

(804) 444-9566

114:JGW:gmc  
6280

1 4 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 (THM) 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.

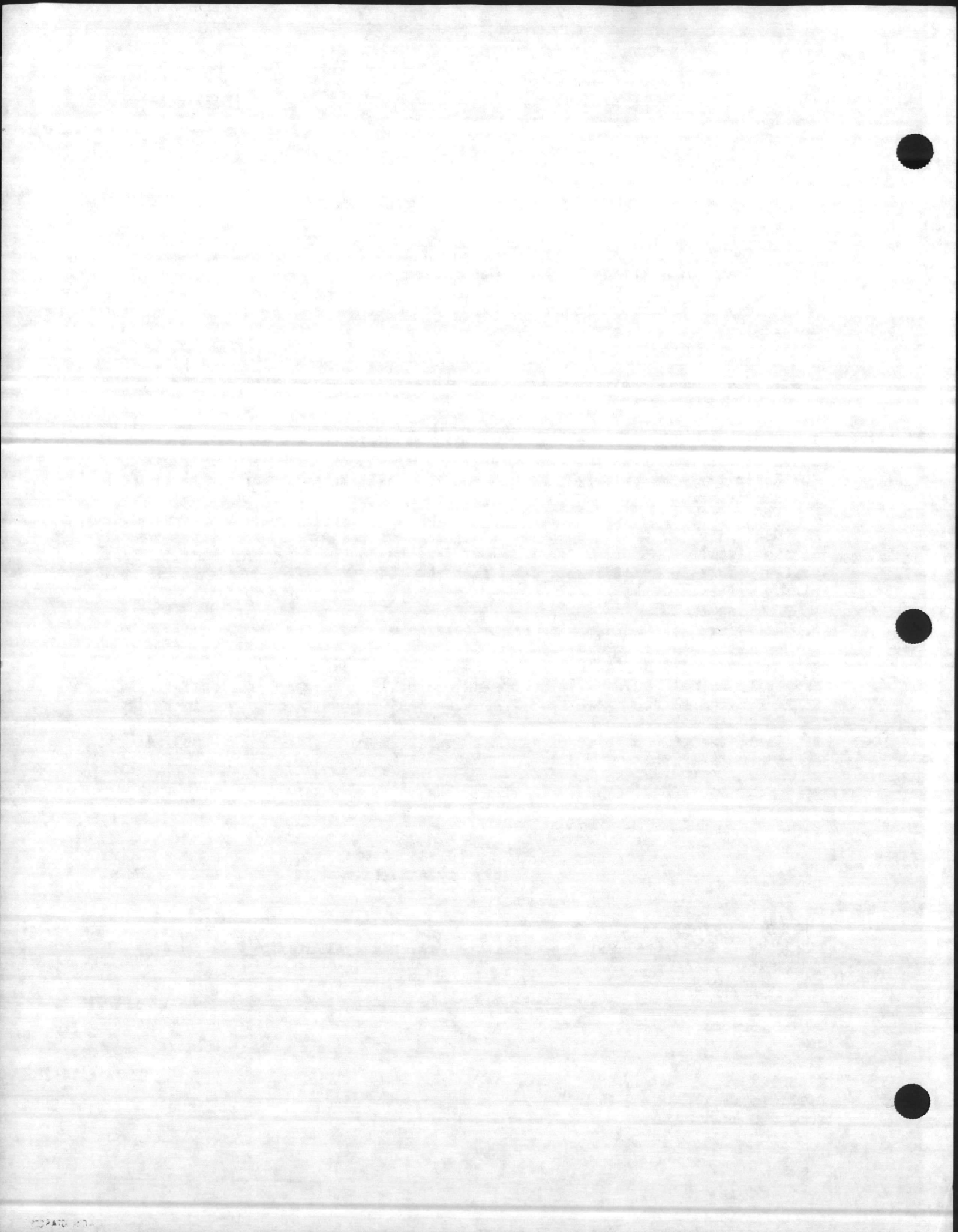
5. LANTRAVACKENCOM point of contact is Mr. Jerry Wallmeyer at (804) 444-9566 or AUTOVON 564-9566

J. R. BAILEY  
By direction

Copy to:  
CMC (Code LFF-2)  
MCB CAMP LEJEUNE (Natural Resources and Environmental Affairs)  
NAVENHNSA  
COMNAVFACENCOM

Blind Copy to:  
114  
1142 ←  
114S  
09BS(w/o encl)  
Doc. #0066f.

WALLMEYER  
Gmc  
7/13/83  
RFB





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)

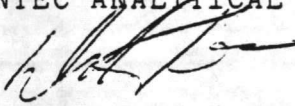
METHOD OF ANALYSIS: Re: Federal Register, Vol. 41, No. 232,  
1 December 1976

The results are shown on the following page.

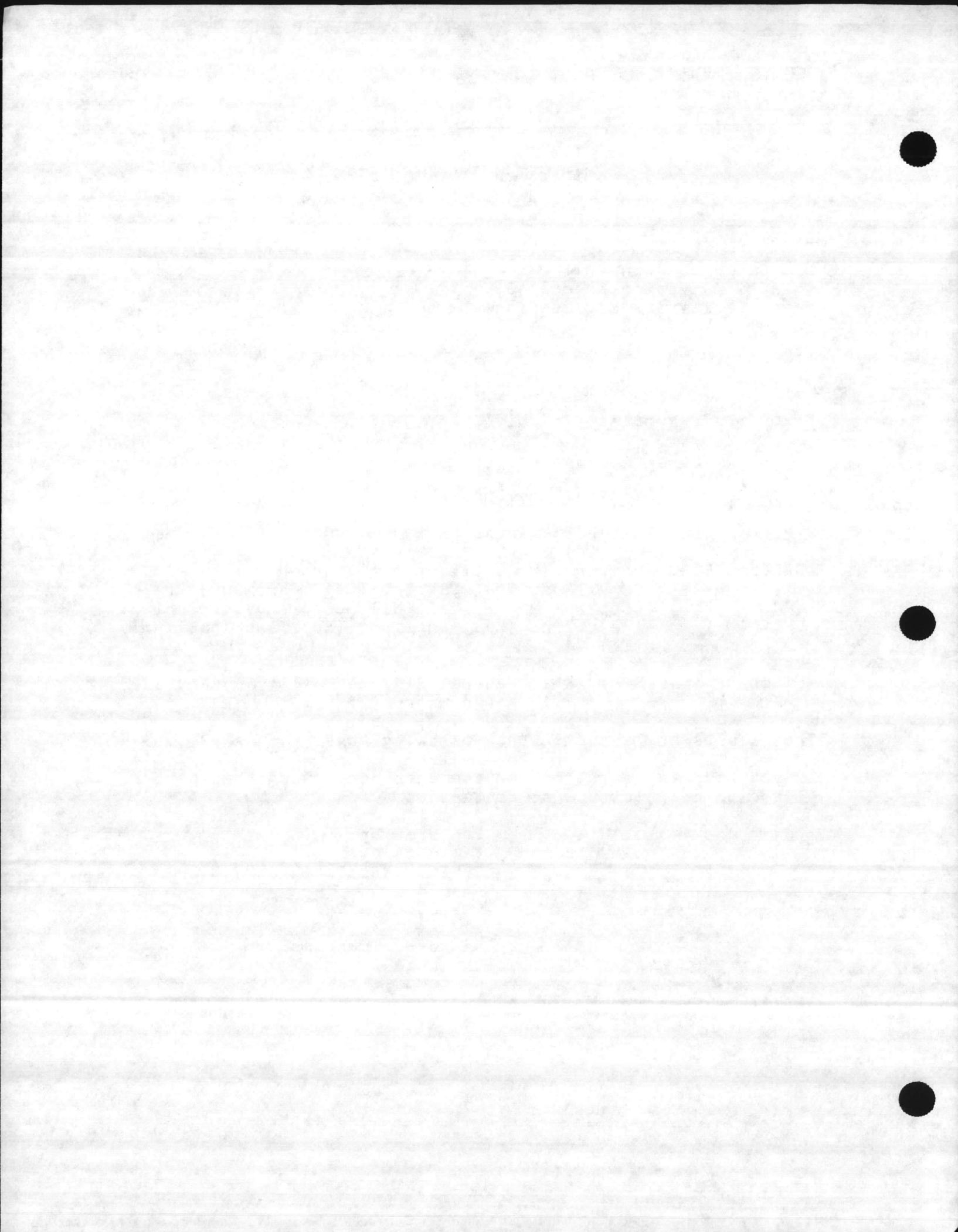
If you have any questions or comments concerning this report,  
please do not hesitate to contact us.

Prepared by:

CENTEC ANALYTICAL SERVICES

  
David F. Tompkins  
Chemist

DFT/mls



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

| CAS No. | Description                   | Ag<br>(mg/l) | As<br>(mg/l) | Be<br>(mg/l) | Cd<br>(mg/l) | Cr<br>(mg/l) | Cu<br>(mg/l) | Hg<br>(mg/l) | Ni<br>(mg/l) | Pb<br>(mg/l) | Se<br>(mg/l) | Zn<br>(mg/l) | Sb<br>(mg/l) | Tl<br>(mg/l) |
|---------|-------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 29372   | Field # 15<br>Landfill L      |              |              |              |              |              |              | 0.0006       |              |              |              |              |              |              |
| 29373   | Field # 16<br>Landfill        |              |              |              |              |              |              | 0.0006       |              |              |              |              |              |              |
| 29374   | Field # 17<br>Landfill        |              |              |              |              |              |              | <0.0005      |              |              |              |              |              |              |
| 29375   | RR-45                         |              |              |              |              |              |              | 0.0006       |              |              |              |              |              |              |
| 29376   | RR-47                         |              |              |              |              |              |              | <0.0005      |              |              |              |              |              |              |
| 29377   | RR-92                         |              |              |              |              |              |              | 0.0006       |              |              |              |              |              |              |
| 29378   | Rifle Range<br>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       | <0.01        |

*NET*

Det. No.: CLEF-00675-  
 3.04-07/14/83



Mead ~~Com~~ Chem

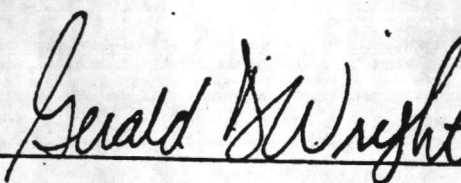
1A. REPORT OF DATA

•SAMPLE IDENTIFIER NUMBER: 29372

COMPUCHEM SAMPLE NUMBER: 3493

SUBMITTED TO:

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



GERALD D. WRIGHT, 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

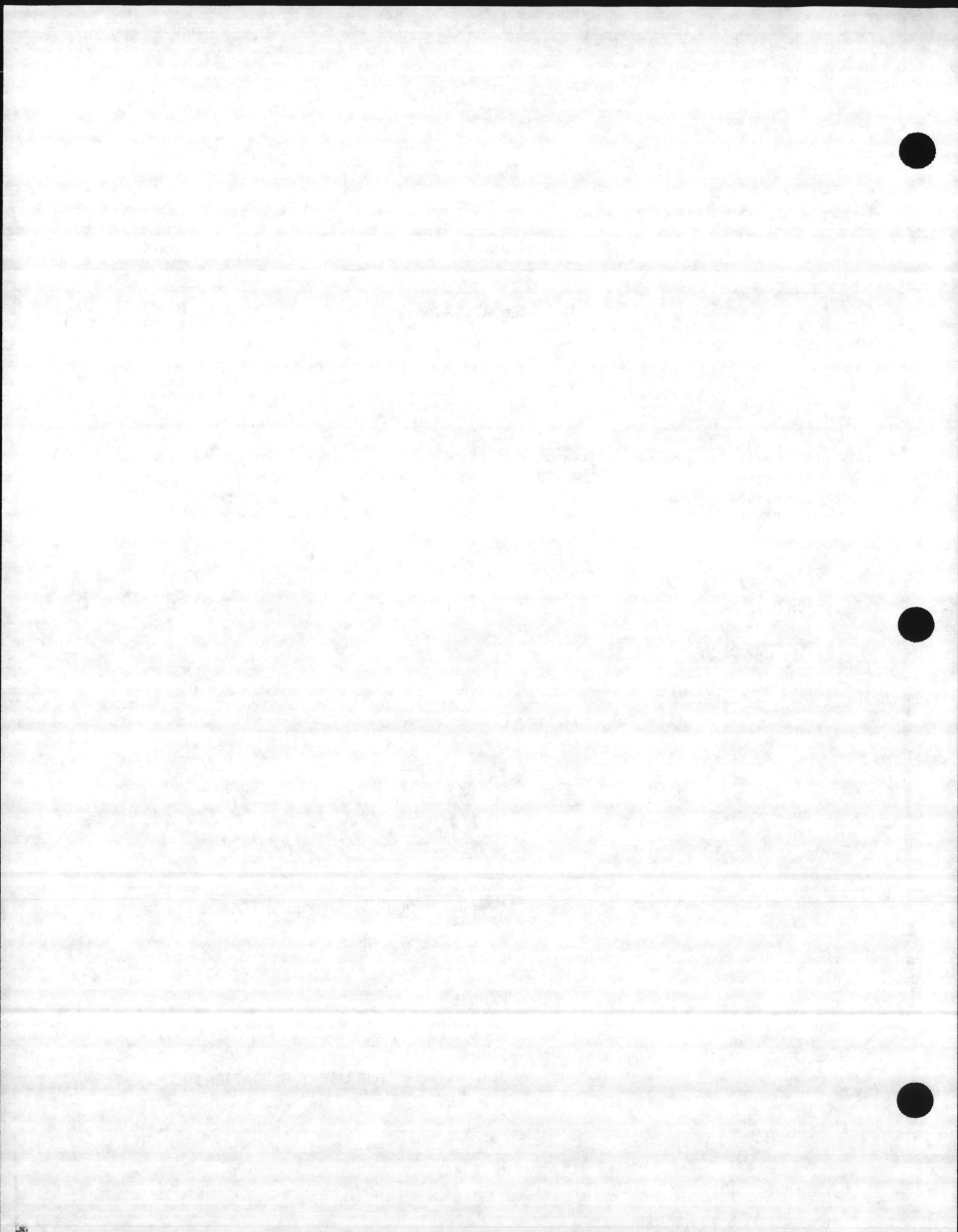




EXHIBIT I - LABORATORY CHRONICLE

SAMPLE IDENTIFIER: 29372  
COMPUCHEM SAMPLE NUMBER: 3493

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

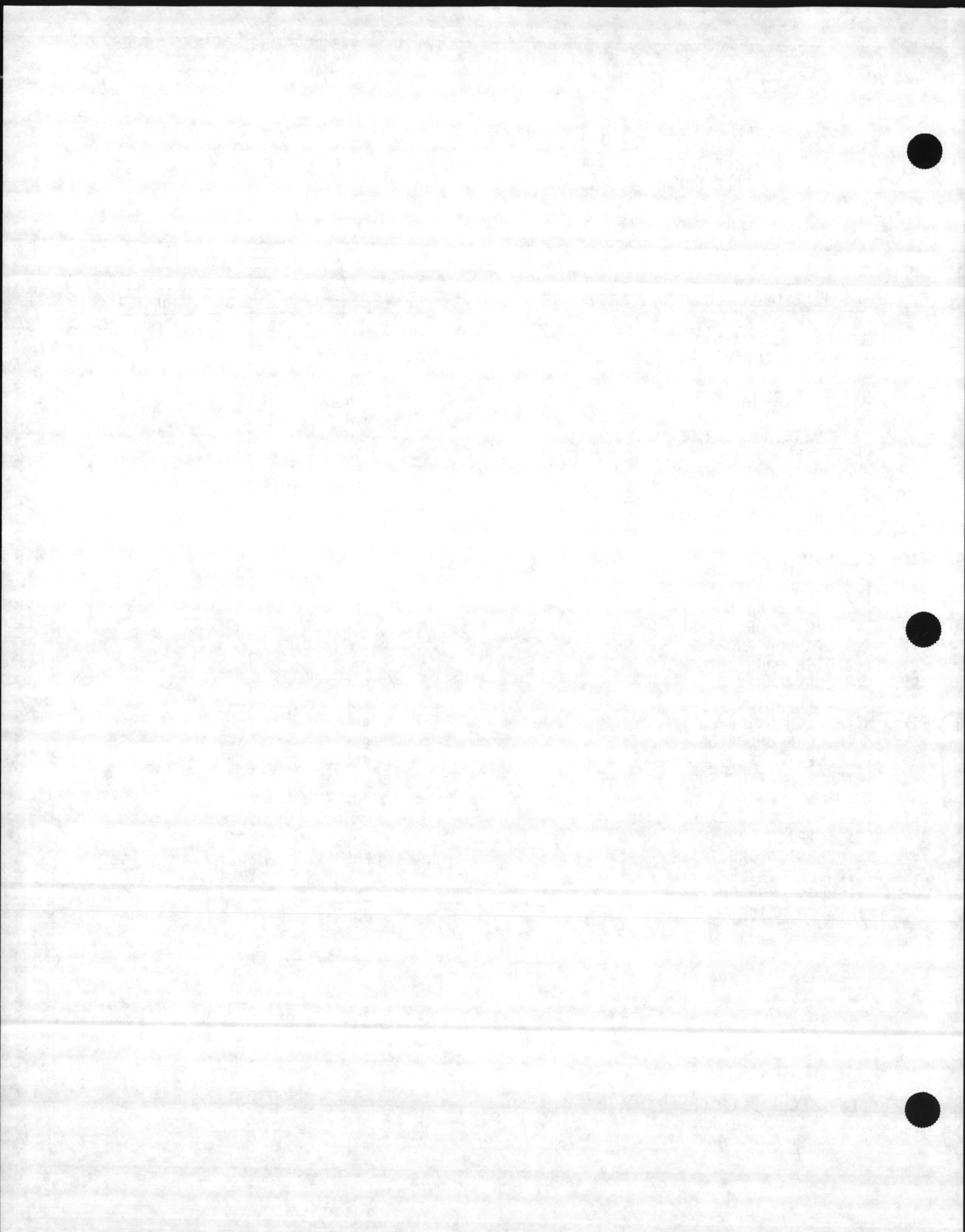


## EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29372  
 COMPUCHEM SAMPLE NUMBER: 3493

| <u>VOLATILE ORGANICS</u> |                            | <u>CONCENTRATION</u><br>(UG/L) | <u>DETECTION</u><br><u>LIMIT</u><br>(UG/L) | <u>SCAN</u><br><u>NUMBER</u> |
|--------------------------|----------------------------|--------------------------------|--|------------------------------|
| 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-CHLOROETHYL VINYL 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

