/85	HP-20, TT effluent
6	7	05/02/85	TT-39A (3)
72	2	05/20/85	TT effluent; Well RR-227; TT-39A
7:	7	06/07/85	Well AS-106 (2)
84		07/05/85	HP-20
86	5	07/05/85	HP-20
92	2	07/11/85	HP-20, TT effluents; Well TC-600 (2)
93	3	07/11/85	AS-110 (4), AS-2800 (distribution system)
97		07/11/85	HP-20, TT effluents
99)	07/19/85	HP, TT effluents
101		07/29/85	HP, TT effluents
113	}	08/21/85	HP, TT effluents
120)	08/21/85	HP, TT effluents
130		09/12/85	HP, TT effluents
132		09/18/85	HP, TT effluents
138	3	09/24/85	HP, TT effluents
141		09/24/85	HP, TT effluents
			2008년 1200년 12

(1) HP-20 is the Hadnot Point Water Treatment Plant (WTP).

(4) AS-110 is the water treatment plant for the Marine Corps Air Station, New River.

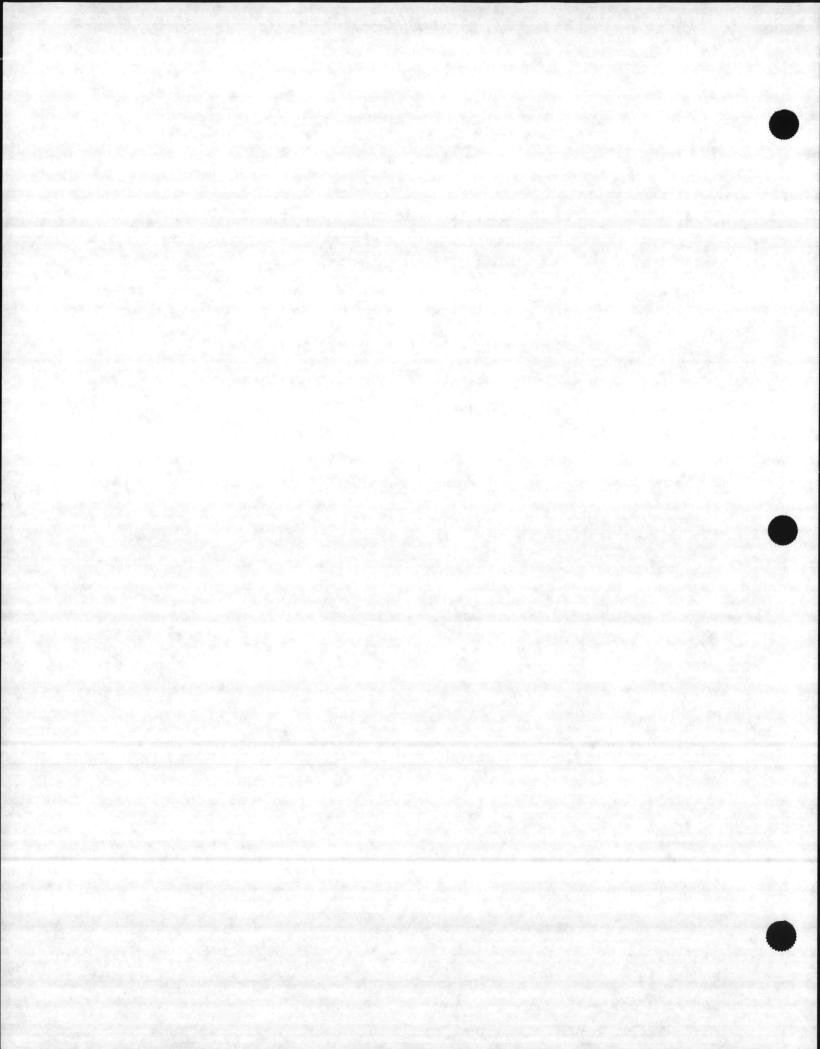
⁽²⁾ These wells were out of service when the other wells were sampled VOC analysis was done on each well before it was brought back on line.

