



DEPARTMENT OF THE NAVY  
ATLANTIC DIVISION  
NAVAL FACILITIES ENGINEERING COMMAND  
NORFOLK, VIRGINIA 23511

Doc. No.: CLEJ-00376-  
3.04-05/08/81

TELEPHONE NO.  
AUTOVON 690-4972  
IN REPLY REFER TO:

114:JGW  
6280

8 MAY 1981

From: Commander, Atlantic Division, Naval Facilities Engineering Command  
To: Commanding General, Marine Corps Base, Camp Lejeune (Attn: Assistant Chief of Staff for Facilities)

Subj: Suspected Chemical Dump, Rifle Range Area; analyses of groundwater and surface water at

Ref: (a) LANTNAVFACENGOOM ltr 114:JGW 6280 of 25 Mar 1981  
(b) Environmental Protection Agency National Interim Primary Drinking Water Regulations, 40 CFR 141.12, of 27 Aug 1980  
(c) Quality Criteria for Water, Environmental Protection Agency, PB 263943, Jul 1976

Encl: (1) Summary of tabulated results of water sampling on 30 Mar 1981, MCB CAMP LEJEUNE  
(2) Summary of tabulated results of water sampling on 10 Apr 1981, MCB CAMP LEJEUNE  
(3) Detailed Laboratory results of all samples

1. Reference (a) is a letter transmitting analytical results of a water sample collected from a pit near the suspect waste dump site in the Rifle Range Area. Due to the nature of the chemical preservation technique used, analyses for organic parameters could not be undertaken.

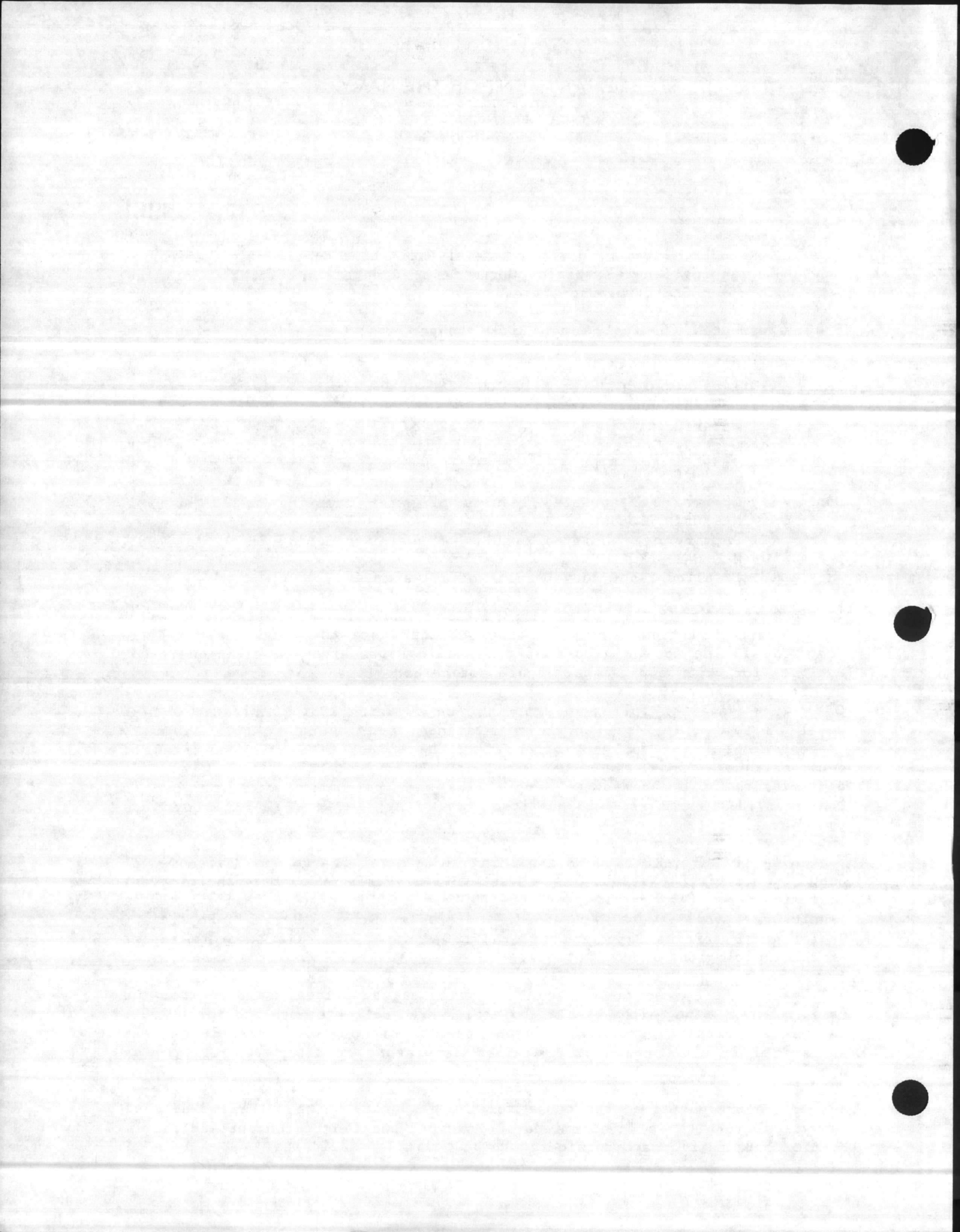
2. A more detailed follow-up sampling, on 30 March 1981, indicated a high level of some chlorinated organic materials. Enclosure (1) is a summary presentation of the analytical results. The composite sample consisted of equal aliquots from the four samples. After determination of organic contaminants in the composite sample, the same parameters were analyzed in the individual samples. (Significant cost savings were realized by this procedure.)

3. While at MCB CAMP LEJEUNE assisting in a Naval Energy and Environmental Support Activity (NAVENENVSA) investigation of a reported radiological contamination, the results of the 30 March 1981 sampling and analysis (enclosure (1)) were obtained. (Mr. Kip Rimm, Health Physicist, Radiological Affairs Support Officer (RASO), will forward a separate report of the radiological investigation.)

4. Based on the results of the above analyses, additional samples from the same points, plus eight other points, were collected on 10 April 1981. Analyses indicated greatly reduced levels of organic contaminants as summarized in enclosure (2). Detailed laboratory results for all samples are provided for your files as enclosure (3).

5. At the present time, the cause for the disparity between the two sets of analytical results is indeterminant. However, sampling technique and sample bottle contamination are considered to be possible candidates.





6. Because of the above divergence of results, it is recommended that at least the initial four sampling points along with RR-85 (Water Treatment Plant Finished Water Tap) be resampled. LANTNAVFACENGCOM personnel will be at Camp Lejeune for meetings related to the EPA Hazardous Waste Management Program requirements during the latter part of May 1981 and will collect samples at that time.

7. A detailed interpretation of the significance of contamination indicated in enclosures (1) and (2) will not be presented until the third set of analytical results can be included. In abbreviated form, however, the methylene chloride, chloroform, and trichloroethylene contamination in the Rifle Range Area wells and finished water warrant the following considerations:

a. Chloroform is one of four compounds which comprise the trihalomethanes. Reference (b) sets a total trihalomethane limit of 0.10 mg/l, which equates to 100 ppb. The measured level of 17 ppb at RR-85, as noted in enclosure (2), is well within the 100 ppb standard.

b. Methylene chloride is an organic solvent commonly used in paint stripping and degreasing compounds. At the present time there are no standards set by either reference (b) or (c) for this compound.

c. Trichloroethylene is a common organic solvent used in degreasing, solvent extraction and drycleaning. At the present time there are no standards set by either reference (b) or (c) for this compound.

8. Based on the low level of contaminants found relative to the total trihalomethane standard and the chemical (not necessarily toxicological) similarity of the contaminants, it is not believed that there is an imminent threat to human health presented by consumption of water from the Rifle Range WTP and distribution system.

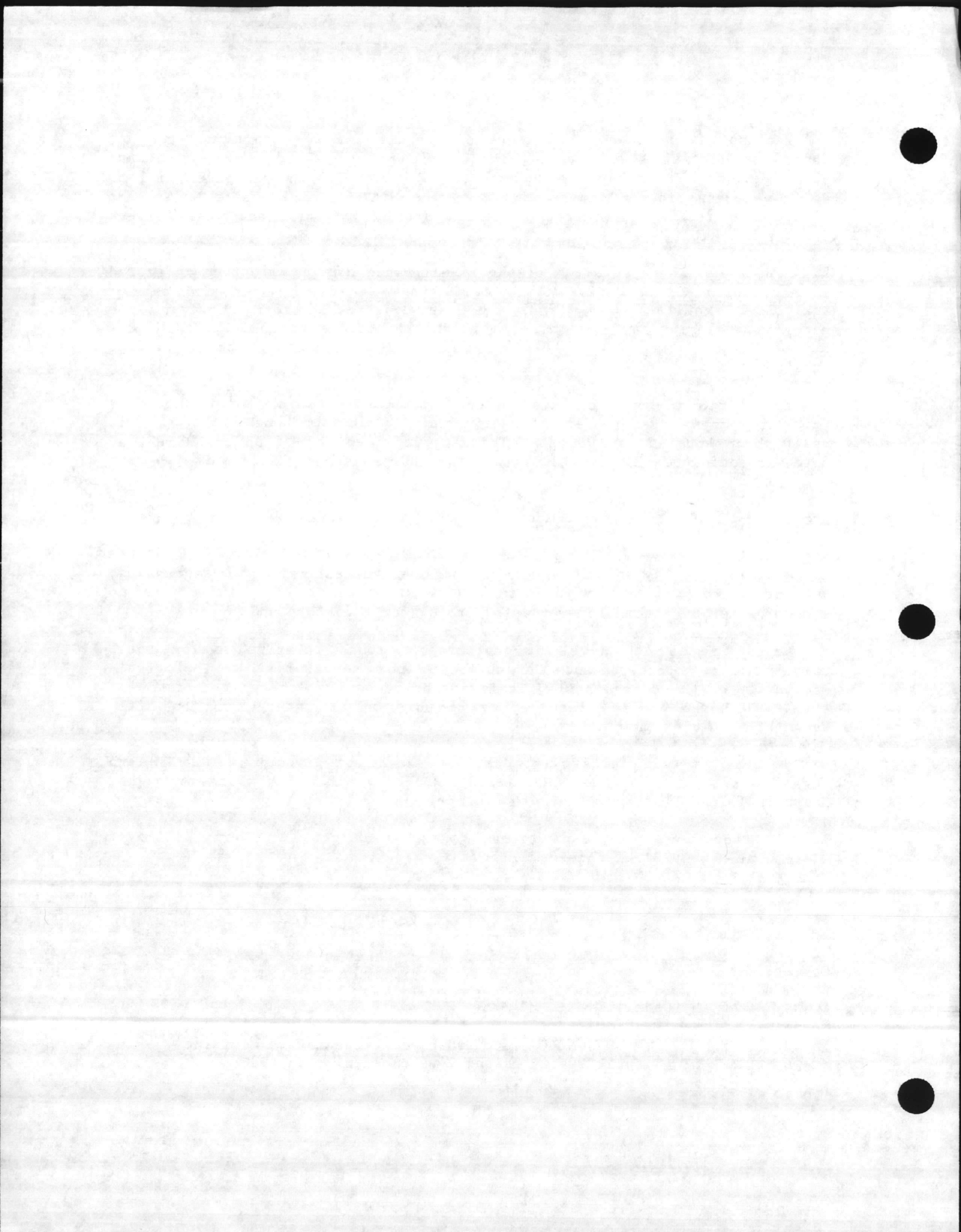
9. By copy of this letter consideration should be given by NAVENENVSA to advanced prioritization of MCB CAMP LEJEUNE in the Navy Assessment and Control of Installation Pollutants Program.

10. If there are any questions, please contact Mr. Jerry Wallmeyer (telephone 444-4972) of this Command.

*J. R. Bailey*

J. R. BAILEY  
By direction

Copy to:  
CMC (Code LFF 2)  
COMNAVFACENGCOM (Code 112)  
NAVENENVSA (Code 20, RASO)  
NAVREGMEDCEN MCB CAMP LEJEUNE (Occupational and Preventative Medicine)  
MCB CAMP LEJEUNE (Natural Resources and Environmental Affairs)





MCB CAMP LEJEUNE  
 SAMPLE DATE 30 MARCH 1981  
 ALL RESULTS IN PARTS PER BILLION (ppb)

	COMPOSITE	TEST WELL NO. 15	TEST WELL NO. 16	POOL OF WATER BELOW WELL NO. 16	RAD POOL
BENZENE					
TOLUENE	62		242		
CARBON TETRACHLORIDE	2,583	3,560	2,920	1,840	1,189
1, 2, - DICHLOROETHANE	44		155		
1, 1, 1 - TRICHLOROETHANE					
1, 1 - DICHLOROETHANE	69	65	122	38	38
1, 1, - DICHLOROETHYLENE	124		424		
1, 1, 2 - TRICHLOROETHANE					
CHLOROFORM	11,267	15,520	13,260	880	7,380
METHYLENE CHLORIDE	24,859	4,154	20,460	9,640	7,693
TETRACHLOROETHYLENE					
TRICHLOROETHYLENE					
TOTAL	39,008	23,299	37,583	12,398	16,300

Enclosure (1)

Doc No: CLEJ-06376-3.04-05/08/81



MCB CAMP LEJEUNE  
 SAMPLE DATE 10 APRIL 1981  
 RESULTS IN PARTS PER BILLION (ppb)

OF WATER WELL	RAD POOL	RR-45 WELL	RR-47 WELL	RR-97 WELL	RR-85 WTP FINISHED WATER TAP	No. 5*	No. 6*	No. 7*	No. 8*
						1			
						101			
						176			
						103			
	2					101			
						258			
						252			
				17	17	35			
	2	4		6	3	37	14		
		1					6		
				2		141			
	4	4		25	20	1,205	20		

ump  
 100 yds 55E of Test Well No. 17

right fork of road through TLZ owl to river

Doc No. 12125-00376-3.04 -  
 05/08/81





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VA (EPA) CERTIFIED LABORATORY for  
Drinking Water Analysis - Microbiological,  
Inorganic and Organic

Official Referee Chemists for:  
AMERICAN OIL CHEMISTS SOCIETY  
NATIONAL SOYBEAN  
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Laboratory Certified by VA. STATE WATER  
CONTROL BOARD for Analysis of  
Effluents for NPDES PERMITS  
CERTIFIED OFFICIAL U.S.D.A. LABORATORY  
FOR MEAT ANALYSIS

ASBESTOS ANALYSIS - NIOSH 582

## CERTIFICATE OF ANALYSIS

TO: Mr. Dave Goodwin  
Building N-23 Atlantic Division  
Naval Facilities Engineering Command  
Norfolk, Virginia 23511

DATE: April 9, 1981

SAMPLE OF WATER SAMPLES from (Test Well #15, Roadside of Chemical Dump) Test Well

MARKED #16, Creek Side of Chemical Dump) (Lake, Pool of Water) (Ens. Kalisch-

Radiation Pool) taken 3/30/81 at Camp Lejeune, Marine Corps Base, North Carolina  
and delivered to laboratory 4/01/81

OFFICIAL SAMPLE BY: BETZ & LUKE

### TEST WELL #15

Carbon Tetrachloride . . . . .	3,560	PPB
1,1 Dichloroethane . . . . .	65	PPB
Chloroform . . . . .	15,520	PPB
Methylene chloride . . . . .	4,154	PPB

### TEST WELL #16

1,1 Dichloroethane . . . . .	122	PPB
Chloroform . . . . .	13,250	PPB
Carbon Tetrachloride . . . . .	2,320	PPB
Methylene Chloride . . . . .	20,460	PPB
1,2 Dichloroethane . . . . .	154.6	PPB
1,1 Dichloroethylene . . . . .	423.6	PPB
Toluene . . . . .	242.	PPB

### POOL OF WATER

Carbon Tetrachloride . . . . .	1,340	PP
1,1 Dichloroethane . . . . .	38	PP
Chloroform . . . . .	330	PP
Methylene Chloride . . . . .	9,640	PP

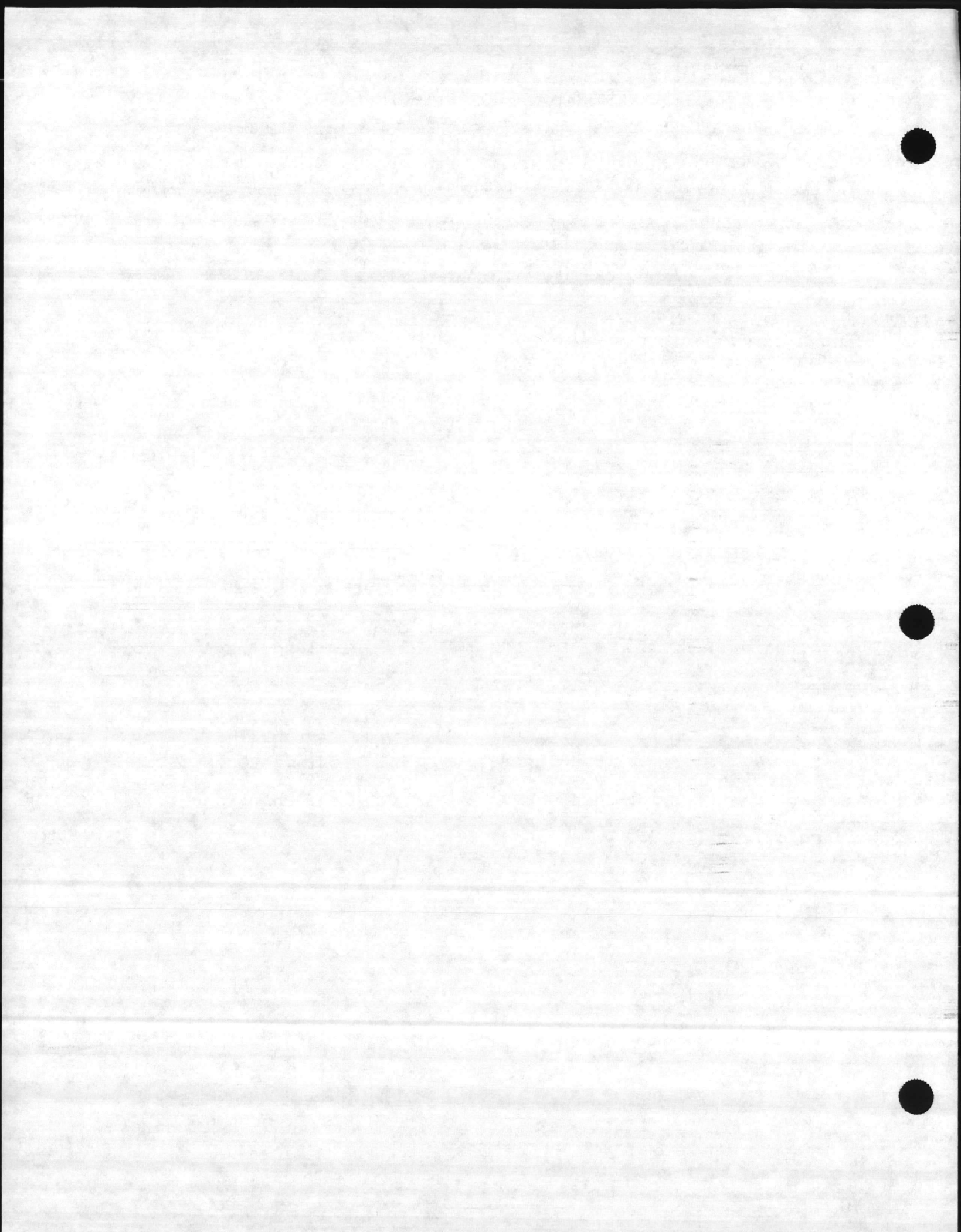
### RADIATION POOL

Carbon Tetrachloride . . . . .	1,189	PP
1,1 Dichloroethane . . . . .	33	PP
Chloroform . . . . .	7,380	PP
Methylene Chloride . . . . .	7,693	PP

Respectfully submitted,  
JENNINGS LABORATORIES, INC.

Laboratory  
Analysis No. 4109

*W. H. Jennings*  
CHEMIST





Doc No: CLEJ-00376-3.04-05/08/81

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FOR MEAT ANALYSIS

ASBESTOS ANALYSIS - NIOSH 582

NATIONAL SOYBEAN  
PROCESSORS ASSOCIATION

## CERTIFICATE OF ANALYSIS

TO: Mr. Dave Goodwin  
Building N-23 Atlantic Division  
Naval Facilities Engineering Command  
Norfolk, Virginia 23511

DATE: April 7, 1981

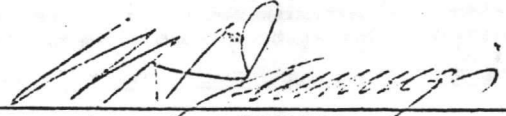
SAMPLE OF WATER SAMPLES from (Test Well #15, Roadside of Chemical Dump) (Test Well  
MARKED #16, Creek side of Chemical Dump) (Luke, Pool of Water) (Ens. Kalisch-Radiation  
Pool) taken 3/30/81 at Camp Lejeune, Marine Corps Base, North Carolina and  
delivered to laboratory 4/01/81

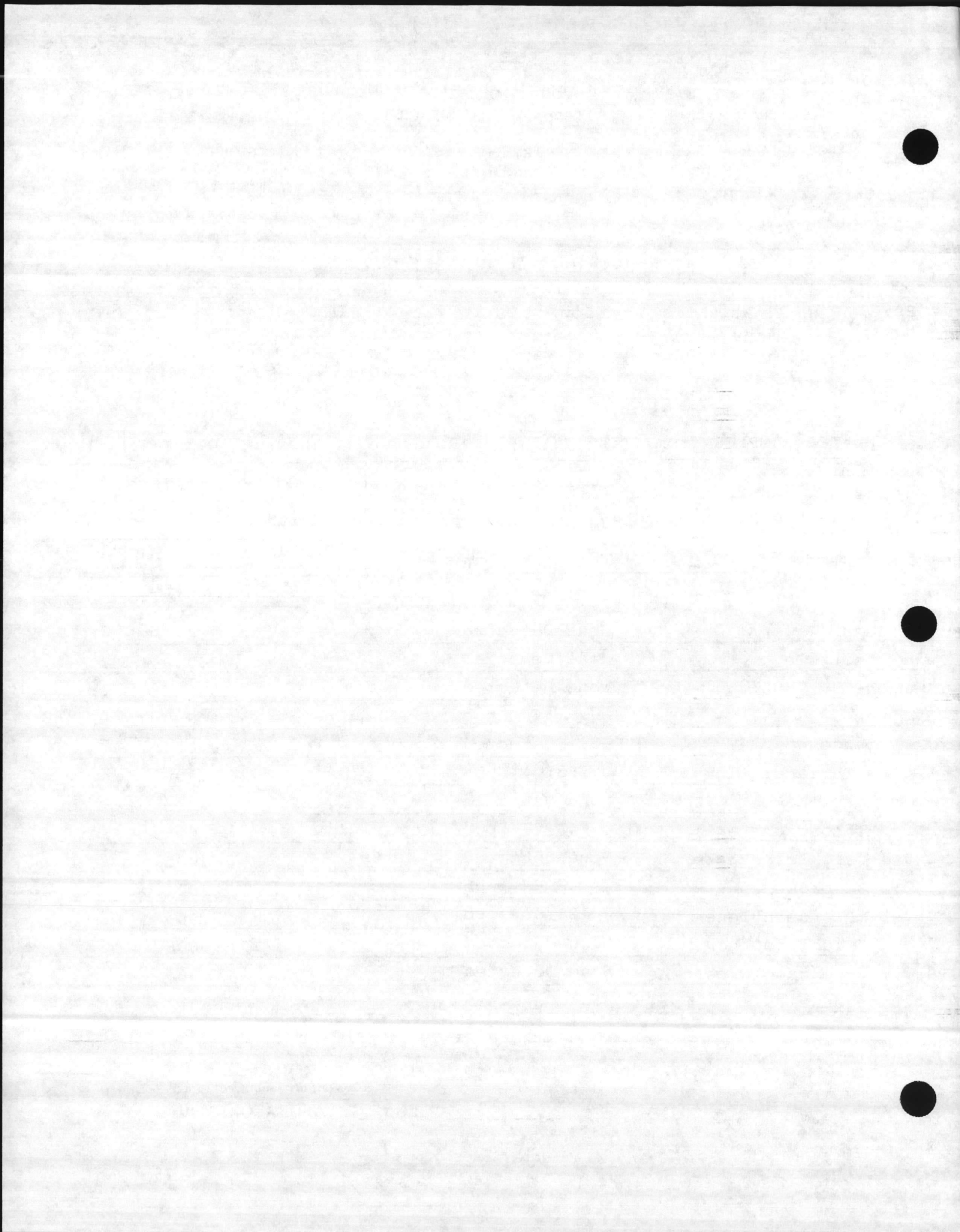
OFFICIAL SAMPLE BY: BETZ & LUKE

	<u>PURGEABLE ORGANICS</u>	<u>DETECTION LIMITS µg/l</u>
Protein	None Detected	2.0
Acrylonitrile	None Detected	2.0
Benzene	None Detected	10.0
Toluene	61.75 ppb	10.0
Ethylbenzene	None Detected	10.0
Carbon Tetrachloride	2,583.0 ppb	.007
Chlorobenzene	None Detected	.03
1,2-Dichloroethane	43.77 ppb	.006
1,1,1-Trichloroethane	None Detected	.005
1,1-Dichloroethane	68.92 ppb	.004
1,1-Dichloroethylene	124.0 ppb	.006
1,1,2-Trichloroethane	None Detected	.006
1,1,2,2-Tetrachloroethane	None Detected	.006
Chloroethane	None Detected	.01
2-Chloroethyl vinyl ether	None Detected	.08

Respectfully submitted,  
JENNINGS LABORATORIES, INC.

Navy  
Laboratory  
Analysis No. 109

  
CHEMIST



Corrected Sheet

EXTRACTABLE ORGANICS (Continue)

DETECTION LIMITS ug/l

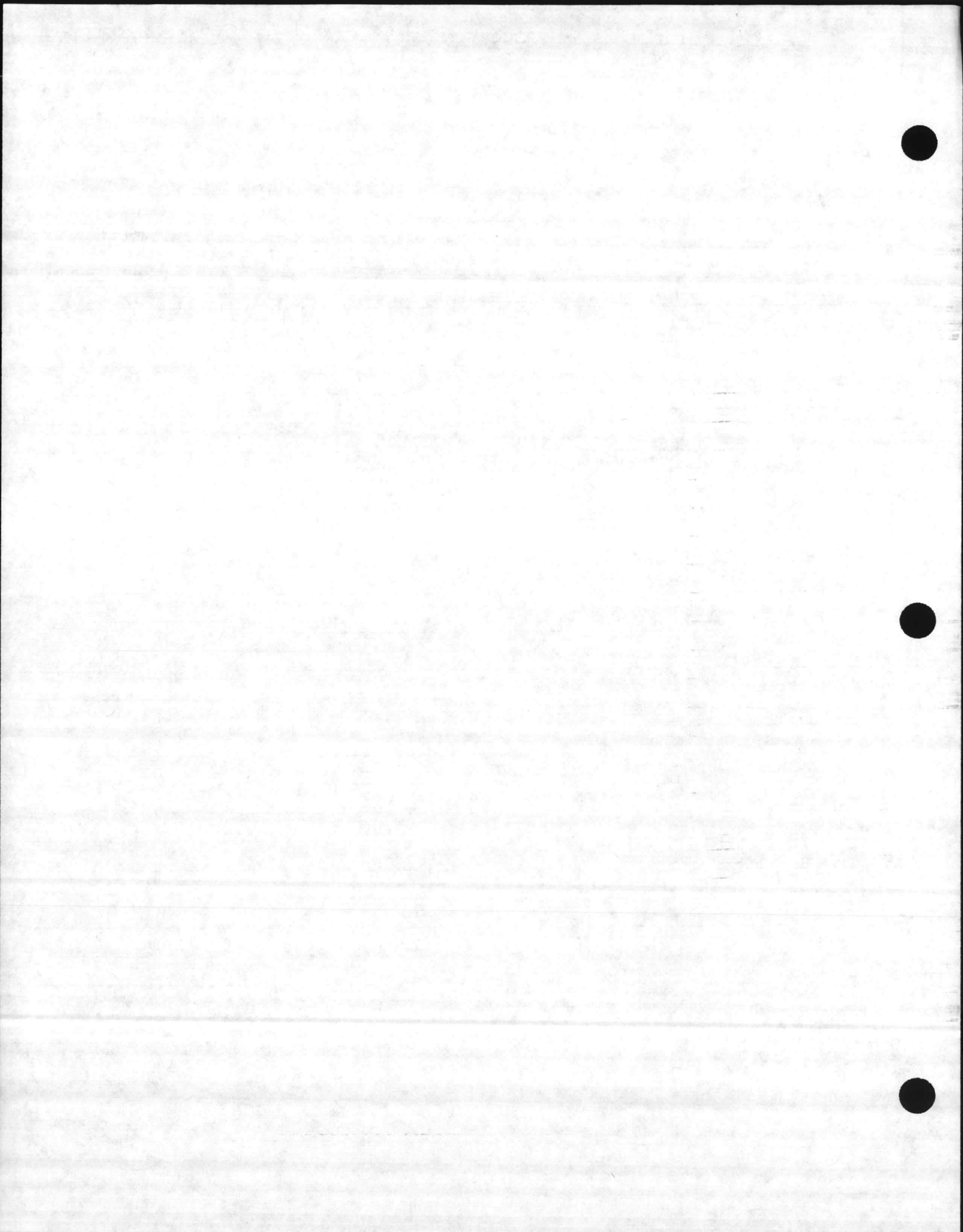
Chloroform	11,267.0 ppb	.010
1,2-Dichloropropane	None Detected	.004
1,3-Dichloropropane	None Detected	.006
Methylene Chloride	21,859.0 ppb	.010
Methyl Chloride	None Detected	.009
Methyl Bromide	None Detected	.03
Bromoform	None Detected	.02
Dichlorobromomethane	None Detected	.006
Trichlorofluoromethane	None Detected	.03
Dichlorodifluoromethane	None Detected	.01
Chlorodibromomethane	None Detected	.01
Tetrachloroethylene	None Detected	.007
Trichloroethylene	None Detected	.005
Vinyl Chloride	None Detected	.01
1,2-Trans-Dichloroethylene	None Detected	.006
bis(chloromethyl) ether	None Detected	.003

BASE/NEUTRAL EXTRACTABLE ORGANIC COMPOUNDS

1,2-Dichlorobenzene	None Detected	.04
1,3-Dichlorobenzene	None Detected	.04
1,4-Dichlorobenzene	None Detected	.04
Hexachloroethane	None Detected	.001
Hexachlorobutadiene	None Detected	.001
Hexachlorobenzene	None Detected	.002
1,2,4-Trichlorobenzene	None Detected	.006
Bis(2-Chloroethoxy)methane	None Detected	.40
Naphthalene	None Detected	.04
2-Chloronaphthalene	None Detected	.04
Isophorone	None Detected	5.0
Nitrobenzene	None Detected	5.0
2,4-Dinitrotoluene	None Detected	.06
2,6-Dinitrotoluene	None Detected	.06

*W.H. Jennings, Jr.*





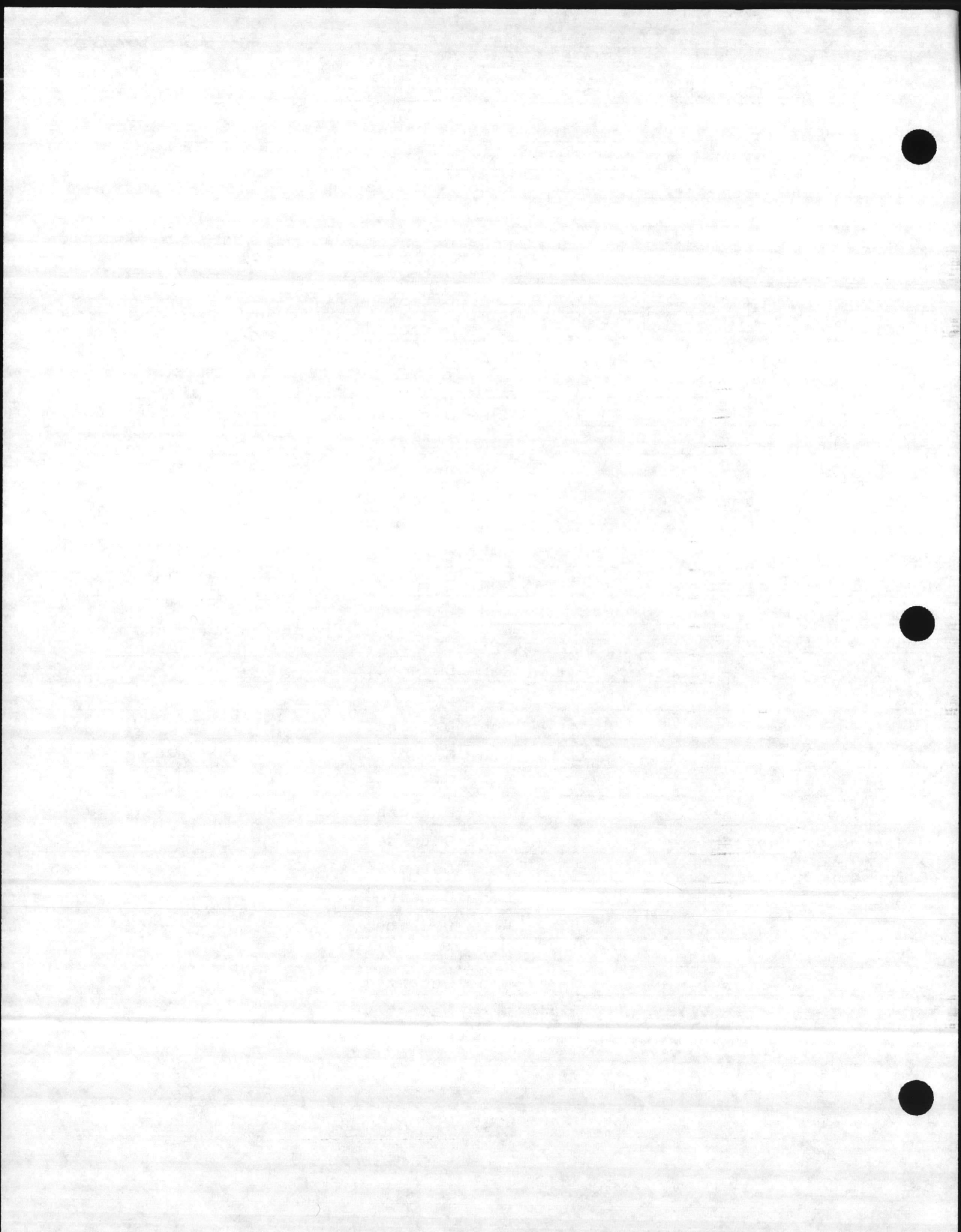
BASE/NEUTRAL EXTRACTABLE ORGANIC COMPOUNDSDETECTION LIMITS µg/l

Bromophenyl phenyl ether	None Detected	1.1
Bis(2-Ethylhexyl)phthalate	None Detected	.02
Di-n-octyl phthalate	None Detected	.11
Dimethyl phthalate	None Detected	.11
Diethyl phthalate	None Detected	.13
Di-n-butyl phthalate	None Detected	.02
Fluorene	None Detected	.04
Fluoranthene	None Detected	.04
Chrysene	None Detected	.04
Pyrene	None Detected	.04
Phenathrene	None Detected	.04
Anthracene	None Detected	.04
Benzo(a)anthracene	None Detected	.04
Benzo(b)fluoranthene	None Detected	.04
Benzo(k)fluoranthene	None Detected	.04
Benzo(a)pyrene	None Detected	.04
Indeno(1,2,3-c,d)pyrene	None Detected	.10
Benzo(a,h)anthracene	None Detected	.10
Benzo(g,h,i)perylene	None Detected	.10
4-Chlorophenyl phenyl ether	None Detected	2.2
3,3'Dichlorobenzidine	None Detected	.04
Benzidine	None Detected	.04
Bis(2-Chloroethyl)ether	None Detected	.04
1,2-Diphenylhydrazine	None Detected	.04
Hexachlorocyclopentadiene	None Detected	.04
N-Nitrosodiphenylamine	None Detected	1.0
Acenaphthylene	None Detected	.04
Acenaphthene	None Detected	.04
Butyl benzyl phthalate	None Detected	.04
N-Nitrosodimethylamine	None Detected	.2
N-Nitrosodi-n-propylamine	None Detected	.5
bis(2-Chloroisopropyl)ether	None Detected	.9

BY


  
Chemist

LAB # 109





ACID EXTRACTABLE ORGANIC COMPOUNDS

DETECTION LIMITS µg/l

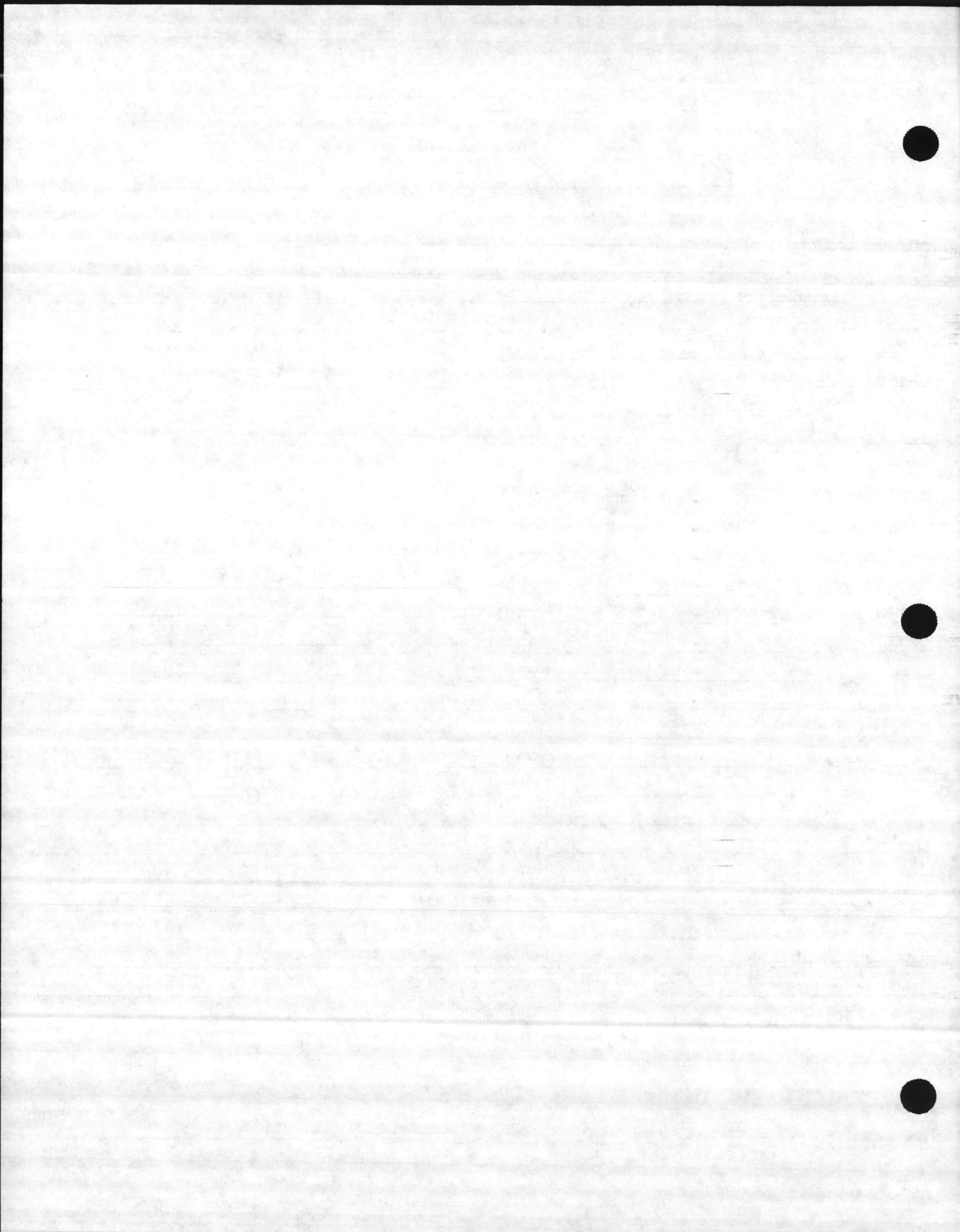
Phenol	None Detected	1.4
2-Nitrophenol	None Detected	2.5
4-Nitrophenol	None Detected	2.5
2,4-Dinitrophenol	None Detected	7.0
4,6-Dinitro-o-cresol	None Detected	2.0
Pentachlorophenol	None Detected	10.0
p-Chloro-m-cresol	None Detected	.01
2-Chlorophenol	None Detected	2.0
2,4-Dichlorophenol	None Detected	2.1
2,4,6-Trichlorophenol	None Detected	5.0
2,4-Dimethylphenol	None Detected	1.7

PESTICIDES/PCB's

α-Endosulfan	None Detected	.005
β-Endosulfan	None Detected	.01
Endosulfan sulfate	None Detected	.03
γ-BHC	None Detected	.002
β-BHC	None Detected	.004
δ-BHC	None Detected	.004
γ-BHC	None Detected	.002
Aldrin	None Detected	.003
Dieldrin	None Detected	.006
4,4'-DDE	None Detected	.006
4,4'-DDD	None Detected	.012
4,4'-DDT	None Detected	.016
Endrin	None Detected	.009
Endrin Aldehyde	None Detected	.023
Heptachlor	None Detected	.002
Heptachlor Epoxide	None Detected	.004
Chlordane	None Detected	.04
Toxaphene	None Detected	.40

BY *M. J. Jennings*  
Chemist

LAB # 109.



PESTICIDES/PCB'sDETECTION LIMITS µg/l

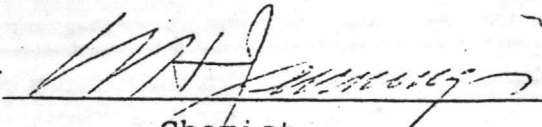
Aroclor 1016	None Detected	.04
Aroclor 1221	None Detected	.10
Aroclor 1232	None Detected	.10
Aroclor 1242	None Detected	.06
Aroclor 1248	None Detected	.08
Aroclor 1254	None Detected	.08
Aroclor 1260	None Detected	.15
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	None Detected	.003

	<u>METALS</u>	<u>DETECTION LIMITS mg/l</u>
Antimony	<0.20	0.2
Arsenic	<0.002	0.002
Beryllium	<0.005	0.005
Cadmium	0.01	0.002
Chromium	0.11	0.02
Copper	<0.01	0.01
Lead	0.12	0.005
Mercury	<0.002	0.002
Nickel	0.09	0.02
Selenium	0.004	0.002
Silver	<0.01	0.01
Thallium	<0.10	0.1
Zinc	27.23	0.005
Barium	0.13	

MISCELLANEOUS

Total Cyanides	<0.01	0.01
Asbestos (fibrous)	None Detected	
Total Phenols	<0.005	0.005

BY

  
 Chemist

LAB # 109





Doc No: CLEJ-00376-3.04-05/08/81

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FOR MEAT ANALYSIS

ASBESTOS ANALYSIS - NIOSH 582

NATIONAL SOYBEAN  
PROCESSORS ASSOCIATION

## CERTIFICATE OF ANALYSIS

Mr. Dave Goodwin  
TO: Building N-23 Atlantic Division  
Naval Facilities Engineering Command  
Norfolk, Virginia 23511

DATE: April 17, 1981

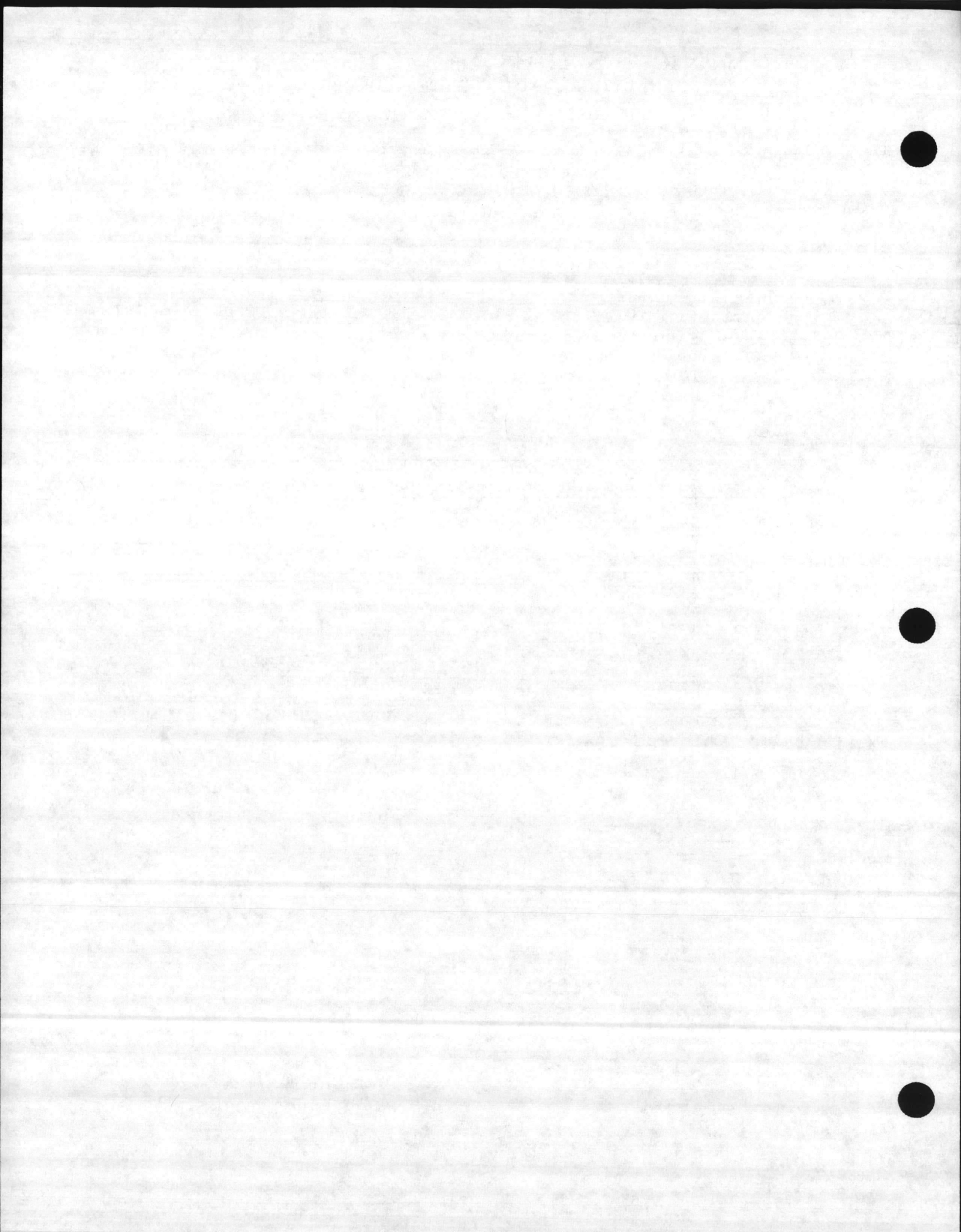
SAMPLE OF WATER SAMPLE  
MARKED Test Well #15 CAMP LEJEUNE Marine Corps Base, North Carolina taken 4/10/81  
at 1340 hours. Delivered to laboratory 4/12/81 by Mr. Wallmeyer  
OFFICIAL SAMPLE BY: E. A. Betz

Carbon Tetrachloride . . . . .	None Detected (<0.007 µg/l)
1,1 Dichloroethane . . . . .	None Detected (<0.004 µg/l)
Chloroform . . . . .	None Detected (<0.010 µg/l)
Methylene Chloride . . . . .	2.0 ppb

Respectfully submitted,  
JENNINGS LABORATORIES, INC.

Laboratory  
Analysis No. 154

*W. H. Jennings*  
CHEMIST





Doc No 1 CLEJ-00376-3.04-05/08/81

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FOR MEAT ANALYSIS

## CERTIFICATE OF ANALYSIS

TO: Mr. Dave Goodwin  
Building N-23 Atlantic Divison  
Naval Facilities Engineering Command  
Norfolk, Virginia 23511

DATE: April 17, 1981

SAMPLE OF WATER SAMPLE

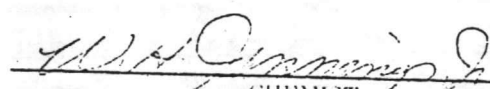
MARKED Test Well #16 CAMP LEJEUNE Marine Corps Base, North Carolina taken 4/10/81 1355 hours. Delivered to laboratory 4/12/81 by Mr. Wallmeyer

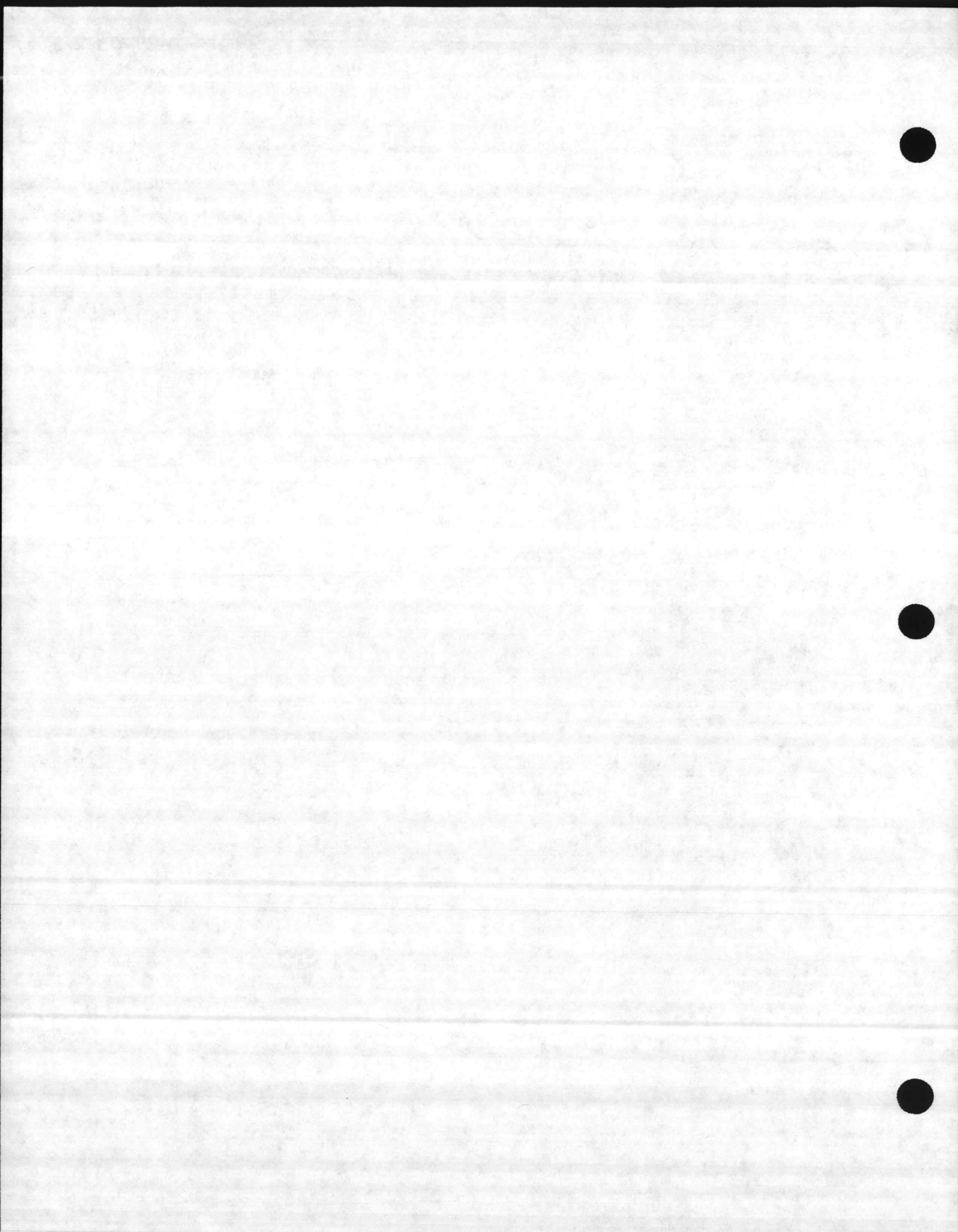
OFFICIAL SAMPLE BY: E. A. Betz

1,1 Dichloroethane . . . . .	39.0 ppb
Chloroform . . . . .	None Detected (<0.010 µg/l)
Carbon Tetrachloride . . . . .	None Detected (<0.007 µg/l)
Methylene Chloride . . . . .	13.0 ppb
1,2 Dichloroethane . . . . .	52.0 ppb
1,1 Dichloroethylene . . . . .	73.6 ppb
Toluene . . . . .	51.8 ppb

*Respectfully submitted,*  
JENNINGS LABORATORIES, INC.

Laboratory  
Analysis No. 155

  
CHEMIST



DGC No: CLEJ-06376-3.04  
05/08/81

# JENNINGS LABORATORIES, INC.

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## CERTIFICATE OF ANALYSIS

TO: Mr. Dave Goodwin  
Building N-23 Atlantic Division  
Naval Facilities Engineering Command  
Norfolk, Virginia 23511

DATE: April 17, 1981

SAMPLE OF WATER SAMPLE

---

MARKED POOL OF WATER BELOW DUMP BEHIND TEST WELL #16 CAMP LEJEUNE Marine Corps  
Base, North Carolina taken 4/10/81 @ 1450 hours. Delivered to laboratory  
4/12/81 by Mr. Wallmeyer

---

OFFICIAL SAMPLE BY: E. A. Betz

Carbon Tetrachloride . . . . .	None Detected (<0.007 µg/l)
1,1 Dichloroethane . . . . .	None Detected (<0.004 µg/l)
Chloroform . . . . .	None Detected (<0.010 µg/l)
Methylene Chloride . . . . .	3.4 ppb

*Respectfully submitted,*  
JENNINGS LABORATORIES, INC.

Laboratory  
Analysis No. 156

*W. H. Jennings*  
\_\_\_\_\_  
CHEMIST





Dec No: CLEJ-00376-3.04-81  
05/08/81

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ANALYTICAL AND CONSULTING CHEMISTS

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VA (EPA) CERTIFIED LABORATORY for  
Drinking Water Analysis - Microbiological,  
Inorganic and Organic

ASBESTOS ANALYSIS - NIOSH 582

Official Referee Chemists for:  
AMERICAN OIL CHEMISTS SOCIETY  
NATIONAL SOYBEAN  
PROCESSORS ASSOCIATION

Laboratory Certified by VA. STATE WATER  
CONTROL BOARD for Analysis of  
Effluents for NPDES PERMITS  
CERTIFIED OFFICIAL U.S.D.A. LABORATORY  
FOR MEAT ANALYSIS

## CERTIFICATE OF ANALYSIS

TO: Mr. Dave Goodwin  
Building M-23 Atlantic Division  
Naval Facilities Engineering Command  
Norfolk, Virginia 23511

DATE: April 17, 1981

SAMPLE OF WATER SAMPLE

MARKED Taken from Radiation Pool of Water (Ens Kalisch Pool) CAMP LEJEUNE, Marine  
Corps Base, North Carolina taken 4/10/81 @ 1500 Hours. Delivered 4/12/81 by  
Mr. Wallmeyer.

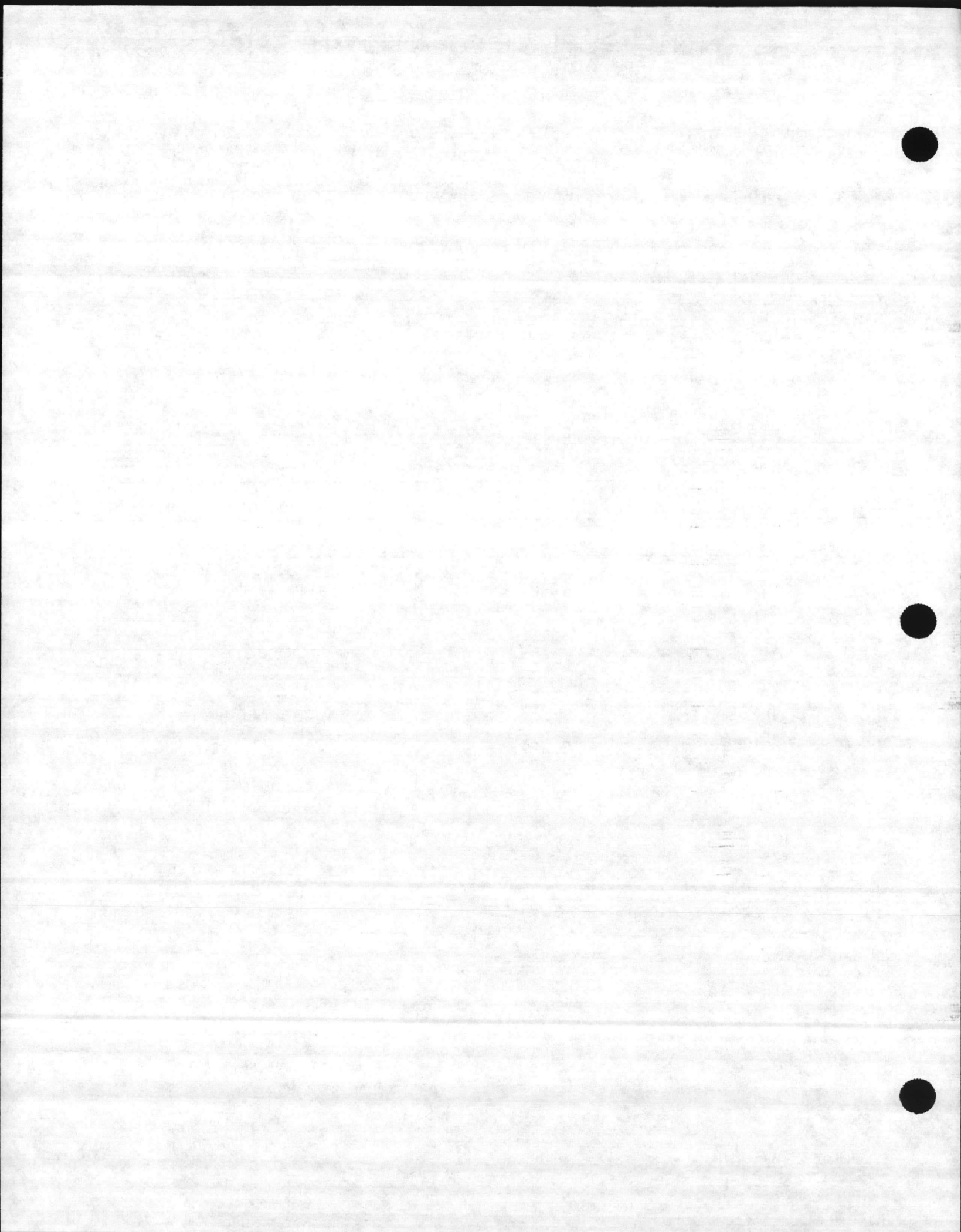
OFFICIAL SAMPLE BY: Jerry Wallmeyer

Carbon Tetrachloride . . . . .	None Detected (<0.007 µg/l)
1,1 Dichloroethane . . . . .	2.0 ppb
Chloroform . . . . .	None Detected (<0.010 µg/l)
Methylene Chloride . . . . .	2.4 ppb

*Respectfully submitted,*  
JENNINGS LABORATORIES, INC.

Laboratory  
Analysis No. 157

*W. H. Jennings, Jr.*  
CHEMIST





Doc No: CLEJ-00376-3.04-05/08/8

# JENNINGS LABORATORIES, INC.

ANALYTICAL AND CONSULTING CHEMISTS

1118 CYPRESS AVENUE • P. O. BOX 851 • VIRGINIA BEACH, VA. 23451 • PHONE (804) 425-1498

(EPA) CERTIFIED LABORATORY for  
Drinking Water Analysis - Microbiological,  
Inorganic and Organic

ASBESTOS ANALYSIS - NIOSH 582

Official Referee Chemists for:  
AMERICAN OIL CHEMISTS SOCIETY  
NATIONAL SOYBEAN  
PROCESSORS ASSOCIATION

Laboratory Certified by VA. STATE WATER  
CONTROL BOARD for Analysis of  
Effluents for NPDES PERMITS  
CERTIFIED OFFICIAL U.S.D.A. LABORATORY  
FOR MEAT ANALYSIS

## CERTIFICATE OF ANALYSIS

Mr. Dave Goodwin  
Building N-23 Atlantic Division  
Naval Facilities Engineering Command  
Norfolk, Virginia 23511

DATE: April 16, 1981

SAMPLE OF WELL FOR WATER PLANT

MARKED MCB CAMP LEJEUNE RR-45 taken 4/10/81 @ 1230 hours

Samples delivered to laboratory 4/13/81 AM by Mr. Wallmeyer

OFFICIAL SAMPLE BY: E. A. Betz

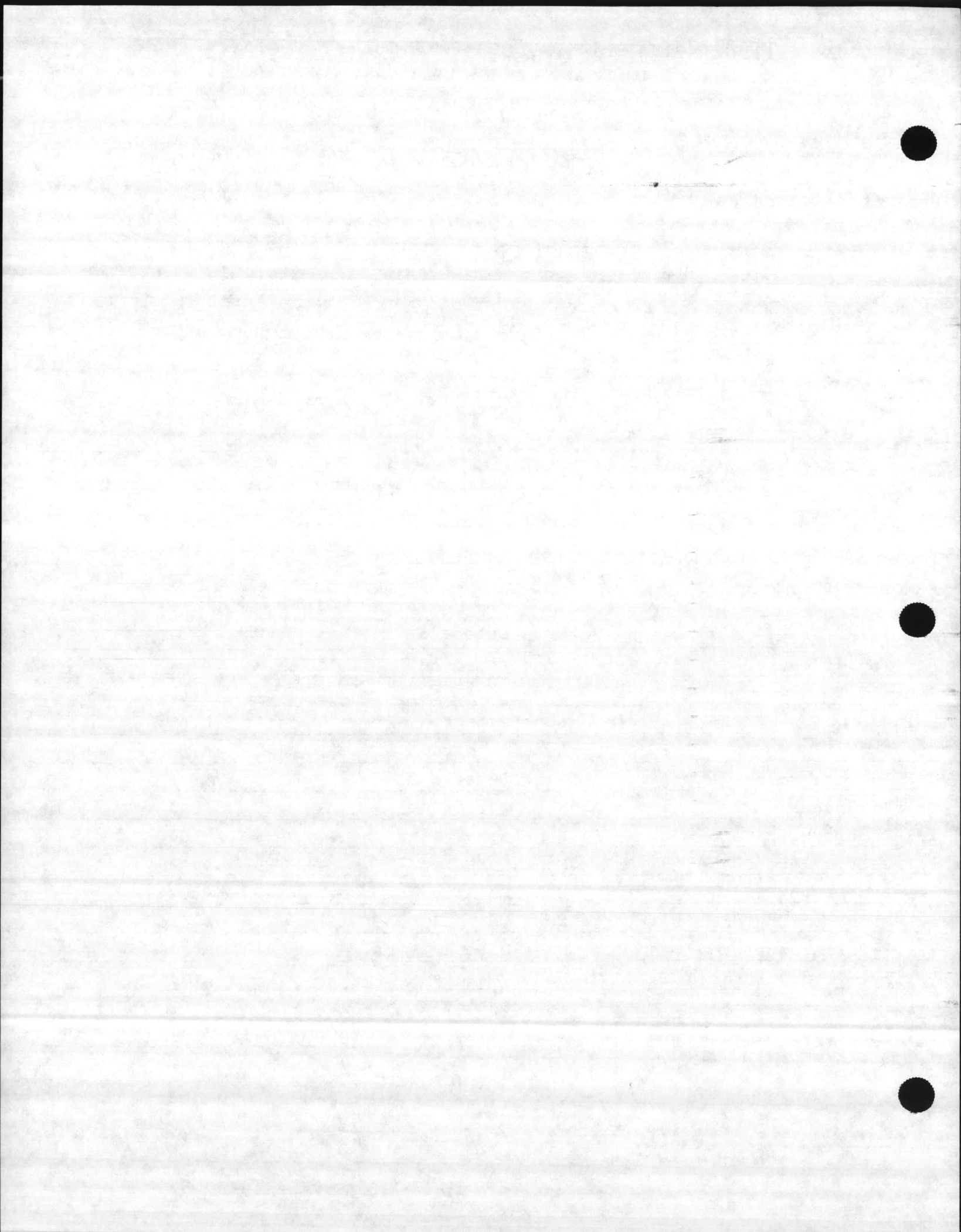
PRIORITY POLLUTANTS	PURGEABLE ORGANICS	DETECTION LIMITS (µg/l)
Acrolein	None Detected	2.0
Acrylonitrile	None Detected	2.0
Benzene	None Detected	10.0
Toluene	None Detected	10.0
Ethylbenzene	None Detected	10.0
Carbon Tetrachloride	None Detected	.007
Chlorobenzene	None Detected	.03
1,2-Dichloroethane	None detected	.006
1,1,1-Trichloroethane	None Detected	.005
1,1-Dichloroethane	None Detected	.004
1,1-Dichloroethylene	None Detected	.006
1,1,2-Trichloroethane	None Detected	.006
1,1,2,2-Tetrachloroethane	None Detected	.006
Chloroethane	None Detected	.01
2-Chloroethyl vinyl ether	None Detected	.08

*Respectfully submitted,*

JENNINGS LABORATORIES, INC.

Laboratory  
Analysis No. 150

*W. A. Jennings, Jr.*  
CHEMIST



# JENNINGS LABORATORIES, INC.

ANALYTICAL AND CONSULTING CHEMISTS

1118 CYPRESS AVENUE • P. O. BOX 851 • VIRGINIA BEACH, VA. 23451 • PHONE (804) 425-1498

Doc No: CLES-  
60376-3.04-  
05/08/81

VA (EPA) CERTIFIED LABORATORY for  
Drinking Water Analysis - Microbiological,  
Inorganic and Organic

ASBESTOS ANALYSIS - NIOSH 582

Official Referee Chemists for:  
AMERICAN OIL CHEMISTS SOCIETY  
NATIONAL SOYBEAN  
PROCESSORS ASSOCIATION

Laboratory Certified by VA. STATE WATER  
CONTROL BOARD for Analysis of  
Effluents for NPDES PERMITS  
CERTIFIED OFFICIAL U.S.D.A. LABORATORY  
FOR MEAT ANALYSIS

## CERTIFICATE OF ANALYSIS

TO: Mr. Dave Goodwin  
Building N-23 Atlantic Division  
Naval Facilities Engineering Command  
Norfolk, Virginia 23511

DATE: April 16, 1981

SAMPLE OF WELL FOR WATER PLANT

MARKED MCB CAMP LEJEUNE RR-45

OFFICIAL SAMPLE BY: \_\_\_\_\_

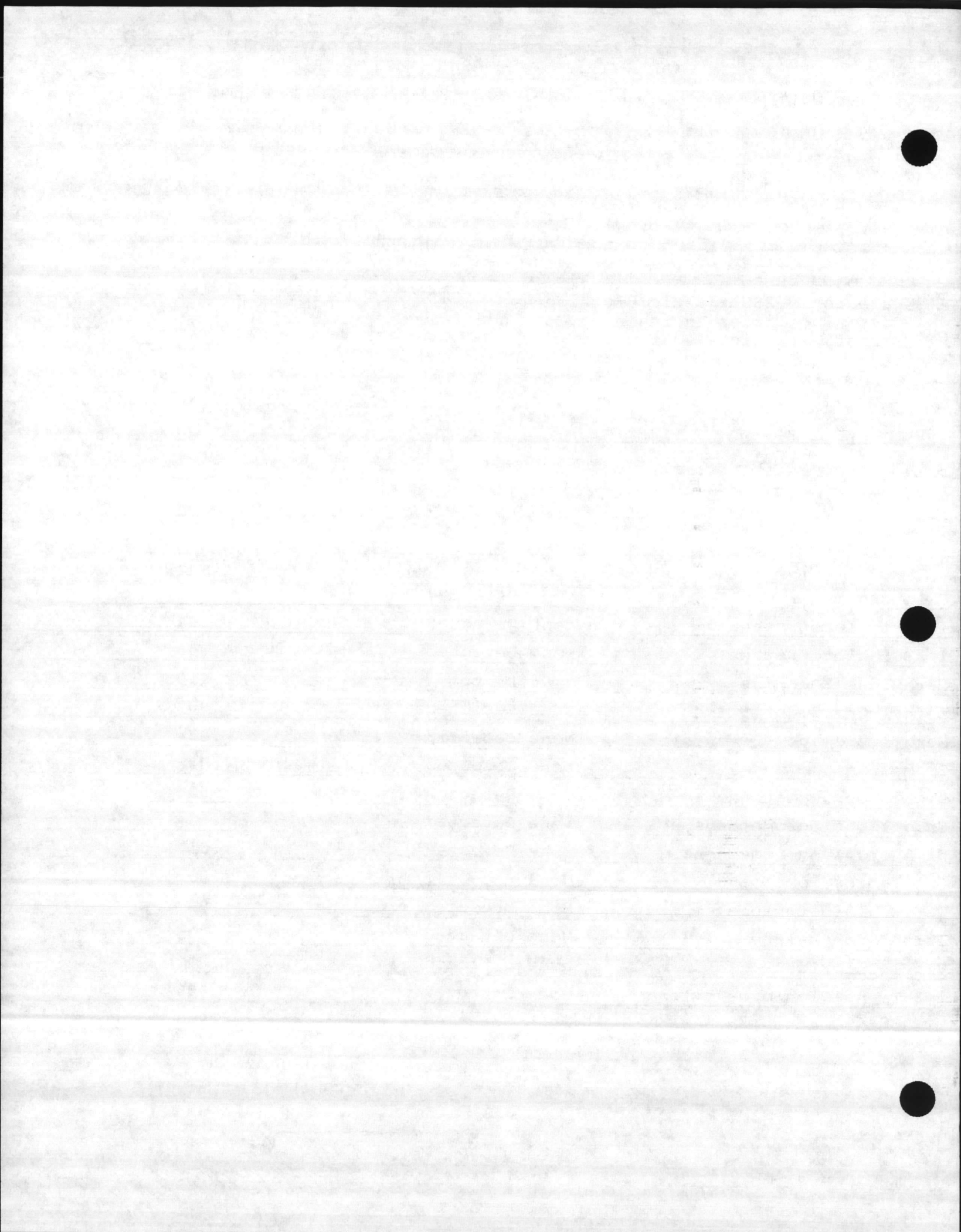
	PURGEABLE ORGANICS (CONTINUED)	DETECTION LIMITS (µg/l)
Chloroform	None Detected	.010
1,1-Dichloropropane	None Detected	.004
1,3-Dichloropropane	None Detected	.006
Methylene Chloride	4.0 ppb	.010
Methyl Chloride	None Detected	.009
Methyl Bromide	None Detected	.03
Bromoform	None Detected	.02
Dichlorobromomethane	None Detected	.006
Trichlorofluoromethane	None Detected	.03
Dichlorodifluoromethane	None Detected	.01
Chlorodibromomethane	None Detected	.01
Tetrachloroethylene	None Detected	.007
Trichloroethylene	None Detected	.005
Vinyl Chloride	None Detected	.01
1,2-Trans-Dichloroethylene	None Detected	.006
bis(chloromethyl) ether	None Detected	.003

Respectfully submitted,  
JENNINGS LABORATORIES, INC.

Laboratory  
Analysis No. 150

*W. A. Jennings*  
CHEMIST





# JENNINGS LABORATORIES, INC.

ANALYTICAL AND CONSULTING CHEMISTS

1118 CYPRESS AVENUE • P. O. BOX 851 • VIRGINIA BEACH, VA. 23451 • PHONE (804) 425-1498

VA (EPA) CERTIFIED LABORATORY for  
Drinking Water Analysis - Microbiological,  
Inorganic and Organic

ASBESTOS ANALYSIS - NIOSH 582

Official Referee Chemists for:  
AMERICAN OIL CHEMISTS SOCIETY

NATIONAL SOYBEAN  
PROCESSORS ASSOCIATION

Laboratory Certified by VA. STATE WATER  
CONTROL BOARD for Analysis of  
Effluents for NPDES PERMITS  
CERTIFIED OFFICIAL U.S.D.A. LABORATORY  
FOR MEAT ANALYSIS

## CERTIFICATE OF ANALYSIS

TO: Mr. Dave Goodwin  
Building N-23 Atlantic Division  
Naval Facilities Engineering Command  
Norfolk, Virginia 23511

DATE: April 16, 1981

SAMPLE OF WELL FOR WATER PLANT

MARKED MCB CAMP LEJEUNE RR-47 taken 4/10/81 @ 1220 Hours

Samples delivered to laboratory 4/13/81 AM by Mr. Wallmeyer

OFFICIAL SAMPLE BY: E. A. Betz

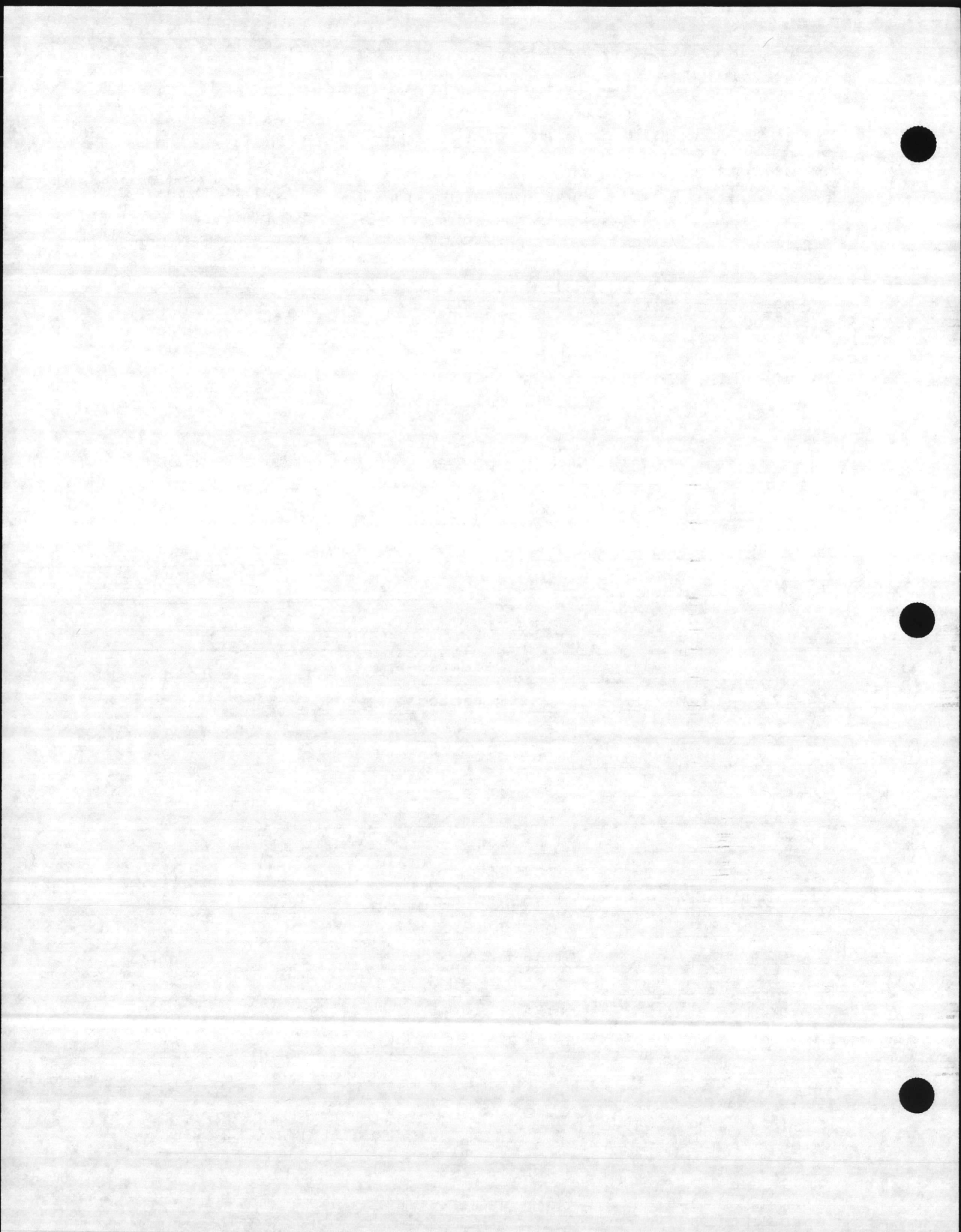
PRIORITY POLLUTANTS	PURGEABLE ORGANICS	DETECTION LIMITS (ug/l)
Acrolein	NONE Detected	2.0
Acrylonitrile	None Detected	2.0
Benzene	None Detected	10.0
Toluene	None Detected	10.0
Ethylbenzene	None Detected	10.0
Carbon Tetrachloride	None Detected	.007
Chlorobenzene	None Detected	.03
1,2-Dichloroethane	None Detected	.006
1,1,1-Trichloroethane	None Detected	.005
1,1-Dichloroethane	None Detected	.004
1,1-Dichloroethylene	None Detected	.006
1,1,2-Trichloroethane	None Detected	.006
1,1,2,2-Tetrachloroethane	None Detected	.006
Chloroethane	None Detected	.01
2-Chloroethyl vinyl ether	None Detected	.03

Respectfully submitted,

JENNINGS LABORATORIES, INC.

Laboratory  
Analysis No 151

*W. H. Jennings*





## JENNINGS LABORATORIES, INC.

ANALYTICAL AND CONSULTING CHEMISTS

1118 CYPRESS AVENUE • P. O. BOX 851 • VIRGINIA BEACH, VA. 23451 • PHONE (804) 425-1198

VA (EPA) CERTIFIED LABORATORY for  
Drinking Water Analysis - Microbiological,  
Inorganic and Organic

ASBESTOS ANALYSIS - NIOSH 582

Official Referee Chemists for  
AMERICAN OIL CHEMISTS SOCIETYNATIONAL SOYBEAN  
PROCESSORS ASSOCIATIONLaboratory Certified by VA. STATE WATER  
CONTROL BOARD for Analysis of  
Effluents for NPDES PERMITS  
CERTIFIED OFFICIAL U.S.D.A. LABORATORY  
FOR MEAT ANALYSIS

## CERTIFICATE OF ANALYSIS

TO: Mr. Dave Goodwin  
Building N-23 Atlantic Division  
Naval Facilities Engineering Command  
Norfolk, Virginia 23511

DATE: April 16, 1981

SAMPLE OF WELL FOR WATER PLANT

MARKED MCB CAMP LEJEUNE RR-47 taken 4/10/81 @ 1220 Hours

OFFICIAL SAMPLE BY:

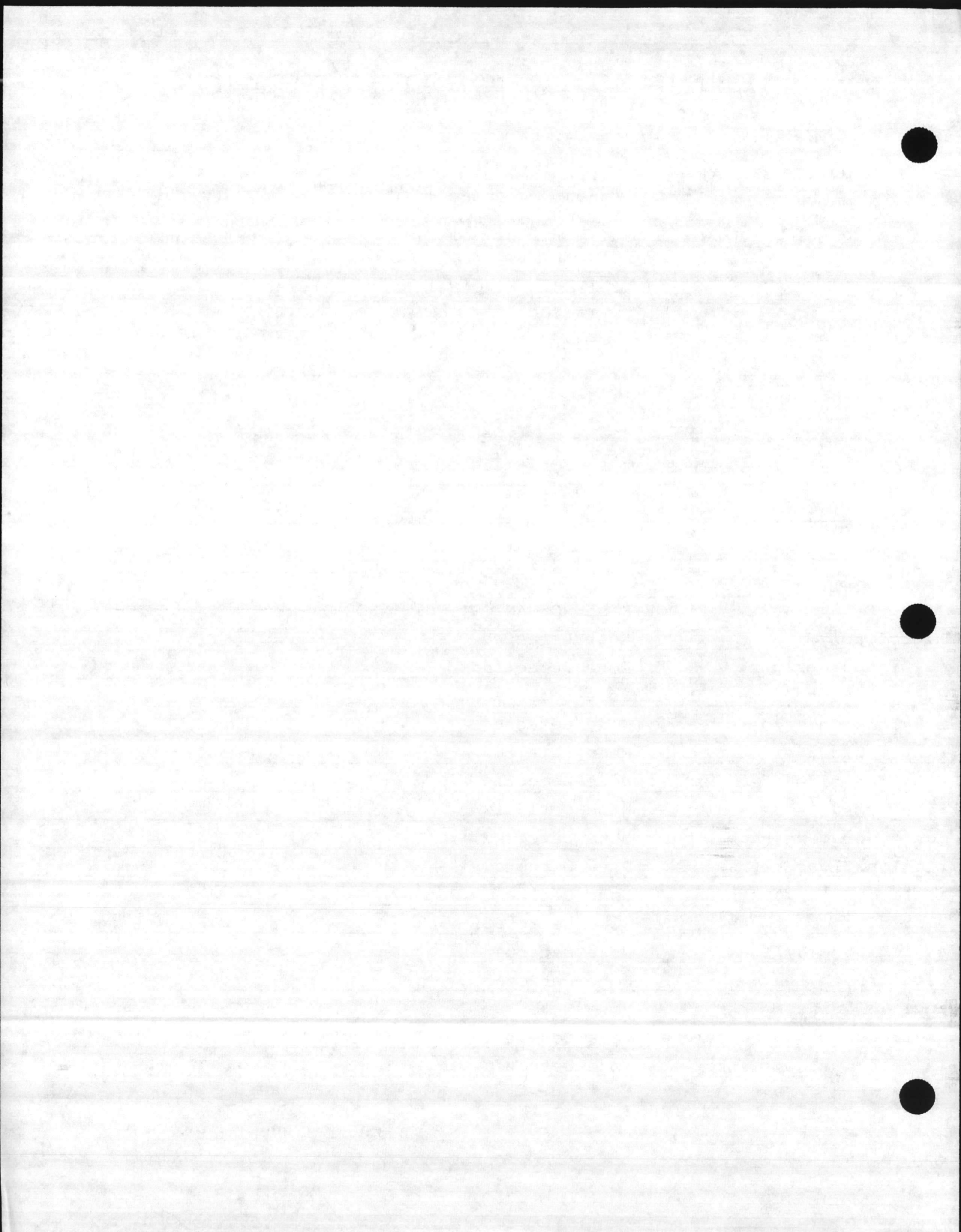
PURGEABLE ORGANICS (CONTINUED) DETECTION LIMITS ( $\mu\text{g}/\text{l}$ )

	PURGEABLE ORGANICS (CONTINUED)	DETECTION LIMITS ( $\mu\text{g}/\text{l}$ )
Chloroform	None Detected	.010
1,2-Dichloropropane	None Detected	.004
1,3-Dichloropropane	None Detected	.006
Methylene Chloride	None Detected	.010
Methyl Chloride	None Detected	.009
Methyl Bromide	None Detected	.03
Bromoform	None Detected	.02
Dichlorobromomethane	None Detected	.006
Trichlorofluoromethane	None Detected	.03
Dichlorodifluoromethane	None Detected	.01
Chlorodibromomethane	None Detected	.01
Tetrachloroethylene	None Detected	.007
Trichloroethylene	None Detected	.005
Vinyl Chloride	None Detected	.01
1,2-Trans-Dichloroethylene	None Detected	.006
Bis(chloromethyl) ether	None Detected	.003

Respectfully submitted,

JENNINGS LABORATORIES, INC.