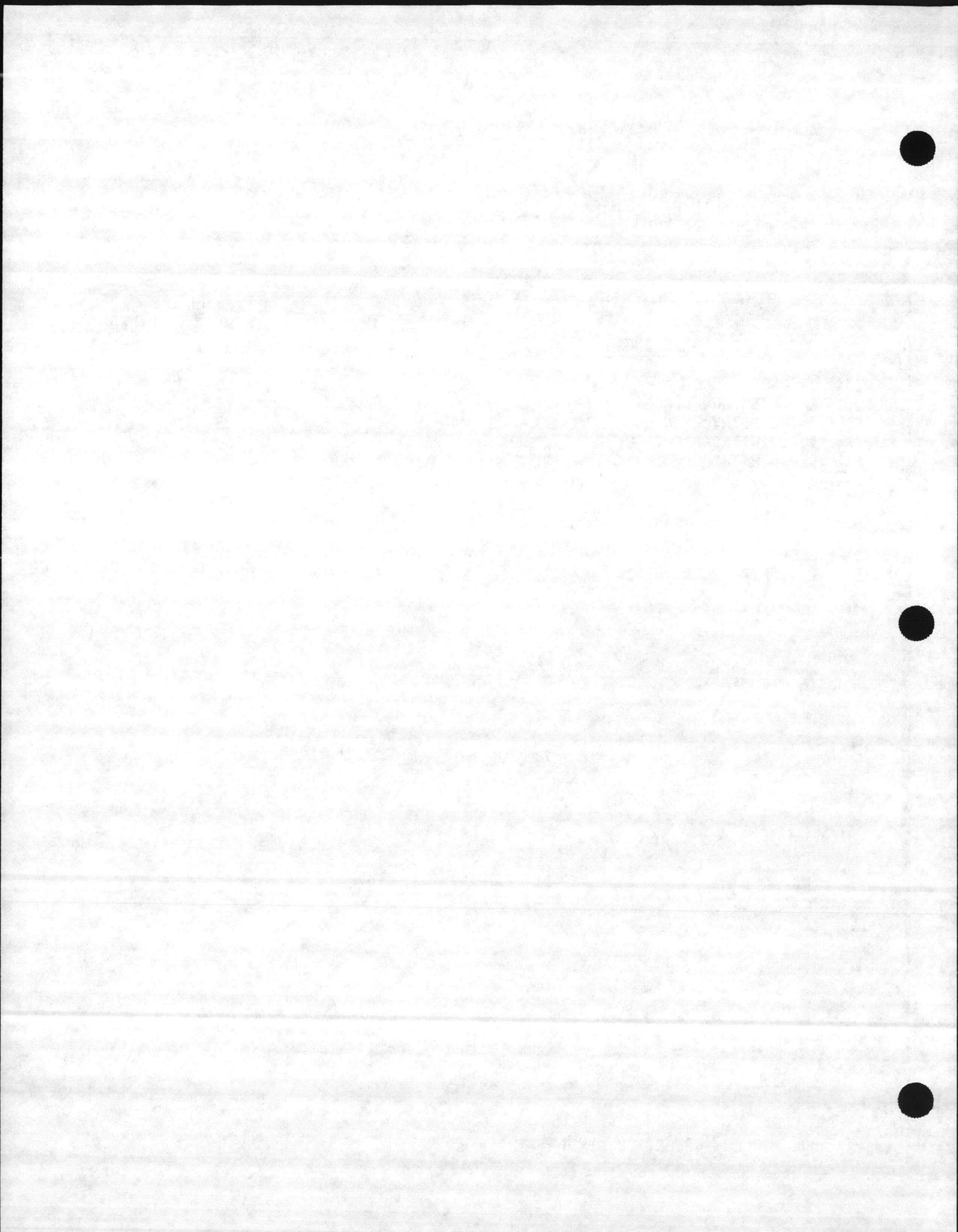


## EXHIBIT II - COMPOUND LIST

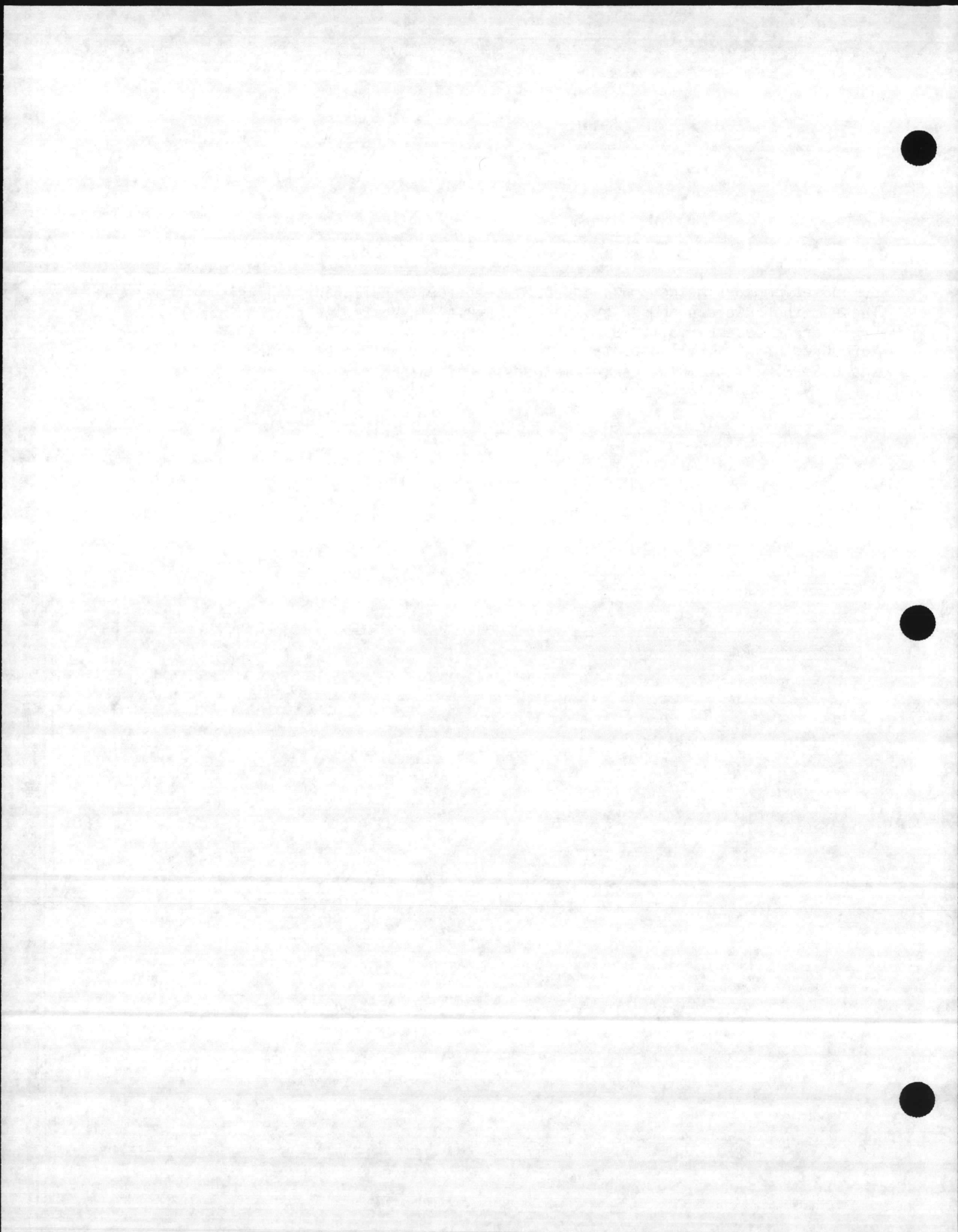
SAMPLE IDENTIFIER: 29372  
COMPUCHEM SAMPLE NUMBER: 3493

| <u>ACID EXTRACTABLE ORGANICS</u> |                       | <u>CONCENTRATION</u><br><u>(UG/L)</u> | <u>DETECTION</u><br><u>LIMIT</u><br><u>(UG/L)</u> | <u>SCAN</u><br><u>NUMBER</u> |
|----------------------------------|-----------------------|---------------------------------------|---|------------------------------|
| 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.



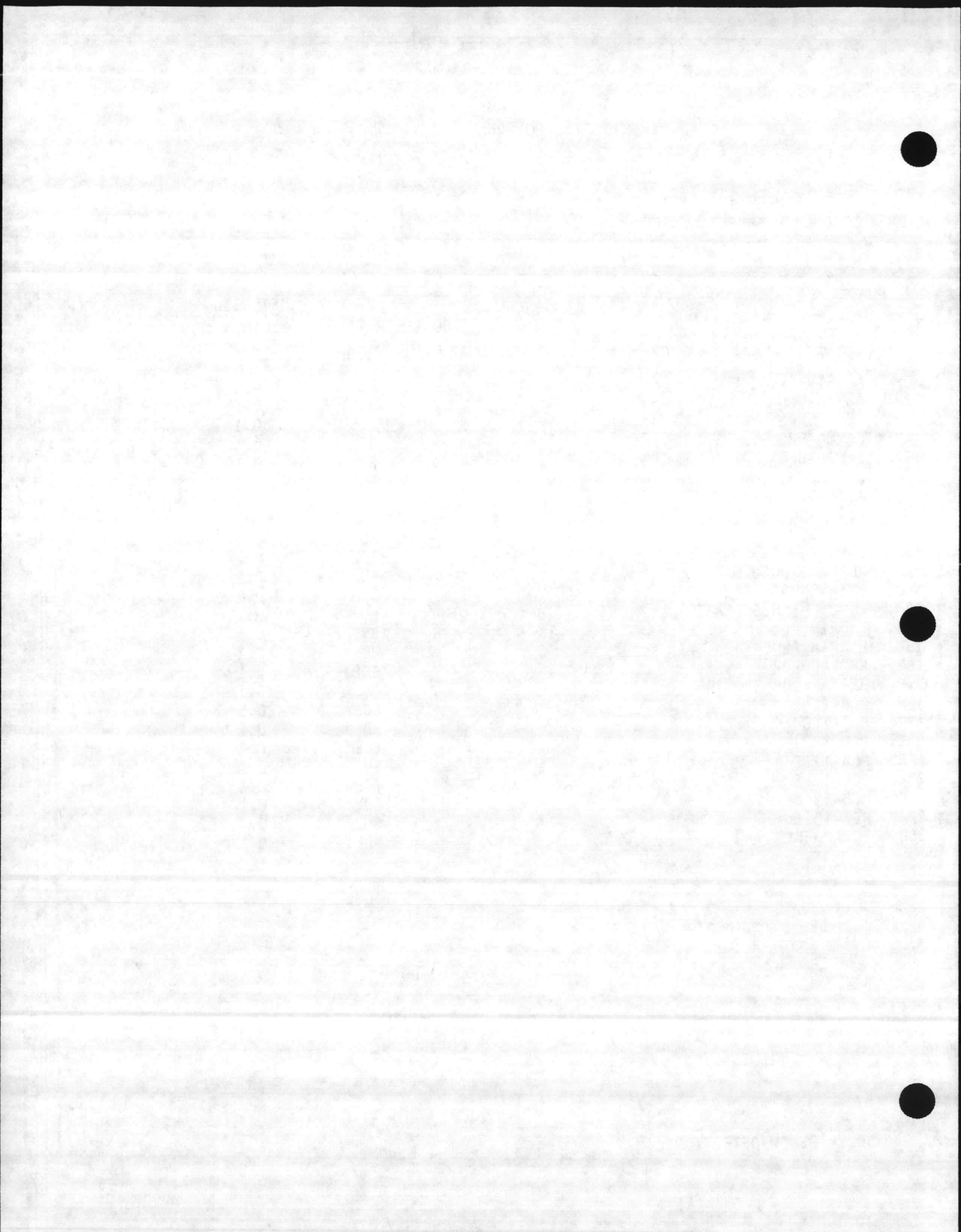


## EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29372  
COMPUCHEM SAMPLE NUMBER: 3493

| <u>PESTICIDES/PCB'S</u> | <u>CONCENTRATION<br/>(UG/L)</u> | <u>DETECTION<br/>LIMIT<br/>(UG/L)</u> |
|-------------------------|---------------------------------|---------------------------------------|
| 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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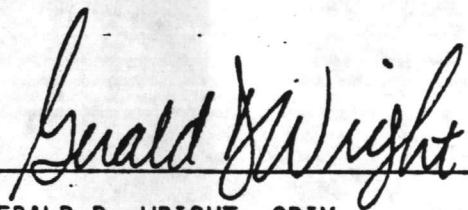
1B. REPORT OF DATA

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

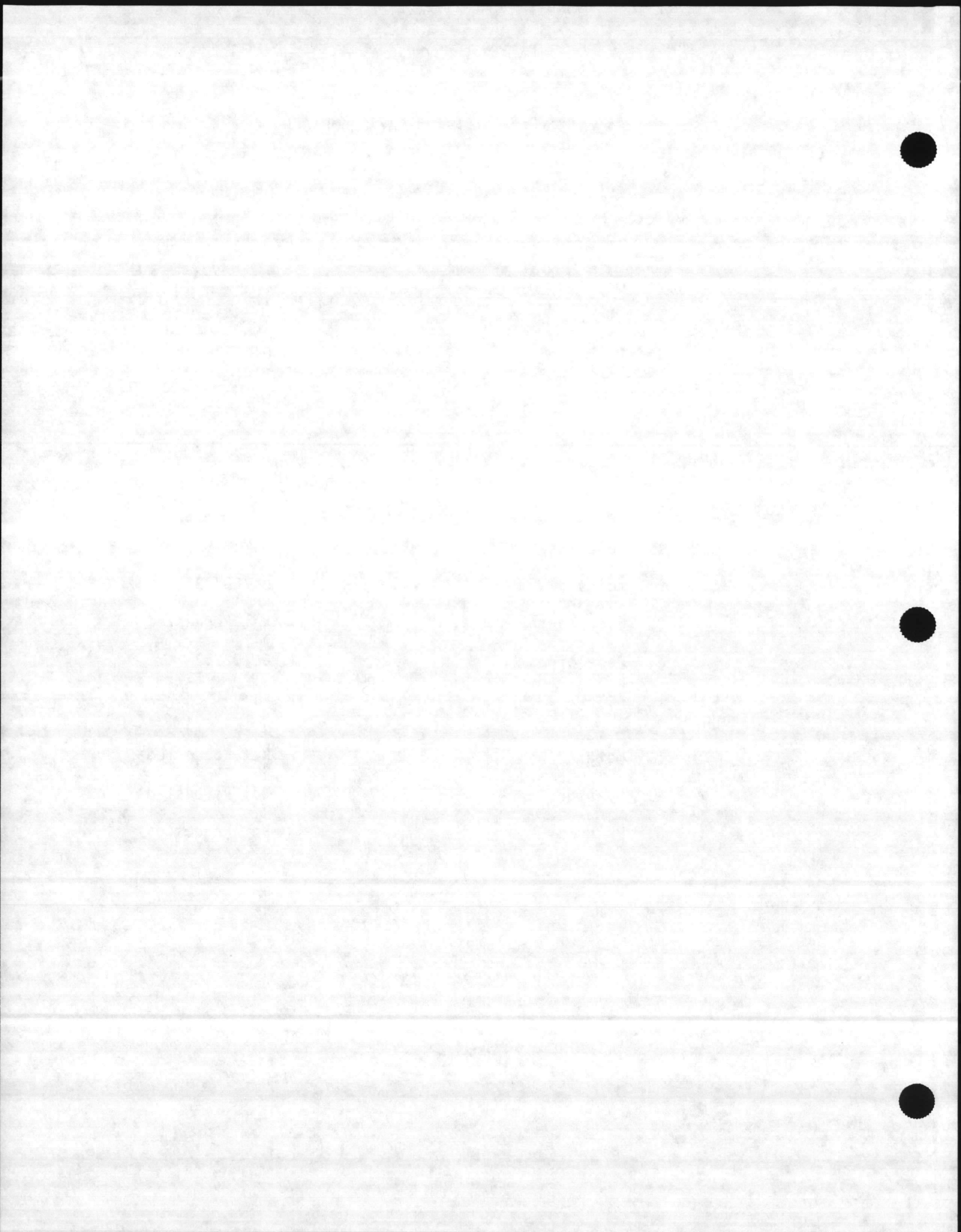
JAMES J. ZOLDAK  
DIRECTOR OF LABORATORY OPERATIONS



## EXHIBIT I - LABORATORY CHRONICLE

SAMPLE IDENTIFIER: 29373  
COMPUCHEM SAMPLE NUMBER: 3494

|                       | <u>Date</u>   |
|-----------------------|---------------|
| 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 |

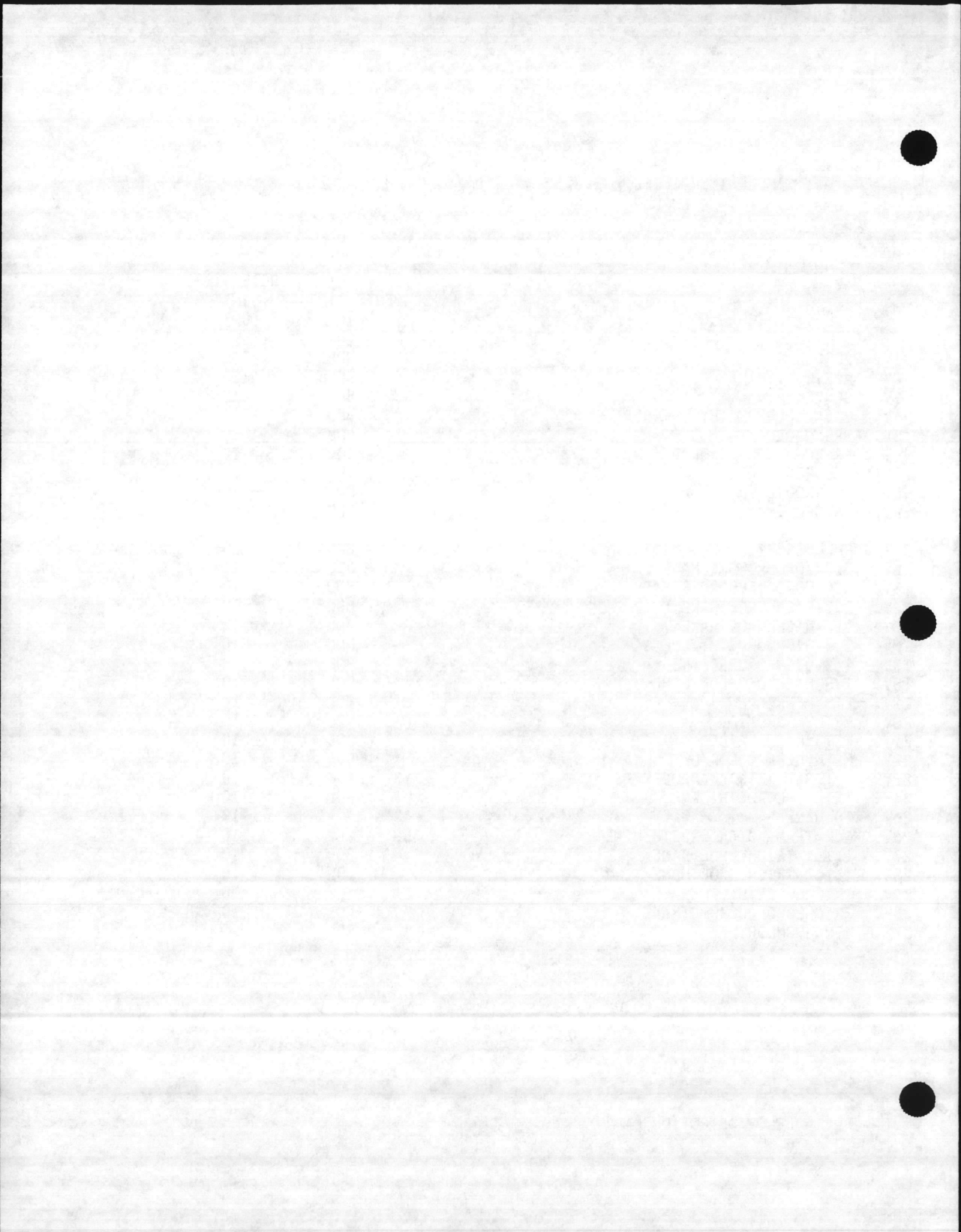


## EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29373  
 COMPUCHEM SAMPLE NUMBER: 3494

| <u>VOLATILE ORGANICS</u> |                            | <u>CONCENTRATION</u><br>(UG/L) | <u>DETECTION</u><br><u>LIMIT</u><br>(UG/L) | <u>SCAN</u><br><u>NUMBER</u> |
|--------------------------|----------------------------|--------------------------------|--|------------------------------|
| 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-CHLOROETHYL VINYL 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  | 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

