01.08- 07/14/83-00360

(804) 444-9566

114:JGW:gmc
6280

14 JUL 1983

From: Commander, Atlantic Division, Naval Facilities Engineering Command
To: Commanding General, Marine Corps Base, Camp Lejeune

Subj: Ground Water Monitoring Results, Rifle Range Area

Ref: (a) EPA National Interim Primary Drinking Water Regulations 40 CFR 141

Encl: (1) Centec 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 LEJEUNE 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 parts per billion (ppb) of chemical constituents from the total trihalomethane (TTHM) 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 wells.

4. Enclosure (1) indicates organic contamination at the chemical dump, primarily at Well #17. This contamination will be further addressed in the NACIP Program Confirmation Study which is anticipated to commence in FY-84.

5. LANTNAVFACENGCOM point of contact is Mr. Jerry Wallmeyer at (804) 444-9566 or AUTOVON 564-9566

J. R. BAILEY
By direction

Copy to:
CMC (Code LFT-2)
MCB CAMP LEJEUNE (Natural Resources and Environmental Affairs)
NAVENVIRVA
COMNAVFACENGCOM

Blind Copy to:
114 [redacted]
1142
114S
09ES(w/o encl)
Doc. #0066f.

WALLMEYER
Cina
7/13/783

nrs

CENTEC ANALYTICAL SERVICES, INC.
A SUBSIDIARY OF THE CENTEC CORPORATION

P. O. BOX 956
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 (Tl)

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

CAS No.	Description	Ag (mg/l)	As (mg/l)	Be (mg/l)	Cd (mg/l)	Cr (mg/l)	Cu (mg/l)	Hg (mg/l)	Ni (mg/l)	Pb (mg/l)	Se (mg/l)	Zn (mg/l)	Sb (mg/l)	Tl (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 finished water	<0.01	<0.001	<0.01	<0.01	<0.05	0.02	0.0007	<0.05	<0.001	<0.005	0.08	<0.001	<0.001

Mead

1A. REPORT OF DATA

SAMPLE IDENTIFIER NUMBER: 29372

COMPUCHEM SAMPLE NUMBER: 3493

SUBMITTED TO:

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

Gerald D. Wright

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: 29372
COMPUCHEM SAMPLE NUMBER: 3493

	Date
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 Requested

EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29372
COMPUCHEM SAMPLE NUMBER: 3493

	VOLATILE ORGANICS	CONCENTRATION (UG/L)	DETECTION LIMIT (UG/L)	SCAN NUMBER
1V.	ACROLEIN	BDL	100	
2V.	ACRYLONITRILE	BDL	100	
3V.	BENZENE	BDL	10	
4V.	BIS (CHLOROMETHYL) ETHER	BDL	10	
5V.	BROMOFORM	BDL	10	
6V.	CARBON TETRACHLORIDE	BDL	10	
7V.	CHLOROBENZENE	BDL	10	
8V.	CHLORODIBROMOMETHANE	BDL	10	
9V.	CHLOROETHANE	BDL	10	
10V.	2-CHLOROETHYLVINYL ETHER	BDL	10	
11V.	CHLOROFORM	BDL	10	
12V.	DICHLOROBROMOMETHANE	BDL	10	
13V.	DICHLORODIFLUOROMETHANE	BDL	10	
14V.	1,1-DICHLOROETHANE	BDL	10	
15V.	1,2-DICHLOROETHANE	BDL	10	
16V.	1,1-DICHLOROETHYLENE	BDL	10	
17V.	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	
24V.	TETRACHLOROETHYLENE	BDL	10	
25V.	TOLUENE	BDL	10	
26V.	1,2-TRANS-DICHLOROETHYLENE	14	10	295
27V.	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	

BDL = BELOW DETECTION LIMIT

EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29372
COMPUCHEM SAMPLE NUMBER: 3493

	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	

BDL = BELOW DETECTION LIMIT

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.

EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29372
COMPUCHEM SAMPLE NUMBER: 3493

	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
	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

BDL = BELOW DETECTION LIMIT

Mead CompuChem

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

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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: 29373
COMPUCHEM SAMPLE NUMBER: 3494

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

EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29373
COMPUCHEM SAMPLE NUMBER: 3494