⁽³⁾ TT-39A (same as TT STT 39A) is the pump house that distributes Tarawa Terrace finished water. Sampling point is the same for TT WTP effluent.



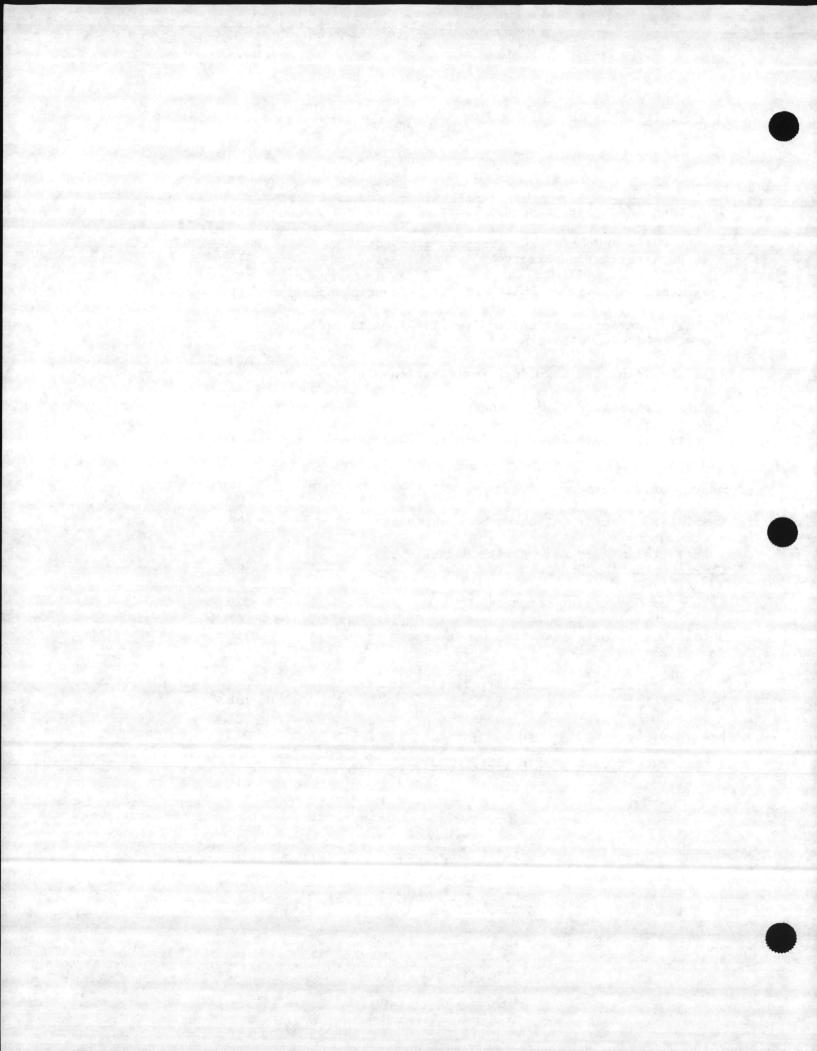
SUMMARY OF NORTH CAROLINA DIVISIONS OF ENVIRONMENTAL MANAGEMENT AND HEALTH SERVICES LAB REPORTS

Report Date	Description
02/04/85	HP-20; Holcomb Boulevard (HB) distribution system (fed by HP-20)
02/08/85	HP-20; Building 670 (1); HB distribution system
02/22/85	TT new well; Well TT-26; TT WTP; HP WTP; HB WTP and distribution system
03/11/85	TT new well; Well TT-26; TT WTP
06/21/85	TT new well; Well TT-26; Well TT-25
(1) Building (570 is the HB plant.