Laboratory  
Analysis No 151



Doc No: CLEJ-00376-304-05/08/81

# JENNINGS LABORATORIES, INC.

ANALYTICAL AND CONSULTING CHEMISTS

1118 CYPRESS AVENUE • P. O. BOX 851 • VIRGINIA BEACH, VA. 23451 • PHONE (804) 425-1498

VA (EPA) CERTIFIED LABORATORY for  
Drinking Water Analysis - Microbiological,  
Inorganic and Organic

Official Referee Chemists for:  
AMERICAN OIL CHEMISTS SOCIETY

Laboratory Certified by VA. STATE WATER  
CONTROL BOARD for Analysis of  
Effluents for NPDES PERMITS  
CERTIFIED OFFICIAL U.S.D.A. LABORATORY  
FOR MEAT ANALYSIS

ASBESTOS ANALYSIS - NIOSH 582

NATIONAL SOYBEAN  
PROCESSORS ASSOCIATION

## CERTIFICATE OF ANALYSIS

TO: Mr. Dave Goodwin  
Building N-23 Atlantic Division  
Naval Facilities Engineering Command  
Norfolk, Virginia 23511

DATE: April 16, 1981

SAMPLE OF WELL FOR WATER PLANT

MARKED MCB CAMP LEJEUNE RR-97 taken 4/10/81 @ 1235 Hours

Samples delivered to laboratory 4/13/81 AM by Mr. Wallmeyer

OFFICIAL SAMPLE BY: E.A. Betz

PRIORITY POLLUTANTS	PURGEABLE ORGANICS	DETECTION LIMITS (µg/l)
Acrolein	None Detected	2.0
Acrylonitrile	None Detected	2.0
Benzene	None Detected	10.0
Toluene	None Detected	10.0
Ethylbenzene	None Detected	10.0
Carbon Tetrachloride	None Detected	.007
Chlorobenzene	None Detected	.03
1,2-Dichloroethane	None Detected	.006
1,1,1-Trichloroethane	None Detected	.005
1,1-Dichloroethane	None Detected	.004
1,1-Dichloroethylene	None Detected	.006
1,1,2-Trichloroethane	None Detected	.006
1,1,2,2-Tetrachloroethane	None Detected	.006
Chloroethane	None Detected	.01
2-Chloroethyl vinyl ether	None Detected	.08

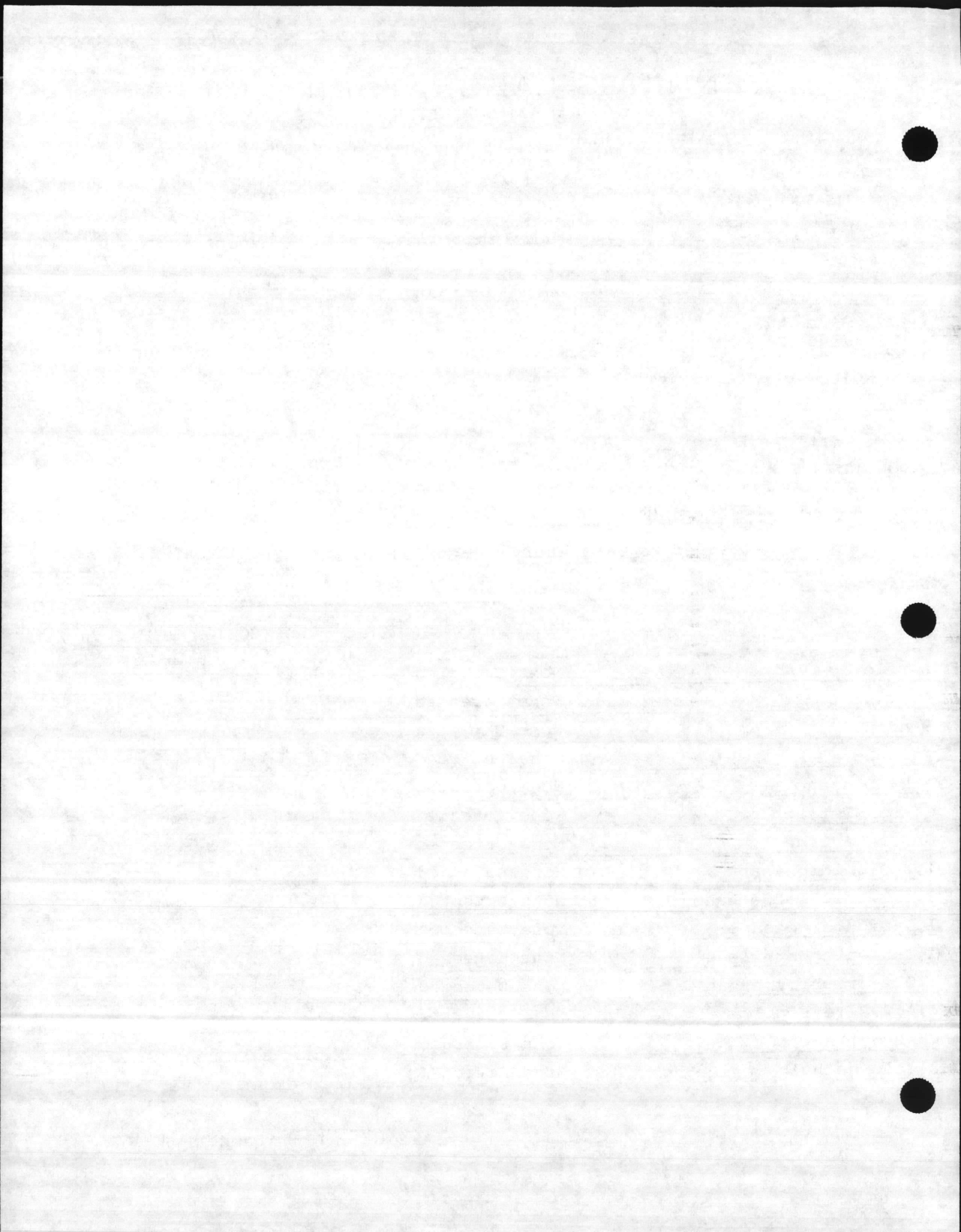
Respectfully submitted,

JENNINGS LABORATORIES, INC.

Laboratory  
Analysis No 153

*W. H. Jennings*





# JENNINGS LABORATORIES, INC.

ANALYTICAL AND CONSULTING CHEMISTS

1118 CYPRESS AVENUE • P. O. BOX 851 • VIRGINIA BEACH, VA. 23451 • PHONE (804) 425-1498

(EPA) CERTIFIED LABORATORY for  
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Inorganic and Organic

ASBESTOS ANALYSIS - NIOSH 582

Official Referee Chemists for:  
AMERICAN OIL CHEMISTS SOCIETY

NATIONAL SOYBEAN  
PROCESSORS ASSOCIATION

Laboratory Certified by VA. STATE WATER  
CONTROL BOARD for Analysis of  
Effluents for NPDES PERMITS  
CERTIFIED OFFICIAL U.S.D.A. LABORATORY  
FOR MEAT ANALYSIS

## CERTIFICATE OF ANALYSIS

Mr. Dave Goodwin  
Building N-23 Atlantic Division  
Naval Facilities Engineering Command  
Norfolk, Virginia 23511

DATE: April 16, 1981

SAMPLE OF WELL FOR WATER PLANT

WORKED RR-97

OFFICIAL SAMPLE BY:

### PURGEABLE ORGANICS (CONTINUED)

DETECTION LIMITS (µg/l)

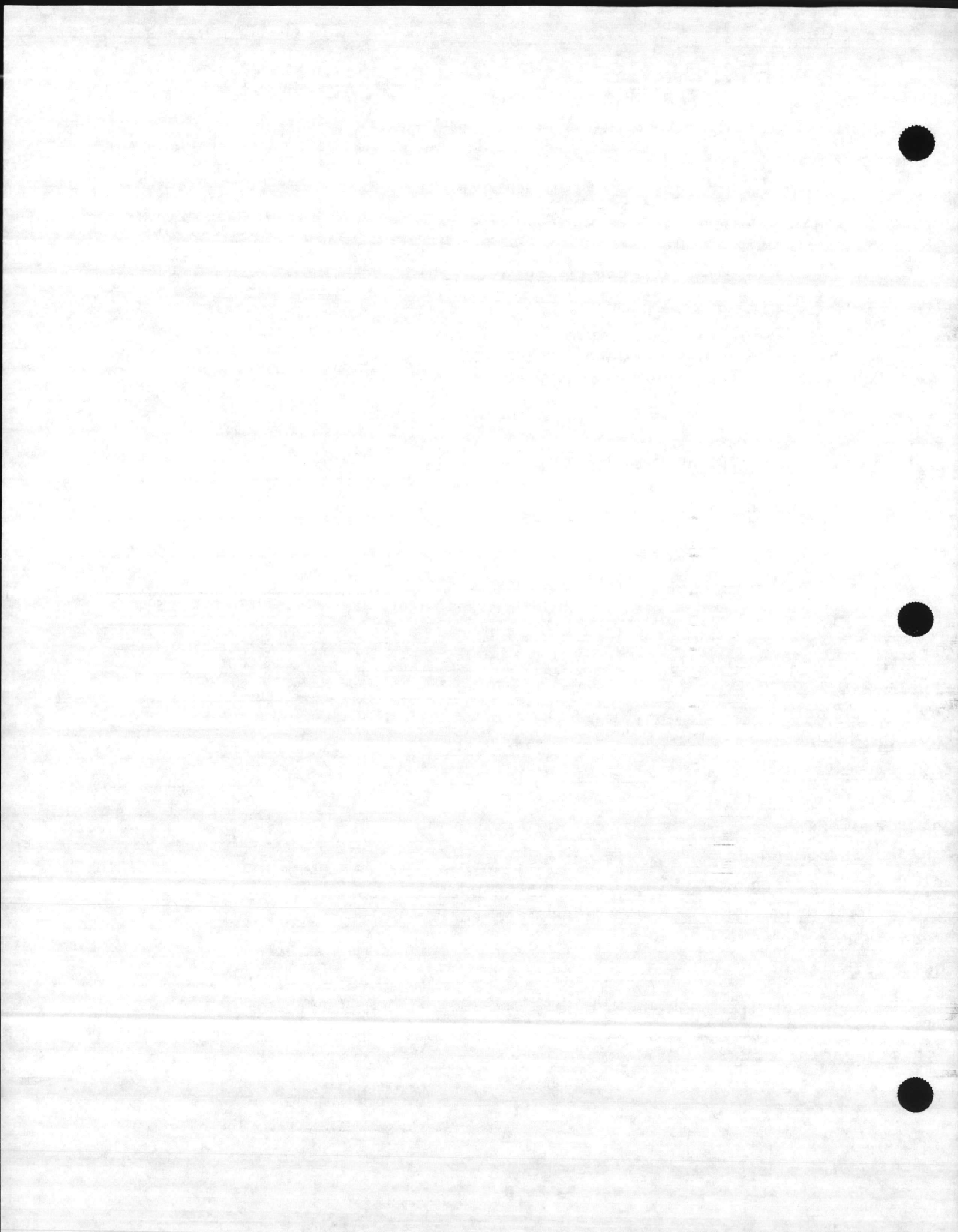
Compound	Concentration	Detection Limit (µg/l)
1,1-Dichloroethane	16.6 ppb	.010
2-Dichloropropane	None Detected	.004
3-Dichloropropane	None Detected	.006
1,1,1-Trichloroethane	5.8 ppb	.010
1,1,2-Trichloroethane	None Detected	.009
1,1,2,2-Tetrachloroethane	None detected	.03
1,1,1,2-Tetrachloroethane	None Detected	.02
1,1,2,2-Tetrachloroethane	None Detected	.006
1,1,1-Trichloroethane	None Detected	.03
1,1,2,2-Tetrachloroethane	None Detected	.01
1,1,1,2-Tetrachloroethane	None Detected	.01
1,1,2,2-Tetrachloroethane	None Detected	.007
1,1,1-Trichloroethane	1.8 ppb	.005
1,1,2-Trichloroethane	None Detected	.01
1,2-Dichloroethane	None Detected	.006
1,1,2,2-Tetrachloroethane	None Detected	.003

Respectfully submitted,

JENNINGS LABORATORIES, INC.

Laboratory  
Analysis No 153

*W. H. Jennings*





# JENNINGS LABORATORIES, INC.

ANALYTICAL AND CONSULTING CHEMISTS

1118 CYPRESS AVENUE • P. O. BOX 851 • VIRGINIA BEACH, VA. 23451 • PHONE (804) 425-1498

VA (EPA) CERTIFIED LABORATORY for  
Drinking Water Analysis - Microbiological,  
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ASBESTOS ANALYSIS - NIOSH 582

Official Referee Chemists for:  
AMERICAN OIL CHEMISTS SOCIETY

NATIONAL SOYBEAN  
PROCESSORS ASSOCIATION

Laboratory Certified by V.A. STATE WATER  
CONTROL BOARD for Analysis of  
Effluents for NPDES PERMITS.  
CERTIFIED OFFICIAL U.S.D.A. LABORATORY  
FOR MEAT ANALYSIS

## CERTIFICATE OF ANALYSIS

TO: Mr. Dave Goodwin  
Building N-23 Atlantic Division  
Naval Facilities Engineering Command  
Norfolk, Virginia 23511

DATE: April 16, 1981

SAMPLE OF RIFLE RANGE WATER TREATMENT PLANT AT SINK OF TREATED WATER

MARKED MCB CAMP LEJEUNE RR-85 taken 4/10/81 @ 1245 Hours

Samples delivered to laboratory 4/13/81 AM by Mr. Wallmeyer

OFFICIAL SAMPLE BY: \_\_\_\_\_

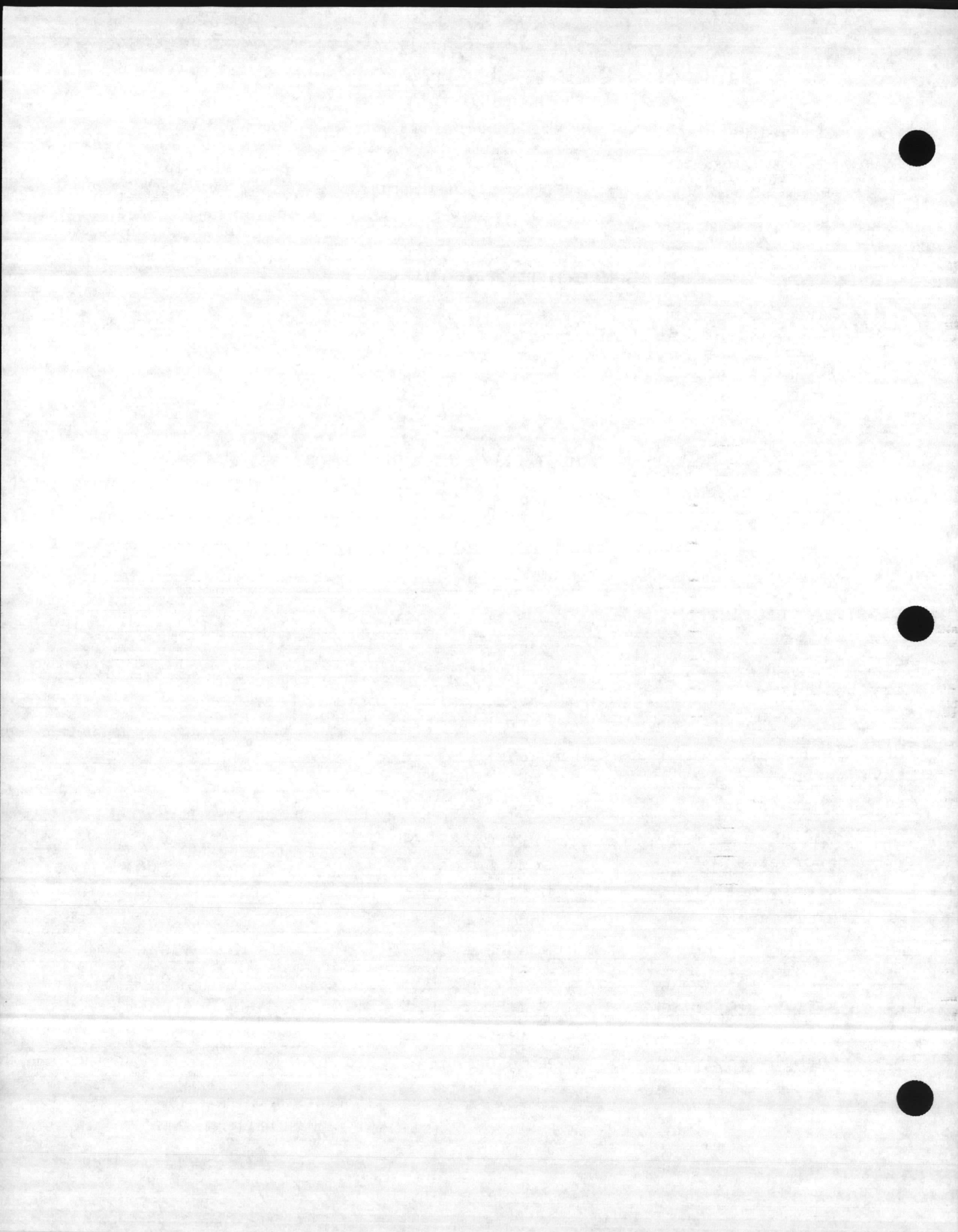
PRIORITY POLLUTANTS	PURGEABLE ORGANICS	DETECTION LIMITS (µg/l)
Acrolein	None Detected	2.0
Acrylonitrile	None Detected	2.0
Benzene	None Detected	10.0
Toluene	None Detected	10.0
Ethylbenzene	None Detected	10.0
Carbon Tetrachloride	None Detected	.007
Chlorobenzene	None Detected	.03
1,2-Dichloroethane	None Detected	.006
1,1,1-Trichloroethane	None Detected	.005
1,1-Dichloroethane	None Detected	.004
1,1-Dichloroethylene	None Detected	.006
1,1,2-Trichloroethane	None Detected	.006
1,1,2,2-Tetrachloroethane	None Detected	.006
Chloroethane	None Detected	.01
2-Chloroethyl vinyl ether	None Detected	.08

Respectfully submitted,

JENNINGS LABORATORIES, INC.

Laboratory  
Analysis No. 152

*W. H. Jennings*  
CHEMIST



Doc No: CLEJ-00370-3.04-03/09/81

# JENNINGS LABORATORIES, INC.

ANALYTICAL AND CONSULTING CHEMISTS

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IFIED LABORATORY for  
Analysis - Microbiological,  
rganic and Organic

OS ANALYSIS - NIOSH 582

Official Referee Chemists for:  
AMERICAN OIL CHEMISTS SOCIETY

NATIONAL SOYBEAN  
PROCESSORS ASSOCIATION

Laboratory Certified by VA. STATE WATER  
CONTROL BOARD for Analysis of  
Effluents for NPDES PERMITS  
CERTIFIED OFFICIAL U.S.D.A. LABORATORY  
FOR MEAT ANALYSIS

## CERTIFICATE OF ANALYSIS

Dave Goodwin  
Building N-23 Atlantic Division  
aval Facilities Engineering Command  
Norfolk, Virginia 23511

DATE: April 16, 1981

SAMPLE OF RIFLE RANGE WATER TREATMENT PLANT AT SINK OF TREATED WATER

MARKED RR-85

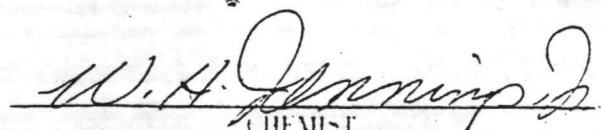
OFFICIAL SAMPLE BY: \_\_\_\_\_

	PURGEABLE ORGANICS (CONTINUED)	DETECTION LIMITS (µg/l)
roform	17.0 ppb	.010
1,2-Dichloropropane	None Detected	.004
1,3-Dichloropropane	None Detected	.006
Methylene Chloride	3.0 ppb	.010
Methyl Chloride	None Detected	.009
Methyl Bromide	None Detected	.03
Bromoform	None detected	.02
Dichlorobromomethane	None detected	.006
Trichlorofluoromethane	None Detected	.03
Dichlorodifluoromethane	None Detected	.01
Chlorodibromomethane	None detected	.01
Tetrachloroethylene	None Detected	.007
Trichloroethylene	None Detected	.005
Vinyl Chloride	None Detected	.01
1,2-Trans-Dichloroethylene	None detected	.006
bis(chloromethyl) ether	None Detected	.003

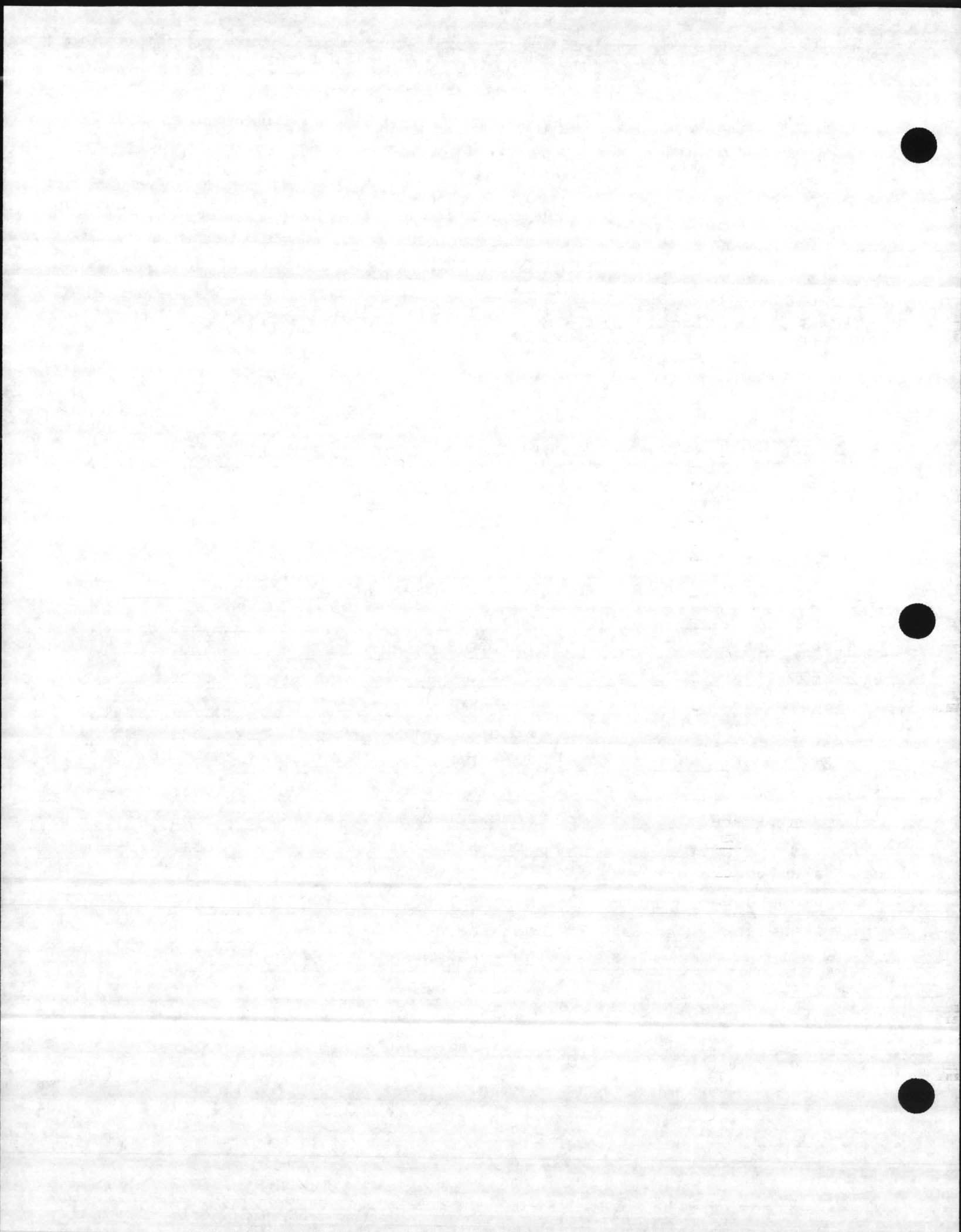
*Respectfully submitted,*

JENNINGS LABORATORIES, INC.

Laboratory  
Analysis No. 152

  
CHEMIST





Doc No: CLEJ-00376-3.04.05/08/81

# JENNINGS LABORATORIES, INC.

ANALYTICAL AND CONSULTING CHEMISTS

1118 CYPRESS AVENUE • P. O. BOX 851 • VIRGINIA BEACH, VA. 23451 • PHONE (804) 425-1498

VA (EPA) CERTIFIED LABORATORY for  
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ASBESTOS ANALYSIS - NIOSH 582

Official Referee Chemists for:  
AMERICAN OIL CHEMISTS SOCIETY

NATIONAL SOYBEAN  
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Laboratory Certified by VA. STATE WATER  
CONTROL BOARD for Analysis of  
Effluents for NPDES PERMITS  
CERTIFIED OFFICIAL U.S.D.A. LABORATORY  
FOR MEAT ANALYSIS

## CERTIFICATE OF ANALYSIS

TO: Mr. Dave Goodwin  
Building N-23 Atlantic Division  
Naval Facilities Engineering Command  
Norfolk, Virginia 23511

DATE: April 16, 1981

SAMPLE OF POOL OF WATER WITH OLD BARREL IN IT AT OLD CHEMICAL DUMP

MARKED MCB CAMP LEJEUNE SAMPLE #5 taken 4/10/81 @ 1420 Hours

Samples delivered to laboratory 4/13/81 AM by Mr. Wallmeyer

OFFICIAL SAMPLE BY: D. Sharpe

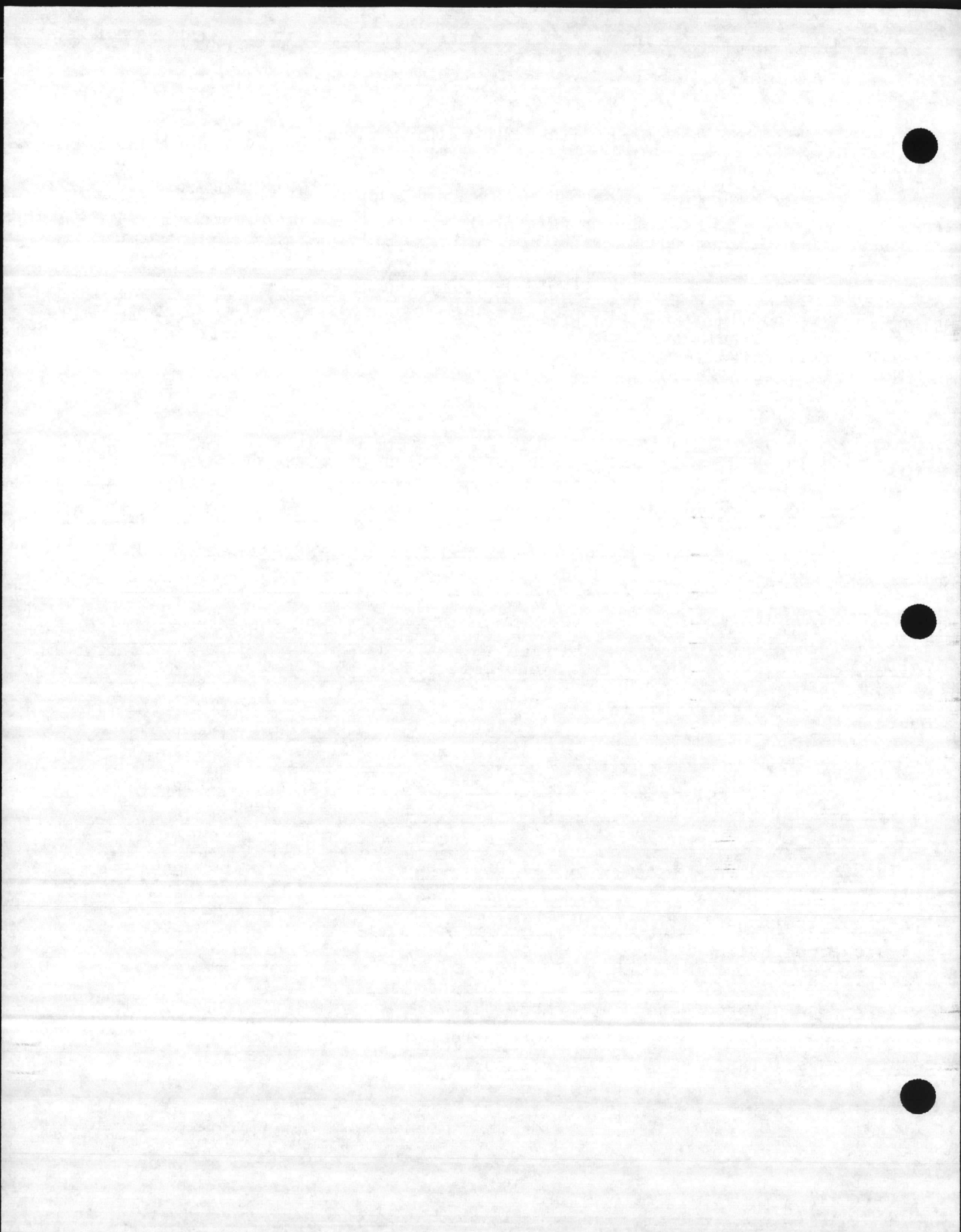
MAJORITY POLLUTANTS	PURGEABLE ORGANICS	DETECTION LIMITS (µg/l)
Acrolein	None Detected	2.0
Acrylonitrile	None Detected	2.0
Benzene	1.0 ppb	10.0
Toluene	101.0 ppb	10.0
Ethylbenzene	None Detected	10.0
Carbon Tetrachloride	None Detected	.007
Chlorobenzene	None Detected	.03
1,2-Dichloroethane	176.0 ppb	.006
1,1,1-Trichloroethane	103.0 ppb	.005
1,1-Dichloroethane	101.0 ppb	.004
1,1-Dichloroethylene	258.0 ppb	.006
1,1,2-Trichloroethane	252.0 ppb	.006
1,1,2,2-Tetrachloroethane	None Detected	.006
Chloroethane	None Detected	.01
2-Chloroethyl vinyl ether	None Detected	.08

Respectfully submitted,

JENNINGS LABORATORIES, INC.

Laboratory  
Analysis No 158

*W. H. Jennings, Jr.*  
CHEMIST





Doc No: CLEJ-00376-3.64-05/08/8

# JENNINGS LABORATORIES, INC.

ANALYTICAL AND CONSULTING CHEMISTS

1118 CYPRESS AVENUE • P. O. BOX 851 • VIRGINIA BEACH, VA. 23451 • PHONE (804) 425-1498

VA (EPA) CERTIFIED LABORATORY for  
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Official Referee Chemists for:  
AMERICAN OIL CHEMISTS SOCIETY

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Effluents for NPDES PERMITS  
CERTIFIED OFFICIAL U.S.D.A. LABORATORY  
FOR MEAT ANALYSIS

ASBESTOS ANALYSIS - NIOSH 582

NATIONAL SOYBEAN  
PROCESSORS ASSOCIATION

## CERTIFICATE OF ANALYSIS

TO: Mr. Dave Goodwin  
Building N-23 Atlantic Division  
Naval Facilities Engineering Command  
Norfolk, Virginia 23511

DATE: April 16, 1981

SAMPLE OF POOL OF WATER WITH OLD BARREL IN IT AT OLD CHEMICAL DUMP

MARKED SAMPLE #5

OFFICIAL SAMPLE BY:

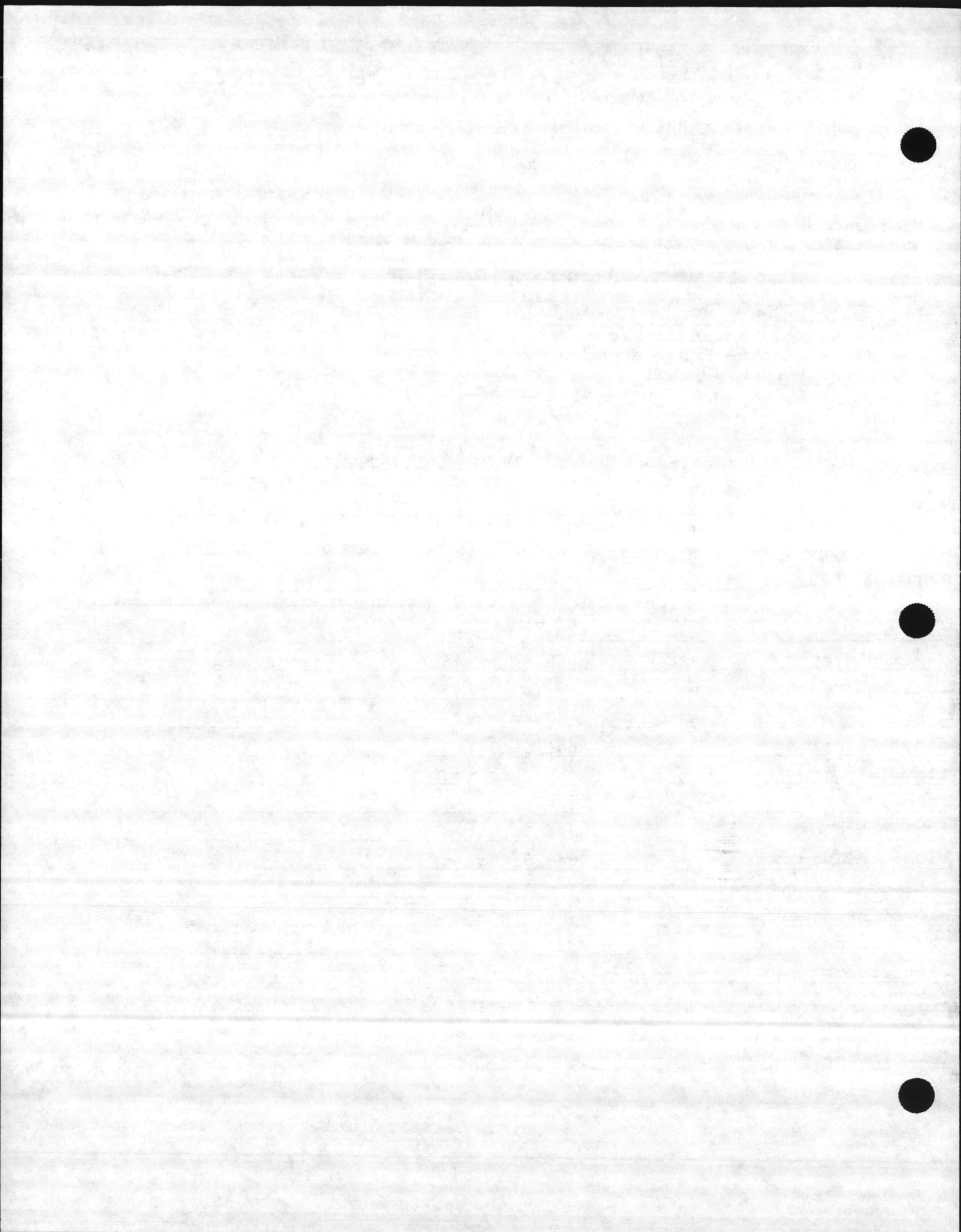
	PURGEABLE ORGANICS (CONTINUED)	DETECTION LIMITS (µg/l)
Chloroform	34.6 ppb	.010
1,2-Dichloropropane	None Detected	.004
1,3-Dichloropropane	None Detected	.006
Tetrachloroethylene	37.0 ppb	.010
1,1,1-Trichloroethylene	None Detected	.009
1,1,2-Trichloroethylene	None Detected	.03
1,1,1-Trichloroethane	None Detected	.02
1,1,2-Trichloroethane	None Detected	.006
1,1,1-Trichloroethane	None Detected	.03
1,1,2-Trichloroethane	None Detected	.01
1,1,1-Trichloroethane	None Detected	.01
1,1,2-Trichloroethane	None Detected	.007
1,1,1-Trichloroethane	141.0 ppb	.005
1,1,2-Trichloroethane	None Detected	.01
1,2-Trans-Dichloroethylene	None detected	.006
1,1-Dichloroethylene	None detected	.003

Respectfully submitted,

JENNINGS LABORATORIES, INC.

Laboratory Analysis No. 158

*W. H. Jennings*  
CHEMIST



# JENNINGS LABORATORIES, INC.

ANALYTICAL AND CONSULTING CHEMISTS

1118 CYPRESS AVENUE • P. O. BOX 851 • VIRGINIA BEACH, VA. 23451 • PHONE (804) 425-1498

VA (EPA) CERTIFIED LABORATORY for  
Drinking Water Analysis - Microbiological,  
Inorganic and Organic

Official Referee Chemists for:  
AMERICAN OIL CHEMISTS SOCIETY

Laboratory Certified by VA. STATE WATER  
CONTROL BOARD for Analysis of  
Effluents for NPDES PERMITS  
CERTIFIED OFFICIAL U.S.D.A. LABORATORY  
FOR MEAT ANALYSIS

ASBESTOS ANALYSIS - NIOSH 582

NATIONAL SOYBEAN  
PROCESSORS ASSOCIATION

## CERTIFICATE OF ANALYSIS

TO: Mr. Dave Goodwin  
Building N-23 Atlantic Division  
Naval Facilities Engineering Command  
Norfolk, Virginia 23511

DATE: April 16, 1981

SAMPLE OF STREAM BED BELOW & BEHIND OLD CHEMICAL DUMP ABOUT 100 yds SSE of Test  
Well #17  
MARKED MCB CAMP LEJEUNE SAMPLE #6 taken 4/10/81 @ 1435 hours

Samples delivered to laboratory 4/13/81 AM by Mr. Wallmeyer

OFFICIAL SAMPLE BY: \_\_\_\_\_

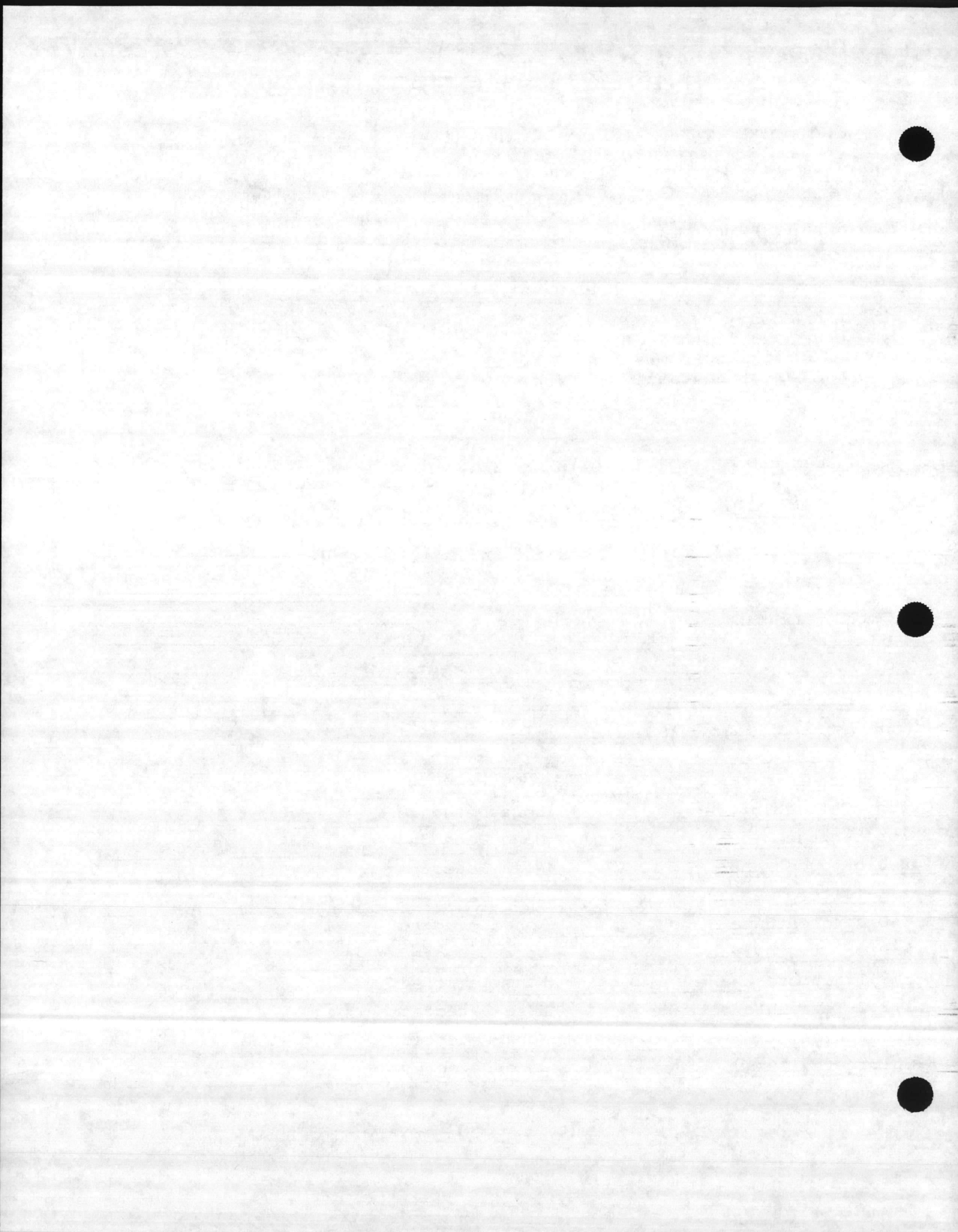
TOXICITY POLLUTANTS	PURGEABLE ORGANICS	DETECTION LIMITS (ug/l)
Acrolein	None Detected	2.0
Acrylonitrile	None detected	2.0
Benzene	None Detected	10.0
Toluene	None detected	10.0
Ethylbenzene	None Detected	10.0
Carbon Tetrachloride	None Detected	.007
Chlorobenzene	None Detected	.03
1,2-Dichloroethane	None Detected	.006
1,1,1-Trichloroethane	None Detected	.005
1,1-Dichloroethane	None Detected	.004
1,1-Dichloroethylene	None Detected	.006
1,1,2-Trichloroethane	None Detected	.006
1,1,2,2-Tetrachloroethane	None Detected	.006
Chloroethane	None Detected	.01
2-Chloroethyl vinyl ether	None Detected	.08

Respectfully submitted,

JENNINGS LABORATORIES, INC.

*W. H. Jennings, Jr.*





# JENNINGS LABORATORIES, INC.

ANALYTICAL AND CONSULTING CHEMISTS

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ASBESTOS ANALYSIS - NIOSH 582

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AMERICAN OIL CHEMISTS SOCIETY

NATIONAL SOYBEAN  
PROCESSORS ASSOCIATION

Laboratory Certified by VA. STATE WATER  
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Effluents for NPDES PERMITS  
CERTIFIED OFFICIAL U.S.D.A. LABORATORY  
FOR MEAT ANALYSIS

## CERTIFICATE OF ANALYSIS

TO: Mr. Dave Goodwin  
Building N-23 Atlantic Division  
Naval Facilities Engineering Command  
Norfolk, Virginia 23511

DATE: April 16, 1981

SAMPLE OF STREAM-BED BELOW & BEHIND OLD CHEMICAL DUMP ABOUT 100 yds SSE of Test

MARKED SAMPLE #6

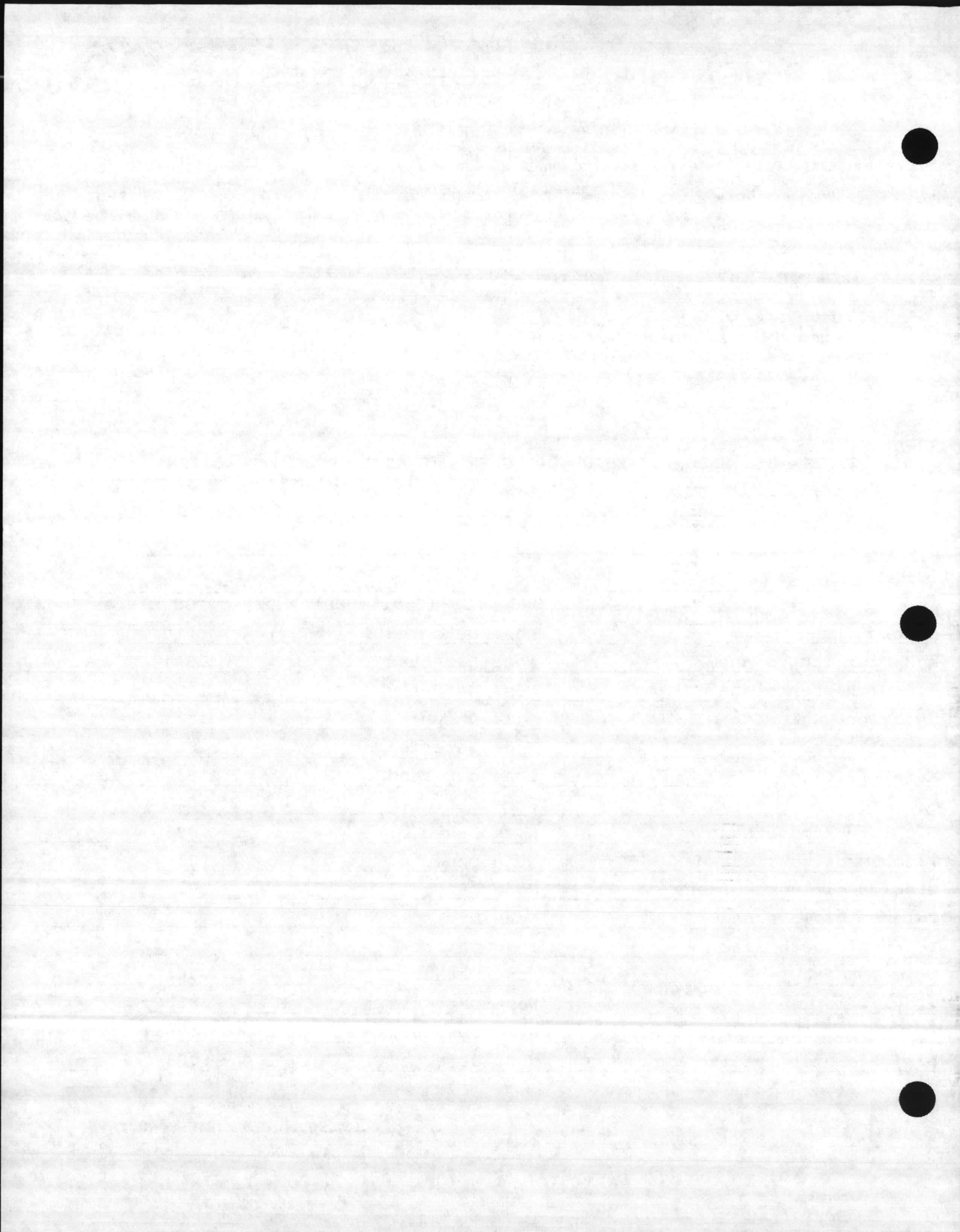
Well #17

OFFICIAL SAMPLE BY: \_\_\_\_\_

	PURGEABLE ORGANICS (CONTINUED)	DETECTION LIMITS (µg/l)
Chloroform	None Detected	.010
1,2-Dichloropropane	None Detected	.004
1,3-Dichloropropane	None Detected	.006
Methylene Chloride	14.0 ppb	.010
Methyl Chloride	None Detected	.009
Methyl Bromide	None detected	.03
Bromoform	None detected	.02
Dichlorobromomethane	None Detected	.006
Trichlorofluoromethane	None Detected	.03
Dichlorodifluoromethane	None Detected	.01
Chlorodibromomethane	None Detected	.01
Tetrachloroethylene	5.8 ppb	.007
Trichloroethylene	None Detected	.005
Vinyl Chloride	None Detected	.01
1,2-Trans-Dichloroethylene	None Detected	.006
bis(chloromethyl) ether	None Detected	.003

Respectfully submitted,

JENNINGS LABORATORIES, INC.





Doc No: CLEJ-00376-3.04-05/08/81

# JENNINGS LABORATORIES, INC.

ANALYTICAL AND CONSULTING CHEMISTS

1118 CYPRESS AVENUE • P. O. BOX 851 • VIRGINIA BEACH, VA. 23451 • PHONE (804) 425-1498

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Drinking Water Analysis - Microbiological,  
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AMERICAN OIL CHEMISTS SOCIETY  
NATIONAL SOYBEAN  
PROCESSORS ASSOCIATION

Laboratory Certified by VA. STATE WATER  
CONTROL BOARD for Analysis of  
Effluents for NPDES PERMITS  
CERTIFIED OFFICIAL U.S.D.A. LABORATORY  
FOR MEAT ANALYSIS

ASBESTOS ANALYSIS - NIOSH 582

## CERTIFICATE OF ANALYSIS

TO: Mr. Dave Goodwin  
Building N-23 Atlantic Division  
Naval Facilities Engineering Command  
Norfolk, Virginia 23511

DATE: April 16, 1981

SAMPLE OF TIDAL MARSH @ End of Road past old chemical dump

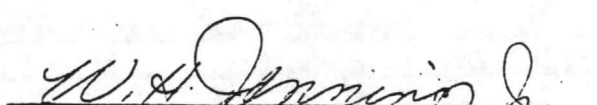
MARKED MCB CAMP LEJEUNE SAMPLE #7 taken 4/10/81 @ 1510 hours

Samples delivered to laboratory 4/13/81 AM by Mr. Wallmeyer

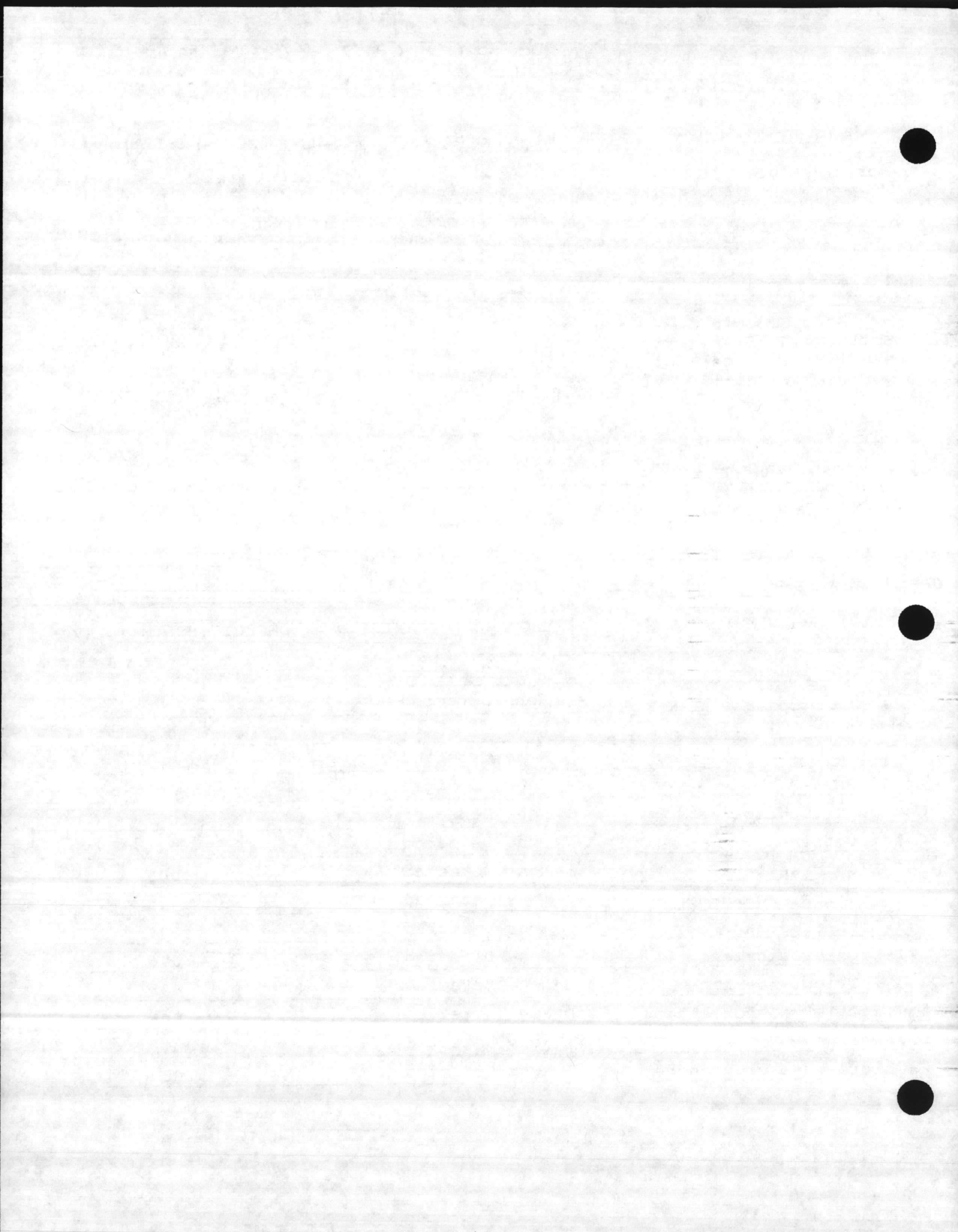
OFFICIAL SAMPLE BY: Mr. Jerry Wallmeyer

RIORITY POLLUTANTS	PURGEABLE ORGANICS	DETECTION LIMITS (µg/l)
Acrolein	None Detected	2.0
Acrylonitrile	None Detected	2.0
Benzene	None Detected	10.0
Toluene	None detected	10.0
Ethylbenzene	None Detected	10.0
Carbon Tetrachloride	None Detected	.007
Chlorobenzene	None Detected	.03
1,2-Dichloroethane	None Detected	.006
1,1,1-Trichloroethane	None Detected	.005
1,1-Dichloroethane	None Detected	.004
1,1-Dichloroethylene	None Detected	.006
1,1,2-Trichloroethane	None Detected	.006
1,1,2,2-Tetrachloroethane	None Detected	.006
Chloroethane	None Detected	.01
2-Chloroethyl vinyl ether	None Detected	.08

Respectfully submitted,  
JENNINGS LABORATORIES, INC.



Laboratory  
Analysis No. 160



**JENNINGS LABORATORIES, INC.**

ANALYTICAL AND CONSULTING CHEMISTS

1118 CYPRESS AVENUE • P. O. BOX 851 • VIRGINIA BEACH, VA. 23451 • PHONE (804) 425-1498

VA (EPA) CERTIFIED LABORATORY for  
Drinking Water Analysis - Microbiological,  
Inorganic and OrganicOfficial Referee Chemists for:  
AMERICAN OIL CHEMISTS SOCIETYLaboratory Certified by VA. STATE WATER  
CONTROL BOARD for Analysis of  
Effluents for NPDES PERMITS  
CERTIFIED OFFICIAL U.S.D.A. LABORATORY  
FOR MEAT ANALYSIS

ASBESTOS ANALYSIS - NIOSH 582

NATIONAL SOYBEAN  
PROCESSORS ASSOCIATION**CERTIFICATE OF ANALYSIS**TO: Mr. Dave Goodwin  
Building N-23 Atlantic Division  
Naval Facilities Engineering Command  
Norfolk, Virginia 23511

DATE: April 16, 1981

SAMPLE OF TIDAL MARSH @ END OF ROAD PAST OLD CHEMICAL DUMPMARKED SAMPLE #7

OFFICIAL SAMPLE BY: \_\_\_\_\_

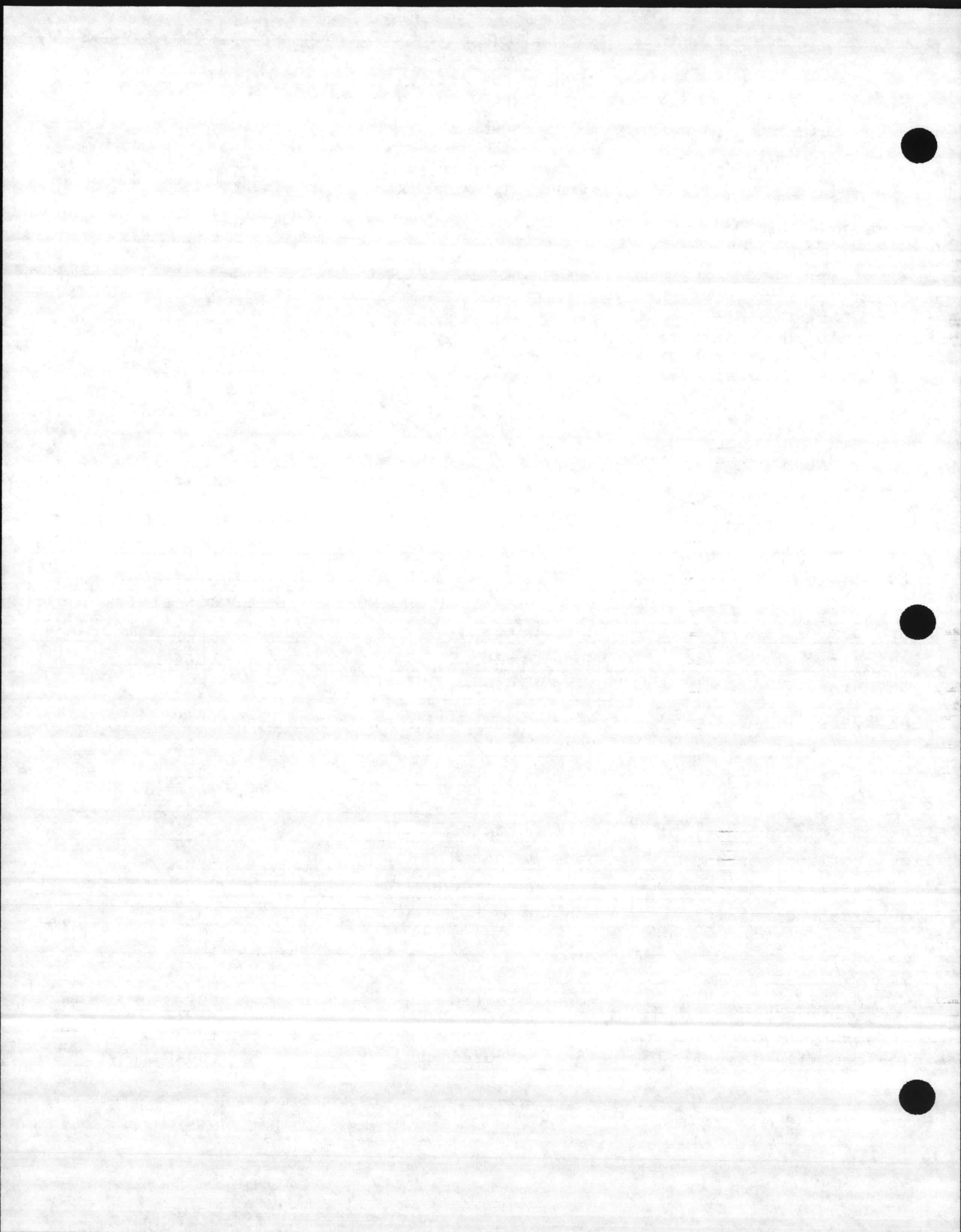
	PURGEABLE ORGANICS (CONTINUED)	DETECTION LIMITS (µg/l)
Chloroform	None Detected	.010
1,2-Dichloropropane	None Detected	.004
1,3-Dichloropropane	None Detected	.006
Methylene Chloride	None Detected	.010
Methyl Chloride	None Detected	.009
Methyl Bromide	None Detected	.03
Bromoform	None Detected	.02
Dichlorobromomethane	None Detected	.006
Trichlorofluoromethane	None Detected	.03
Dichlorodifluoromethane	None Detected	.01
Chlorodibromomethane	None Detected	.01
Tetrachloroethylene	None Detected	.007
Trichloroethylene	None Detected	.005
Vinyl Chloride	None Detected	.01
1,2-Trans-Dichloroethylene	None Detected	.006
bis(chloromethyl) ether	None Detected	.003

Respectfully submitted,

JENNINGS LABORATORIES, INC.

Laboratory 160  
Analysis No. \_\_\_\_\_
  
 W. H. Jennings  
 CHEMIST





Doc No: ELET-60376-3.04-05/08/81  
**JENNINGS LABORATORIES, INC.**  
 ANALYTICAL AND CONSULTING CHEMISTS

1118 CYPRESS AVENUE • P. O. BOX 851 • VIRGINIA BEACH, VA. 23451 • PHONE (804) 425-1498

• (EPA) CERTIFIED LABORATORY for  
 Drinking Water Analysis - Microbiological,  
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Official Referee Chemists for:  
 AMERICAN OIL CHEMISTS SOCIETY  
 NATIONAL SOYBEAN  
 PROCESSORS ASSOCIATION

Laboratory Certified by VA. STATE WATER  
 CONTROL BOARD for Analysis of  
 Effluents for NPDES PERMITS  
 CERTIFIED OFFICIAL U.S.D.A. LABORATORY  
 FOR MEAT ANALYSIS

ASBESTOS ANALYSIS - MIOSH 582

**CERTIFICATE OF ANALYSIS**

TO: Mr. Dave Goodwin  
 Building N-23 Atlantic Division  
 Naval Facilities Engineering Command  
 Norfolk, Virginia 23511

DATE: April 16, 1981

SAMPLE OF NEW RIVER, BETWEEN MOUTH OF STREAM & EVERETT CREEK RIGHT FORK OF ROAD THRU  
TLZ OWL TO RIVER  
 MARKED MCB CAMP LEJEUNE SAMPLE #8 taken 4/10/81 @ 1530

Samples delivered to laboratory 4/13/81 AM by Mr. Wallmeyer

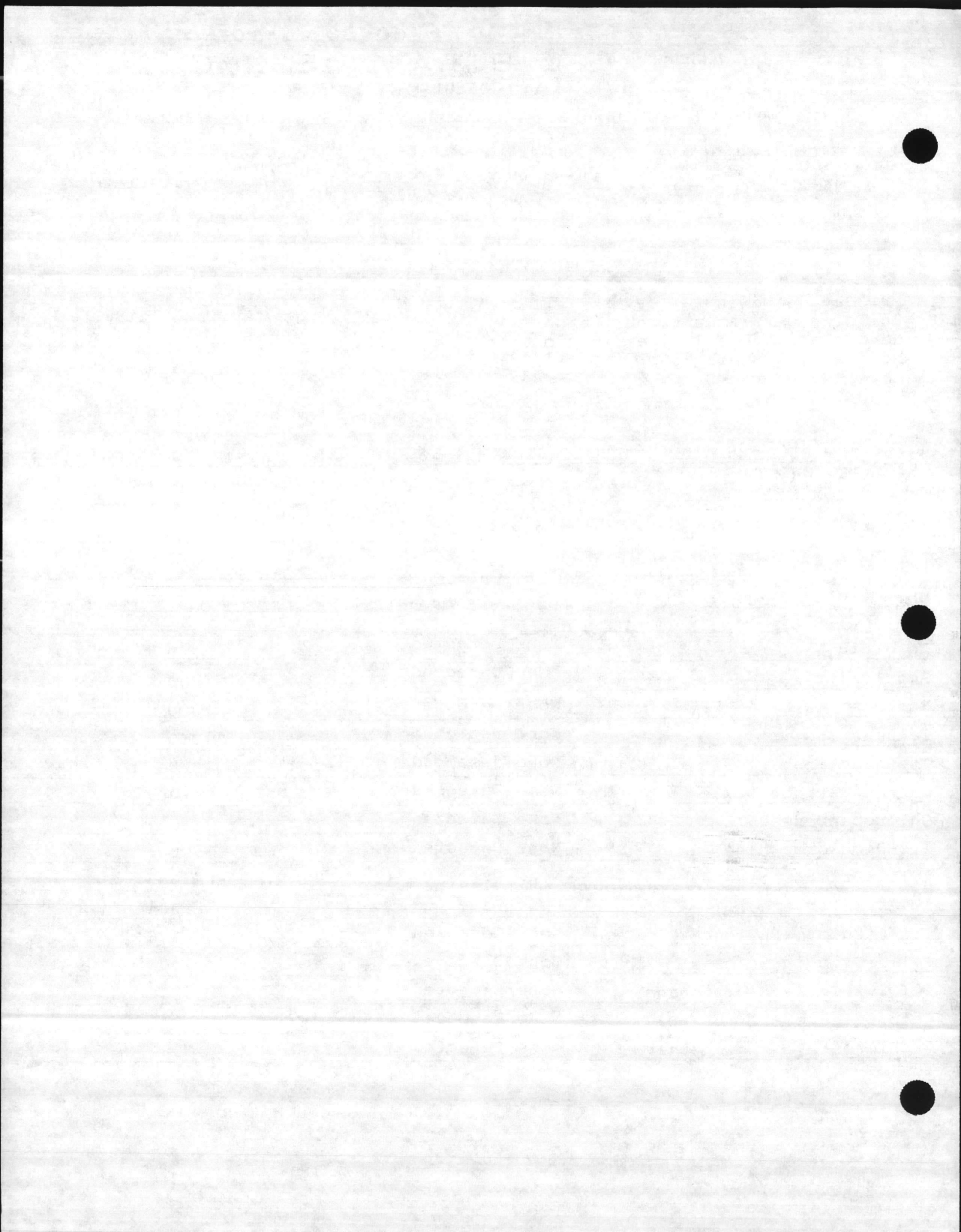
OFFICIAL SAMPLE BY: \_\_\_\_\_

PRIORITY POLLUTANTS	PURGEABLE ORGANICS	DETECTION LIMITS (µg/l)
Acrolein	None Detected	2.0
Acrylonitrile	None Detected	2.0
Benzene	None Detected	10.0
Toluene	None Detected	10.0
Ethylbenzene	None detected	10.0
Carbon Tetrachloride	None Detected	.007
Chlorobenzene	None Detected	.03
1,2-Dichloroethane	None Detected	.006
1,1,1-Trichloroethane	None Detected	.005
1,1-Dichloroethane	None Detected	.004
1,1-Dichloroethylene	None Detected	.006
1,1,2-Trichloroethane	None Detected	.006
1,1,2,2-Tetrachloroethane	None Detected	.006
Chloroethane	None Detected	.01
2-Chloroethyl vinyl ether	None Detected	.08

*Respectfully submitted,*  
 JENNINGS LABORATORIES, INC.

Laboratory  
 Analysis No 161

*W. H. Jennings, Jr.*  
 CHEMIST





Doc No. CLEJ-00376-3.04-05/08/81

# JENNINGS LABORATORIES, INC.

ANALYTICAL AND CONSULTING CHEMISTS

1118 CYPRESS AVENUE • P. O. BOX 851 • VIRGINIA BEACH, VA. 23451 • PHONE (804) 425-1498

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CERTIFIED OFFICIAL U.S.D.A. LABORATORY  
FOR MEAT ANALYSIS

ASBESTOS ANALYSIS - NIOSH 582

## CERTIFICATE OF ANALYSIS

TO: Mr. Dave Goodwin  
Building N-23 Atlantic Division  
Naval Facilities Engineering Command  
Norfolk, Virginia 23511

DATE: April 16, 1981

SAMPLE OF NEW RIVER, BETWEEN MOUTH OF STREAM & EVERETT CREEK RIGHT FORK OF ROAD  
THRU TLZ OWL TO RIVER  
MARKED Sample #8

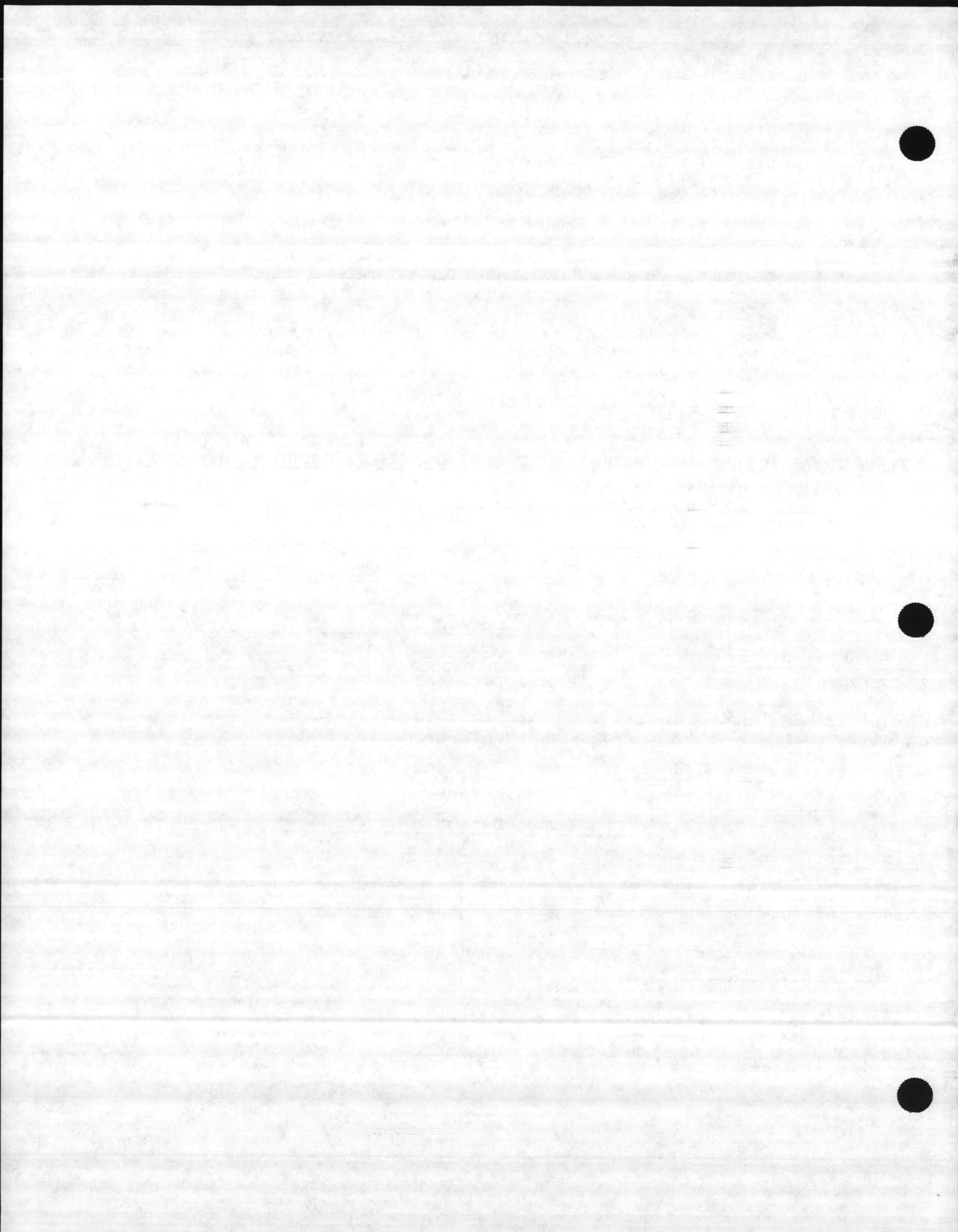
OFFICIAL SAMPLE BY: \_\_\_\_\_

	PURGEABLE ORGANICS (CONTINUED)	DETECTION LIMITS (µg/l)
Chloroform	None Detected	.010
1,2-Dichloropropane	None Detected	.004
1,3-Dichloropropane	None Detected	.006
Methylene Chloride	None detected	.010
Methyl Chloride	None Detected	.009
Methyl Bromide	None Detected	.03
Bromoform	None Detected	.02
Dichlorobromomethane	None Detected	.006
Trichlorofluoromethane	None Detected	.03
Dichlorodifluoromethane	None Detected	.01
Chlorodibromomethane	None Detected	.01
Tetrachloroethylene	None Detected	.007
Trichloroethylene	None Detected	.005
Vinyl Chloride	None Detected	.01
1,2-Trans-Dichloroethylene	None Detected	.006
bis(chloromethyl) ether	None Detected	.001

Respectfully submitted,  
JENNINGS LABORATORIES, INC.

Laboratory  
Analysis No. 161

*W. H. Jennings, Jr.*  
CHEMIST



Doc. No.: CLEJ-00372-3.04-

05/19/82

*Dave - your copy*



UNITED STATES MARINE CORPS  
MARINE CORPS BASE  
CAMP LEJEUNE, NORTH CAROLINA 28542

IN REPLY REFER TO  
MAIN/DDS/spk  
6280/7a

MAY 19 1982

From: Commanding General  
To: Commander, Atlantic Division, Naval Facilities Engineering Command  
Norfolk, Virginia 23511 (Code 114)

Subj: Total Trihalomethane Monitoring Reports

Ref: (a) FONECON btw Mr. Jerry Wallmeyer, LANTDIV Code 114, and Mr. D. Sharpe, BMaintDiv, MCBCL, of 13 May 82

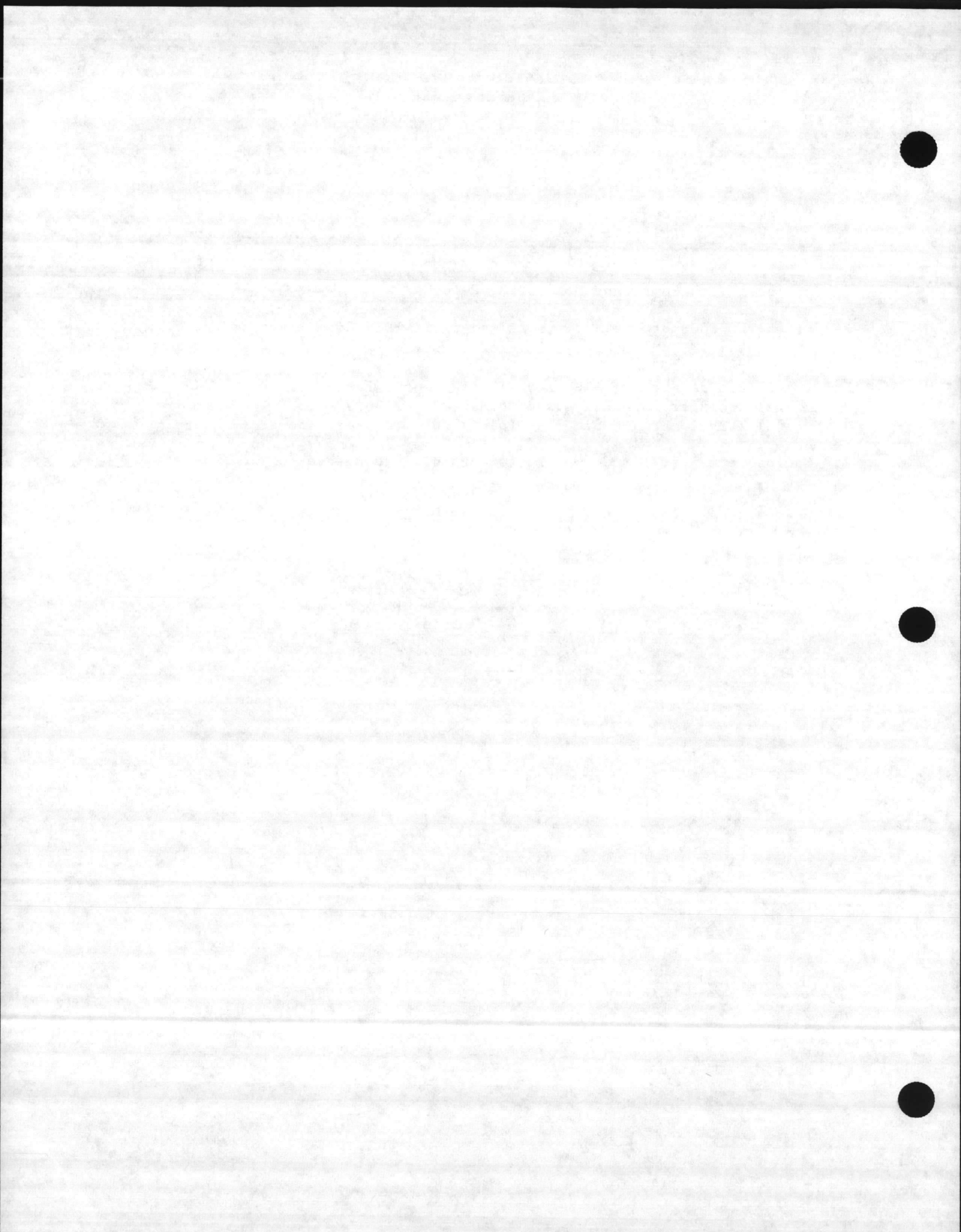
Encl: (1) USAEHA Form 7; TTHM Surveillance Report Form  
(2) Grainger Lab Analysis of 6 May 82, 82-3637  
(3) Trihalomethane Sampling Points for Grainger Laboratory Contact

1. Enclosures (1), (2) and (3) are forwarded as requested during the reference.

2. Questions regarding this matter should be addressed to Ms. Elizabeth A. Betz, Supervisory Chemist, telephone extension (919)451-5977.