	VOLATILE ORGANICS	CONCENTRATION (UG/L)	DETECTION LIMIT (UG/L)	SCAN NUMBER
1V.	ACROLEIN	BDL	100	
2V.	ACRYLONITRILE	BDL	100	
3V.	BENZENE	BDL	10	
4V.	BIS (CHLOROMETHYL) ETHER	BDL	10	
5V.	BROMOFORM	BDL	10	
6V.	CARBON TETRACHLORIDE	BDL	10	
7V.	CHLOROBENZENE	BDL	10	
8V.	CHLORODIBROMOMETHANE	BDL	10	
9V.	CHLOROETHANE	BDL	10	
10V.	2-CHLOROETHYLVINYL ETHER	BDL	10	
11V.	CHLOROFORM	BDL	10	
12V.	DICHLOROBROMOMETHANE	BDL	10	
13V.	DICHLORODIFLUOROMETHANE	BDL	10	
	1,1-DICHLOROETHANE	BDL	10	
	1,2-DICHLOROETHANE	BDL	10	
16V.	1,1-DICHLOROETHYLENE	BDL	10	
17V.	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	13	10	641
24V.	TETRACHLOROETHYLENE	BDL	10	
25V.	TOLUENE	43	10	677
26V.	1,2-TRANS-DICHLOROETHYLENE	450	10	301
27V.	1,1,1-TRICHLOROETHANE	BDL	10	
28V.	1,1,2-TRICHLOROETHANE	BDL	10	
29V	TRICHLOROETHYLENE	31	10	470
30V.	TRICHLOROFLUOROMETHANE	BDL	10	
31V.	VINYL CHLORIDE	BDL	10	

BDL = BELOW DETECTION LIMIT

EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29373
COMPUCHEM SAMPLE NUMBER: 3494

	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

BDL = BELOW DETECTION LIMIT

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.

EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29373
COMPUCHEM SAMPLE NUMBER: 3494

	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	

BDL = BELOW DETECTION LIMIT

Mead Compuchem

1C. REPORT OF DATA

SAMPLE IDENTIFIER NUMBER: 29374

COMPUCHEM SAMPLE NUMBER: 3495

SUBMITTED TO:

Mr. David Thompson
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2160 Industrial Drive
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Gerald D Wright

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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

	Date
Received/Refrigerated	04/25/83
Organics	
Extracted	04/28/83
Analyzed	
1. Volatiles	04/28/83, 05/02/83 [1]
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 Requested

[1] 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.

EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29374
COMPUCHEM SAMPLE NUMBER: 3495

	VOLATILE ORGANICS	CONCENTRATION (UG/L)	DETECTION LIMIT (UG/L)	SCAN NUMBER
1V.	ACROLEIN	BDL	100	
2V.	ACRYLONITRILE	BDL	100	
3V.	BENZENE	13	10	479
4V.	BIS (CHLOROMETHYL) ETHER	BDL	10	
5V.	BROMOFORM	BDL	10	
6V.	CARBON TETRACHLORIDE	BDL	10	
7V.	CHLOROBENZENE	BDL	10	
8V.	CHLORODIBROMOMETHANE	BDL	10	
9V.	CHLOROETHANE	BDL	10	
10V.	2-CHLOROETHYLVINYL ETHER	BDL	10	
11V.	CHLOROFORM	BDL	10	
12V.	DICHLOROBROMOMETHANE	BDL	10	
13V.	DICHLORODIFLUOROMETHANE	BDL	10	
14V.	1,1-DICHLOROETHANE	BDL	10	
15V.	1,2-DICHLOROETHANE	21	10	335
16V.	1,1-DICHLOROETHYLENE	BDL	10	
17V.	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	
24V.	TETRACHLOROETHYLENE	BDL	10	
25V.	TOLUENE	BDL	10	
26V.	1,2-TRANS-DICHLOROETHYLENE	4,700 [1]	10	299
27V.	1,1,1-TRICHLOROETHANE	BDL	10	
28V.	1,1,2-TRICHLOROETHANE	BDL	10	
29V	TRICHLOROETHYLENE	BDL	10	
30V.	TRICHLOROFLUOROMETHANE	BDL	10	
31V.	VINYL CHLORIDE	28	10	77

[1] Compound calculated from a 1:10 dilution

BDL = BELOW DETECTION LIMIT

EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29374
COMPUCHEM SAMPLE NUMBER: 3495

	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	

BDL = BELOW DETECTION LIMIT

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.

EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29374
COMPUCHEM SAMPLE NUMBER: 3495

	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

BDL = BELOW DETECTION LIMIT

Mead CompuChem

1D. REPORT OF DATA

SAMPLE IDENTIFIER NUMBER: 29375

COMPUCHEM SAMPLE NUMBER: 3496

SUBMITTED TO:

Mr. David Thompson
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2160 Industrial Drive
Salem, VA 24153

Gerald D Wright

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: 29375
COMPUCHEM SAMPLE NUMBER: 3496

	Date
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 Requested

EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29375
COMPUCHEM SAMPLE NUMBER: 3496

	VOLATILE ORGANICS	CONCENTRATION (UG/L)	DETECTION LIMIT (UG/L)	SCAN NUMBER
1V.	ACROLEIN	BDL	100	
2V.	ACRYLONITRILE	BDL	100	
3V.	BENZENE	BDL	10	
4V.	BIS (CHLOROMETHYL) ETHER	BDL	10	
5V.	BROMOFORM	BDL	10	
6V.	CARBON TETRACHLORIDE	BDL	10	
7V.	CHLOROBENZENE	BDL	10	
8V.	CHLORODIBROMOMETHANE	BDL	10	
9V.	CHLOROETHANE	BDL	10	
10V.	2-CHLOROETHYLVINYL ETHER	BDL	10	
11V.	CHLOROFORM	BDL	10	
12V.	DICHLOROBROMOMETHANE	BDL	10	
13V.	DICHLORODIFLUOROMETHANE	BDL	10	
14V.	1,1-DICHLOROETHANE	BDL	10	
15V.	1,2-DICHLOROETHANE	BDL	10	
16V.	1,1-DICHLOROETHYLENE	BDL	10	
17V.	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	
24V.	TETRACHLOROETHYLENE	BDL	10	
25V.	TOLUENE	BDL	10	
26V.	1,2-TRANS-DICHLOROETHYLENE	BDL	10	
27V.	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	