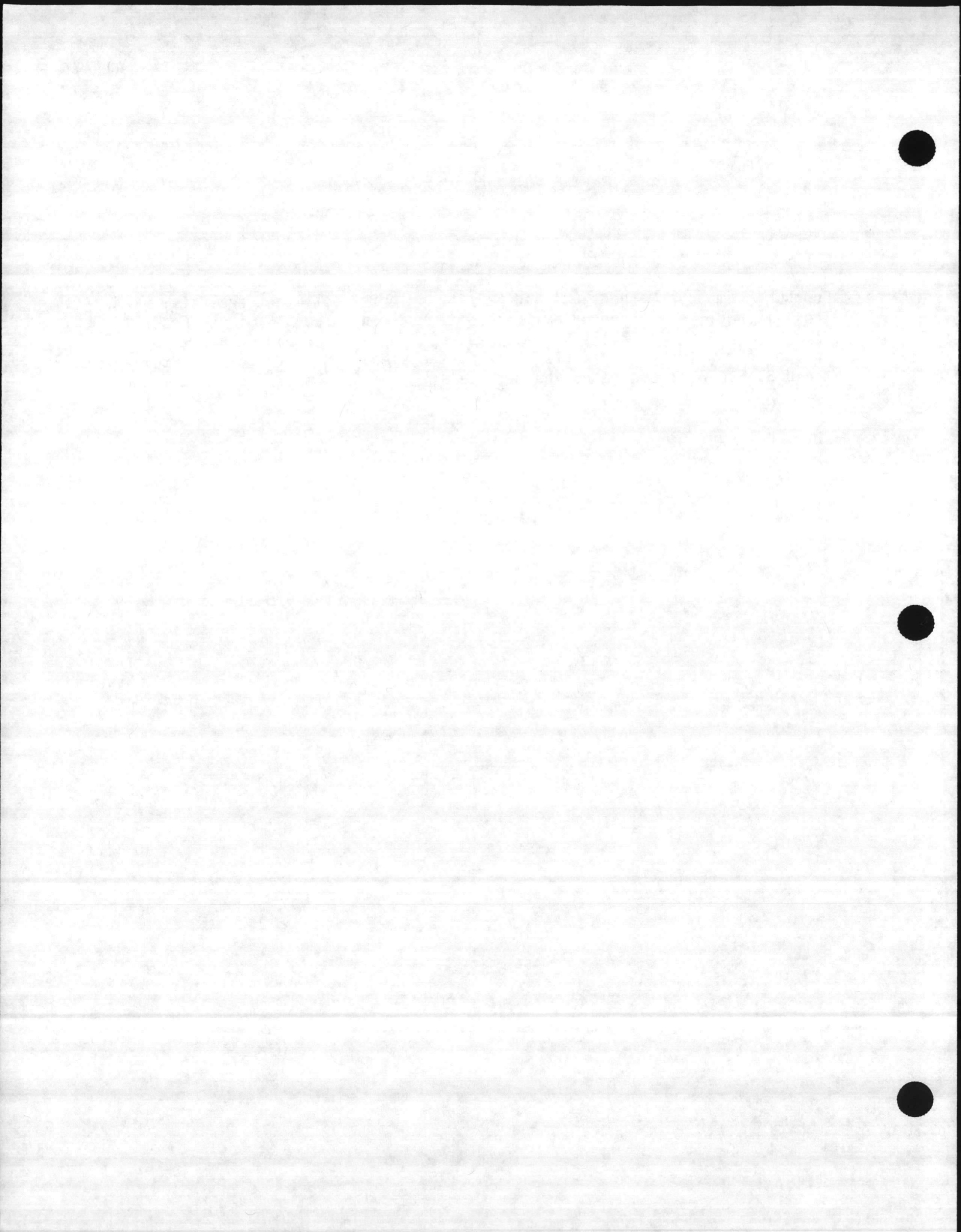
| <u>PESTICIDES/PCB'S</u> | <u>CONCENTRATION<br/>(UG/L)</u> | <u>DETECTION<br/>LIMIT<br/>(UG/L)</u> |
|-------------------------|---------------------------------|---------------------------------------|
| 1P. ALDRIN              | BDL                             | 0.1                                   |
| 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



Doc. No.: CLET-00675-3.04-07/14/83

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

| <u>ACID EXTRACTABLE ORGANICS</u> |                       | <u>CONCENTRATION</u><br><u>(UG/L)</u> | <u>DETECTION</u><br><u>LIMIT</u><br><u>(UG/L)</u> | <u>SCAN</u><br><u>NUMBER</u> |
|----------------------------------|-----------------------|---------------------------------------|---|------------------------------|
| 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

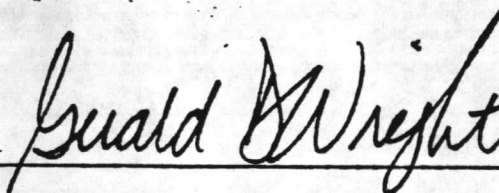
1C. REPORT OF DATA

SAMPLE IDENTIFIER NUMBER: 29374

COMPUCHEM SAMPLE NUMBER: 3495

SUBMITTED TO:

Mr. David Thompson  
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

|                       | <u>Date</u>                     |
|-----------------------|---------------------------------|
| Received/Refrigerated | 04/25/83                        |
| Organics              |                                 |
| Extracted             | 04/28/83                        |
| Analyzed              |                                 |
| 1. Volatiles          | 04/28/83, 05/02/83 <sup>1</sup> |
| 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                   |

<sup>1</sup> 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

| <u>VOLATILE ORGANICS</u> |                            | <u>CONCENTRATION</u><br>(UG/L) | <u>DETECTION</u><br><u>LIMIT</u><br>(UG/L) | <u>SCAN</u><br><u>NUMBER</u> |
|--------------------------|----------------------------|--------------------------------|--|------------------------------|
| 1V.                      | ACROLEIN                   |                                | BDL  |                              |
| 2V.                      | ACRYLONITRILE              |                                | BDL  |                              |
| 3V.                      | BENZENE                    |                                | 100  |                              |
| 4V.                      | BIS (CHLOROMETHYL) ETHER   | 13                             | 10   | 479                          |
| 5V.                      | BROMOFORM                  |                                | BDL  |                              |
| 6V.                      | CARBON TETRACHLORIDE       |                                | BDL  |                              |
| 7V.                      | CHLOROBENZENE              |                                | BDL  |                              |
| 8V.                      | CHLORODIBROMOMETHANE       |                                | BDL  |                              |
| 9V.                      | CHLOROETHANE               |                                | BDL  |                              |
| 10V.                     | 2-CHLOROETHYL VINYL ETHER  |                                | BDL  |                              |
| 11V.                     | CHLOROFORM                 |                                | BDL  |                              |
| 12V.                     | DICHLOROBROMOMETHANE       |                                | BDL  |                              |
| 13V.                     | DICHLORODIFLUOROMETHANE    |                                | BDL  |                              |
| 14V.                     | 1,1-DICHLOROETHANE         |                                | BDL  |                              |
| 15V.                     | 1,2-DICHLOROETHANE         |                                | BDL  |                              |
| 16V.                     | 1,1-DICHLOROETHYLENE       | 21                             | 10   | 335                          |
| 17V.                     | 1,2-DICHLOROPROPANE        |                                | BDL  |                              |
| 18V.                     | 1,3-DICHLOROPROPYLENE      |                                | BDL  |                              |
| 19V.                     | ETHYLBENZENE               |                                | BDL  |                              |
| 20V.                     | METHYL BROMIDE             |                                | BDL  |                              |
| 21V.                     | METHYL CHLORIDE            |                                | BDL  |                              |
| 22V.                     | METHYLENE CHLORIDE         |                                | BDL  |                              |
| 23V.                     | 1,1,2,2-TETRACHLOROETHANE  |                                | BDL  |                              |
| 24V.                     | TETRACHLOROETHYLENE        |                                | BDL  |                              |
| 25V.                     | TOLUENE                    |                                | BDL  |                              |
| 26V.                     | 1,2-TRANS-DICHLOROETHYLENE | 4,700 <sup>1</sup>             | 10   |                              |
| 27V.                     | 1,1,1-TRICHLOROETHANE      |                                | BDL  | 299                          |
| 28V.                     | 1,1,2-TRICHLOROETHANE      |                                | BDL  |                              |
| 29V.                     | TRICHLOROETHYLENE          |                                | BDL  |                              |
| 30V.                     | TRICHLOROFLUOROMETHANE     |                                | BDL  |                              |
| 31V.                     | VINYL CHLORIDE             | 28                             | 10   | 77                           |

<sup>1</sup> Compound calculated from a 1:10 dilution

BDL = BELOW DETECTION LIMIT

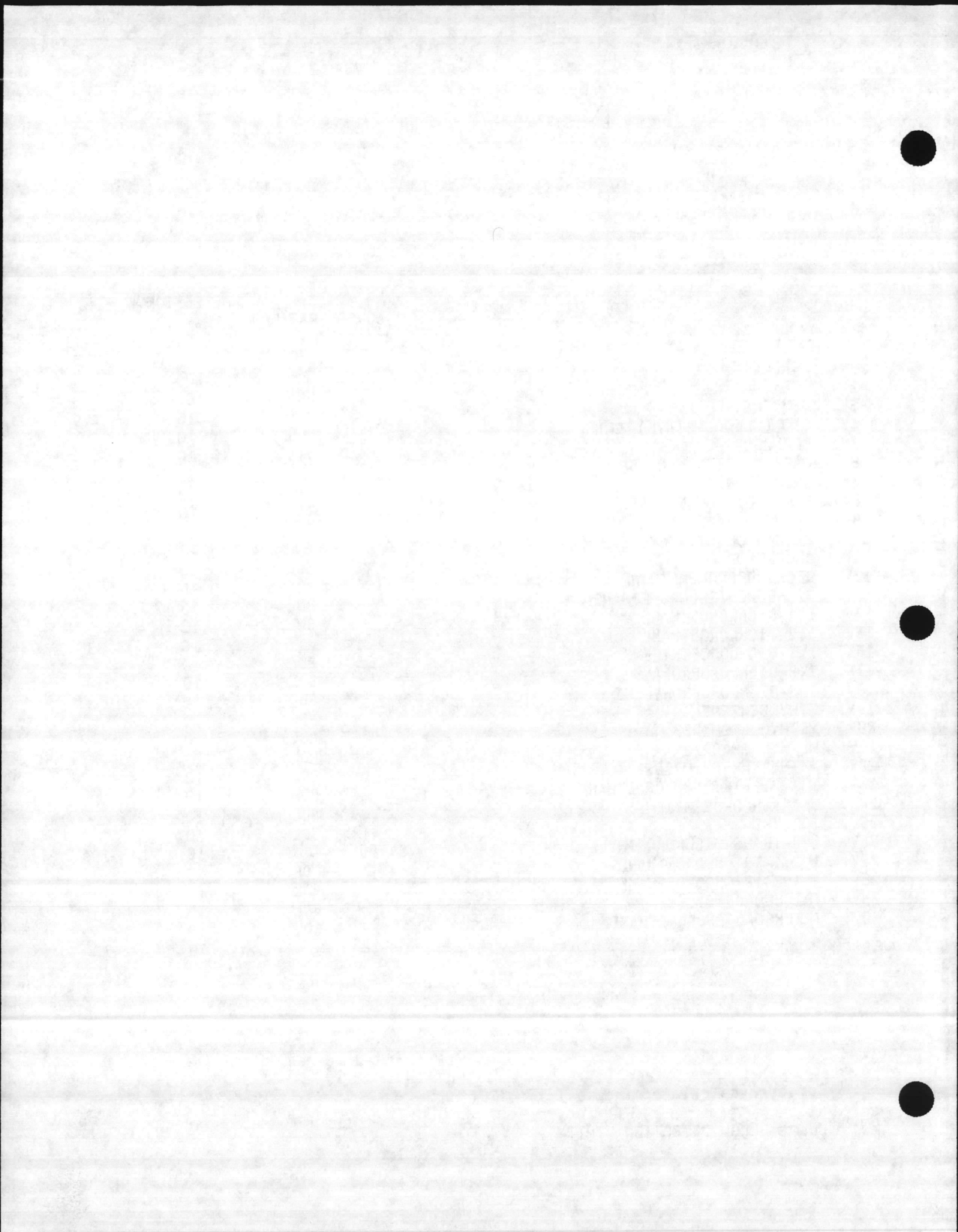


EXHIBIT :: - 11

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
- 6A. 2-NITROPHENOL
- 7A. 4-NITROPHENOL
- 8A. P-CHLORO-M-CRESOL
- 9A. PENTACHLOROPHENOL
- 10A. PHENOL
- 11A. 2,4,6-TRICHLOROPHENOL

BDL = BELOW DETECTION LIMIT



Doc. No.: CLEJ-C0675-304-07/14/83

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

| <u>PESTICIDES/PCB'S</u> | <u>CONCENTRATION<br/>(UG/L)</u> | <u>DETECTION<br/>LIMIT<br/>(UG/L)</u> |
|-------------------------|---------------------------------|---------------------------------------|
| 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



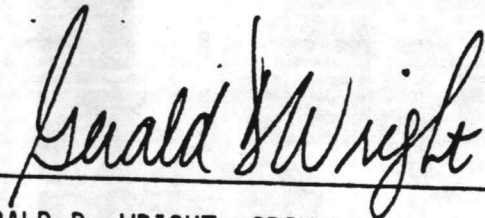
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1D. REPORT OF DATA

- 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



## EXHIBIT I - LABORATORY CHRONICLE

SAMPLE IDENTIFIER: 29375  
COMPUCHEM SAMPLE NUMBER: 3496

|                       | <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 Requested |

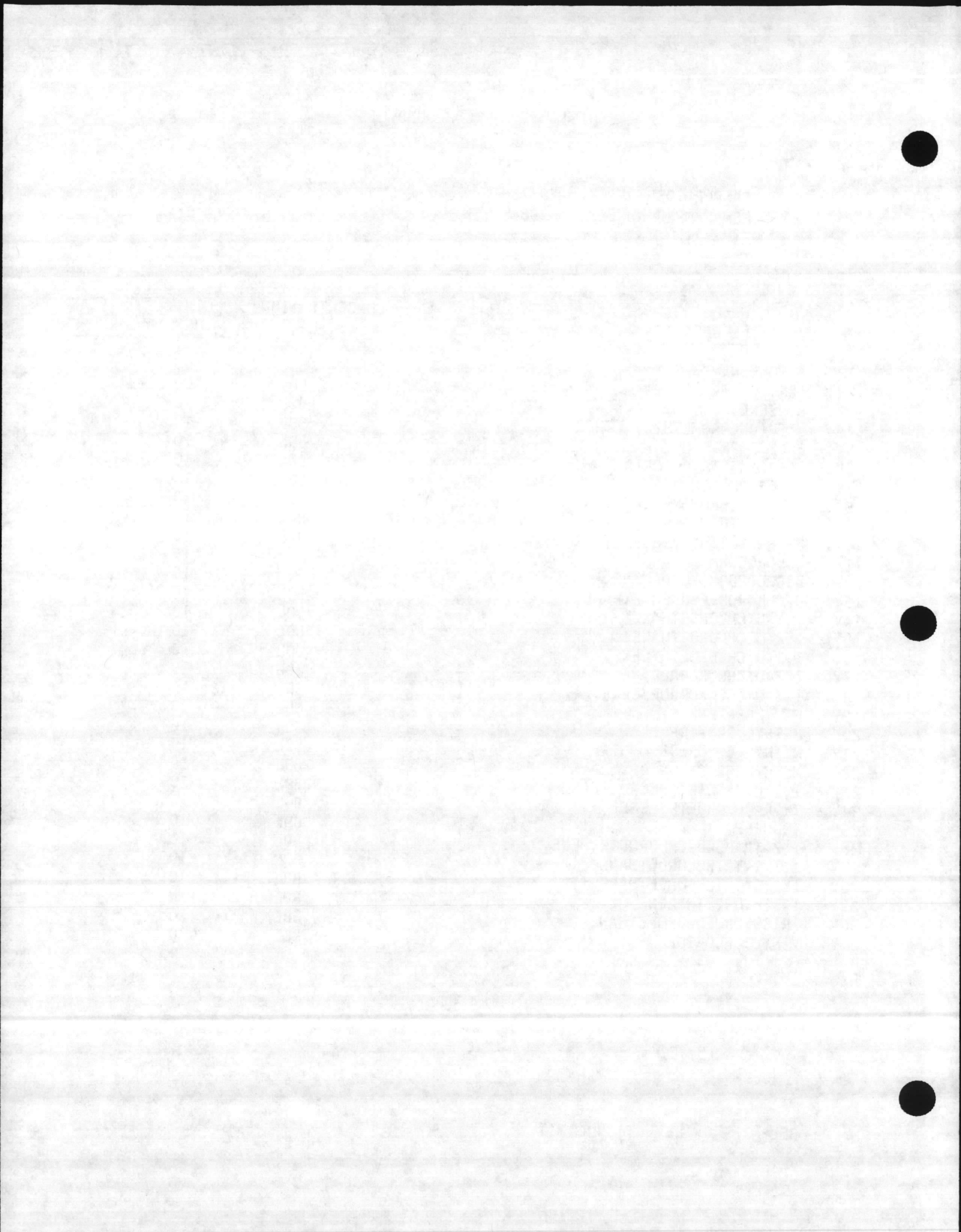


## EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29375  
COMPUCHEM SAMPLE NUMBER: 3496

| <u>VOLATILE ORGANICS</u>        | <u>CONCENTRATION<br/>(UG/L)</u> | <u>DETECTION<br/>LIMIT<br/>(UG/L)</u> | <u>SCAN<br/>NUMBER</u> |
|---------------------------------|---------------------------------|---------------------------------------|------------------------|
| 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-CHLOROETHYL VINYL 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

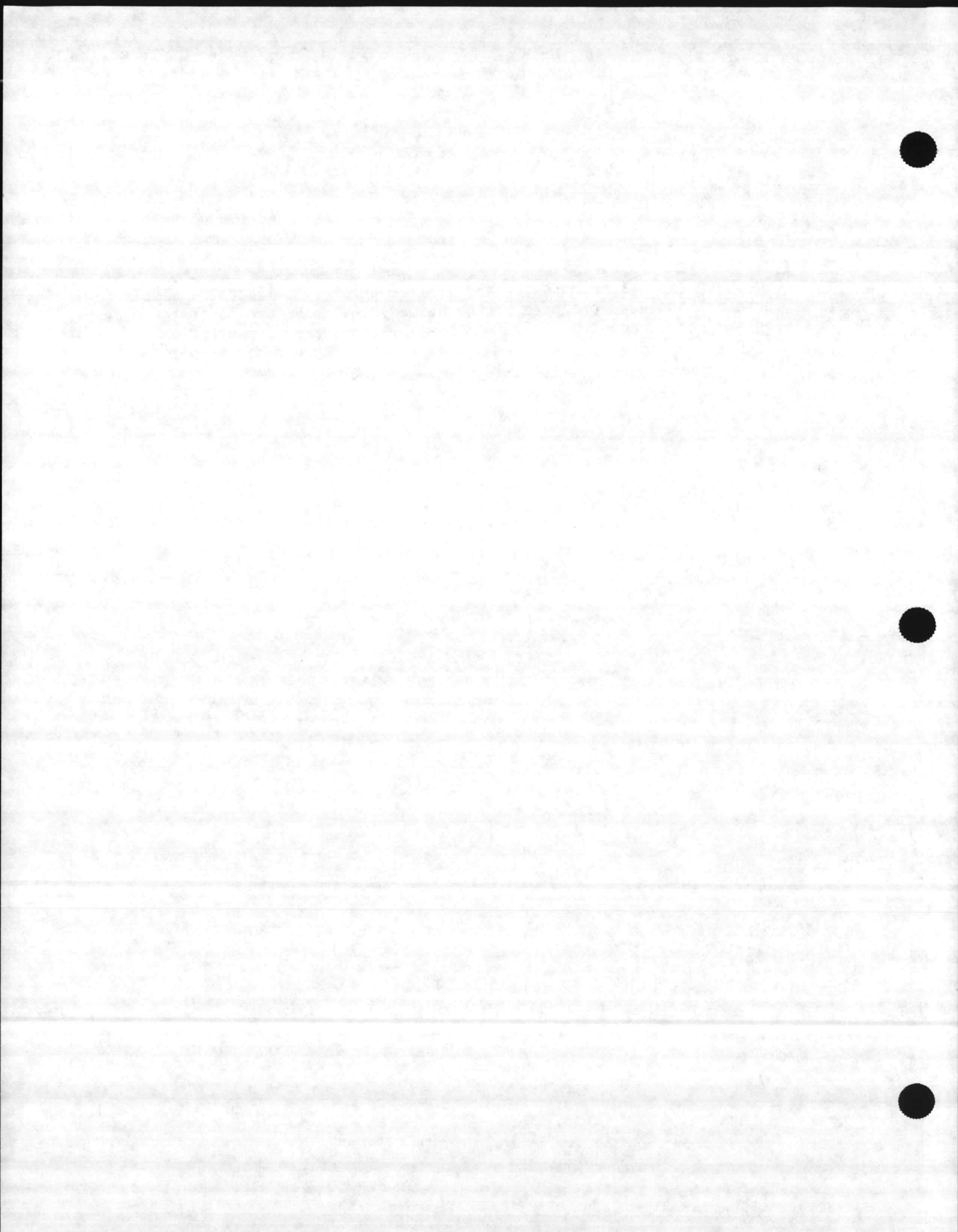
| <u>ACID EXTRACTABLE ORGANICS</u> | <u>CONCENTRATION<br/>(UG/L)</u> | <u>DETECTION<br/>LIMIT<br/>(UG/L)</u> | <u>SCAN<br/>NUMBER</u> |
|----------------------------------|---------------------------------|---------------------------------------|------------------------|
| 1A. 2-CHLOROPHENOL               | 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



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

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.