MILESTONE CHART

Milestone	Day
Government Issuance of Change Order	0
Submit POA&M and Safety/Contingency Plan for Characterization Effort	10
Government Approval of POA&M and Safety/Contingency Plan	17
Initiate Characterization On-Site Investigations for Hadnot Point Industrial Area	45
Initiate Round Two Sampling, Verification Step	45
Initiate Potable Well Sampling	45
Submit Report with Round Two Results, Potable Well Results	125
Return of Government Comments	155
Complete Characterization On-Site Investigation	260
Submit Preliminary Report with Hadnot Point Characterization Step Results	290
Return of Government Comments	320
Submit Characterization Step Draft Report for Hadnot Point	350
Submit Preliminary Feasibility Step Report for Hadnot Point	380
Return of Government Comments	410
Submit Feasibility Step Draft Report for	440



DOC NO: CLEJ-00362-3.04-4/25/86

TARAWA TERRACE WATER SYSTEM COMPARISON OF WATER QUALITY DATA (ug/1) SAMPLE DATE

Location	VOC Parameters	19 Feb (N)	19 Feb (L) (#37)	11 Mar (N)	11 Mar (L) (#44)
TT 26 Well	TCE	3.91	4.1		
	TetraCE	55.17	64		
	trans 1,2-DCE	trace	9.5		
	Benzene	ND	ND		
				Pumped 2	Hours
TT New Well	TCE	53.53	ND	ND	1.3*
	TetraCE	26.17	ND	14.9	16
	trans 1,2-DCE	trace	13	ND	1.2*
	Benzene	ND	6.3	**	6.7
				Pumped 24	Hours
	TCE			ND	2.4*
	TetraCE			40.6	48
	trans 1,2-DCE			ND	2.8*
	Benzene			**	4.3*
TT Finished				W/O New V	Vell
Water	TCE			ND ·	ND
	TetraCE			ND	ND
	trans 1,2-DCE			ND	ND
	Benzene			**	ND
				Upstream at 24 H	of Reservoir
	TCE			ND	1.1*
	TetraCE			21.3	20
	trans 1,2-DCE			ND	1.2*
	Benzene			**	2.2*
				Downstres at 24 l	m of Reservoi
	TCE			ND	ND
	TetraCE			6.6	8.9*
	trans 1,2-DCE			ND	ND
	Benzene			**	1.6*

LEGEND

ND = Not Detectable at limit of 10 ppb.

TCE = Trichoroethylene

TetraCE = Tetrachloroethylene

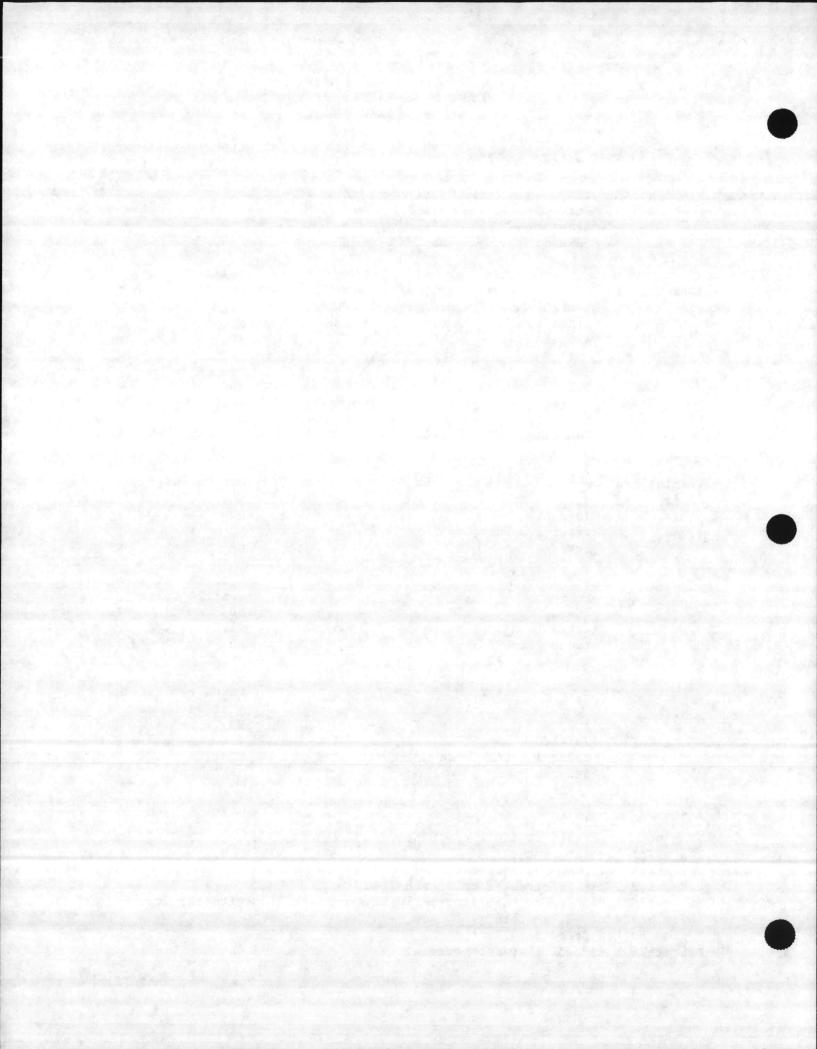
trans 1,2-DCE = 1,2-trans-dichloroethylene