BDL = BELOW DETECTION LIMIT

EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29375
COMPUCHEM SAMPLE NUMBER: 3496

	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	

BDL = BELOW DETECTION LIMIT

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.

EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29375
COMPUCHEM SAMPLE NUMBER: 3496

	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

BDL = BELOW DETECTION LIMIT

Mead Compuchem

1E. REPORT OF DATA

SAMPLE IDENTIFIER NUMBER: 29376

COMPUCHEM SAMPLE NUMBER: 3497

SUBMITTED TO:

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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. Phenols	Not Requested

EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29376
COMPUCHEM SAMPLE NUMBER: 3497

	VOLATILE ORGANICS	CONCENTRATION (UG/L)	DETECTION LIMIT (UG/L)	SCAN NUMBER
1V.	ACROLEIN	BDL	100	
2V.	ACRYLONITRILE	BDL	100	
3V.	BENZENE	BDL	10	
4V.	BIS (CHLOROMETHYL) ETHER	BDL	10	
5V.	BROMOFORM	BDL	10	
6V.	CARBON TETRACHLORIDE	BDL	10	
7V.	CHLOROBENZENE	BDL	10	
8V.	CHLORODIBROMOMETHANE	BDL	10	
9V.	CHLOROETHANE	BDL	10	
10V.	2-CHLOROETHYLVINYL ETHER	BDL	10	
11V.	CHLOROFORM	BDL	10	
12V.	DICHLOROBROMOMETHANE	BDL	10	
13V.	DICHLORODIFLUOROMETHANE	BDL	10	
14V.	1,1-DICHLOROETHANE	BDL	10	
15V.	1,2-DICHLOROETHANE	BDL	10	
16V.	1,1-DICHLOROETHYLENE	BDL	10	
17V.	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	
24V.	TETRACHLOROETHYLENE	BDL	10	
25V.	TOLUENE	BDL	10	
26V.	1,2-TRANS-DICHLOROETHYLENE	BDL	10	
27V.	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	

BDL = BELOW DETECTION LIMIT

EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29376
COMPUCHEM SAMPLE NUMBER: 3497

	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	

BDL = BELOW DETECTION LIMIT

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.

EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29376
COMPUCHEM SAMPLE NUMBER: 3497

	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

BDL = BELOW DETECTION LIMIT

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1F. REPORT OF DATA

SAMPLE IDENTIFIER NUMBER: 29377

COMPUCHEM SAMPLE NUMBER: 3498

SUBMITTED TO:

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JAMES J. ZOLDAK
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EXHIBIT I - LABORATORY CHRONICLE

SAMPLE IDENTIFIER: 29377
COMPUCHEM SAMPLE NUMBER: 3498

	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. Phenols	Not Requested

EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29377
COMPUCHEM SAMPLE NUMBER: 3498

	VOLATILE ORGANICS	CONCENTRATION (UG/L)	DETECTION LIMIT (UG/L)	SCAN NUMBER
1V.	ACROLEIN	BDL	100	
2V.	ACRYLONITRILE	BDL	100	
3V.	BENZENE	BDL	10	
4V.	BIS (CHLOROMETHYL) ETHER	BDL	10	
5V.	BROMOFORM	BDL	10	
6V.	CARBON TETRACHLORIDE	BDL	10	
7V.	CHLOROBENZENE	BDL	10	
8V.	CHLORODIBROMOMETHANE	BDL	10	
9V.	CHLOROETHANE	BDL	10	
10V.	2-CHLOROETHYLVINYL ETHER	BDL	10	
11V.	CHLOROFORM	BDL	10	
12V.	DICHLOROBROMOMETHANE	BDL	10	
13V.	DICHLORODIFLUOROMETHANE	BDL	10	
14V.	1,1-DICHLOROETHANE	BDL	10	
15V.	1,2-DICHLOROETHANE	BDL	10	
16V.	1,1-DICHLOROETHYLENE	BDL	10	
17V.	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	
24V.	TETRACHLOROETHYLENE	BDL	10	
25V.	TOLUENE	BDL	10	
26V.	1,2-TRANS-DICHLOROETHYLENE	BDL	10	
27V.	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	

BDL = BELOW DETECTION LIMIT

EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29377
COMPUCHEM SAMPLE NUMBER: 3498

	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	

BDL = BELOW DETECTION LIMIT

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.

EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29377
COMPUCHEM SAMPLE NUMBER: 3498

	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

BDL = BELOW DETECTION LIMIT

Mead CompuChem

1A. REPORT OF DATA

SAMPLE IDENTIFIER NUMBER: 29378

COMPUCHEM SAMPLE NUMBER: 3499

TTED TO:

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JAMES J. ZOLDAK
DIRECTOR OF LABORATORY OPERATIONS

EXHIBIT I - LABORATORY CHRONICLE

SAMPLE IDENTIFIER: 29378
COMPUCHEM SAMPLE NUMBER: 3499

	Date
Received/Refrigerated	04/25/83
Organics	
Extracted	04/28/83
Analyzed	
1. Volatiles	04/29/83
2. Acids	05/02/83
3. Base/Neutrals	05/06/83
4. Pesticides/PCBS	05/06/83
Inorganics	
1. Metals	Not Requested
2. Cyanides	04/27/83
3. Phenols	04/29/83

EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29378
COMPUCHEM SAMPLE NUMBER: 3499

	VOLATILE ORGANICS	CONCENTRATION (UG/L)	DETECTION LIMIT (UG/L)	SCAN NUMBER
1V.	ACROLEIN	BDL	100	
2V.	ACRYLONITRILE	BDL	100	
3V.	BENZENE	BDL	10	
4V.	BIS (CHLOROMETHYL) ETHER	BDL	10	
5V.	BROMOFORM	BDL	10	
6V.	CARBON TETRACHLORIDE	BDL	10	
7V.	CHLOROBENZENE	BDL	10	
8V.	CHLORODIBROMOMETHANE	BDL	10	
9V.	CHLOROETHANE	BDL	10	
10V.	2-CHLOROETHYLVINYL ETHER	BDL	10	
11V.	CHLOROFORM	50	10	319
12V.	DICHLOROBROMOMETHANE	14	10	406
13V.	DICHLORODIFLUOROMETHANE	BDL	10	
14V.	1,1-DICHLOROETHANE	BDL	10	
15V.	1,2-DICHLOROETHANE	BDL	10	
16V.	1,1-DICHLOROETHYLENE	BDL	10	
17V.	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	
24V.	TETRACHLOROETHYLENE	BDL	10	
25V.	TOLUENE	BDL	10	
26V.	1,2-TRANS-DICHLOROETHYLENE	BDL	10	
27V.	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	

_ = BELOW DETECTION LIMIT

EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29378
COMPUCHEM SAMPLE NUMBER: 3499

	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	

BDL = BELOW DETECTION LIMIT

EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29378
COMPUCHEM SAMPLE NUMBER: 3499

	BASE-NEUTRAL EXTRACTABLE ORGANICS	CONCENTRATION (UG/L)	DETECTION LIMIT (UG/L)	SCAN NUMBER
1B.	ACENAPHTHENE	BDL	10	
2B.	ACENAPHTHYLENE	BDL	10	
3B.	ANTHRACENE	BDL	10	
4B.	BENZIDINE	BDL	10	
5B.	BENZO (A) ANTHRACENE	BDL	10	
6B.	BENZO (A) PYRENE	BDL	10	
7B.	3,4-BENZOFLUORANTHENE	BDL	10	
8B.	BENZO (GHI) PERYLENE	BDL	25	
9B.	BENZO (K) FLUORANTHENE	BDL	10	
10B.	BIS (2-CHLOROETHOXY) METHANE	BDL	10	
11B.	BIS (2-CHLOROETHYL) ETHER	BDL	10	
12B.	BIS (2-CHLOROISOPROPYL) ETHER	BDL	10	
13B.	BIS (2-ETHYLHEXYL) PHTHALATE	BDL	10	
14	-BROMOPHENYL PHENYL ETHER	BDL	10	
15	UTYL BENZYL PHTHALATE	BDL	10	
16B.	2-CHLORONAPHTHALENE	BDL	10	
17B.	4-CHLOROPHENYL PHENYL ETHER	BDL	10	
18B.	CHRYSENE	BDL	10	
19B.	DIBENZO (A,H) ANTHRACENE	BDL	25	
20B.	1,2-DICHLOROBENZENE	BDL	10	
21B.	1,3-DICHLOROBENZENE	BDL	10	
22B.	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...