*B. W. Elston*  
B. W. ELSTON  
By direction





Installation CAMP LE JEUNE - RIFLERANGE

Date Collected 30 DEC 81

Source	Sample Number	CHCl <sub>3</sub>	CHCl <sub>2</sub> Br	CHClBr <sub>2</sub>	CHBr <sub>3</sub>	TTHM
WTP RAW 85	566	5.3	0.7	<0.1	<0.1	6
WTP TREATED 85	567	47.4	28.0	26.5	3.3	105
6	568	45.3	26.6	24.2	3.1	99
10	569	46.4	27.6	26.2	3.5	104
92	570	46.7	27.5	26.0	3.1	103
Reference OBS						
True						

Date Received 4 JAN 82

Date Analyzed 8 JAN 82

Remarks: ELIZABETH BETTS  
AV 484-5977

William C Neal  
 WILLIAM C. NEAL, JR.  
 Chief, Laboratory Services



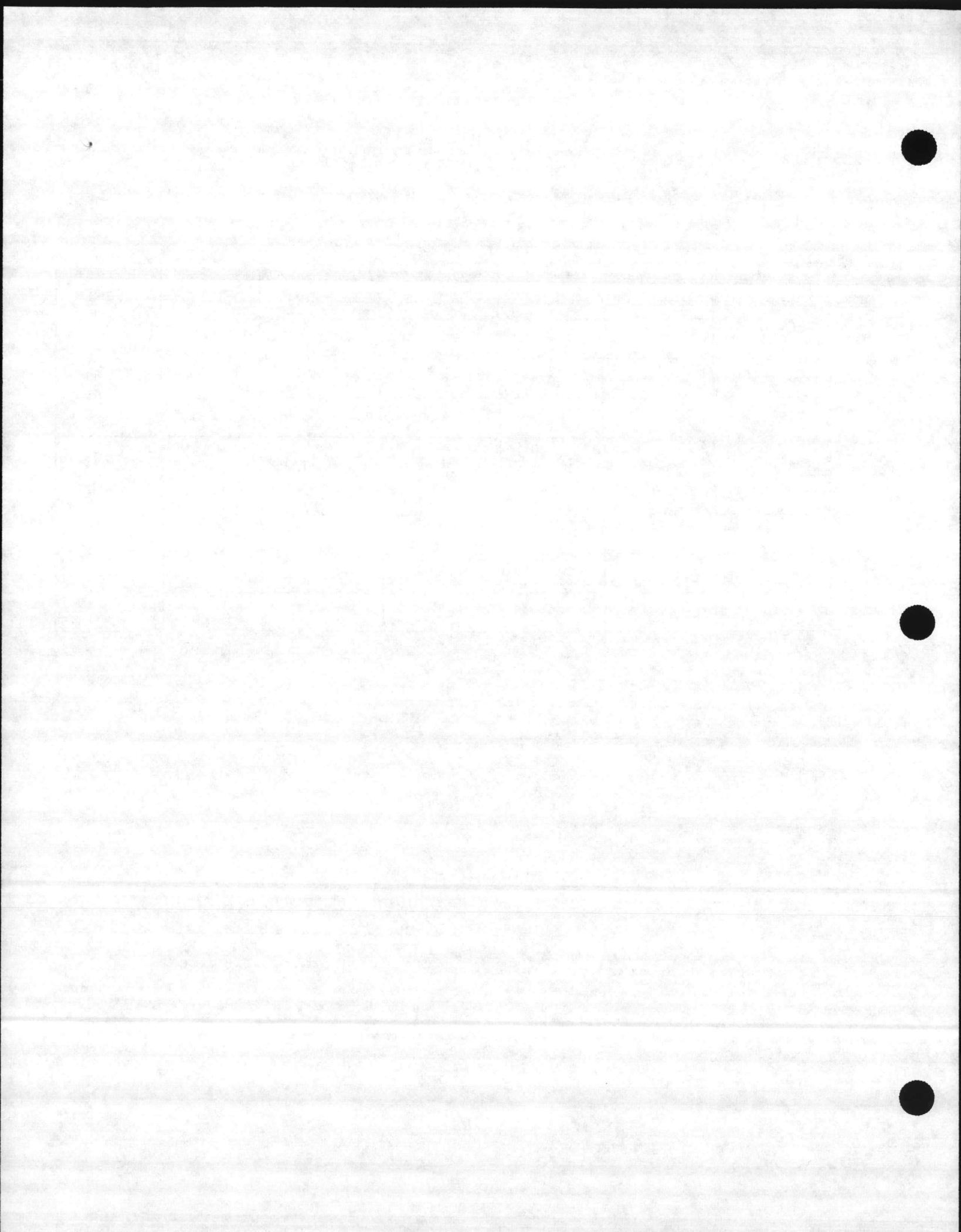


## TTHM SURVEILLANCE REPORT FORM

Installation CAMP LE JEUNE (RIFLE RAUSE)Date Collected 28 JAN 82 PM

Source	Sample Number	CHCl <sub>3</sub>	CHCl <sub>2</sub> Br	CHClBr <sub>2</sub>	CHBr <sub>3</sub>	TTHM
WTP 85 RAW	571	22.1	0.6	0.1	<0.1	23
TESTED 85	572	47.1	11.7	3.7	0.3	63
6	573	43.1	10.5	3.8	0.3	57
10	574	51.9	14.2	4.7	0.4	71
92	575	46.8	11.8	3.8	0.3	63
Reference OBS						
True						

Date Received 1 FEB 82Date Analyzed 4 MAR 82Remarks: results called in on 5 MAR 82*William C Neal*WILLIAM C. NEAL, JR.  
Chief, Laboratory Services



144

TTHM SURVEILLANCE REPORT FORM

Installation CAMP LE JEUNE - RIFLE RANGE

Date Collected 16 MAR 82

Source	Sample Number	CHCl <sub>3</sub>	CHCl <sub>2</sub> Br	CHClBr <sub>2</sub>	CHBr <sub>3</sub>	TTHM
RAW P. 5 WTP	576	1.2	40.1	<0.1	<0.1	1
TREATED P. 5 WTP	577	19.4	8.6	3.5	0.3	32
6	578	28.0	12.8	5.3	0.5	47
10	579	AIR	BUBBLE			—
92	580	34.0	16.8	6.9	0.7	58
Reference OBS						
True						

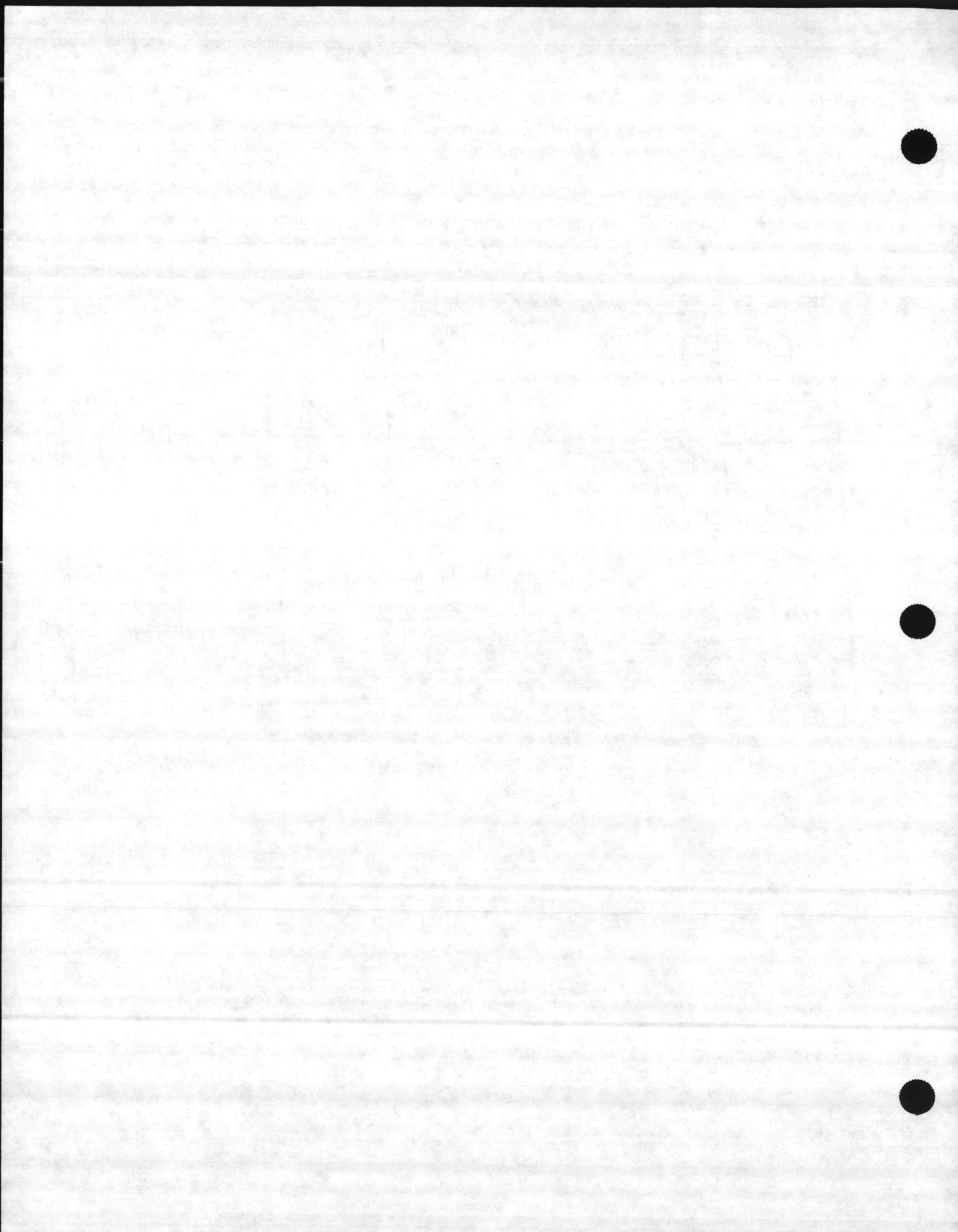
Date Received 22 MAR 82

Date Analyzed 15 APR 82

Remarks:

*William C. Neal*  
 WILLIAM C. NEAL, JR.  
 Chief, Laboratory Services





# GRAINGER LABORATORIES

INCORPORATED

ANALYTICAL AND CONSULTING CHEMISTS

709 West Johnson Street

Raleigh, North Carolina 27603

(919) 828-3360

## ANALYTICAL LABORATORY

Environment Analysis  
 Construction Materials  
 Identification of Unknowns  
 Agriculture  
 Fuels  
 Textiles  
 Chemicals  
 Hazardous Waste

May 6, 1982  
 82-3637

Commanding General  
 Department of Navy  
 NREAB  
 Base Maintenance Div.  
 Marine Corp. Base  
 Camp Lejeune, NC 28542

Attn: NREAB, QC Lab

Subject: Analysis of samples received 4/26/82

Sample Identification: Purchase Order # M06760C1-82-M2-5084

41 bottles of THM

## CONSULTATION

Metallurgical Services  
 Pollution Abatement  
 Process Development  
 Quality Control  
 Methods Development  
 Special Investigation  
 Pesticides  
 RCRA

### RESULTS

Sample	Chloroform	Bromodichloro- methane	Chlorodibromo- methane	Bromoform	Total Trihalo- methane
001	1	4	3	2	10
002	1	5	4	2	12
003	1	5	3	2	11
004	1	4	3	2	10
005	1	4	3	2	10
006	3	3	1	<1	7
007	3	4	2	<1	9
008	2	<1	<1	<1	2
009	3	4	2	<1	9
010	3	4	2	<1	9
011	4	4	2	<1	10
012	11	15	20	5	51



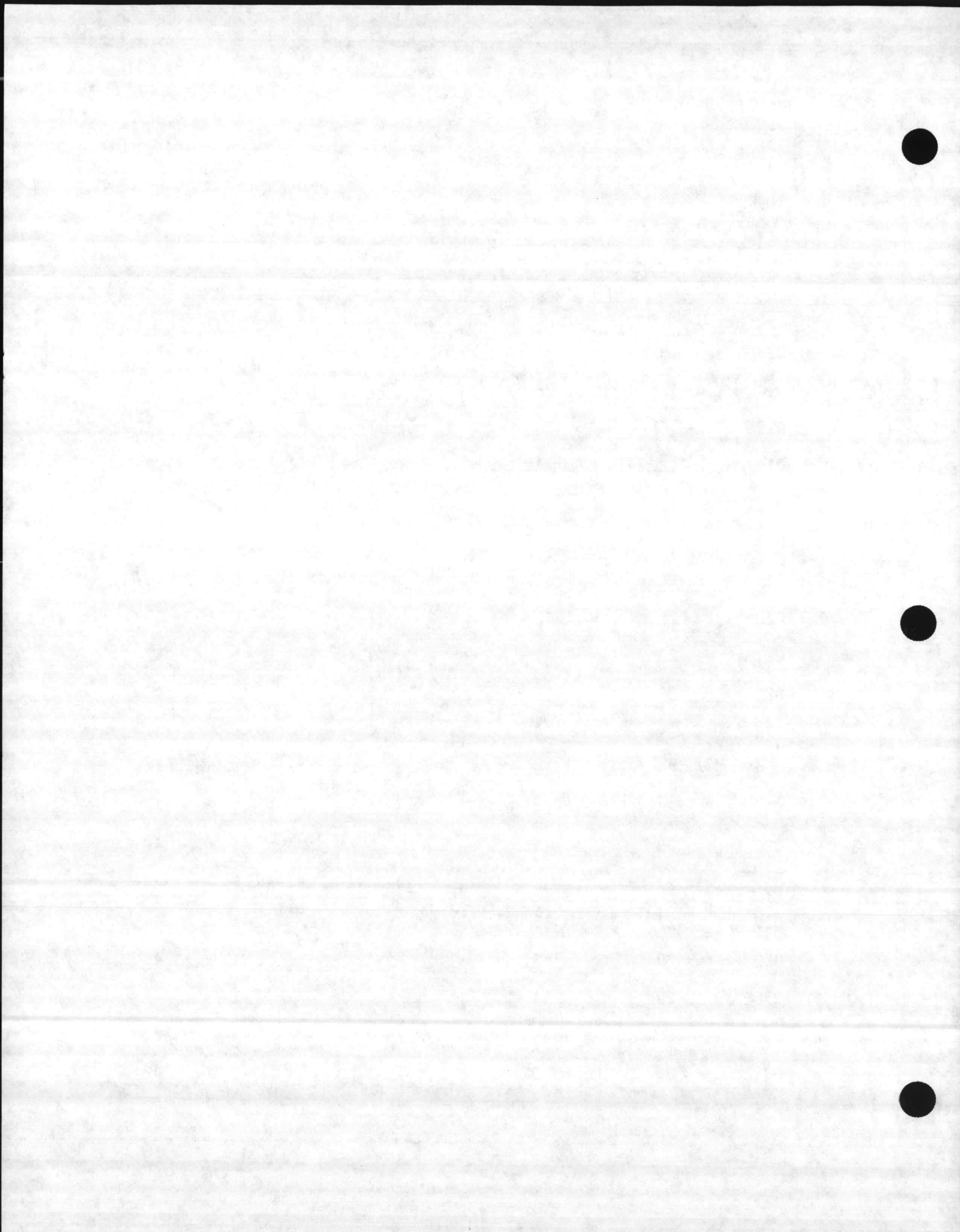




Dept. of Navy  
GLI #82-3637  
May 6, 1982  
Page 2

RESULTS  
(cont'd.)

013	13	21	28	11	73
014	15	28	45	32	120
015	15	25	37	22	99
016	15	24	37	24	100
017	18	8	2	<1	28
018	22	9	2	<1	33
019	24	11	3	<1	38
020	20	13	2	<1	35
021	23	21	3	<1	47
022	29	15	4	<1	48
023	29	14	4	<1	47
024	29	15	4	<1	48
025	28	14	4	<1	46
026	29	15	5	<1	49
027	27	13	4	<1	44
028	27	13	4	<1	44
029	29	13	4	<1	46
030	29	14	4	<1	47
031	38	18	6	<1	62
032	32	9	1	<1	42



Dept. of Navy  
 GLI #82-3637  
 May 6, 1982  
 Page 3

RESULTS

(cont'd.)

033	41	10	2	<1	53
034	32	9	1	<1	42
035	39	6	<1	<1	45
036	29	9	1	<1	39
037	23	20*	2	<1	45**
038	28	20*	3	<1	51**
039	25	20*	2	<1	47**
040	25	20*	2	<1	47**
041	28	20*	3	<1	51**

\* This represents an upper limit on the possible Bromodichloromethane level.

\*\* This represents an upper limit on the possible total trihalomethane level.

NOTE: All results reported in micrograms per liter.

*W. Paul Brafford*

W. Paul Brafford  
 Laboratory Supervisor

WPB:ss  
 Customer #92400

cc: Elizabeth Betz

ENCLOSURE (2)





SAMPLE #      SAMPLE LOCATION

P: Tarawa Terrace      Sampler: \_\_\_\_\_

Date: \_\_\_\_\_

- 1      Bldg STT-39A, Water Plant @ 1st Pump
- 2      Bldg TT-60, TT Elem School I, Main Hall Men's Head Sink
- 3      Bldg TT-48, TT Elem School II, Men's Head across Office
- 4      Bldg TT-2453, TT Exchange gas Station's Ladies Room
- 5      Bldg TT-35, Sewage Plant's Office Sink

WTP: \_\_\_\_\_      Sampler: \_\_\_\_\_

Date: \_\_\_\_\_

- 6      Bldg E-23, Sewage Lift Station, Knox Trailer Park

WTP: Montford Point      Sampler: \_\_\_\_\_

Date: \_\_\_\_\_

- 7      Bldg M-178, Water Plant @ Sink faucet
- 8      Bldg M-625, Steam Plant, Bathroom Sink
- 9      Bldg M-128, Branch Clinic, Men's Head
- 10      Bldg M-136, Sewage Plant Sink
- 11      Bldg M-231, BOQ, 1st floor Men's Head

WTP: New River      Sampler: \_\_\_\_\_

Date: \_\_\_\_\_

- 12      Bldg AS-110, Water Plant @ Pump
- 13      Bldg G-520, Career Planner, 2nd floor Men's Room
- 14      Bldg AS-4025, Barracks Rec Room, Bathroom Sink
- 15      Bldg 710, Officer's Club Gally Sink
- 16      Bldg 2800, Boat Marina Men's Room

WTP: Holcomb Blvd      Sampler: \_\_\_\_\_

Date: \_\_\_\_\_

- 17      Bldg 670, Water Plant @ Pump
- 18      Bldg 4022, Fire Station, Bathroom Sink
- 19      Bldg 1915, Golf Course, Men's Locker Room
- 20      Bldg 5400, Berkeley Manor Elem School, Main Hall Bathroom
- 21      Bldg 2615, PP Officer's Club, Gally Dishwashing Sink





MONTH:  
YEAR:

SAMPLE #      SAMPLE LOCATION  
WTP: Rifle Range      Sampler:      Date:      TIME

- 22      Bldg RR-85, Water Plant @ Finish Tap
- 23      Bldg RR-6, Fire House Sink
- 24      Bldg RR-10, Snack Bar Sink
- 25      Bldg RR-200, Across from Target Shed
- 26      Bldg RR-92, Sewage Plant Sink

WTP: Courthouse Bay      Sampler:      Date:

- 27      Bldg BB-190, Water Plant @ Faucet
- 28      Bldg BB-7, Mess Hall Sink
- 29      Bldg BB-54, Service Club
- 30      Bldg SBB-204, Sewage Plant Sink
- 31      Bldg BB-46, Marina Bathroom Sink

WTP: Onslow Beach      Sampler:      Date:

- 32      Bldg BA-138, Water Plant
- 34      Bldg BA-103, Mess Hall
- 33      Campsite #2, Spigot 10(Mainland)
- 35      Campsite #1, Spigot 2(Beachside)
- 36      Bldg SBA-142, Spigot at bottom of Pier

WTP: Hadnot Point      Sampler:      Date:

- 37      Bldg20, Water Plant @ Pump
- 38      Bldg NH-1, Emergency Room Sink
- 39      Bldg 1202, Men's Room Sink
- 40      Bldg 65, Quality Control Lab, Room 220 Sink
- 41      Bldg FC-530, Laundry Room Sink, 1st floor



grrb  
1172

(804) 444-9566

114:JGW:mbe  
6280

12 AUG 1982

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

Subj: Water System Monitoring Data

Ref: (a) Discussions MCB CAMP LEJEUNE (Mr. D. Sharpe)/LANTNAVFACENGCOM  
(Mr. W. Carter) of 16-18 June 1982

Encl: (1) Jemmings Laboratories, Inc., Analysis No. 2518

1. As requested during reference (a), enclosure (1) is forwarded.

J. R. BAILEY, P.E.  
By direction

Blind Copy to:  
114   
114S  
09BS (w/o encl)  
Doc. #0065U

WALLMEYE  
Eppes  
8/10/82  
nrs





JENNINGS LABORATORIES, INC. Doc. No.: C227  
ANALYTICAL AND CONSULTING CHEMISTS 00371-3.04-

1118 CYPRESS AVENUE • P. O. BOX 851 • VIRGINIA BEACH, VA. 23451 • PHONE (804) 425-1498 08/12/82

VA (EPA) CERTIFIED LABORATORY for  
Drinking Water Analysis - Microbiological,  
Inorganic and Organic

ASBESTOS ANALYSIS - NIOSH 582

Official Referee Chemists for:  
AMERICAN OIL CHEMISTS SOCIETY  
NATIONAL SOYBEAN  
PROCESSORS ASSOCIATION

Laboratory Certified by VA. STATE WATER  
CONTROL BOARD for Analysis of  
Effluents for NPDES PERMITS  
CERTIFIED OFFICIAL U.S.D.A. LABORATORY  
FOR MEAT ANALYSIS

CERTIFICATE OF ANALYSIS

TO: Mr. Dave Goodwin  
Building N-23 Atlantic Division  
Naval Facilities Engineering Command  
Norfolk, Virginia 23511

DATE: October 31, 1980

SAMPLE OF WATER SAMPLES (8) FOR COMPOSITE FOR PRIORITY POLLUTANT SCAN

MARKED: Listed below

Samples picked up October 1, 1980

OFFICIAL SAMPLE BY:

EIGHT (8) SAMPLES OF WATER TO BE COMPOSITED AS PER INSTRUCTIONS:

<u>SAMPLE MARKED</u>	<u>QUARTS</u>	<u>LOCATION</u>	<u>QUANTITY</u>
#1	2	Hadnot Point Bldg 20	1552 ml
#2	1	Hadnot Point Bldg 670	708 ml
#3	1	Tarawa Terrace TT-38	452 ml
#4	1	Monford Point M-178	220 ml
#5	1	MCAS (H) Bldg 110	664 ml
#6	1	Courthouse Bay BB-190	132 ml
#7	1	Rifle Range RR-85	220 ml
#8	1	Onslow Beach BA-138	52 ml
			<u>4000 ml</u>

Respectfully submitted,  
JENNINGS LABORATORIES, INC.

Laboratory  
Analysis No. 2518

*E. R. Douglas*  
CHEMIST

Enclosure (1)





JENNINGS LABORATORIES, INC. Doc. No. 3 UET-  
ANALYTICAL AND CONSULTING CHEMISTS 00371-3.04

1118 CYPRESS AVENUE • P. O. BOX 851 • VIRGINIA BEACH, VA. 23451 • PHONE (804) 425-1498 08/12/82

VA (EPA) CERTIFIED LABORATORY for  
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NATIONAL SOYBEAN  
PROCESSORS ASSOCIATION

Laboratory Certified by VA. STATE WATER  
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CERTIFIED OFFICIAL U.S.D.A. LABORATORY  
FOR MEAT ANALYSIS

ASBESTOS ANALYSIS - MOSH 582

CERTIFICATE OF ANALYSIS

Mr. Dave Goodwin  
Building N-23 Atlantic Division  
Naval Facilities Engineering Command  
Norfolk, Virginia 23511

DATE: October 31, 1980

SAMPLE OF WATER SAMPLES (8) - Blank made on each analysis. Bromochloromethane,  
MARKED 2-bromo-1-chloropropane, 1-4 dichlorobutane used as internal standard.

GC/MS calibrated with perfluorotributylamine, SIM MODE. All test run according to  
EPA TEST PROCEDURES.

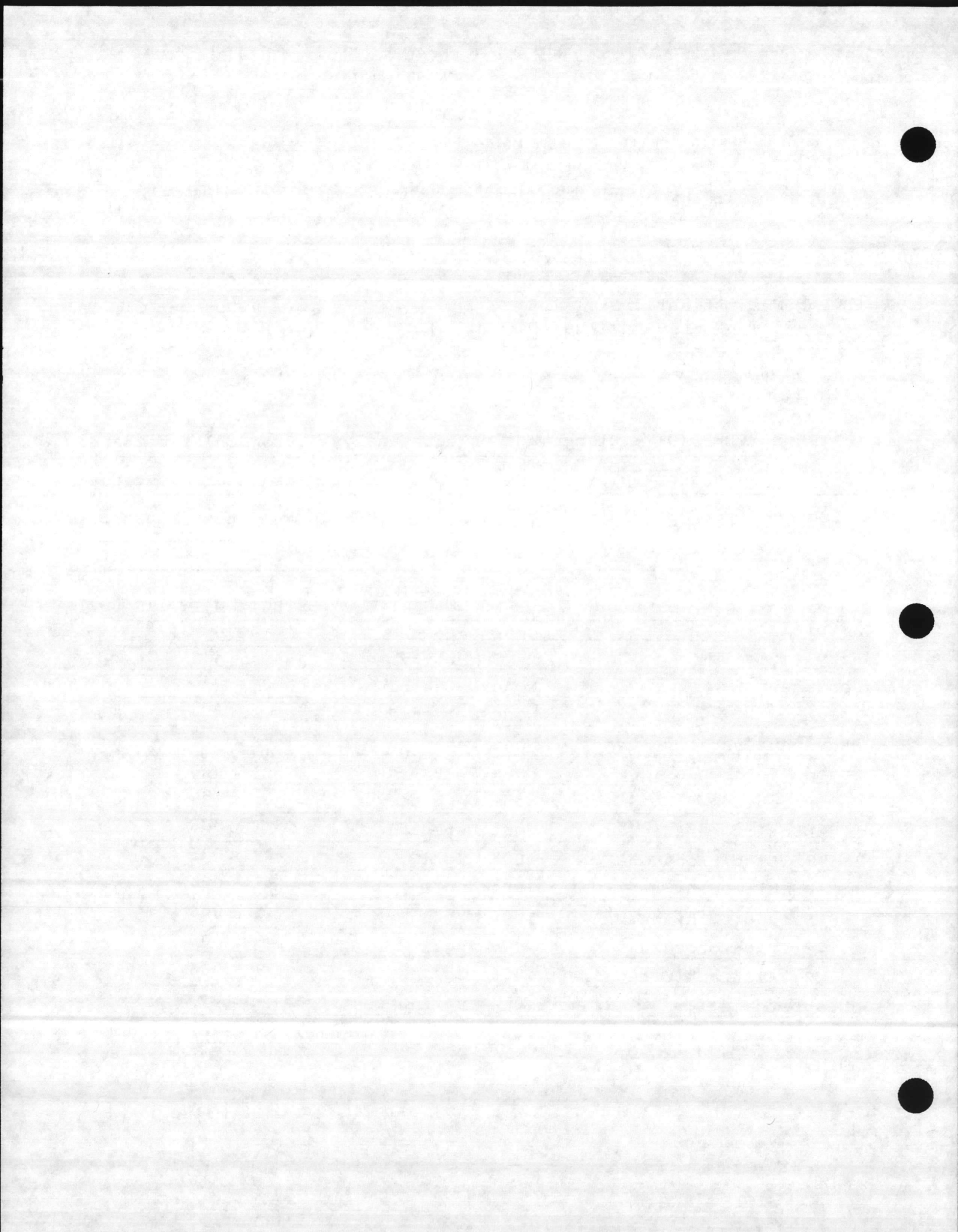
OFFICIAL SAMPLE BY:

	PURGEABLE ORGANICS	DETECTION LIMITS $\mu\text{g}/\text{l}$
Acrolein	None Detected	2.0
Acrylonitrile	None Detected	2.0
Benzene	None Detected	10.0
Toluene	None Detected	10.0
Ethylbenzene	None Detected	10.0
Carbon Tetrachloride	None Detected	.007
Chlorobenzene	None Detected	.03
1,2-Dichloroethane	None Detected	.006
1,1,1-Trichloroethane	.005 $\mu\text{g}/\text{l}$	.005
1,1-Dichloroethane	.004 $\mu\text{g}/\text{l}$	.004
1,1-Dichloroethylene	.006 $\mu\text{g}/\text{l}$	.006
1,1,2-Trichloroethane	.006 $\mu\text{g}/\text{l}$	.006
1,1,2,2-Tetrachloroethane	.006 $\mu\text{g}/\text{l}$	.006
Chloroethane	.01 $\mu\text{g}/\text{l}$	.01
2-Chloroethyl vinyl ether	.08 $\mu\text{g}/\text{l}$	.08

Respectfully submitted,  
JENNINGS LABORATORIES, INC.

Laboratory  
Analysis No 2518

*E. R. Douglas*  
CHEMIST



PURGEABLE ORGANICS (continued)

DETECTION LIMITS µg/

Chloroform	None Detected	.010
1,2-Dichloropropane	None Detected	.004
1,3-Dichloropropane	None Detected	.006
Methylene Chloride	None Detected	.010
Methyl Chloride	None Detected	.009
Methyl Bromide	None Detected	.03
Bromoform	None Detected	.02
Dichlorobromomethane	None Detected	.006
Trichlorofluoromethane	None Detected	.03
Dichlorodifluoromethane	None Detected	.01
Chlorodibromomethane	None Detected	.01
Tetrachloroethylene	None Detected	.007
Trichloroethylene	.005 µg/l	.005
Vinyl Chloride	.01 µg/l	.01
1,2-trans-Dichloroethylene	.006 µg/l	.006
bis(chloromethyl) ether	.003 µg/l	.003

BASE/NEUTRAL EXTRACTABLE ORGANIC COMPOUNDS

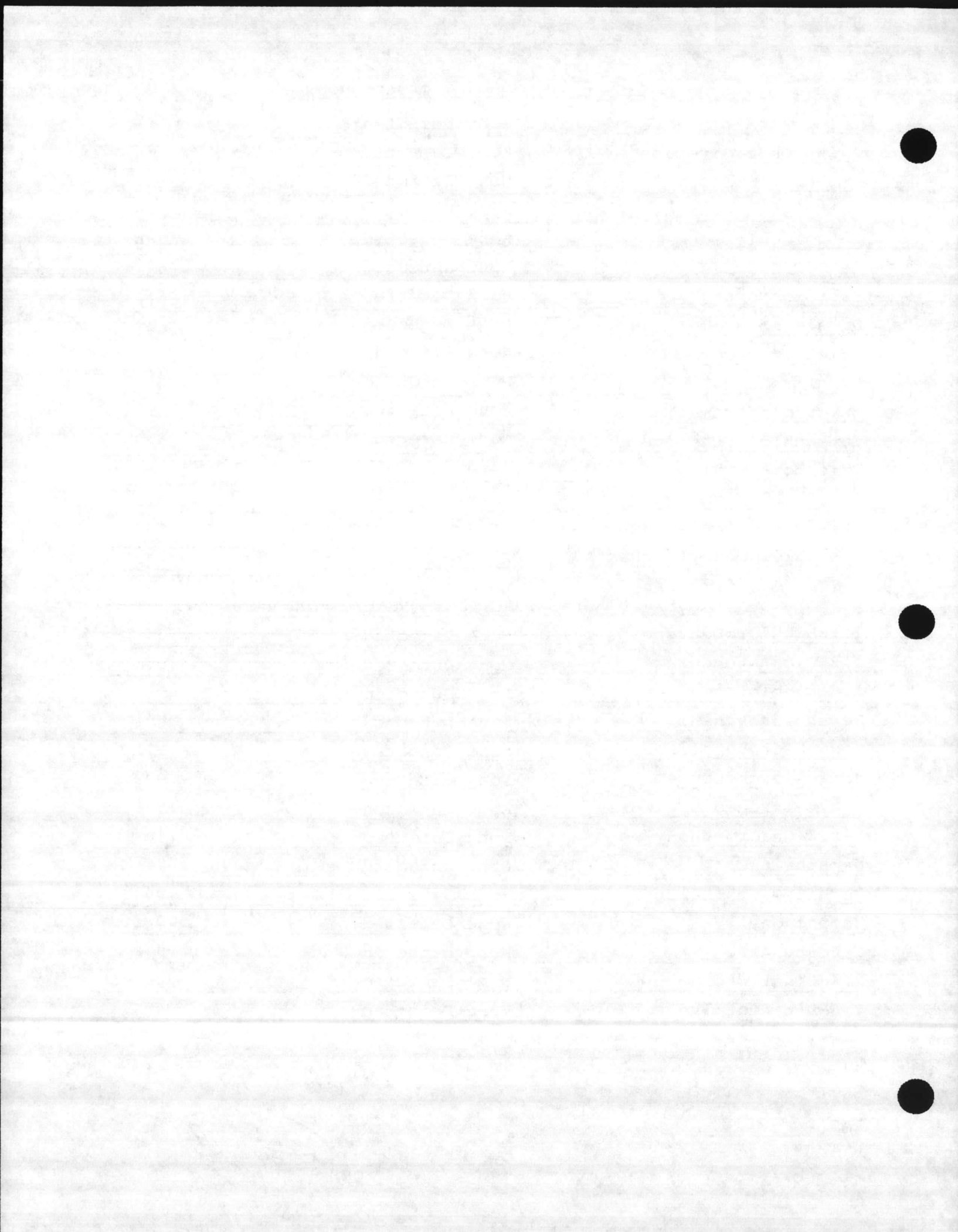
1,2-Dichlorobenzene	None Detected	.04
1,3-Dichlorobenzene	None Detected	.04
1,4-Dichlorobenzene	None Detected	.04
Hexachloroethane	None Detected	.001
Hexachlorobutadiene	None Detected	.001
Hexachlorobenzene	None Detected	.002
1,2,4-Trichlorobenzene	None Detected	.006
Bis(2-Chloroethoxy) methane	None Detected	.40
Naphthalene	None Detected	.04
2-Chloronaphthalene	None Detected	.04
Isophorone	None Detected	5.0
Nitrobenzene	None Detected	5.0
2,4-Dinitrotoluene	None Detected	.06
2,6-Dinitrotoluene	None Detected	.06

LAB # 2518

BY

E. R. Douglas  
CHEMIST





08/12/82

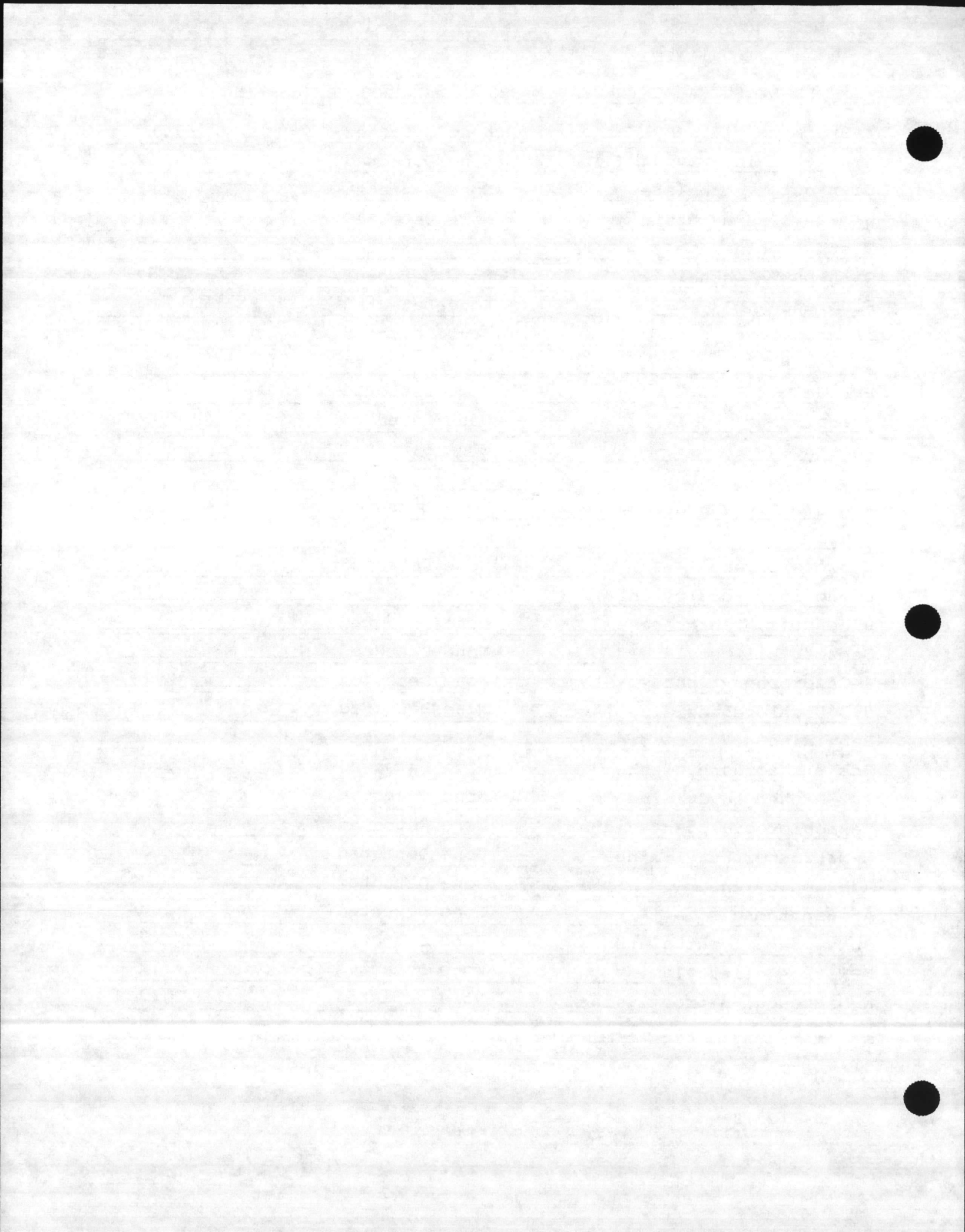
## BASE/NEUTRAL EXTRACTABLE ORGANIC COMPOUNDS (continued)

		DETECTION LIMIT
		<u>I.I</u> <u>ug/l</u>
4-Bromophenyl phenyl ether	None Detected	1.1
bis(2-Ethylhexyl)phthalate	None Detected	.02
Di-n-octyl phthalate	None Detected	.11
Dimethyl phthalate	None Detected	.11
Diethyl phthalate	None Detected	.13
Di-n-butyl phthalate	None Detected	.02
Fluorene	None Detected	.04
Fluoranthene	None Detected	.04
Chrysene	None Detected	.04
Pyrene	None Detected	.04
Phenathrene	None Detected	.04
Anthracene	None Detected	.04
Benzo (a) anthracene	None Detected	.04
Benzo (b) fluoranthene	None Detected	.04
Benzo (k) fluoranthene	None Detected	.04
Benzo (a) pyrene	None Detected	.04
Ideno (1,2,3-c,d) pyrene	None Detected	.10
Dibenzo (a,h) anthracene	None Detected	.10
Benzo (g,h,i) perylene	None Detected	.10
4-Chlorophenyl phenyl ether	None Detected	2.2
3,3'-Dichlorobenzidine	None Detected	.04
Benzidine	None Detected	.04
Bis (2-Chloroethyl) ether	None Detected	.04
1,2-Diphenylhydrazine	None Detected	.04
Hexachlorocyclopentadiene	None Detected	.04
N-Nitrosodiphenylamine	None Detected	1.0
Acenaphthylene	None Detected	.04
Acenaphthene	None Detected	.04
Butyl benzyl phthalate	None Detected	.04
N-Nitrosodimethylamine	None Detected	.2
N-Nitrosodi-n-propylamine	None Detected	.5
bis(2-Chloroisopropyl) ether	None Detected	.9

LAB # 2518

BY


  
Chemist





3.04-08/12/82

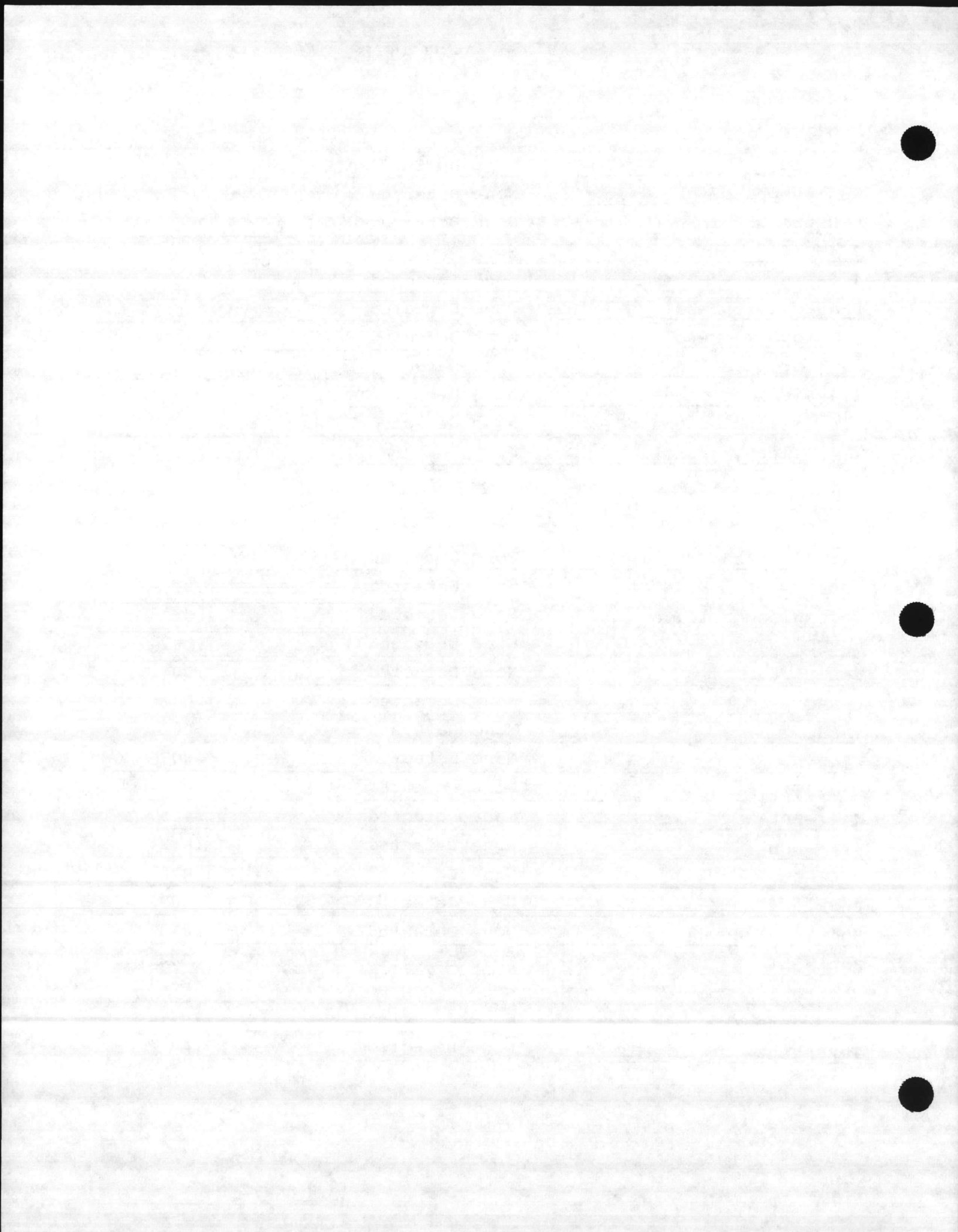
ACID EXTRACTABLE ORGANIC COMPOUNDSDETECTION LIMITS  $\mu\text{g/l}$ 

Phenol	NONE DETECTED	1.4
2-Nitrophenol	None Detected	2.5
4-Nitrophenol	None Detected	2.5
2,4-Dinitrophenol	None Detected	7.0
4,6-Dinitro-o-cresol	None Detected	2.0
Pentachlorophenol	None Detected	10.0
p-Chloro-m-cresol	None Detected	.01
2-Chlorophenol	None Detected	2.0
2,4-Dichlorophenol	None Detected	2.1
2,4,6-Trichlorophenol	None Detected	3.0
2,4-Dimethylphenol	None Detected	1.7

PESTICIDES/PCB's

$\alpha$ -Endosulfan	None Detected	.005
$\beta$ -Endosulfan	None Detected	.01
Endosulfan sulfate	None Detected	.03
$\alpha$ -BHC	None Detected	.002
$\beta$ -BHC	None Detected	.004
$\delta$ -BHC	None Detected	.004
$\gamma$ -BHC	None Detected	.002
Aldrin	None Detected	.003
Dieldrin	None Detected	.006
4,4'-DDE	None Detected	.006
4,4'-DDD	None Detected	.012
4,4'-DDT	None Detected	.016
Endrin	None detected	.009
Endrin Aldehyde	None Detected	.023
Heptachlor	None Detected	.002
Heptachlor Epoxide	None Detected	.004
Chlordane	None Detected	.04
Toxaphene	None Detected	.40

LAB # 2518BY E. P. Douglas  
CHEMIST



3.04-08/12/82

PESTICIDES/PCB's (Continued) DETECTION LIMITS µg/

Aroclor 1016	None Detected	.04
Aroclor 1221	None Detected	.10
Aroclor 1232	None Detected	.10
Aroclor 1242	None Detected	.06
Aroclor 1248	None Detected	.08
Aroclor 1254	None Detected	.08
Aroclor 1260	None Detected	.15
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	None Detected	.003

	<u>METALS</u>	<u>DETECTION LIMITS mg/</u>
Antimony	0.2 mg/l	0.2
Arsenic	<0.002 mg/l	0.002
Beryllium	<0.005 mg/l	0.005
Cadmium	0.006 mg/l	0.002
Chromium	<0.02 mg/l	0.02
Copper	<0.01 mg/l	0.01
Lead	<0.005 mg/l	0.005
Mercury	<0.002 mg/l	0.002
Nickel	<0.02 mg/l	0.02
Selenium	0.008 mg/l	0.002
Silver	<0.01 mg/l	0.01
Thallium	<0.1 mg/l	0.1
Zinc	0.005 mg/l	0.005

	<u>MISCELLANEOUS</u>	
Total Cyanides	None Detected	0.01
Asbestos (fibrous)	None Detected	
Total Phenols	None Detected	0.005

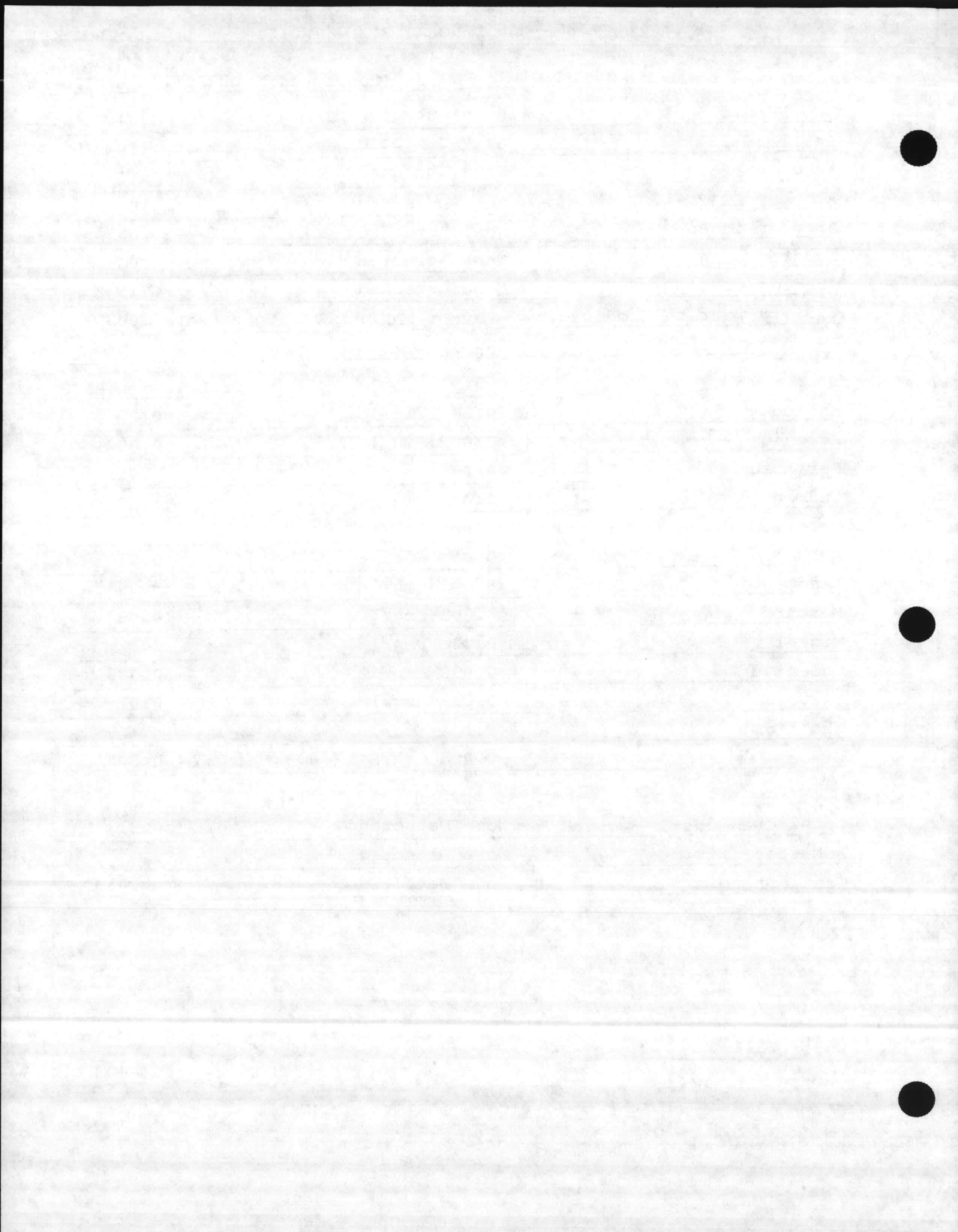
LAB# 2518

BY

E. P. Conlon

CHEMIST





(804) 444-9566

114:JGW:mbe  
6280

19 AUG 1982

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

Subj: MCB CAMP LEJEUNE Water Analyses

Ref: (a) FONECON NAVENENVSA (Mr. J. Anderson)/LANTNAVFACENGCOM  
(Mr. J. Wallmeyer) of 18 June 1982  
(b) LANTNAVFACENGCOM ltr 31 Jul 1981 (NOTAL)

Encl: (1) Jennings Laboratories, Inc., Analyses Nos. 1182-1184, 1189  
(2) Jennings Laboratories, Inc., Analyses Nos. 1364-1367  
(3) Jennings Laboratories, Inc., Analyses Nos. 1421-1424  
(4) Jennings Laboratories, Inc., Analyses Nos. 1186-1188  
(5) Data Tabulation, 18 March 1982 sampling

1. Enclosures (1) through (3) are forwarded as a record of LANTNAVFACENGCOM contractor's analyses of Rifle Range Area well water and finished water. These repetitive analyses were performed because of enclosure (1), analysis No. 1189, determination that there was 1.0 ppm Polychlorinated Biphenyls (PCB) (= 1000 ppb PCB) in the finished water at Bldg. RR-85.

2. Enclosure (2) results indicate no PCB contamination while enclosure (3) results indicate 0.11 ppm PCB at well RR-45.

3. For enclosure (3) samples, the samples were split for analysis by both NAVENENVSA and Jennings Laboratories, Inc. The NAVENENVSA analyses indicated no PCB in the groundwater or finished water as communicated by reference (a).

4. Based on LANTNAVFACENGCOM's investigation of contractor's quality assurance/quality control, LANTNAVFACENGCOM believes the NAVENENVSA results and contractor's results in enclosure (2) to be valid and representative for the finished drinking water and supply system wells. In accordance with reference (b) findings, no significant contamination of the potable water was detected. LANTNAVFACENGCOM believes PCB reported in finished water to be in error. For other organic contaminants detected, LANTNAVFACENGCOM continues to recommend preferential utilization of wells No. 45 and No. 47 over well No. 97.

5. Enclosure (1), analysis No. 1182, provides a summary of total trihalomethane (THM) analyses. The sampling points are indicated in enclosure (1), Figure 1. The THM results are not in accordance with previous Army Laboratory analyses and subsequent Grainger Laboratory analyses. The Army and Grainger analyses are believed to be representative.

WALLMEYER  
Eppes  
8/10/82  
nrs





114:JGW:mbe  
6280

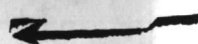
6. Enclosure (4) is the results of sampling and analysis at the Rifle Range Dump Area test wells. For ease of data review, results of the 18 March 1982 analyses are tabulated in enclosure (5).

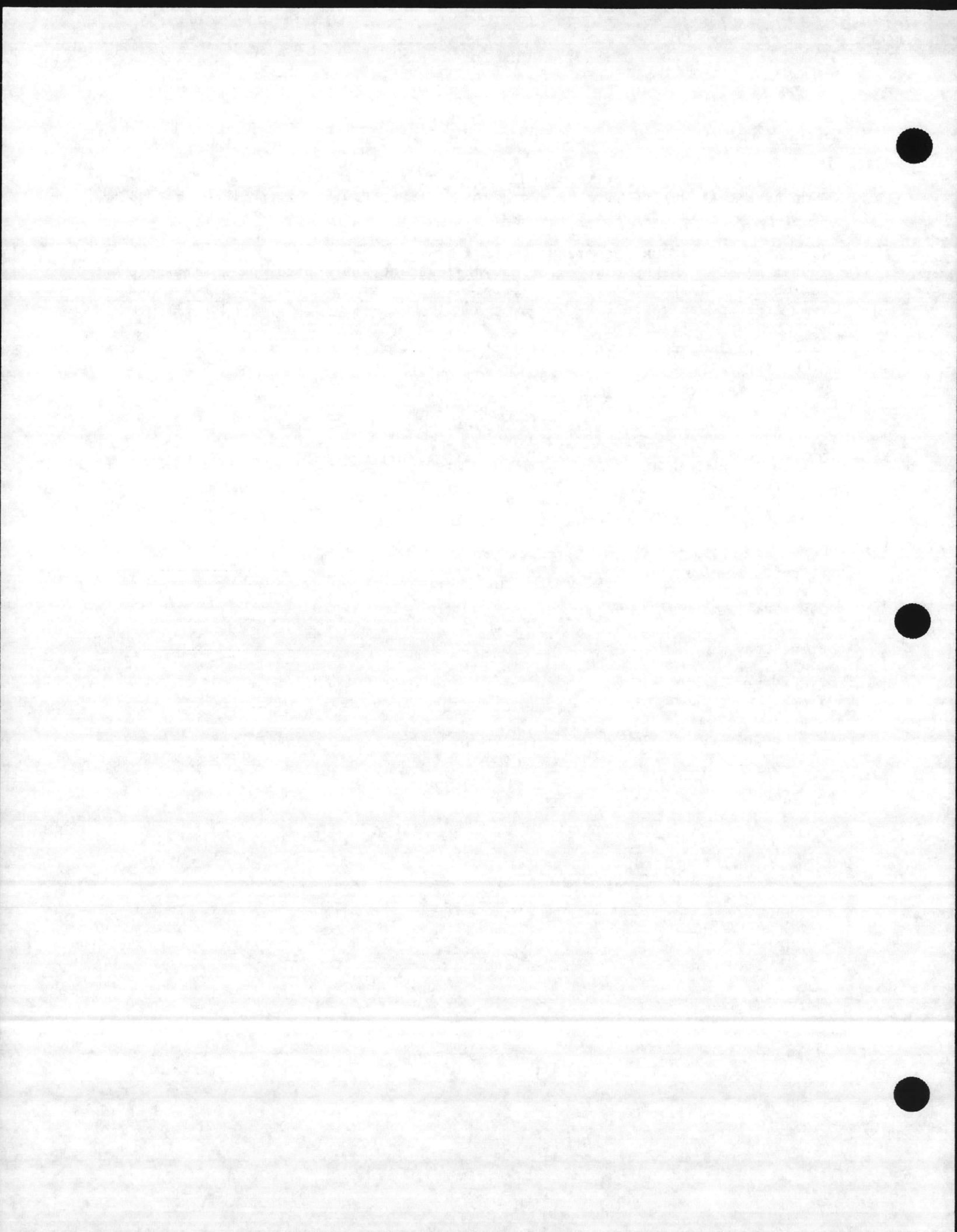
7. LANTNAVFACENGCOM recommends continued annual analysis of Rifle Range water system by MCB CAMP LEJEUNE. The Navy Assessment and Control of Installation Pollutants (NACIP) Program is in progress and will continue the Rifle Range Dump Area investigation.

8. LANTNAVFACENGCOM point of contact is Mr. Jerry Wallmeyer at (804) 444-9566 or A/V 690-9566.

J. R. BAILEY, P.E.  
By direction

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

Blind Copy to:  
114  
1142   
114S  
09BS (w/o encl)  
Doc. #0004U



# JENNINGS LABORATORIES, INC.

ANALYTICAL AND CONSULTING CHEMISTS

Doc No.: CLET-  
00373-304-  
08/19/82

1118 CYPRESS AVENUE • P. O. BOX 851 • VIRGINIA BEACH, VA. 23451 • PHONE (804) 425-1498

(EPA) CERTIFIED LABORATORY for  
Drinking Water Analysis - Microbiological,  
Inorganic and Organic

Official Referee Chemists for:  
AMERICAN OIL CHEMISTS SOCIETY  
NATIONAL SOYBEAN  
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Laboratory Certified by VA. STATE WATER  
CONTROL BOARD for Analysis of  
Effluents for NPDES PERMITS  
CERTIFIED OFFICIAL U.S.D.A. LABORATORY  
FOR MEAT ANALYSIS

ASBESTOS ANALYSIS - NIOSH 582

## CERTIFICATE OF ANALYSIS

Mr. Dave Goodwin  
Building N-23 Atlantic Division  
Naval Facilities Engineering Command  
Norfolk, Virginia 23511

DATE: March 30, 1982

WATER SAMPLE

RR-97 collected 3/18/82 MCB CAMP LEJEUNE

Sample delivered to laboratory 3/20/82 by Mr. Wallmeyer

SPECIAL SAMPLE BY:

PRIMARY POLLUTANTS	PURGEABLE ORGANICS	DETECTION LIMITS $\mu\text{g}/\text{l}$
Protein	None Detected	2.0
Acrylonitrile	None Detected	2.0
Chloroform	None Detected	10.0
Carbon tetrachloride	10.0 ppb	10.0
Toluene	None Detected	10.0
Carbon Tetrachloride	None Detected	.007
Benzene	None Detected	.03
1,1-Dichloroethane	None Detected	.006
1,1,1-Trichloroethane	None Detected	.005
1,1-Dichloroethane	20.0 ppb	.004
1,1-Dichloroethylene	None Detected	.006
1,1,2-Trichloroethane	None Detected	.006
1,1,2,2-Tetrachloroethane	None Detected	.006
Chloroethane	None Detected	.01
Chloroethyl vinyl ether	None Detected	.08

Respectfully submitted,  
JENNINGS LABORATORIES, INC.

*[Signature]*  
CHEMIST

Laboratory Analysis No. 1183  
\$650.00

Enclosure ( /





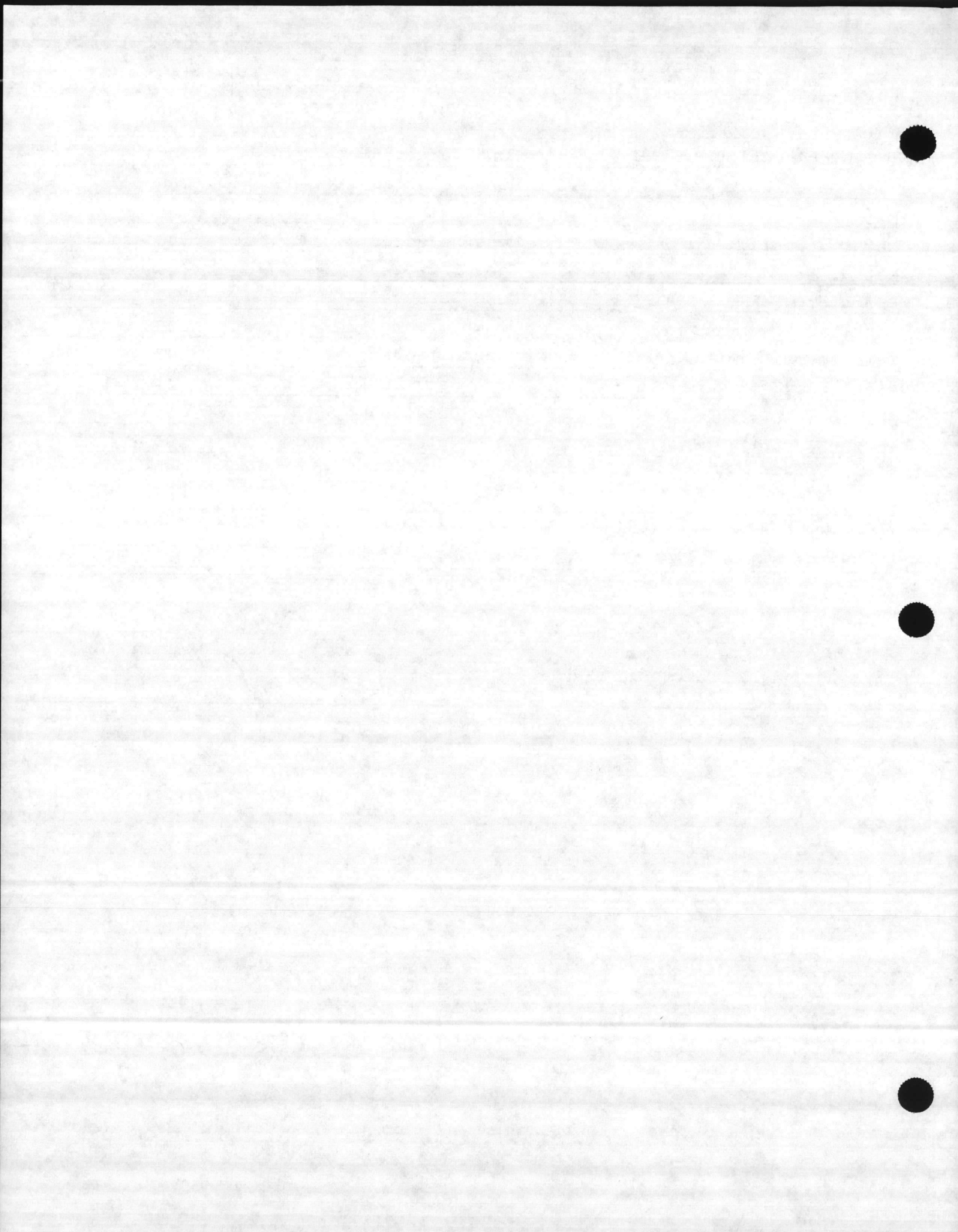
PRIORITY POLLUTANTS	PURGEABLE ORGANICS (continued)	DETECTION LIMITS	µg/l
Chloroform	None Detected	.010	
1,2-Dichloropropane	None Detected	.004	
1,3-Dichloropropane	None Detected	.004	
Methylene Chloride	4.64 ppb	.010	
Methyl Chloride	None Detected	.009	
Methyl Bromide	None Detected	.03	
Bromoform	None Detected	.02	
Dichlorobromomethane	None Detected	.006	
Trichlorofluoromethane	None Detected	.03	
Dichlorodifluoromethane	None Detected	.01	
Chlorodibromomethane	None Detected	.01	
Tetrachloroethylene	None Detected	.007	
Trichloroethylene	None Detected	.005	
Vinyl Chloride	None Detected	.01	
1,2-trans-Dichloroethylene	None Detected	.006	
bis(chloromethyl) ether	None Detected	.003	

LABORATORY  
ANALYSIS NO. 1183

PAGE -2-

BY

  
Chemist





PRIORITY POLLUTANTS

Doc. No. 8 CWT-00373-  
304-08/19/82

PESTICIDES/PCB'S

1-Endosulfan	None Detected	.005
2-Endosulfan	None Detected	.01
Endosulfan Sulfate	None Detected	.03
1-BHC	None Detected	.002
2-BHC	None Detected	.004
3-BHC	None Detected	.004
γ-BHC	None Detected	.002
Aldrin	None Detected	.003
Dieldrin	None Detected	.006
4,4'-DDE	None Detected	.006
4,4'-DDD	None Detected	.012
4,4'-DDT	None Detected	.010
Endrin	None Detected	.009
Endrin Aldehyde	None Detected	.023
Heptachlor	None Detected	.002
Heptachlor Epoxide	None Detected	.004
Chlordane	None Detected	.04
Toxaphene	None detected	.40
Aroclor 1016	None Detected	.04
Aroclor 1221	None Detected	.10
Aroclor 1242	None Detected	.10
Aroclor 1242	None Detected	.06
Aroclor 1248	None Detected	.08
Aroclor 1254	None Detected	.08
Aroclor 1260	None Detected	.15
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	None Detected	.003

LABORATORY  
ANALYSIS NO. 1183

PAGE -3-

BY

*W.H. Cunningham*  
CHEMIST



1118 CYPRESS AVENUE • P. O. BOX 851 • VIRGINIA BEACH, VA. 23451 • PHONE (804) 425-1498

(EPA) CERTIFIED LABORATORY for  
 Drinking Water Analysis - Microbiological,  
 Inorganic and Organic

AS - STOS ANALYSIS - NIOSH 582

Official Referee Chemists for:  
 AMERICAN OIL CHEMISTS SOCIETY

NATIONAL SOYBEAN  
 PROCESSORS ASSOCIATION

Laboratory Certified by VA. STATE WATER  
 CONTROL BOARD for Analysis of  
 Effluents for NPDES PERMITS  
 CERTIFIED OFFICIAL U.S.D.A. LABORATORY  
 FOR MEAT ANALYSIS

CERTIFICATE OF ANALYSIS

Mr. Dave Goodwin  
 Building N-23 Atlantic Division  
 Naval Facilities Engineering Command  
 Norfolk, Virginia 23511

DATE: March 29, 1982

SAMPLE OF WATER SAMPLE

DATE Collected 3/18/82 RR-45 MCB CAMP LEJEUNE

Sample delivered to laboratory by Mr. Wallmeyer 3/20/82

OFFICIAL SAMPLE BY:

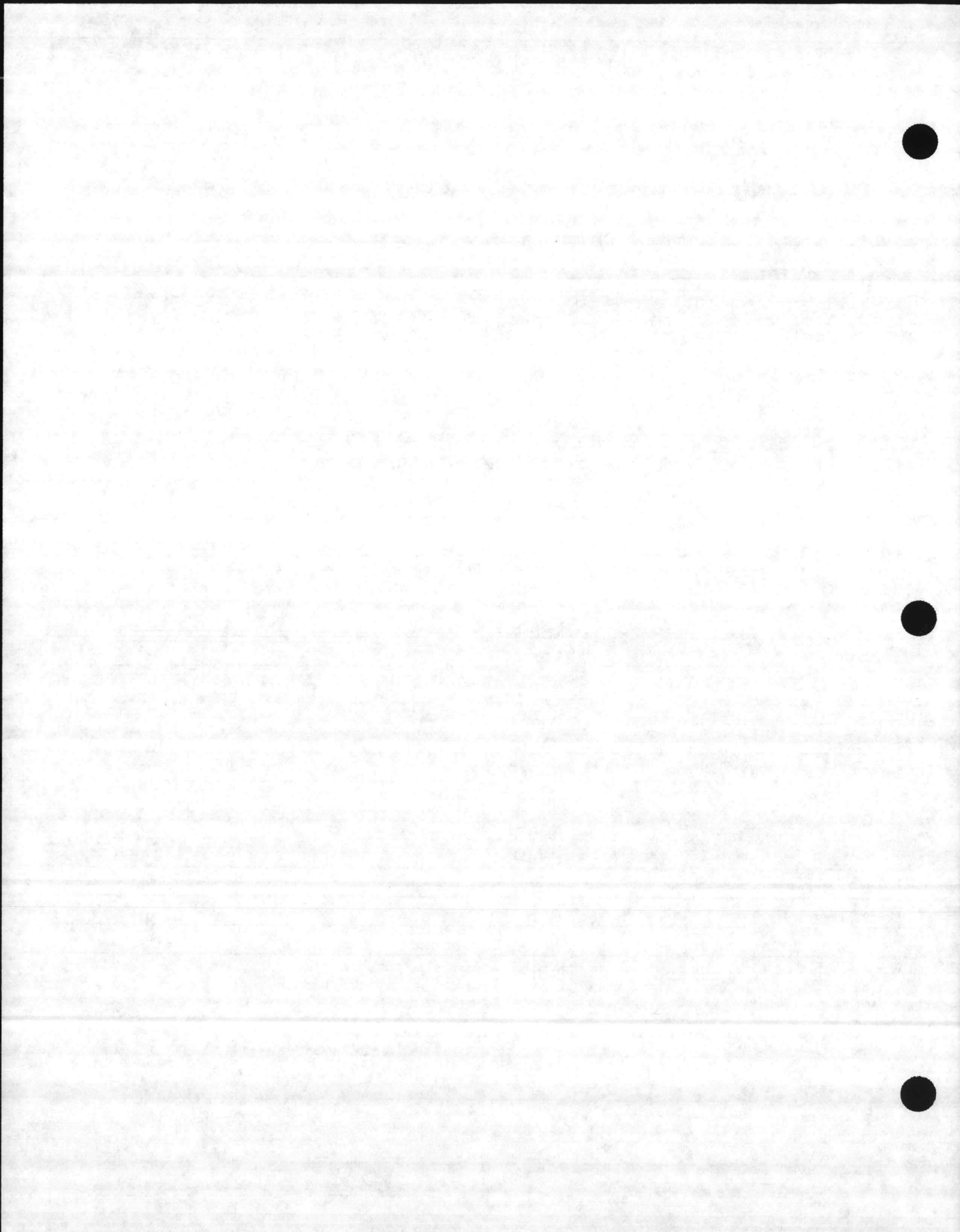
PRIORITY POLLUTANTS	PURGEABLE ORGANICS	DETECTION LIMITS	µg/l
Chloroform	None Detected	2.0	
Acrylonitrile	None Detected	2.0	
Benzene	None Detected	10.0	
Toluene	None Detected	10.0	
Ethylbenzene	None Detected	10.0	
Carbon Tetrachloride	None Detected	.007	
Bromobenzene	None Detected	.03	
1,2-Dichloroethane	None Detected	.006	
1,1,1-Trichloroethane	None Detected	.005	
1,1-Dichloroethane	None Detected	.004	
1,1-Dichloroethylene	None Detected	.006	
1,1,2-Trichloroethane	None Detected	.006	
1,1,2,2-Tetrachloroethane	None Detected	.006	
Chloroethane	None Detected	.01	
Chloroethyl vinyl ether	None Detected	.08	

Respectfully submitted,  
 JENNINGS LABORATORIES, INC.

Laboratory  
 Analysis No 1184

*W.A. Jennings*  
 CHEMIST





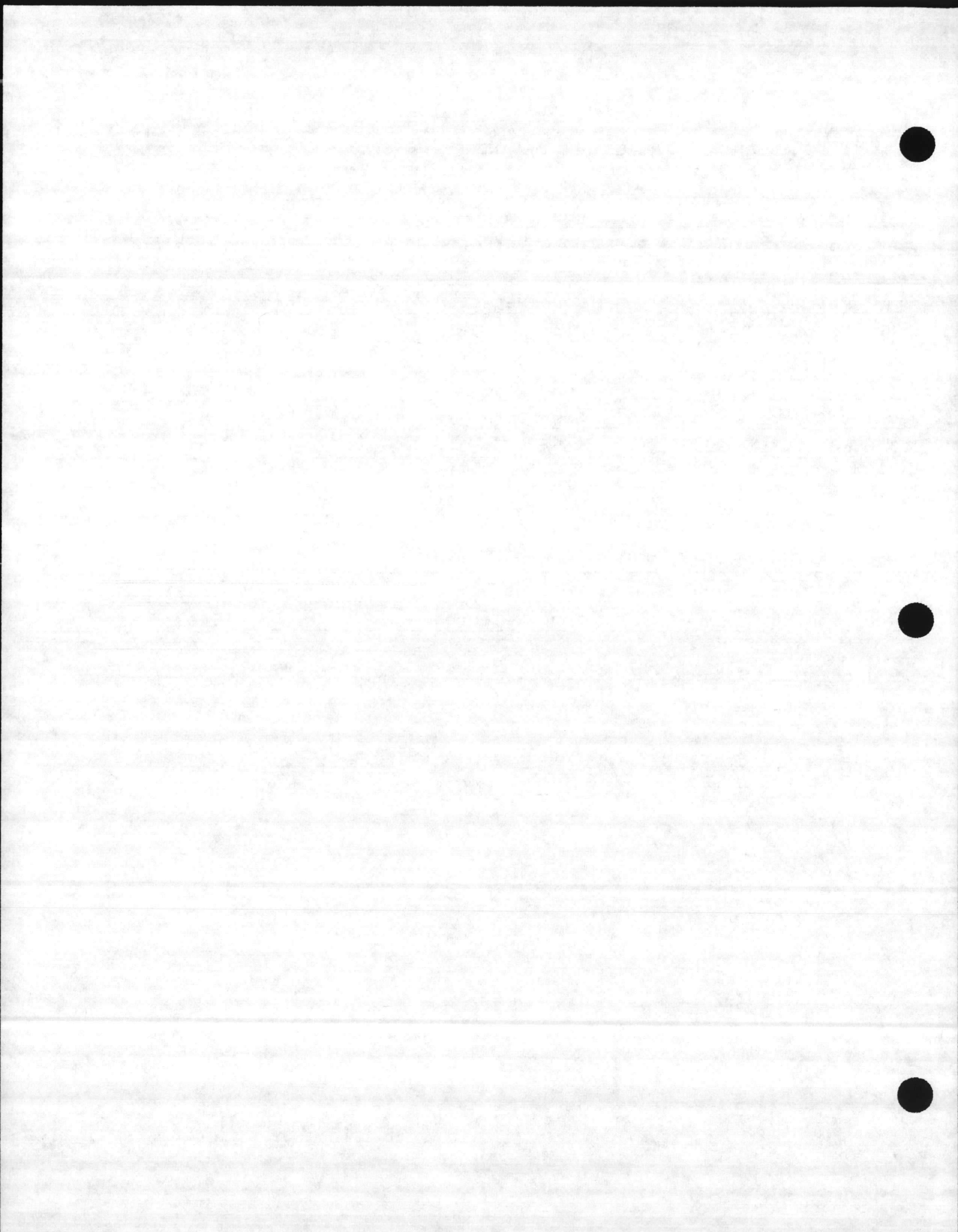
JENNINGS LABORATORIES, INC.

CHLORINATED POLLUTANTS	PURGEABLE ORGANICS (continued)	DETECTION LIMITS $\mu\text{g/l}$
Chloroform	None Detected	.010
1,2-Dichloropropane	None Detected	.004
1,3-Dichloropropane	None Detected	.006
Methylene Chloride	.14 ppb	.010
Methyl Chloride	None Detected	.009
Methyl Bromide	None Detected	.03
Bromoform	None Detected	.02
Dichlorobromomethane	None Detected	.006
Trichlorofluoromethane	None Detected	.03
Dichlorodifluoromethane	None Detected	.01
Chlorodibromomethane	None Detected	.01
Tetrachloroethylene	None Detected	.007
Trichloroethylene	None Detected	.005
Vinyl Chloride	None Detected	.01
1,2-trans-Dichloroethylene	None Detected	.006
(chloromethyl) ether	None Detected	.003

LABORATORY  
ANALYSIS NO. 1184  
\$400.00

PAGE -2-

BY W.H. Jennings  
Chemist





# JENNINGS LABORATORIES, INC. Doc No.: CCEJ-00373-3.04

ANALYTICAL AND CONSULTING CHEMISTS

1118 CYPRESS AVENUE • P. O. BOX 851 • VIRGINIA BEACH, VA. 23451 • PHONE (804) 425-1498 08/19/82

• (FPA) CERTIFIED LABORATORY for  
Drinking Water Analysis - Microbiological,  
Inorganic and Organic

ASBESTOS ANALYSIS - NIOSH 592

Official Referee Chemists for:  
AMERICAN OIL CHEMISTS SOCIETY  
NATIONAL SOYBEAN  
PROCESSORS ASSOCIATION

Laboratory Certified by VA. STATE WATER  
CONTROL Board for Analysis of  
Effluents for DISCHARGE PERMITS  
CERTIFIED OFFICIAL U.S.D.A. LABORATORY  
FOR MEAT ANALYSIS

## CERTIFICATE OF ANALYSIS

• Mr. Dave Goodwin  
Building N-23 Atlantic Division  
Naval Facilities Engineering Command  
Norfolk, Virginia 23511

DATE: March 29, 1982

SAMPLE OF WATER SAMPLE

MARKED RR-47 Collected 3/18/82 MCB CAMP LEJEUNE

Sample delivered to laboratory by Mr. Wallmeyer 3/20/82 AM

OFFICIAL SAMPLE BY: \_\_\_\_\_

HEAVY POLLUTANTS	PURGEABLE ORGANICS	DETECTION LIMITS $\mu\text{g/l}$
Protein	None Detected	2.0
Acrylonitrile	None Detected	2.0
Benzene	None Detected	10.0
Toluene	None Detected	10.0
Ethylbenzene	None Detected	10.0
Carbon Tetrachloride	None Detected	.007
Chlorobenzene	None Detected	.03
1,2-Dichloroethane	None Detected	.006
1,1,1-Trichloroethane	None Detected	.005
1,1-Dichloroethane	None Detected	.004
1,1-Dichloroethylene	None Detected	.006
1,1,2-Trichloroethane	None Detected	.006
1,1,2,2-Tetrachloroethane	None Detected	.006
Chloroethane	None Detected	.01
1-Chloroethyl vinyl ether	None Detected	.08

Respectfully submitted,  
JENNINGS LABORATORIES, INC.

Laboratory  
Analysis No. 1185

*W. H. Jennings*  
CHEMIST



JENNINGS LABORATORIES, INC.

PRIORITY POLLUTANTS	PURGEABLE ORGANICS (continued)	DETECTION LIMITS ug/l
Chloroform	None Detected	.010
1,2-Dichloropropane	None Detected	.004
1,3-Dichloropropane	None Detected	.006
Methylene Chloride	None Detected	.010
Methyl Chloride	None Detected	.009
Methyl Bromide	None Detected	.03
Bromoform	None Detected	.02
Dichlorobromomethane	None Detected	.006
Trichlorofluoromethane	None Detected	.03
Dichlorodifluoromethane	None Detected	.01
Chlorodibromomethane	None Detected	.01
Tetrachloroethylene	None Detected	.007
Trichloroethylene	None Detected	.005
Vinyl Chloride	None Detected	.01
1,2-trans-Dichloroethylene	None Detected	.006
(chloromethyl) ether	None Detected	.003

LABORATORY ANALYSIS NO. 1185  
 \$400.00

PAGE -2-

BY W. H. Jennings  
 Chemist





VA (EPA) CERTIFIED LABORATORY for  
Drinking Water Analysis - Microbiological,  
Inorganic and Organic

Official Referee Chemists for:  
AMERICAN OIL CHEMISTS SOCIETY  
NATIONAL SOYBEAN  
PROCESSORS ASSOCIATION

Laboratory Certified by VA. STATE WATER  
CONTROL BOARD for Analysis of  
Effluents for NPDES PERMITS  
CERTIFIED OFFICIAL U.S.D.A. LABORATORY  
FOR MEAT ANALYSIS

ASBESTOS ANALYSIS - NIOSH 582

### CERTIFICATE OF ANALYSIS

Mr. Dave Goodwin  
Building N-23 Atlantic Division  
Naval Facilities Engineering Command  
Norfolk, Virginia 23511

DATE: March 30, 1982

NAME OF WATER SAMPLE

RR-85 #6 collected 3/18/82 MCB CAMP LEJEUNE

Sample delivered to laboratory 3/20/82 by Mr. Wallmeyer

SPECIAL SAMPLE BY:

PRIORITY POLLUTANTS	PURGEABLE ORGANICS	DETECTION LIMITS µg/l
Chloroform	None Detected	2.0
Acetonitrile	None Detected	2.0
Benzene	None Detected	10.0
Toluene	None Detected	10.0
Xylenes	None Detected	10.0
Carbon Tetrachloride	None Detected	.007
Chlorobenzene	None Detected	.03
1,1-Dichloroethane	None Detected	.006
1,1,1-Trichloroethane	None Detected	.005
1,2-Dichloroethane	None Detected	.004
1,2-Dichlorobenzene	None Detected	.006
1,1,2-Trichloroethane	None Detected	.006
1,1,2,2-Tetrachloroethane	None Detected	.006
Chloroethane	None Detected	.01
Chloroethyl vinyl ether	None Detected	.08

Respectfully submitted,  
JENNINGS LABORATORIES, INC.