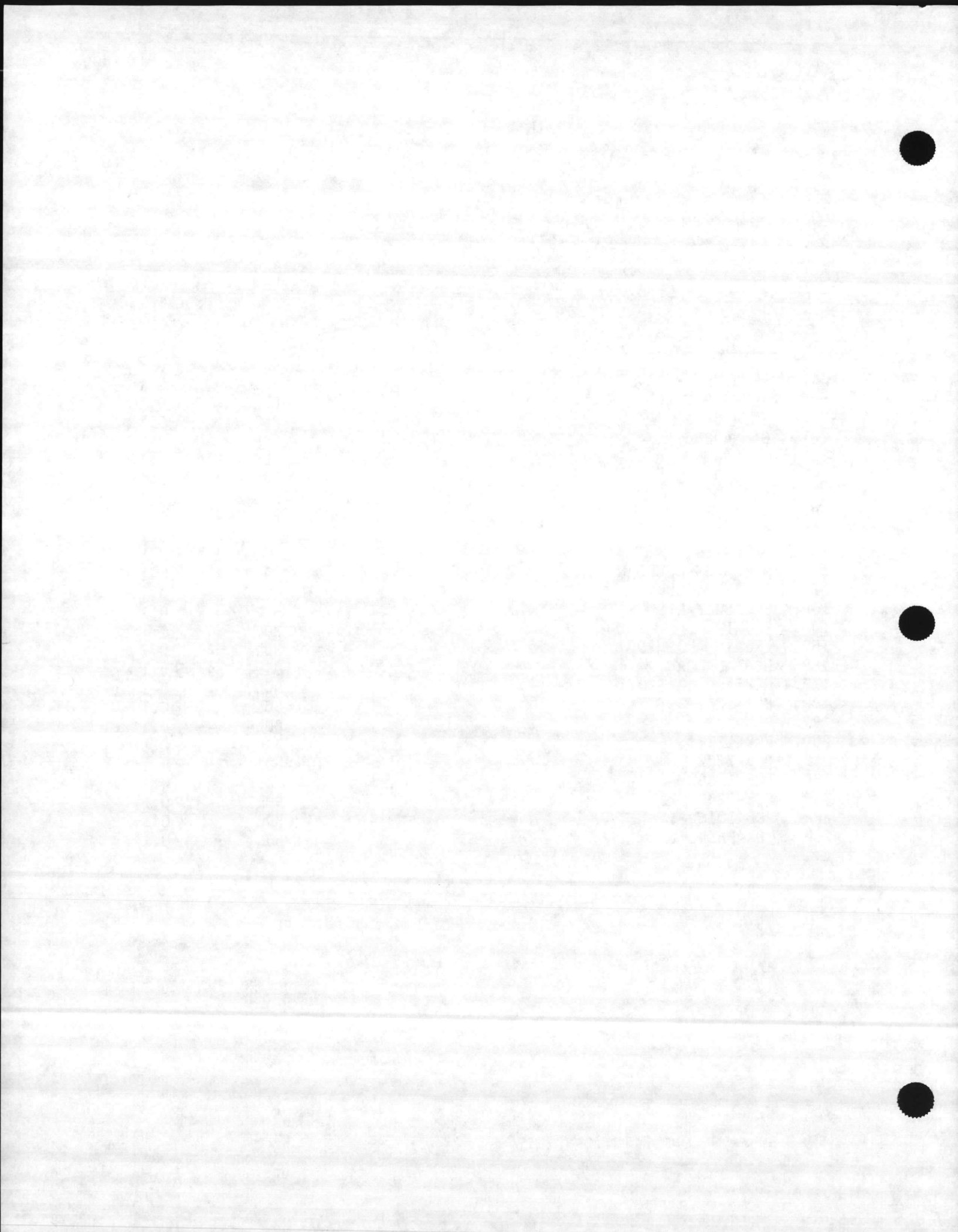


## EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29375  
COMPUCHEM SAMPLE NUMBER: 3496

| <u>PESTICIDES/PCB'S</u> | <u>CONCENTRATION<br/>(UG/L)</u> | <u>DETECTION<br/>LIMIT<br/>(UG/L)</u> |
|-------------------------|---------------------------------|---------------------------------------|
| 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

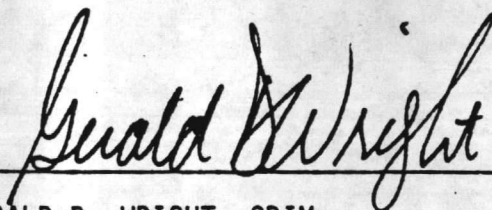
1E. REPORT OF DATA

SAMPLE IDENTIFIER NUMBER: 29376

COMPUCHEM SAMPLE NUMBER: 3497

SUBMITTED TO:

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

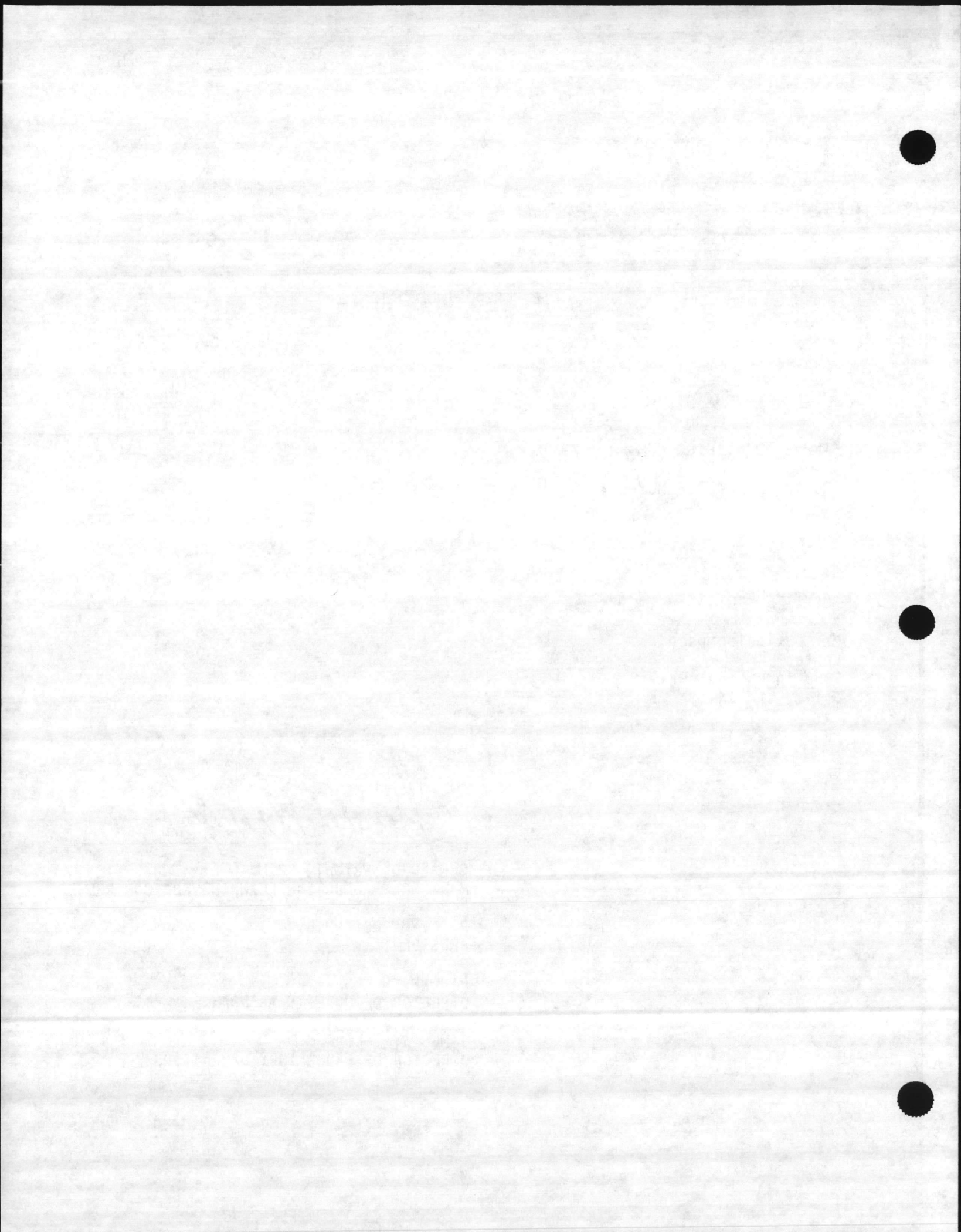




EXHIBIT I - LABORATORY CHRONICLE

SAMPLE IDENTIFIER: 29376  
COMPUCHEM SAMPLE NUMBER: 3497

|                       | <u>Date</u>   |
|-----------------------|---------------|
| 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 |

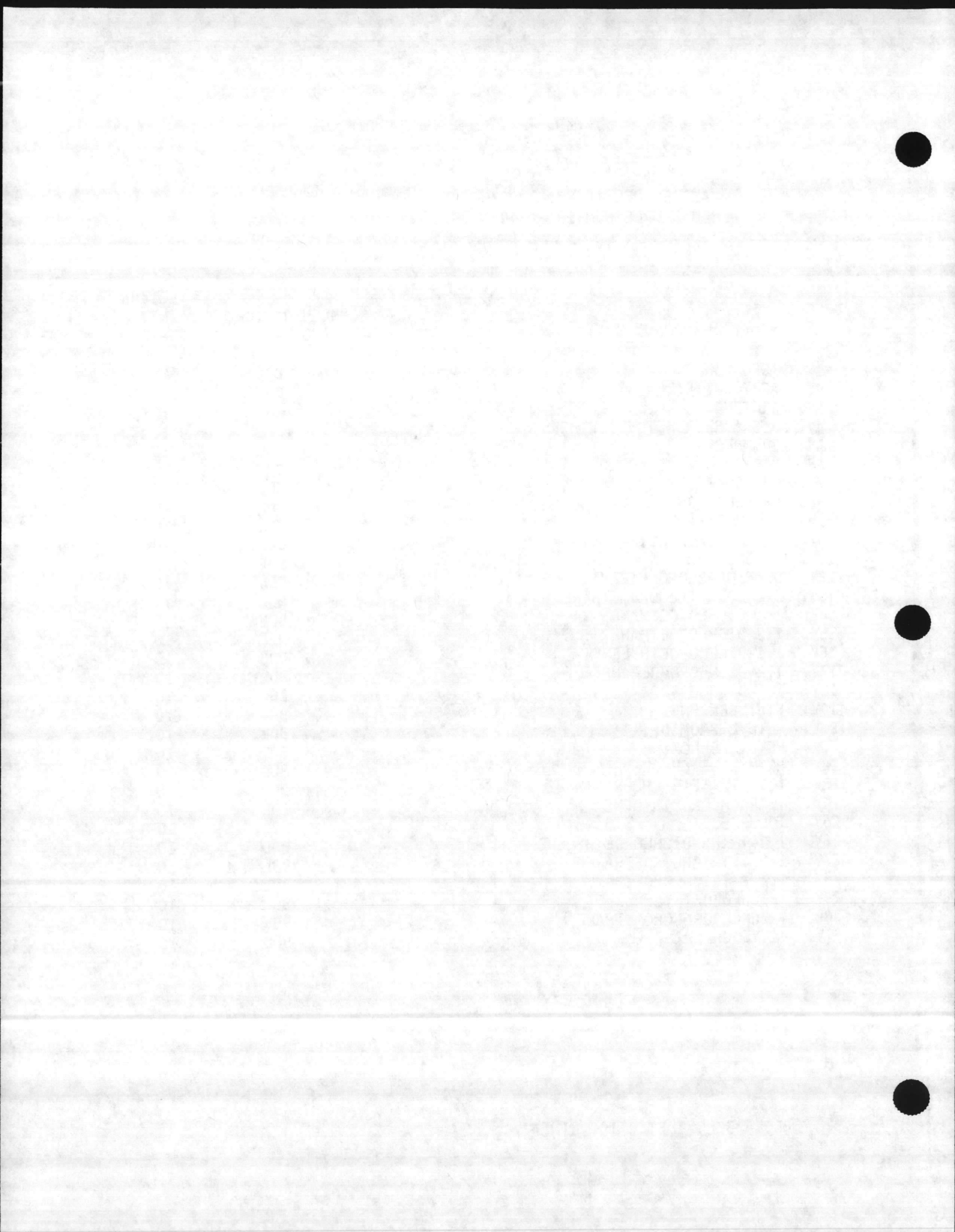


## EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29376  
COMPUCHEM SAMPLE NUMBER: 3497

| <u>VOLATILE ORGANICS</u> |                            | <u>CONCENTRATION</u><br>(UG/L) | <u>DETECTION</u><br><u>LIMIT</u><br>(UG/L) | <u>SCAN</u><br><u>NUMBER</u> |
|--------------------------|----------------------------|--------------------------------|--|------------------------------|
| 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-CHLOROETHYL VINYL 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

| <u>ACID EXTRACTABLE ORGANICS</u> |                       | <u>CONCENTRATION<br/>(UG/L)</u> | <u>DETECTION<br/>LIMIT<br/>(UG/L)</u> | <u>SCAN<br/>NUMBER</u> |
|----------------------------------|-----------------------|---------------------------------|---------------------------------------|------------------------|
| 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



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

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

| <u>PESTICIDES/PCB'S</u> | <u>CONCENTRATION<br/>(UG/L)</u> | <u>DETECTION<br/>LIMIT<br/>(UG/L)</u> |
|-------------------------|---------------------------------|---------------------------------------|
| 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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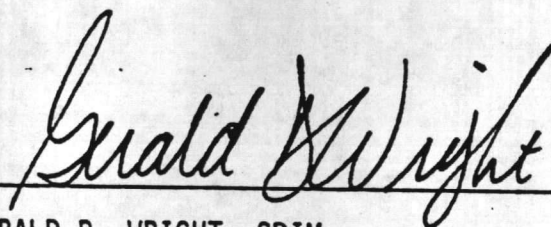
1F. REPORT OF DATA

SAMPLE IDENTIFIER NUMBER: 29377

COMPUCHEM SAMPLE NUMBER: 3498

SUBMITTED TO:

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: 29377  
COMPUCHEM SAMPLE NUMBER: 3498

|                       | <u>Date</u>   |
|-----------------------|---------------|
| 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

| <u>VOLATILE ORGANICS</u>        | <u>CONCENTRATION<br/>(UG/L)</u> | <u>DETECTION<br/>LIMIT<br/>(UG/L)</u> | <u>SCAN<br/>NUMBER</u> |
|---------------------------------|---------------------------------|---------------------------------------|------------------------|
| 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-CHLOROETHYL VINYL 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

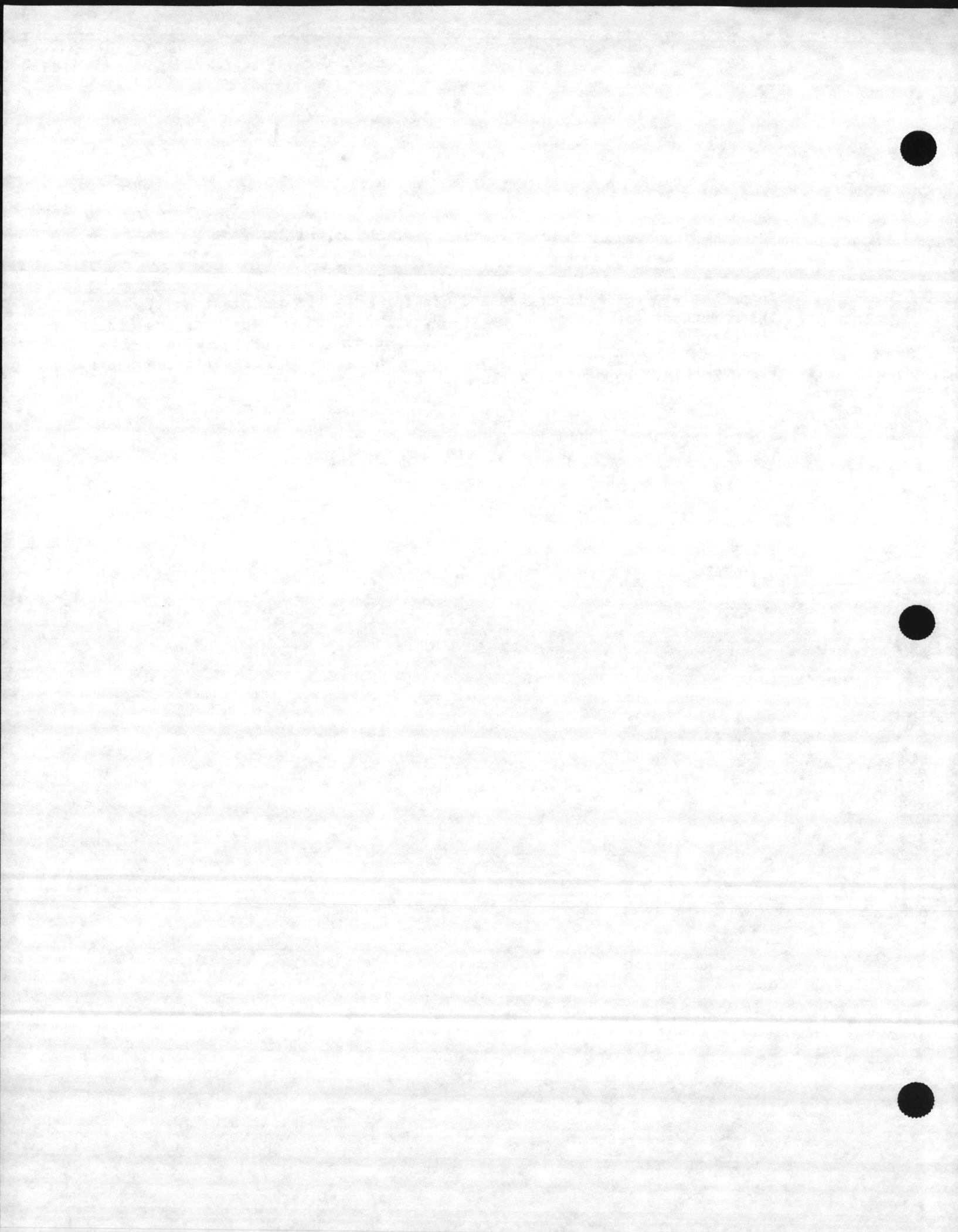
SAMPLE IDENTIFIER: 29377  
COMPUCHEM SAMPLE NUMBER: 3498

| <u>ACID EXTRACTABLE ORGANICS</u> |                       | <u>CONCENTRATION<br/>(UG/L)</u> | <u>DETECTION<br/>LIMIT<br/>(UG/L)</u> | <u>SCAN<br/>NUMBER</u> |
|----------------------------------|-----------------------|---------------------------------|---------------------------------------|------------------------|
| 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

| <u>PESTICIDES/PCB'S</u> | <u>CONCENTRATION<br/>(UG/L)</u> | <u>DETECTION<br/>LIMIT<br/>(UG/L)</u> |
|-------------------------|---------------------------------|---------------------------------------|
| 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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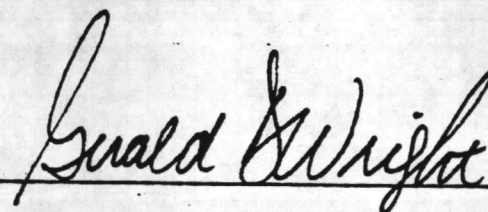
1A. REPORT OF DATA