BDL = BELOW DETECTION LIMIT

EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29378
COMPUCHEM SAMPLE NUMBER: 3499

	BASE-NEUTRAL EXTRACTABLE ORGANICS (Continued)	CONCENTRATION (UG/L)	DETECTION LIMIT (UG/L)	SCAN NUMBER
36B.	HEXACHLOROETHANE	BDL	10	
37B.	INDENO (1,2,3-CD) PYRENE	BDL	25	
38B.	ISOPHORONE	BDL	10	
39B.	NAPHTHALENE	BDL	10	
40B.	NITROBENZENE	BDL	10	
41B.	N-NITROSODIMETHYLAMINE	BDL	10	
42B.	N-NITROSODI-N-PROPYLAMINE	BDL	10	
43B.	N-NITROSODIPHENYLAMINE	BDL	10	
44B.	PHENANTHRENE	BDL	10	
45B.	PYRENE	BDL	10	
46B.	1,2,4-TRICHLOROBENZENE	BDL	10	

BDL = BELOW DETECTION LIMIT

EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29378
COMPUCHEM SAMPLE NUMBER: 3499

	PESTICIDES/PCB'S	CONCENTRATION (UG/L)	DETECTION LIMIT (UG/L)	SCAN NUMBER
1P.	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.	ALPHA-ENDOSULFAN	BDL	10	
12P.	BETA-ENDOSULFAN	BDL	10	
13P.	ENDOSULFAN SULFATE	BDL	10	
P.	ENDRIN	BDL	10	
P.	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	

BDL = BELOW DETECTION LIMIT

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.

EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29378
COMPUCHEM SAMPLE NUMBER: 3499

	INORGANICS PRIORITY POLLUTANTS	CONCENTRATION (MG/L)	DETECTION LIMIT (MG/L)
14M.	CYANIDE, TOTAL	BDL	0.01

INORGANICS
CONVENTIONALS

(NONE ORDERED)

EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29378
COMPUCHEM SAMPLE NUMBER: 3499

	INORGANICS PRIORITY POLLUTANTS	CONCENTRATION (MG/L)	DETECTION LIMIT (MG/L)
15.	PHENOLS, TOTAL	BDL	0.01

INORGANICS
CONVENTIONALS

(NONE REQUESTED)

1142

444-9558
AUTOVON 690-9558

114:WLC

1 2 FEB 1982

From: Commander, Atlantic Division, Naval Facilities Engineering Command
To: Commanding General, Marine Corps Base, Camp LeJeune

Subj: Data Analysis of MCB CAMP LEJEUNE total Trihalomethane Monitoring Program

Ref: (a) 40 CFR Part 141, Federal Register, Vol. 44 of 29 Nov 1979
(b) LANTNAVFACENGCOM ltr 114:WLC 6280 of 29 Jul 1980
(c) LANTNAVFACENGCOM ltr 114:WLC 6280 of 5 Feb 1982
(d) LANTNAVFACENGCOM ltr 114:WLC 6280 of 26 Aug 1981
(e) CG MCB CAMP LEJEUNE 0920072 Feb 82

Encl: (1) MCB CAMP LEJEUNE TTHM DATA BASE SUMMARY - Hadnot Point, MCAS New River and Rifle Range Potable Water Systems
(2) Corrective Measures to Prevent/Reduce TTHM Formation

1. As an amendment to the National Primary Drinking Water Standards, reference (a) published final regulations for the control of total Trihalomethanes (TTHM's). The regulations establish a maximum contaminant level (MCL) of 0.10 mg/l for TTHM's, including Chloroform, that are introduced into drinking water by the reaction of naturally occurring substances with the chlorine added in water treatment.

2. Reference (b) initiated the monitoring program at the subject base for development of a TTHM data base prior to the scheduled compliance date. The two objectives of this monitoring program were to determine the extent of the TTHM problem in the MCB CAMP LEJEUNE potable water systems and to allow time for corrective actions to bring systems into compliance with the regulations.

3. At this time, community water systems under LANTNAVFACENGCOM area of cognizance are not in violation of the TTHM regulations. Public water supplies, serving less than 75,000 people but greater than 10,000, do not have to be in compliance until 29 November 1983. Smaller systems serving fewer than 10,000 people do not have to monitor and comply unless the state requires it. However, recognizing that early identification of program areas is pertinent toward attainment of congressional funding for major expenditure, reference (c) requested guidance regarding compliance policies, program implementation and project initiation from the NAVFACENGCOM.

4. Enclosure (1) which summarizes data collected by this Command during the sampling period, October 1980 through December 1981, is forwarded for your information and use. Studies in general have shown ground water sources to

Carter
Dickerson
2/12/82

be below the MCL and the running annual average concentrations based on monthly monitoring at the Rifle Range and Radnot Point potable water systems are well within the establish MCL of 0.10 mg/l for TTHM. However, the MCAS NEW RIVER System concentration of 0.11-0.12 mg/l is marginally above the limit. Accordingly, enclosure (2) provides corrective measures to prevent/reduce TTHM formation through modification within the treatment plant(s) pursuant to references (d) and (e).

5. A list of laboratory services available to perform the TTHM monitoring has also been provided, (enclosure (2)). Given considerations to economics, logistics and future laboratory monitoring and certification requirements, it is recommended that the Base initiate contractual arrangement with one of the North Carolina State certified laboratories.

6. Questions and comments regarding this matter may be addressed to Mr. W. Carter, LANTNAVFACENGCOM, Code 114, telephone (804) 444-9558 or AUTOVON 690-9558.