(L) = LANTNAVFACENGCOM Laboratory, JTC Environmental Consultants, Inc.

(N) = State of NC Laboratory

*Below method detection limit.

**State lab did not test for benzene.

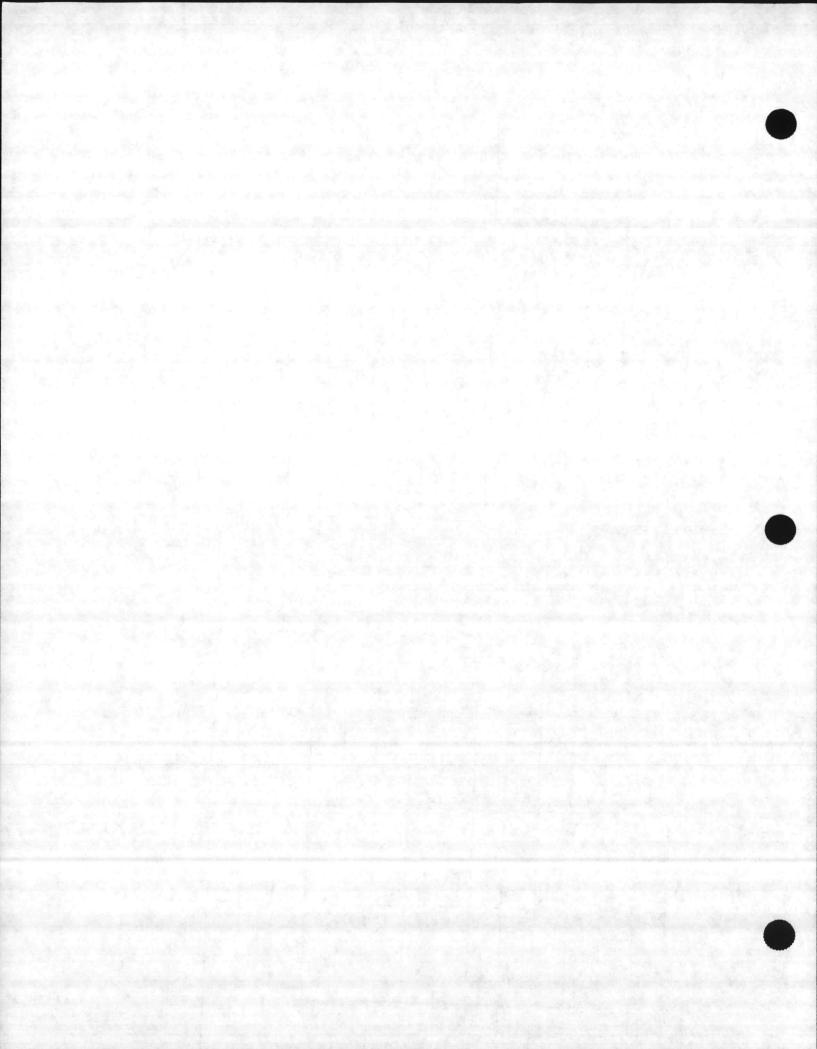


DEPARTMENT OF HUMAN RESOURCES - DIVISION OF HEALTH SERVICES LABORATORY SECTION OCCUPATIONAL HEALTH

G C REPORT SHEET

	DATE OF ANALYSIS: 34144	ytz
COMPANY: Camp Lajoune, N.C.	rpp.	