SAMPLE IDENTIFIER NUMBER: 29378

COMPUCHEM SAMPLE NUMBER: 3499

SUBMITTED TO:

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

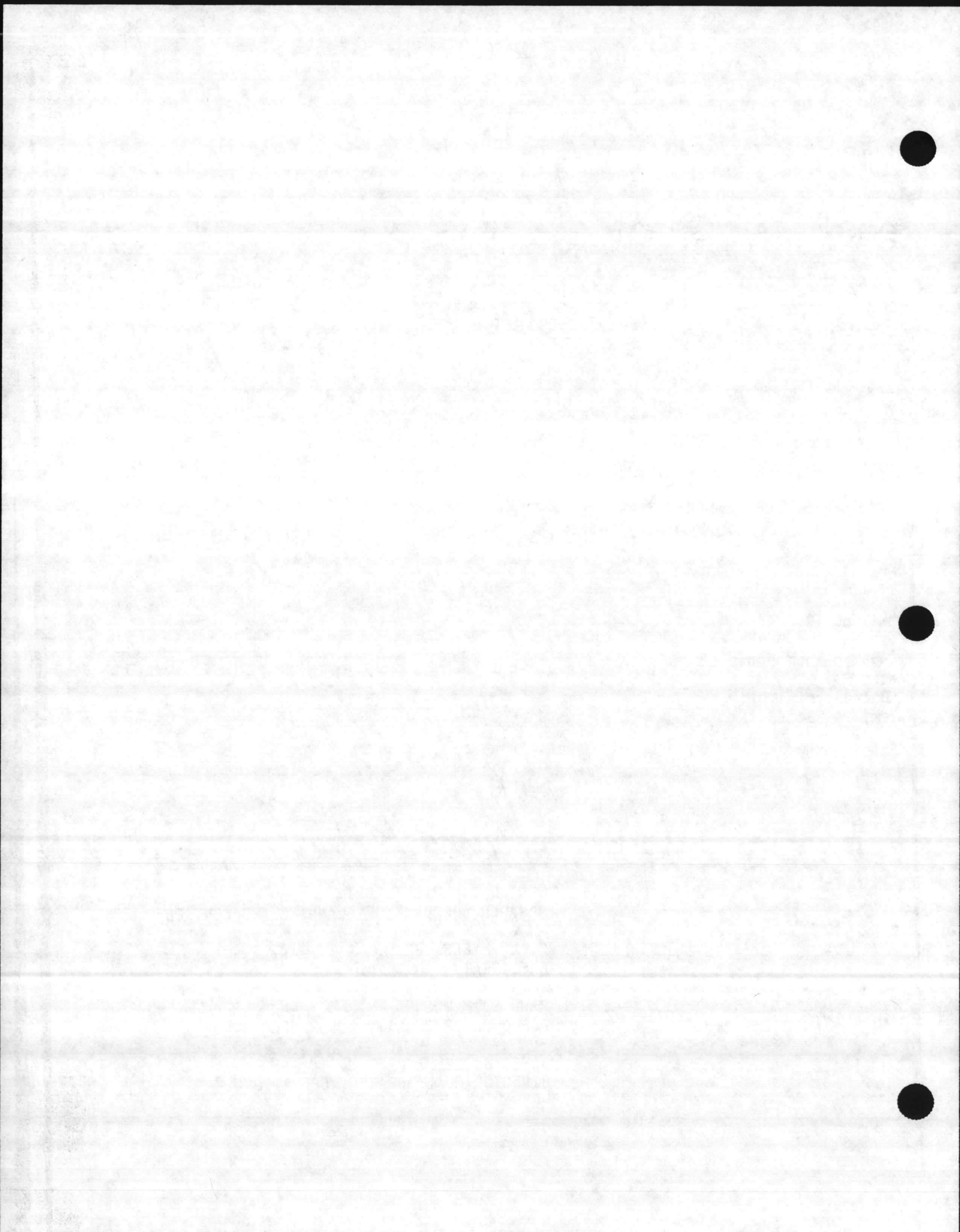


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PRESIDENT

PAUL E. MILLS  
DIRECTOR OF QUALITY ASSURANCE

JAMES J. ZOLDAK  
DIRECTOR OF LABORATORY OPERATIONS





## EXHIBIT I - LABORATORY CHRONICLE

SAMPLE IDENTIFIER: 29378  
COMPUCHEM SAMPLE NUMBER: 3499

|                       | <u>Date</u>   |
|-----------------------|---------------|
| 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      |

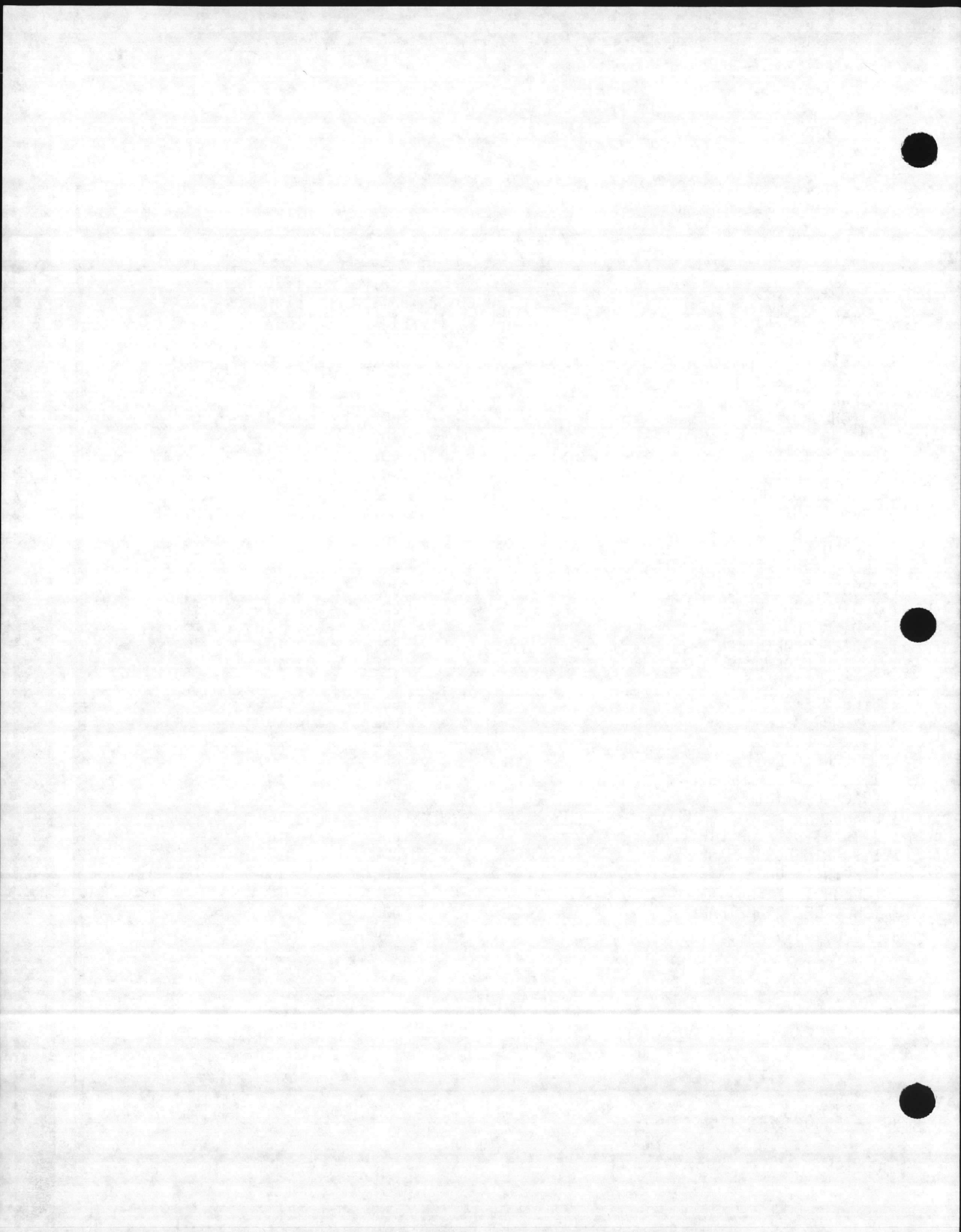


## EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29378  
 COMPUCHEM SAMPLE NUMBER: 3499

| <u>VOLATILE ORGANICS</u> |                            | <u>CONCENTRATION</u><br>(UG/L) | <u>DETECTION</u><br><u>LIMIT</u><br>(UG/L) | <u>SCAN</u><br><u>NUMBER</u> |
|--------------------------|----------------------------|--------------------------------|--|------------------------------|
| 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   |                              |
| 0V.                      | 2-CHLOROETHYL VINYL ETHER  | BDL                            | 10   |                              |
| 1V.                      | CHLOROFORM                 | 50                             | 10   | 319                          |
| 2V.                      | DICHLOROBROMOMETHANE       | 14                             | 10   | 406                          |
| 3V.                      | DICHLORODIFLUOROMETHANE    | BDL                            | 10   |                              |
| 4V.                      | 1,1-DICHLOROETHANE         | BDL                            | 10   |                              |
| 5V.                      | 1,2-DICHLOROETHANE         | BDL                            | 10   |                              |
| 6V.                      | 1,1-DICHLOROETHYLENE       | BDL                            | 10   |                              |
| 7V.                      | 1,2-DICHLOROPROPANE        | BDL                            | 10   |                              |
| 8V.                      | 1,3-DICHLOROPROPYLENE      | BDL                            | 10   |                              |
| 9V.                      | 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: 29378  
COMPUCHEM SAMPLE NUMBER: 3499

| <u>ACID EXTRACTABLE ORGANICS</u> |                       | <u>CONCENTRATION<br/>(UG/L)</u> | <u>DETECTION<br/>LIMIT<br/>(UG/L)</u> | <u>SCAN<br/>NUMBER</u> |
|----------------------------------|-----------------------|---------------------------------|---------------------------------------|------------------------|
| 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

| <u>BASE-NEUTRAL<br/>EXTRACTABLE ORGANICS</u> |                               | <u>CONCENTRATION<br/>(UG/L)</u> | <u>DETECTION<br/>LIMIT<br/>(UG/L)</u> | <u>SCAN<br/>NUMBER</u> |
|--|-------------------------------|---------------------------------|---------------------------------------|------------------------|
| 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-BENZOFUORANTHENE          | 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                                    |                        |
| 14B.   | 4-BROMOPHENYL PHENYL ETHER    | BDL                             | 10                                    |                        |
| 15B.   | BUTYL 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



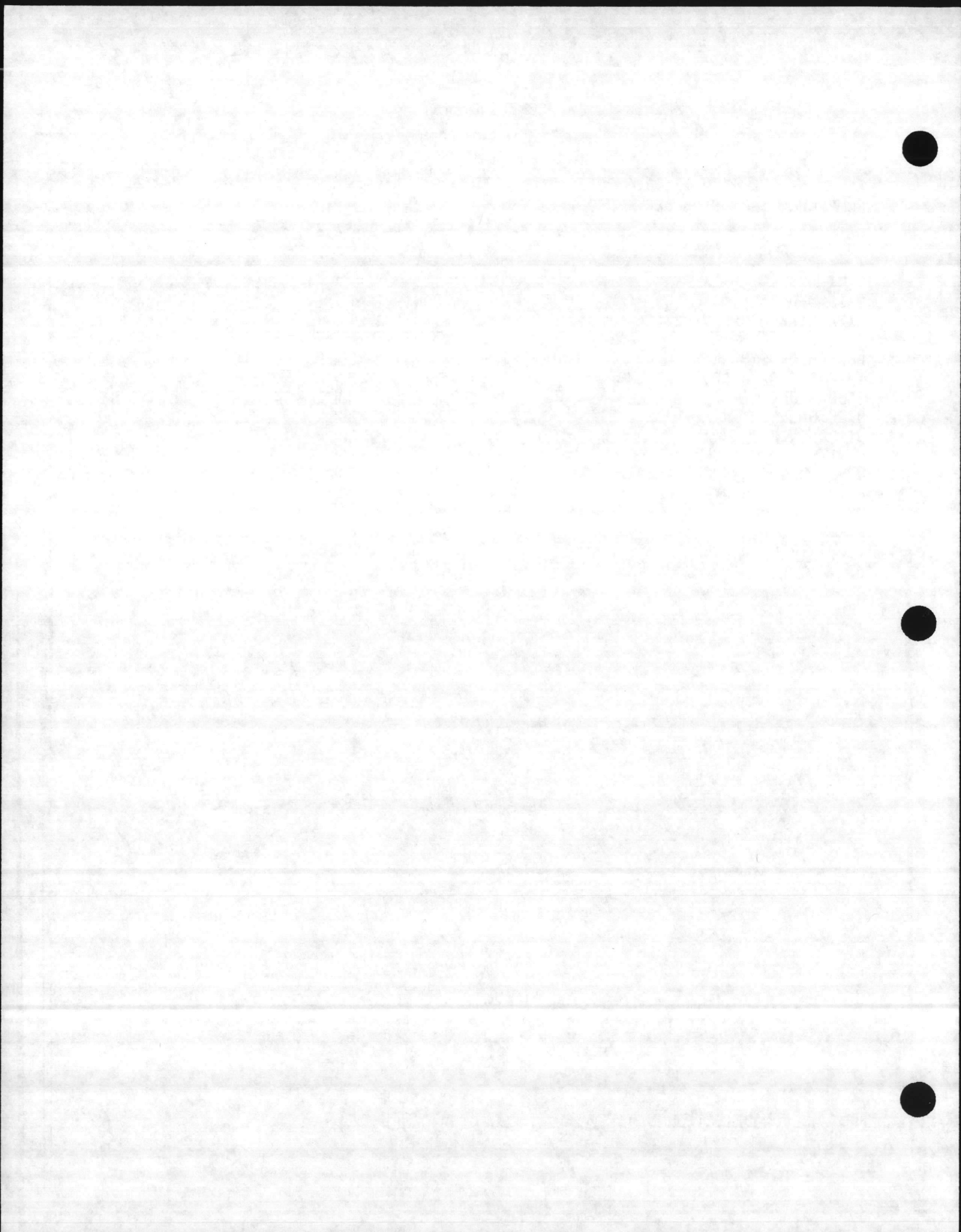


## EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29378  
COMPUCHEM SAMPLE NUMBER: 3499

| BASE-NEUTRAL<br>EXTRACTABLE ORGANICS (Continued) |                           | CONCENTRATION<br>(UG/L) | DETECTION<br>LIMIT<br>(UG/L) | SCAN<br>NUMBER |
|--|---------------------------|-------------------------|------------------------------|----------------|
| 6B.  | HEXACHLOROETHANE          | BDL                     | 10                           |                |
| 7B.  | INDENO (1,2,3-CD) PYRENE  | BDL                     | 25                           |                |
| 8B.  | ISOPHORONE                | BDL                     | 10                           |                |
| 9B.  | NAPHTHALENE               | BDL                     | 10                           |                |
| 10B.   | NITROBENZENE              | BDL                     | 10                           |                |
| 11B.   | N-NITROSODIMETHYLAMINE    | BDL                     | 10                           |                |
| 12B.   | N-NITROSODI-N-PROPYLAMINE | BDL                     | 10                           |                |
| 13B.   | N-NITROSODIPHENYLAMINE    | BDL                     | 10                           |                |
| 14B.   | PHENANTHRENE              | BDL                     | 10                           |                |
| 15B.   | PYRENE                    | BDL                     | 10                           |                |
| 16B.   | 1,2,4-TRICHLOROBENZENE    | BDL                     | 10                           |                |

BDL = BELOW DETECTION LIMIT



## EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29378  
COMPUCHEM SAMPLE NUMBER: 3499

| <u>PESTICIDES/PCB'S</u> | <u>CONCENTRATION<br/>(UG/L)</u> | <u>DETECTION<br/>LIMIT<br/>(UG/L)</u> | <u>SCAN<br/>NUMBER</u> |
|-------------------------|---------------------------------|---------------------------------------|------------------------|
| 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                                    |                        |
| 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                                    |                        |

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)

| <u>INORGANICS</u><br><u>PRIORITY POLLUTANTS</u> | <u>CONCENTRATION</u><br><u>(MG/L)</u> | <u>DETECTION LIMIT</u><br><u>(MG/L)</u> |
|---|---------------------------------------|---|
| 14. CYANIDE, TOTAL                              | BDL                                   | 0.01                                    |

INORGANICS  
 CONVENTIONALS

(NONE ORDERED)

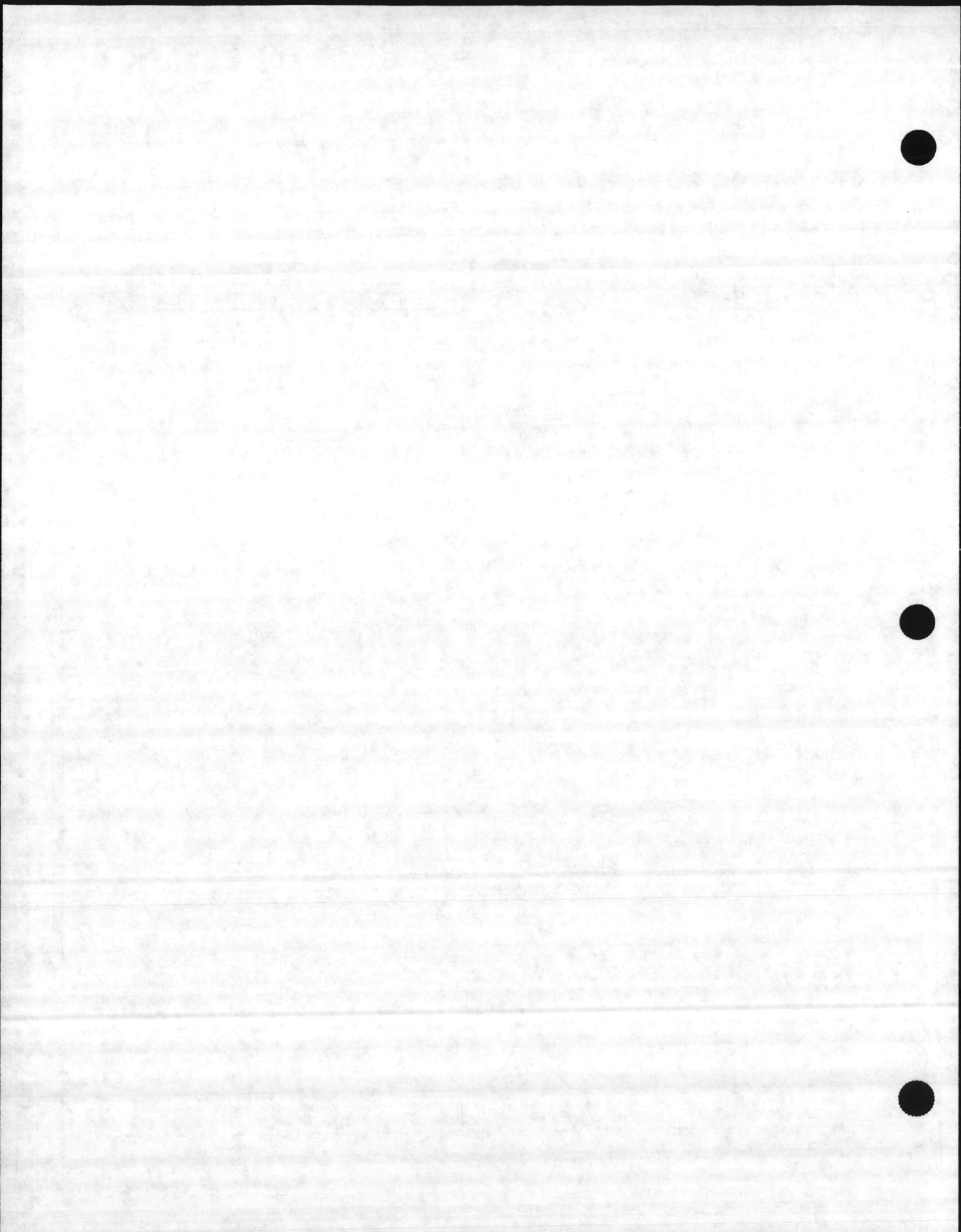




EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29378  
COMPUCHEM SAMPLE NUMBER: 3499

| <u>INORGANICS<br/>PRIORITY POLLUTANTS</u> | <u>CONCENTRATION<br/>(MG/L)</u> | <u>DETECTION LIMIT<br/>(MG/L)</u> |
|---|---------------------------------|-----------------------------------|
| 15. PHENOLS, TOTAL                        | BDL                             | 0.01                              |

INORGANICS  
CONVENTIONALS

(NONE REQUESTED)



(804) 444-9566

11300  
1143CFB

8 JAN 1985

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

Subj: TESTING OF POTABLE WATER WELLS AND WATER TREATMENT PLANT

Ref: (a) LANTNAVFACENGCOM msg 071346Z Dec 1984

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

1. Reference (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. Box ESE  
Gainesville, FL 32602  
Attn: Russ Bowen  
Blind Copy to:  
114 ←  
114S  
Doc #2663A/CFB/dhs.