Laboratory  
Analysis No. 1189  
\$2,000.00

  
CHEMIST

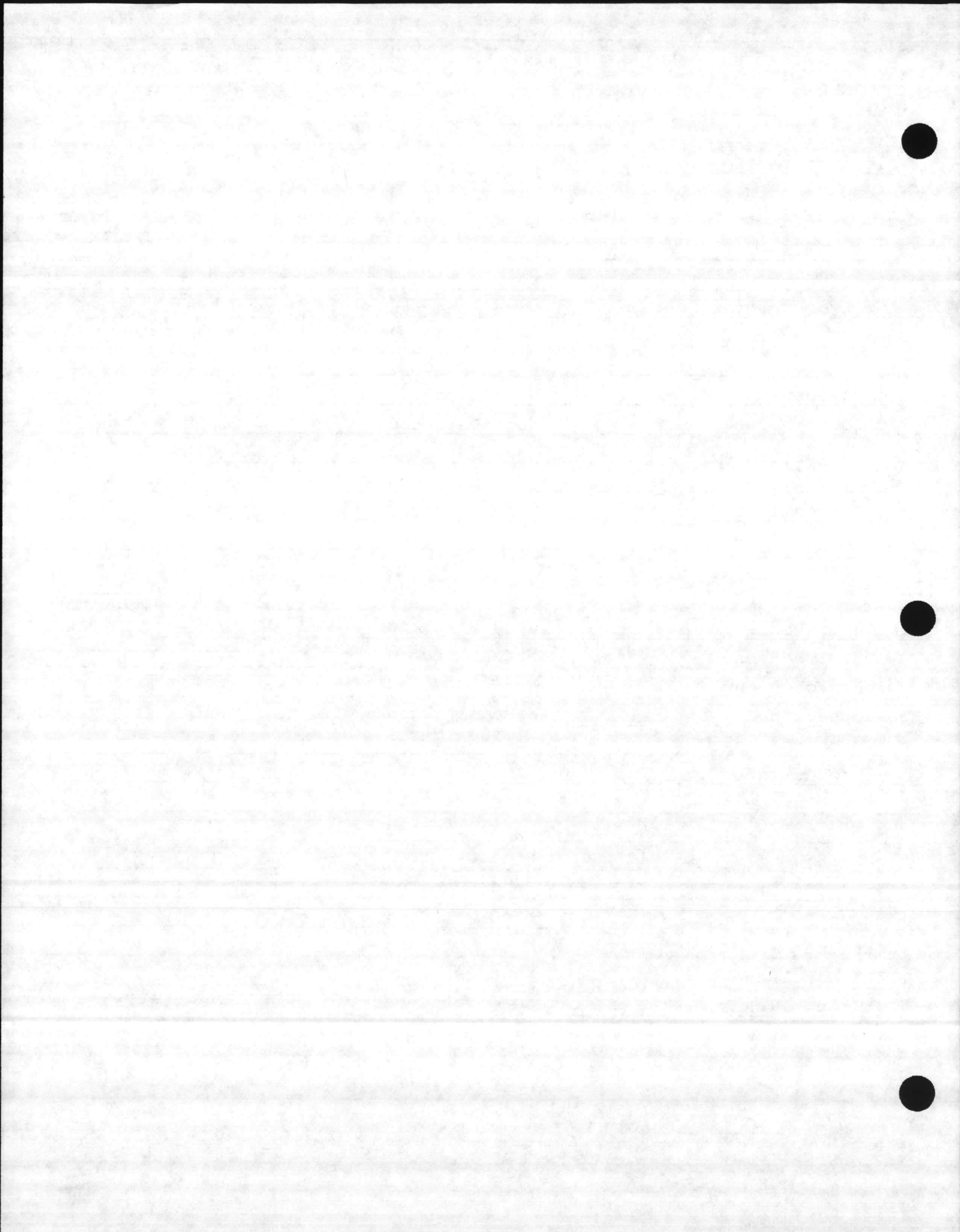




PRIORITY POLLUTANTS	PURGEABLE ORGANICS (continued)	DETECTION LIMITS	µg/l
Chloroform	None Detected	.010	08/19/82
Dichloropropane	None Detected	.004	
1,3-Dichloropropane	None Detected	.006	
Methylene Chloride	None Detected	.010	
Methyl Chloride	None Detected	.009	
Methyl Bromide	None Detected	.03	
Bromoform	None Detected	.02	
Dichlorobromomethane	None Detected	.006	
Trichlorofluoromethane	None Detected	.03	
Dichlorodifluoromethane	None Detected	.01	
Chlorodibromomethane	None Detected	.01	
Tetrachloroethylene	None Detected	.007	
Trichloroethylene	None Detected	.005	
Vinyl Chloride	None Detected	.01	
1,2-trans-Dichloroethylene	None Detected	.006	
Bis(chloromethyl) ether	None Detected	.003	

## BASE/NEUTRAL EXTRACTABLE ORGANIC COMPOUNDS

Dichlorobenzene	None Detected	.04	
1,3-Dichlorobenzene	None Detected	.04	
1,4-Dichlorobenzene	None Detected	.04	
Hexachloroethane	None Detected	.001	
Hexachlorobutadiene	None Detected	.001	
Hexachlorobenzene	None Detected	.002	
1,2,4-Trichlorobenzene	None Detected	.006	
Bis(2-Chloroethoxy)methane	None Detected	.40	
Naphthalene	None Detected	.04	
1-Chloronaphthalene	None Detected	.04	
Asophorone	None Detected	5.0	
Nitrobenzene	None Detected	5.0	
2,4-Dinitrotoluene	None Detected	.06	
2,6-Dinitrotoluene	None Detected	.06	

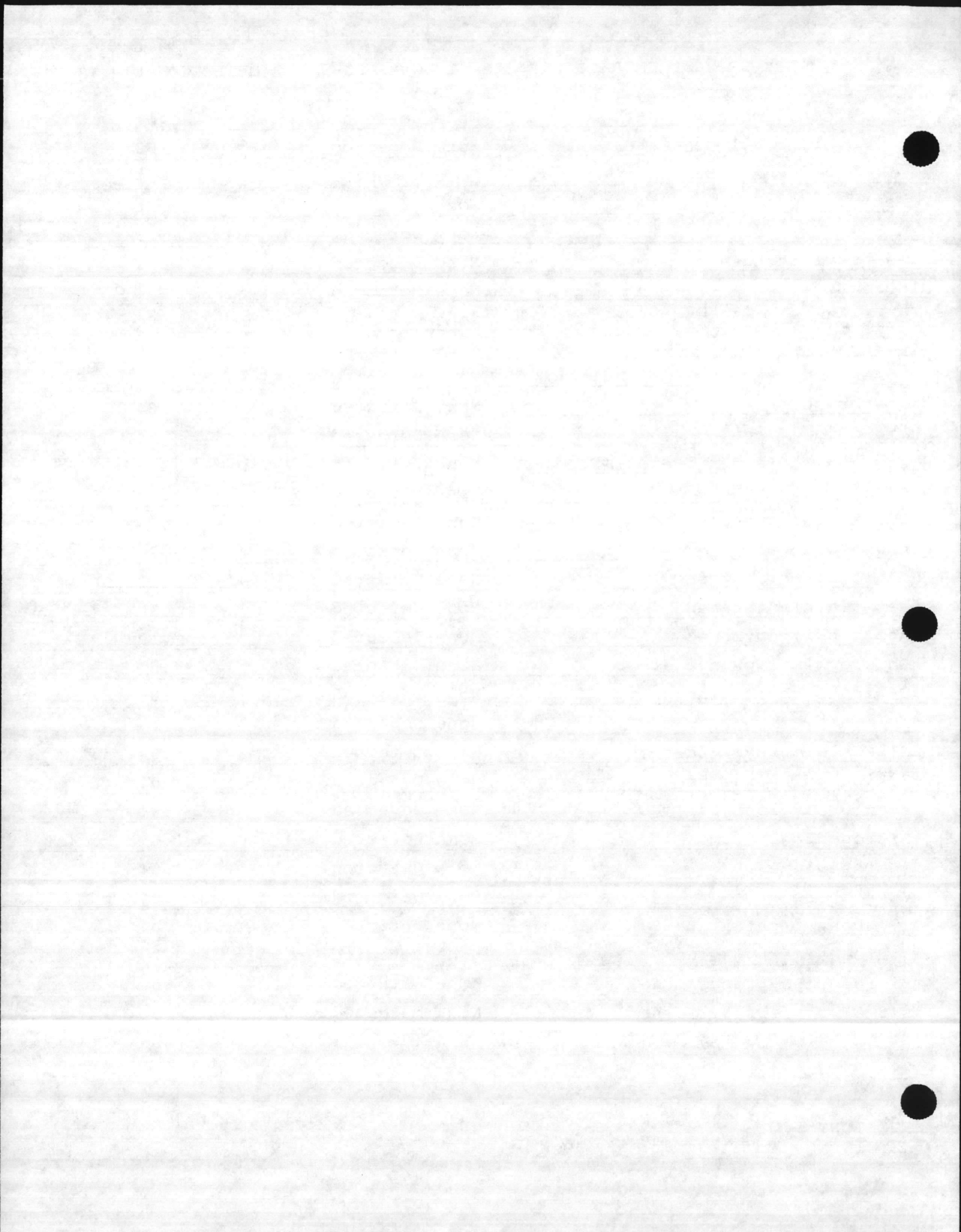


## BASE NEUTRAL EXTRACTABLE ORGANIC COMPOUNDS

08/19/82  
DETECTION LIMITS µg/l

4-Bromophenyl phenyl ether	None Detected	1.1
Bis(2-Ethylhexyl) phthalate	None Detected	.02
Di-n-octyl phthalate	None Detected	.11
Dimethyl phthalate	None Detected	.11
Diethyl phthalate	None Detected	.13
Di-n-butyl phthalate	None Detected	.02
Fluorene	None Detected	.04
Fluoranthene	None Detected	.04
Fluorene	None Detected	.04
Pyrene	None Detected	.04
Phenanthrene	None Detected	.04
Anthracene	None Detected	.04
Benzo(a) anthracene	None Detected	.04
Benzo(b) fluoranthene	None Detected	.04
Benzo(k) fluoranthene	None Detected	.04
Benzo(a) pyrene	None detected	.04
Indeno(1,2,3-c,d) pyrene	None Detected	.10
Dibenzo(a,h) anthracene	None Detected	.10
Benzo(a,h,i) perylene	None Detected	.10
1-Chlorophenyl phenyl ether	None Detected	2.2
3,3-Dichlorobenzidine	None Detected	.04
Benzidine	None Detected	.04
Bis(2-Chloroethyl) ether	None Detected	.04
1,2-Diphenylhydrazine	None Detected	.04
Hexachlorocyclopentadiene	None Detected	.04
N-Nitrosodiphenylamine	None Detected	1.0
1-Naphthylene	None Detected	.04
1-Naphthene	None Detected	.04
n-Butyl benzyl phthalate	None Detected	.04
N-Nitrosodimethylamine	None Detected	.2
N-Nitrosodi-n-propylamine	None Detected	.5
Bis(2-Chloroisopropyl) ether	None Detected	.9





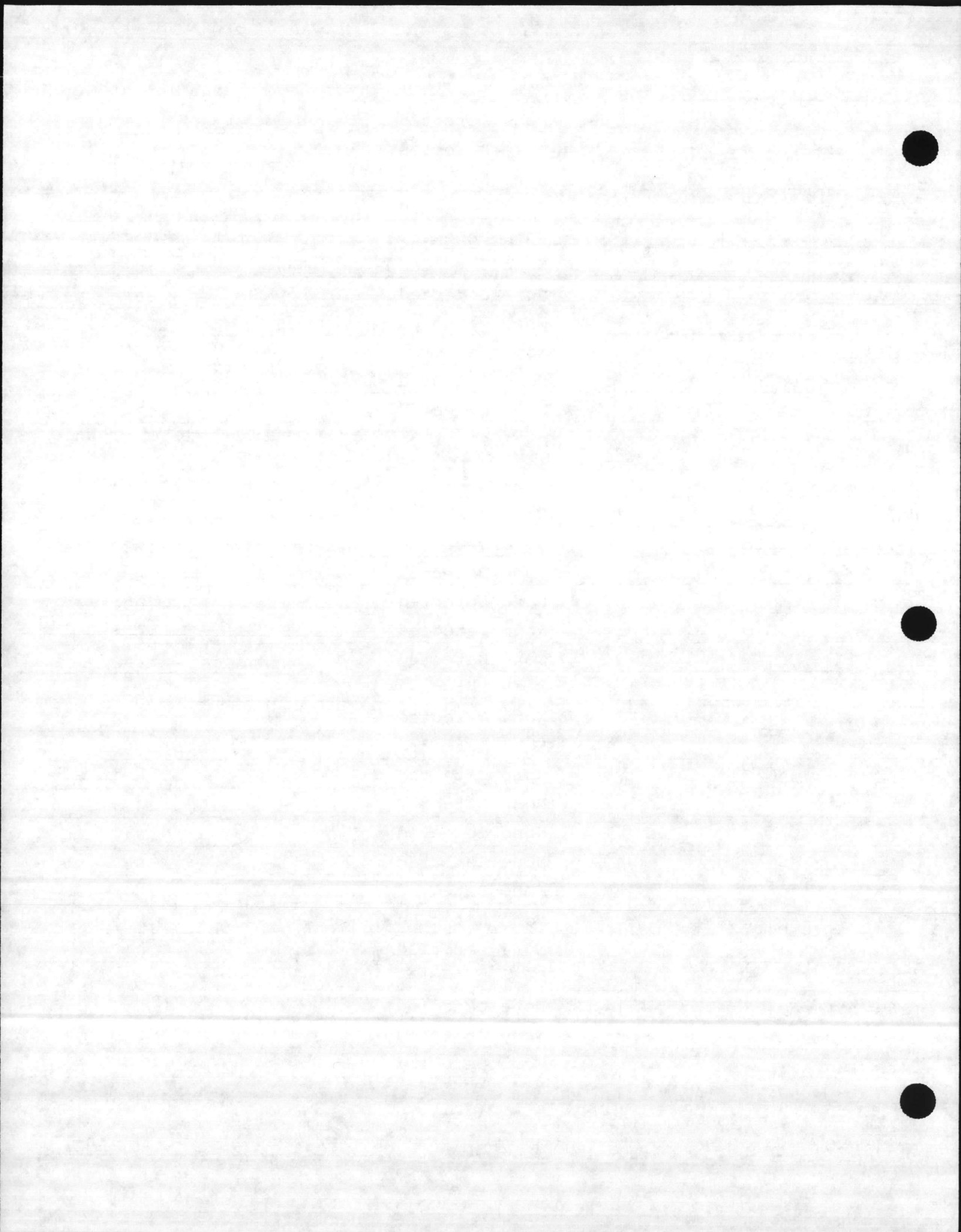
ACID EXTRACTABLE ORGANIC COMPOUNDS      DETECTION LIMIT µg/l

Phenol	None Detected	1.4
o-Cresol	None Detected	2.5
m-Nitrophenol	None Detected	2.5
p-4-Dinitrophenol	None Detected	7.0
2,6-Dinitro-o-cresol	None Detected	2.0
o-Orthachlorophenol	None Detected	10.0
m-Chloro-m-cresol	None Detected	.01
p-Chlorophenol	None Detected	2.0
p-4-Dichlorophenol	None Detected	2.1
2,4,6-Trichlorophenol	None Detected	5.0
p-4-Dimethylphenol	None Detected	1.7

PESTICIDES/PCB'S

Endosulfan	None Detected	.003
o-Endosulfan	None Detected	.01
Endosulfan Sulfate	None Detected	.03
o-BHC	None Detected	.002
m-BHC	None Detected	.004
p-BHC	None Detected	.004
o-BHC	None Detected	.002
o-Dieldrin	None Detected	.003
p-Dieldrin	None Detected	.006
p-4'-DDE	None Detected	.006
p-4'-DDD	None Detected	.012
p-4'-DDT	None Detected	.016
p-Dieldrin	None detected	.009
p-Dieldrin Aldehyde	None Detected	.023
o-Orthachlor	None Detected	.002
o-Orthachlor Epoxide	None Detected	.004
o-Orthane	None Detected	.04
o-Naphene	None Detected	.40
Color 1016	None Detected	.04
Color 1221	None Detected	.10
Color 1232	None Detected	.10

(continued)





PESTICIDES/PCB'S (Continued) DETECTION LIMIT µg/l

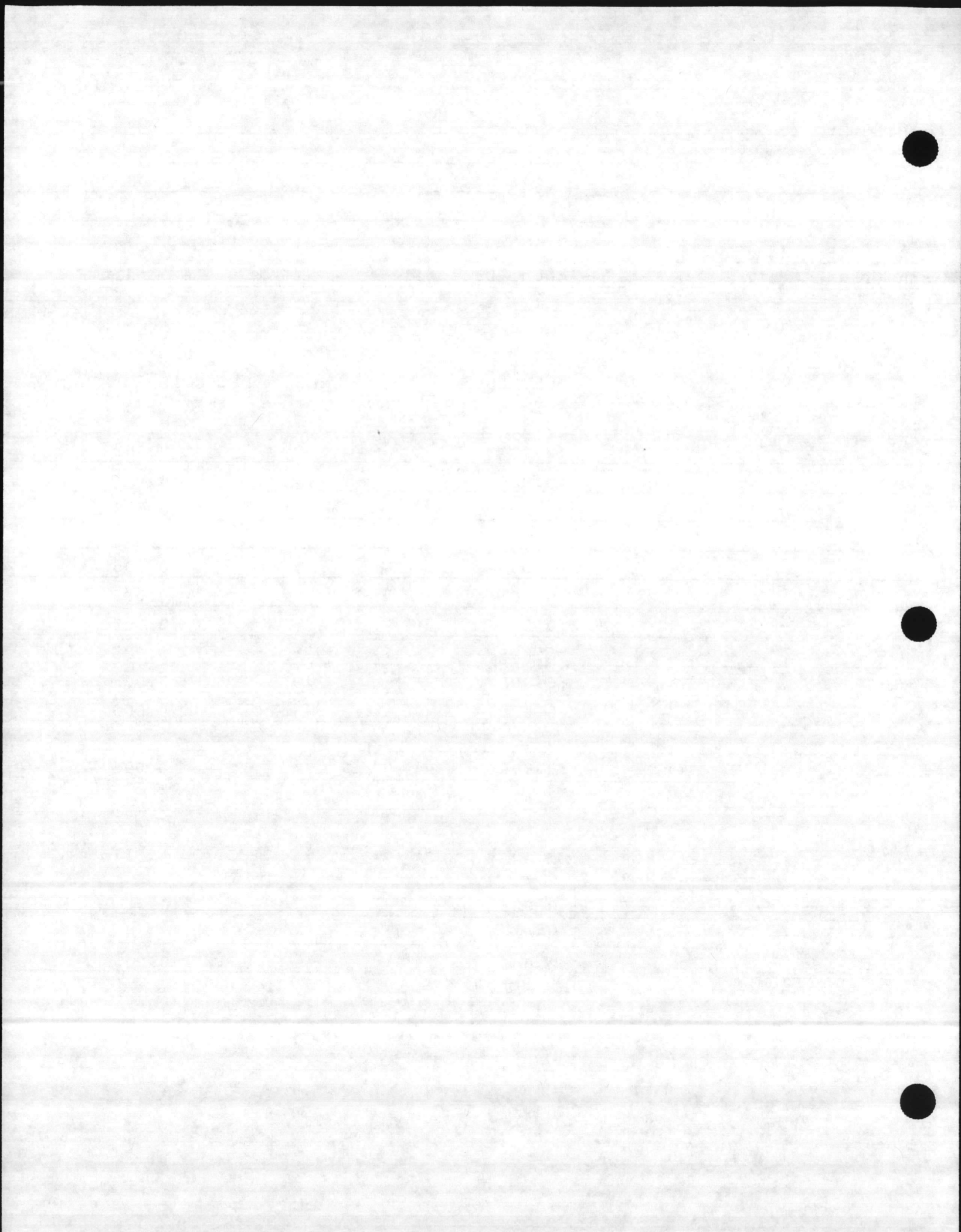
Color 1242	None Detected	.06
Color 1248	None Detected	.08
Color 1254	None detected	.08
Color 1260	1.0 ppm	.15
2,7,8-trachl rodibenzo-p- quin (TCDD)	None Detected	.003

METALS DETECTION LIMIT mg/l

Arseny	<0.2	0.2
Boric	<0.002	0.002
Bellium	<0.005	0.005
Bism	<0.005	0.005
Barium	<0.01	0.01
Copper	<0.005	0.005
Lead	<0.005	0.005
Mercury	<0.002	0.002
Nickel	<0.005	0.005
Selenium	<0.002	0.002
Silver	<0.005	0.005
Zinc	<0.10	0.1
Iron	<0.005	0.005
	7.65	

MISCELLANEOUS DETECTION LIMITS mg/l

Cyanides	<0.005	0.01
Asbestos (fibrou	None	
Al Phenols	<0.005	0.005



VA (EPA) CERTIFIED LABORATORY for  
Drinking Water Analysis - Microbiological,  
Inorganic and Organic

Official Referee Chemists for:  
AMERICAN OIL CHEMISTS SOCIETY  
NATIONAL SOYBEAN  
PROCESSORS ASSOCIATION

Laboratory Approved by VA. STATE WATER  
CONTROL BOARD for Analysis of  
Effluents for NPDES PERMITS  
CERTIFIED OFFICIAL U.S.D.A. LABORATORY  
FOR MEAT ANALYSIS

ASBESTOS ANALYSIS - NIOSH 582

CERTIFICATE OF ANALYSIS

Mr. Dave Goodwin  
Building N-23 Atlantic Division  
Naval Facilities Engineering Command  
Norfolk, Virginia 23511

DATE: March 29, 1982

SAMPLE OF WATER SAMPLES  
MARKED Duplicates from MCB Camp Lejeune Collected 3/18/82  
Delivered to laboratory by Mr. Wallmeyer 3/20/82 PM

OFFICIAL SAMPLE BY: \_\_\_\_\_

SAMPLE AS MARKED

TRIHALOMETHANES

RR-85	1-a	Chloroform	0.1 ppb
	1-b	None Detected	(<0.1 ppb)
RR-85	2-a	None Detected	(<0.1 ppb)
	2-b	None Detected	(<0.1 ppb)
RR-85	3-a	None Detected	(<0.1 ppb)
	3-b	None Detected	(<0.1 ppb)
RR-85	4-a	None Detected	(<0.1 ppb)
	4-b	None Detected	(<0.1 ppb)
RR-85	5-a	None Detected	(<0.1 ppb)
	5-b	None Detected	(<0.1 ppb)
RR	6-a	None Detected	(<0.1 ppb)
	6-b	None Detected	(<0.1 ppb)
RR	10-a	None Detected	(<0.1 ppb)
	10-b	None Detected	(<0.1 ppb)
RR	92-a	None Detected	(<0.1 ppb)
	92-b	None Detected	(<0.1 ppb)

Respectfully submitted,  
JENNINGS LABORATORIES, INC.

Laboratory Analysis No. 1182  
8 @ \$60 each \$480.00

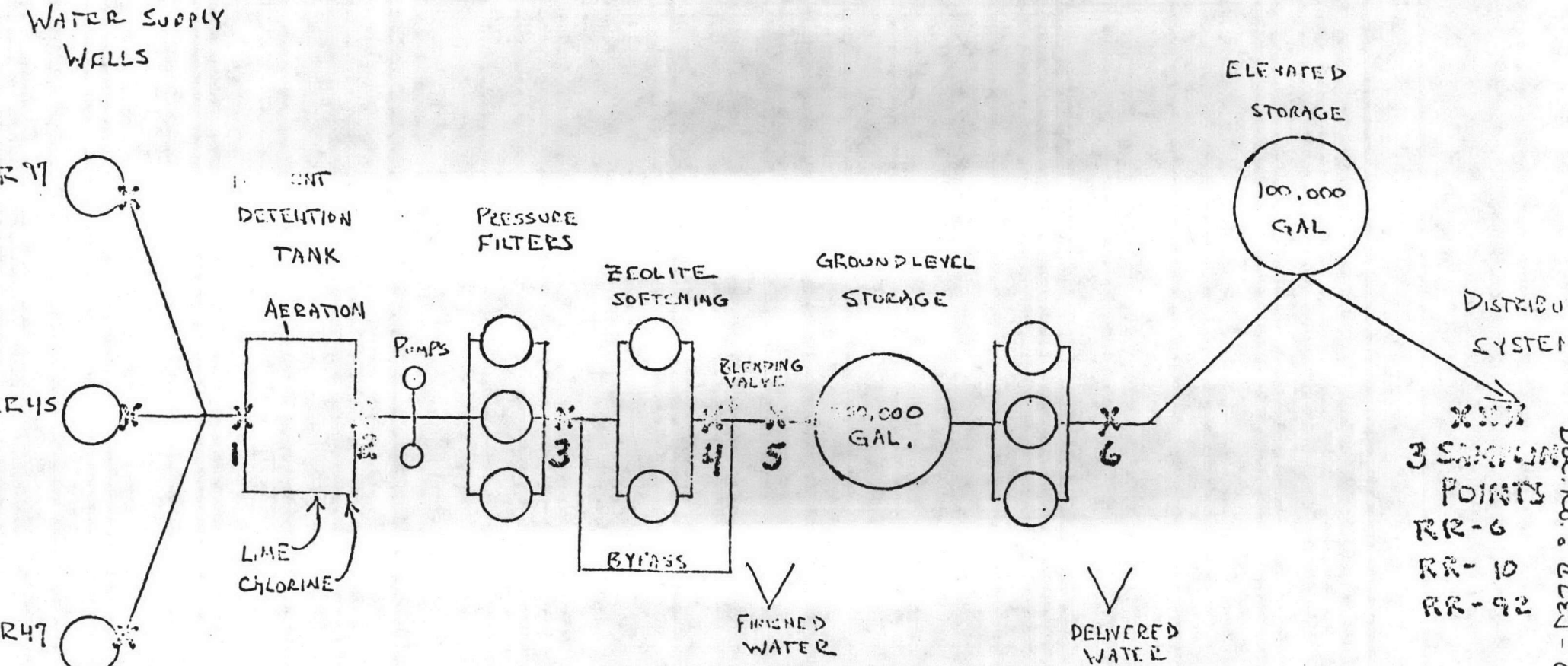
*[Signature]*  
CHEMIST





FIGURE 1  
RR-85 WTP MCB CAMP LEJEUNE

Q ≈ 200,000 GPD



Doc. No.: 4L45T-00373-3.04-08/19/82

ENCL





LABORATORY MULTIPLE PARAMETER WATER QUALITY ANALYSIS RECORD

NATIONAL ENVIRONMENTAL PROTECTION SUPPORT SERVICE  
 FORM-OF-143 (REV. 10-74)

UIC

SAMPLE IDENTIFICATION		
SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	SAMPLE STATION NUMBER
4/05/82	0-2470	

WATER MCBCL-RR=85 1016

JENNINGS LABORATORIES, INC.

PARAMETER DESCRIPTION	UNITS	DATA ELEMENT NUMBER	VALUE	PARAMETER DESCRIPTION	UNITS	DATA ELEMENT NUMBER	VALUE	
SOLIDS	TOTAL SUSPENDED SOLIDS (NON-FILTERABLE RESIDUE)	MG/L	00530	ALUMINUM, TOTAL	MG/L	01105		
	TOTAL SOLIDS (TOTAL SOLIDS 103-105°)	MG/L	00500	ARSENIC, TOTAL	MG/L	01002		
	DIFFICULT SOLIDS (SETTLABLE RESIDUE)	MG/L	00545	CADMIUM, TOTAL	MG/L	01027		
	TOTAL DISSOLVED SOLIDS (FILTERABLE RESIDUE)	MG/L	70300	CHROMIUM, TOTAL	MG/L	01034		
NUTRIENTS	NITRATE	MG/L	00510	COPPER, TOTAL	MG/L	01042		
	NITRITE	MG/L	00520	IRON, TOTAL	MG/L	01045		
	NITROGEN	MG/L	00615	LEAD, TOTAL	MG/L	01051		
	TOTAL PHOSPHORUS	MG/L	00625	MAGNESIUM, TOTAL	MG/L	00927		
	AMMONIA	MG/L	00660	MANGANESE, TOTAL	MG/L	01055		
	TOTAL PHOSPHORUS	MG/L	00678	MERCURY, TOTAL	MG/L	71900		
	SULFATE	MG/L	00945	POTASSIUM, TOTAL	MG/L	00937		
	CHLORIDE	MG/L	00403	SILVER, TOTAL	MG/L	01077		
	FLUORIDE	MG/L	00940	ZINC, TOTAL	MG/L	01092		
	NON-ATOMIC PARAMETERS	TOTAL COLIFORM	CFU/100ML	31503				
FECAL COLIFORM		CFU/100ML	31616					
TOTAL COLIFORM		CFU/100ML	31508					
FECAL COLIFORM		CFU/100ML	31620					
PCB		MG/L	70350	X ppm	None Detected (<0.01 ppm)			
		MG/L	32730					
		MG/L	38260					
		MG/L	00720					

April 16, 1982

11364 4/09/82



LABORATORY MULTIPLE PARAMETER WATER QUALITY ANALYSIS RECORD

NAT. ENVIRONMENTAL PROTECTION SUPPORT SERVICE  
1100-280-3310, 2 (REV. 10-74)

UIC

SAMPLE IDENTIFICATION		
SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	SAMPLE STATION NUMBER
MONTH:    DAY:    YEAR:	0.210	
4/05/82		

WATER MCBCL RR-47 1023

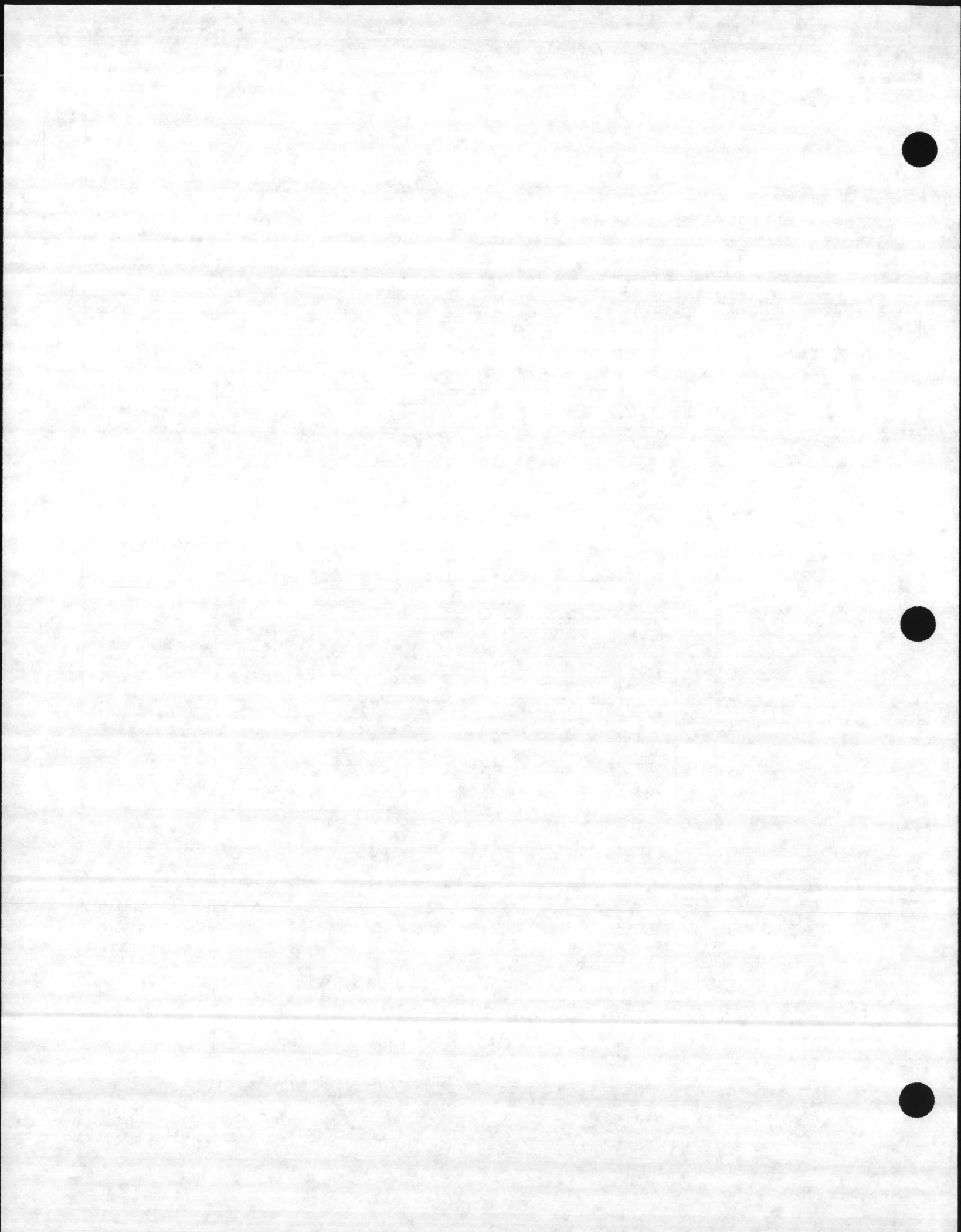
JENNINGS LABORATORIES, INC.

PARAMETER DESCRIPTION	UNITS	DATA ELEMENT NUMBER	VALUE	PARAMETER DESCRIPTION	UNITS	DATA ELEMENT NUMBER	VALUE	
SOLIDS	TOTAL SUSPENDED SOLIDS (NON-FILTERABLE RESIDUE)	MG/L	00530	ALUMINUM, TOTAL	MG/L	01105		HEAVY METALS
	TOTAL SOLIDS (TOTAL RESIDUE 105-105°)	MG/L	00500	ARSENIC, TOTAL	MG/L	01002		
	SETTLABLE SOLIDS (SETTLABLE RESIDUE)	MG/L	00545	CADMIUM, TOTAL	MG/L	01027		
	TOTAL DISSOLVED SOLIDS (FILTERABLE RESIDUE)	MG/L	70300	CHROMIUM, TOTAL	MG/L	01034		
NITROGEN (AS N)	MG/L	00510	COPPER, TOTAL	MG/L	01042			
NITRATE TOTAL (AS N)	MG/L	00520	Cadmium, TOTAL	MG/L	01045			
NITRITE TOTAL (AS N)	MG/L	00615	LEAD, TOTAL	MG/L	01051			
TOTAL NITROGEN	MG/L	00625	MAGNESIUM, TOTAL	MG/L	00927			
ORTHOPHOSPHATE (AS P)	MG/L	00660	MANGANESE, TOTAL	MG/L	01055			
TOTAL PHOSPHORUS (AS P)	MG/L	00678	MERCURY, TOTAL	MG/L	71500			
SULFATE	MG/L	00945	POTASSIUM, TOTAL	MG/L	00937			
FLUORIDE		00403	SILICA, TOTAL	MG/L	01077			
CHLORIDE	MG/L	00940	ZINC, TOTAL	MG/L	01092			
BACTERIOLOGICAL	CFU WITH LAB	ITU/FTU	W0072	TOTAL COLIFORM	MFC/100ML	31503		COLIFORMS
	BOD	MG/L	00310	FECAL COLIFORM	MFC/100ML	31616		
	TOD	MG/L	00340	TOTAL COLIFORM	MFC/100ML	31106		
	TSS	MG/L	00580	FECAL COLIFORM	MFC/100ML	31420		
	TOTAL ANIONIC CHLORIDES	MG/L	70350	PCB	X ppm	None Detected (<0.01 ppm)		
PHENOLS	MG/L	32730						
HEAVY METALS	MG/L	35200						
CHLORIDE	MG/L	00720						

\*\* Sample was very dirty, required additional clean-up with Florisil.

April 16, 1982





LABORATORY MULTIPLE PARAMETER WATER QUALITY ANALYSIS RECORD

ENVIRONMENTAL PROTECTION SUPPORT SERVICE  
 EPA-600/6-80-012 (REV. 10-74)

MIC

SAMPLE IDENTIFICATION

SAMPLE COLLECTION DATE			SAMPLE COLLECTION TIME		SAMPLE STATION NUMBER
MONTH	DAY	YEAR	HR	MIN	
		4/05/82			

WATER MCBCL RR-45 1027

JENNINGS LABORATORIES, INC.

PARAMETER DESCRIPTION	UNITS	DATA ELEMENT NUMBER	VALUE	PARAMETER DESCRIPTION	UNITS	DATA ELEMENT NUMBER	VALUE
SOLIDS	TOTAL SUSPENDED SOLIDS (NON-FILTERABLE RESIDUE)	MG/L	00530	ALUMINUM, TOTAL	MG/L	01105	
	TOTAL SOLIDS (TOTAL RESIDUE (DRIED))	MG/L	00500	ARSENIC, TOTAL	MG/L	01602	
	SETTLABLE SOLIDS (SETTLABLE RESIDUE)	ML/LTR	00545	CADMIUM, TOTAL	MG/L	01027	
	TOTAL DISSOLVED SOLIDS (FILTERABLE RESIDUE)	MG/L	70300	CHROMIUM, TOTAL	MG/L	01034	
NITRITES	NITROGEN AS N	MG/L	00510	COPPER, TOTAL	MG/L	01042	
	NITRATE TOTAL AS N	MG/L	00520	COPPER, TOTAL	MG/L	01045	
	NITRITE TOTAL AS N	MG/L	00515	LEAD, TOTAL	MG/L	01051	
	TOTAL NITROGEN	MG/L	00525	MANGANESE, TOTAL	MG/L	00927	
	ORTHOPHOSPHATE AS P	MG/L	00660	MANGANESE, TOTAL	MG/L	01055	
	TOTAL PHOSPHORUS AS P	MG/L	00678	MERCURY, TOTAL	MG/L	71900	
	SULFATE	MG/L	00945	POTASSIUM, TOTAL	MG/L	00937	
ANIONS	FLUORIDE	MG/L	00403	SILVER, TOTAL	MG/L	01077	
	CHLORIDE	MG/L	00940	ZINC, TOTAL	MG/L	01092	
	TURBIDITY LAB	NTU	00072	TOTAL COLIFORM	MFC/100ML	31503	
	BOD	MG/L	00310	FECAL COLIFORM	MFC/100ML	31616	
CONCENTRATED SAMPLES	TSS	MG/L	00340	TOTAL COLIFORM	MFC/100ML	31506	
	TSS	MG/L	00680	FECAL COLIFORM	MFC/100ML	31620	
	CHLORIDE	MG/L	70350	** PCB		X ppm	None Detected (<0.01 ppm)
	ARSENIC	MG/L	32730				
BARBAR	MG/L	35260					
CHLORIDE	MG/L	00720					

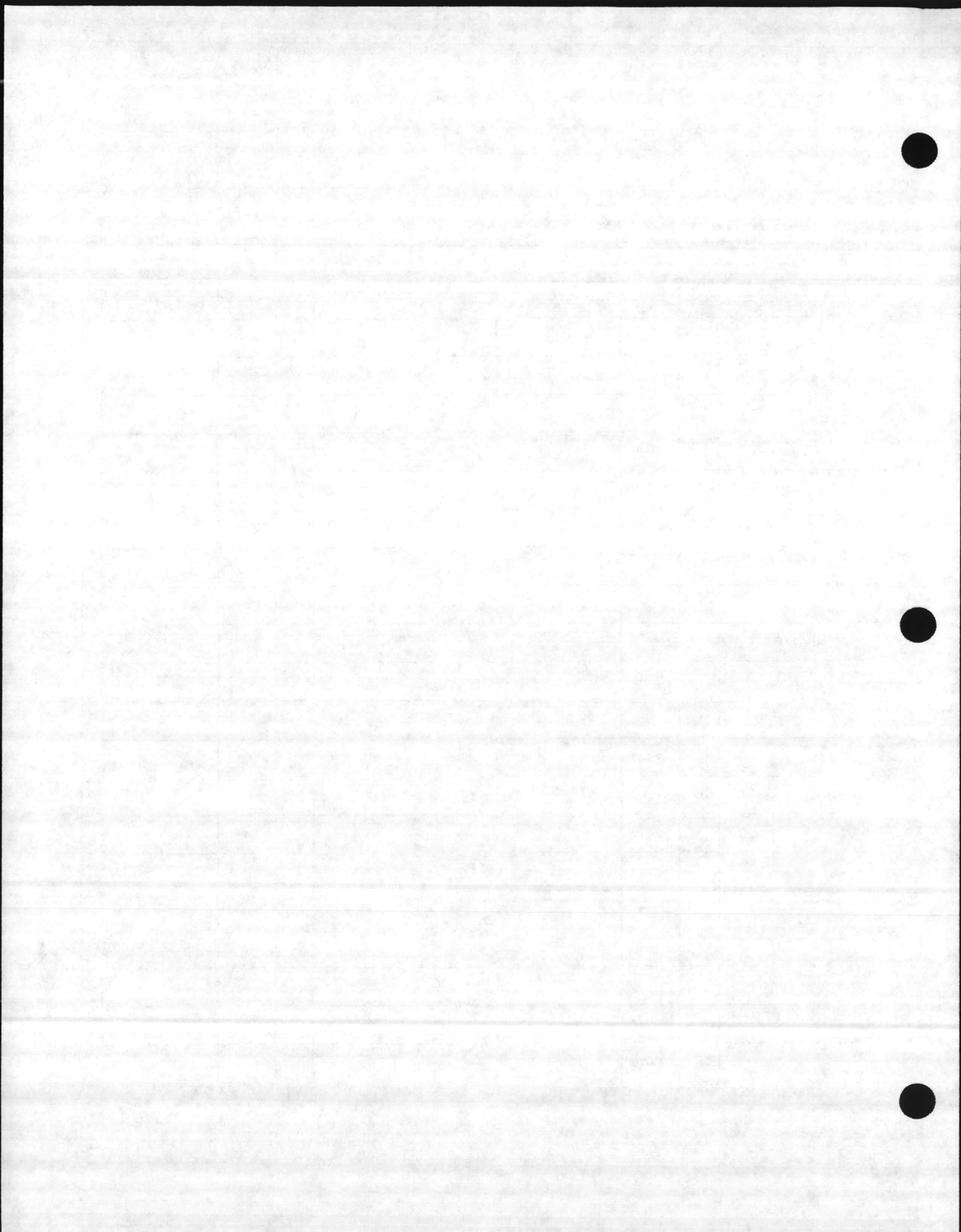
HEAVY METALS

COLIFORM

ADDITIONAL PARAMETERS

\*\* Sample was very dirty, required additional clean-up with florisisil.

April 16, 1982





LABORATORY MULTIPLE PARAMETER WATER QUALITY ANALYSIS RECORD

NAM. ENVIRONMENTAL PROTECTION SUPPORT SERVICE  
 11ND-090-3900.2 (REV. 10-74)  
 C110-11-1004-1000

UIC

SAMPLE IDENTIFICATION		
SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	SAMPLE STATION NUMBER
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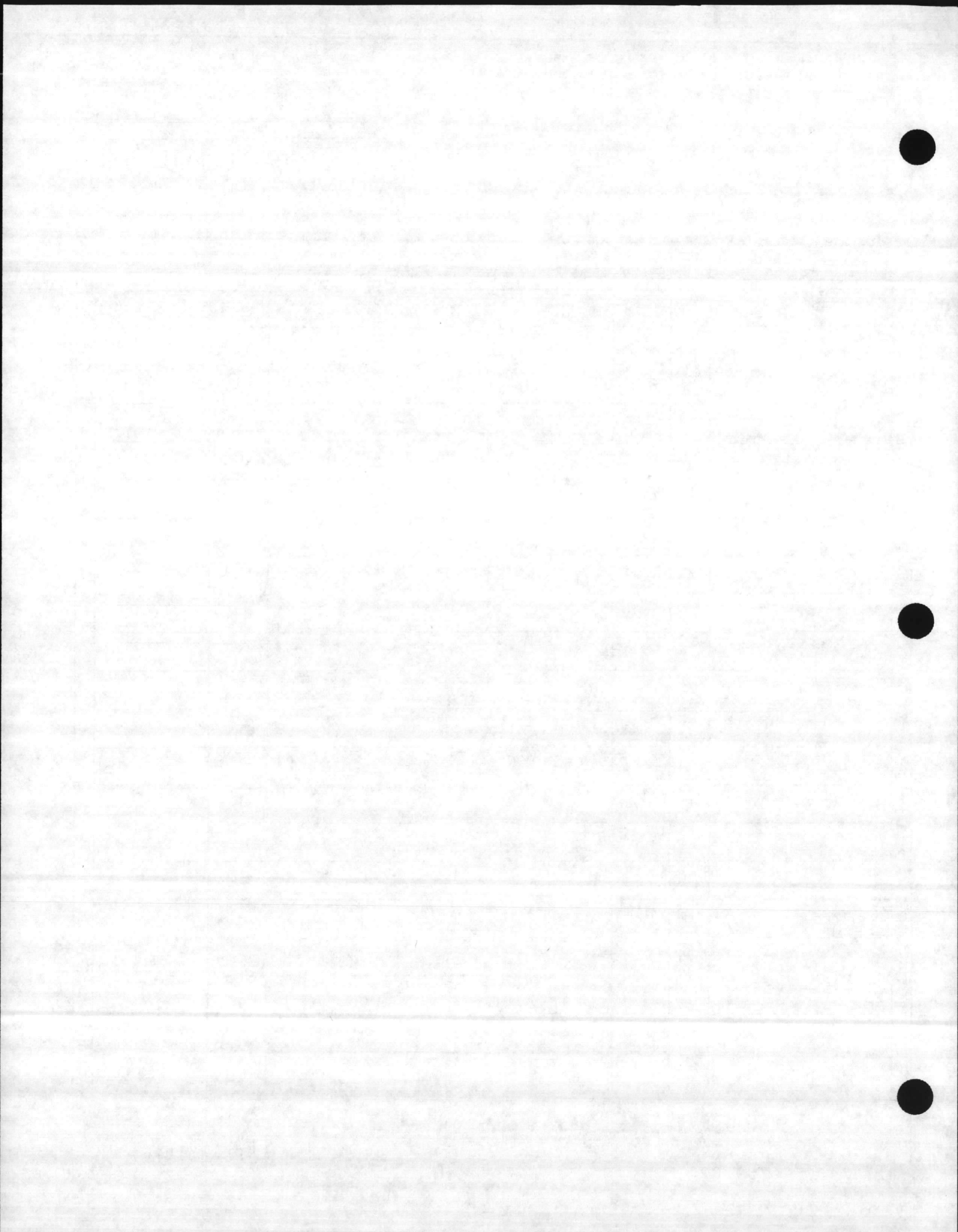
WATER MCBCL RR-97 1030

JENNINGS LABORATORIES, INC.

4/05/82

	PARAMETER DESCRIPTION	UNITS	DATA ELEMENT NUMBER	VALUE	PARAMETER DESCRIPTION	UNITS	DATA ELEMENT NUMBER	VALUE
	SOLIDS	TOTAL SUSPENDED SOLIDS (NON-FILTERABLE RESIDUE)	MG/L	00530		ALUMINUM, TOTAL	MG/L	01105
TOTAL SOLIDS (TOTAL RESIDUE 103-105°)		MG/L	00500		ARSENIC, TOTAL	MG/L	01002	
SETTLABLE SOLIDS (SETTLABLE RESIDUE)		ML/L/HR	00545		CADMIUM, TOTAL	MG/L	01027	
TOTAL DISSOLVED SOLIDS (FILTERABLE RESIDUE)		MG/L	70300		CHROMIUM, TOTAL	MG/L	01034	
NUTRIENTS	NITROGEN (AS N)	MG/L	00610		COPPER, TOTAL	MG/L	01042	
	NITRATE TOTAL (AS N)	MG/L	00620		IRON, TOTAL	MG/L	01045	
	NITRITE TOTAL (AS N)	MG/L	00615		LEAD, TOTAL	MG/L	01051	
	TOTAL NITROGEN (AS N)	MG/L	00625		MAGNESIUM, TOTAL	MG/L	00927	
	ORTHOPHOSPHATE (AS P)	MG/L	00650		MANGANESE, TOTAL	MG/L	01055	
	TOTAL PHOSPHORUS (AS P)	MG/L	00678		MERCURY, TOTAL	MG/L	71500	
	SULFATE	MG/L	00945		POTASSIUM, TOTAL	MG/L	00937	
HEAVY METALS	PHOSPHATE	MG/L	00403		SILVER, TOTAL	MG/L	01107	
	CHLORIDE	MG/L	00940		ZINC, TOTAL	MG/L	01092	
	TURBIDITY LAB	JTU/FTU	00072		TOTAL COLIFORM	MPN/100ML	31503	
	BOD	MG/L	00310		FECAL COLIFORM	MPN/100ML	31516	
	COD	MG/L	00340		TOTAL COLIFORM	MPN/100ML	31504	
	TSS	MG/L	00680		FECAL COLIFORM	MPN/100ML	31520	
	OIL AND GREASE	MG/L	70350		PCB	X ppm	None Detected (<0.01 ppm)	
	PHENOLS	MG/L	3270					
	HEAVY METALS	MG/L	36060					
	CYNIDE	MG/L	00001					

#1367 *Jennings* 4/09/82 April 16, 1982



LABORATORY MULTIPLE PARAMETER WATER QUALITY ANALYSIS RECORD

NAVY ENVIRONMENTAL PROTECTION SUPPORT SERVICE  
 11ND-CBC-3900/2 (REV. 10-74)  
 0900-LL-M90-0022

UIC

SAMPLE IDENTIFICATION		
SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	SAMPLE STATION NUMBER
4/19/82	1035	

ACTIVITY NAME  
**MCB CAMP LEJEUNE RIFLE RANGE WTP RR-85 Finished Water**

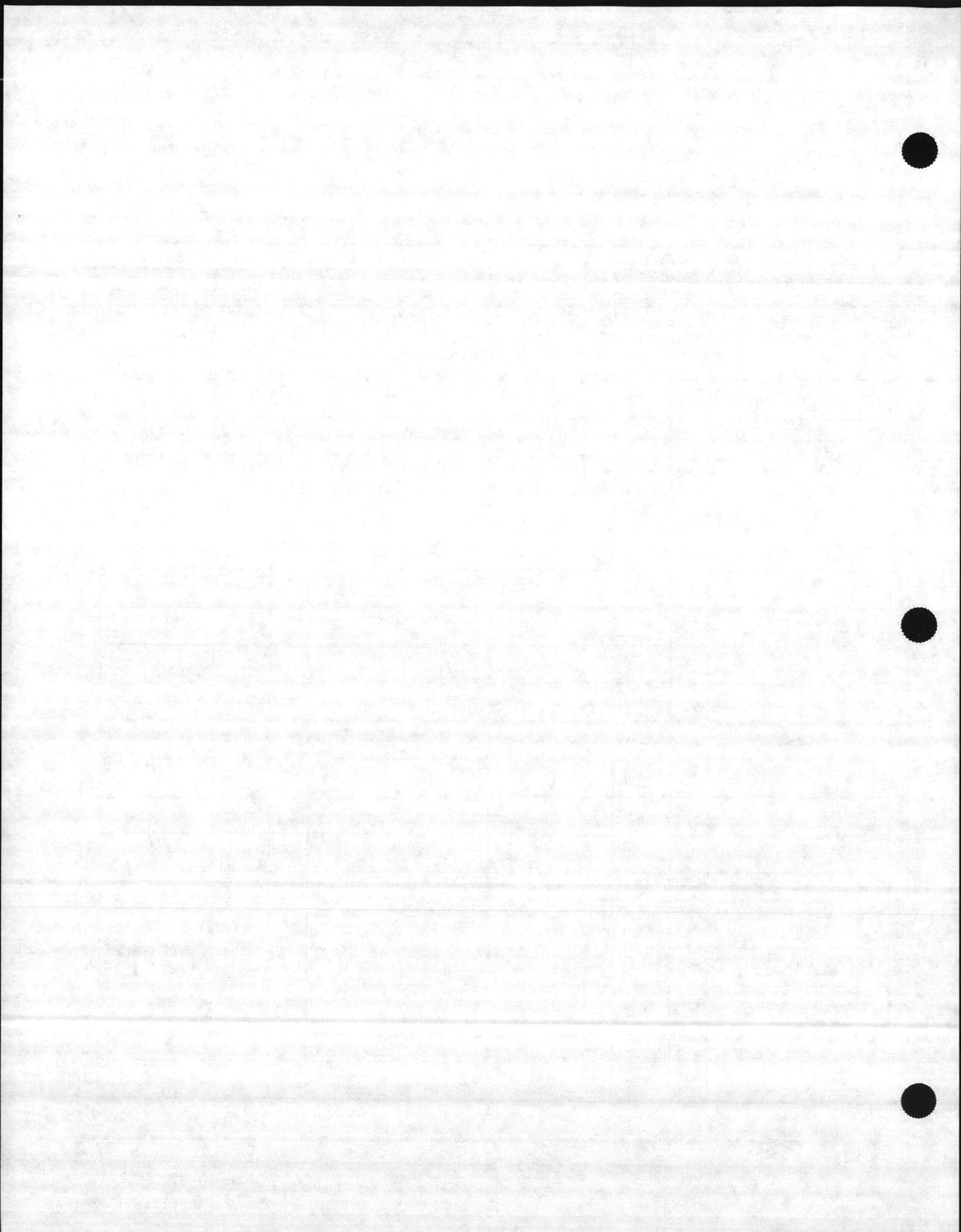
LABORATORY NAME  
**JENNINGS LABORATORIES, INC.**

PARAMETER DESCRIPTION	UNITS	DATA ELEMENT NUMBER	VALUE	PARAMETER DESCRIPTION	UNITS	DATA ELEMENT NUMBER	VALUE
SOLIDS	TOTAL SUSPENDED SOLIDS (NON FILTERABLE RESIDUE)	MG/L	00530	ALUMINUM, TOTAL	MG/L	01105	
	TOTAL SOLIDS (TOTAL RESIDUE 103-105°)	MG/L	00500	ARSENIC, TOTAL	MG/L	01002	
	SETTLABLE SOLIDS (SETTLABLE RESIDUE)	ML/L/HR	00545	CADMIUM, TOTAL	MG/L	01027	
	TOTAL DISSOLVED SOLIDS (FILTERABLE RESIDUE)	MG/L	70300	CHROMIUM, TOTAL	MG/L	01034	
NUTRIENTS	N-AMMONIA (AS N)	MG/L	00610	COPPER, TOTAL	MG/L	01042	
	N-NITRATE TOTAL (AS N)	MG/L	00620	IRON, TOTAL	MG/L	01045	
	N-NITRITE TOTAL (AS N)	MG/L	00615	LEAD, TOTAL	MG/L	01051	
	TOTAL N (KJELDAHL)	MG/L	00625	MAGNESIUM, TOTAL	MG/L	00927	
	ORTHOPHOSPHATE (AS PO <sub>4</sub> )	MG/L	00660	MANGANESE, TOTAL	MG/L	01055	
	TOTAL PHOSPHORUS (AS P)	MG/L	00678	MERCURY, TOTAL	MG/L	71900	
	SULFATE	MG/L	00945	POTASSIUM, TOTAL	MG/L	00937	
NON-CATEGORIZED PARAMETER	PH LABORATORY		00403	SILVER, TOTAL	MG/L	01077	
	CHLORIDE	MG/L	00940	ZINC, TOTAL	MG/L	01092	
	TURBIDITY LAB	JTU/FTU	W0072	TOTAL COLIFORM	MFC/100ML	31503	
	BOD	MG/L	00310	FECAL COLIFORM	MFC/100ML	31616	
	COD	MG/L	00340	TOTAL COLIFORM	MPN/100ML	31506	
	TOC	MG/L	00680	FECAL COLIFORM	MPN/100ML	31620	
	OIL AND GREASE	MG/L	70350	PCB	X ppm	None Detected	( $<0.01$ )
	PHENOLS	MG/L	32730				
	MBAS	MG/L	38260				
	CYANIDE	MG/L	00720				

REMARKS

SIGNATURE: *W.H. Jennings Jr.* DATE: **May 27, 1982**





LABORATORY MULTIPLE PARAMETER WATER QUALITY ANALYSIS RECORD

NAT'L ENVIRONMENTAL PROTECTION SUPPORT SERVICE  
 11ND-CBC-3900/2 (REV. 10-74)  
 2900-LL-M90-0022

UIC

SAMPLE IDENTIFICATION					
SAMPLE COLLECTION DATE			SAMPLE COLLECTION TIME		SAMPLE STATION NUMBER
MONTH	DAY	YEAR	0.2400		
4/19/82			1046		

ACT: **MCB CAMP LEJEUNE RIFLE RANGE WELL RR 45**  
**Water Sample**  
 LABORATORY NAME  
**JENNINGS LABORATORIES, INC.**

PARAMETER DESCRIPTION	UNITS	DATA ELEMENT NUMBER	VALUE	PARAMETER DESCRIPTION	UNITS	DATA ELEMENT NUMBER	VALUE
SOLIDS	TOTAL SUSPENDED SOLIDS (NON FILTERABLE RESIDUE)	MG/L	00530	ALUMINUM, TOTAL	MG/L	01105	
	TOTAL SOLIDS (TOTAL RESIDUE 103-105°)	MG/L	00500	ARSENIC, TOTAL	MG/L	01002	
	SETTLABLE SOLIDS (SETTLABLE RESIDUE)	ML/L/HR	00545	CADMIUM, TOTAL	MG/L	01027	
	TOTAL DISSOLVED SOLIDS (FILTERABLE RESIDUE)	MG/L	70300	CHROMIUM, TOTAL	MG/L	01034	
NITRATES	N-AMMONIA (AS N)	MG/L	00610	COPPER, TOTAL	MG/L	01042	
	N-NITRATE TOTAL (AS N)	MG/L	00620	IRON, TOTAL	MG/L	01045	
	N-NITRITE TOTAL (AS N)	MG/L	00615	LEAD, TOTAL	MG/L	01051	
	TOTAL N (KJELDAHL)	MG/L	00625	MAGNESIUM, TOTAL	MG/L	00927	
	ORTHOPHOSPHATE (AS PO <sub>4</sub> )	MG/L	00660	MANGANESE, TOTAL	MG/L	01055	
	TOTAL PHOSPHORUS (AS P)	MG/L	00678	MERCURY, TOTAL	MG/L	71900	
	SULFATE	MG/L	00945	POTASSIUM, TOTAL	MG/L	00937	
NON-CATEGORIZED PARAMETER	PH LABORATORY		00403	SILVER, TOTAL	MG/L	01077	
	CHLORIDE	MG/L	00940	ZINC, TOTAL	MG/L	01092	
	TURBIDITY LAB	JTU/FTU	w0072	TOTAL COLIFORM	MFC/100ML	31503	
	BOD	MG/L	00310	FECAL COLIFORM	MFC/100ML	31616	
	COD	MG/L	00340	TOTAL COLIFORM	MPN/100ML	31506	
	TOC	MG/L	00680	FECAL COLIFORM	MPN/100ML	31620	
	OIL AND GREASE	MG/L	70350	PCB	X ppm	.11	
	PHENOLS	MG/L	32730				
	MBAS	MG/L	38260				
	CYANIDE	MG/L	00720				

HEAVY METALS

COLIFORM

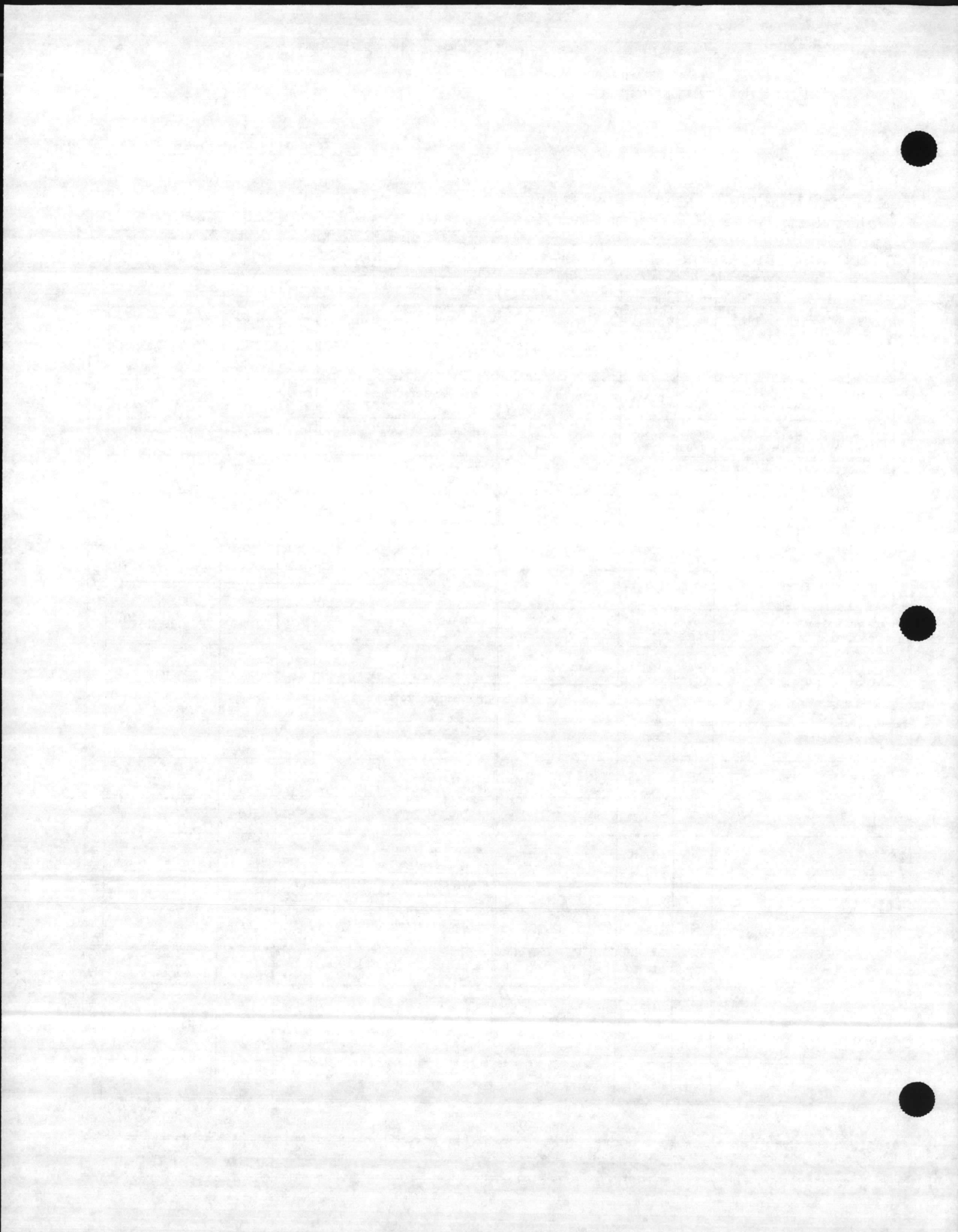
ADDITIONAL PARAMETERS

MARKS  
 43001  
 DATE  
 May 27, 1982

#1423 5/13/82

560.00  
 70.00

*W. H. Jennings, Jr.*





Doc No.: CLET-00373-3.04-08/19/82

LABORATORY MULTIPLE PARAMETER WATER QUALITY ANALYSIS RECORD

NAVY ENVIRONMENTAL PROTECTION SUPPORT SERVICE  
 11ND-CBC-3900/2 (REV. 10-74)  
 120-LL-M90-0022

UIC

SAMPLE IDENTIFICATION			
SAMPLE COLLECTION DATE		SAMPLE COLLECTION TIME	SAMPLE STATION NUMBER
MONTH	DAY	YEAR	0-2400
4/19/82		1050	

ACTIVITY NAME  
**MCB CAMP LEJEUNE RIFLE RANGE WELL RR97**

LABORATORY NAME  
**JENNINGS LABORATORIES, INC.**

PARAMETER DESCRIPTION	UNITS	DATA ELEMENT NUMBER	VALUE	PARAMETER DESCRIPTION	UNITS	DATA ELEMENT NUMBER	VALUE
SOLIDS	TOTAL SUSPENDED SOLIDS (NON FILTERABLE RESIDUE)	MG/L	00530	ALUMINUM, TOTAL	MG/L	01105	
	TOTAL SOLIDS (TOTAL RESIDUE 103-105°)	MG/L	00500	ARSENIC, TOTAL	MG/L	01002	
	SETTLABLE SOLIDS (SETTLABLE RESIDUE)	ML/L HR	00545	CADMIUM, TOTAL	MG/L	01027	
	TOTAL DISSOLVED SOLIDS (FILTERABLE RESIDUE)	MG/L	70300	CHROMIUM, TOTAL	MG/L	01034	
NUTRIENTS	N-AMMONIA (AS N)	MG/L	00610	COPPER, TOTAL	MG/L	01042	
	N-NITRATE TOTAL (AS N)	MG/L	00620	IRON, TOTAL	MG/L	01045	
	N-NITRITE TOTAL (AS N)	MG/L	00615	LEAD, TOTAL	MG/L	01051	
	TOTAL N (KJELDAHL)	MG/L	00625	MAGNESIUM, TOTAL	MG/L	00927	
	ORTHOPHOSPHATE (AS PO <sub>4</sub> )	MG/L	00660	MANGANESE, TOTAL	MG/L	01055	
	TOTAL PHOSPHORUS (AS P)	MG/L	00678	MERCURY, TOTAL	MG/L	71900	
	SULFATE	MG/L	00945	POTASSIUM, TOTAL	MG/L	00937	
NON-CATEGORIZED PARAMETER	PH LABORATORY		00403	SILVER, TOTAL	MG/L	01077	
	CHLORIDE	MG/L	00940	ZINC, TOTAL	MG/L	01092	
	TURBIDITY LAB	JTU/FTU	w0072	TOTAL COLIFORM	MFC/100ML	31503	
	BOD	MG/L	00310	FECAL COLIFORM	MFC/100ML	31616	
	COD	MG/L	00340	TOTAL COLIFORM	MPN/100ML	31506	
	TOC	MG/L	00680	FECAL COLIFORM	MPN/100ML	31620	
	OIL AND GREASE	MG/L	70350	PCB	X	ppm	None Detected (<0.01)
	PHENOLS	MG/L	32730				
	MBAS	MG/L	38260				
	CYANIDE	MG/L	00720				

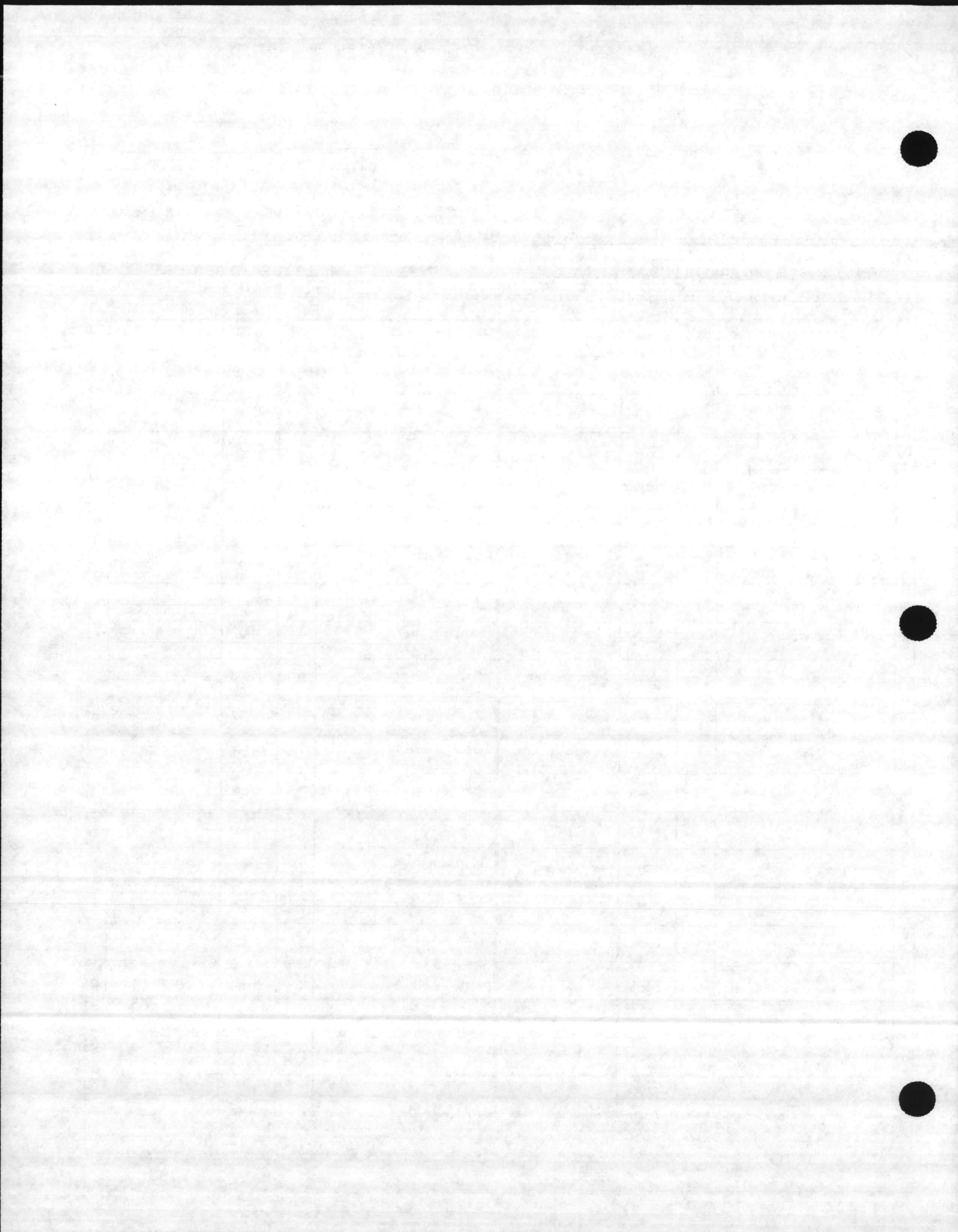
REMARKS  
 A9601

SIGNATURE  
*W.H. Jennings*

DATE  
 May 27, 1982

#1424 5/13/82

\$60.00  
 70-



LABORATORY MULTIPLE PARAMETER WATER QUALITY ANALYSIS RECORD

NAVY ENVIRONMENTAL PROTECTION SUPPORT SERVICE  
 11ND-C3C-3900/2 (REV. 10-74)  
 0900-LL-M90-0022

UIC

SAMPLE IDENTIFICATION				
SAMPLE COLLECTION DATE			SAMPLE COLLECTION TIME	SAMPLE STATION NUMBER
MONTH	DAY	YEAR	0.2400	
	4	19	82	1040

ACTIVITY NAME  
**MCB CAMP LEJEUNE RIFLE RANGE WELL RR-47**

LABORATORY NAME  
**JENNINGS LABORATORIES, INC.**

PARAMETER DESCRIPTION	UNITS	DATA ELEMENT NUMBER	VALUE	PARAMETER DESCRIPTION	UNITS	DATA ELEMENT NUMBER	VALUE
SOLIDS	TOTAL SUSPENDED SOLIDS (NON FILTERABLE RESIDUE)	MG/L	00530	ALUMINUM, TOTAL	MG/L	01105	
	TOTAL SOLIDS (TOTAL RESIDUE 103-105°)	MG/L	00500	ARSENIC, TOTAL	MG/L	01002	
	SETTLEABLE SOLIDS (SETTLEABLE RESIDUE)	ML/L/HR	00545	CADMIUM, TOTAL	MG/L	01027	
	TOTAL DISSOLVED SOLIDS (FILTERABLE RESIDUE)	MG/L	70300	CHROMIUM, TOTAL	MG/L	01034	
NUTRIENTS	N-AMMONIA (AS N)	MG/L	00610	COPPER, TOTAL	MG/L	01042	
	N-NITRATE TOTAL (AS N)	MG/L	00620	IRON, TOTAL	MG/L	01045	
	N-NITRITE TOTAL (AS N)	MG/L	00615	LEAD, TOTAL	MG/L	01051	
	TOTAL N (KJELDAHL)	MG/L	00625	MAGNESIUM, TOTAL	MG/L	00927	
	ORTHOPHOSPHATE (AS PO <sub>4</sub> )	MG/L	00660	MANGANESE, TOTAL	MG/L	01055	
	TOTAL PHOSPHORUS (AS P)	MG/L	00678	MERCURY, TOTAL	MG/L	71900	
	SULFATE	MG/L	00945	POTASSIUM, TOTAL	MG/L	00937	
NON-CATEGORIZED PARAMETER	PH LABORATORY		00403	SILVER, TOTAL	MG/L	01077	
	CHLORIDE	MG/L	00940	ZINC, TOTAL	MG/L	01092	
	TURBIDITY LAB	JTU/FTU	W0072	TOTAL COLIFORM	MFC/100ML	31503	
	BOD	MG/L	00310	FECAL COLIFORM	MFC/100ML	31616	
	COD	MG/L	00340	TOTAL COLIFORM	MPN/100ML	31506	
	TOC	MG/L	00680	FECAL COLIFORM	MPN/100ML	31620	
	OIL AND GREASE	MG/L	70350	PCB	X ppm	None Detected (<0.01)	
	PHENOLS	MG/L	32730				
	MBAS	MG/L	38260				
	CYANIDE	MG/L	00720				

HEAVY METALS

COLIFORM

ADDITIONAL PARAMETER

MARKS  
 15001

SIGNATURE: *W. H. Jennings, Jr.* DATE: **May 27, 1982**

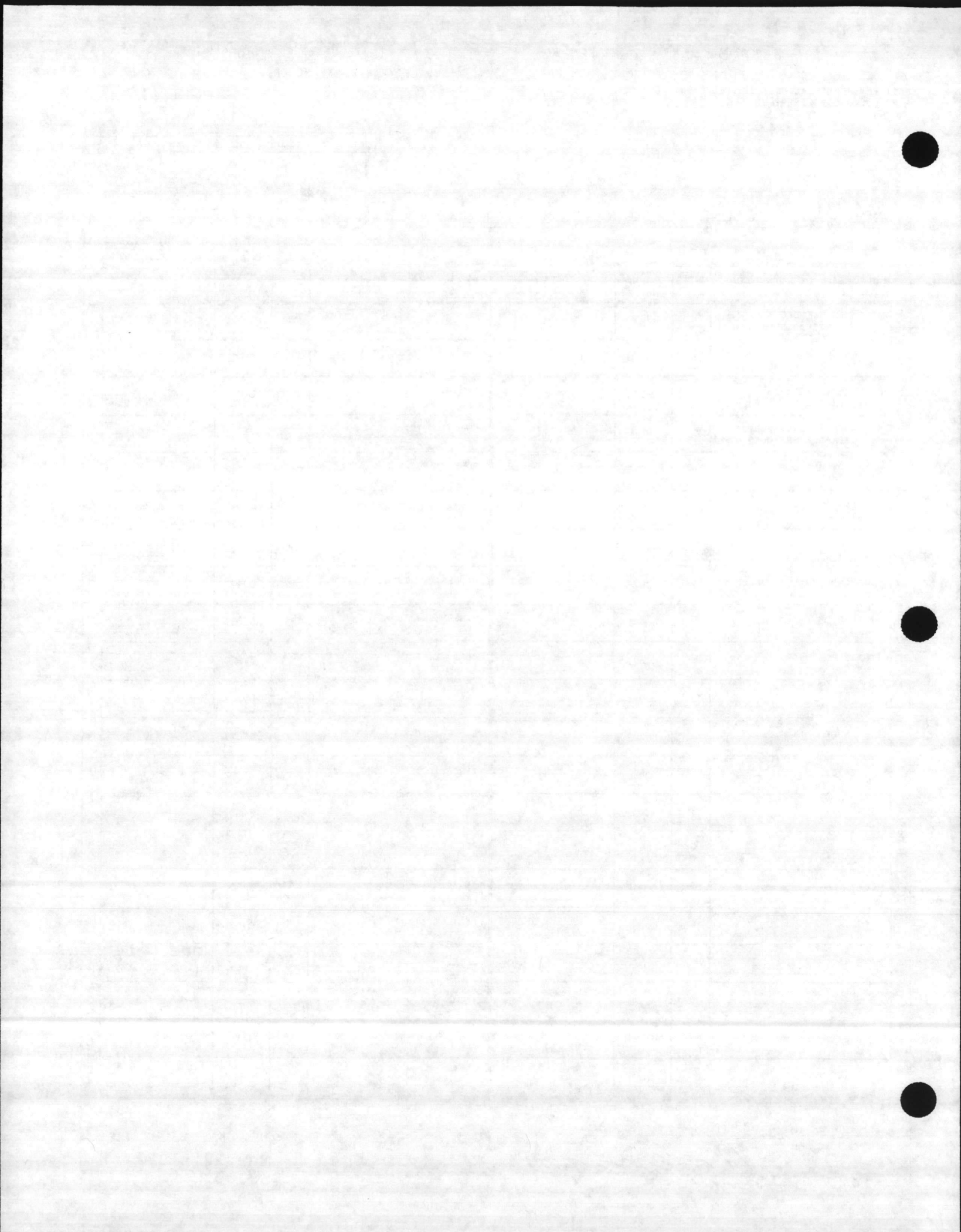
#1422

5/13/82

\$60.00

70-





VA (EPA) CERTIFIED LABORATORY for  
Drinking Water Analysis - Microbiological,  
Inorganic and Organic

ASBESTOS ANALYSIS - NIOSH 582

Official Referee Chemists for:  
AMERICAN OIL CHEMISTS SOCIETY  
NATIONAL SOYBEAN  
PROCESSORS ASSOCIATION

Laboratory Certified by VA. STATE WATER  
CONTROL BOARD for Analysis of  
Effluents for NPDES PERMITS  
CERTIFIED OFFICIAL U.S.D.A. LABORATORY  
FOR MEAT ANALYSIS

### CERTIFICATE OF ANALYSIS

Mr. Dave Goodwin  
Building N-23 Atlantic Division  
Naval Facilities Engineering Command  
Norfolk, Virginia 23511

DATE: March 30, 1982

SAMPLE OF WATER SAMPLE

NAME TW-15 collected 3/18/82 MCB CAMP LEJEUNE

Sample delivered to laboratory 3/20/82 by Mr. Wallmeyer

OFFICIAL SAMPLE BY:

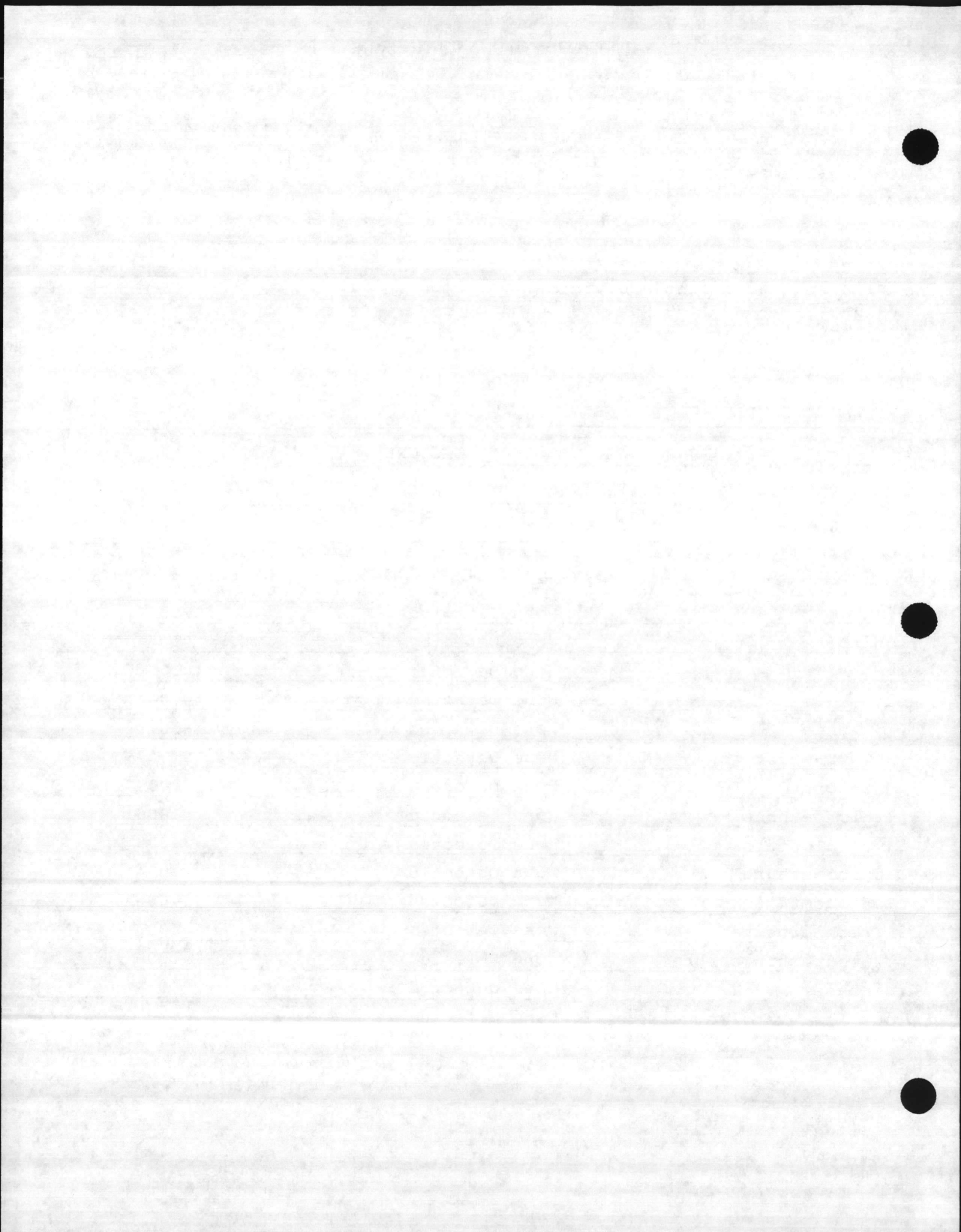
PRIORITY POLLUTANTS	PURGEABLE ORGANICS	DETECTION LIMITS $\mu\text{g/l}$
Chloroform	None Detected	2.0
Acrylonitrile	None Detected	2.0
Benzene	None Detected	10.0
Chlorobenzene	None Detected	10.0
Toluene	None Detected	10.0
o-Dichlorobenzene	None Detected	10.0
p-Dichlorobenzene	None Detected	10.0
1,1,1-Trichloroethane	None Detected	.007
1,1,2-Trichloroethane	None Detected	.03
1,2-Dichloroethane	None Detected	.006
1,1,1-Trichloroethane	None Detected	.005
1,1-Dichloroethane	None Detected	.004
1,2-Dichloroethylene	None Detected	.006
1,1,2-Trichloroethane	None Detected	.006
1,1,2,2-Tetrachloroethane	None Detected	.006
1,1,1-Trichloroethane	None Detected	.01
1,1,2-Trichloroethane	None Detected	.08

Respectfully submitted,

JENNINGS LABORATORIES, INC.

Laboratory Analysis No. 1186  
\$662.50

*W. H. Jennings*  
CHEMIST





HEAVY POLLUTANTS	PURGEABLE ORGANICS (continued)	DETECTION LIMITS $\mu\text{g/l}$
None	None Detected	.010
Dichloropropane	None Detected	.004
Dichloropropane	None Detected	.006
ylene Chloride	1.07 ppb	.010
Methyl Chloride	None Detected	.009
Methyl Bromide	None detected	.03
Bromoform	None Detected	.02
Dichlorobromomethane	None detected	.005
Dichlorofluoromethane	None detected	.03
Chlorodifluoromethane	None Detected	.01
Chlorodibromomethane	None Detected	.01
Perchloroethylene	None Detected	.007
Trichloroethylene	None Detected	.005
Vinyl Chloride	None Detected	.01
1,2-trans-Dichloroethylene	None Detected	.006
bis(chloromethyl) ether	None Detected	.003

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MISCELLANEOUS

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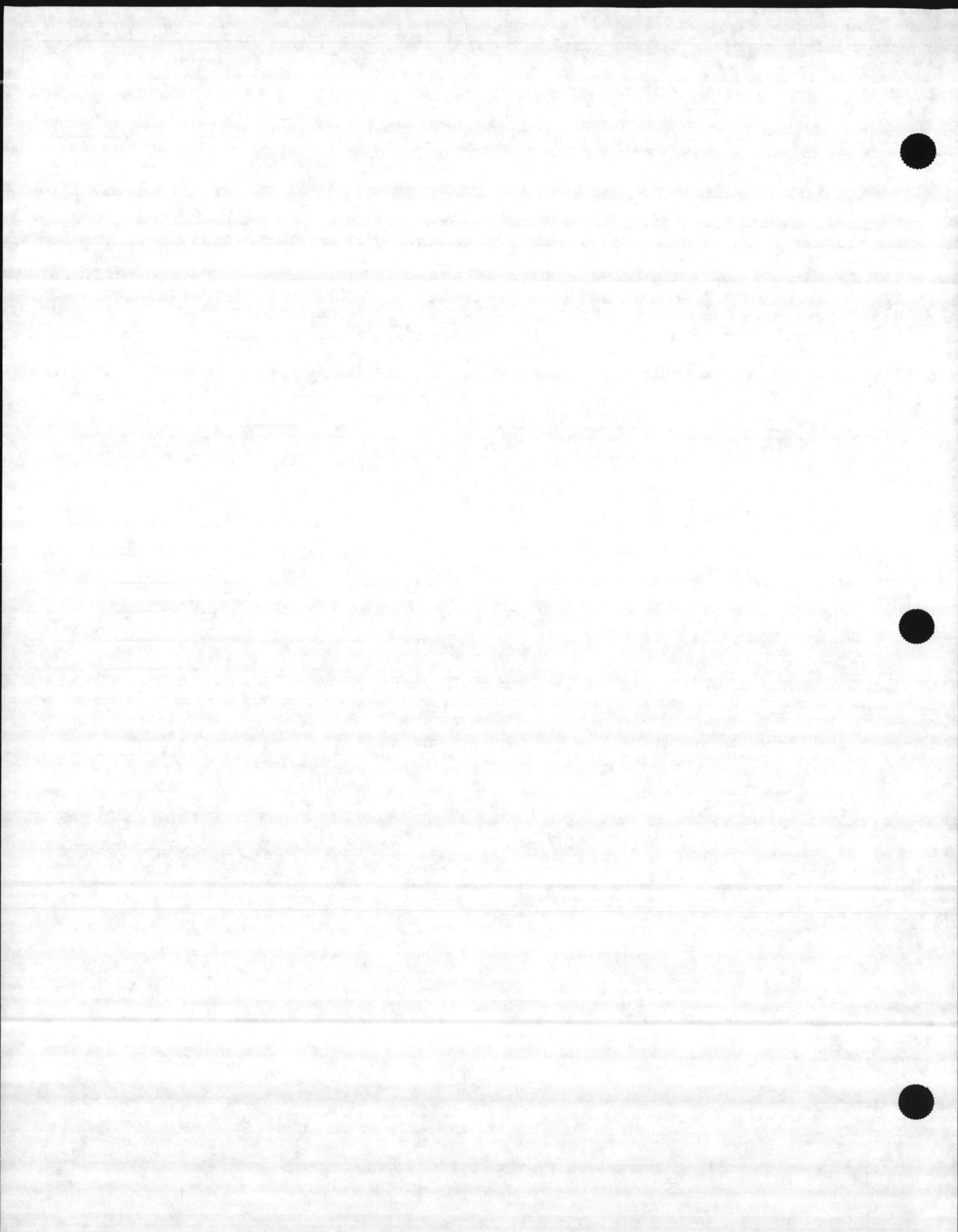
	6.48
Aldehydes	6.93 mg/l
Specific Conductance	58 $\mu\text{mhos}$

LABORATORY  
ANALYSIS NO. 1186

PAGE -2-

BY

*W.H. [Signature]*  
CHEMIST



08/19/82

PESTICIDES/PCB'S

Endosulfan	None Detected	.005
Endosulfan	None Detected	.01
Endosulfan Sulfate	None Detected	.03
α-BHC	None Detected	.002
β-BHC	None Detected	.004
γ-BHC	None Detected	.004
Aldrin	None Detected	.003
Dieldrin	None Detected	.006
4,4'-DDE	None Detected	.006
4,4'-DDD	None Detected	.012
4,4'-DDT	None Detected	.016
Endrin	None Detected	.009
Endrin Aldehyde	None Detected	.023
Heptachlor	None Detected	.002
Heptachlor Epoxide	None Detected	.004
Chlordane	None Detected	.04
α-naphene	None Detected	.40
Aroclor 1016	None Detected	.04
Aroclor 1231	None Detected	.10
Aroclor 1242	None Detected	.10
Aroclor 1242	None Detected	.06
Aroclor 1248	None Detected	.08
Aroclor 1254	None Detected	.08
Aroclor 1260	1.2 ppm	.15
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	None Detected	.003

LABORATORY ANALYSIS NO. 1186

PAGE -3-

BY *W. H. Jennings, Jr.*  
CHEMIST





VA (EPA) CERTIFIED LABORATORY for  
Drinking Water Analysis - Microbiological,  
Inorganic and Organic

Official Reference Chemists for:  
AMERICAN OIL CHEMISTS SOCIETY  
NATIONAL SOYBEAN  
PROCESSORS ASSOCIATION

Laboratory Certified by VA. STATE WATER  
CONTROL BOARD for Analysis of  
Effluents for NPDES PERMITS  
CERTIFIED OFFICIAL U.S.D.A. LABORATORY  
FOR MEAT ANALYSIS

ASBESTOS ANALYSIS - NIOSH 592

CERTIFICATE OF ANALYSIS

TO: Mr. Dave Goodwin  
Building N-23 Atlantic Division  
Naval Facilities Engineering Command  
Norfolk, Virginia 23511

DATE: March 30, 1982

SAMPLE OF WATER SAMPLE

MARKED TW-16 collected 3/18/82 MCB CAMP LEJEUNE

Sample delivered to laboratory 3/20/82 by Mr. Wallmeyer

OFFICIAL SAMPLE BY:

PRIORITY POLLUTANTS	PURGEABLE ORGANICS	DETECTION LIMITS	µg.
Acrolein	None Detected	2.0	
Acrylonitrile	None Detected	2.0	
Benzene	None Detected	10.0	
Bromobenzene	3.86 ppb	10.0	
Ethylbenzene	None Detected	10.0	
Carbon Tetrachloride	None Detected	.007	
Chlorobenzene	None Detected	.03	
1,2-Dichloroethane	10.14 ppb	.006	
1,1,1-Trichloroethane	8.34 ppb	.005	
1,1-Dichloroethane	9.0 ppb	.004	
1,1-Dichloroethylene	15.3 ppb	.006	
1,1,2-Trichloroethane	None Detected	.006	
1,1,2,2-Tetrachloroethane	None Detected	.006	
Chloroethane	None Detected	.01	
2-Chloroethyl vinyl ether	None Detected	.08	

Respectfully submitted,  
JENNINGS LABORATORIES, INC.