J. R. BAILEY
By direction

Copy to:
CNC

Blind Copy to:
114
1145
09BS

MCB CAMP LEJEUNE TTHM DATA BASE SUMMARY
(Potable Water Systems)

Activity/ Location	Number of Sampling Period Submissions	TTHM Range (mg/l)*	Source of Supply	Treatment Facility	Effective Monitoring/ Compliance Date
MCB CAMP LEJEUNE, NC**					
- Rifle Range	(4)***	0.06	Groundwater	WTP	State Discretion
- HADNOT POINT	(9)	0.05-0.07	Groundwater	WTP	29 Nov 82/ 29 Dec 83
- MCAS NEW RIVER	(9)	0.11-0.12	Groundwater	WTP	29 Nov 82/ 29 Nov 83

*Figures represent the running annual average concentration based on monthly monitoring. The high and low ranges take into account erroneous data which could have influence results (i.e., non-designated points of entry, samples not anaylzed within 14 days of sampling and lack of information due to septum inversion, spillage, contamination, molecular interference and etc.). Instances where there were no change between the high and low TTHM readings are reflected by one range.

**Monthly sampling frequency with six (6) samples collected per sampling period.

***Commence TTHM monitoring program during July 1982, per special request (excluding other parts of Base (less than 10K)). This is still an on-going program.

CORRECTIVE MEASURES TO PREVENT/REDUCE TTHM's FORMATION

I. Existing Scenario at the MCB CAMP LEJEUNE Water Treatment Plants

A. Current Chlorination Practices

1. Prechlorination - to control algae in the water plant(s)

2. Post Chlorination - to attain adequate disinfection

B. Problems associated with Prechlorination

1. Major cause of high TTHM levels in drinking water supplies

2. Once TTHM's are formed, normal water treatment processes will not remove them.

C. Prechlorination Alternatives

1. Shock dosing with chlorine will often control an algae problem, effectively.

2. Modify the point of prechlorine application within the treatment plant.

D. Conclusion

1. Prevent trihalomethanes formation versus removing them later on in the system.

II. Recommendations

A. Monitoring

1. Continue the previous THM's monitoring program at the Hadnot Point, Rifle Range and MCAS, New River systems from four of the same initial collection points. One sample should be taken at a location within the distribution system reflecting the maximum residence time of the water in the system. The remaining samples are to be taken from central portion of the distribution system.

a. Results in enclosure (1) reveal that the Rifle Range system has had no problem meeting the established MCL for TTHM's nor has Hadnot Point for those samples analyzed within the required 14 days sampling period (indicative of the high and low TTHM ranges representing the running annual average concentration). However, should these systems for some reason are unable to maintain their current low levels of TTHM's, proceed with Section II. A.1.b. (1) below.

b. Typical approaches to evaluate the MCAS, New River community water systems are as follows:

(1) Discontinue prechlorination and allow the distribution system to flush for two days to remove any chlorine residual. Collect the first set of samples for analysis. Perform periodic microbiological analysis on the distribution water supply to insure that the potable water standards are being maintained at this time.

(2) Modify the point of prechlorination (i.e., repipe the chlorine lines to prechlorinate prior to filtration).

(3) Monitor and evaluate; if further TTHM's reduction is required, investigate individual raw water sources (i.e., identify the level of TTHM's formation in each step of the water treatment plant and/or if possible, consider closing down wells with high precursors.

Note: Rules governing Public Water Supplies Section .0600 through .2500 of the North Carolina Administrative Code require submission of all reports, plans and specifications to the Sanitary Engineering Section, Division of Health Services at least 30 days prior to any permanent change (e.g., permanent use of repiping for chlorination, installation of aeration or carbon treatment equipment) to the water treatment system(s).

(4) Monitor and evaluate; and if further TTHM's reduction is required, investigate aeration.

(5) Monitor and evaluate; and if further TTHM's reduction is required, investigate carbon treatment water systems:

2. Initiate monitoring programs for TTHM's at the Montford Point, Holcomb Boulevard, Tarawa Terrace, Courthouse Bay and Onslow Beach community water systems:

a. Collect four (4) samples per month taken on the same day from each distribution system, commencing in March 1982 for at least four months.

b. One sample should be taken at a location within the distribution system reflecting the maximum residence time of the water in the system. The remaining samples are to be taken from the central portion of the distribution system.

c. Collect the first set of monthly samples, under normal operating conditions (i.e., including prechlorination, if being provided).

3. Typical approach should any of the above systems exceed 0.10 mg/l for TTHM's during the following months:

a. Discontinue prechlorination and allow the distribution system to flush for two days to remove any chlorine residual. Collect the

second set of samples for analysis. Perform perodic microbiological analysis on the distribution water supply to insure that the potable water standards are being maintained at this time.

b. Modify the point of prechlorination (i.e., repipe the chlorine lines to prechlorinate prior to filtration for the Tarawa Terrace, Courthouse Bay and Holcomb Boulevard Systems). Since the Montford Point and Onslow Beach systems do not prechlorinate their potable water supplies, recommendations for these systems will be made upon obtainment of monitoring results.

c. Monitor and evaluate; if further TTHM's reduction is required, investigate individual raw water sources (i.e., identify the level of TTHM's formation in each step of the water treatment plant and/or if possible, consider closing down wells with high precursors).