Barnett  
Smith  
12/28/84



**ROUTINE REPLY, ENDORSEMENT, TRANSMITTAL OR INFORMATION SHEET**

OPNAV 5216/158 (Rev. 7-78)  
SN 0107 LF 052 1691

A WINDOW ENVELOPE MAY BE USED  
Formerly NAVEXOS 3784

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

FROM (Show telephone number in addition to address)

PA (804) 444-4566

DATE

C. BARNETT, LAVTNAVFACENGCOM 1143, NORFOLK, VA

1/8/84

SUBJECT

SERIAL OR FILE NO.

GROUNDWATER ANALYSIS, WELL 602 (QC CHECK)

TO:

REFERENCE

CG MCB Camp LEJEUNE  
ATTN: ASST CHIEF OF STAFF - FACILITIES  
MR BOB ALEXANDER  
CAMP LEJEUNE, NC 28542

ENCLOSURE

J.R. REED LAB REPORT  
(ANALYSIS BY GRANGER  
ON WELL 602  
SAMPLE OF 12/13/84)

VIA:

ENDORSEMENT ON

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

| GENERAL ADMINISTRATION   | CONTRACT ADMINISTRATION  | PERSONNEL                  |
|--|--|----------------------------|
| FOR APPROPRIATE ACTION UNDER YOUR COGNIZANCE                                     | NAME & LOCATION OF SUPPLIER OF SUBJECT ITEMS   | REPORTED TO THIS COMMAND:  |
| <input checked="" type="checkbox"/> INFORMATION                                  | SUBCONTRACT NO. OF SUBJECT ITEM  |                            |
| APPROVAL RECOMMENDED<br><input type="checkbox"/> YES <input type="checkbox"/> NO | APPROPRIATION SYMBOL, SUBHEAD, AND CHARGEABLE ACTIVITY                                     | DETACHED FROM THIS COMMAND |
| <input type="checkbox"/> APPROVED <input type="checkbox"/> DISAPPROVED           | SHIPPING AT GOVERNMENT EXPENSE<br><input type="checkbox"/> YES <input type="checkbox"/> NO | OTHER                      |
| COMMENT AND/OR CONCURRENCE   | A CERTIFICATE, VICE BILL OF LADING   |                            |
| CONCUR   | COPIES OF CHANGE ORDERS, AMENDMENT OR MODIFICATION   |                            |
| LOANED, RETURN BY:   | CHANGE NOTICE TO SUPPLIER  |                            |
| SIGN RECEIPT & RETURN  | STATUS OF MATERIAL ON PURCHASE DOCUMENT  |                            |
| 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:   |

REMARKS (Continue on reverse)

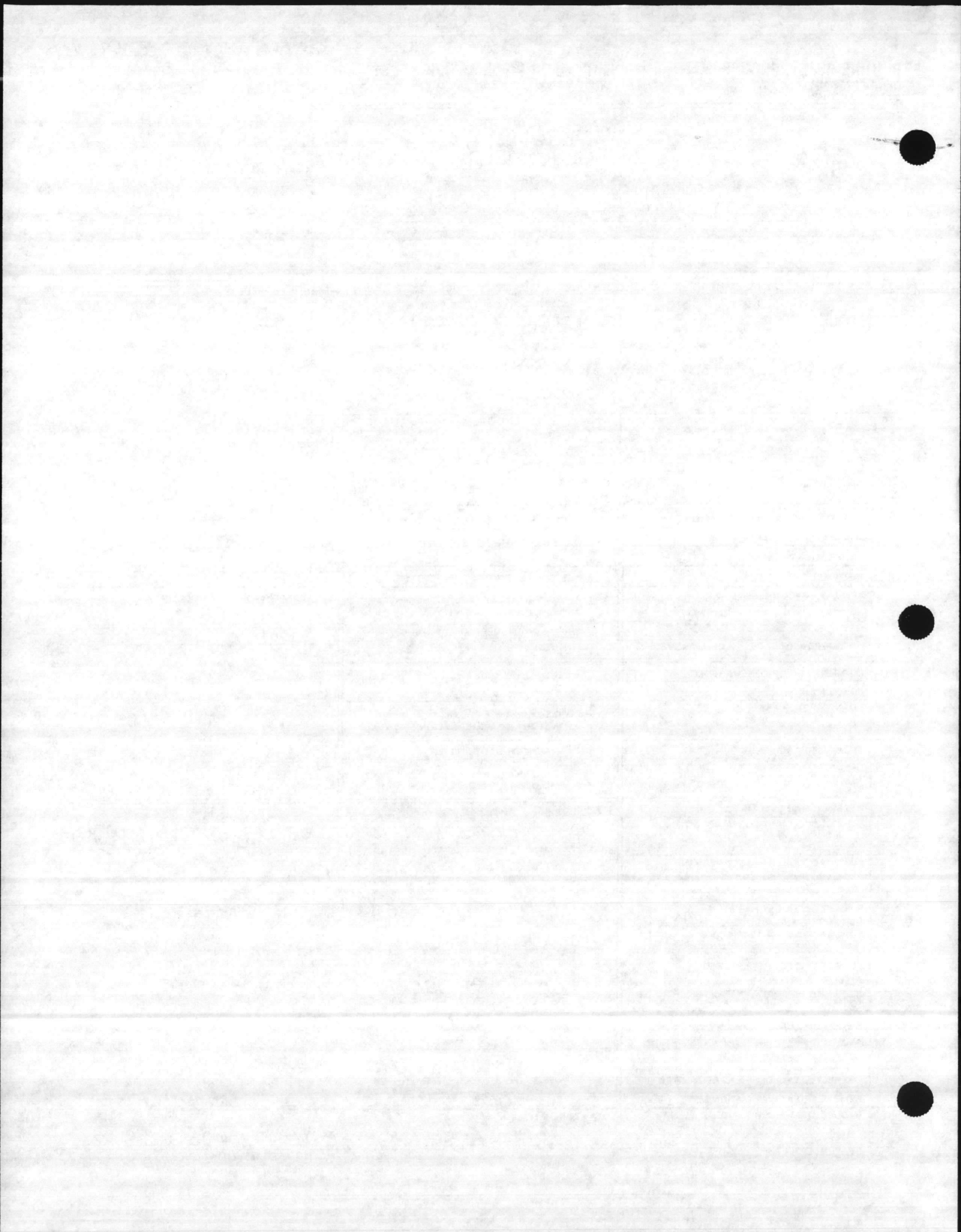
BOB - NOTE THAT BENZENE DID NOT SHOW UP HERE, ALTHOUGH JTC FOUND 250 ppb IN THEIR SAMPLE. (RAKOWSKI SUGGESTED IT MAY HAVE VOLATILIZED OFF DUE TO DELAY IN ANALYSIS; HOWEVER, LAB TO RECHECK). OTHER PARAMETERS COMPARABLE TO RESULTS OBTAINED BY JTC ESE RESULTS NOT IN YET. LETTER TO FOLLOW SOON.

SIGNATURE & TITLE

*Cheryl*

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

COPY TO:





**James R. Reed & Associates, Inc.**

**Environmental Testing & Consulting**

813 Forrest Drive • Newport News, Virginia 23606 • (804) 599-6750

**Laboratory Services Report**

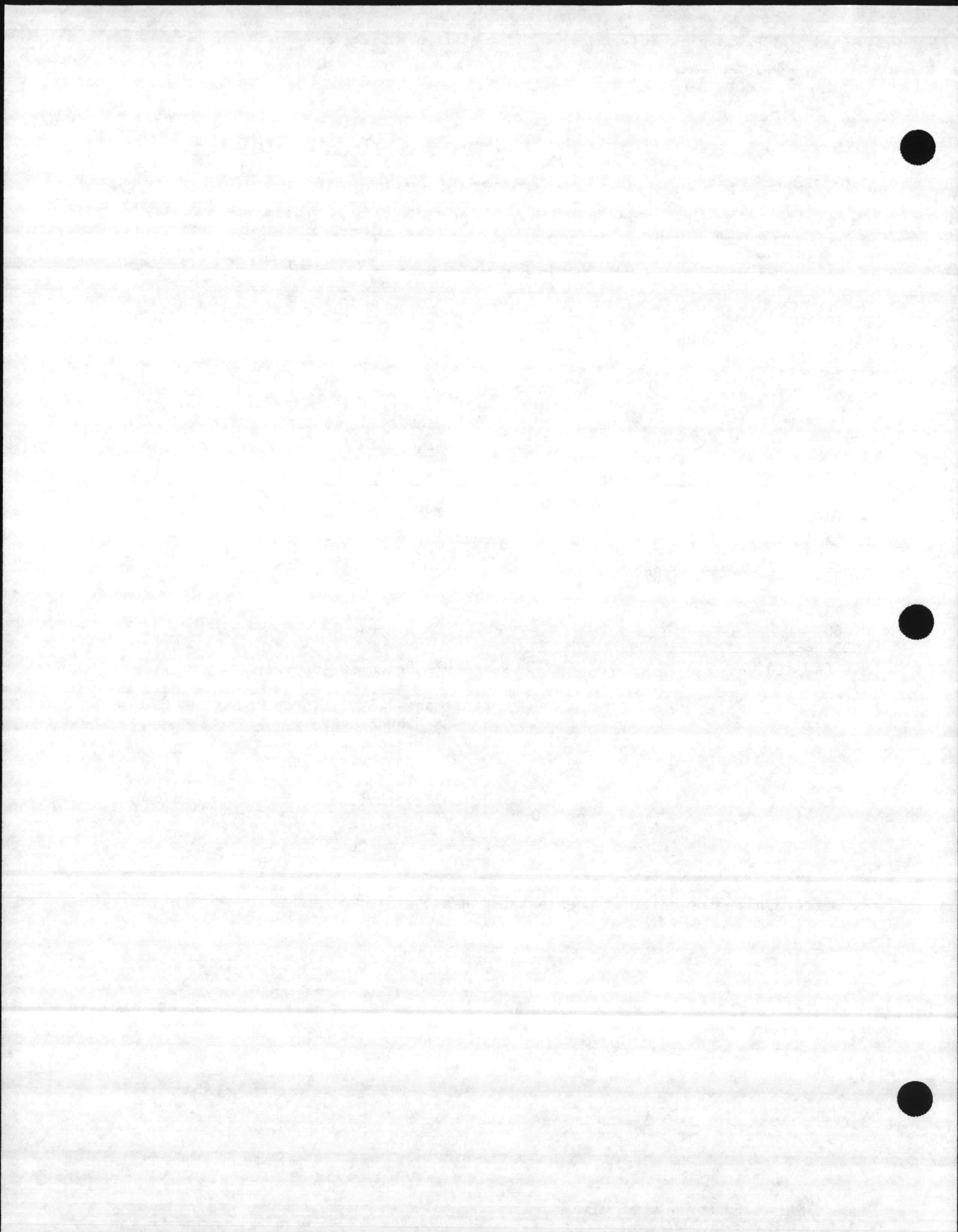
TO  
 [ Commander  
 Attn: Code 1142/Goodwin  
 Atlantic Division  
 Naval Facilities Engineering CMD  
 Norfolk, Virginia 23511  
 ]

January 4, 1985

| <u>Sample Identification</u>                       | <u>Analyses</u>               | <u>Results</u><br>( $\mu\text{g/l}$ ) |
|--|-------------------------------|---------------------------------------|
| Sample received 12/14/84                           |                               |                                       |
| 12/13/84<br>HP 602<br>1355 Betz<br>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             | 300                                   |

\* 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

Sample received 12/14/84

12/13/84  
HP 602  
1355 Betz  
MCB Camp Lejeune

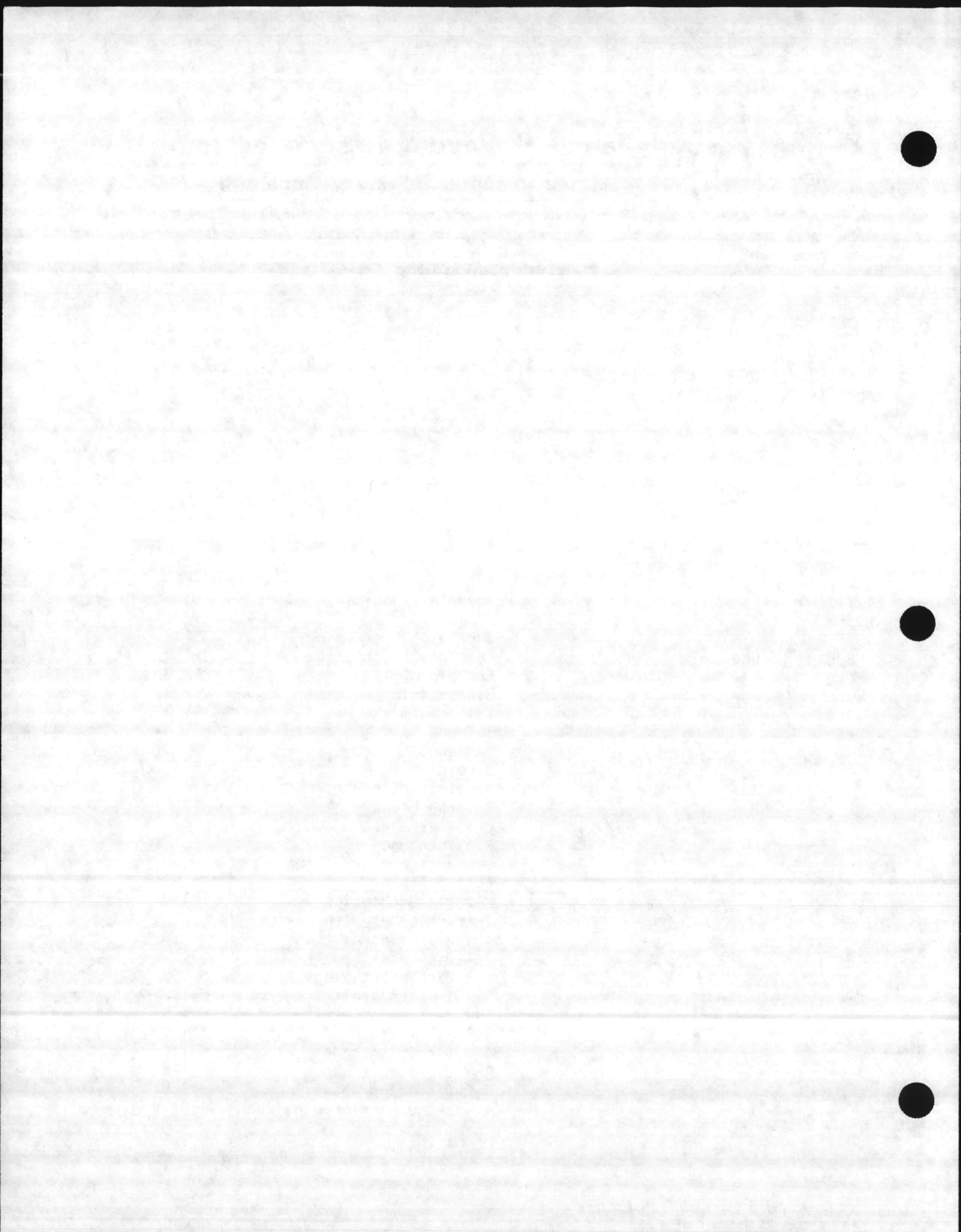
#### Analyses

##### Purgeable Organics

|                            |      |
|----------------------------|------|
| Bromodichloromethane       | <1.0 |
| Carbon Tetrachloride       | <1.0 |
| Bromoform                  | <2.0 |
| Dibromochloromethane       | <1.0 |
| Chloroform                 | <1.0 |
| Toluene                    | <1.0 |
| Benzene                    | <1.0 |
| Acrolein                   | <50  |
| Acrylonitrile              | <50  |
| Chlorobenzene              | <2.0 |
| Chloroethane               | *    |
| Ethylbenzene               | <2.0 |
| Bromomethane               | *    |
| Chloromethane              | *    |
| Methylene Chloride         | <1.0 |
| Tetrachloroethylene        | 3.2  |
| Trichlorofluoromethane     | <1.0 |
| 1,1-Dichloroethane         | 34   |
| 1,1-Dichloroethylene       | <1.0 |
| 1,1,1-Trichloroethane      | <1.0 |
| 1,1,2-Trichloroethane      | <1.0 |
| 1,1,2,2-Tetrachloroethane  | <1.0 |
| 1,2-Dichloroethane         | <1.0 |
| 1,2-Dichlorobenzene        | <1.0 |
| 1,2-Dichloropropane        | <1.0 |
| trans-1,2-Dichloroethylene | 110  |

#### Results (µg/l)

Respectfully submitted,





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 LANTNAVFACENCOM MSG (Preliminary Recommendations) and PAO Q/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 reported 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