Laboratory  
Analysis No. 1187

\$662.50

*W. H. Jennings*  
CHEMIST





08/17/82

PRIORITY POLLUTANTS	PURGEABLE ORGANICS (continued)	DETECTION LIMITS $\mu\text{g/l}$
Chloroform	None Detected	.010
1,2-Dichloropropane	None Detected	.004
1,3-Dichloropropane	None Detected	.006
Methylene Chloride	None Detected	.010
Methyl Chloride	None Detected	.009
Methyl Bromide	None Detected	.03
Bromoform	None detected	.02
Dichlorobromomethane	None Detected	.006
Trichlorofluoromethane	None Detected	.03
Dichlorodifluoromethane	None Detected	.01
Chlorodibromomethane	None Detected	.01
Tetrachloroethylene	None Detected	.007
Trichloroethylene	2.04 ppb	.005
Vinyl Chloride	None Detected	.01
1,2-trans-Dichloroethylene	None Detected	.006
bis(chloromethyl) ether	None detected	.003

## MISCELLANEOUS

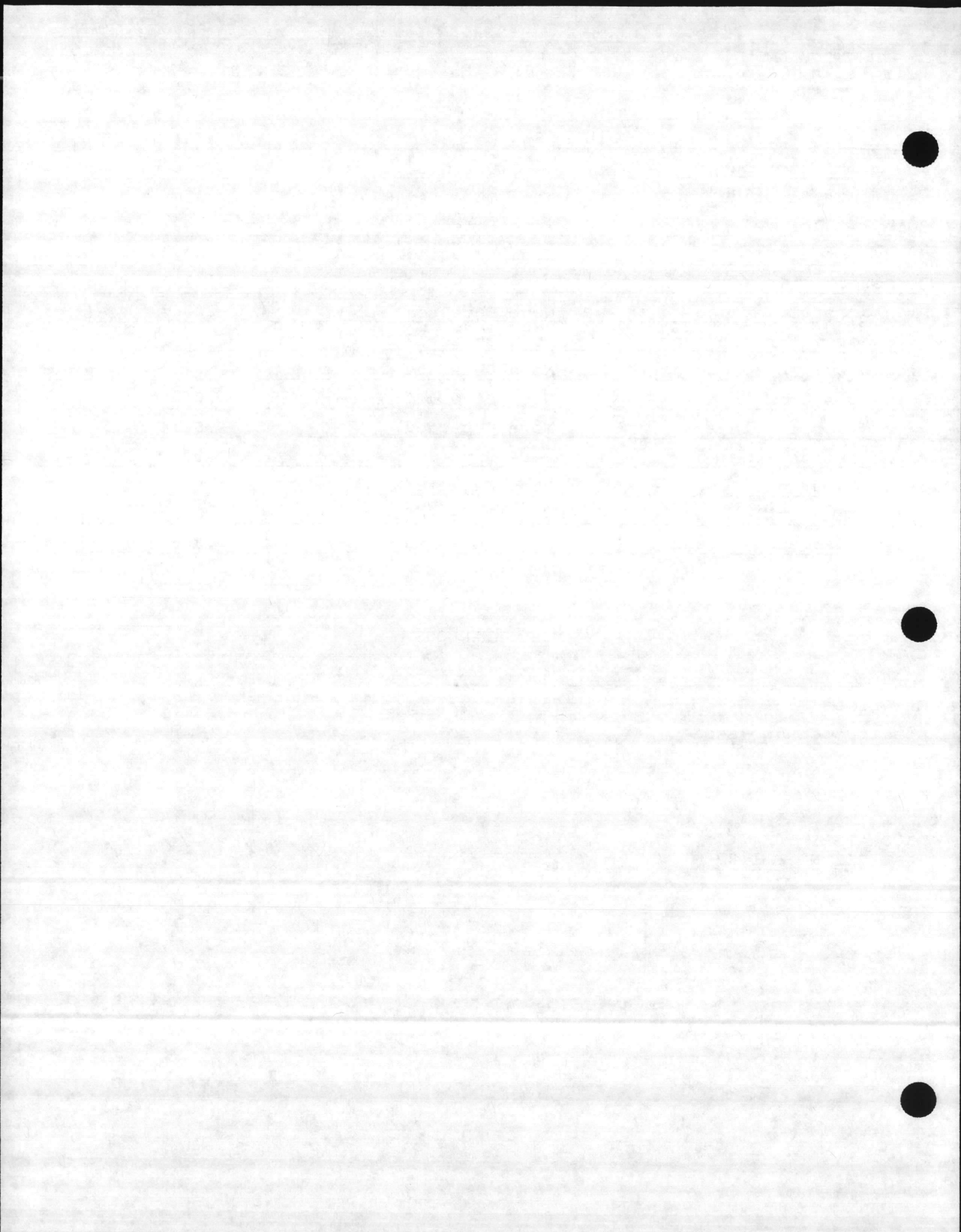
pH	6.22
Chlorides	43.55 mg/l
Specific Conductance	156 $\mu\text{mhos}$

LABORATORY  
ANALYSIS NO. 1187

PAGE -2-

BY

  
 CHEMIST



08/19/82

PESTICIDES/PCB'S

γ-Endosulfan	None Detected	.005
Endosulfan	None Detected	.01
Endosulfan Sulfate	None Detected	.03
α-BHC	None Detected	.002
β-BHC	None Detected	.004
δ-BHC	None Detected	.004
γ-BHC	None Detected	.002
Aldrin	None Detected	.003
Dieldrin	None Detected	.006
4,4'-DDE	None Detected	.006
4,4'-DDD	None Detected	.012
4,4'-DDT	None Detected	.016
Endrin	None Detected	.006
Endrin Aldehyde	None Detected	.023
Heptachlor	None Detected	.002
Heptachlor Epoxide	None Detected	.004
Chlordane	None Detected	.04
Naphene	None Detected	.40
Proclor 1016	None Detected	.04
Proclor 1221	None Detected	.10
Proclor 1232	None Detected	.10
Proclor 1242	None Detected	.06
Proclor 1248	None Detected	.08
Proclor 1254	None Detected	.08
Proclor 1260	3.0 ppm	.15
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	None Detected	.003

LABORATORY ANALYSIS NO. 1187

PAGE -3-

BY W.H. [Signature]  
CHEMIST





VA (EPA) CERTIFIED LABORATORY for  
Drinking Water Analysis - Microbiological,  
Inorganic and Organic

Official Referee Chemists for:  
AMERICAN OIL CHEMISTS SOCIETY  
NATIONAL SOYBEAN  
PROCESSORS ASSOCIATION

Laboratory Certified by VA. STATE WATER  
CONTROL BOARD for Analysis of  
Effluents for NPDES PERMITS  
CERTIFIED OFFICIAL U.S.D.A. LABORATORY  
FOR MEAT ANALYSIS

ASBESTOS ANALYSIS - NIOSH 582

CERTIFICATE OF ANALYSIS

Mr. Dave Goodwin  
Building N-23 Atlantic Division  
Naval Facilities Engineering Command  
Norfolk, Virginia 23511

DATE: March 30, 1982

SAMPLE OF WATER SAMPLE  
 ORDERED TW-17 collected 3/18/82 MCB CAMP LEJEUNE  
Sample delivered to laboratory by Mr. Wallmeyer 3/20/82

OFFICIAL SAMPLE BY: \_\_\_\_\_

PRIORITY POLLUTANTS	PURGEABLE ORGANICS	DETECTION LIMITS	µg/l
Protein	None Detected	2.0	
Acetonitrile	None Detected	2.0	
Benzene	None Detected	10.0	
Chluene	1.68 ppb	10.0	
Stylybenzene	None Detected	10.0	
Carbon Tetrachloride	None Detected	.007	
Chlorobenzene	None Detected	.03	
1,2-Dichloroethane	114.0 ppb	.006	
1,1-Trichloroethane	52.0 ppb	.005	
1,1-Dichloroethane	89.58 ppb	.004	
1,1-Dichloroethylene	182.52 ppb	.006	
1,1,2-Trichloroethane	None Detected	.006	
1,1,2,2-Tetrachloroethane	None Detected	.006	
Chloroethane	None Detected	.01	
Chloroethyl vinyl ether	None Detected	.08	

Respectfully submitted,  
JENNINGS LABORATORIES, INC.

*W. H. Jennings, Jr.*  
CHEMIST

Laboratory  
Analysis No. 1188  
\$662.50





PRIORITY POLLUTANTS	PURGEABLE ORGANICS (continued)	DETECTION LIMITS $\mu\text{g/l}$
Chloroform	None Detected	.010
1,2-Dichloropropane	None Detected	.004
1,3-Dichloropropane	None Detected	.006
Methylene Chloride	8.29 ppb	.010
Methyl Chloride	None Detected	.009
Methyl Bromide	None Detected	.03
Bromoform	None Detected	.02
Dichlorobromomethane	None Detected	.006
Trichlorofluoromethane	1.42 ppb	.03
Dichlorodifluoromethane	None Detected	.01
Chlorodibromomethane	None Detected	.01
Tet. chloroethylene	None Detected	.007
Trichloroethylene	None Detected	.005
Vinyl Chloride	None Detected	.01
1,2-trans-Dichloroethylene	None Detected	.006
bis(chloromethyl) ether	None Detected	.003

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 MISCELLANEOUS
 

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pH	6.45
Chlorides	37.22 mg/l
Specific Conductance	250 $\mu\text{mhos}$

 LABORATORY  
 ANALYSIS NO. 1188

PAGE -2-

 BY *W. H. [Signature]*  
 CHEMIST



3.04-08/19/82

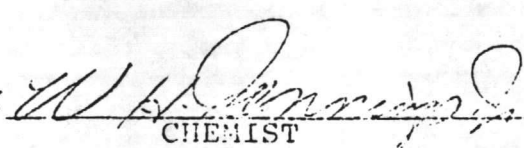
## PESTICIDES/PCB'S

$\alpha$ -Endosulfan	None Detected	.005
$\beta$ -Endosulfan	None Detected	.01
Endosulfan Sulfate	None Detected	.03
$\alpha$ -BHC	None Detected	.002
$\beta$ -BHC	None Detected	.004
$\delta$ -BHC	None Detected	.004
$\gamma$ -BHC	None Detected	.002
Aldrin	None Detected	.003
Dieldrin	None Detected	.006
4,4'-DE	None Detected	.006
4,4'-DDD	None Detected	.012
4,4'-DDT	None Detected	.016
Endrin	None Detected	.009
Endrin Aldehyde	None Detected	.023
Heptachlor	None Detected	.002
Heptachlor Epoxide	None Detected	.004
lordan	None Detected	.04
Toxaphene	None Detected	.40
Aroclor 1016	None Detected	.04
Aroclor 1221	None Detected	.10
Aroclor 1232	None Detected	.10
Aroclor 1242	None Detected	.06
Aroclor 1248	None Detected	.08
Aroclor 1254	None Detected	.02
Aroclor 1260	None Detected	.15
2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD)	None Detected	.003

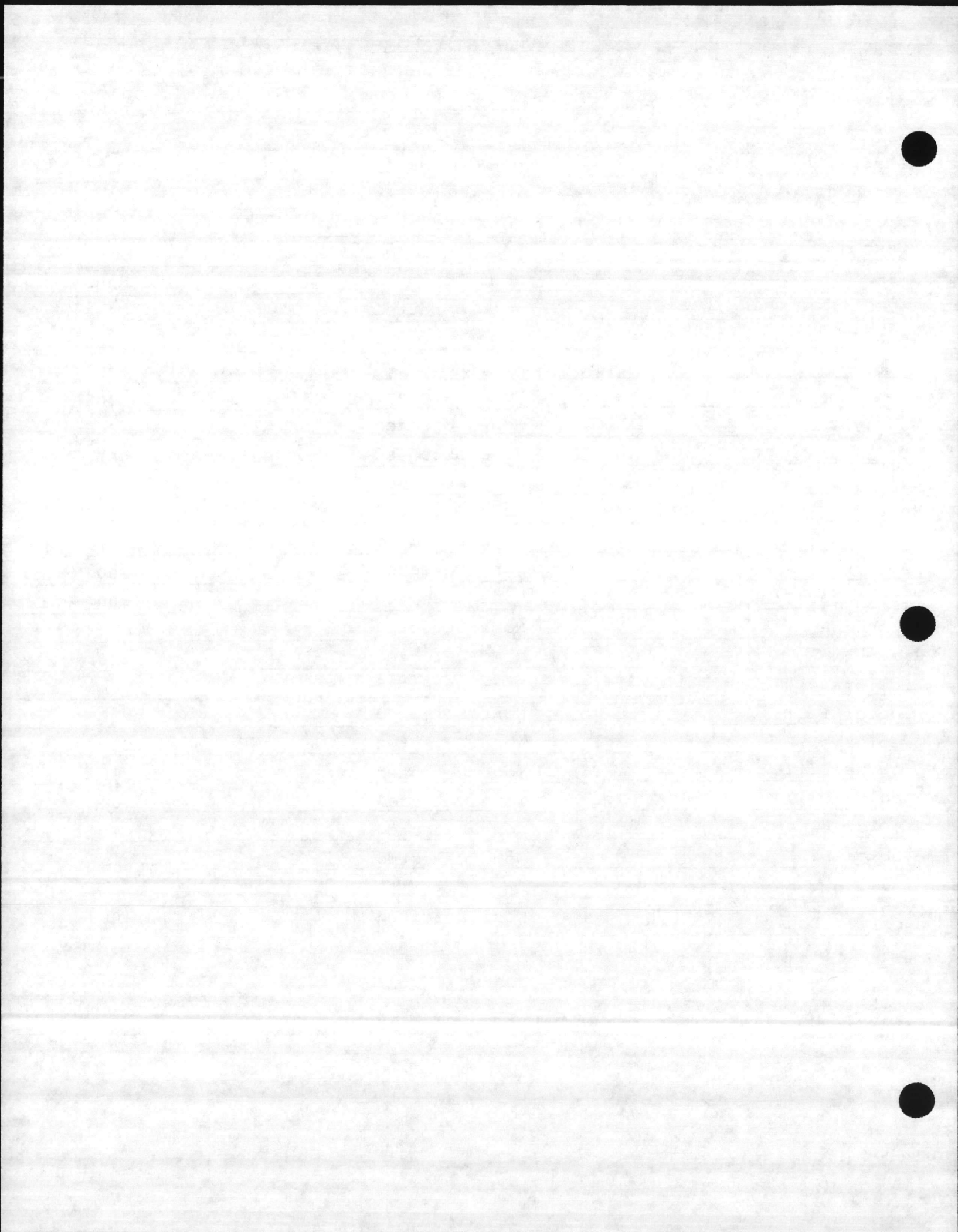
LABORATORY  
ANALYSIS NO. 1188

PAGE -3-

BY

  
CHEMIST





MCB CAMP LEJEUNE  
 SAMPLE DATE 18 MARCH 1982  
 ALL RESULTS IN PARTS PER BILLION (ppb)

	RIFLE RANGE DUMP AREA TEST WELLS			RIFLE RANGE WATER SYSTEM			
	#15	#16	#17	WELL #45	WELL #47	WELL #97	RR-85 #6 FINISHED WATER
Toluene	*	3.86	1.68	*	*	10.0	*
Methylene Chloride	1.07	*	8.29	0.14	*	4.64	*
1, 1-Dichloroethane	*	9.0	89.58	*	*	20.0	*
1, 2-Dichloroethane	*	10.14	114.0	*	*	*	*
1, 1-Dichloroethylene	*	15.3	182.52	*	*	*	*
1,1, 1-Trichloroethane	*	8.34	52.0	*	*	*	*
Trichloroethylene	*	2.04	*	*	*	*	*
Trichlorofluoromethane	*	*	1.42	*	*	*	*
PCB (Aroclor 1260)	1200	3000	*	*	*	*	1000

\*Not detectable; see laboratory sheet for detection limits.

Doc. No.: ULET-00373-3.04-08/19/82





*LRG*



DEPARTMENT OF THE NAVY  
ATLANTIC DIVISION  
NAVAL FACILITIES ENGINEERING COMMAND  
NORFOLK, VIRGINIA 23511

TELEPHONE NO.

(804) 444-9566

IN REPLY REFER TO:

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 (TTHM) family. This is considerably less than the 100 ppb maximum contaminant level set by reference (a).
3. Enclosure (1) indicates no contamination of the water supply wells.
4. Enclosure (1) indicates organic contamination at the chemical dump, primarily at Well #17. This contamination will be further addressed in the NACIP Program Confirmation Study which is anticipated to commence in FY-84.
5. LANTNAVFACENGCOM point of contact is Mr. Jerry Wallmeyer at (804) 444-9566 or AUTOVON 564-9566

*J. R. Bailey*  
J. R. BAILEY  
By direction

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





**CEN TEC 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.

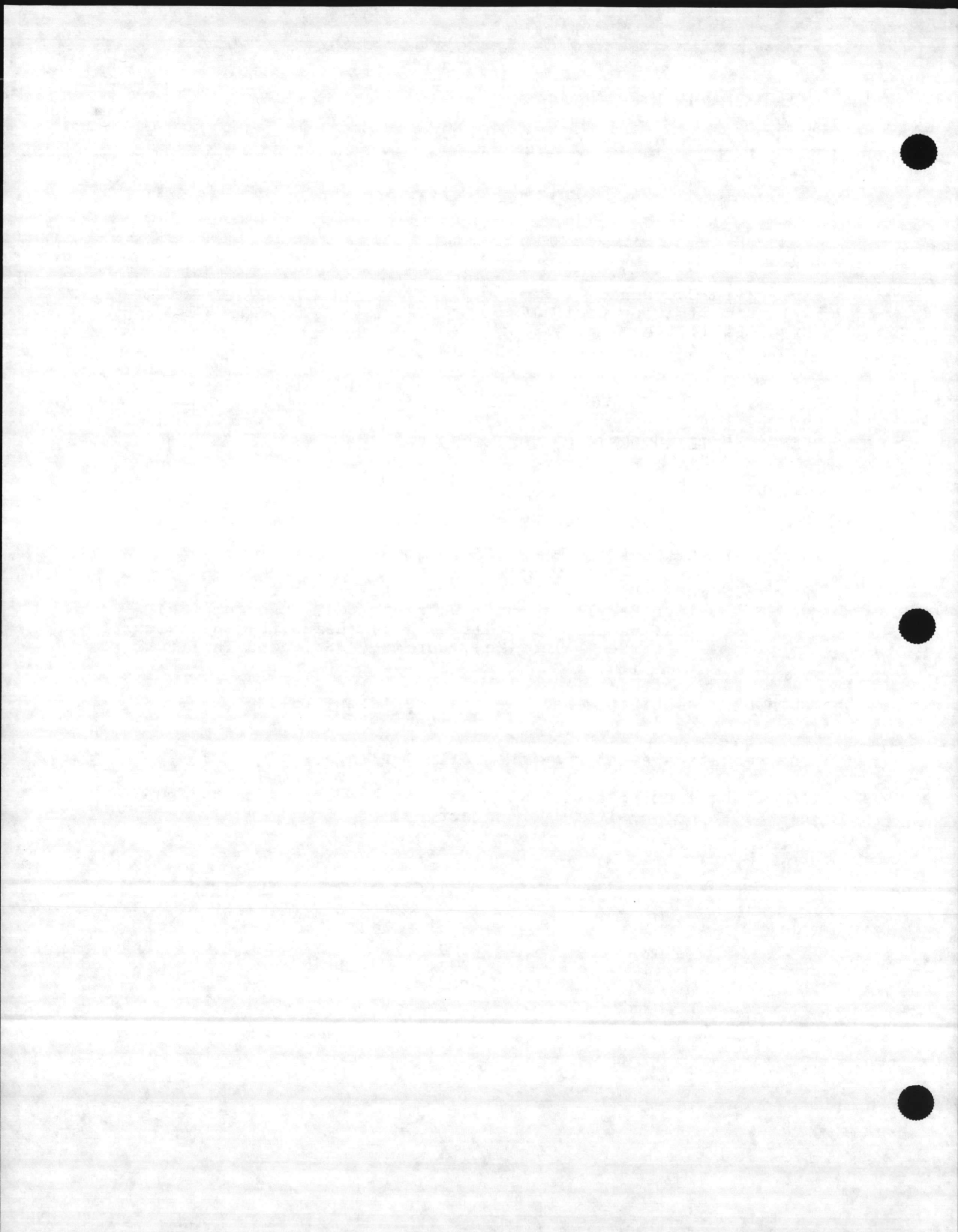
Prepared by:

CEN TEC 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 (mg/l)	As (mg/l)	Be (mg/l)	Cd (mg/l)	Cr (mg/l)	Cu (mg/l)	Hg (mg/l)	Ni (mg/l)	Pb (mg/l)	Se (mg/l)	Zn (mg/l)	Sb (mg/l)	Tl (mg/l)
29372	Field # 15 Landfill L							0.0006						
29373	Field # 16 Landfill							0.0006						
29374	Field # 17 Landfill							<0.0005						
29375	RR-45							0.0006						
29376	RR-47							<0.0005						
29377	RR-92							0.0006						
29378	Rifle Range finished water	<0.01	<0.001	<0.01	<0.01	<0.05	0.02	0.0007	<0.05	<0.001	<0.005	0.08	<0.001	<0.001

Doc No: 6LEJ-00360-3.04-3/14/83







Mead CompuChem

8807 Cary Algonquin Road  
Post Office Box 130  
Cary, Illinois 60013

Telephone: 312-639-8818  
800-334-8525

May 5, 1983

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

Dear Mr. Thompson:

Thank you for selecting Mead CompuChem® for your recent sample analysis. We have completed the analysis that you requested and have enclosed a summary of the CompuChem data for your review. Additional data details are available for purchase if you require them.

As you know, EPA has proposed detection limits for the priority pollutants in the December 3, 1979, Federal Register, and we have reported all priority pollutant concentrations which have exceeded these limits. In addition, we have permanently stored a complete record of your data on magnetic tape. This includes chromatograms, mass spectra, calibration and quality control data for the organics. Therefore, your original data is readily available for future reference. Should you require additional information from your data base, please contact us at 1/800-334-8525.

In order to expedite data to you, we have forwarded the results to all completed analyses. If you submitted more samples than are included in the enclosed results, the data will be forthcoming upon completion of our final review.

Your confidence in our CompuChem service is appreciated. We look forward to a continuing association.

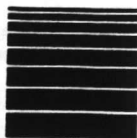
Sincerely,

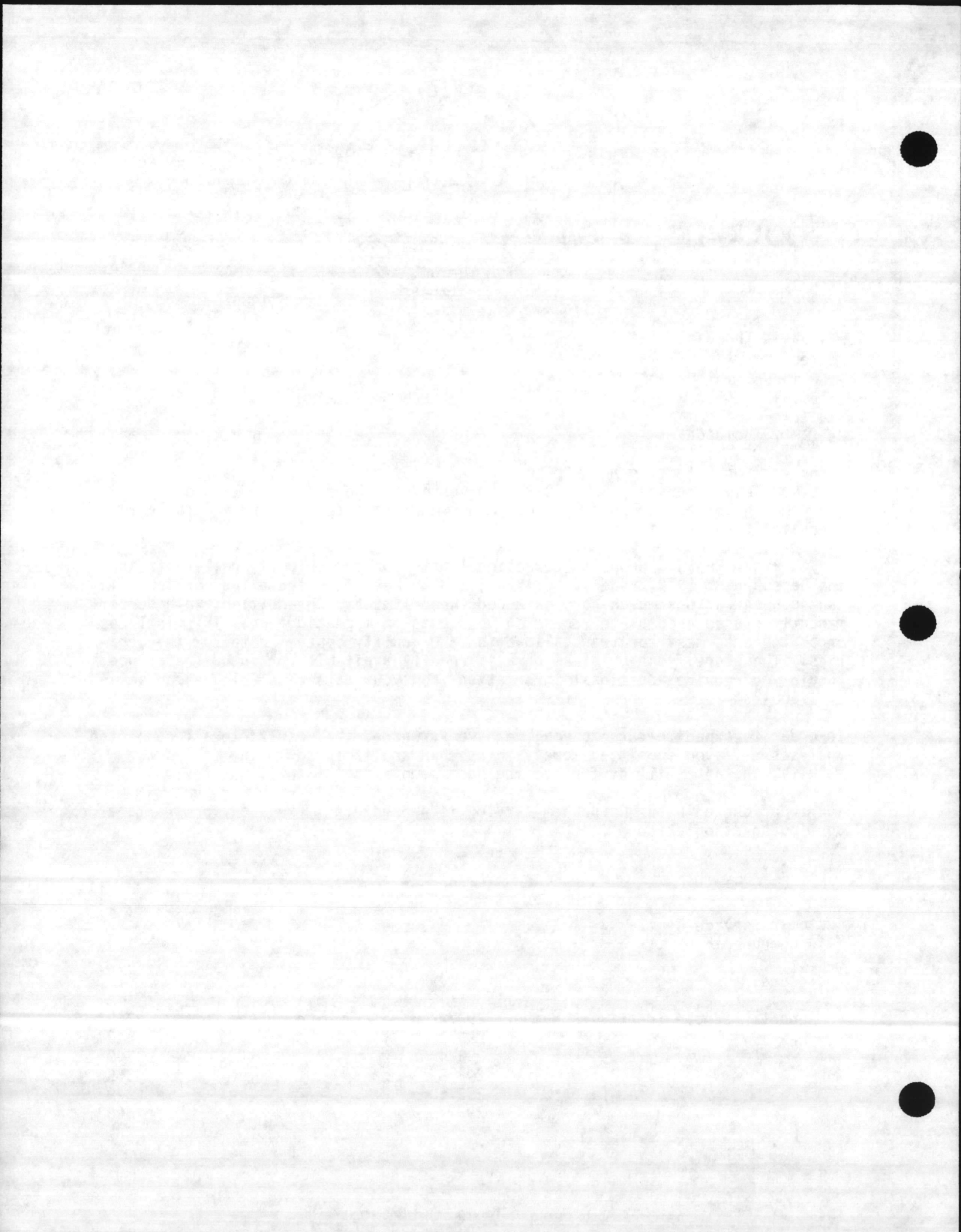
Customer Service Dept.  
Mead CompuChem®

Enclosure:

Report: Sample Identifier Number:	29372
	29373
	29374
	29375
	29376
	29377

CompuChem Number:	3493
	3494
	3495
	3496
	3497
	3498





# MeadCompuChem

## TABLE OF CONTENTS

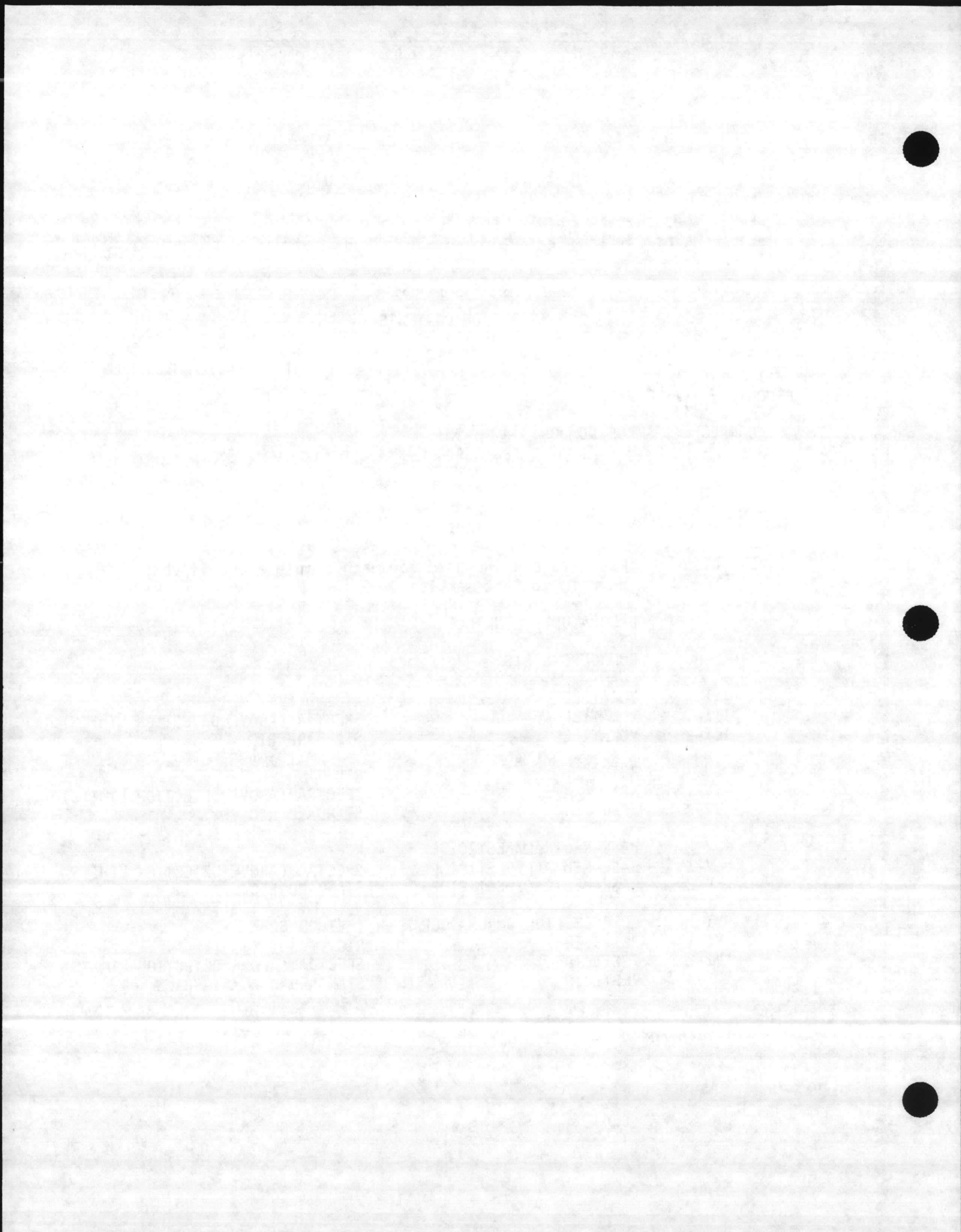
### 1. REPORT OF SAMPLE DATA

COMPUCHEM SAMPLE NUMBER: A. 3493  
 B. 3494  
 C. 3495  
 D. 3496  
 E. 3497  
 F. 3498

<u>EXHIBITS</u>	(Exhibits are included for each sample above if they pertain to that sample)	
I	LABORATORY CHRONICLE	
II	COMPOUND LISTS	
III	VOLATILE	RIC
III-1	VOLATILE	SPECTRA (ABOVE DETECTION LIMITS)
III-2	VOLATILE	STANDARD RIC
IV	ACID	RIC
IV-1	ACID	SPECTRA (ABOVE DETECTION LIMITS)
IV-2	ACID	STANDARD RIC
V	BASE-NEUTRAL/PESTICIDE	RIC
V-1	BASE-NEUTRAL/PESTICIDE	SPECTRA (ABOVE DETECTION LIMITS)
V-2	BASE-NEUTRAL/PESTICIDE	STANDARD RIC
* VI	GC PESTICIDE CHROMATOGRAM	(METHOD 608)
* VI-1	PESTICIDE	RIC
* VI-2	PESTICIDE	SPECTRA (ABOVE DETECTION LIMITS)
* VI-3	PESTICIDE	STANDARD CHROMATOGRAMS

\* if ordered





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## TABLE OF CONTENTS

(Page Two)

EXHIBITS (Exhibits are included for each sample above if they pertain to that sample)

- \* VII 20 PEAK SPECTRAL MATCH DIAGRAM(S)
- \*VIII CHAIN-OF-CUSTODY

### 2. ANALYTICAL METHODS, DEFINITIONS AND EXPLANATIONS

### 3. REPORT OF QUALITY CONTROL DATA \*

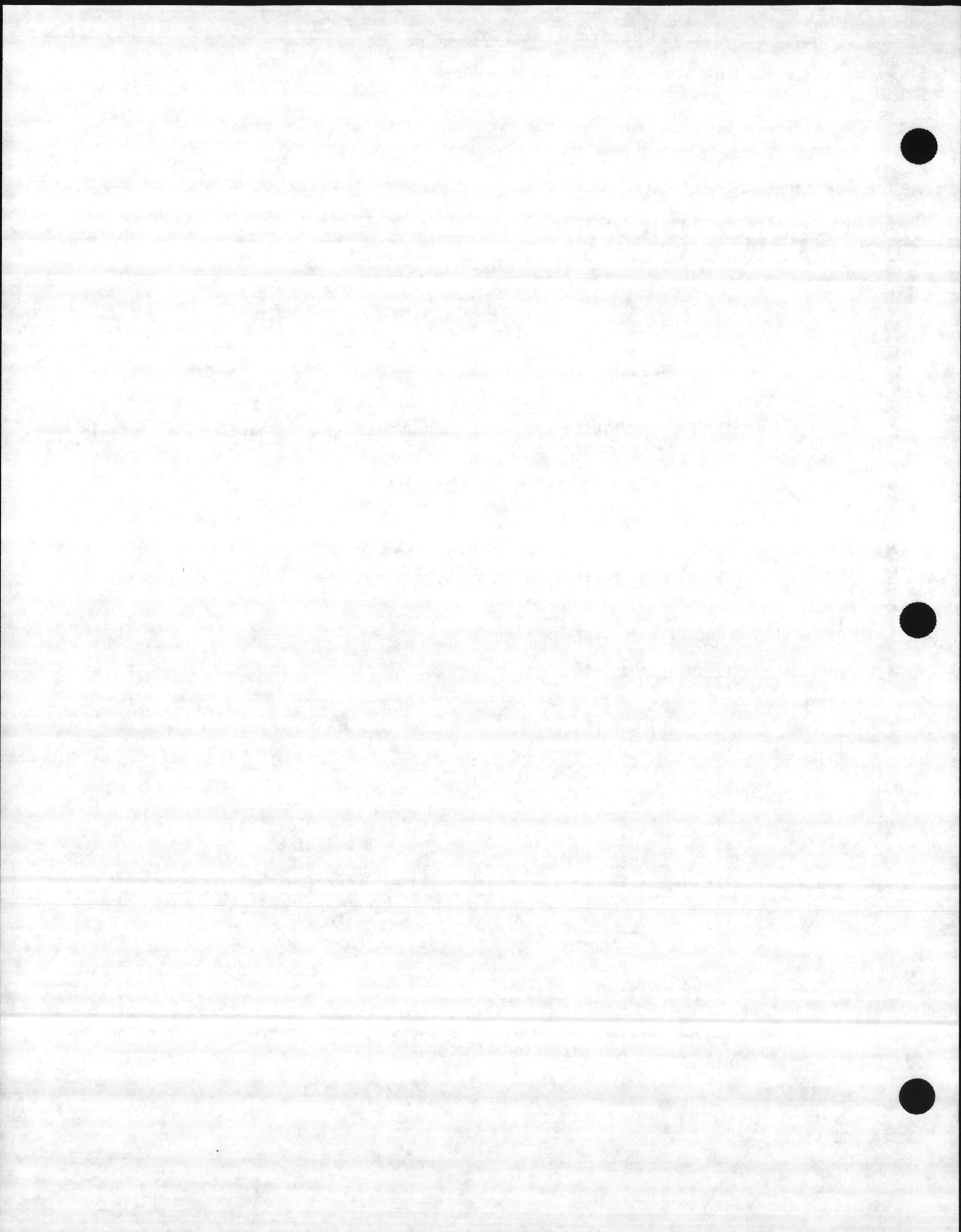
- A. MATRIX SPIKE ANALYSIS
- B. DUPLICATE ANALYSIS
- C. METHOD BLANK ANALYSIS
- D. SURROGATE SPIKE RECOVERIES

### EXHIBITS

I	VOA	BLANK RIC **
II	VOA	BFB TUNING
III	ACID	BLANK RIC **
IV	ACID	DFTPP TUNING
V	B/N/P	BLANK RIC **
VI	B/N/P	DFTPP TUNING
VII	PESTICIDE BLANK	(Method 608)

\* if ordered

\*\* Spectra and Spectral Match Diagrams included only if compounds in blank are above EPA specified detection limits.





MeadCompuChem

1A. REPORT OF DATA

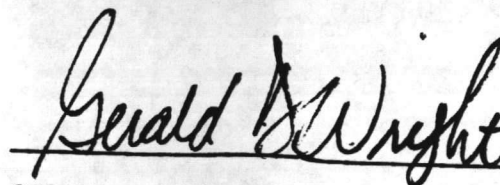
SAMPLE IDENTIFIER NUMBER: 29372

COMPUCHEM SAMPLE NUMBER: 3493

CHEMICAL  
LANDFILL

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

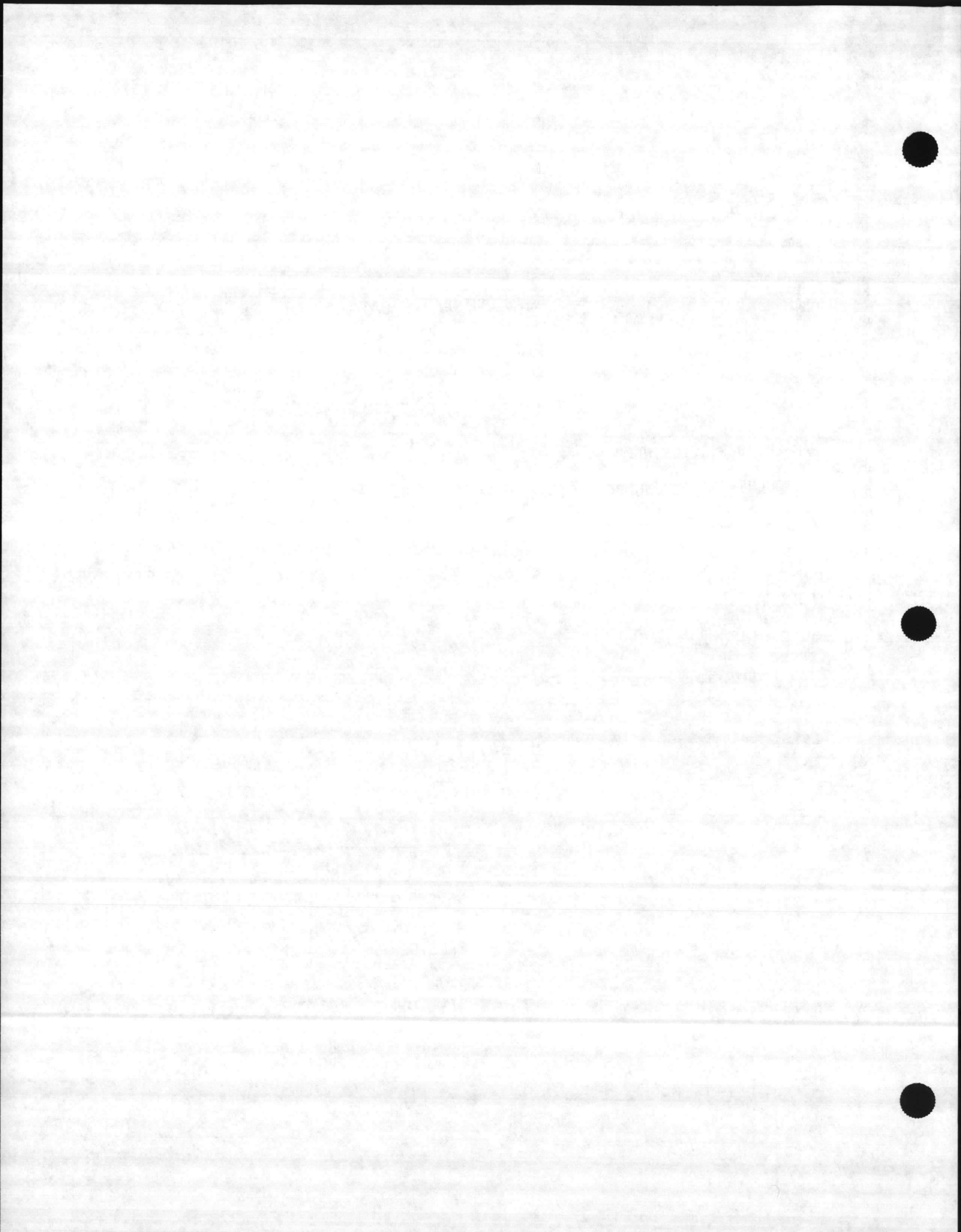
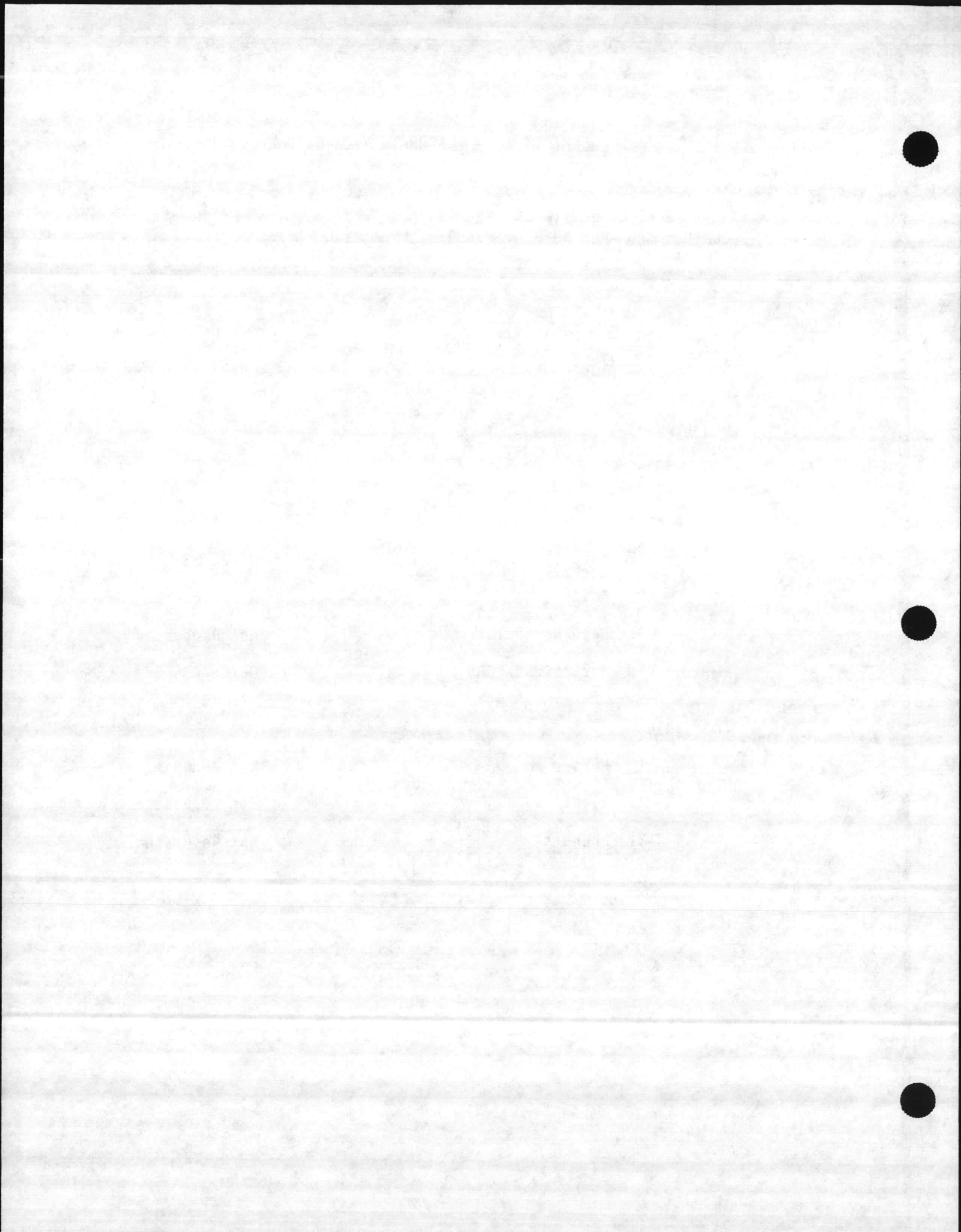


EXHIBIT I - LABORATORY CHRONICLE

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



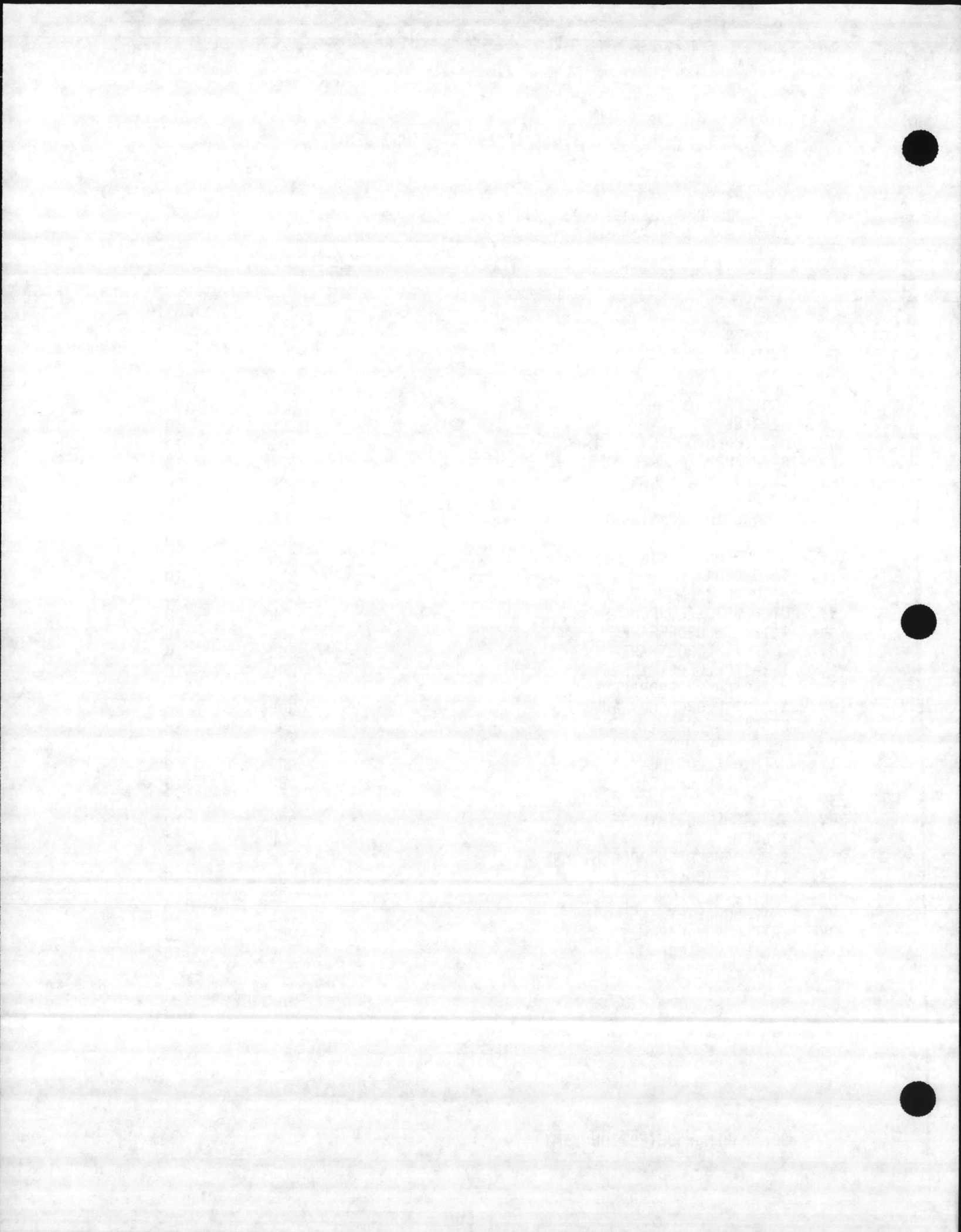


## EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29372  
 COMPUCHEM SAMPLE NUMBER: 3493

<u>VOLATILE ORGANICS</u>		<u>CONCENTRATION</u> (UG/L)	<u>DETECTION</u> <u>LIMIT</u> (UG/L)	<u>SCAN</u> <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



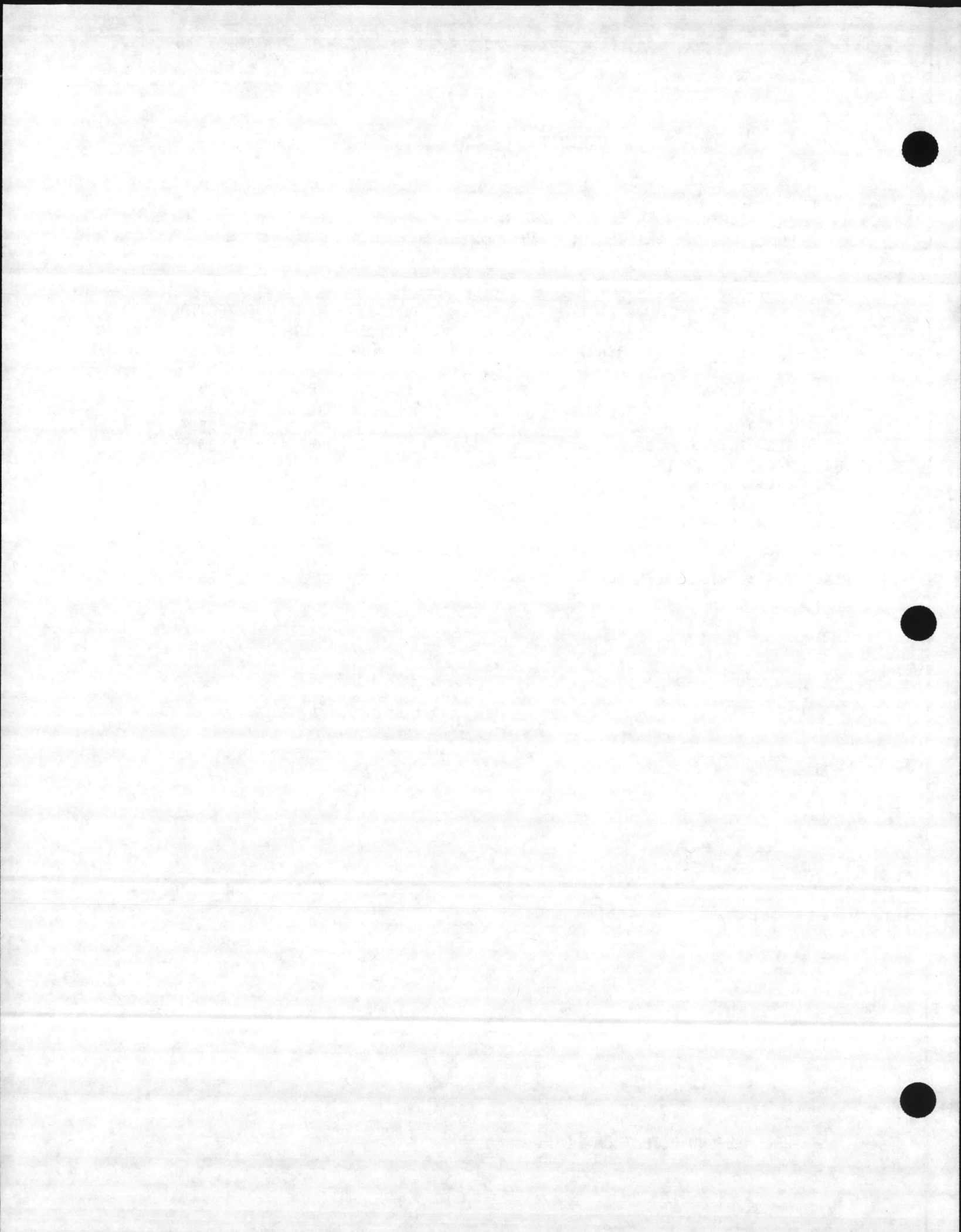


## EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29372  
COMPUCHEM SAMPLE NUMBER: 3493

<u>ACID EXTRACTABLE ORGANICS</u>		<u>CONCENTRATION (UG/L)</u>	<u>DETECTION LIMIT (UG/L)</u>	<u>SCAN 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 525 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.



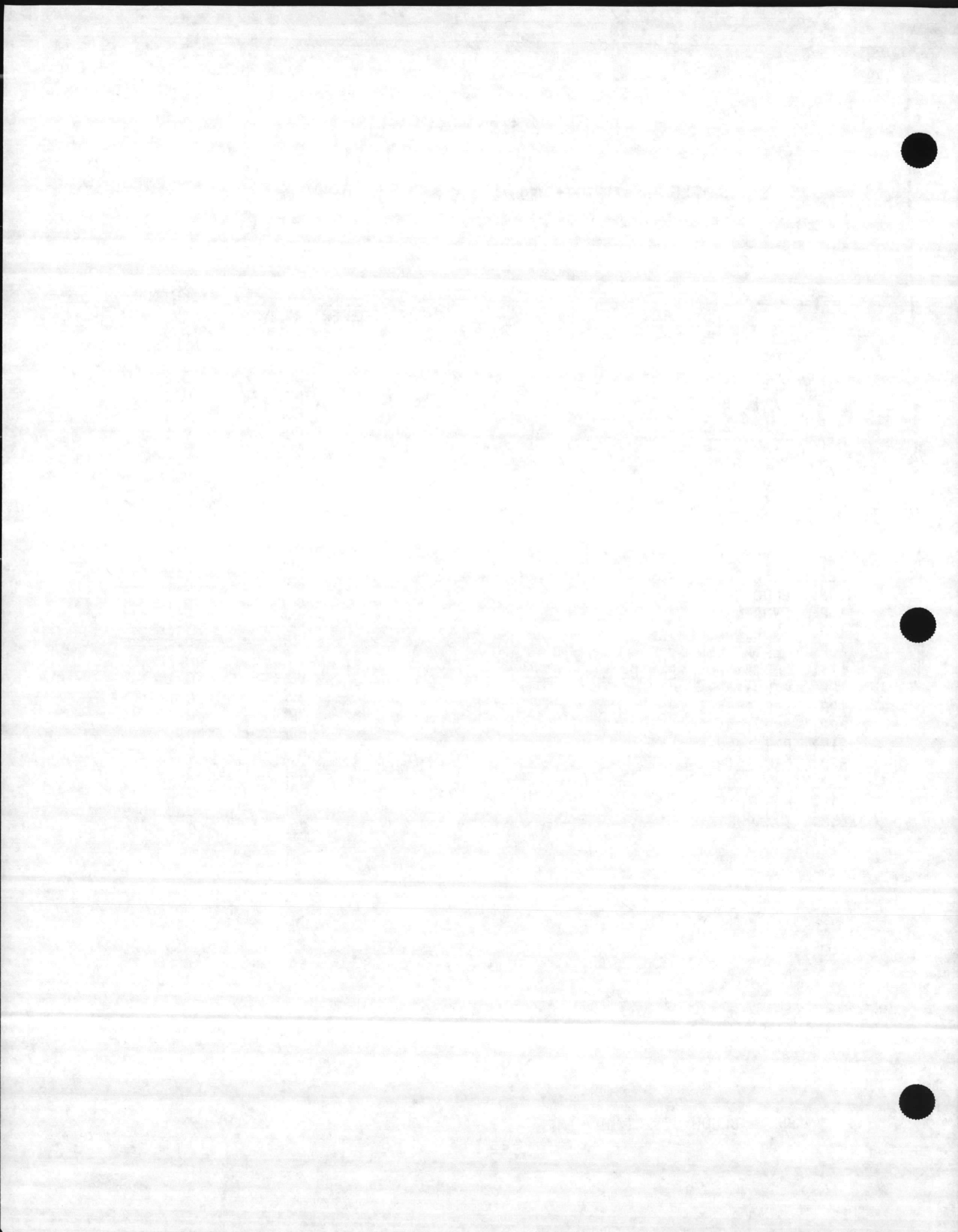


EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29372  
 COMPUCHEM SAMPLE NUMBER: 3493

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

DATA: UN003493B06

SCANS 30 TO 850

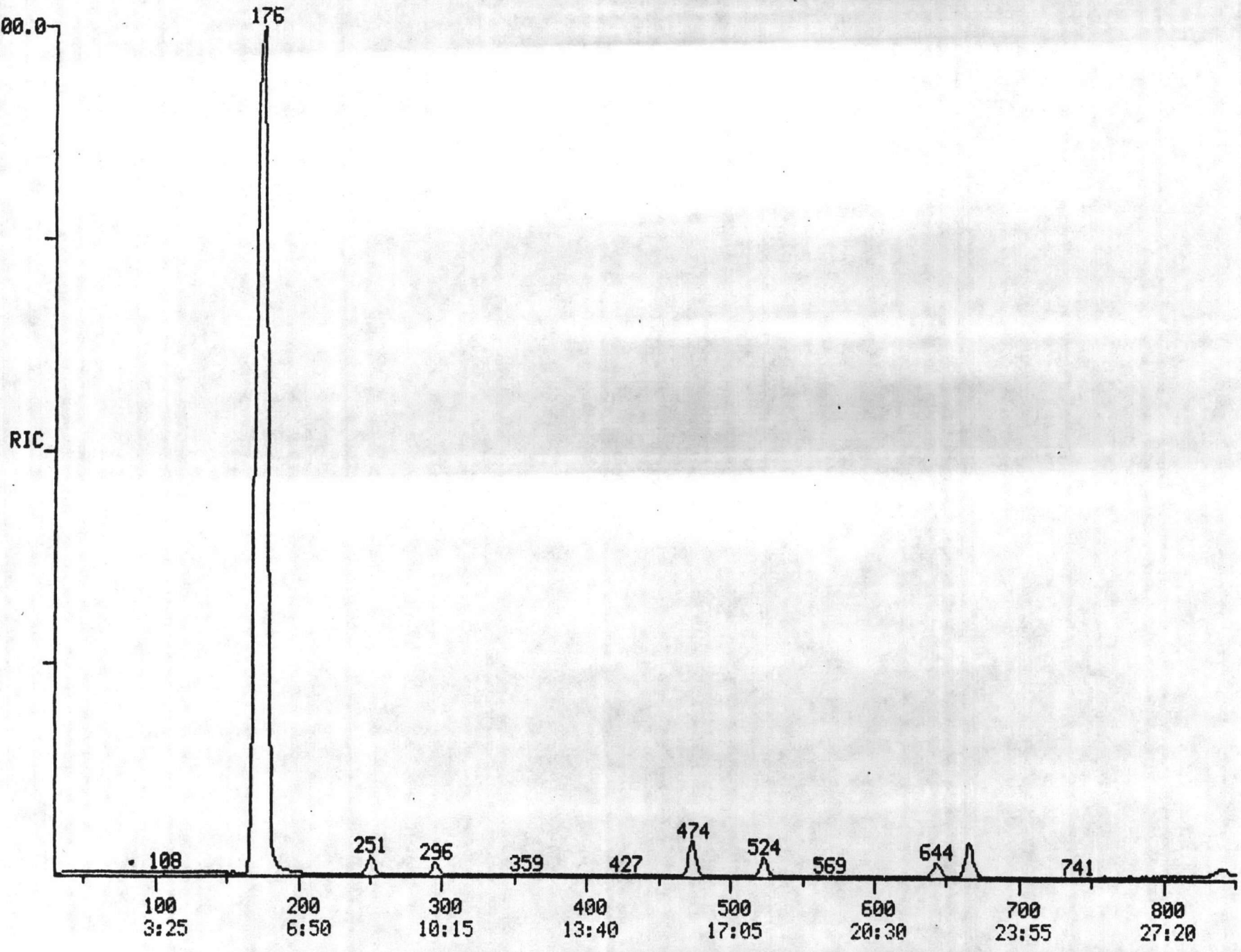
RIC

04/28/83 18:25:00

SAMPLE: SAMPLE #3493 5ML DISK 602

2170870.

Doc No: QLEJ - 00360 - 04/28/83





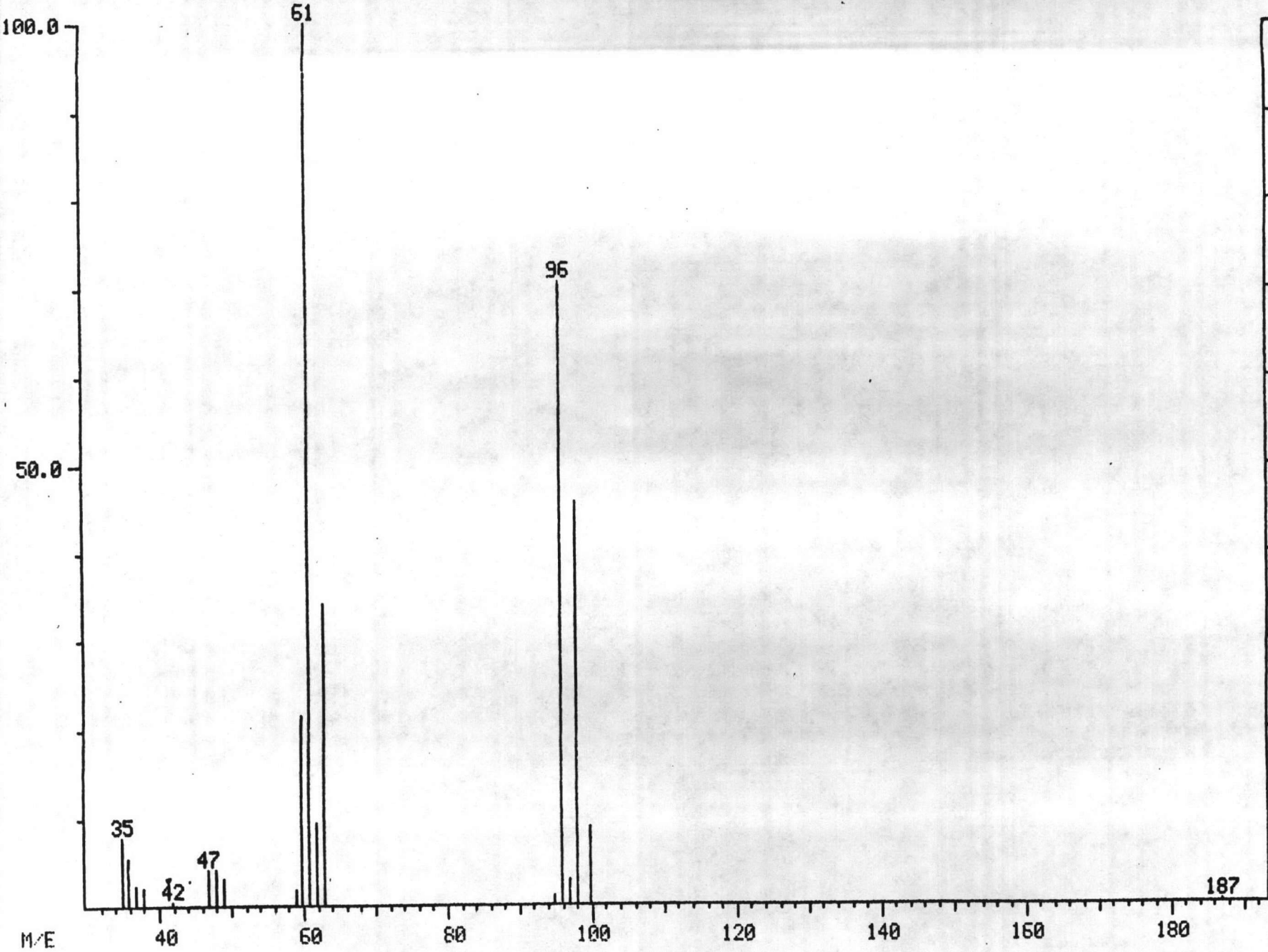
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MEAD COMPUCHEM

DATA: UN003493B06 #295

BASE M/E: 61  
RIC: 29568.

MASS SPECTRUM  
04/28/83 18:25:00 + 10:05  
SAMPLE: SAMPLE #3493 5ML DISK 602  
ENHANCED (S 15B 2N)



9040.  
10.

Doc No: 02EJ-00360-3.04-7/19/83





MEAD COMPUCHEM

RIC

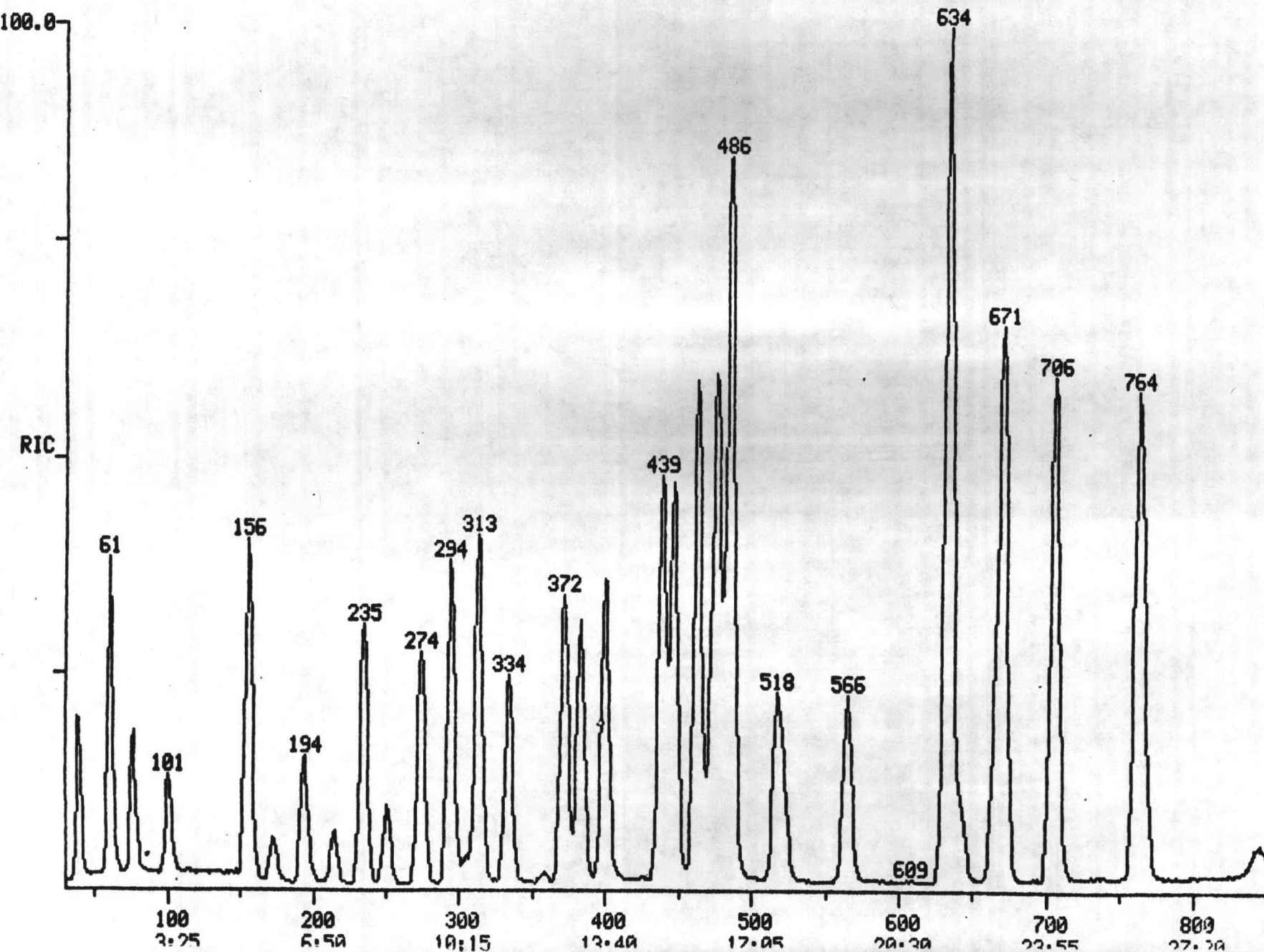
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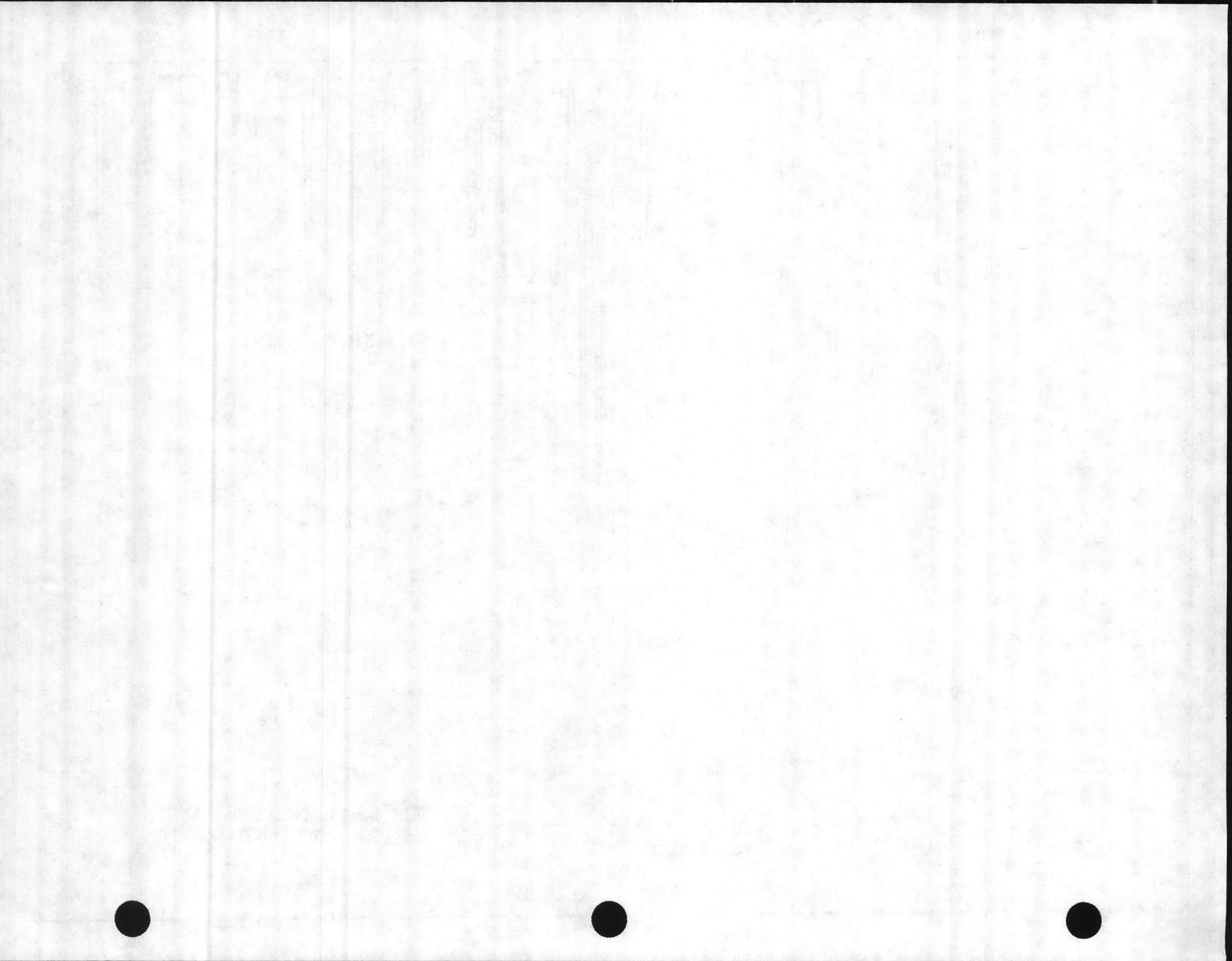
SCANS 30 TO 850

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Doc No: QLEJ-00360-3.04-07/14/83

SCAN TIME





MEAD COMPUCHEM

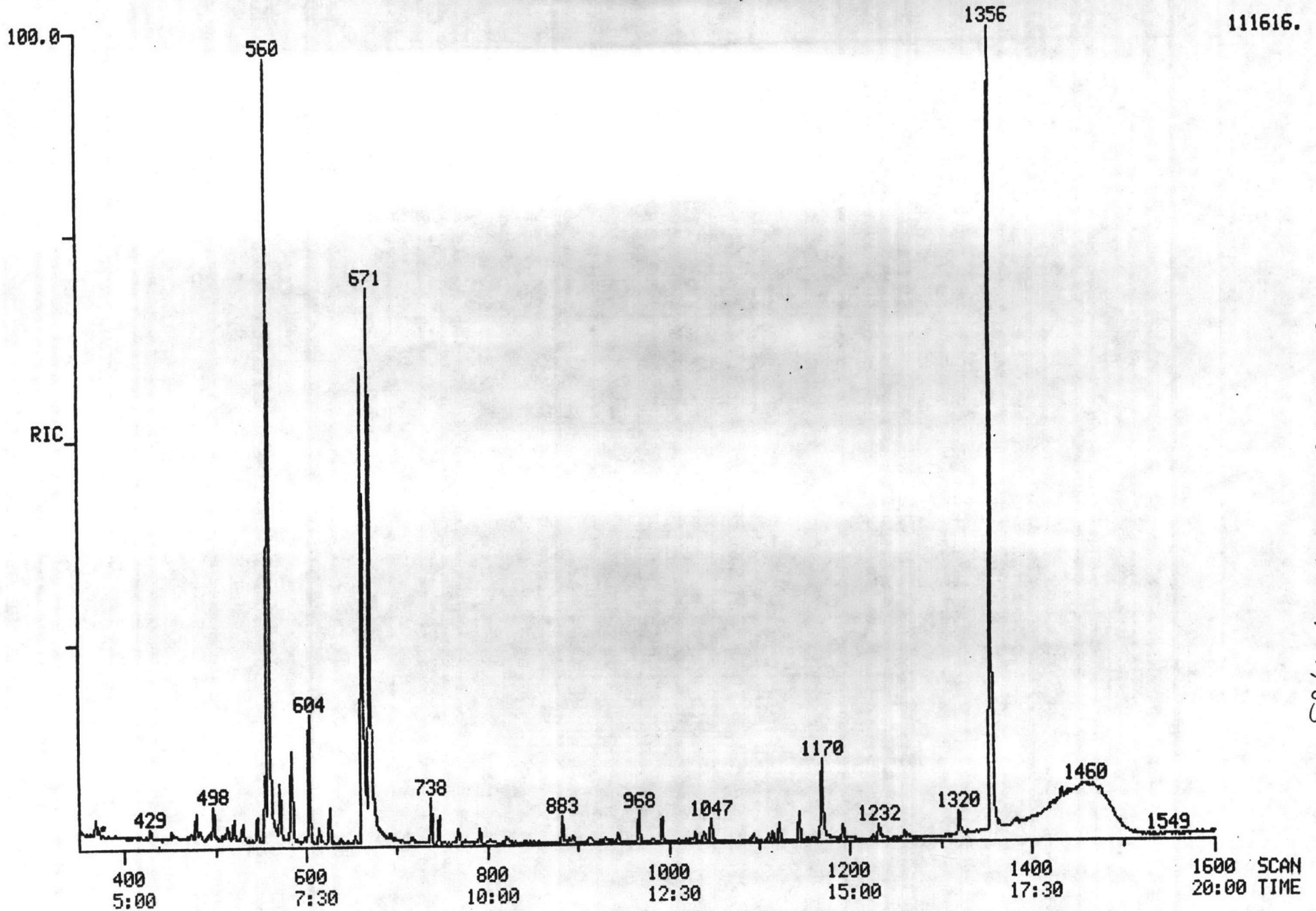
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SCANS 350 TO 1600

RIC

04/29/83 9:44:00

SAMPLE: ACIFD SAMPLE#3493



Doc No: OLETJ-00360-3.04-7/14/83



MEAD COMPUCHEM

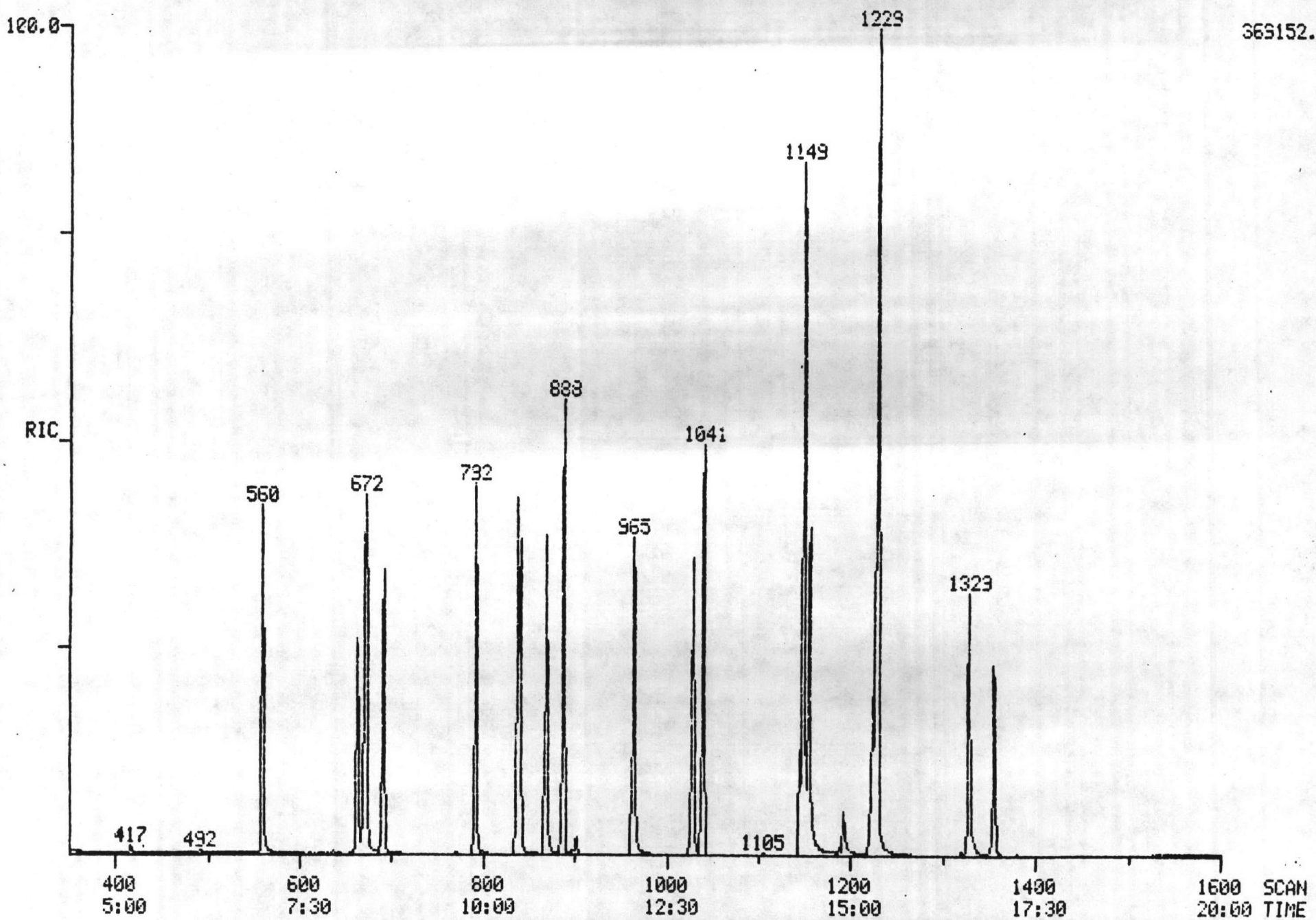
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SCANS 350 TO 1620

RIC

04/29/83 8:18:00

SAMPLE: ACID STD #3304, 120 NG , EX 4-28



363152.