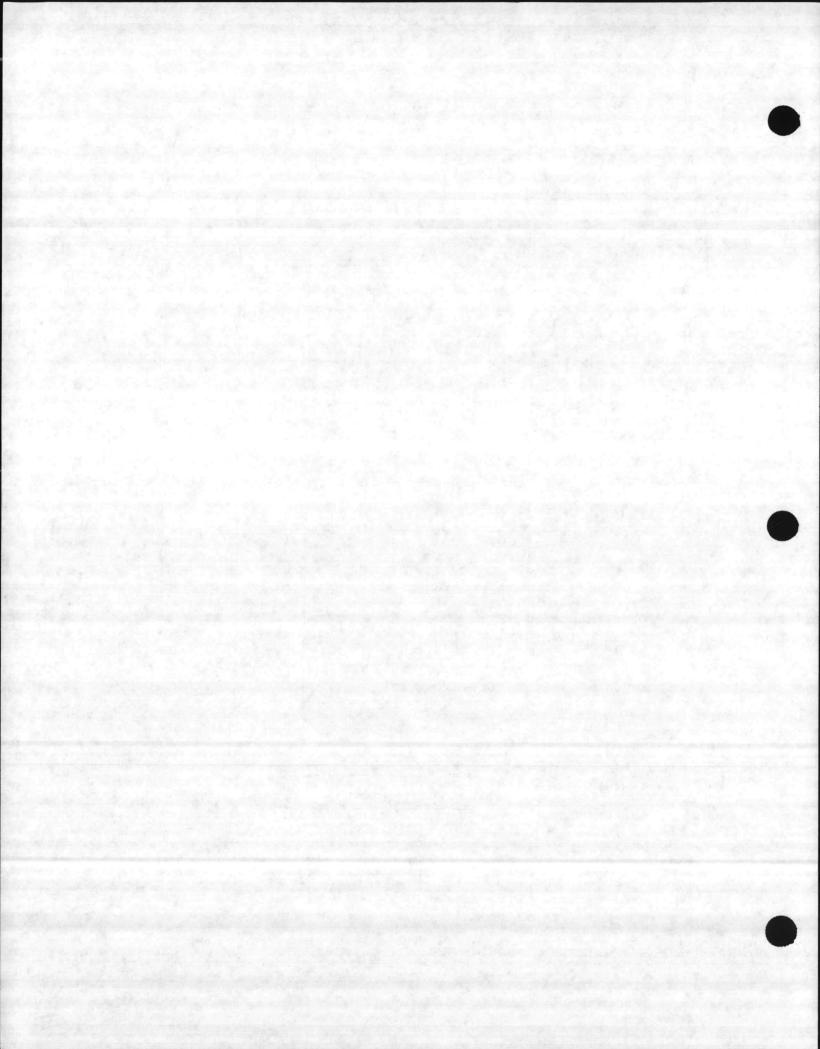
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Concerno en : 3/11/85 : Englist Party



DOC NO: OLEJ - 00362-3.04-4/25/86 564-4546

Month Caroline Department of Human Resources Division of Health Services Accupational Weslith Laboratory

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AMALYSIS PLIGRE

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