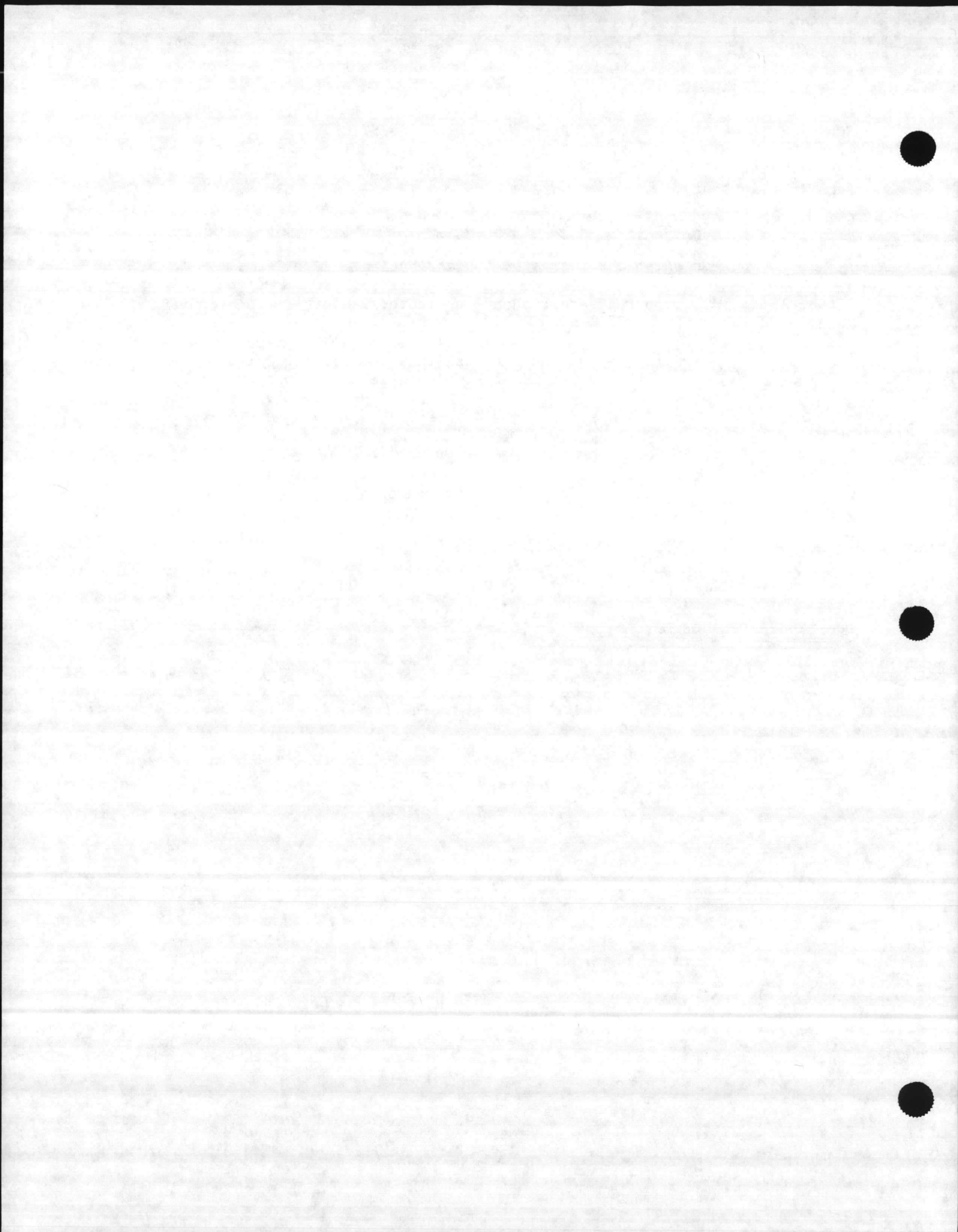
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114

1143 ←

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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 (~~including~~<sup>inv</sup> 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 (LANTNAVFACENCOM FUNDING):

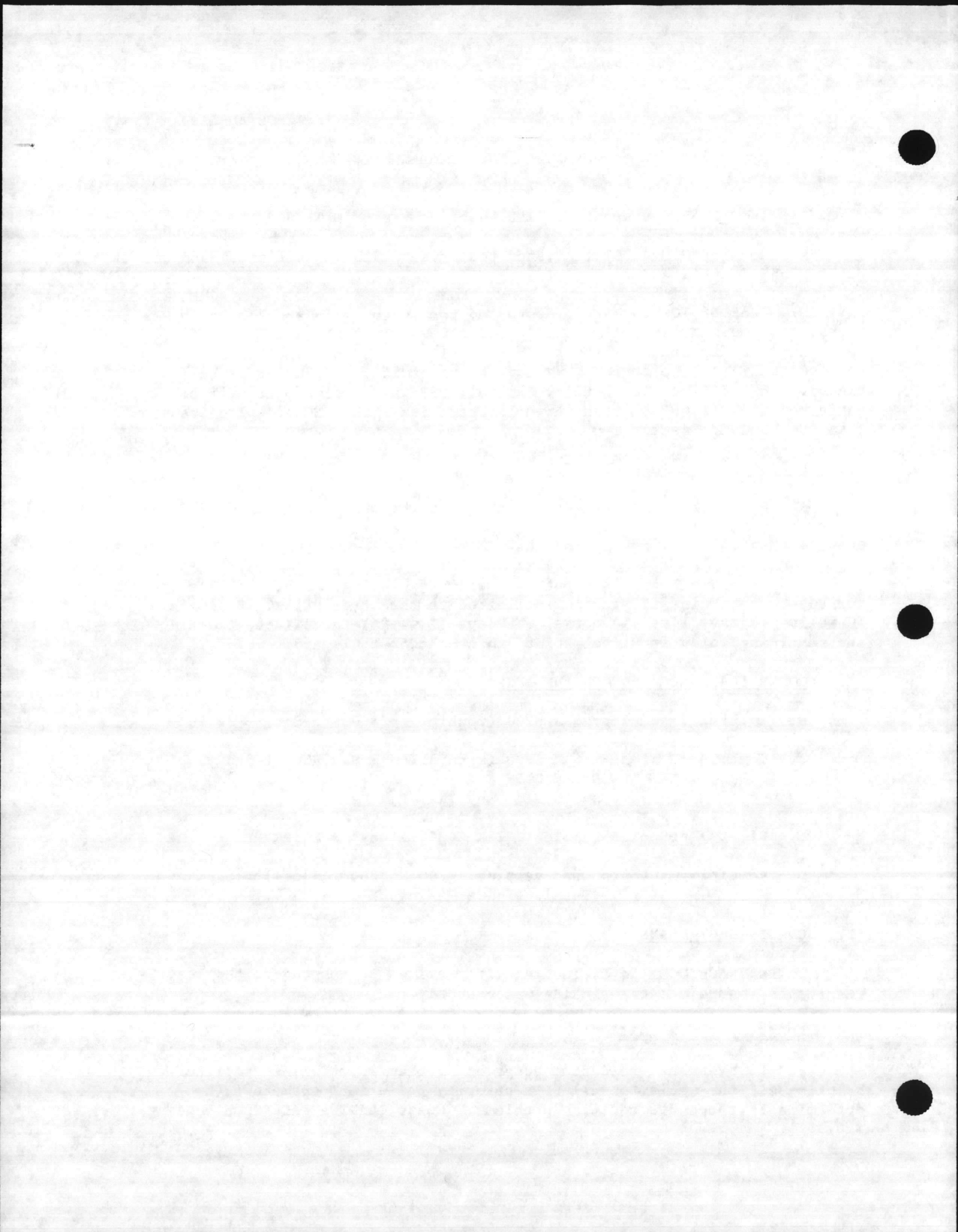
- A. Initial 9 samples:  $8 \times \$200$  (routine) + \$600 (2 day) = \$2.2K
- B. Next 18 samples:  $16 \times \$600$  (2 day) + 3 X Say \$300 (15 day) =  
Say \$10.5K  
Subtotal: Say \$12.7K
- C. First 7 proposed samples:  $7 \times \$600$  (2 day) = \$4.2K
- D. Remaining 100 proposed samples:  $100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

IV. CONTINGENCY PLANS:

LANTNAVFACENCOM 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 (LANTNAVFACENCOM 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           | trans 1,2-DCE | TCE   | TetraCE | CHCl3 | 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: John A. Stice

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









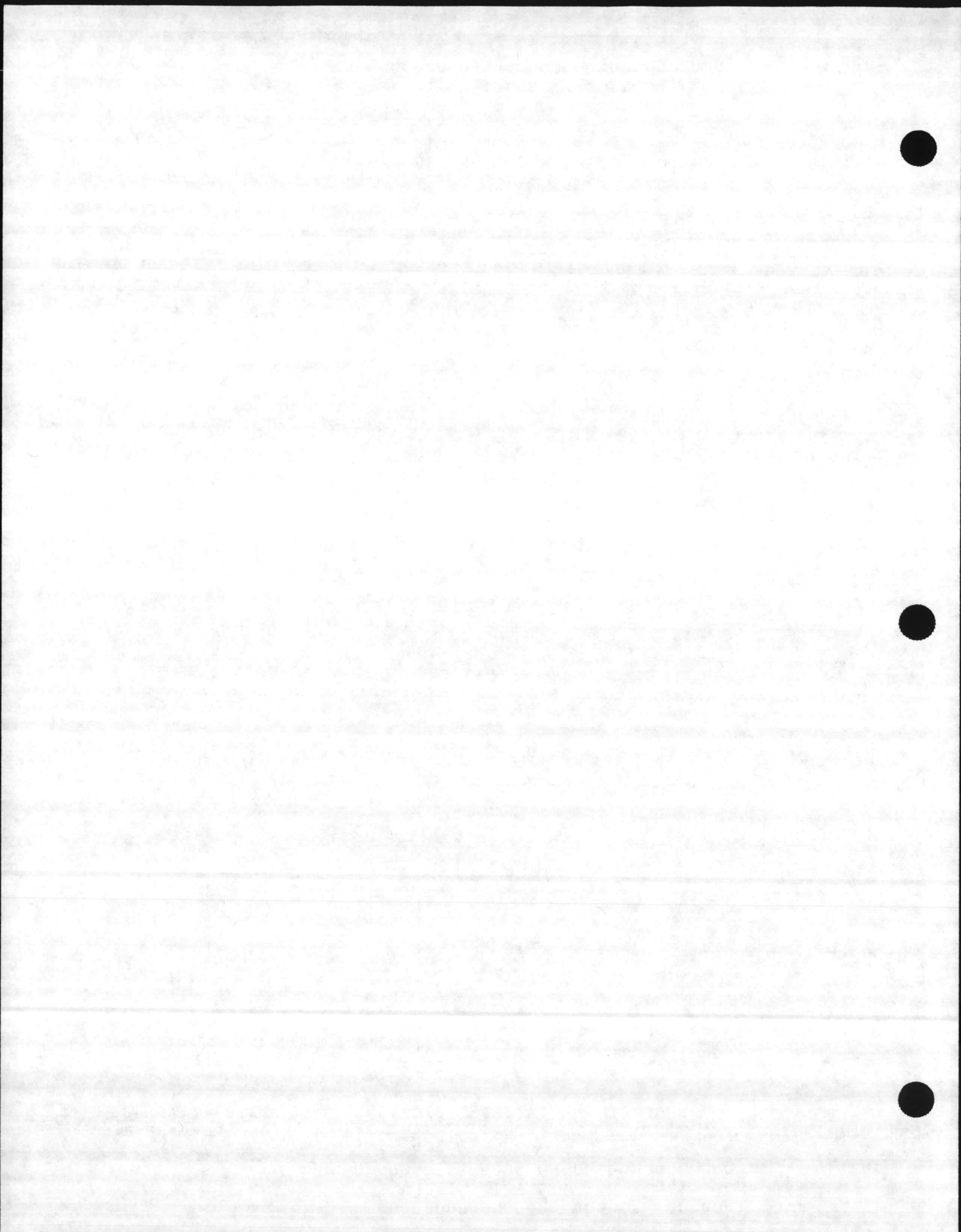


























UNITED STATES MARINE CORPS  
 Marine Corps Base  
 Camp Lejeune, North Carolina 28542-5001

6280/2  
 FAC

6 NOV 1985

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.

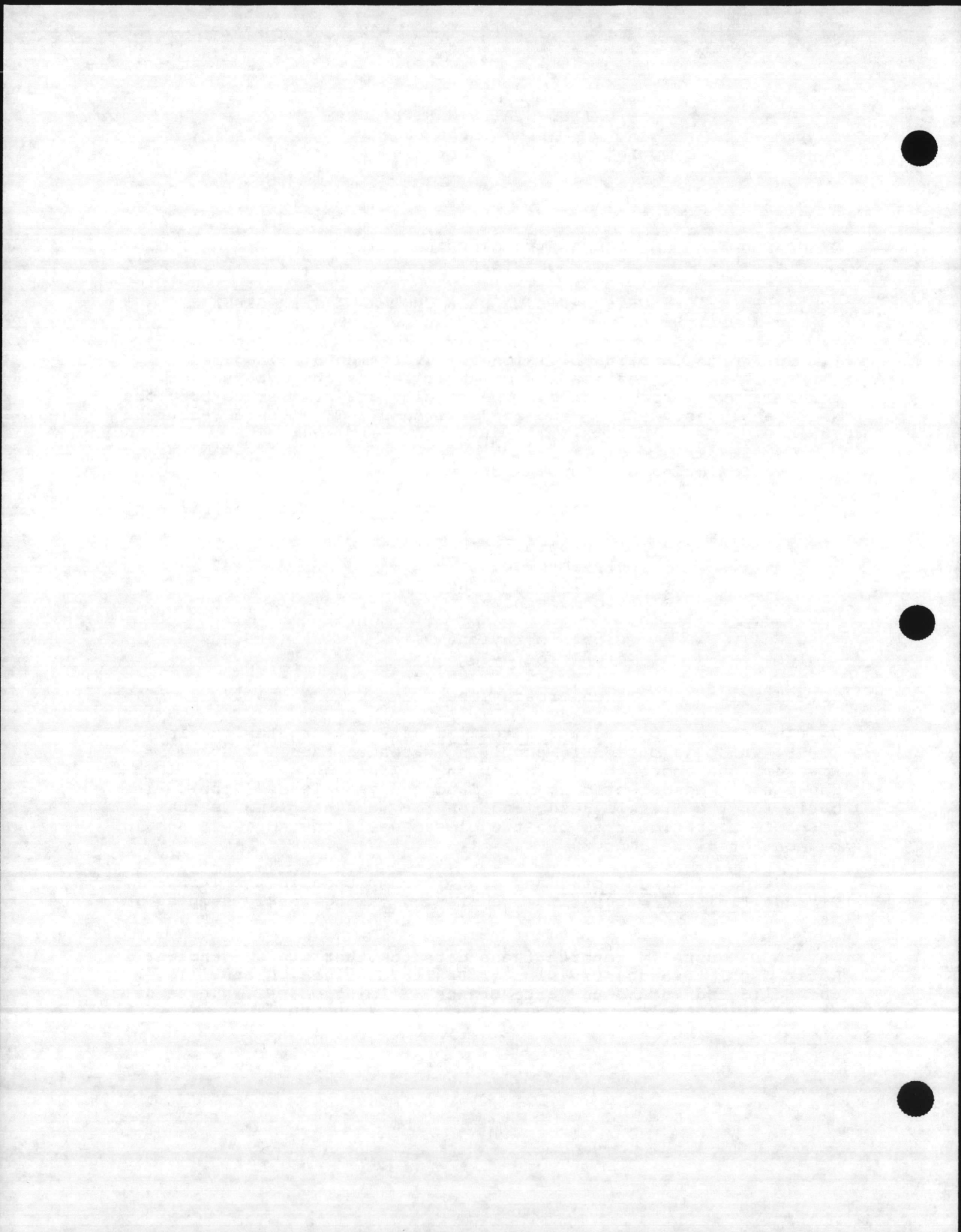
2. The following data was reported:

| <u>Well</u>          | <u>Parameter</u>   | <u>Concentration (parts per billion)</u> |
|----------------------|--------------------|--|
| TT-26 (closed)       | Di-chloroethylene  | 1.6                                      |
|                      | Methylcyclopentane | 0.42                                     |
|                      | Trichloroethylene  | 27                                       |
|                      | Perchloroethylene  | 1,100                                    |
| New Well<br>(closed) | Trichloroethylene  | 0.20                                     |
|                      | Perchloroethylene  | 4.0                                      |
| TT-25                | Perchloroethylene  | 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

6. 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. Our 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



(PCL) 445-1814

5000  
11A0017

25 APR 1986

U.S. Environmental Protection Agency  
 Attn: Arthur C. Linton, P.E.  
 Regional Federal Facilities Coordinator  
 Region IV  
 245 Westland Street  
 Atlanta, GA 30367

Gentlemen:

In response to both your letter of February 3, 1986 and subsequent conversations between Jim Holdaway and Kayne Mathis of your office and Paul Babowski and Cheryl Barnett of this office, we are enclosing all the analytical data from testing of the monitoring and potable wells at the Marine Corps Base, Camp Lejeune. Enclosure (1) is a preliminary report from PACIP Phase II initial sampling prepared by Environmental Science and Engineering, Incorporated (ESE). Enclosure (2) is the set of lab reports from sampling conducted by Camp Lejeune and analyses performed by our contract laboratory, JTC Environmental Consultants, Incorporated. The State of North Carolina also did some sampling and analyses; their reports are forwarded as enclosure (3).

Since 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.

ESE is conducting the Phase II Confirmation Study at Camp Lejeune. This study 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 groundwater and surface water samples are the minimum requirement for denying the existence of contamination and deleting a site from the PACIP 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 Point area, we are proceeding with the next two steps in the study. Round two verification step sampling as well as characterization and feasibility steps in the Hadnot Point area are currently being negotiated. We have enclosed a proposed milestone chart for these activities as enclosure (4).

From receipt of ESE's raw analytical data, a comprehensive sampling program for Volatile Organic Compounds (VOCs) was initiated at all potable wells and water treatment plants. This began in December of 1984 with sampling of wells in the Hadnot Point system. VOC analyses on all wells was completed by March 1985 and additional contamination was discovered in the Tarawa Terrace



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114307

system. After confirmatory sampling of all wells showing VOC contaminants, 10 wells were shut down: 601, 602, 605, 634, 637, 651, 652, 653, TT-25, and TT-26. Since July 1985, Camp Lejeune has conducted weekly sampling of the finished effluent from the Hadnot Point and Tarawa Terrace plants and monthly sampling of TT-25, the closest operational well to the two contaminated wells in Tarawa Terrace. In addition, they collected another round of samples from the Hadnot Point wells in January 1986 and plan to sample all other wells for VOCs in the next month. No additional VOC problems have been discovered.

Additional samples and analyses conducted by the State of North Carolina included potable wells, treatment plants, and points in the Belmont Boulevard and Tarawa Terrace distribution systems. The dramatic drop in VOC levels in the distribution system between February 6, 1985 to February 27, 1985 corresponds to the time the contaminated well 651 was shut down. As a quality control check, samples were split between JTC and the North Carolina laboratory on two occasions. These data have been compiled in enclosure (5).

The State conducted a separate investigation into the Tarawa Terrace 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 remedial measures as required. Your support and coordination with the State on this matter would be appreciated to ensure that remedial measures are identified and implemented to prevent further contamination of Camp Lejeune's Tarawa Terrace well field. This well field is currently strained to meet water demand requirements and rapid groundwater cleanup is required.

We hope the enclosed information will alleviate any concerns you may have regarding the extent and sensitivity of our analytical procedures and the thoroughness of our investigation. Closure of the contaminated wells has eliminated detectable VOCs in the Hadnot Point and Tarawa Terrace distribution systems. We believe the well closures and the ongoing sampling of treatment plant effluents and operational wells are effective interim measures to minimize human exposure to hazardous substances and we are proceeding with a study to identify permanent solutions as part of the FACIE program. Other issues raised in your letter regarding analytical parameters for FACIE sampling and the National Priorities List were addressed in our letter of February 6, 1986.