Doc No: 02ET - 00360 - 3.00 - 11/14/83





Doc No: 04EJ - 00360 - 3-04 - 7/14/83

0ml/s



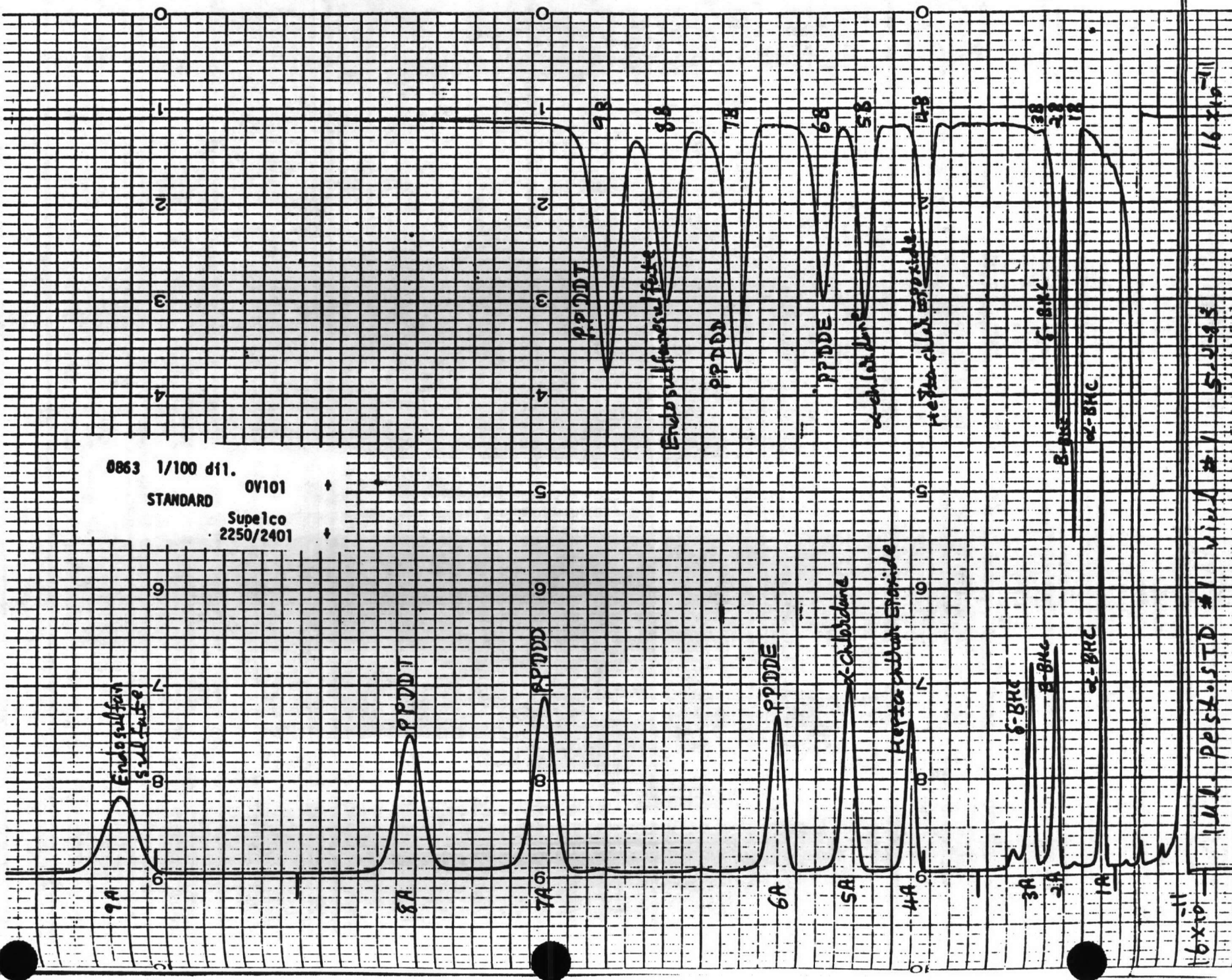
0V101 +  
Supelco 2250/2401 +

16x10  
16x10  
No. dilution vial #5  
3493  
16x10





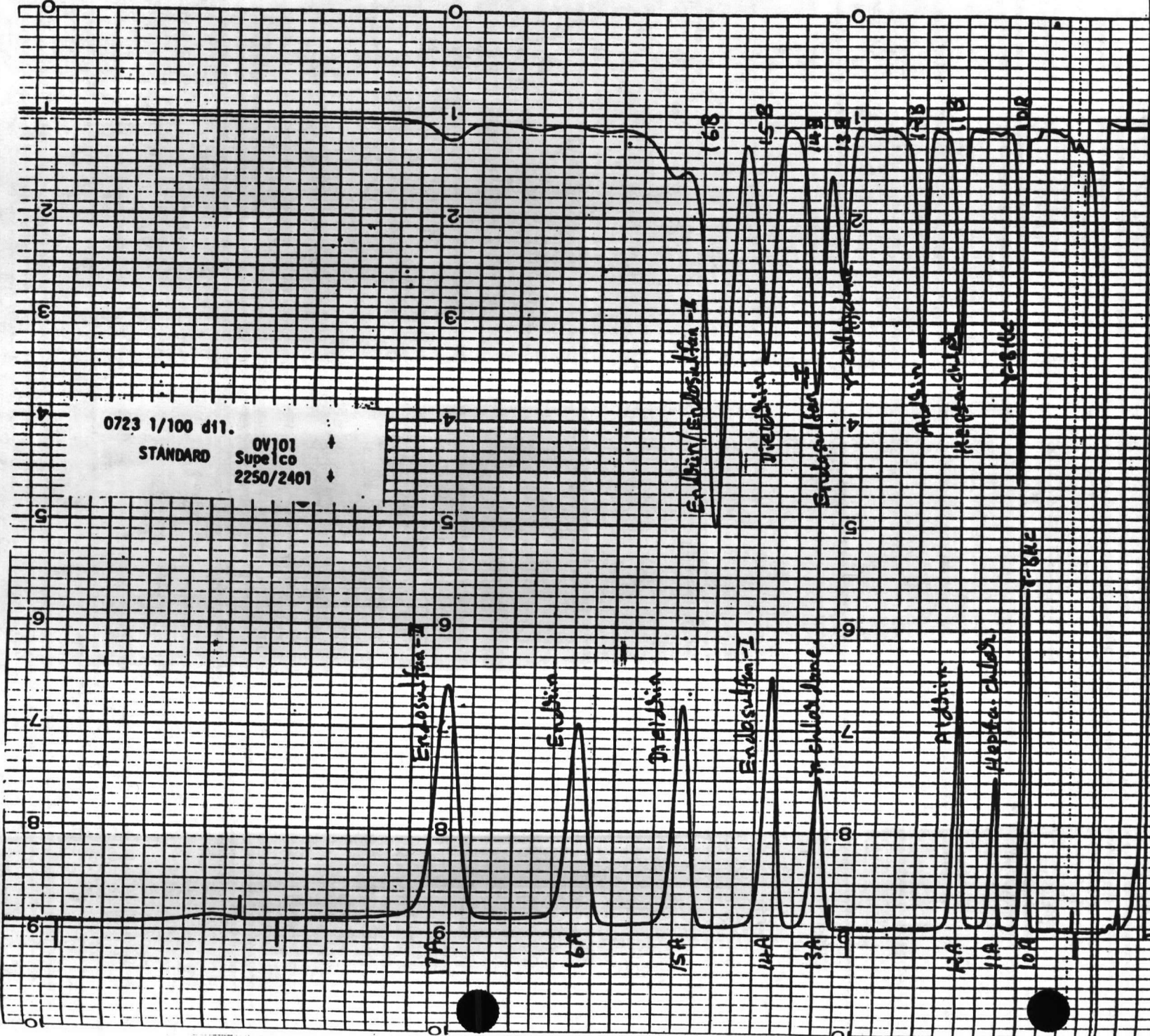
Doc No: CLEJ-00260-2 7/14/83







Doc No: CLEJ - 00260 - 3.04 - 7/14/83



1416. Post STD #2 with #1 5-8-83





MeadCompuChem

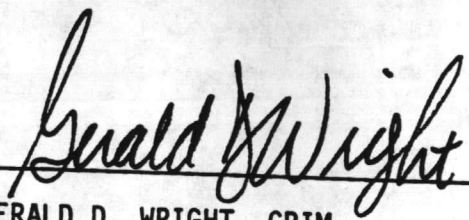
1B. REPORT OF DATA

SAMPLE IDENTIFIER NUMBER: 29373

COMPUCHEM SAMPLE NUMBER: 3494

SUBMITTED TO:

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

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

R. L. MYERS, PH.D.  
PRESIDENT

PAUL E. MILLS  
DIRECTOR OF QUALITY ASSURANCE

JAMES J. ZOLDAK  
DIRECTOR OF LABORATORY OPERATIONS

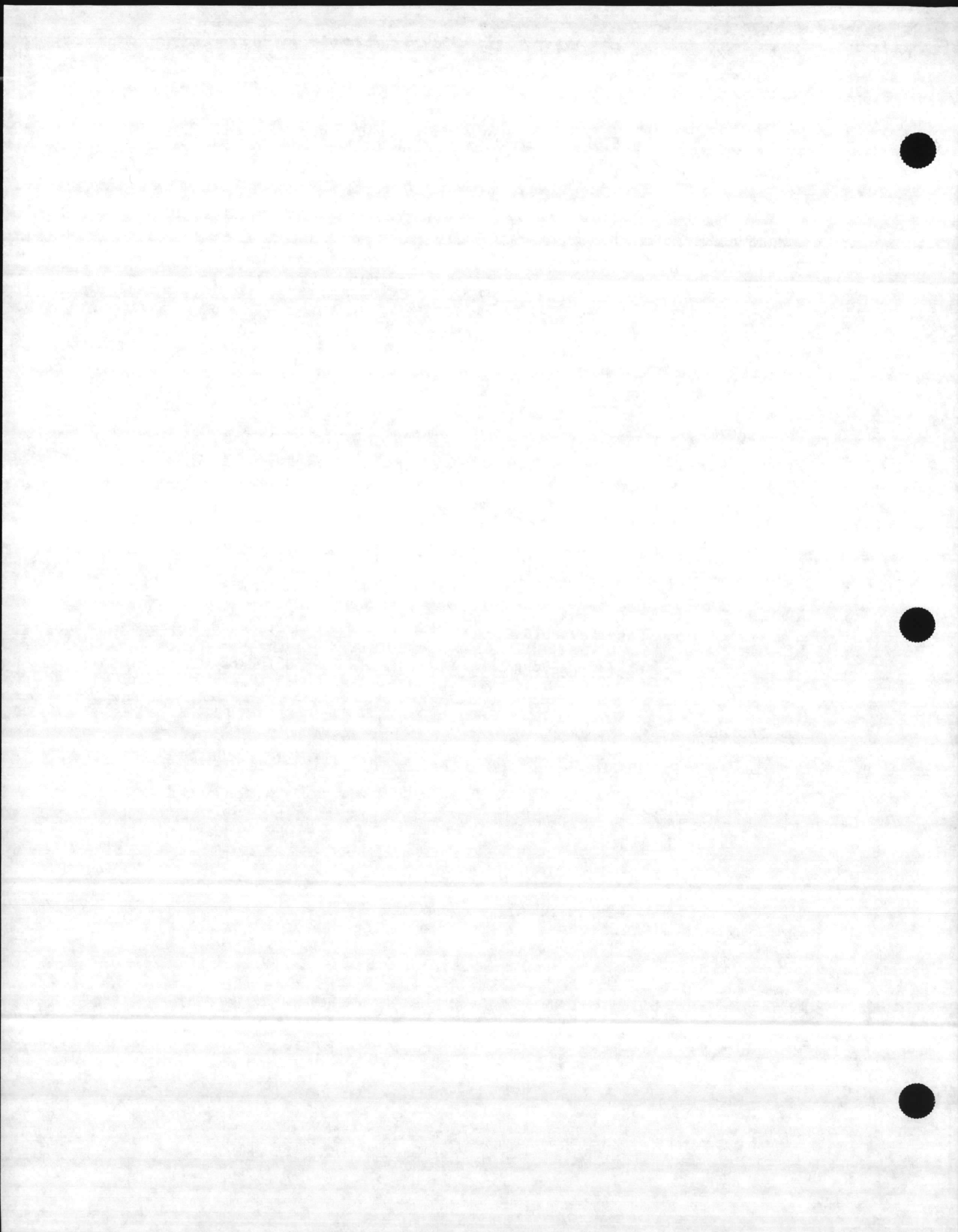




EXHIBIT I - LABORATORY CHRONICLE

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



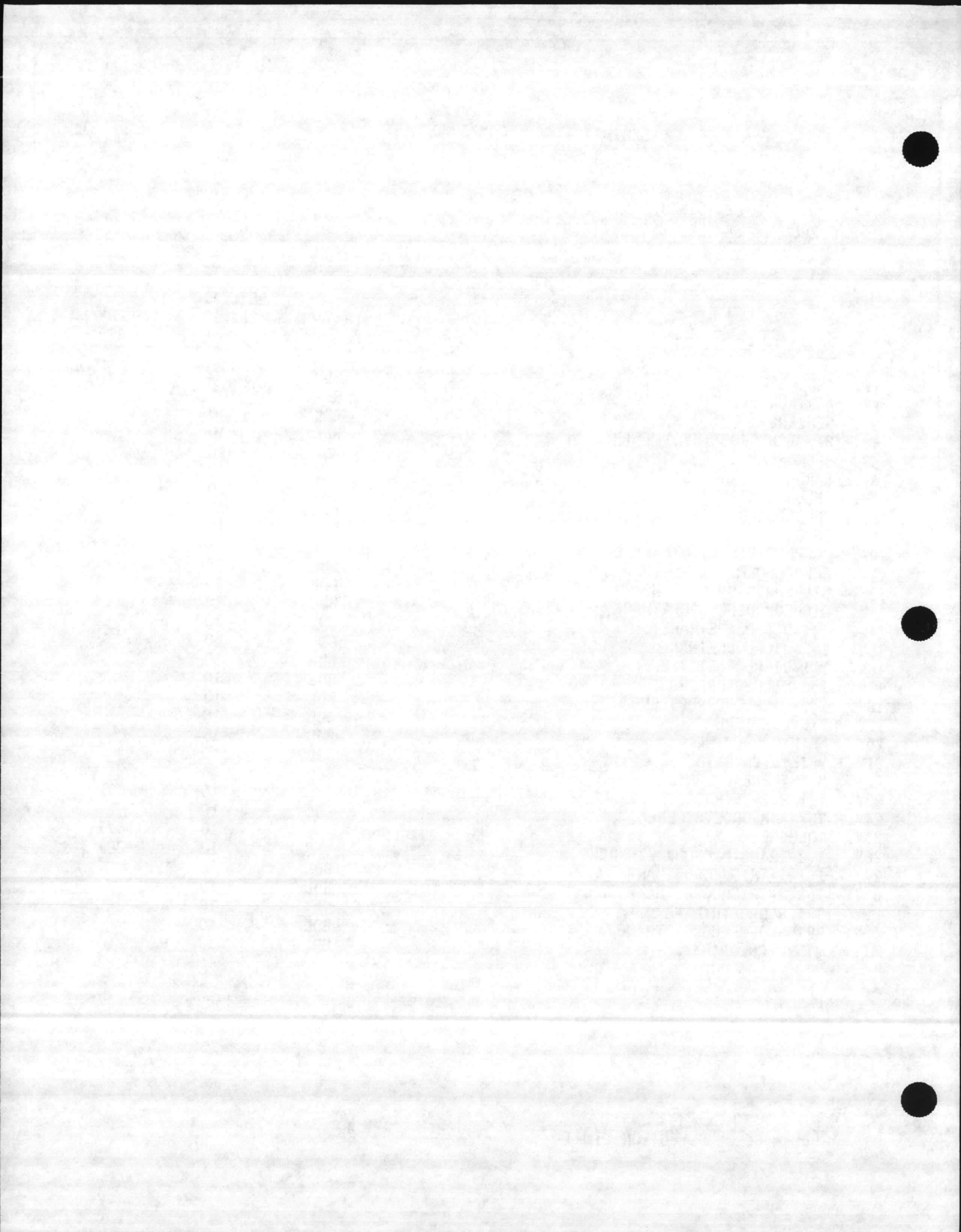
## EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29373  
 COMPUCHEM SAMPLE NUMBER: 3494

<u>VOLATILE ORGANICS</u>		<u>CONCENTRATION (UG/L)</u>	<u>DETECTION LIMIT (UG/L)</u>	<u>SCAN 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



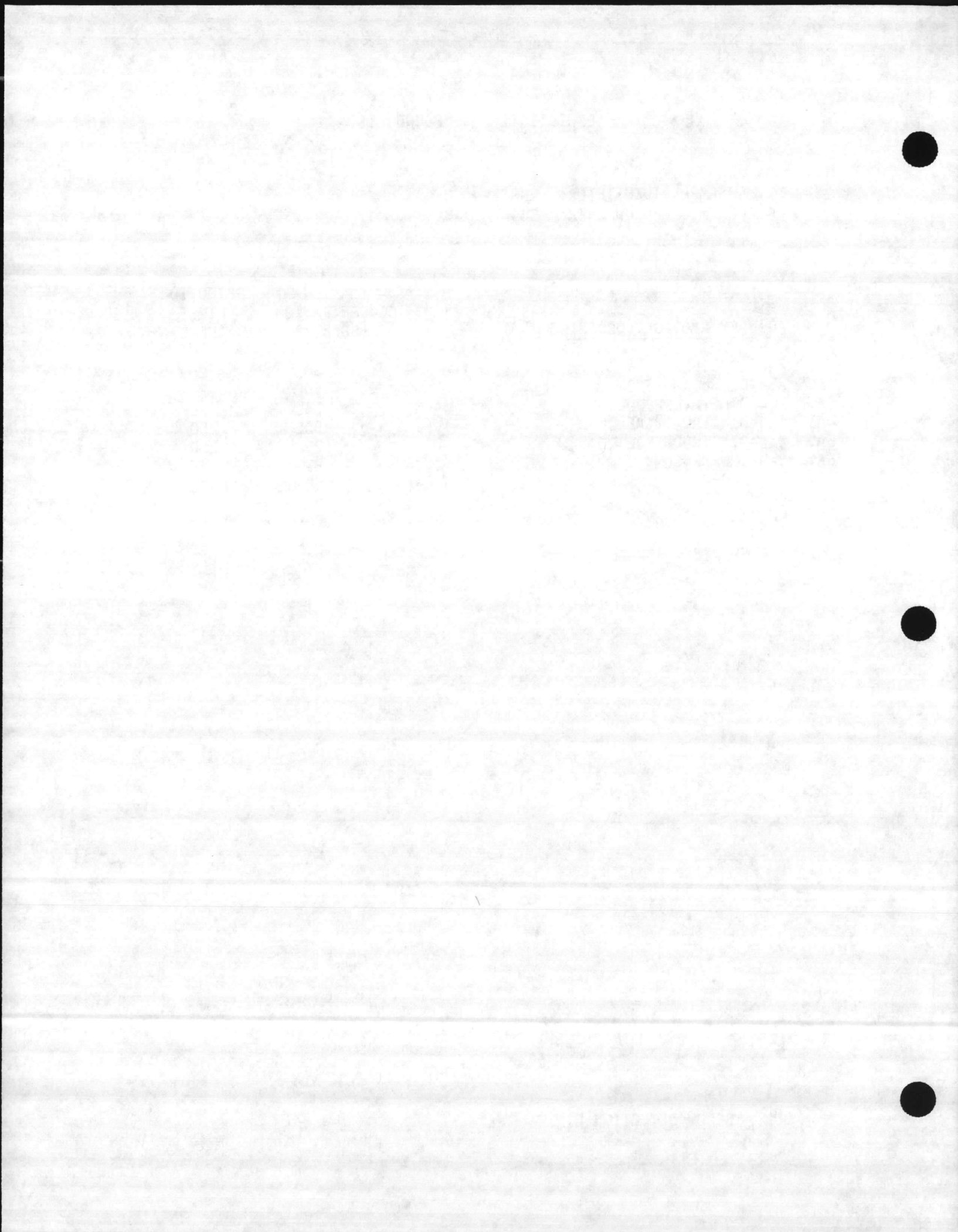


## EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29373  
COMPUCHEM SAMPLE NUMBER: 3494

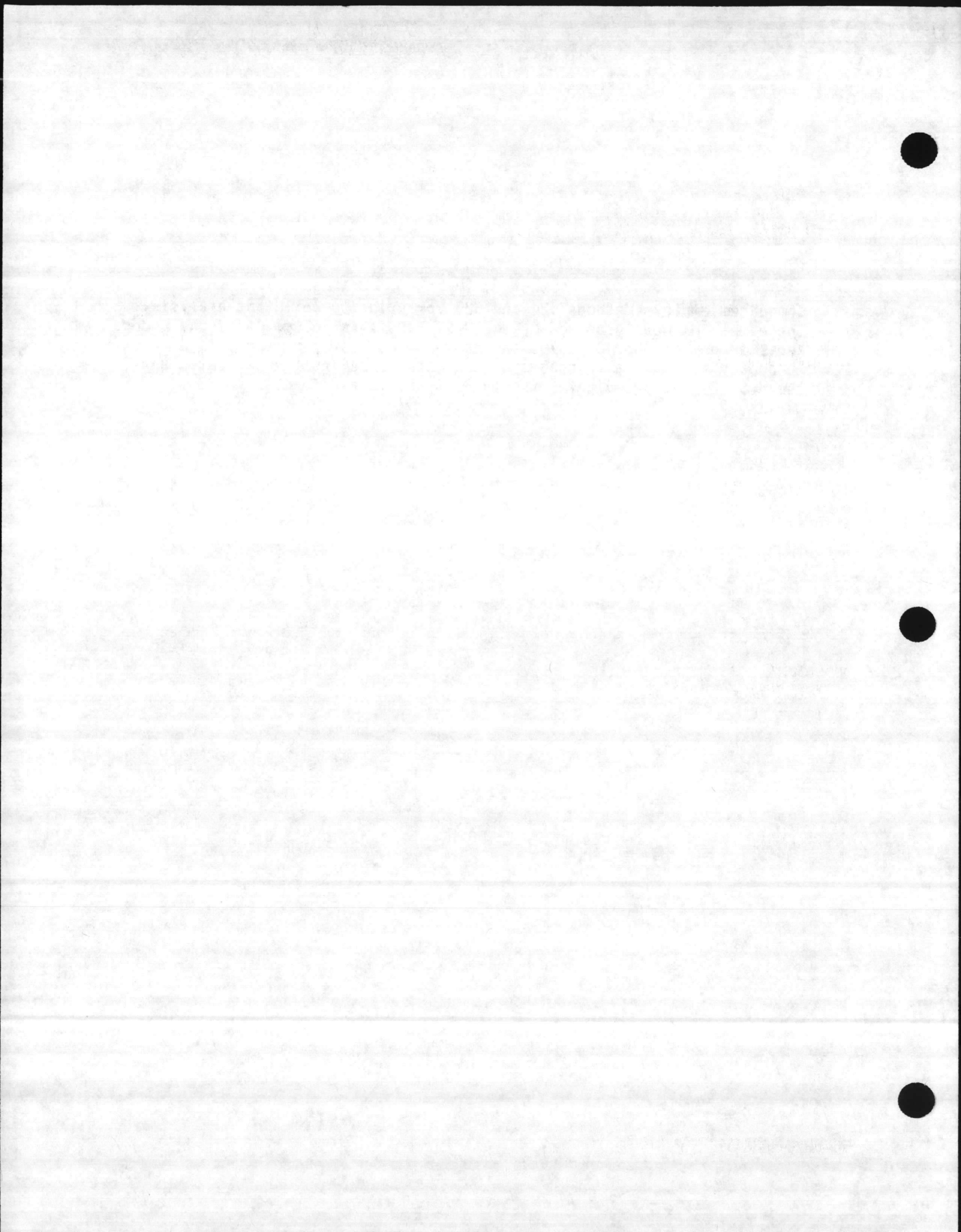
<u>ACID EXTRACTABLE ORGANICS</u>		<u>CONCENTRATION</u> <u>(UG/L)</u>	<u>DETECTION</u> <u>LIMIT</u> <u>(UG/L)</u>	<u>SCAN</u> <u>NUMBER</u>
1A.	2-CHLOROPHENOL	BDL	25	
2A.	2,4-DICHLOROPHENOL	BDL	25	
3A.	2,4-DIMETHYLPHENOL	BDL	25	
4A.	4,6-DINITRO-O-CRESOL	BDL	250	
5A.	2,4-DINITROPHENOL	BDL	250	
6A.	2-NITROPHENOL	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.



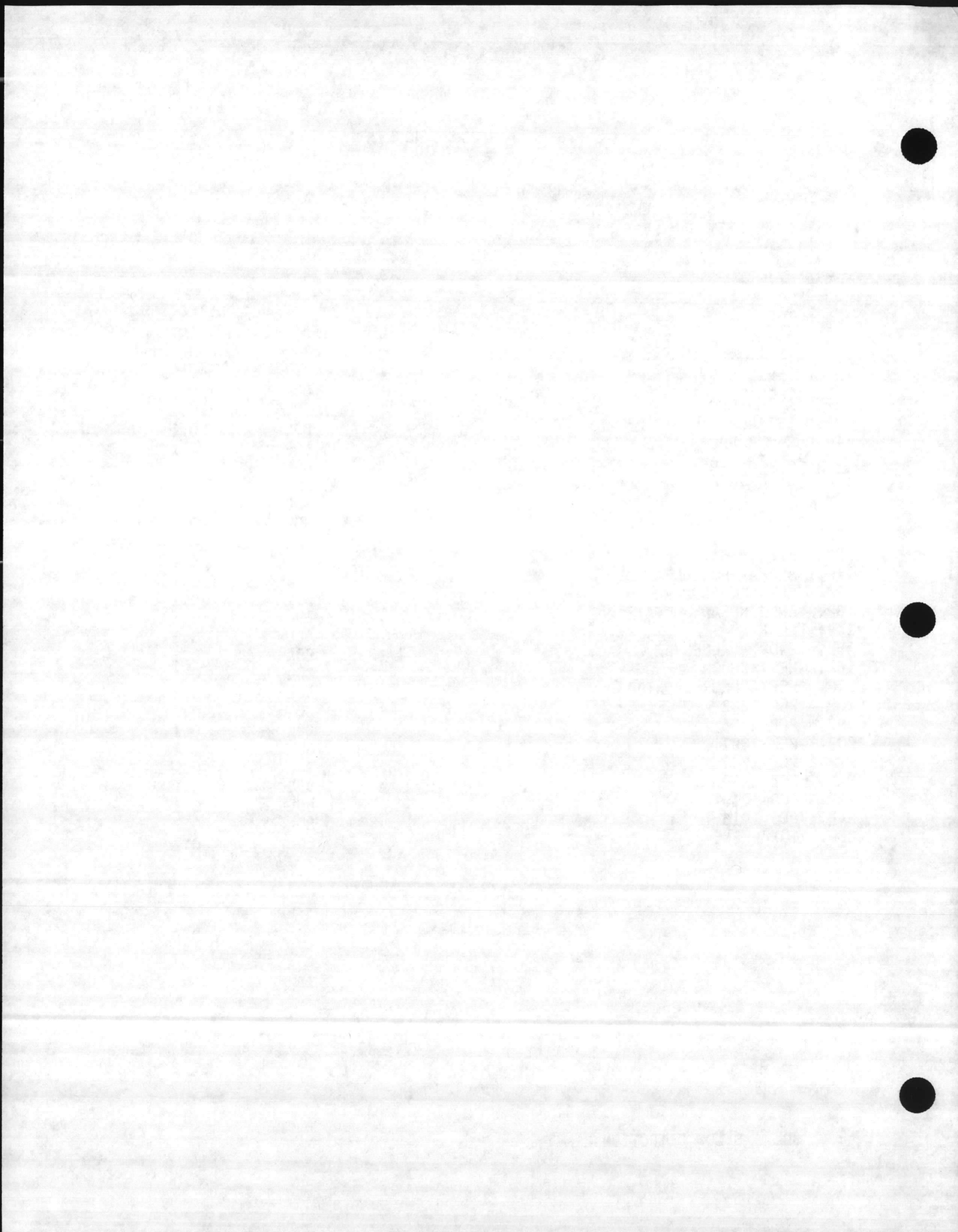
## EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29373  
COMPUCHEM SAMPLE NUMBER: 3494

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





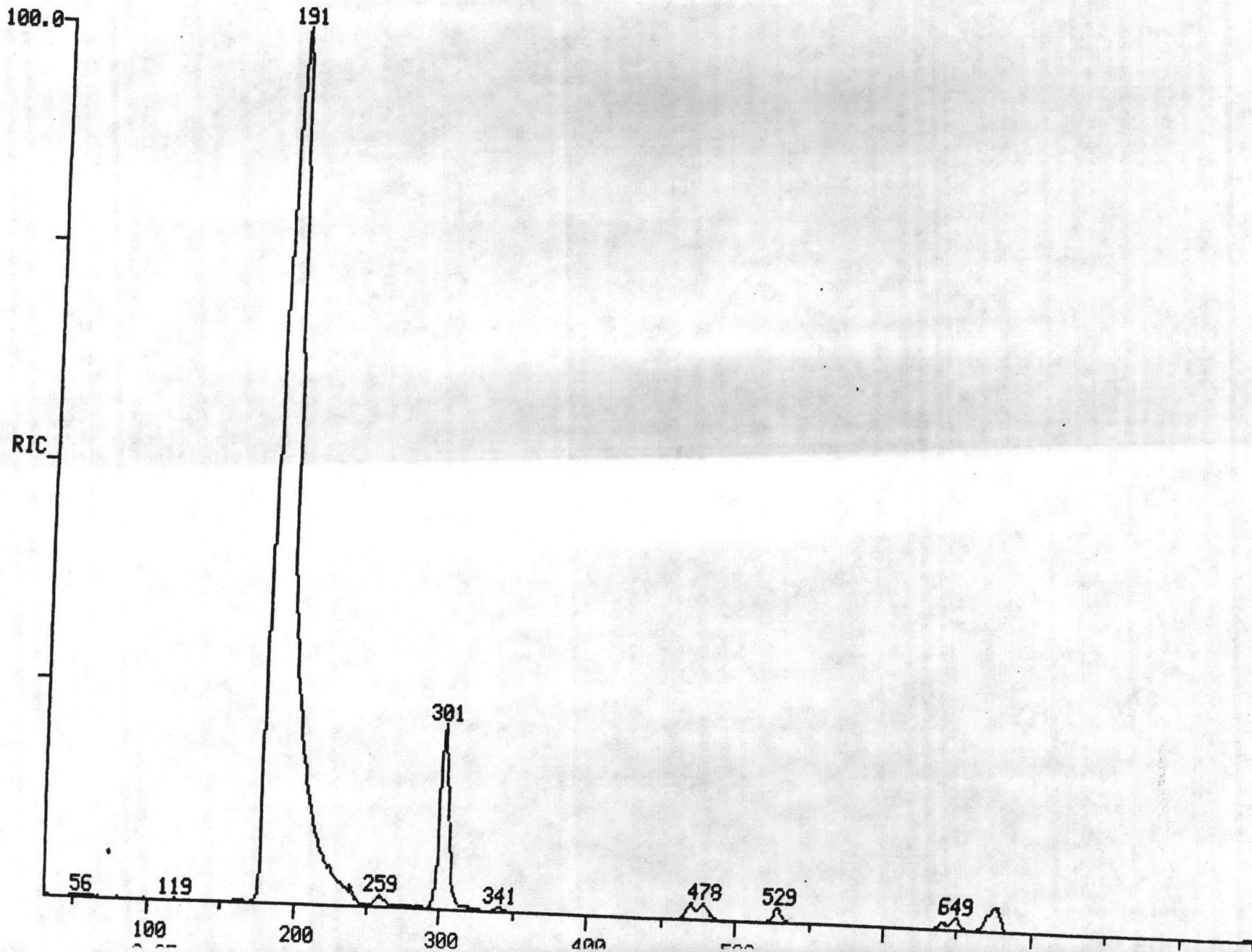
RIC  
04/28/83 18:55:00  
SAMPLE: SAMPLE #3494 5ML DISK 507

MEAD COMPUCHEM

DATA: UN003494B05

SCANS 30 TO 850

2428920.



Doc No: 02EJ-00360-3.04-7/14/83





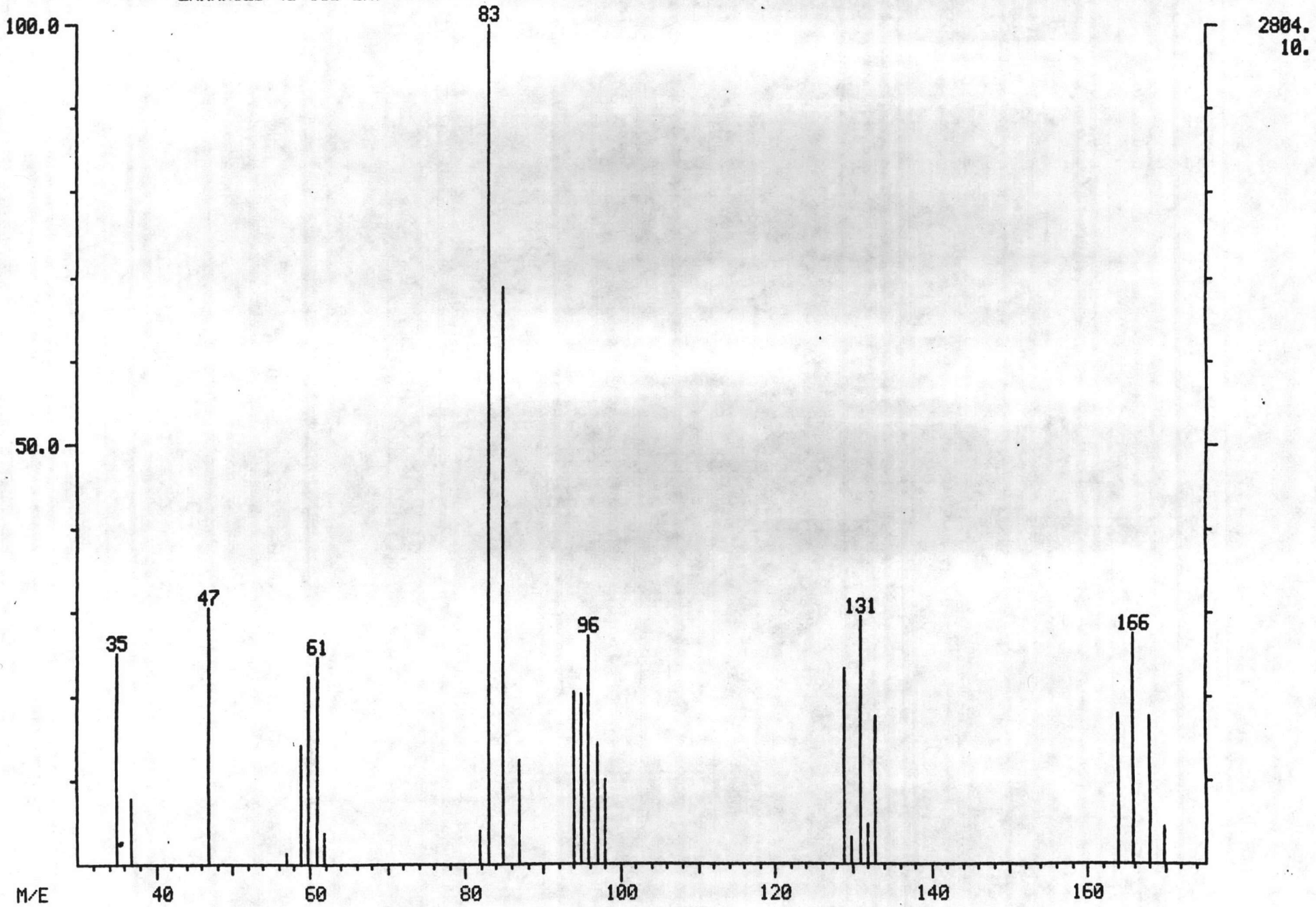
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BASE M/E: 83  
RIC: 15472.

0223

MASS SPECTRUM  
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ENHANCED (S 15B 2N)

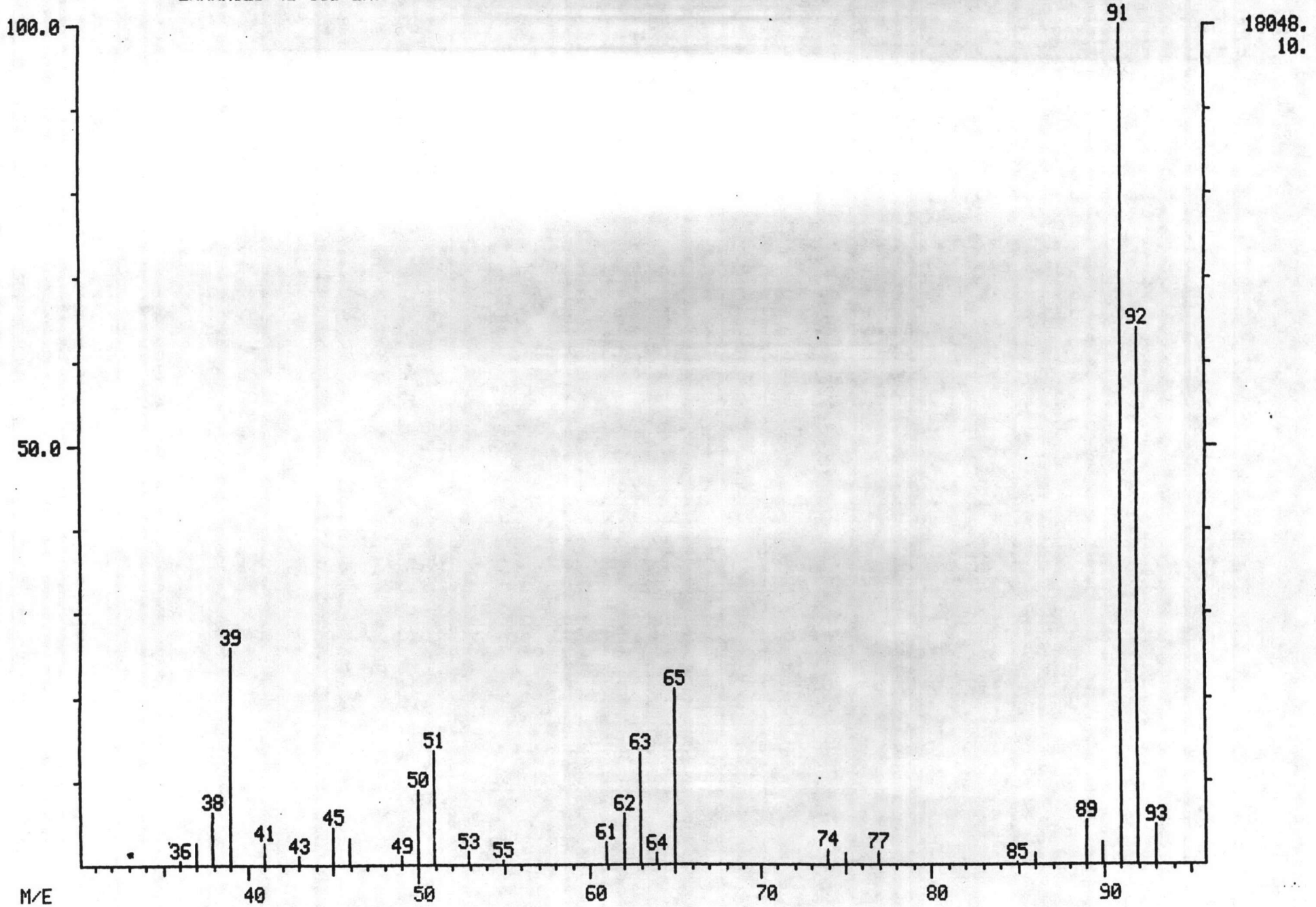


Doc No: 2650-00360-3.04-7/14/83



0225

MASS SPECTRUM  
04/28/83 18:55:00 + 23:08  
SAMPLE: SAMPLE #3494 5ML DISK 507  
ENHANCED (S 15B 2N)



Doc No: CLEA-00360-2004-7/14/83





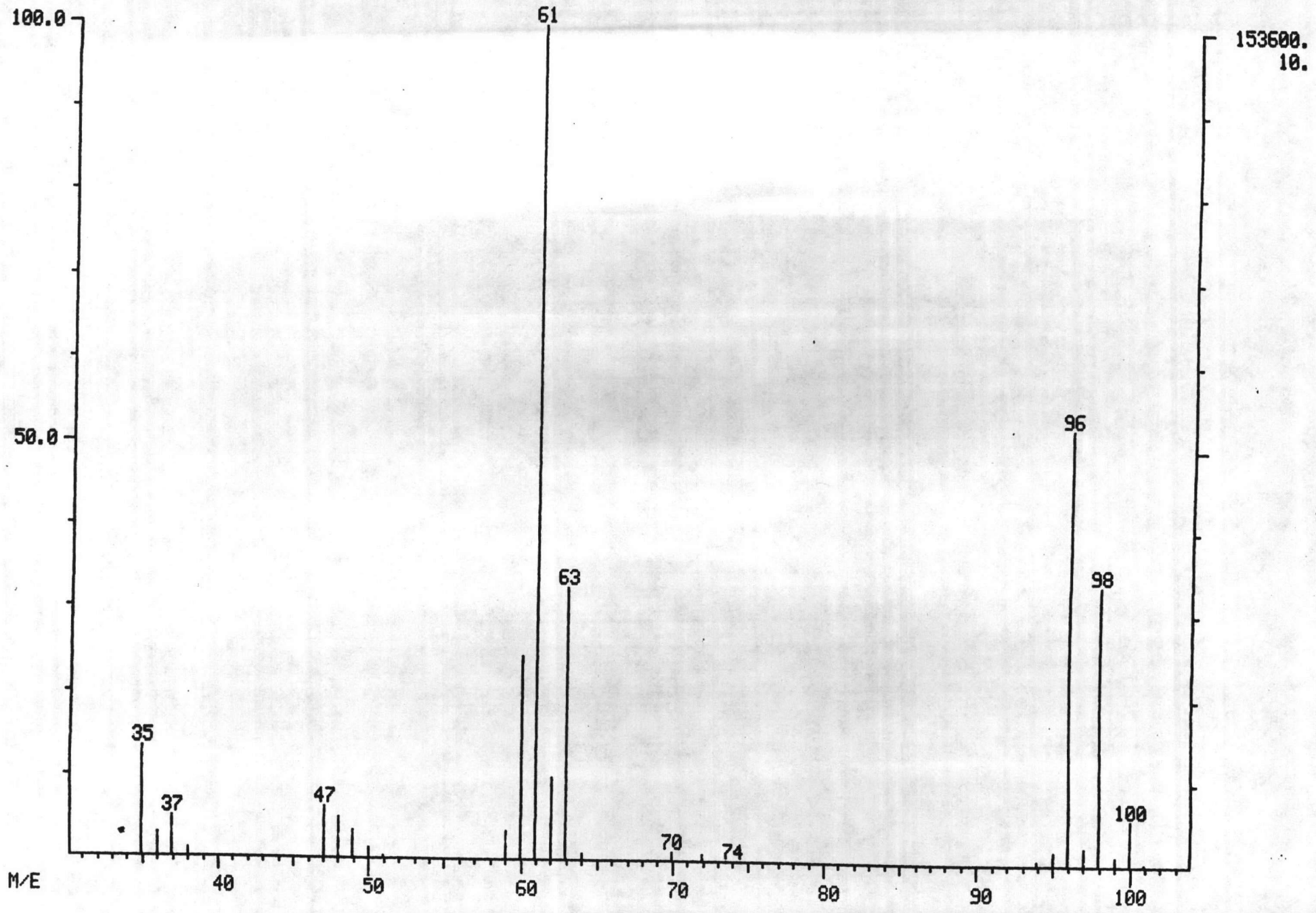
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ENHANCED (S 15B 2N)

MEAD COMPUCHEM

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RIC: 474624.

0226



Doc No: CLEJ-00360-3.04-7/14/83





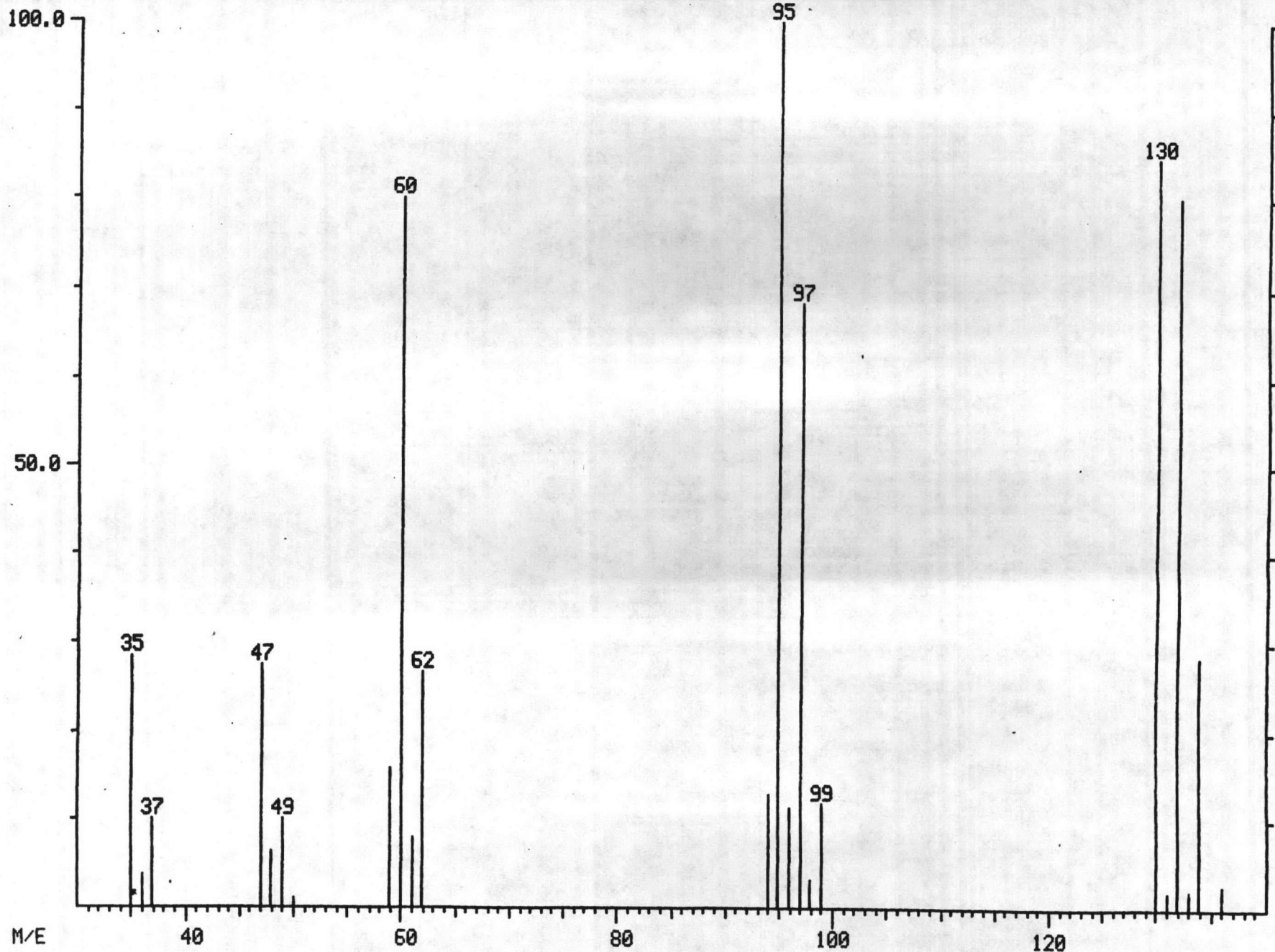
MEAD COMPUCHEM

0229

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ENHANCED (S 158 2N)

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6584.  
10.

Doc No: 0229-3494-7/14/83



MEAD COMPUCHEM

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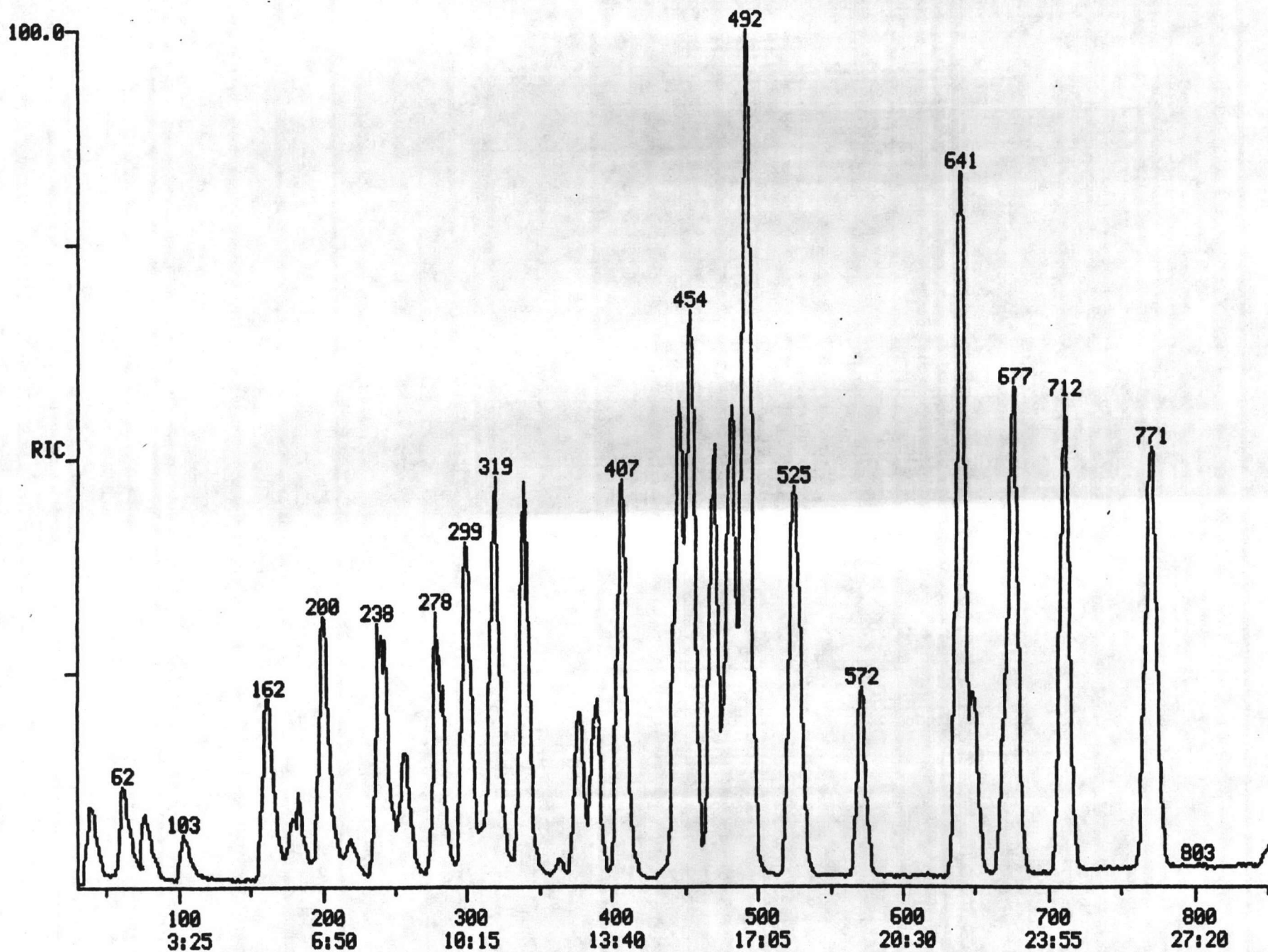
SCANS 30 TO 850

RIC

04/28/83 17:53:00

SAMPLE: UOA 80NG STD 5ML

331264.



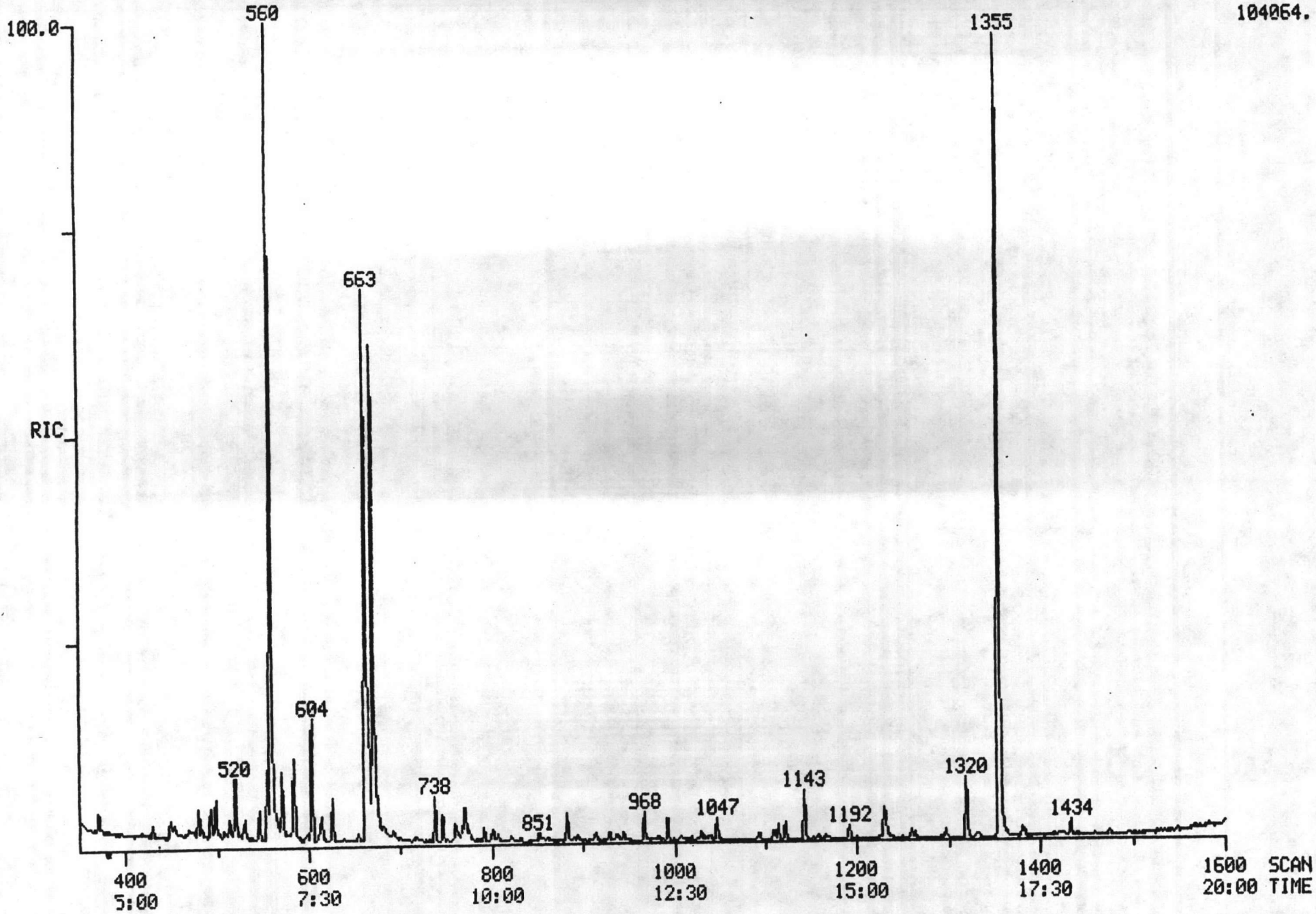
Doc No: 04-28-83-2114183





RIC  
04/28/83 22:15:00  
SAMPLE: ACID SAMPLE#3494

104064.



Doc No: 0150-003494-3494 - 7/14/83



MEAD COMPUCHEM

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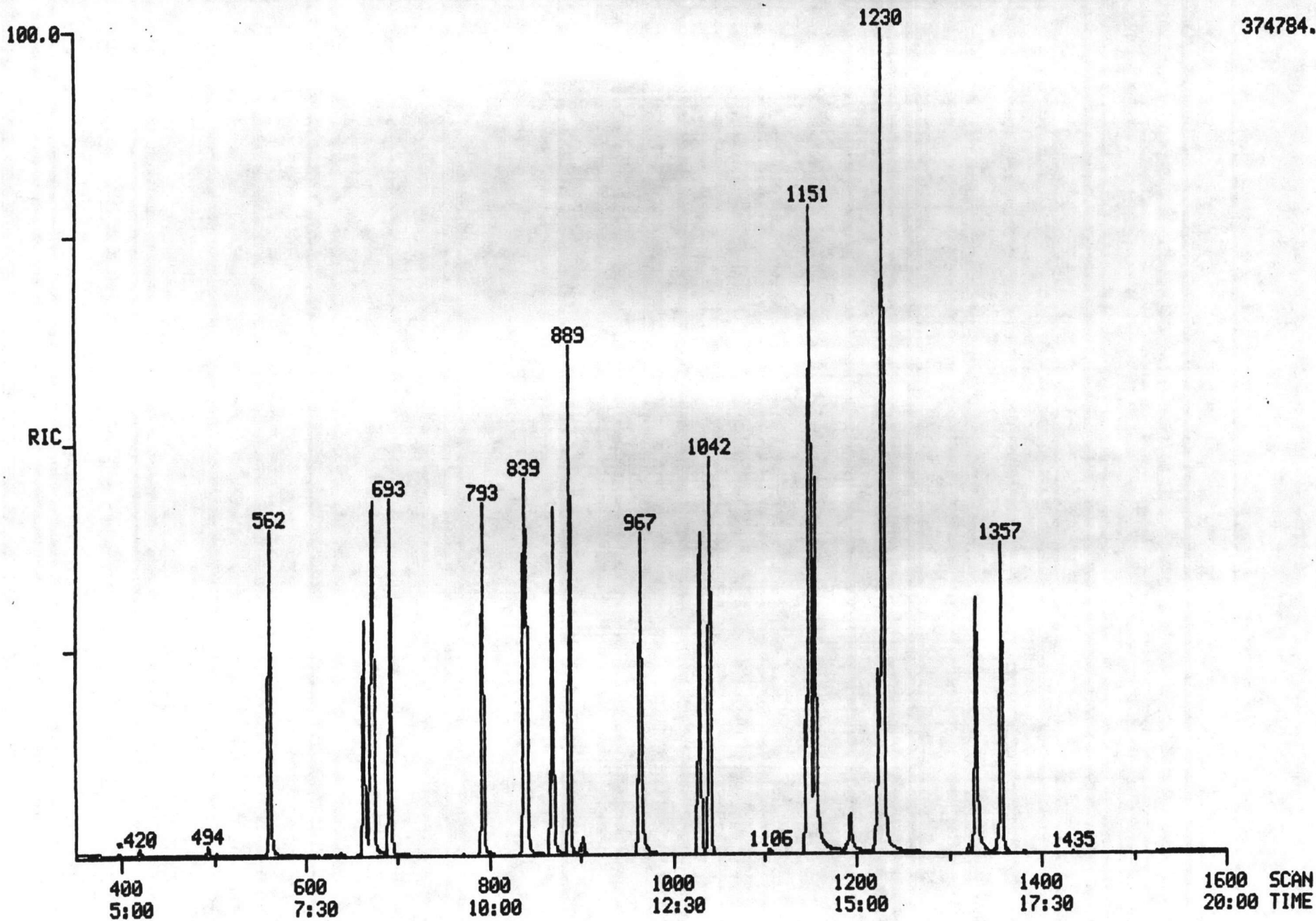
SCANS 350 TO 1600

RIC

04/28/83 19:02:00

SAMPLE: ACID STD LOT#21182, #3303, -- 80 NG

374784.

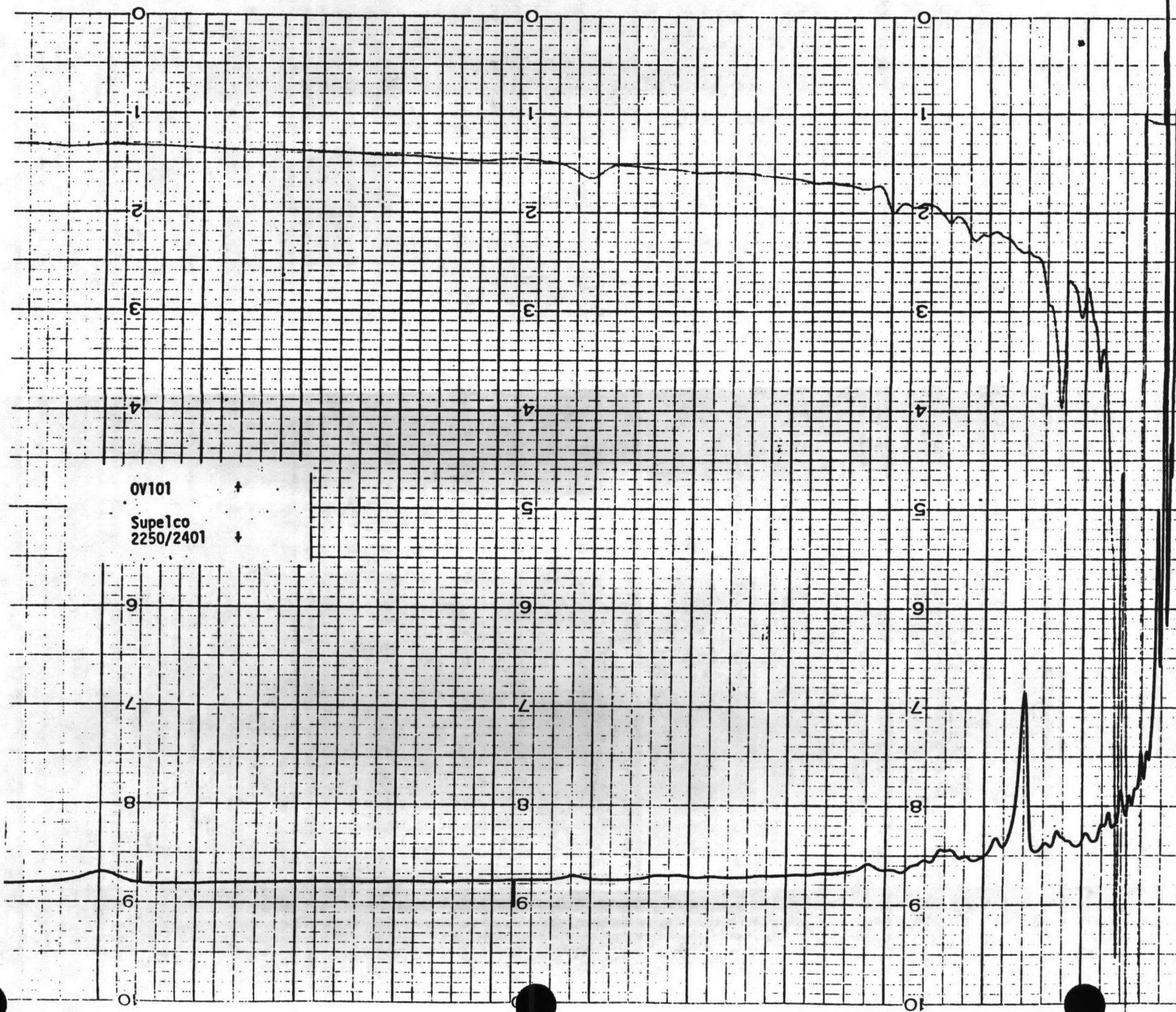


DO NOT: 0250-00000-3.04-7/1/83





Doc NO: CLEJ-00360-3.04 - 7/14/83



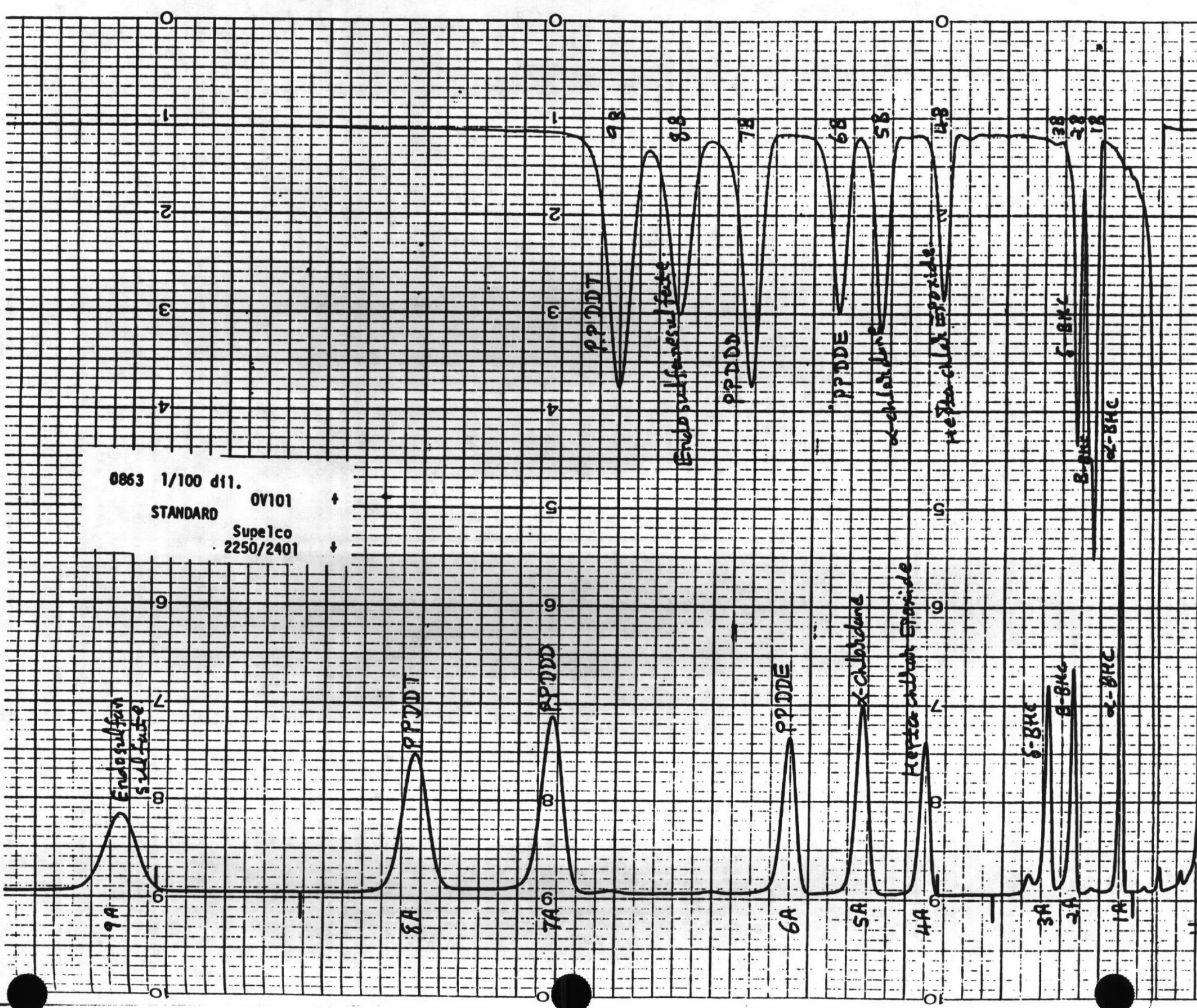
OV101    †  
Supelco  
2250/2401    †

16X10  
-11-  
1 μL sample # 3494    no. dilution vial # 6    5-2-83    16x10





Doc No. ~~0000~~ 3-04-7/14/83

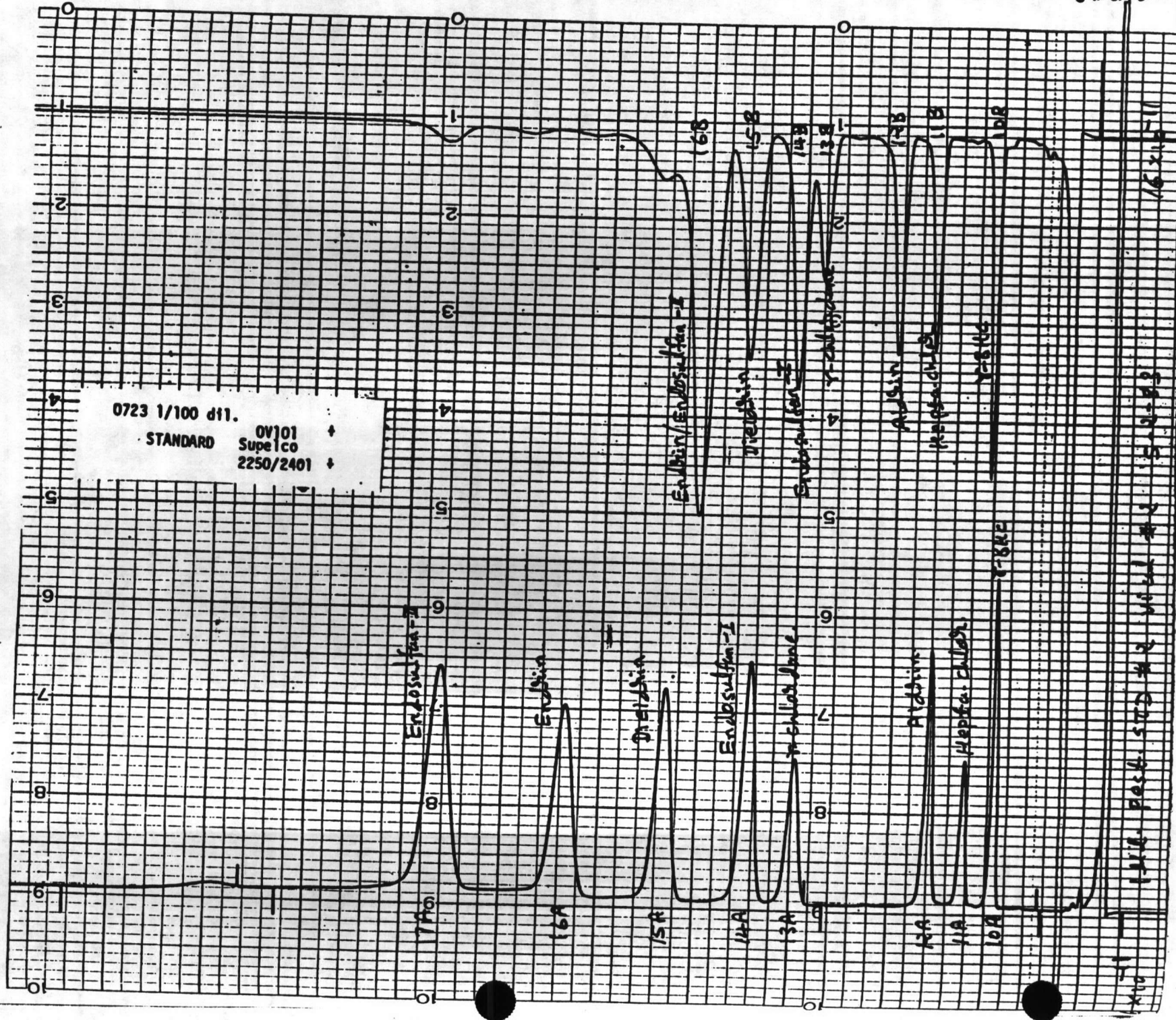


16x10 1ml. PE ST. STD #1 VIAL #1 5-2-83 16x15-11





Doc No: CLEJ - 00360 - 3.04 - 7/14/83



110-1 110-2 110-3 16 x 16-11



# MeadCompuChem

## 1C. REPORT OF DATA

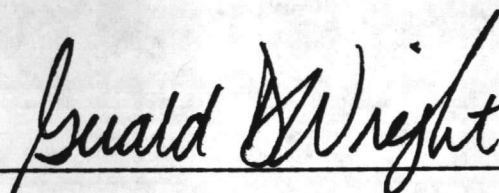
*CHEMICAL  
LANDFILL well # 17*

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  
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JAMES J. ZOLDAK  
DIRECTOR OF LABORATORY OPERATIONS



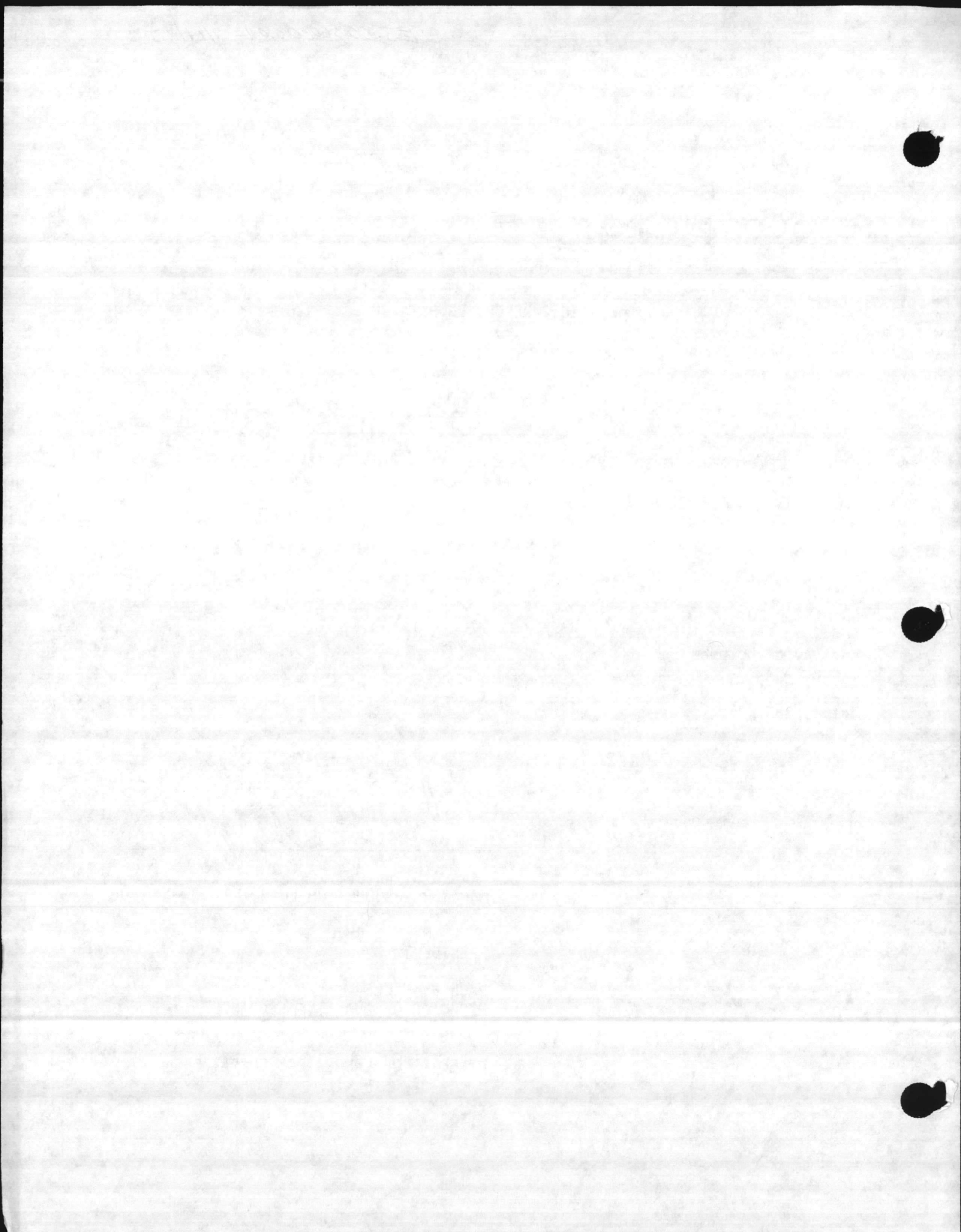




EXHIBIT I - LABORATORY CHRONICLE

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

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

BDL = BELOW DETECTION LIMIT



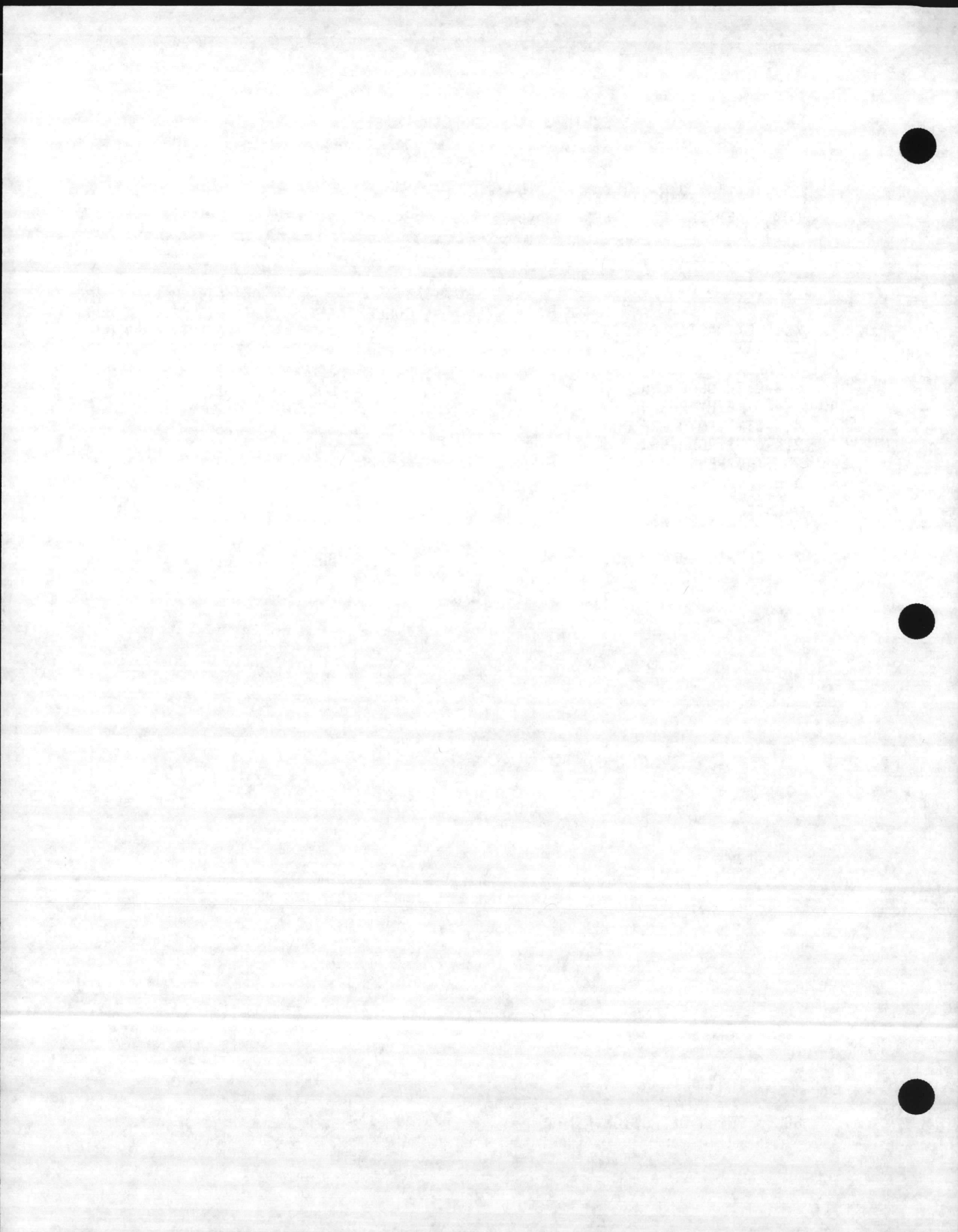


## EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29374  
COMPUCHEM SAMPLE NUMBER: 3495

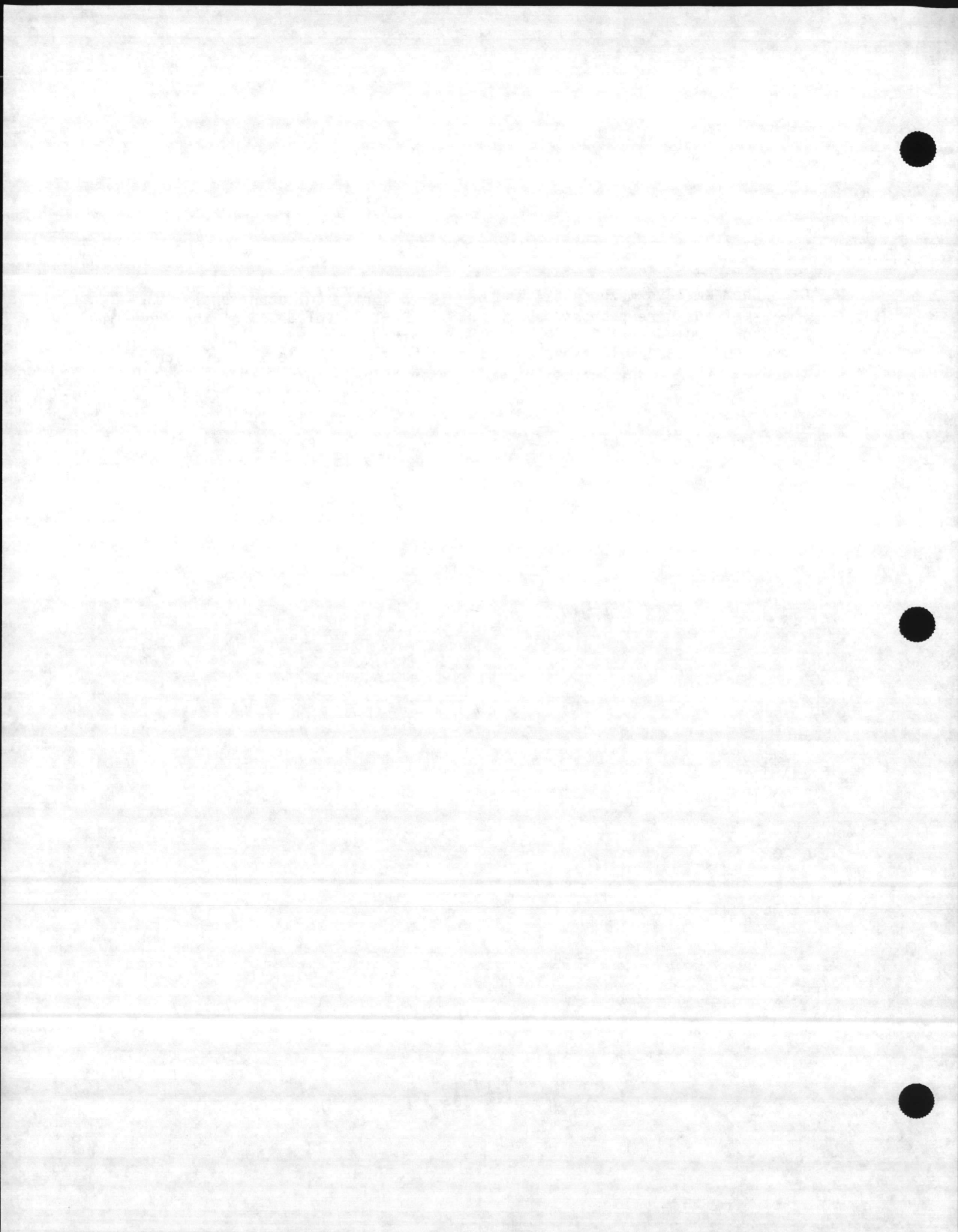
<u>ACID EXTRACTABLE ORGANICS</u>	<u>CONCENTRATION (UG/L)</u>	<u>DETECTION LIMIT (UG/L)</u>	<u>SCAN NUMBER</u>
1A. 2-CHLOROPHENOL	BDL	25	
2A. 2,4-DICHLOROPHENOL	BDL	25	
3A. 2,4-DIMETHYLPHENOL	BDL	25	
4A. 4,6-DINITRO-O-CRESOL	BDL	250	
5A. 2,4-DINITROPHENOL	BDL	250	
6A. 2-NITROPHENOL	BDL	25	
7A. 4-NITROPHENOL	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: 29374  
COMPUCHEM SAMPLE NUMBER: 3495

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

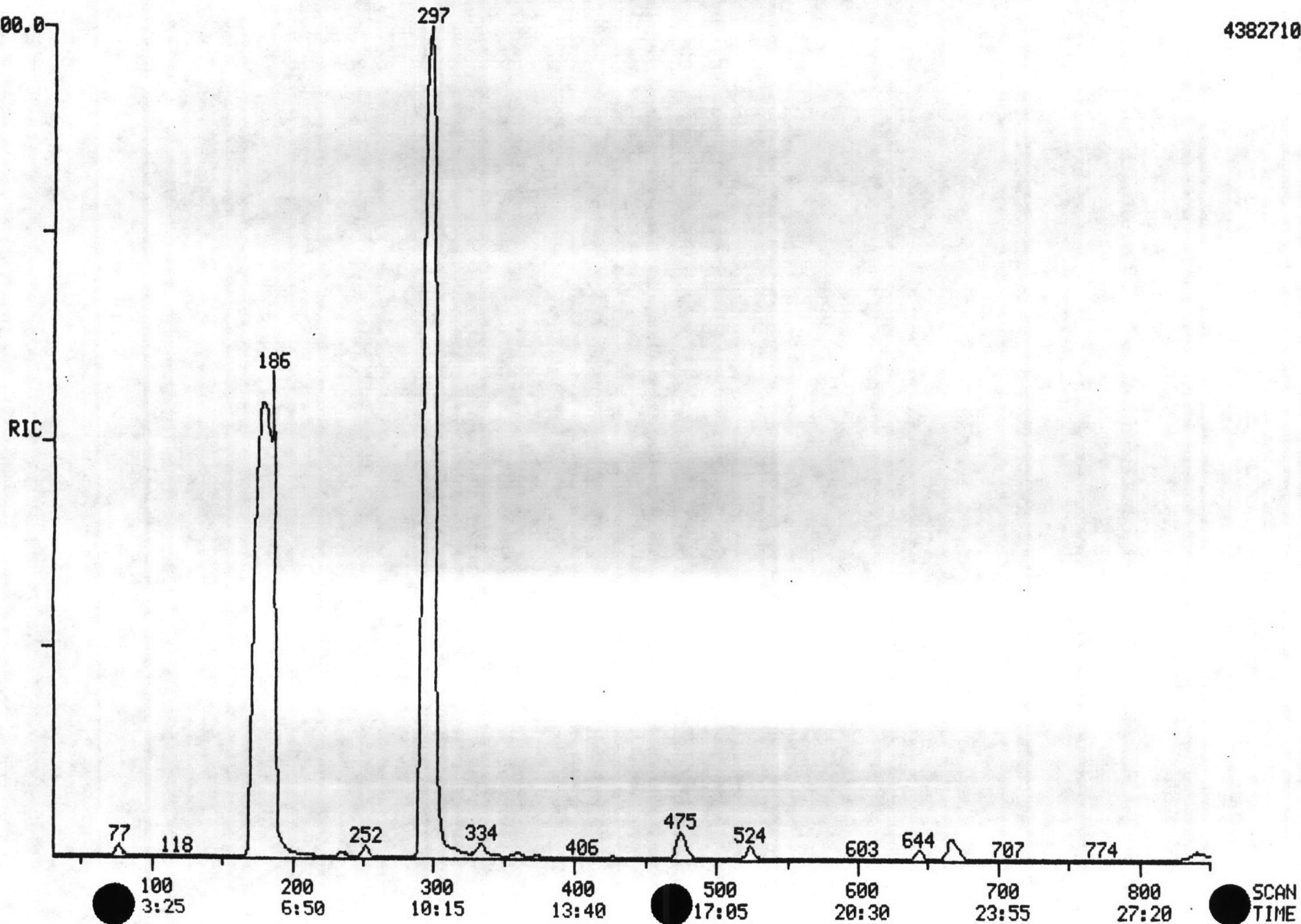
RIC  
04/28/83 20:39:00  
SAMPLE: SAMPLE #3495 5ML DISK 602

DATA: UN003495B06

SCANS 30 TO 850

4382710.