Note: Rules governing Public Water Supplies Section .0600 through .2500 of the North Carolina Administrative Code require submission of all reports, plans and specifications to the Sanitary Engineering Section, Division of Health Services at least 30 days prior to any permanent change (e.g. permanent use of repiping for chlorination, installation of aeration or carbon treatment equipment) to the water treatment system(s).

d. Monitor and evaluate; if further TTHM's reduction is required, investigate aeration.

e. Monitor and evaluate; if further TTHM's reduction are required, investigate carbon treatment.

III. Laboratory Services

A. North Carolina State Certified Labs

1. Grainger Laboratories
   709 West Johnson Street
   Raleigh, NC 27603
   Phone: (919) 828-3360
   Costs: $35/sample (Note: Approximately 15% discount on 8 or more samples submitted at the same time. Call for proposal/verification on costs)

2. Law & Company
   P. O. Box 629
   Wilmington, NC 28402
   Phone: (919) 762-7082
   Costs: $35/sample (Note: Approximately 15% discount on 8 or more samples submitted at the same time. Call for proposal/vertification on costs).

B. LANTNAVFACENGCOM Service Contract

1. Jennings Laboratories, Inc.
   1118 Cypress Avenue
   Virginia Beach, VA 23451
   Phone: (804) 425-1498
   Costs: $60/sample - (No discount; Lab not certified by EPA/State for SDWA compliance reporting).

C. Army Laboratory Service

1. Chief, U.S. AEHA (RD-S)
   Attn: Lab Services
   Building 180
   Fort McPherson, GA 30330
   Phone: (AUTOVON 588-3234)
   Costs: Free (Lab is currently gearing down their operation on TTHM monitoring. Future monitoring of this type, anticipated for Army compliance use, will be performed at an AEHA Laboratory in Maryland. Prior to acceptance of any additional monitoring responsibility from naval activities, an official request by letter must first be channeled through the appropriate Navy/Army administrative chain of command for consideration).

TTHM SURVEILLANCE REPORT FORM

Installation CAMP LA JEUNE - RIFLE RANGE

Date Collected 18 MAR 82

Source	Sample Number	$CHCl_3$	$CHCl_2Br$	$CHClBr_2$	$CHBr_3$	TTHM
RAW WTP 85	576	1.2	<0.1	<0.1	<0.1	1
TREATED 85	577	19.4	8.6	3.5	0.3	32
RR-6	578	28.0	12.8	5.3	0.5	47
RR-10	579	AIR	BUBBLE			—
RR-92	580	34.0	16.8	6.9	0.7	58
:						
Reference OBS						
True						

Date Received 22 MAR 82

Date Analyzed 15 APR 82

Remarks:

William C Neal

WILLIAM C. NEAL, JR.
Chief, Laboratory Services

USAEHA-S Form 7

: b 80

ROUTINE REPLY, ENDORSEMENT, TRANSMITTAL OR INFORMATION SHEET

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SN 0107-LF-052-1691 *Formerly NAVEXOS 3789*

CLASSIFICATION (*UNCLASSIFIED when detached from enclosures, unless otherwise indicated*)

FROM (*Show telephone number in addition to address*) LANTNAVFACENGCOM 114
NORFOLK VA 23511
J G WALLMEYER 804 - 444 - 8566

DATE: 18 MAY 82

SUBJECT:

SERIAL OR FILE NO.:

MCB Camp Lejeune, NACIP IAS

TO:
MR JERRY STEINBERG
WATER AND AIR RESEARCH INC
PO BOX 1121
GAINESVILLE FL 32602

REFERENCE:

ENCLOSURE
(1) RIFLE RANGE TTHM ANALYSES COLL 18 MAR 82

VIA:

ENDORSEMENT ON

☐ FORWARDED ☐ RETURNED ☐ FOLLOW-UP, OR TRACER ☐ REQUEST ☐ SUBMIT ☐ CERTIFY ☐ MAIL ☐ FILE

GENERAL ADMINISTRATION	CONTRACT ADMINISTRATION	PERSONNEL
☐ FOR APPROPRIATE ACTION	☐ NAME & LOCATION OF SUPPLIER OF SUBJECT ITEMS	☐ REPORTED TO THIS COMMAND:
☐ UNDER YOUR COGNIZANCE	☐ SUBCONTRACT NO. OF SUBJECT ITEM	
☐ INFORMATION	☐ APPROPRIATION SYMBOL, SUBHEAD, AND CHARGEABLE ACTIVITY	☐ DETACHED FROM THIS COMMAND
☐ APPROVAL RECOMMENDED ☐ YES ☐ NO	☐ SHIPPING AT GOVERNMENT EXPENSE ☐ YES ☐ NO	☐ OTHER
☐ APPROVED ☐ DISAPPROVED	☐ A CERTIFICATE, VICE BILL OF LADING	
☐ COMMENT AND/OR CONCURRENCE	☐ COPIES OF CHANGE ORDERS, AMENDMENT OR MODIFICATION	
☐ CONCUR	☐ CHANGE NOTICE TO SUPPLIER	
☐ LOANED, RETURN BY:	☐ STATUS OF MATERIAL ON PURCHASE DOCUMENT	
☐ SIGN RECEIPT & RETURN		
☐ REPLY TO THE ABOVE BY:		
☐ REFERENCE NOT RECEIVED		
☐ SUBJECT DOCUMENT FORWARDED TO:		
☐ SUBJECT DOCUMENT RETURNED FOR:		
☐ SUBJECT DOCUMENT HAS BEEN REQUESTED, AND WILL BE FORWARDED WHEN RECEIVED		
☐ COPY OF THIS CORRESPONDENCE WITH YOUR REPLY		
☐ ENCLOSURE NOT RECEIVED		
☐ ENCLOSURE FORWARDED AS REQUESTED		
☐ ENCLOSURE RETURNED FOR CORRECTION AS INDICATED		
☐ CORRECTED ENCLOSURE AS REQUESTED		
☐ REMOVE FROM DISTRIBUTION LIST		
☐ REDUCE DISTRIBUTION AMOUNT TO:		

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ENCL FORWARDED PER FONECON W/ HUGH PUTNAM

SIGNATURE & TITLE: Joseph G Wallmeyer ENV ENGR 5-18-82

COPY TO:

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☆U.S. GOVERNMENT PRINTING OFFICE: 1980—603-189/8505 2-1

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SN 0107-LF-052-1691 *Formerly NAVEXOS 3789*

CLASSIFICATION *(UNCLASSIFIED when detached from enclosures, unless otherwise indicated)*

FROM *(Show telephone number in addition to address)* CAINTNAVFACENGCOM Code 114 NORFOLK VA 23511
T G Wallmeyer (804) 444-7566

DATE 11 May 82

SUBJECT Rifle Range Water System, MCB Camp Lejeune

SERIAL OR FILE NO.

TO: Mr Hugh Putnam
Water and Air Research Inc
P O Box 1121
Gainesville FL 32602

REFERENCE Forecon of 11 May 82

ENCLOSURE TTHM Data

VIA:

ENDORSEMENT ON

☐ FORWARDED ☐ RETURNED ☐ FOLLOW-UP, OR TRACER ☐ REQUEST ☐ SUBMIT ☐ CERTIFY ☐ MAIL ☐ FILE

GENERAL ADMINISTRATION	CONTRACT ADMINISTRATION	PERSONNEL
☐ FOR APPROPRIATE ACTION	☐ NAME & LOCATION OF SUPPLIER OF SUBJECT ITEMS	☐ REPORTED TO THIS COMMAND
☐ UNDER YOUR COGNIZANCE	☐ SUBCONTRACT NO. OF SUBJECT ITEM	
☐ INFORMATION	☐ APPROPRIATION SYMBOL, SUBHEAD, AND CHARGEABLE ACTIVITY	☐ DETACHED FROM THIS COMMAND
☐ APPROVAL RECOMMENDED ☐ YES ☐ NO	☐ SHIPPING AT GOVERNMENT EXPENSE ☐ YES ☐ NO	☐ OTHER
☐ APPROVED ☐ DISAPPROVED	☐ A CERTIFICATE, VICE BILL OF LADING	
☐ COMMENT AND/OR CONCURRENCE	☐ COPIES OF CHANGE ORDERS, AMENDMENT OR MODIFICATION	
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☐ SUBJECT DOCUMENT FORWARDED TO:		
☐ SUBJECT DOCUMENT RETURNED FOR:		
☐ SUBJECT DOCUMENT HAS BEEN REQUESTED AND WILL BE FORWARDED WHEN RECEIVED		
☐ COPY OF THIS CORRESPONDENCE WITH YOUR REPLY		
☐ ENCLOSURE NOT RECEIVED		
☐ ENCLOSURE FORWARDED AS REQUESTED		
☐ ENCLOSURE RETURNED FOR CORRECTION AS INDICATED		
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March 82 Sampling
Rifle Range System, MCB Camp Lejeune

Site	$CHCl_3$	$CHCl_2Br$	$CHClBr_2$	$CHBr_3$	TTHM
576 Raw	1.0 ppb	<.1	<.1	<.1	.
577 Treated	19.4	8.6	3.5	.3	32
578 RR-6 Fire House	28.0	12.8	5.3	.5	47
579 Snack Bar RR-10	No analysis	air	bubble		
580 RR-92 Cswy Plant TNT	34.0	16.8	6.9	0.7	58

Do not use officially —
No "OFFICIAL" Report of Results
From March 82 Sampling yet,
however this was obtained by
Wallace Carter in Fonecon w/
Mr Neal of Ft McPherson