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1143077

In a telephone conversation between Jie Holdaway, Cheryl Barnett, and Paul Rakowski of February 18, 1986, Dr. Holdaway suggested a review meeting at Camp Lejeune. We invite you to attend a briefing LSC will be giving at the start of additional confirmation study field activities. Our point of contact for the NACIE program, Cheryl Barnett, will let you know when the briefing is scheduled.

Sincerely,

J. E. BAILEY, P.E.  
Lead, Environmental Quality Branch  
Utilities, Energy and Environmental  
Division  
By direction of the Commander

Encls:

- (1) Evaluation of Data from First Round of Verification Sample Collection and Analysis, Marine Corps Base, Camp Lejeune
- (2) JIC Lab Reports
- (3) State of North Carolina Lab Reports
- (4) Milestone Chart
- (5) Tarawa Terrace Water System, Comparison of Water Quality Data

Copy to: (w/encls (2), (3), (Summary Sheets only), (4), & (5)  
NACIE Camp Lejeune  
EC (231)  
CIC (08-45)  
COMNAVFACEVOCOM

Division of Environmental Management (w/encls 1, 2, 4, & 5)  
Attn: E. Paul Williams  
Director  
P.O. Box 27687  
Raleigh, NC 27611-47687

Division of Health Services (w/o encls)  
Attn: Dr. Donald E. Levine  
Director  
P.O. Box 2091  
Raleigh, NC 27602-2091

Environmental Science and Engineering (w/encls 2, 3, & 5)  
Incorporated  
Attn: Dr. Russ Jones  
P.O. Box 458  
Gainesville, FL 32602-3053

Blind Copy to: 09A21, 118, 114, 114, 114, 114, 09RS (w/o encl), Doc #05117/drd

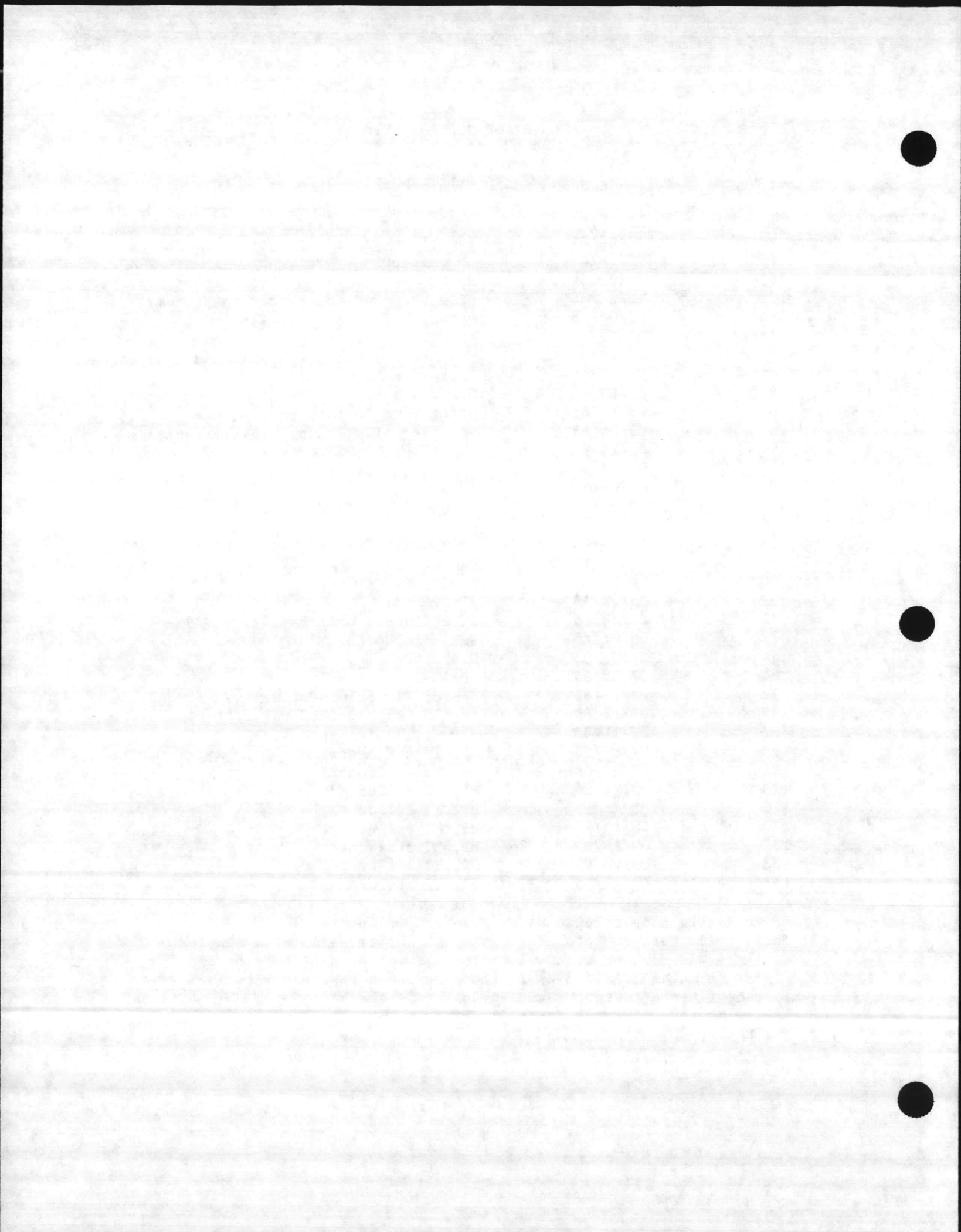




## SUMMARY OF JTC LAB REPORTS

| <u>Report Number</u> | <u>Date Issued</u> | <u>Sample Description</u>  |
|----------------------|--------------------|--|
| 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

| <u>Report Number</u> | <u>Date Issued</u> | <u>Sample Description</u>  |
|----------------------|--------------------|--|
| 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 NORTH CAROLINA DIVISIONS OF  
ENVIRONMENTAL MANAGEMENT AND HEALTH SERVICES LAB REPORTS

| <u>Report Date</u> | <u>Description</u>  |
|--------------------|---|
| 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                                     |

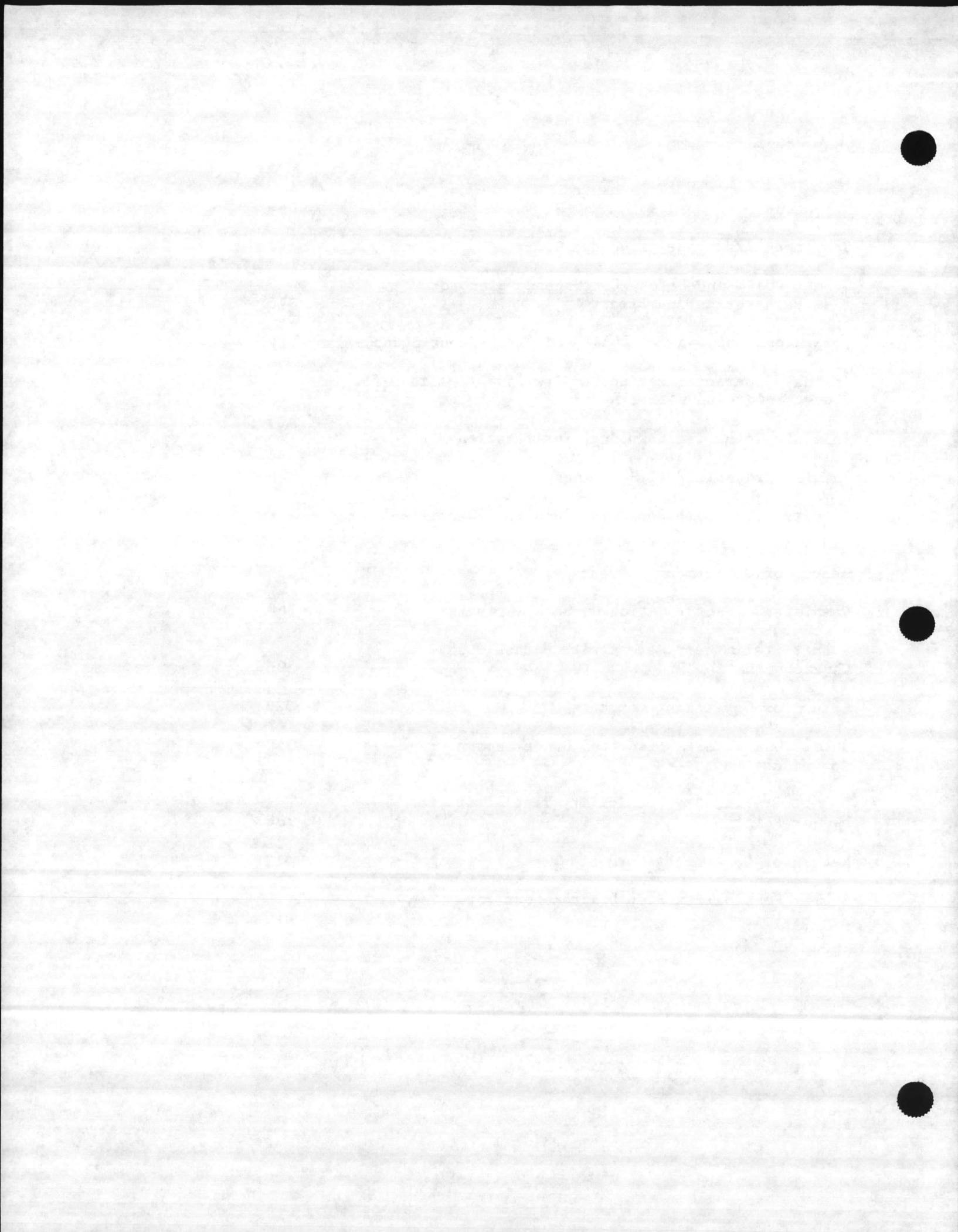
(1) Building 670 is the HB plant.





## MILESTONE CHART

| <u>Milestone</u>   | <u>Day</u> |
|--|------------|
| Government Issuance of Change Order  | 0          |
| Submit POA&M and Safety/Contingency Plan for<br>Characterization Effort              | 10         |
| Government Approval of POA&M and Safety/Contingency Plan                             | 17         |
| Initiate Characterization On-Site Investigations for<br>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<br>Results                        | 125        |
| Return of Government Comments  | 155        |
| Complete Characterization On-Site Investigation                                      | 260        |
| Submit Preliminary Report with Hadnot Point<br>Characterization Step Results         | 290        |
| Return of Government Comments  | 320        |
| Submit Characterization Step Draft Report<br>for Hadnot Point                        | 350        |
| Submit Preliminary Feasibility Step Report for<br>Hadnot Point                       | 380        |
| Return of Government Comments  | 410        |
| Submit Feasibility Step Draft Report for<br>Hadnot Point                             | 440        |

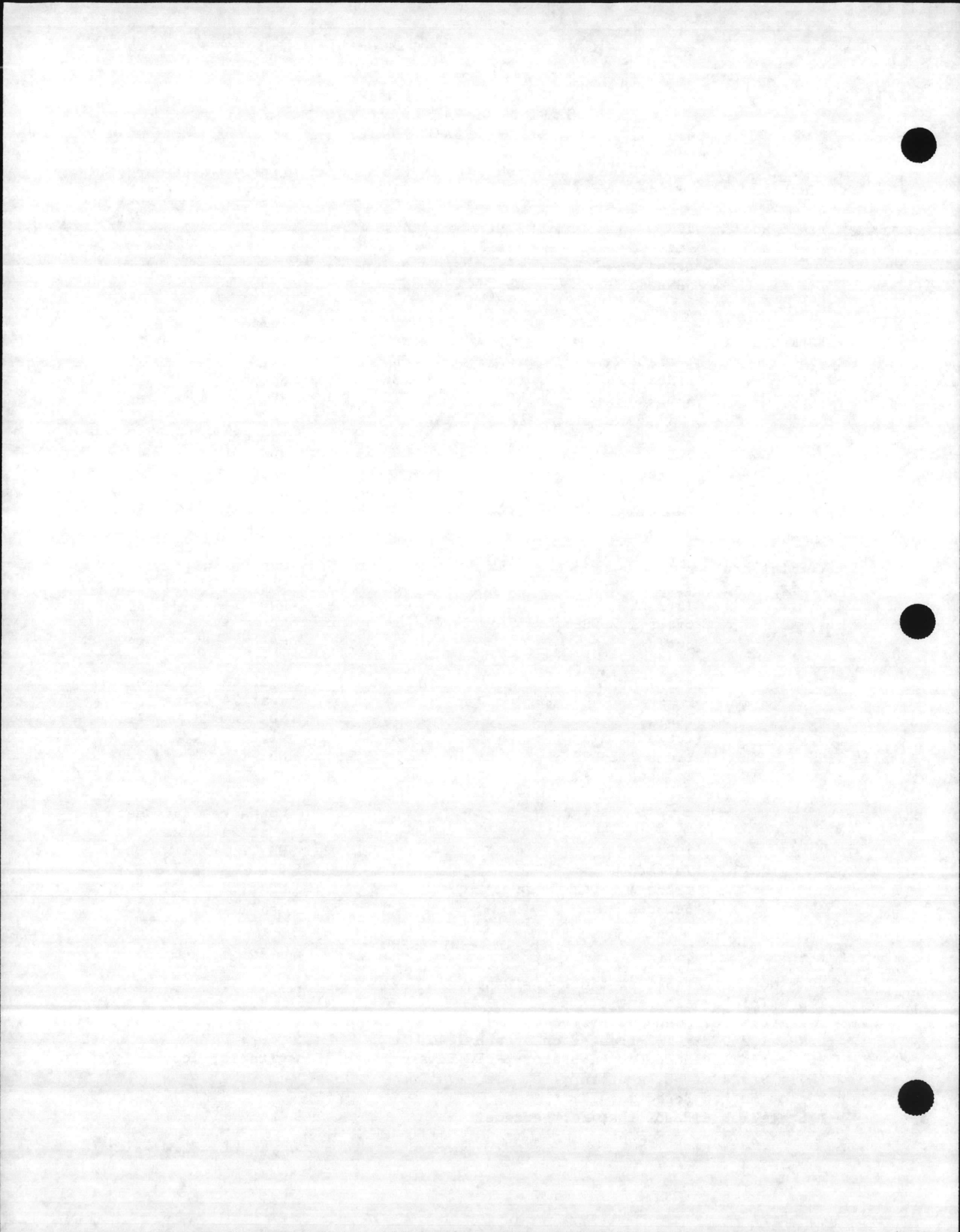


TARAWA TERRACE WATER SYSTEM  
 COMPARISON OF WATER QUALITY DATA (ug/l)  
 SAMPLE DATE

| 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               |                                     |                  |    |
| TT New Well   |                   |            |                  | Pumped 2 Hours                      |                  |    |
|               | 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 Water |            |                  |                                     | W/O New Well     |    |
|               |                   | TCE        |                  |                                     | ND               | ND |
| TetraCE       |                   |            |                  | ND                                  | ND               |    |
| trans 1,2-DCE |                   |            |                  | ND                                  | ND               |    |
| Benzene       |                   |            |                  | **                                  | ND               |    |
|               |                   |            |                  | Upstream of Reservoir at 24 Hours   |                  |    |
| TCE           |                   |            |                  | ND                                  | 1.1*             |    |
| TetraCE       |                   |            |                  | 21.3                                | 20               |    |
| trans 1,2-DCE |                   |            |                  | ND                                  | 1.2*             |    |
| Benzene       |                   |            |                  | **                                  | 2.2*             |    |
|               |                   |            |                  | Downstream of Reservoir at 24 Hours |                  |    |
| 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 = Trichloroethylene  
 TetraCE = Tetrachloroethylene  
 trans 1,2-DCE = 1,2-trans-dichloroethylene  
 (L) = LANTNAVFACENGCOR 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: 3/14/85

COMPANY: Cable Laidoff, N.C.

PPB  
 TOTAL HALOGENATED

| AMPLE #   | Chloroform | Dichloro-<br>bromomethane | 1,1-Dibromo-<br>chloroethane | Trichloro-<br>ethylene | Tetrachloro-<br>ethane | Dichloro-<br>ethene | Plant Before<br>Tune | Reservoir<br>After Tune | Other |
|---|------------|---------------------------|------------------------------|------------------------|------------------------|---------------------|----------------------|-------------------------|-------|
| 00975   | *          | *                         | *                            | *                      | *                      | *                   | Plant Before<br>Tune | Reservoir<br>After Tune | Other |
| 00976   | *          | *                         | *                            | *                      | 14.9                   | *                   | Plant Before<br>Tune | Reservoir<br>After Tune | 2.15  |
| 977   | *          | *                         | *                            | *                      | 40.6                   | *                   | Plant Before<br>Tune | Reservoir<br>After Tune |       |
| 00978   | *          | *                         | *                            | *                      | 21.3                   | *                   | Plant Before<br>Tune | Reservoir<br>After Tune | 2.15  |
| 00979   | *          | *                         | *                            | *                      | 6.6                    | *                   | Plant Before<br>Tune | Reservoir<br>After Tune | 2.15  |
| *less than reporting value (2.0 PPB), or none detected. |            |                           |                              |                        |                        |                     |                      |                         |       |

Doc No: CLEJ-00362-3.04-4/25/85



# OF SAMPLES

WELL NAME

LABELLED

STATE

ETC

DATE

TIME

COMMENTS

BRIDGE TOWER (WELL)

1

STATE

ETC

3/11/85

10:25

Wells 0-1, 25, 31, 53

VIALS

54, 67

2

STATE

ETC

3/11/85

12:41

Wells 0-1, 25, 31, 53  
24, 25, 57

3

STATE

ETC

3/12/85

10:37

Wells 0-1, 25, 31, 53

4

STATE

ETC

3/12/85

10:22

Wells 0-1, 31, 52, 53

VIALS

47, NEW WELL

5

STATE

ETC

3/12/85

10:28

Wells 0-1, 25, 31, 53

24, 25, 57, 58

07, NEW WELL

Collected by: 3/11/85

*Elizabeth P. Burt*

3/12/85

*James B. Burt*  
*James B. Burt*





Doc No: OLEJ - 00362 - 3.04 - 4/25/86  
564-4546



North Carolina Department of Human Resources  
Division of Health Services  
Occupational Health Laboratory

FOR: CODE 114  
MRS  
BARRETT

ANALYSIS REPORT

EXT 5-1814

U.S. MARINE CORPS, Camp LEJEUNE, NC

Requester:

Requester's Address: TOE HCE

Date of Sample: 3/11/85, 3/12/85

By: EP. BETZ, C.F. HUNEYCHIK

Delivered To Laboratory On: 3/14/85

By: Fed. Express

Name of Analyst: 115131

Date Reported: 3/18/85

Name of Employee: John Deal

GOOD SPEAK UP

| NO | SAMPLE NUMBER | DESCRIPTION            | REMARKS                         | RESULTS IN |
|----|---------------|------------------------|---------------------------------|------------|
| 75 | #1            | PLANT BEFORE RESERVOIR | (PRINT TO FLOW) <sup>WELL</sup> | START.     |
| 76 | #2            | TI NEW WELL            | + START (+ 2 hrs)               |            |
| 77 | #3            | TI NEW WELL            | (+ 24 hrs)                      |            |
| 78 | #4            | PLANT BEFORE RESERVOIR | <sup>24 hrs</sup> AFTER BLOW    |            |
| 79 | #5            | PLANT AFTER RESERVOIR  | + 24 hrs                        |            |
|    |               | (See Attached Sheet)   |                                 |            |

REPORTED BY: [Signature]  
Chief, Occupational Health Lab