Doc No: CLEJ - 003601 3044 - 7/14/83







MASS SPECTRUM  
04/28/83 20:39:00 + 16:22  
SAMPLE: SAMPLE #3495 5ML DISK 602  
ENHANCED (5 158 2N)

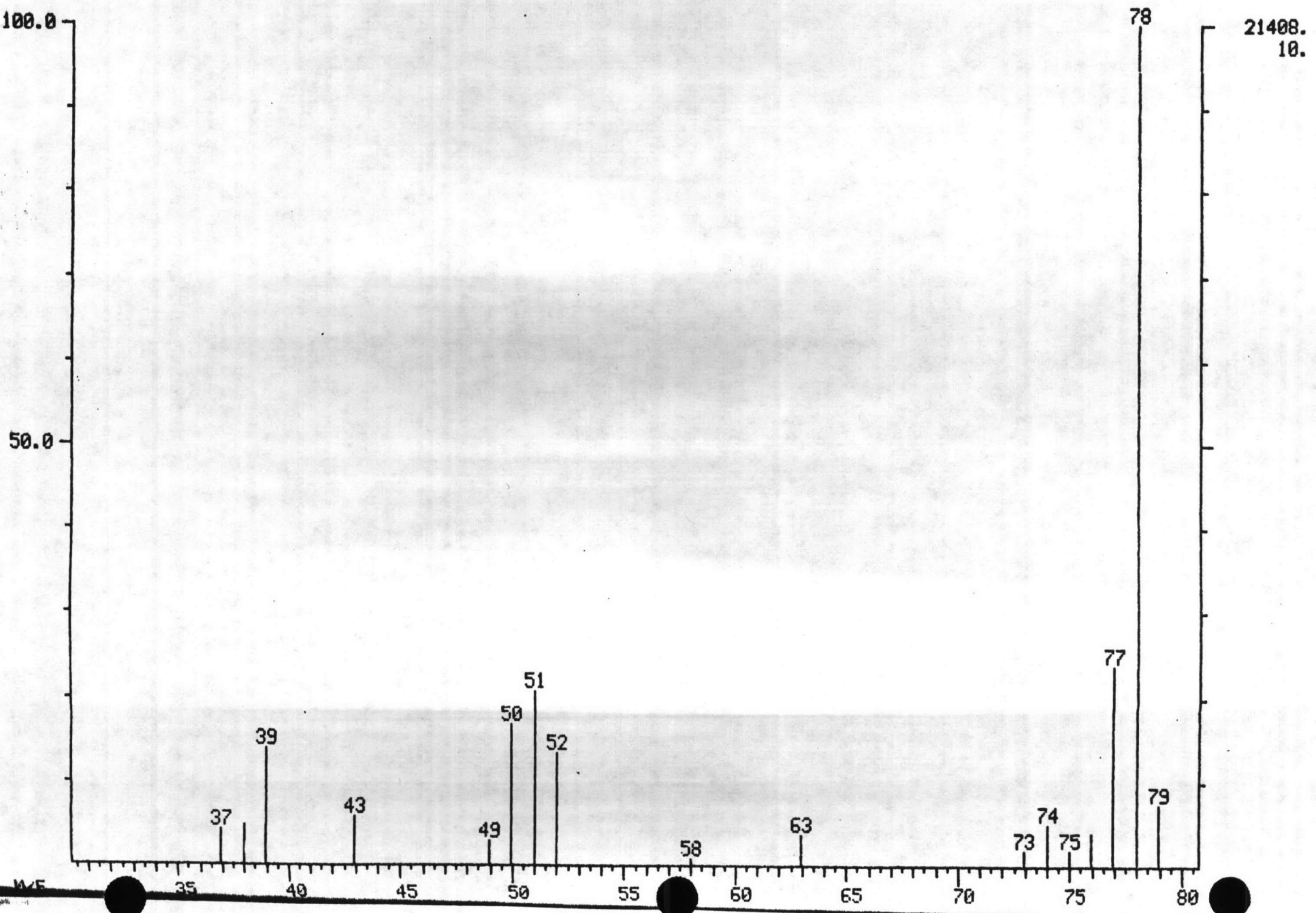
MEAD COMPUCHEM

DATA: UN003495B06 #479

BASE M/E: 78  
RIC: 49408.

0203

DOC NO: CLEJ-003495-7/11/83





MEAD COMPUCHEM

DATA: UN003495B06 #335

BASE M/E: 62  
RIC: 33654.

0215

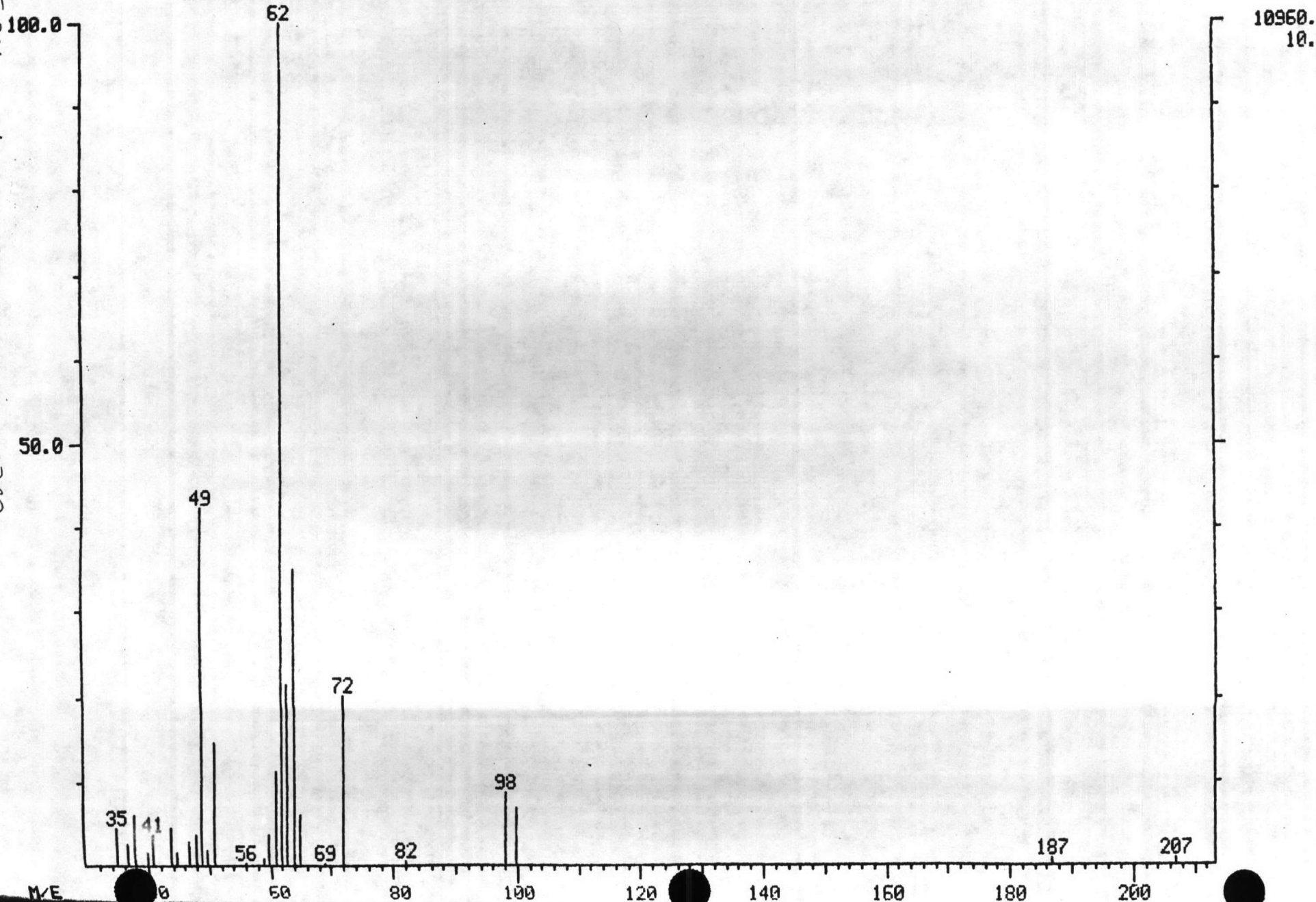
MASS SPECTRUM

04/28/83 20:39:00 + 11:27

SAMPLE: SAMPLE #3495 5ML DISK 602

ENHANCED (S 158 2N)

DOC NO: 01EJ-0036-04-7114/83







0231

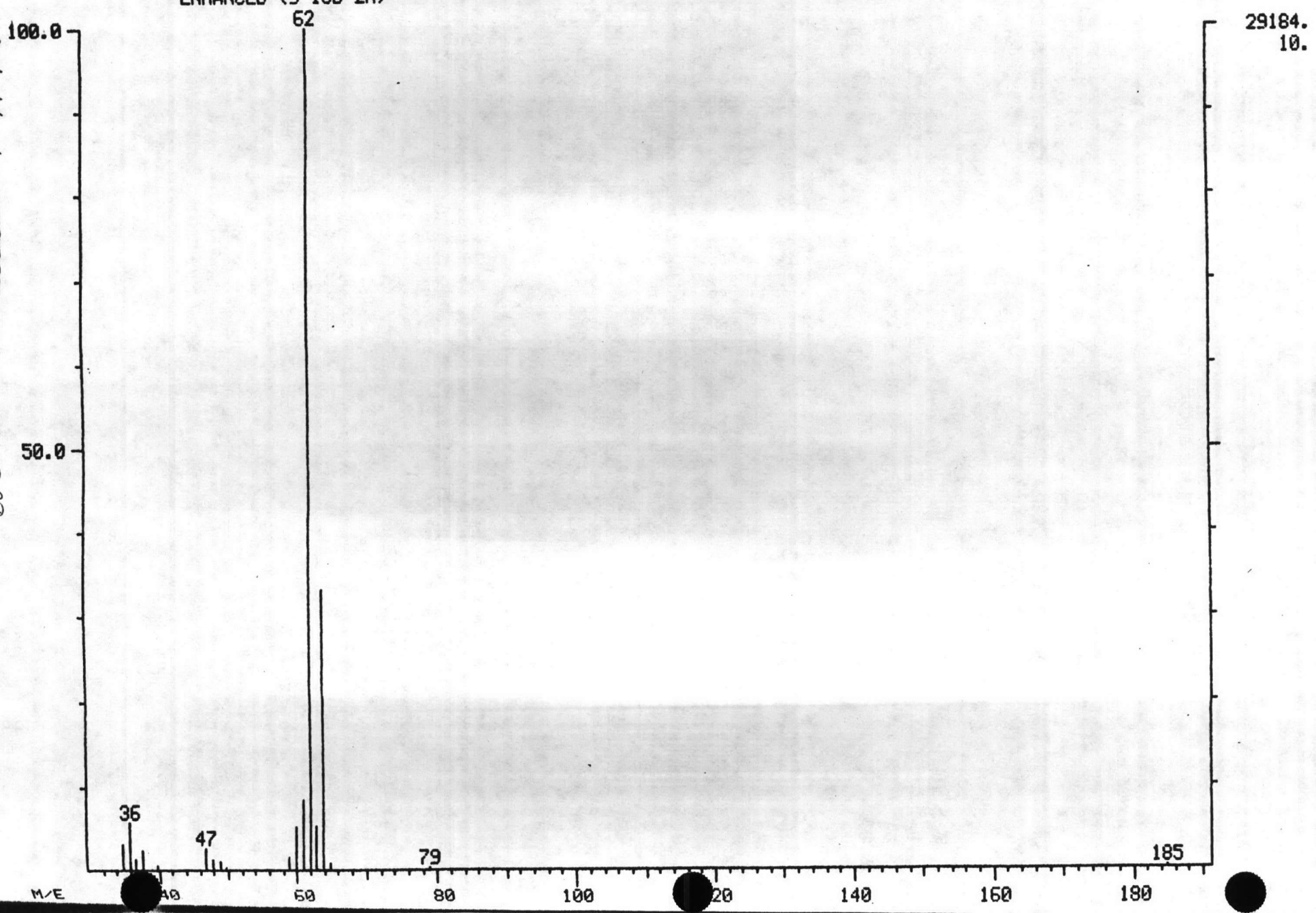
MEAD COMPUCHEM

DATA: UN003495B06 #77

BASE M/E: 62  
RIC: 50496.

MASS SPECTRUM  
04/28/83 20:39:00 + 2:38  
SAMPLE: SAMPLE #3495 5ML DISK 602  
ENHANCED (S 15B 2N)

Doc No: CLBJ-0036-304-7/14/83





MEAD COMPUCHEM

DATA: US830428B06

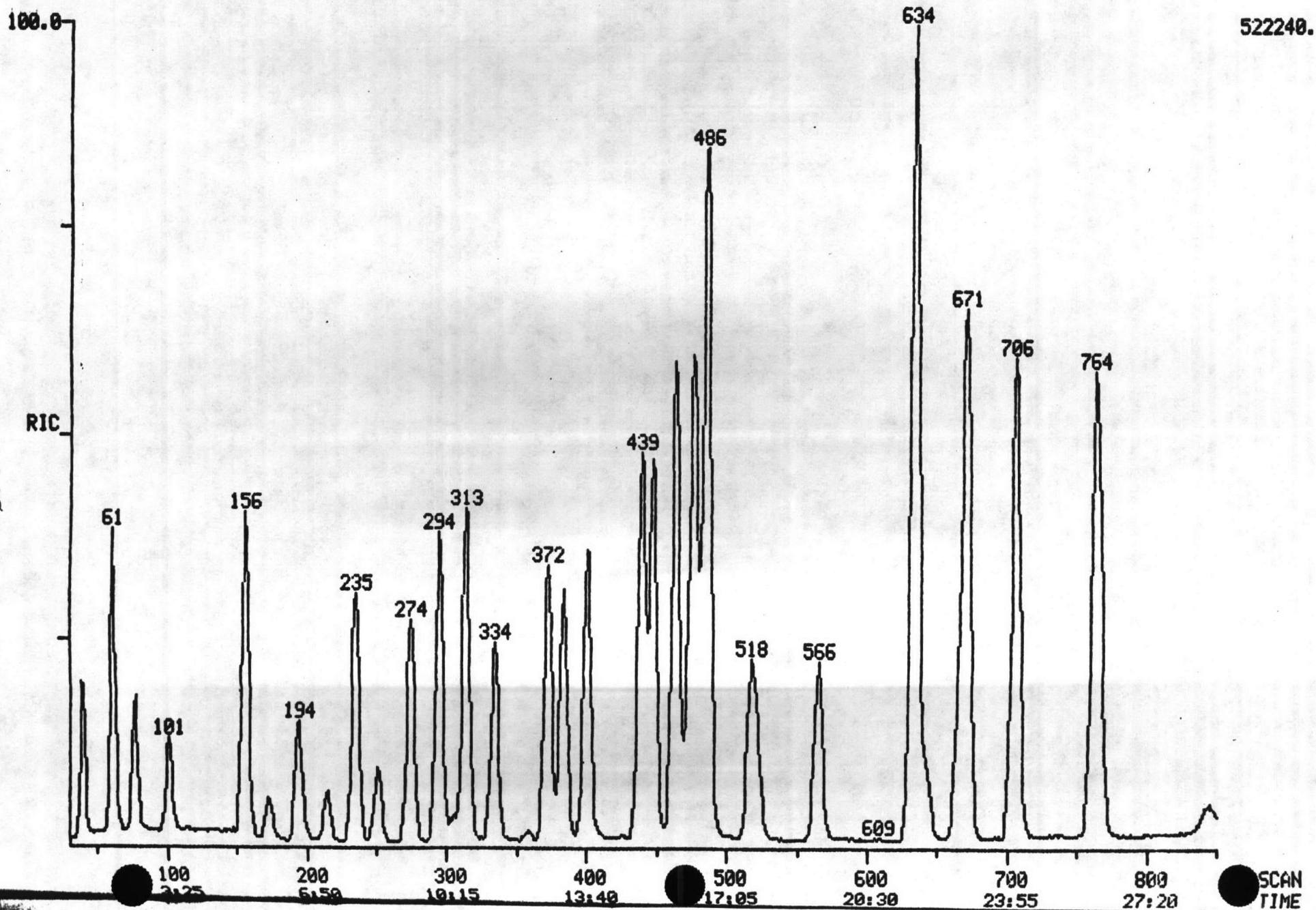
SCANS 30 TO 850

RIC

04/28/83 17:11:00

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Doc No: 01-01-00304-7114/83







MEAD COMPUCHEM

RIC

DATA: UR003495B05

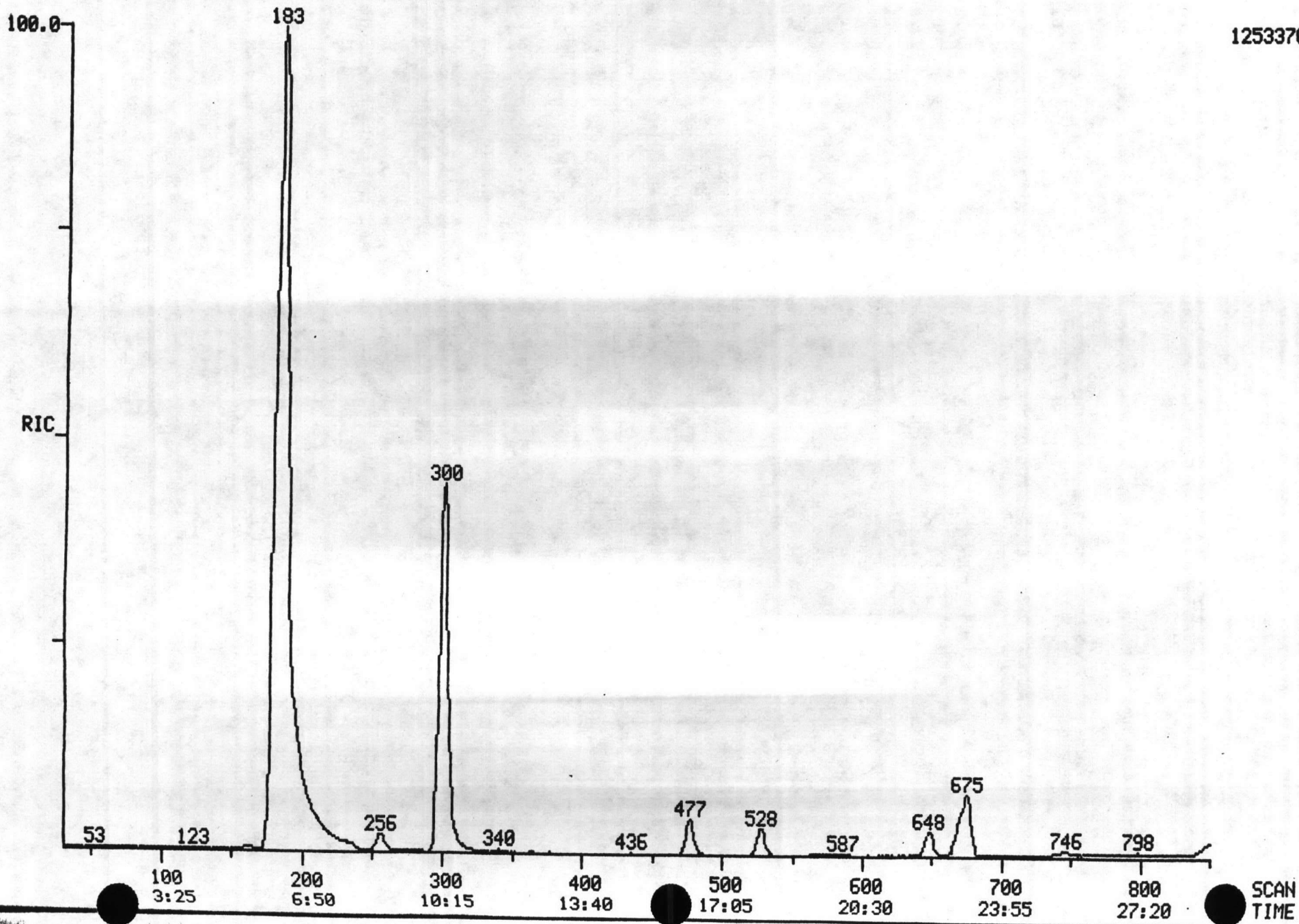
SCANS 30 TO \*850

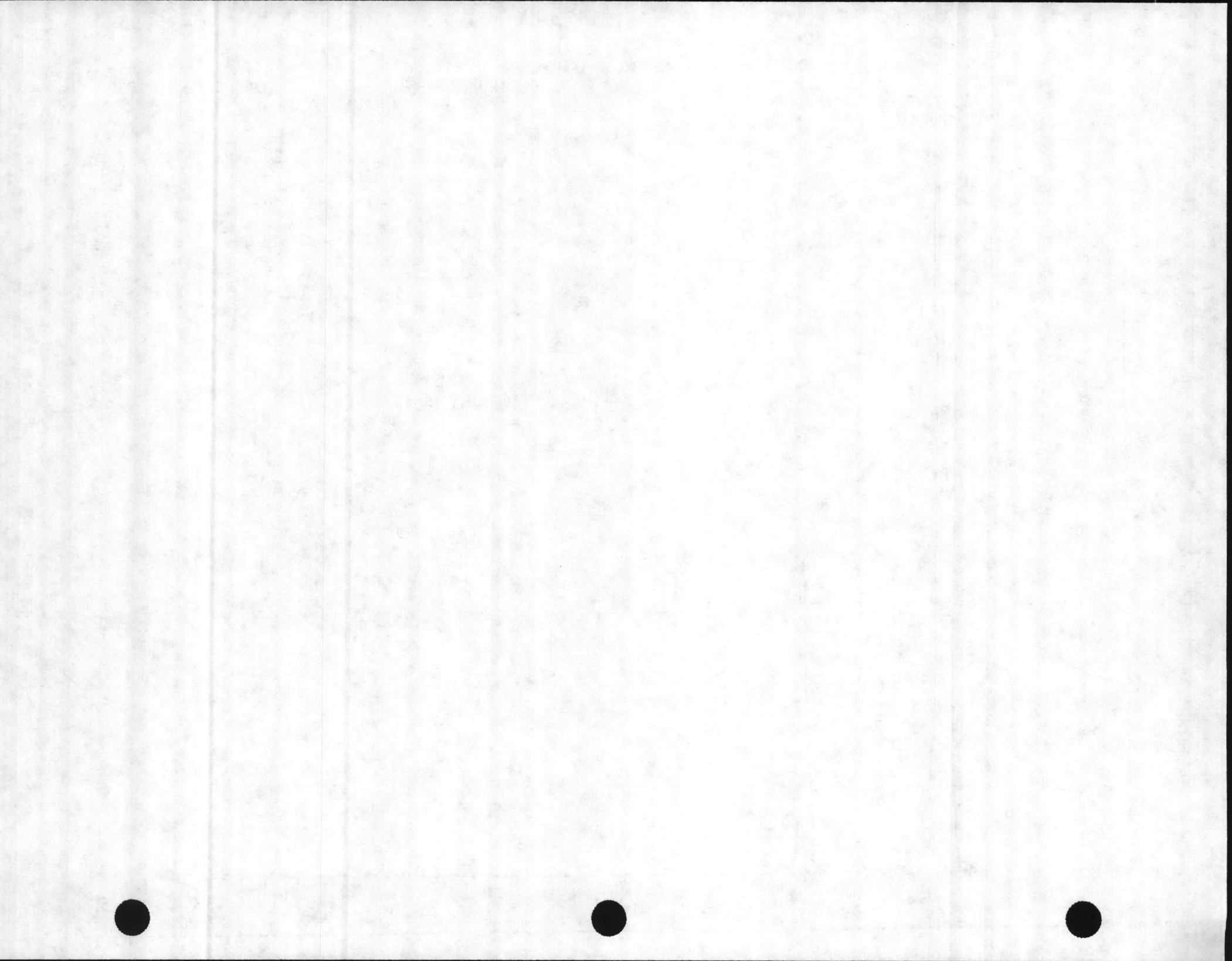
05/02/83 22:21:00

SAMPLE: SAMPLE #3495R 1:10 DIL 5ML 508

1253370.

DOC No: CLEJ-00360-304-7/14/83





MEAD COMPUCHEM

MASS SPECTRUM

DATA: UR003495B05 #299

BASE M/E: 61

0226

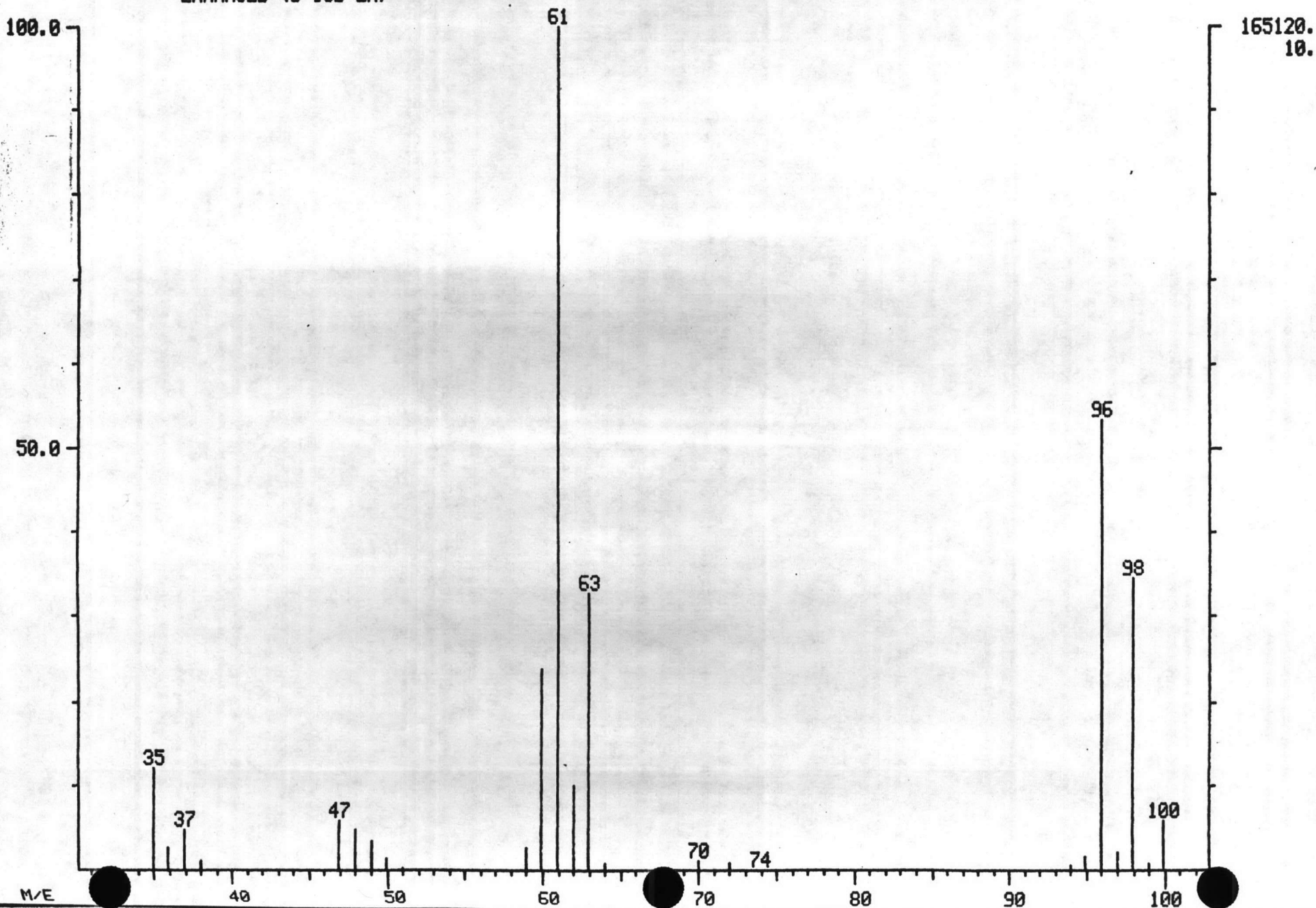
05/02/83 22:21:00 + 10:13

RIC: 505344.

SAMPLE: SAMPLE #3495R 1:10 DIL 5ML 508

ENHANCED (5 15B 2N)

Doc No: CLEU-00000-744/83







RIC  
05/02/83 18:48:00  
SAMPLE: 160NG STD 5ML DISK 508

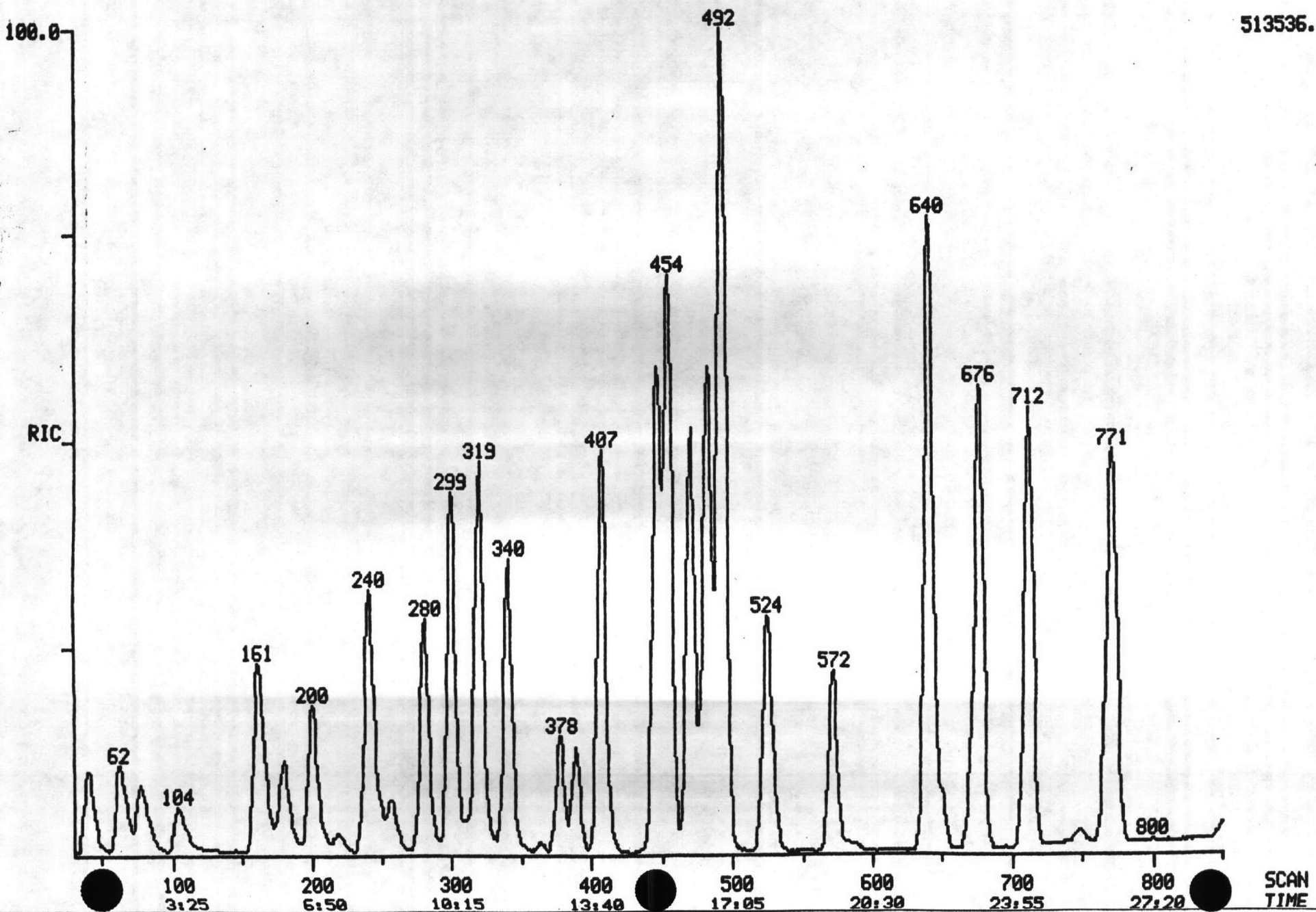
MEAD COMPUCHEM

DATA: US830502805

SCANS 30 TO \* 850

513536.

Doc No: CLEJ-10500-300-7/14/83





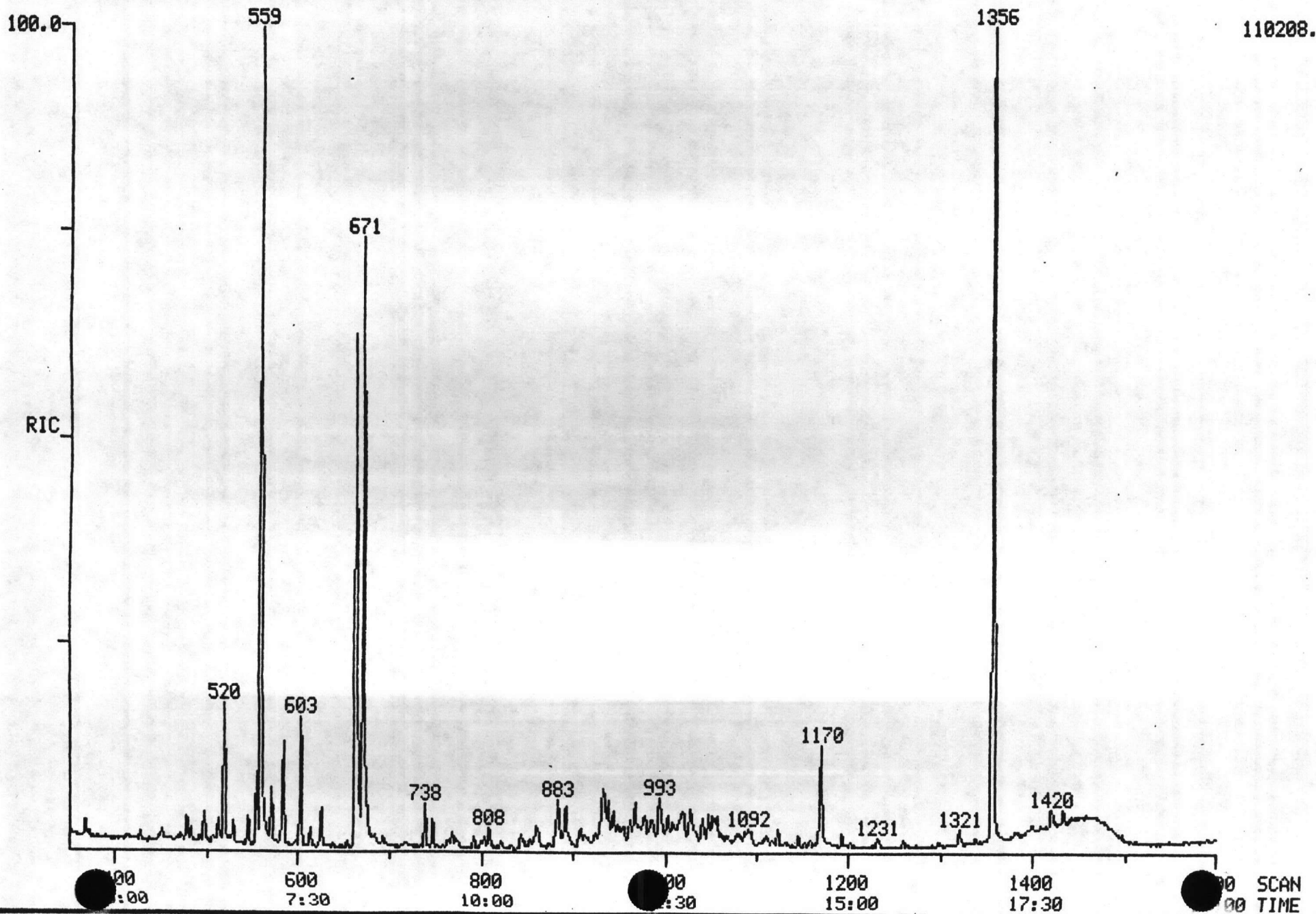
Doc No: 0000-0000-3.04-7/14/83

MEAD COMPUCHEM

DATA: AC003495A02

SCANS 350 TO 1600

RIC  
04/29/83 11:13:00  
SAMPLE: ACID #3495







Doc No: ALEJ-0000-804-7/14/83

MEAD COMPUCHEM

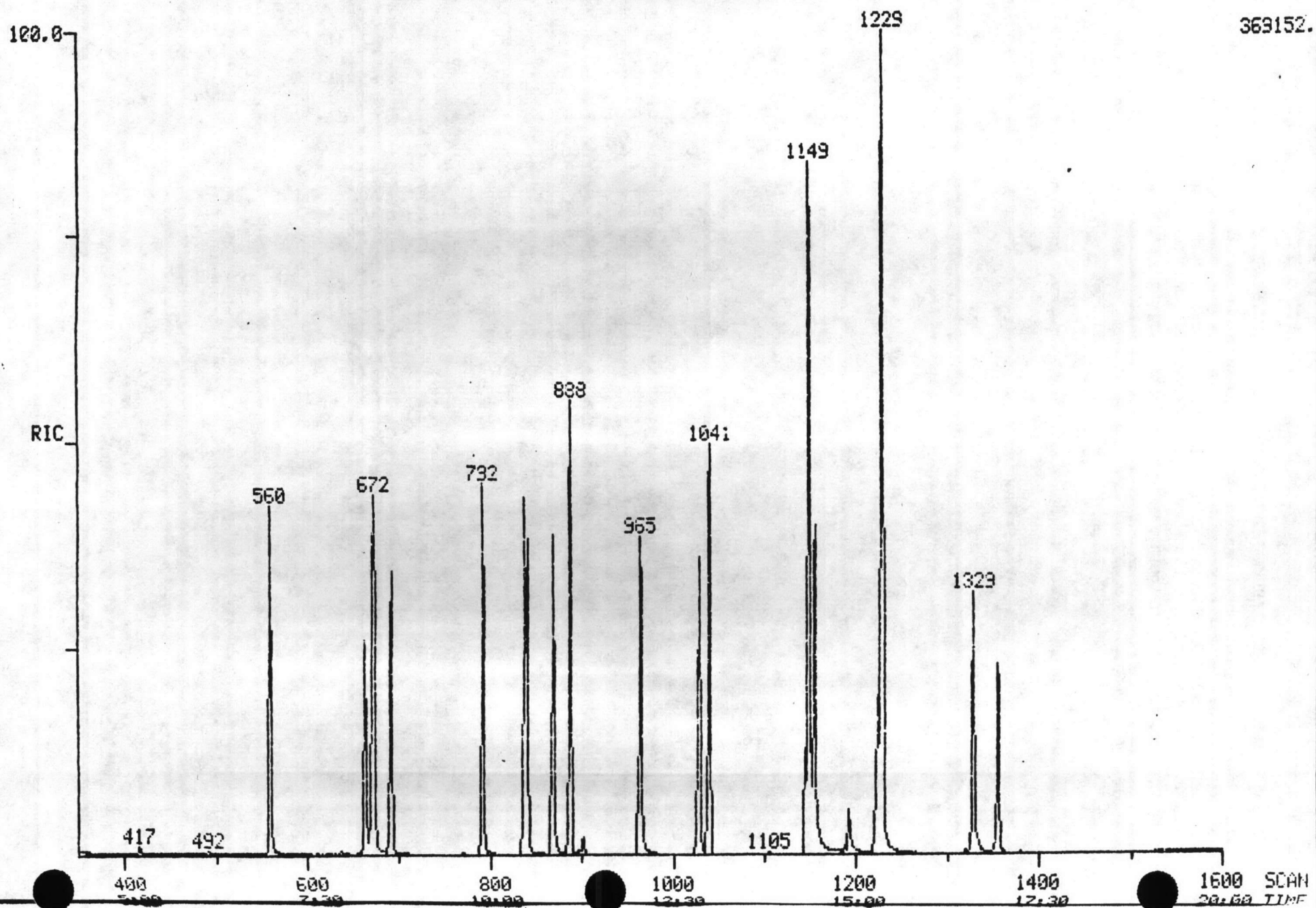
DATA: A5830429402

SCANS 350 TO 1600

RIC

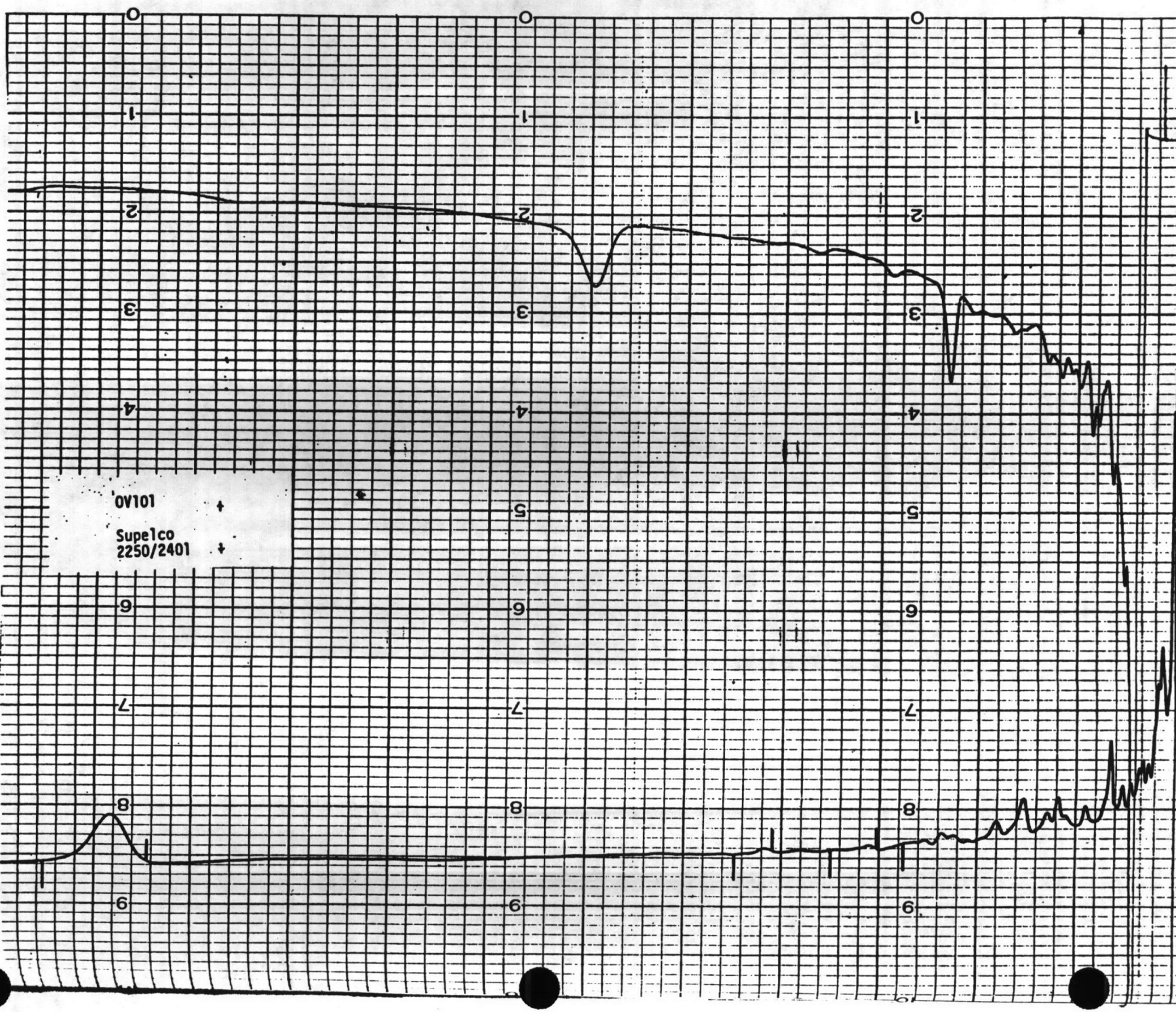
04/29/83 8:18:00

SAMPLE: ACID STD #3304, 120 NG , EX 4-28





Doc No: 06EJ-0026-304-7114183



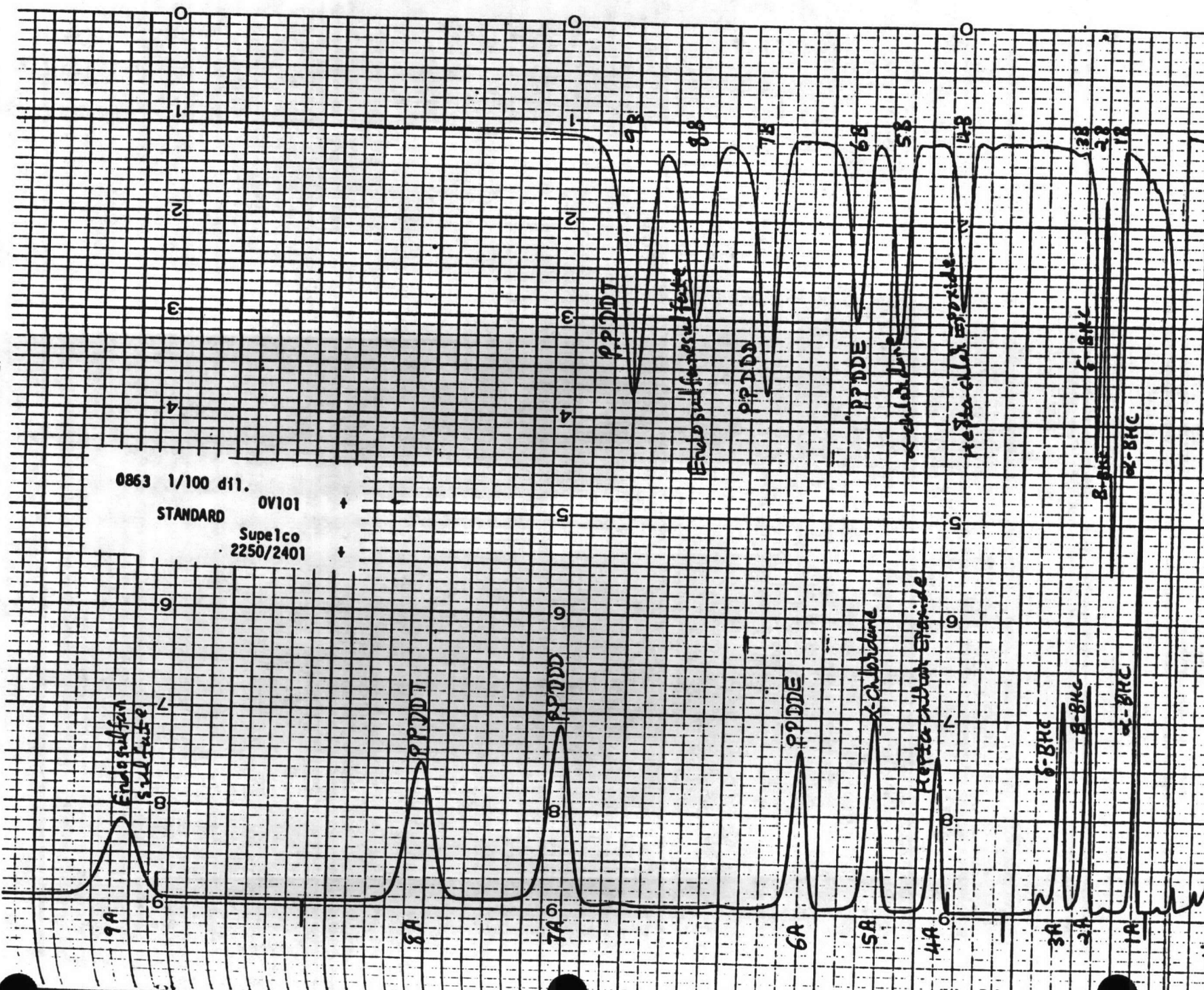
16x10  
116 sample # 3495 No. Dilution vol # 7 5-83 16x10







Doc No: CLW-0086 5.89-1174183



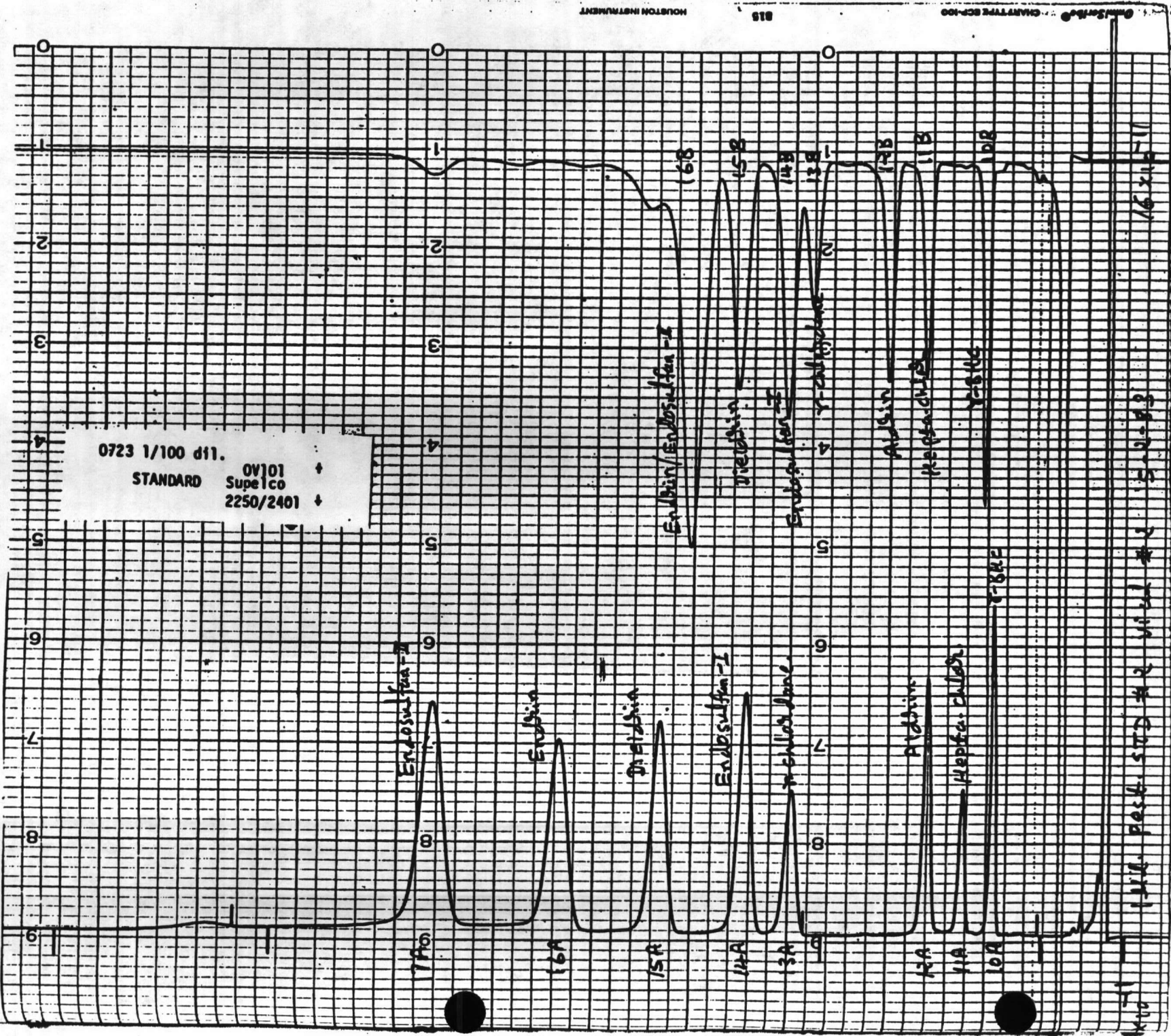
0863 1/100 d11.  
 STANDARD 0V101 +  
 Supelco 2250/2401 +

6x10-11 1M.L. pest. STD #1 vial #1 5-2-83 16x10-11





Doc No: CLEJ-00000 0.04 7/14/83



100-111 100. Pest. STD #2 vial #1 5-2-83 16 x 11 1/2





# MeadCompuChem

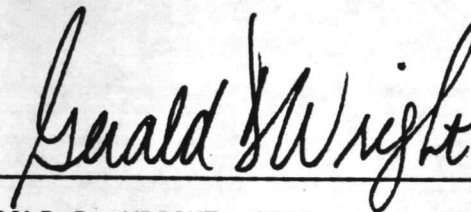
## 1D. REPORT OF DATA

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

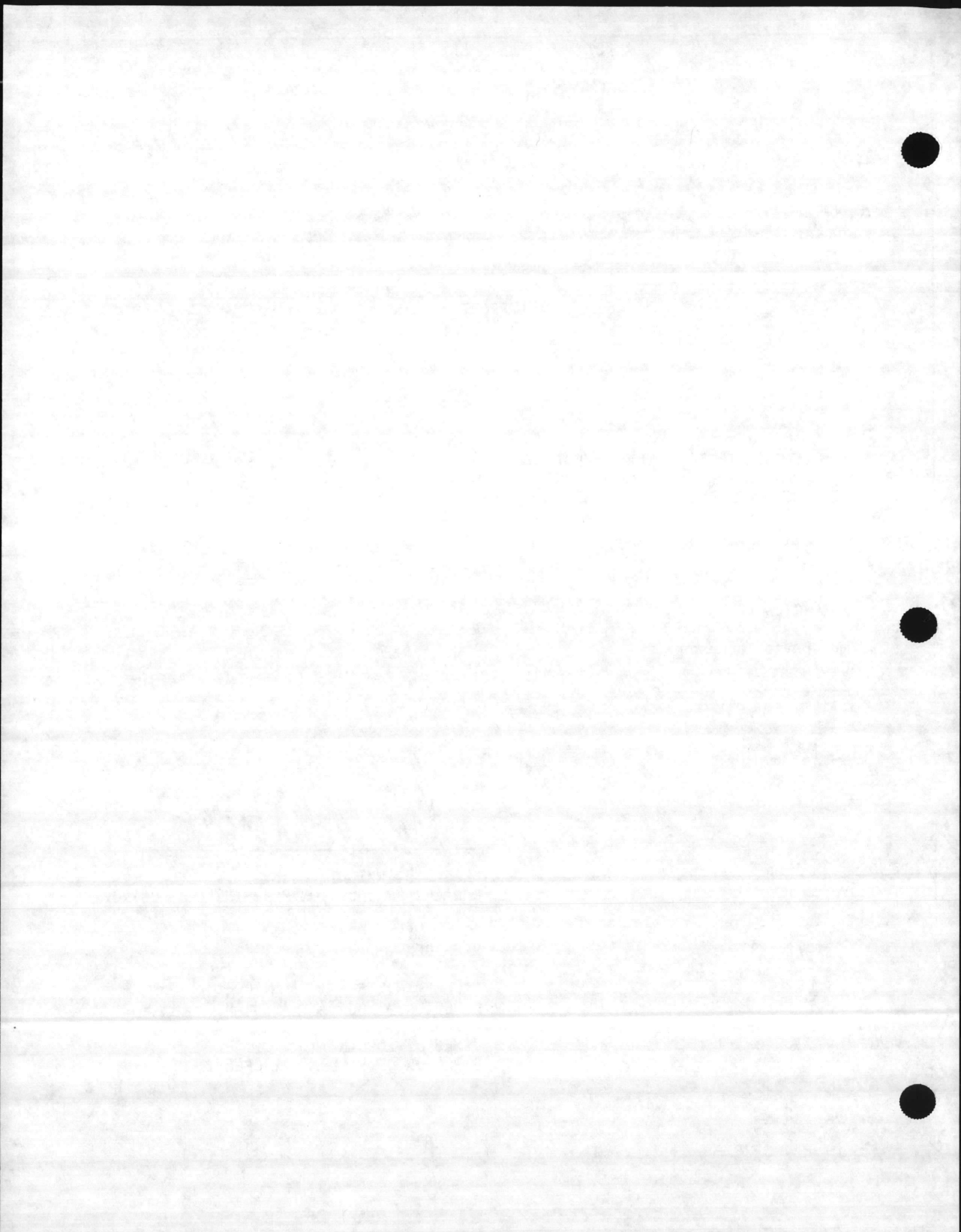
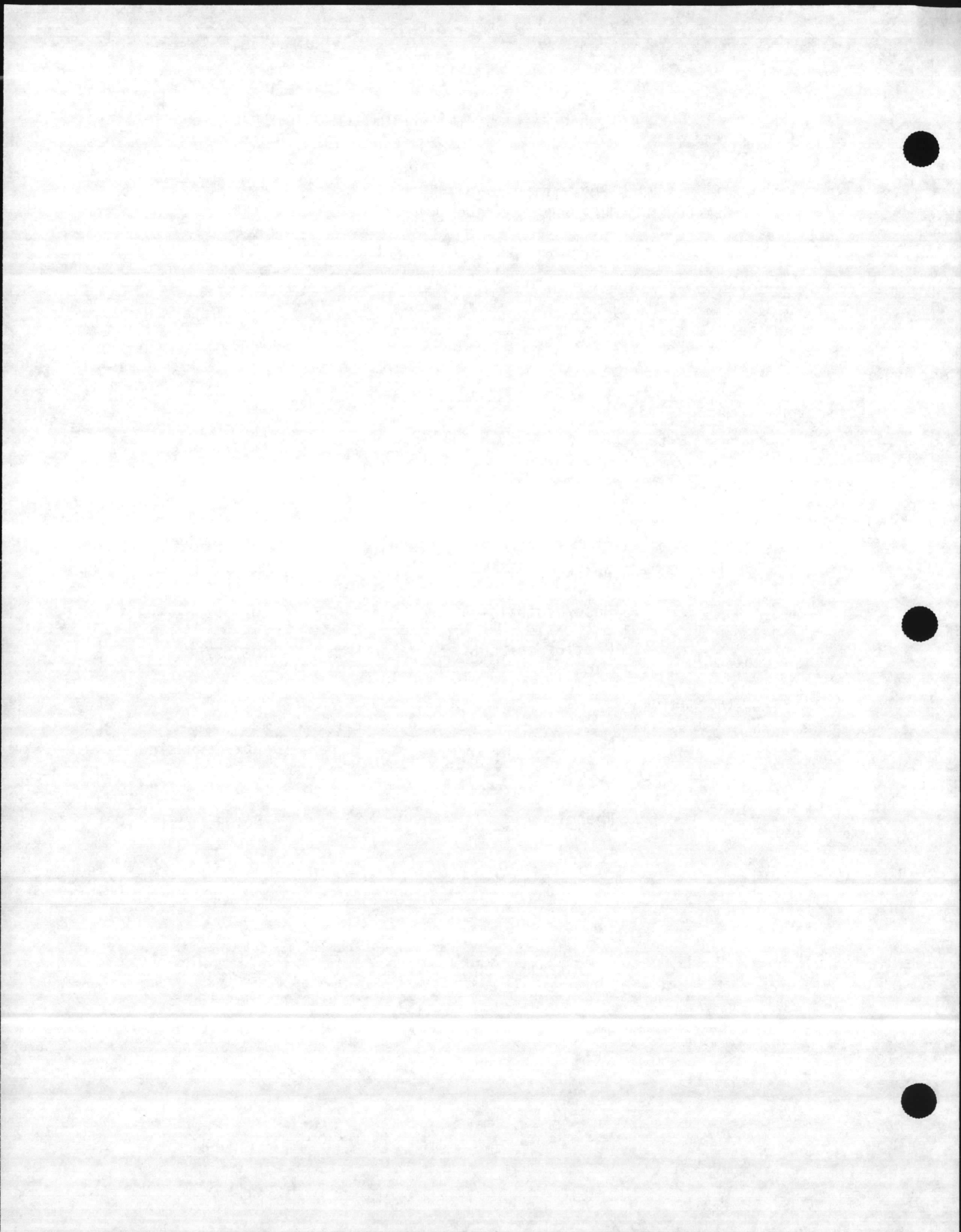


EXHIBIT I - LABORATORY CHRONICLE

SAMPLE IDENTIFIER: 29375  
COMPUCHEM SAMPLE NUMBER: 3496

	<u>Date</u>
Received/Refrigerated	04/25/83
<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: 29375  
COMPUCHEM SAMPLE NUMBER: 3496

<u>VOLATILE ORGANICS</u>		<u>CONCENTRATION</u> <u>(UG/L)</u>	<u>DETECTION</u> <u>LIMIT</u> <u>(UG/L)</u>	<u>SCAN</u> <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-CHLOROETHYLVINYL ETHER	BDL	10	
11V.	CHLOROFORM	BDL	10	
12V.	DICHLOROBROMOMETHANE	BDL	10	
13V.	DICHLORODIFLUOROMETHANE	BDL	10	
14V.	1,1-DICHLOROETHANE	BDL	10	
15V.	1,2-DICHLOROETHANE	BDL	10	
16V.	1,1-DICHLOROETHYLENE	BDL	10	
17V.	1,2-DICHLOROPROPANE	BDL	10	
18V.	1,3-DICHLOROPROPYLENE	BDL	10	
19V.	ETHYLBENZENE	BDL	10	
20V.	METHYL BROMIDE	BDL	10	
21V.	METHYL CHLORIDE	BDL	10	
22V.	METHYLENE CHLORIDE	BDL	10	
23V.	1,1,2,2-TETRACHLOROETHANE	BDL	10	
24V.	TETRACHLOROETHYLENE	BDL	10	
25V.	TOLUENE	BDL	10	
26V.	1,2-TRANS-DICHLOROETHYLENE	BDL	10	
27V.	1,1,1-TRICHLOROETHANE	BDL	10	
28V.	1,1,2-TRICHLOROETHANE	BDL	10	
29V.	TRICHLOROETHYLENE	BDL	10	
30V.	TRICHLOROFLUOROMETHANE	BDL	10	
31V.	VINYL CHLORIDE	BDL	10	

BDL = BELOW DETECTION LIMIT



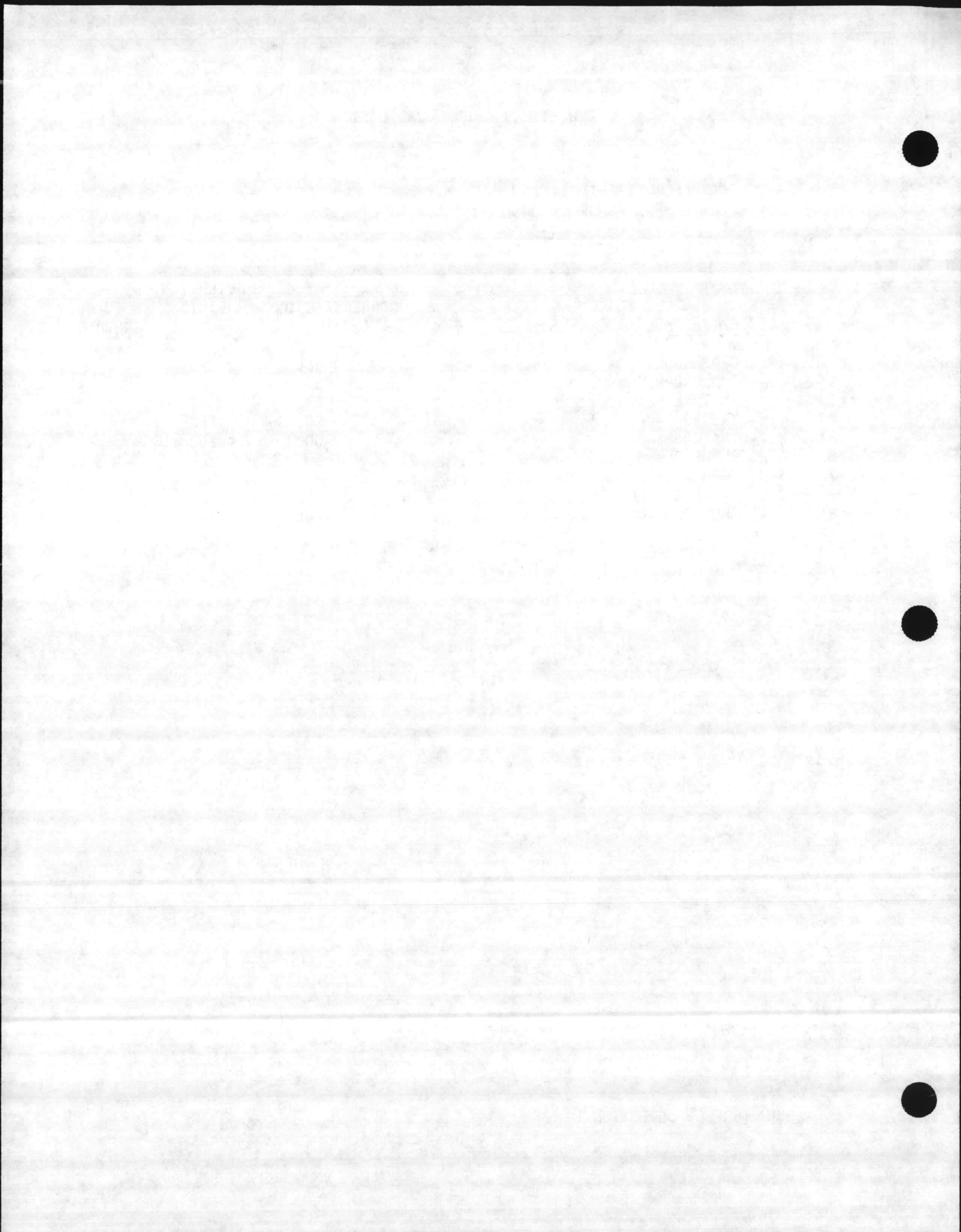


## EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29375  
COMPUCHEM SAMPLE NUMBER: 3496

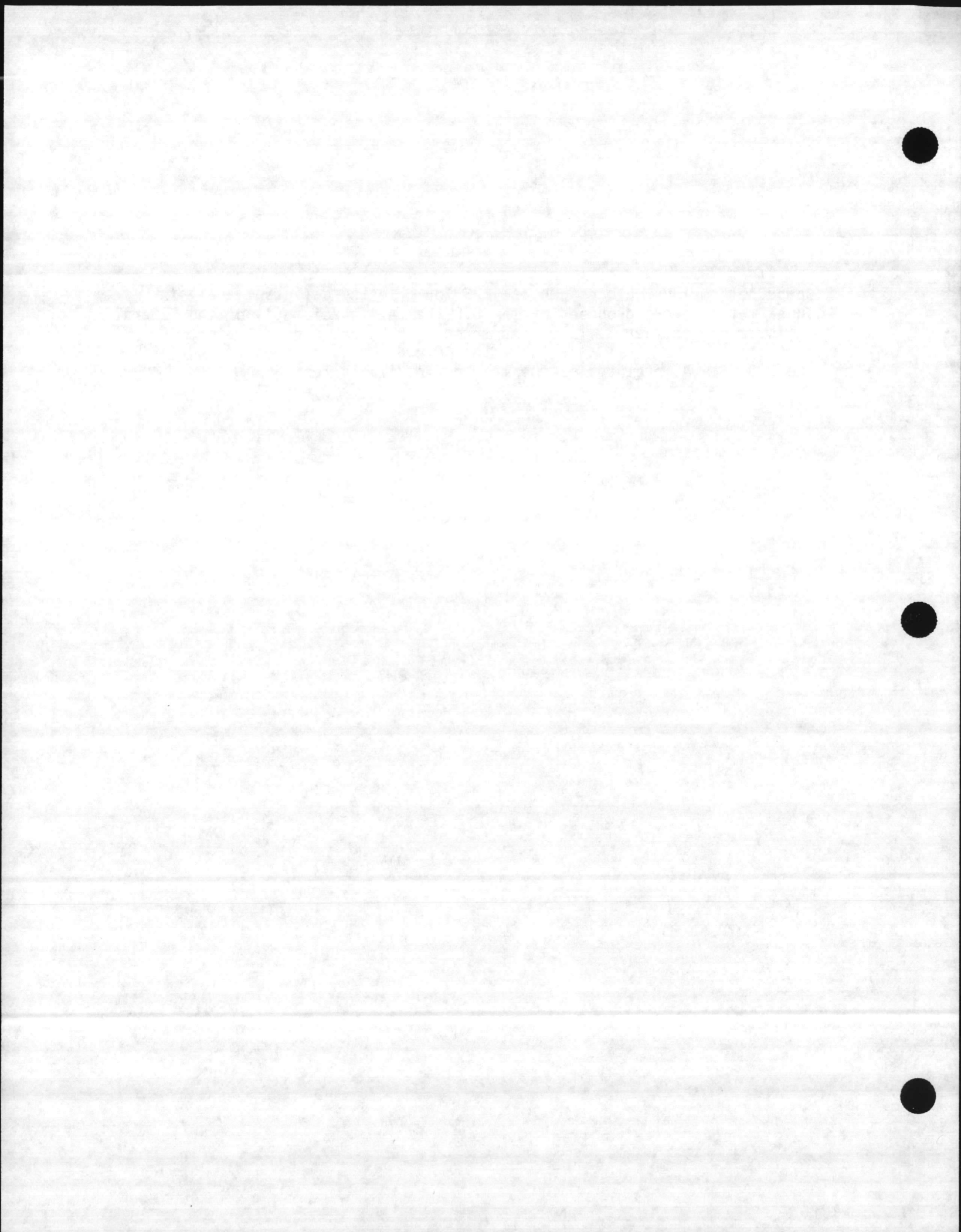
<u>ACID EXTRACTABLE ORGANICS</u>		<u>CONCENTRATION (UG/L)</u>	<u>DETECTION LIMIT (UG/L)</u>	<u>SCAN NUMBER</u>
1A.	2-CHLOROPHENOL	BDL	25	
2A.	2,4-DICHLOROPHENOL	BDL	25	
3A.	2,4-DIMETHYLPHENOL	BDL	25	
4A.	4,6-DINITRO-O-CRESOL	BDL	250	
5A.	2,4-DINITROPHENOL	BDL	250	
6A.	2-NITROPHENOL	BDL	25	
7A.	4-NITROPHENOL	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.



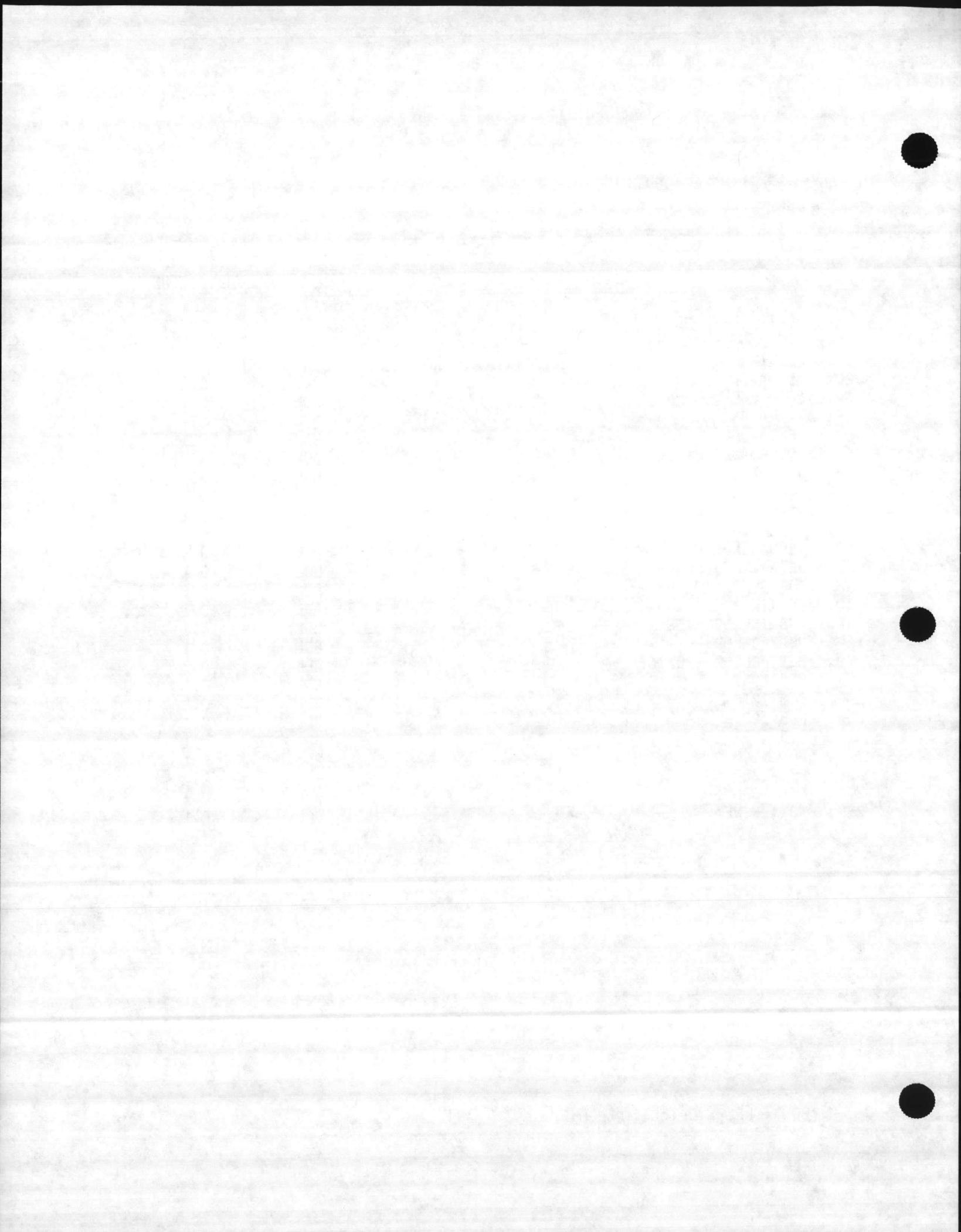


## EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29375  
COMPUCHEM SAMPLE NUMBER: 3496

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

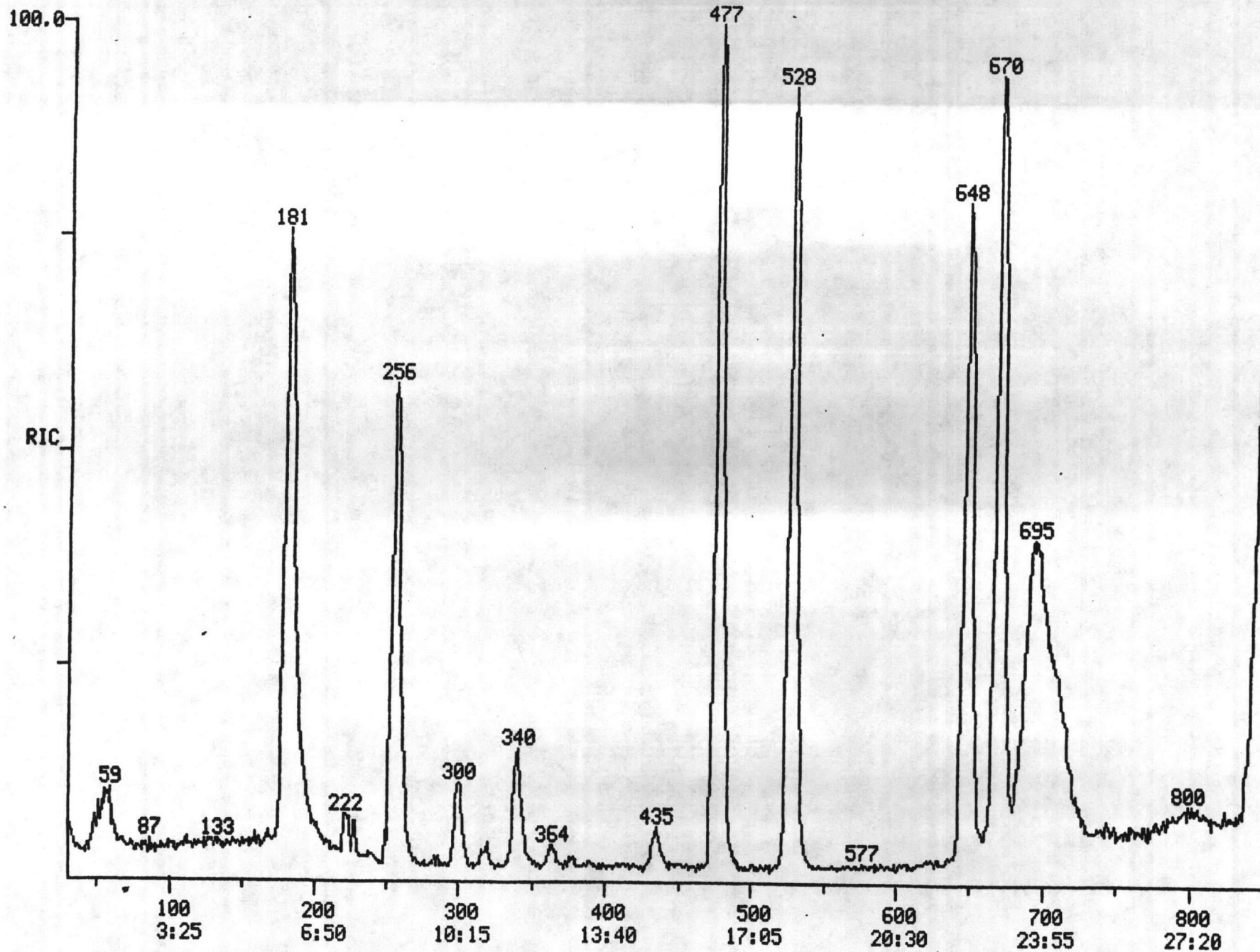


MEAD COMPUCHEM

RIC  
04/28/83 21:27:00  
SAMPLE: SAMPLE #3496 5ML DISK 508

DATA: UN003496B05

SCANS 30 TO 850



52928.

Doc No: CLET-00800-5-24-7/14/83

SCAN  
TIME





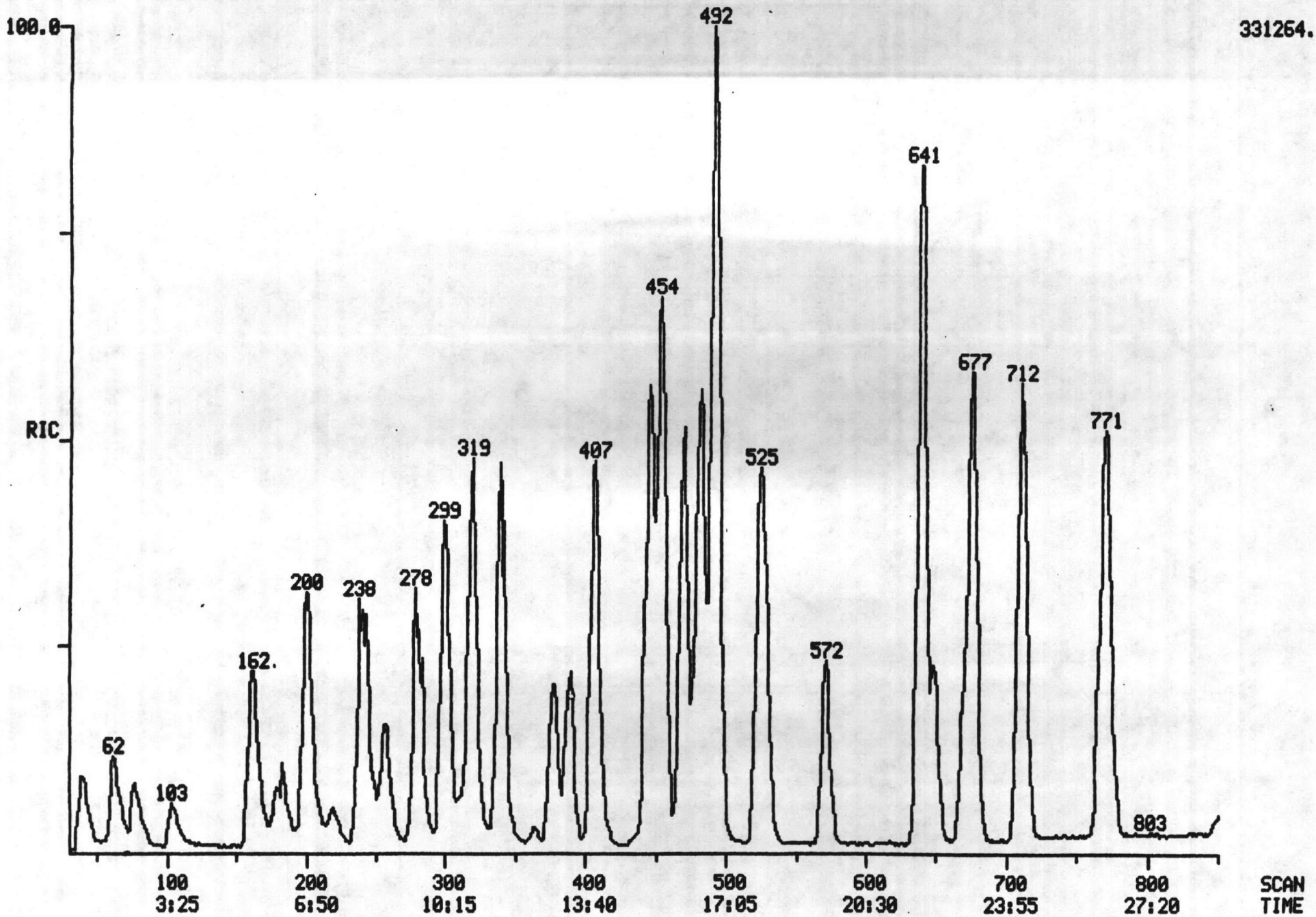
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SCANS 30 TO 850

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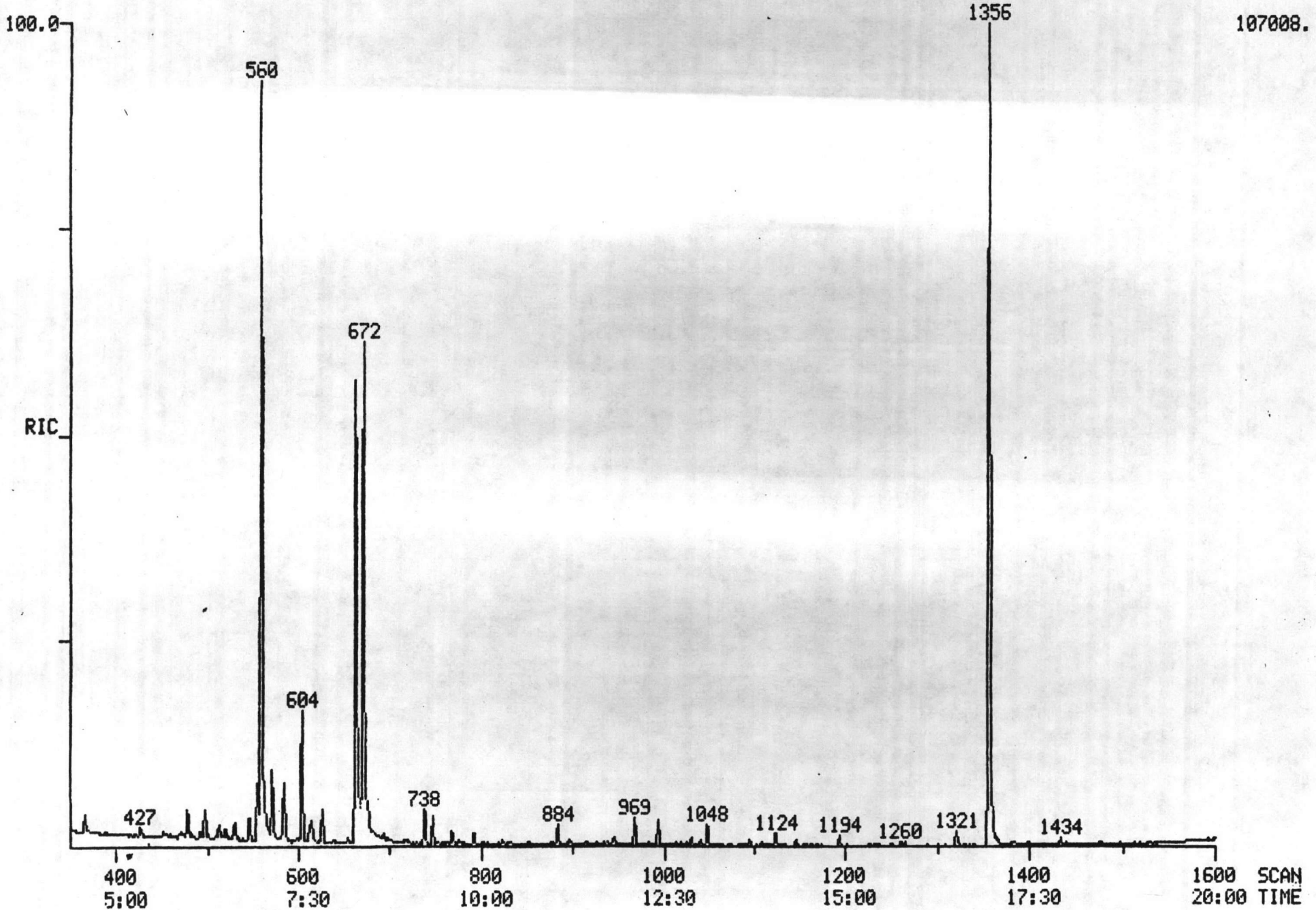
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Doc No: QLTJ-00260-204-7/14/83

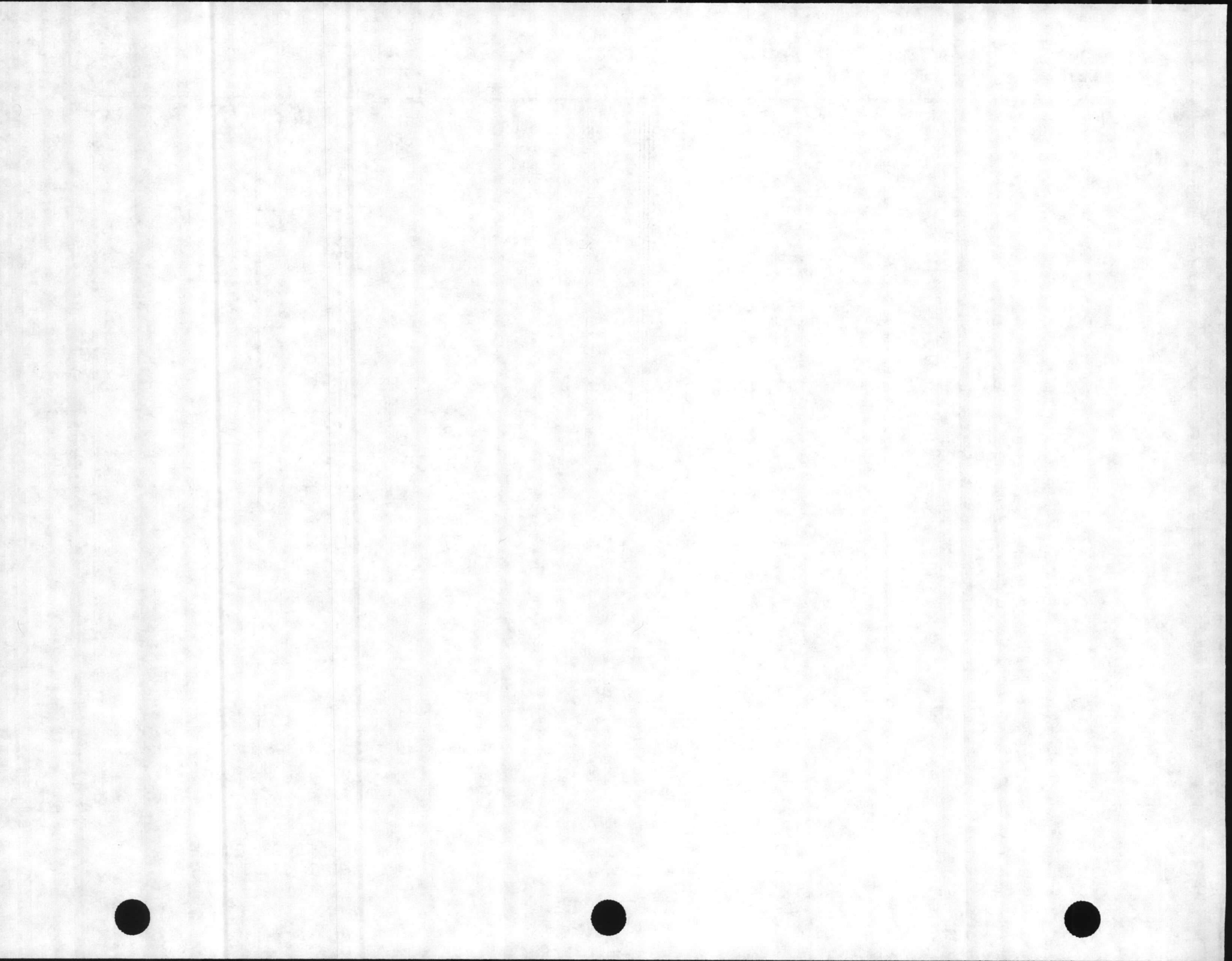


RIC  
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SAMPLE: ACID #3496



Doc No: 02ET-00360-3.04-7/19/83





MEAD COMPUCHEM

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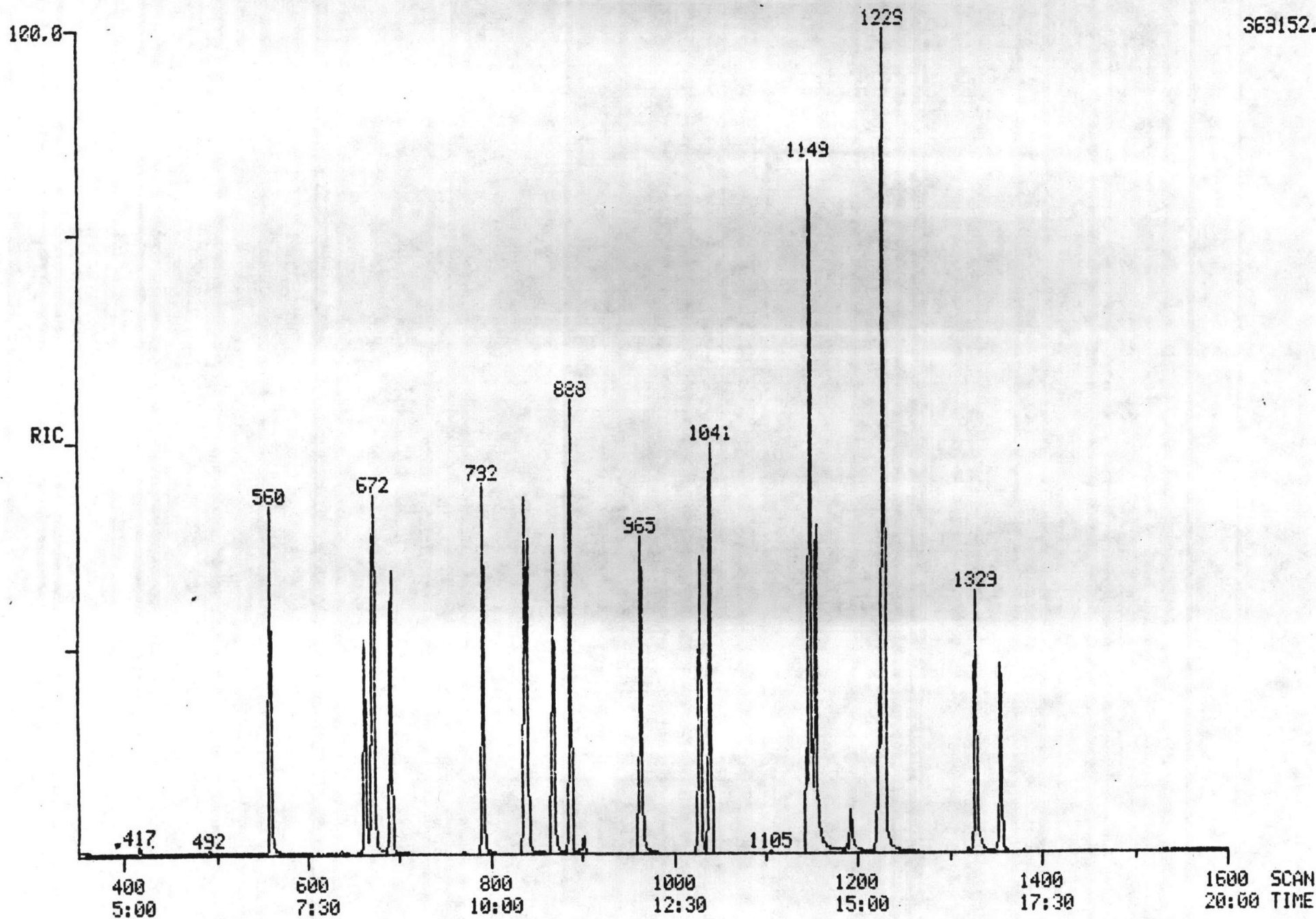
SCANS 350 TO 1600

RIC

04/29/83 8:18:20

SAMPLE: ACID STD #3304, 120 NG , EX 4-28

369152.



DOC No: 01 EJ-003602304-7/14/83



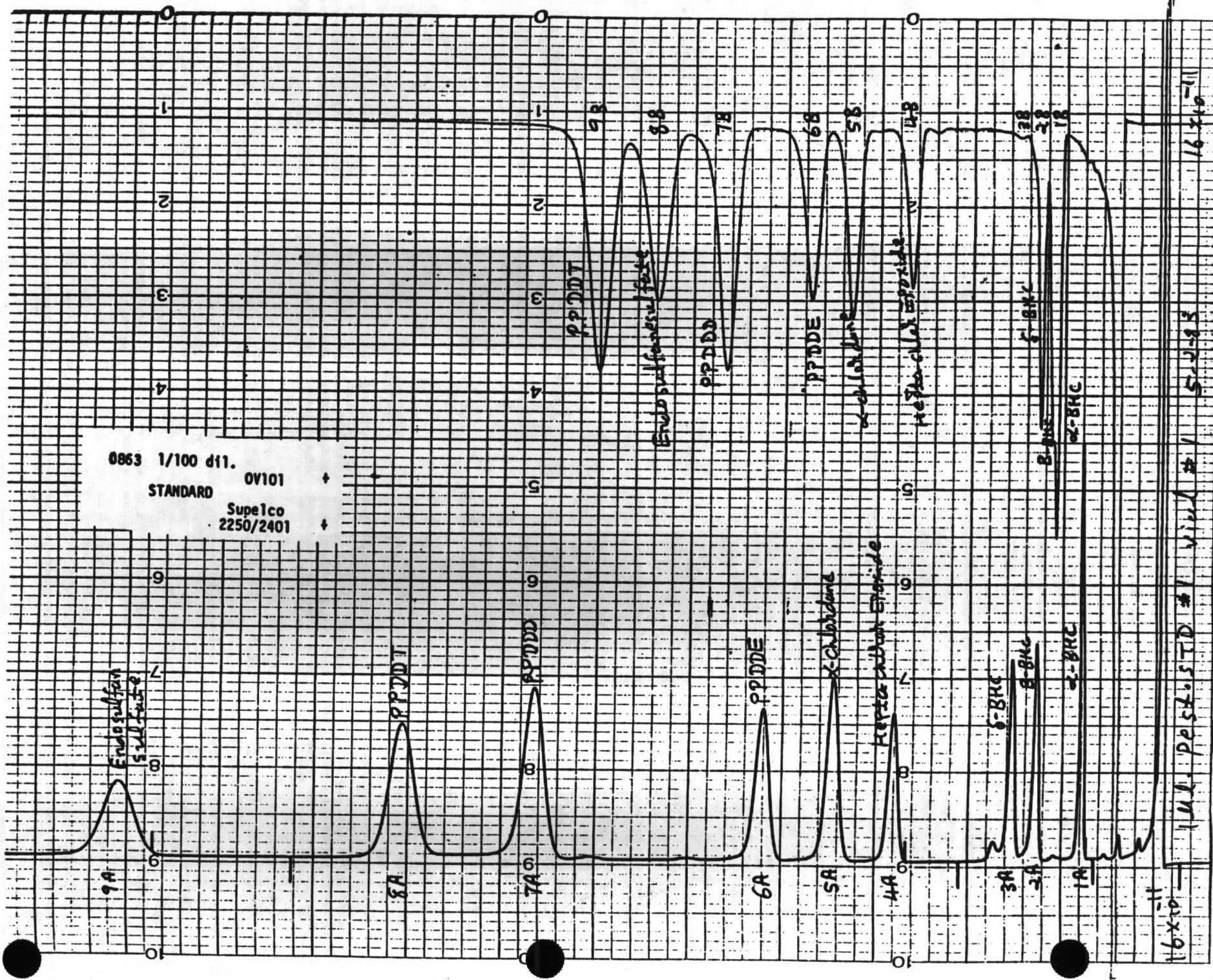








Doc No: CLEJ - 00360-3.04 - 1114183



16x10 1.11. pest. STD #1 vial # / 5.2.9.5 16x10-11











MeadCompuChem

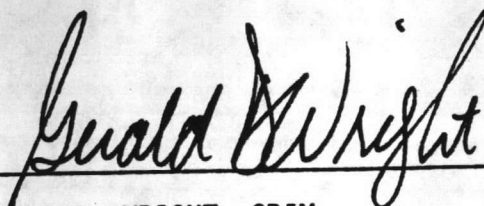
1E. REPORT OF DATA

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

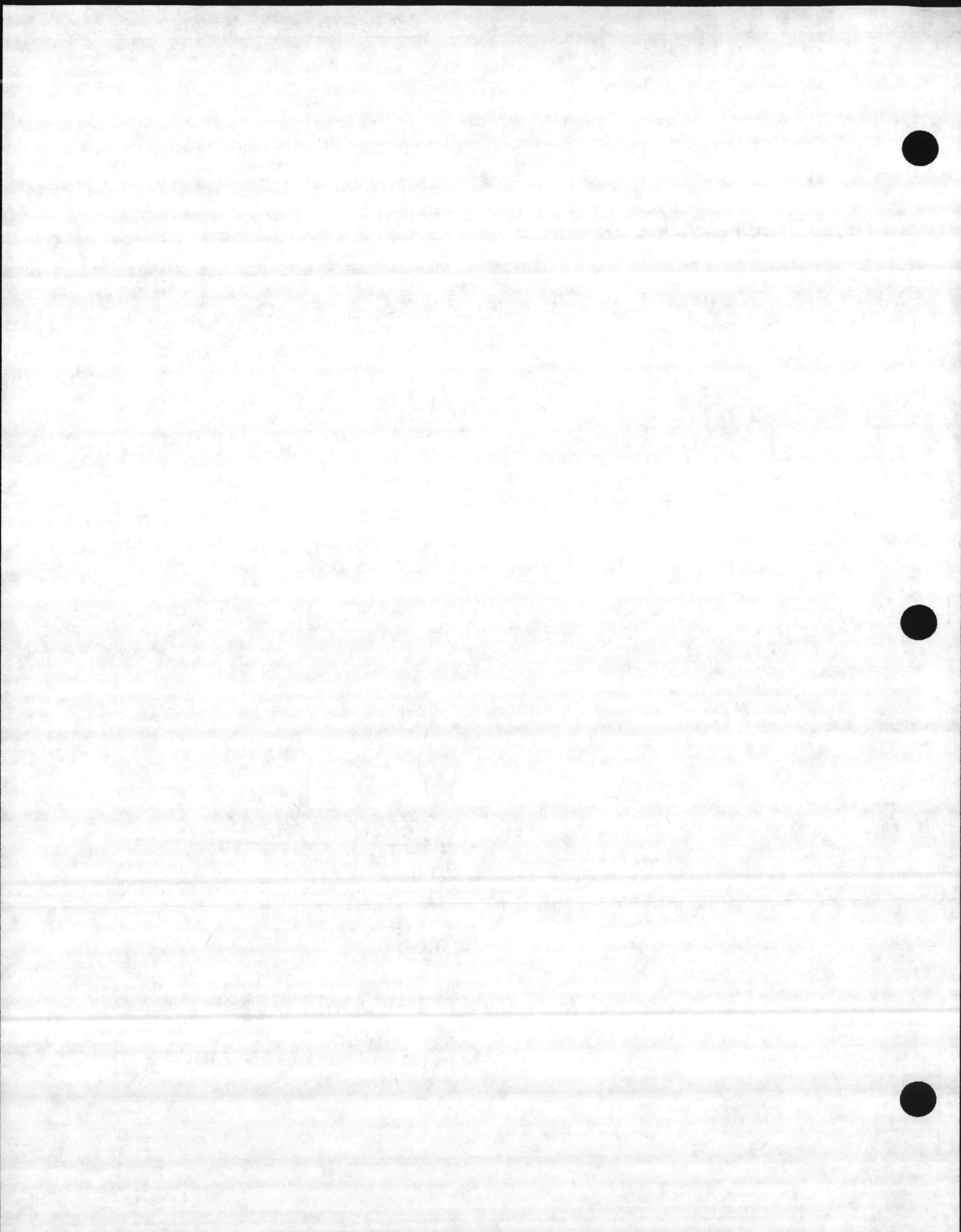




EXHIBIT I - LABORATORY CHRONICLE

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> <u>(UG/L)</u>	<u>DETECTION</u> <u>LIMIT</u> <u>(UG/L)</u>	<u>SCAN</u> <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



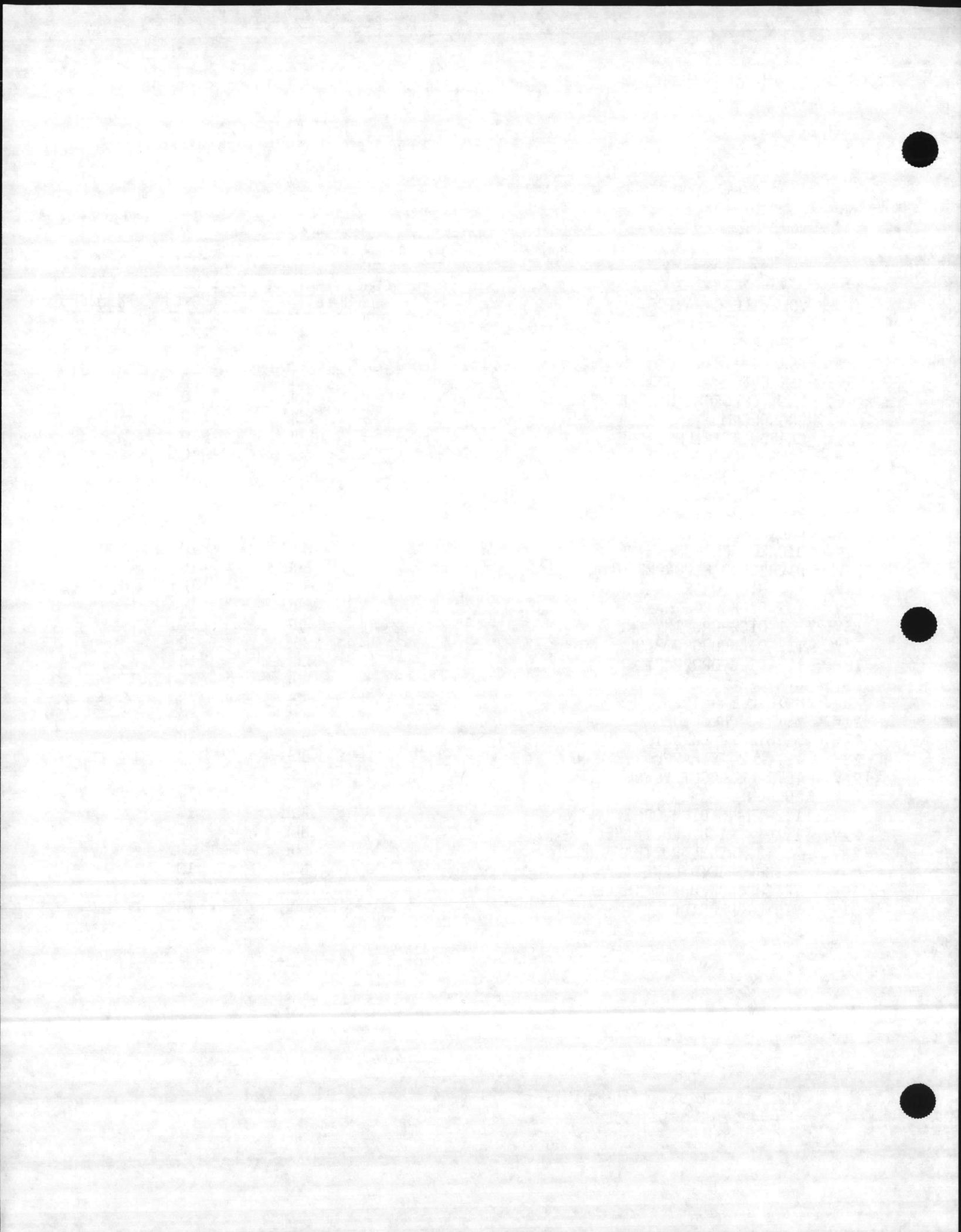
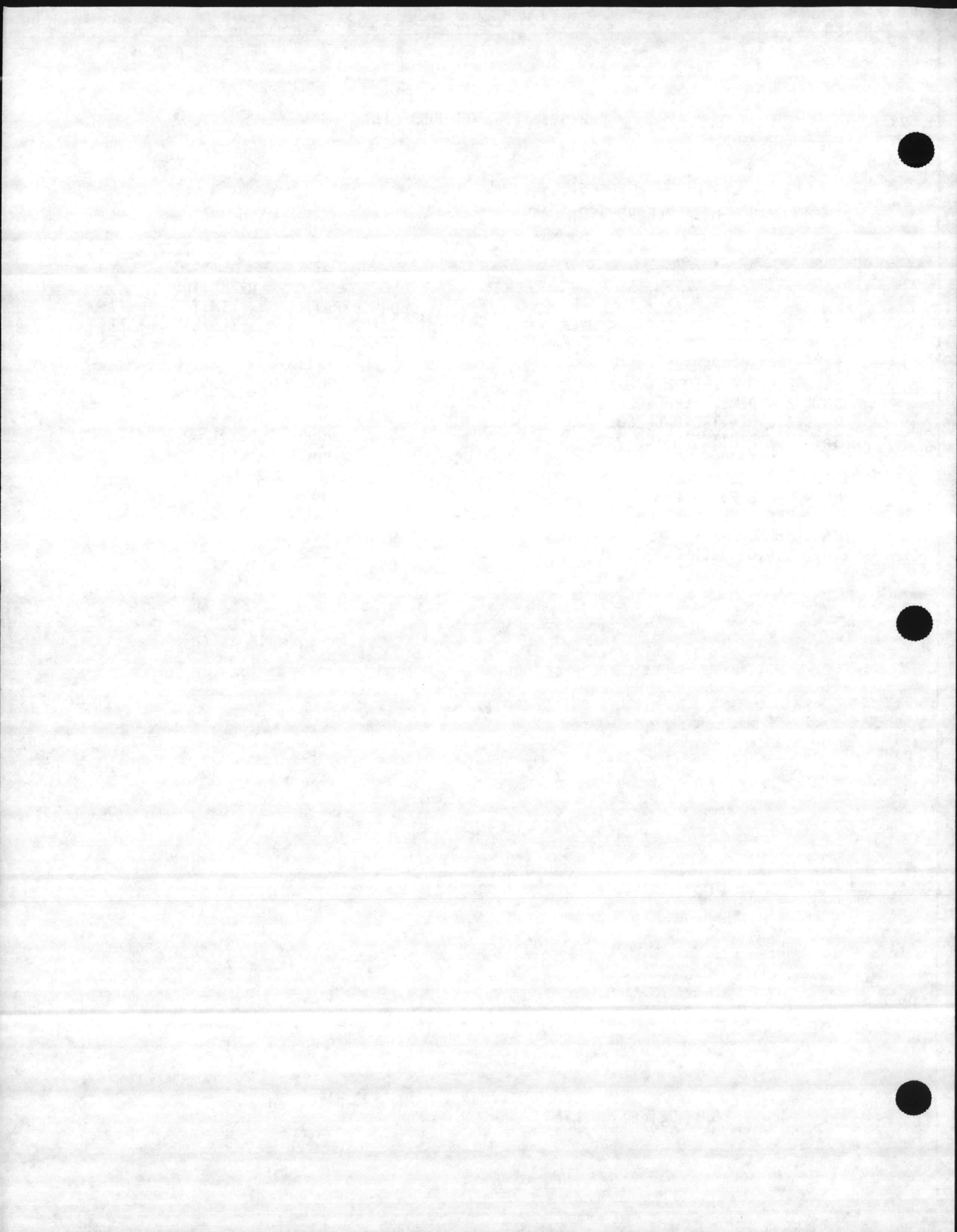


EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29376  
 COMPUCHEM SAMPLE NUMBER: 3497

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

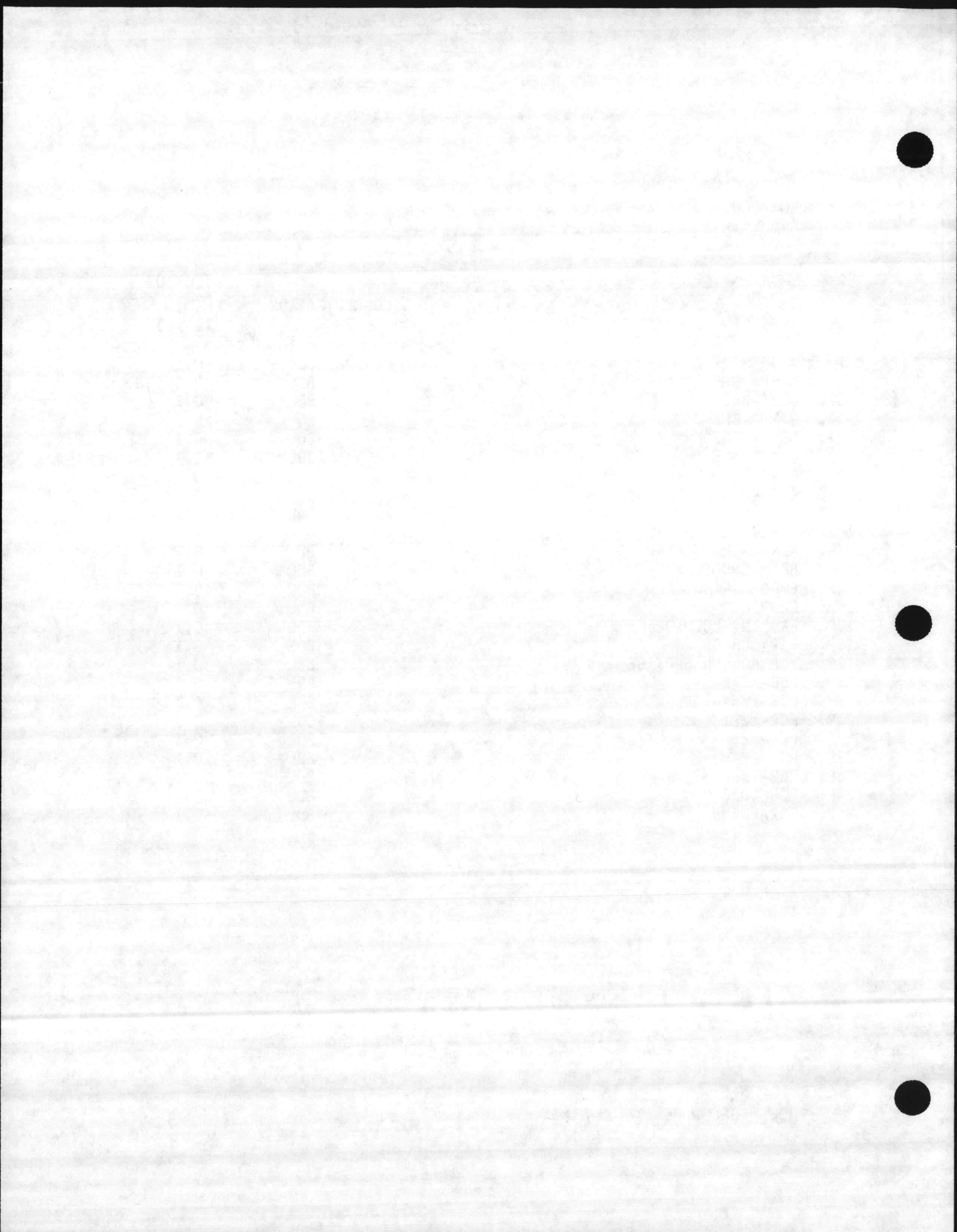


## EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29376  
COMPUCHEM SAMPLE NUMBER: 3497

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





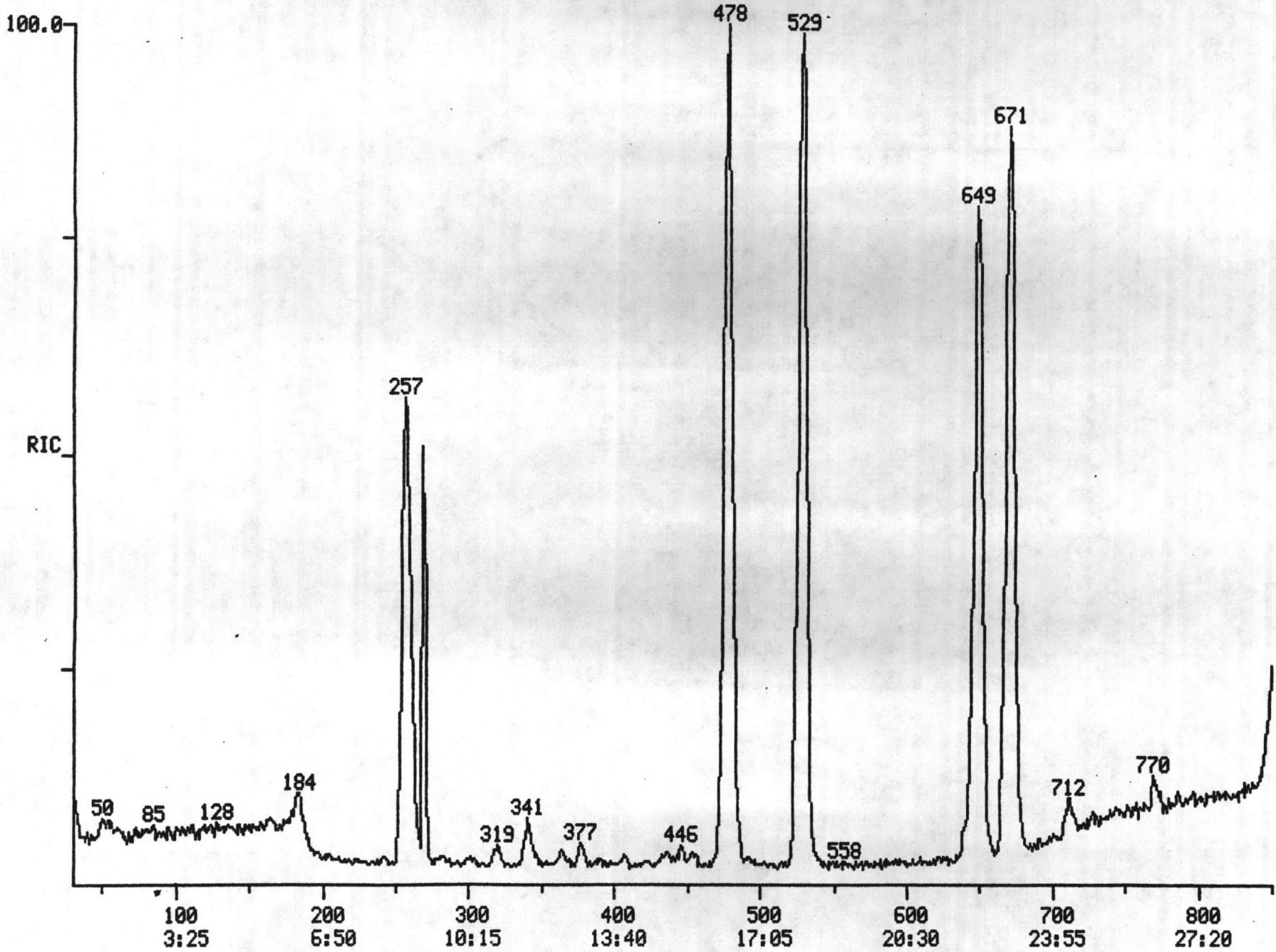
MEAD COM CHEM

DATA: UN003497A05

SCANS 30 TO 850

RIC  
04/29/83 11:00:00  
SAMPLE: UOA SAMPLE #3497

53440.



Doc ID: CLEJ-00360-5:04-11/1/83

SCAN TIME



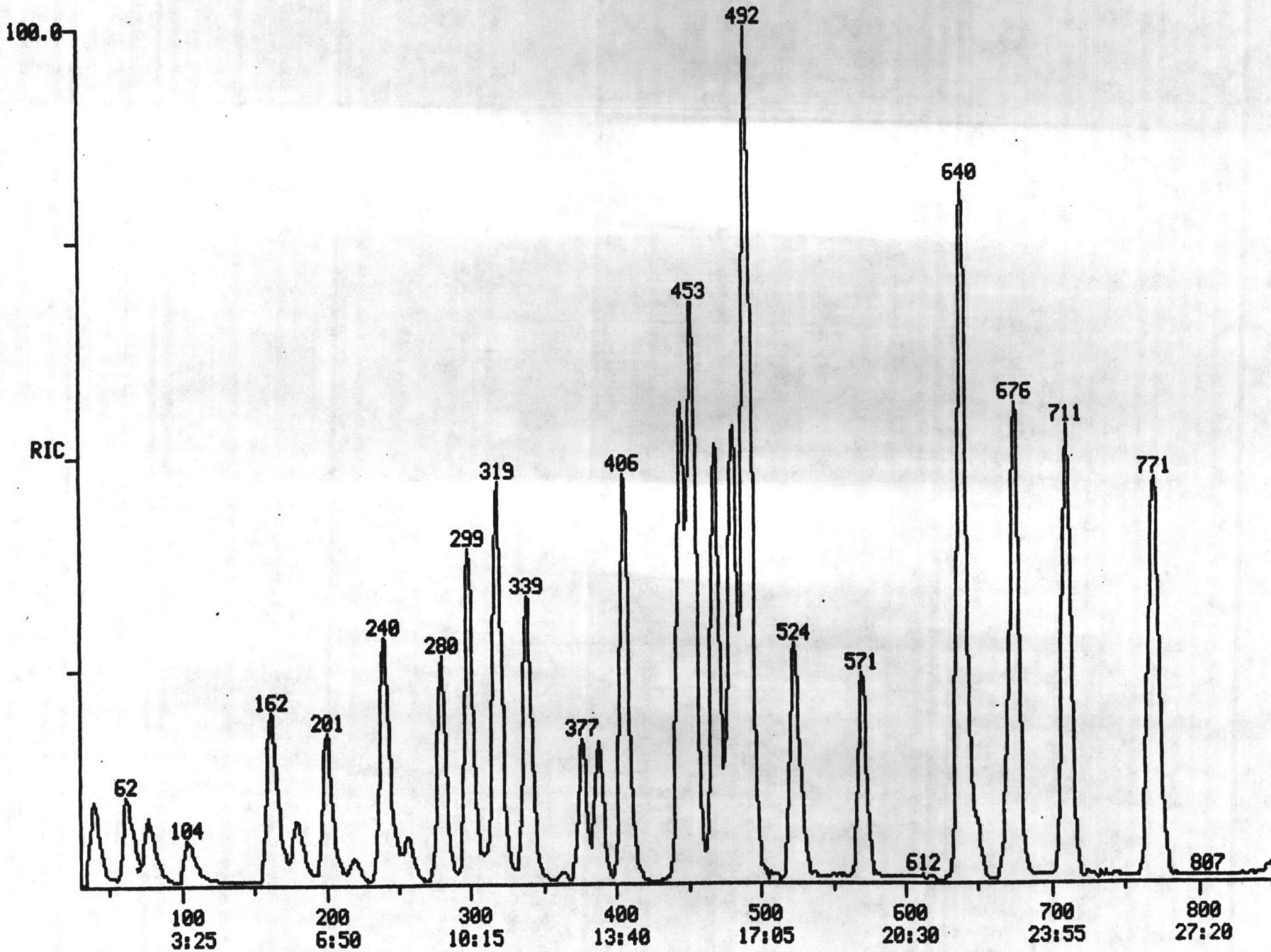
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SCANS 30 TO 850

RIC  
04/29/83 9:05:00  
SAMPLE: 160NG UOA STANDARD

747520.



Doc No: ALEJ - 00360-3.04-11/18/83

SCAN TIME





MEAD COMPUCHEM

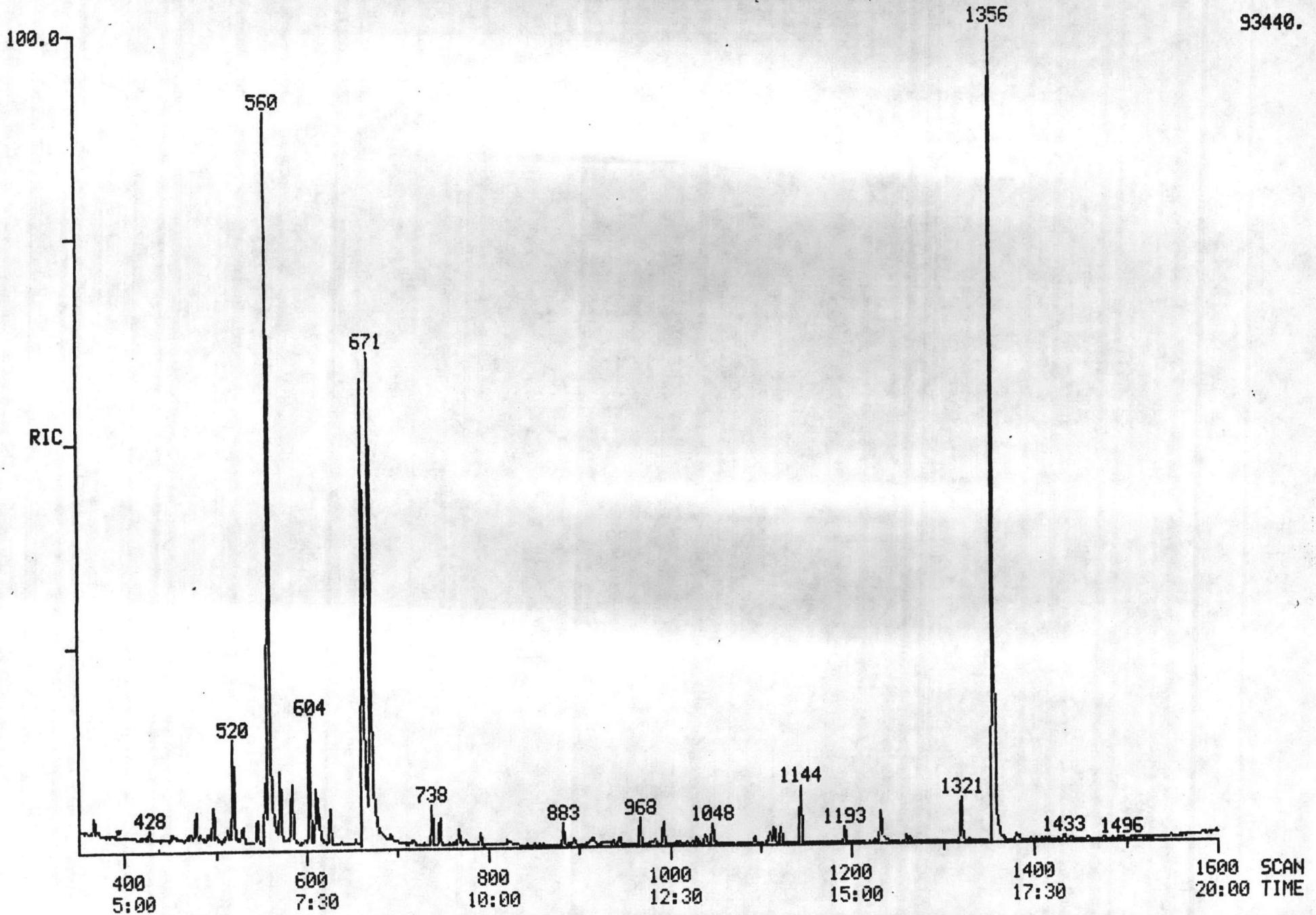
DATA: AC003497A02

SCANS 350 TO 1600

RIC

04/29/83 13:44:00

SAMPLE: ACID SAMPLE#3497



Doc No: CLEJ-00360 3:04 11/14/83



MEAD COMPUCHEM

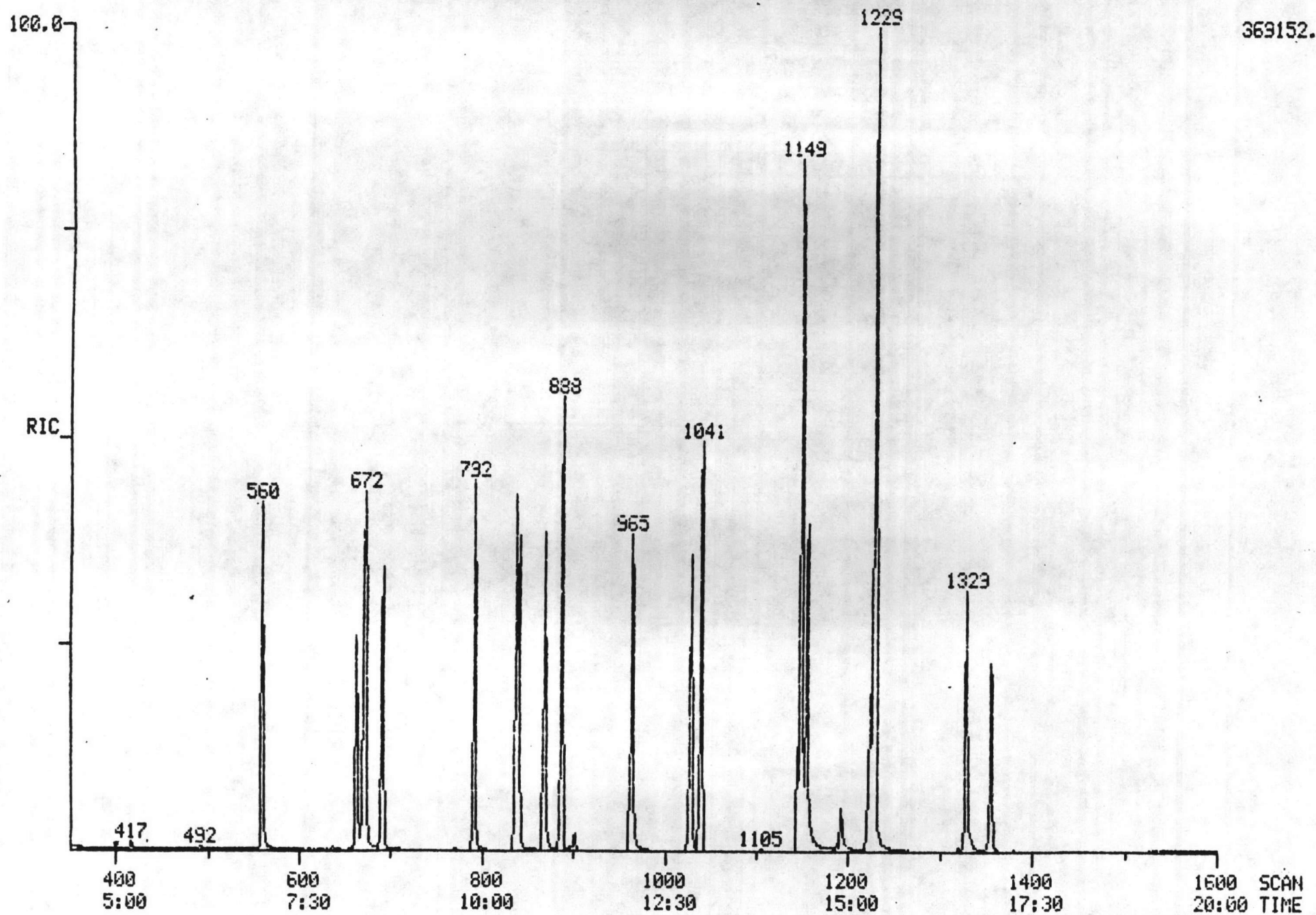
DATA: A5830429A02

SCANS 350 TO 1600

RIC

04/29/83 8:18:00

SAMPLE: ACID STD #3304, 120 NG , EX 4-28



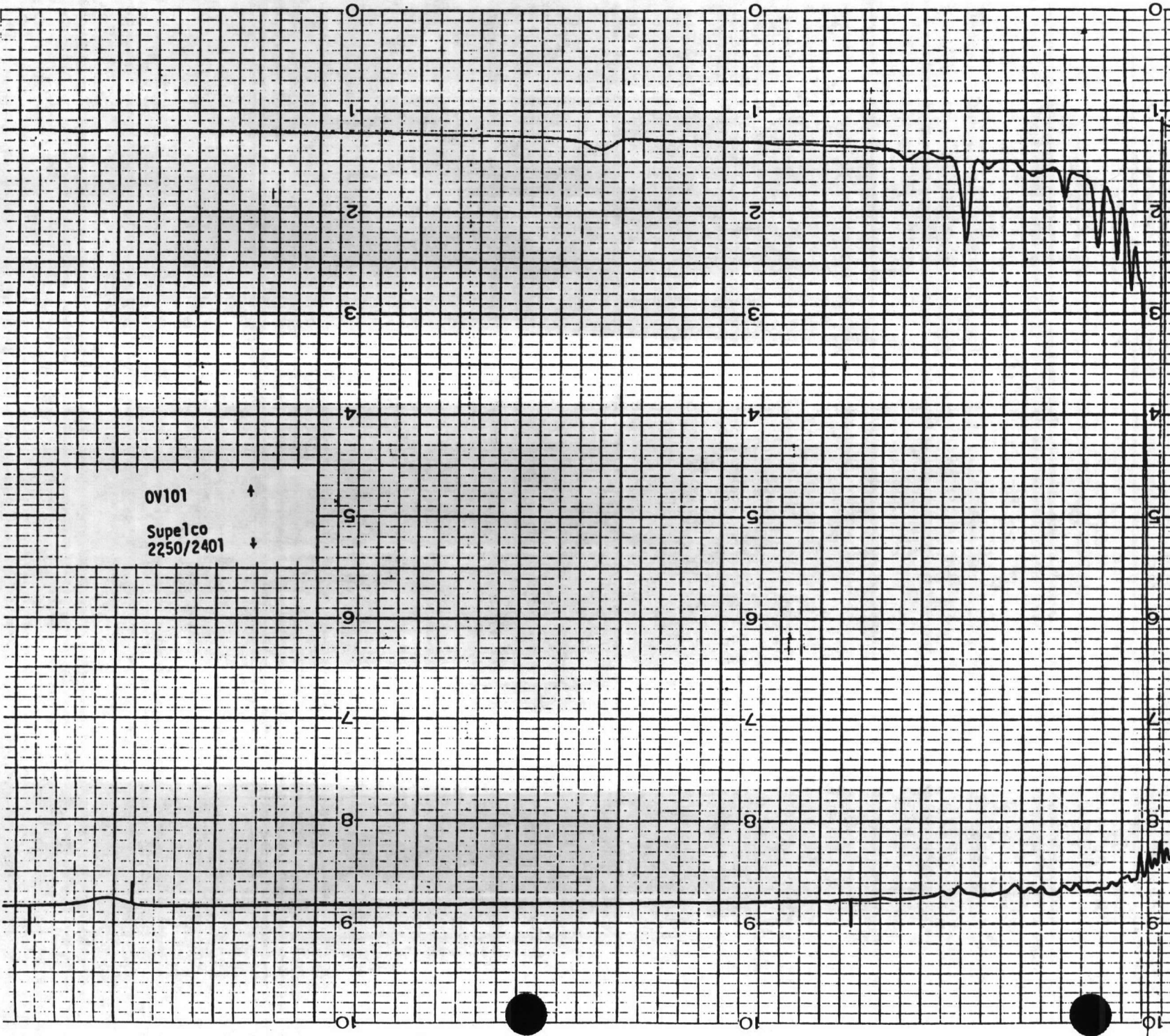
369152.

Doc No. 0LEJ-00360-3 M4/1/83





Doc No: CLEJ-00360-3.04 7/14/83

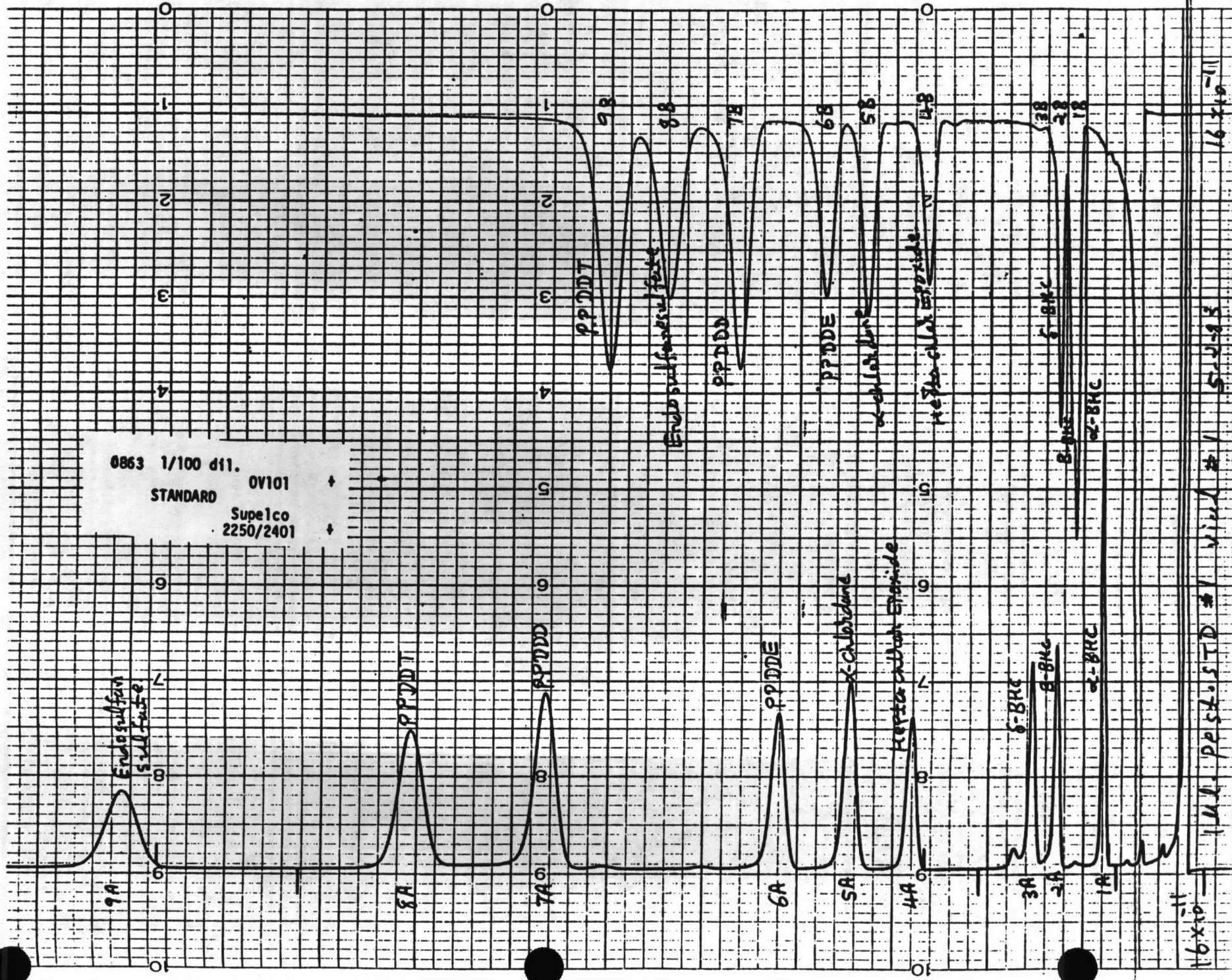


6x6  
11/11/83  
5-2-83  
Lab # 101  
Vial # 11  
Sample # 3497





Doc No: CLEJ-00360-B.04-7/14/83











MeadCompuChem

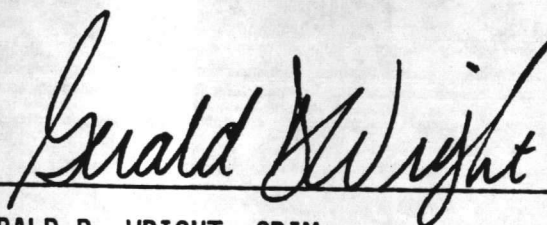
1F. REPORT OF DATA

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



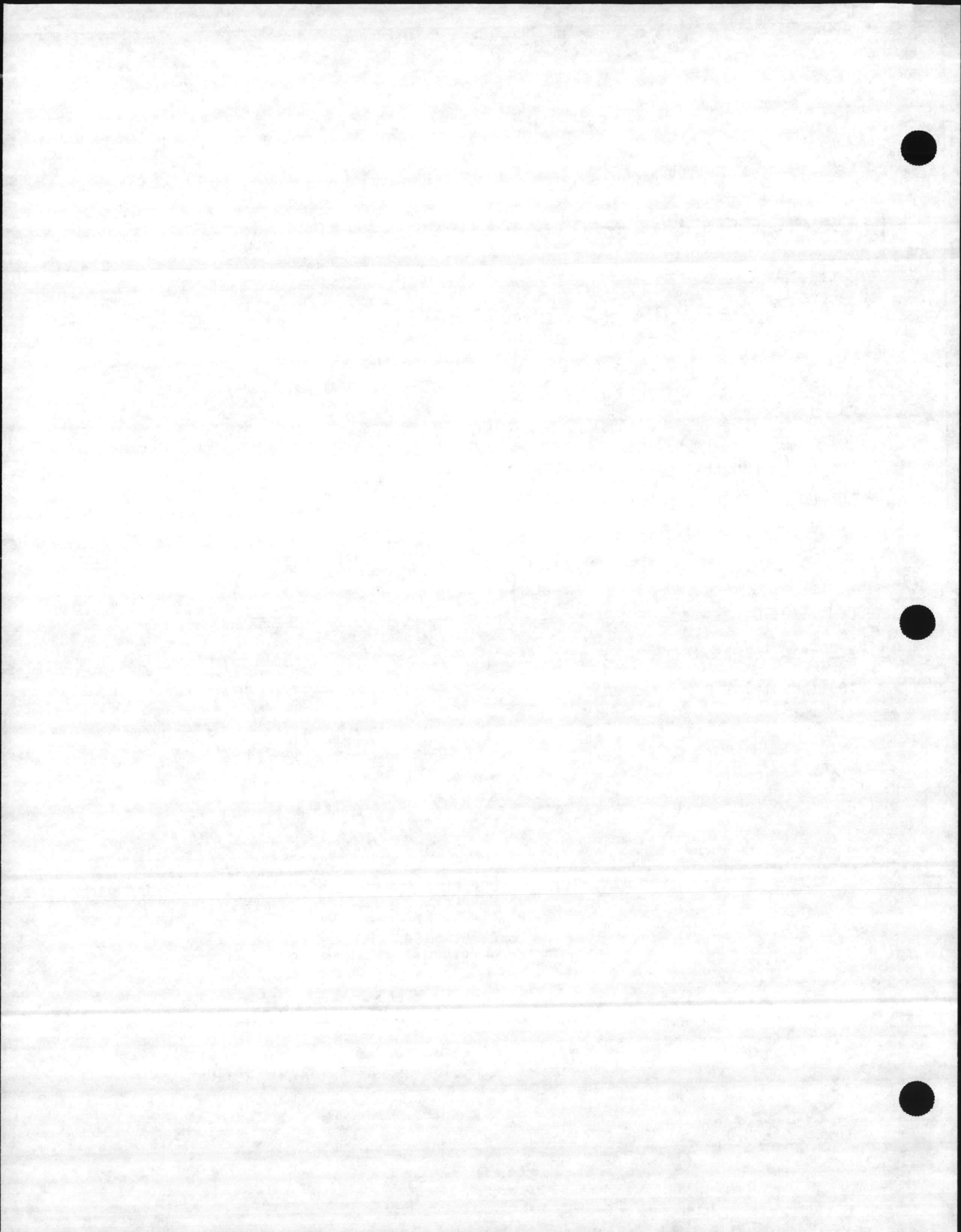


EXHIBIT I - LABORATORY CHRONICLE

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



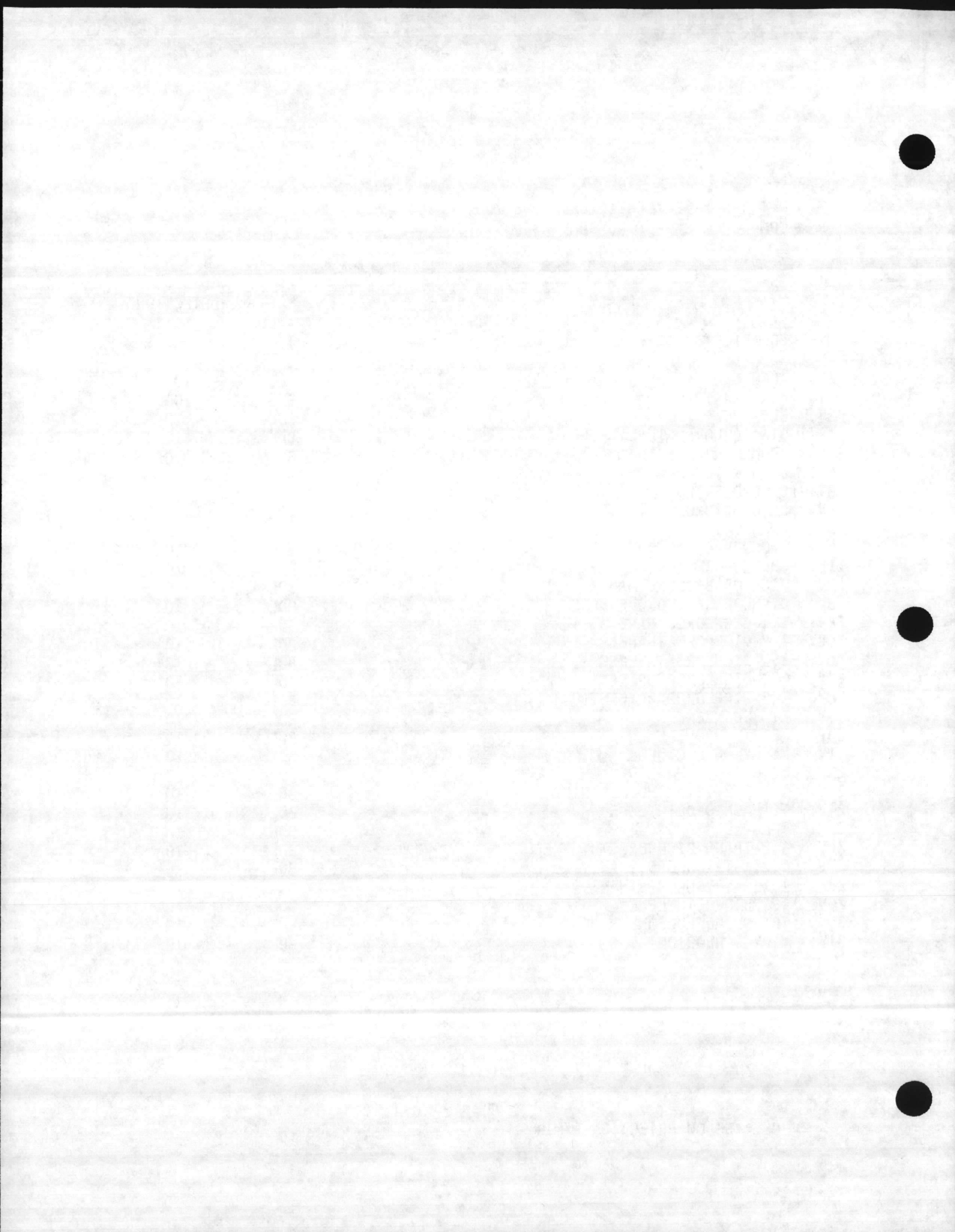


## EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29377  
COMPUCHEM SAMPLE NUMBER: 3498

<u>VOLATILE ORGANICS</u>		<u>CONCENTRATION</u> <u>(UG/L)</u>	<u>DETECTION</u> <u>LIMIT</u> <u>(UG/L)</u>	<u>SCAN</u> <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-CHLOROETHYLVINYL ETHER	BDL	10	
11V.	CHLOROFORM	BDL	10	
12V.	DICHLOROBROMOMETHANE	BDL	10	
13V.	DICHLORODIFLUOROMETHANE	BDL	10	
14V.	1,1-DICHLOROETHANE	BDL	10	
15V.	1,2-DICHLOROETHANE	BDL	10	
16V.	1,1-DICHLOROETHYLENE	BDL	10	
17V.	1,2-DICHLOROPROPANE	BDL	10	
18V.	1,3-DICHLOROPROPYLENE	BDL	10	
19V.	ETHYLBENZENE	BDL	10	
20V.	METHYL BROMIDE	BDL	10	
21V.	METHYL CHLORIDE	BDL	10	
22V.	METHYLENE CHLORIDE	BDL	10	
23V.	1,1,2,2-TETRACHLOROETHANE	BDL	10	
24V.	TETRACHLOROETHYLENE	BDL	10	
25V.	TOLUENE	BDL	10	
26V.	1,2-TRANS-DICHLOROETHYLENE	BDL	10	
27V.	1,1,1-TRICHLOROETHANE	BDL	10	
28V.	1,1,2-TRICHLOROETHANE	BDL	10	
29V.	TRICHLOROETHYLENE	BDL	10	
30V.	TRICHLOROFLUOROMETHANE	BDL	10	
31V.	VINYL CHLORIDE	BDL	10	

BDL = BELOW DETECTION LIMIT



## EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 29377  
COMPUCHEM SAMPLE NUMBER: 3498

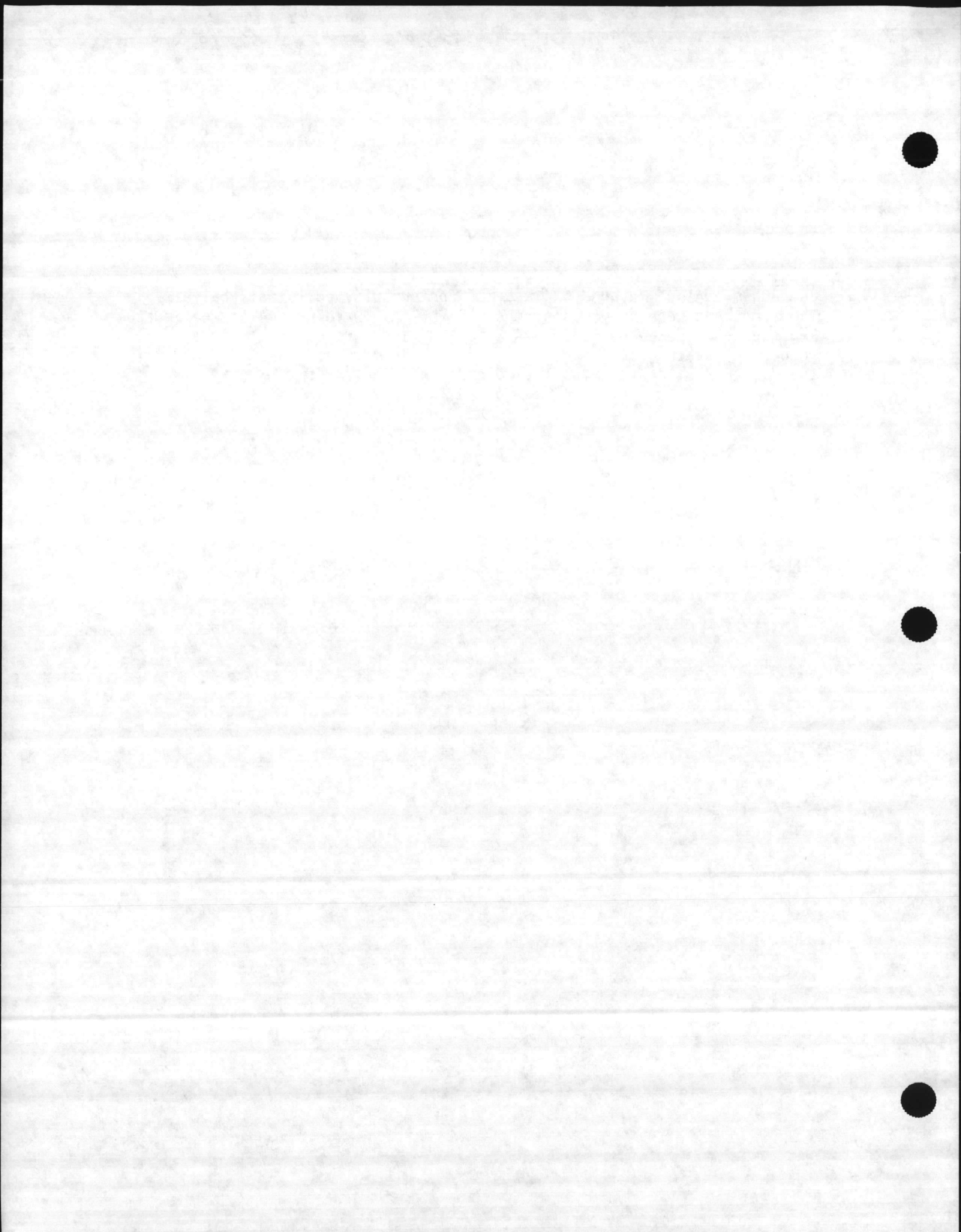
<u>ACID EXTRACTABLE ORGANICS</u>		<u>CONCENTRATION</u> <u>(UG/L)</u>	<u>DETECTION</u> <u>LIMIT</u> <u>(UG/L)</u>	<u>SCAN</u> <u>NUMBER</u>
1A.	2-CHLOROPHENOL	BDL	25	
2A.	2,4-DICHLOROPHENOL	BDL	25	
3A.	2,4-DIMETHYLPHENOL	BDL	25	
4A.	4,6-DINITRO-O-CRESOL	BDL	250	
5A.	2,4-DINITROPHENOL	BDL	250	
6A.	2-NITROPHENOL	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: 29377  
COMPUCHEM SAMPLE NUMBER: 3498

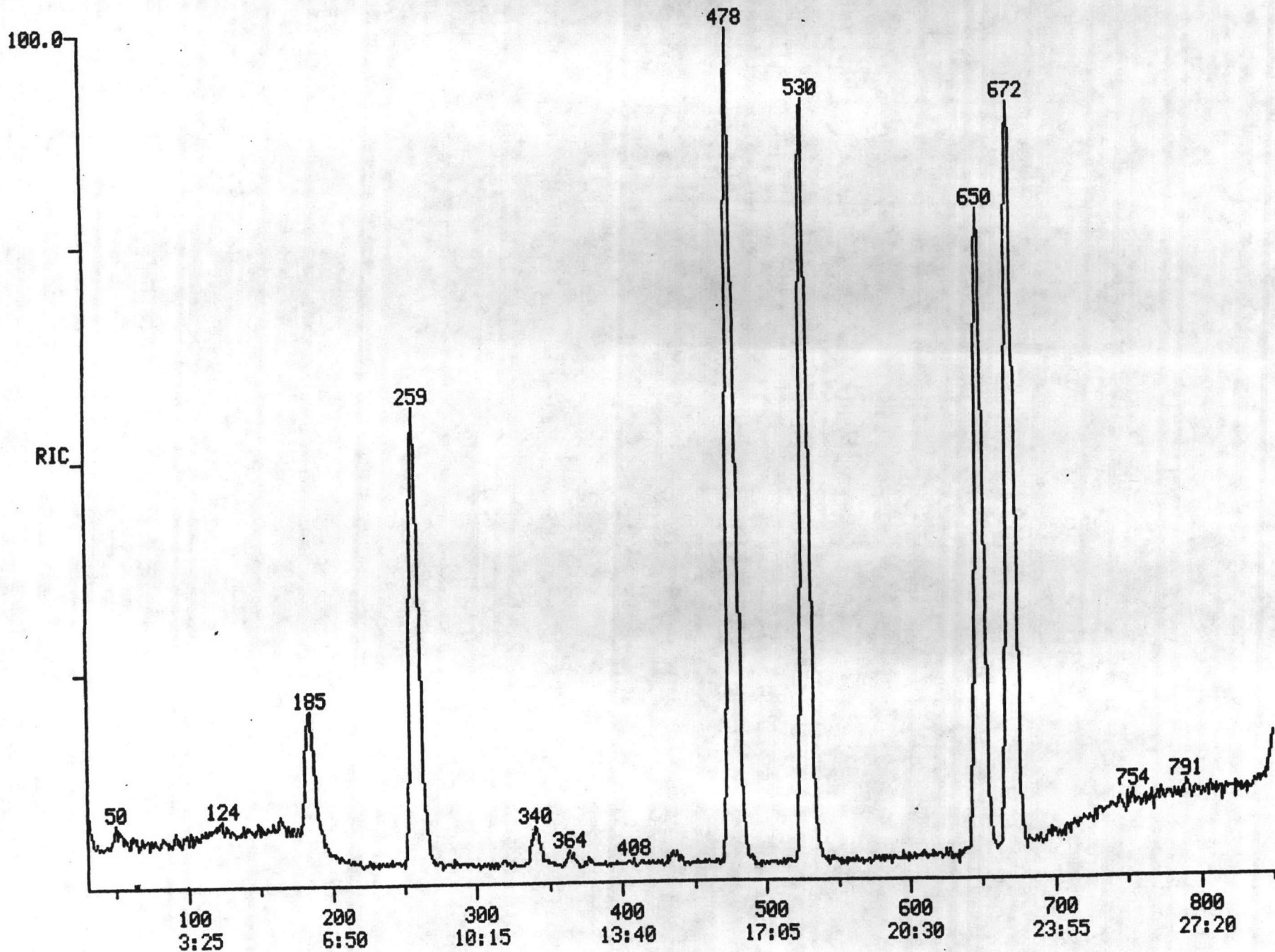
<u>PESTICIDES/PCB'S</u>		<u>CONCENTRATION</u> <u>(UG/L)</u>	<u>DETECTION</u> <u>LIMIT</u> <u>(UG/L)</u>
1P.	ALDRIN	BDL	0.1
2P.	ALPHA-BHC	BDL	0.1
3P.	BETA-BHC	BDL	0.1
4P.	GAMMA-BHC	BDL	0.1
5P.	DELTA-BHC	BDL	0.1
6P.	CHLORDANE	BDL	0.1
7P.	4,4'-DDT	BDL	0.1
8P.	4,4'-DDE	BDL	0.1
9P.	4,4'-DDD	BDL	0.1
10P.	DIELDRIN	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



RIC  
04/29/83 11:59:00  
SAMPLE: UOA SAMPLE #3498

51008.



Doc no: OLET-00360-300-7/14/83

SCAN TIME





MEAD COMPUCHEM

DATA: US830429A05

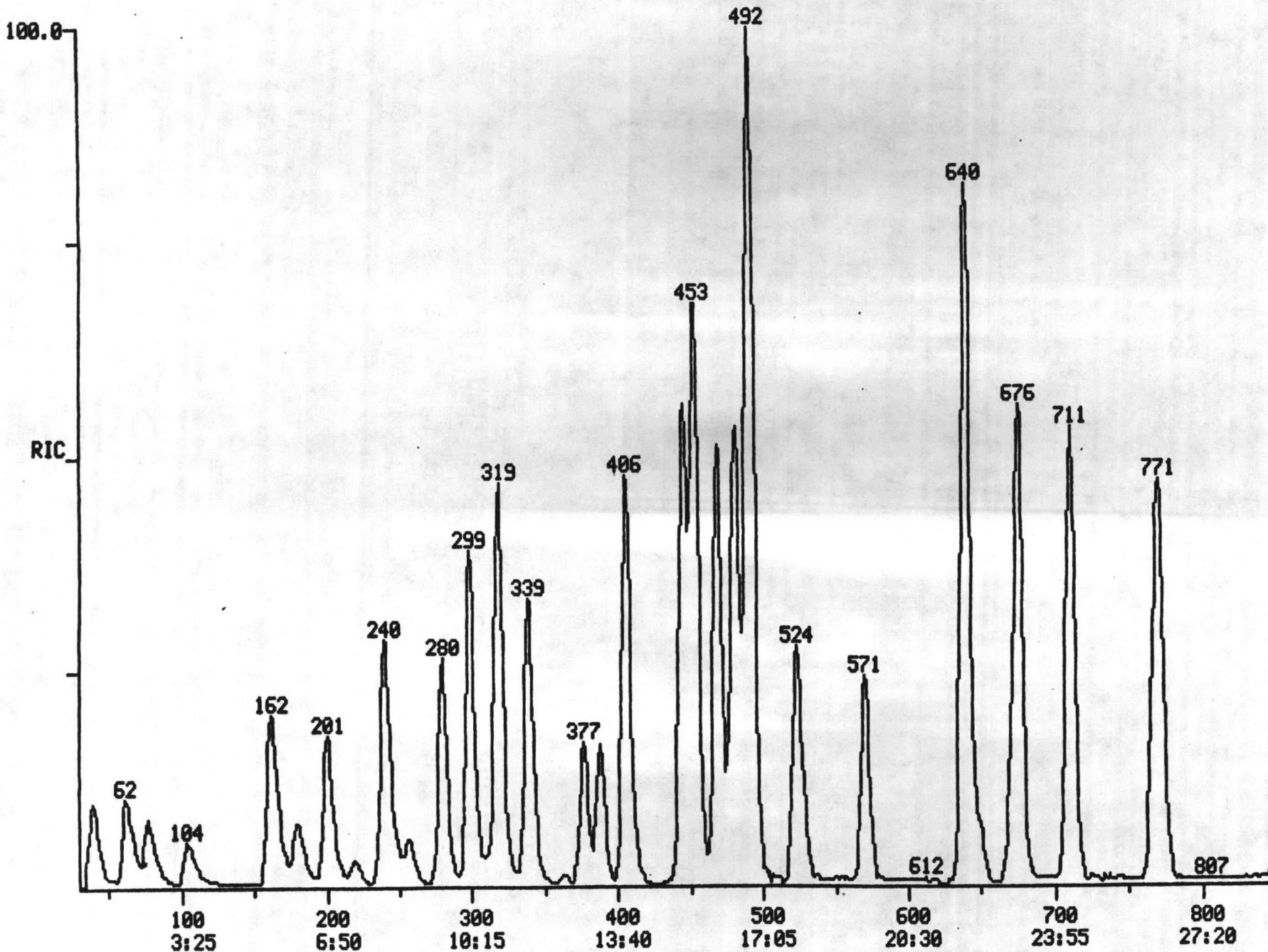
SCANS 30 TO 850

RIC

04/29/83 9:05:00

SAMPLE: 160NG UOA STANDARD

747520.



Do No: CLET-00360-3.04-7/14/83

SCAN TIME

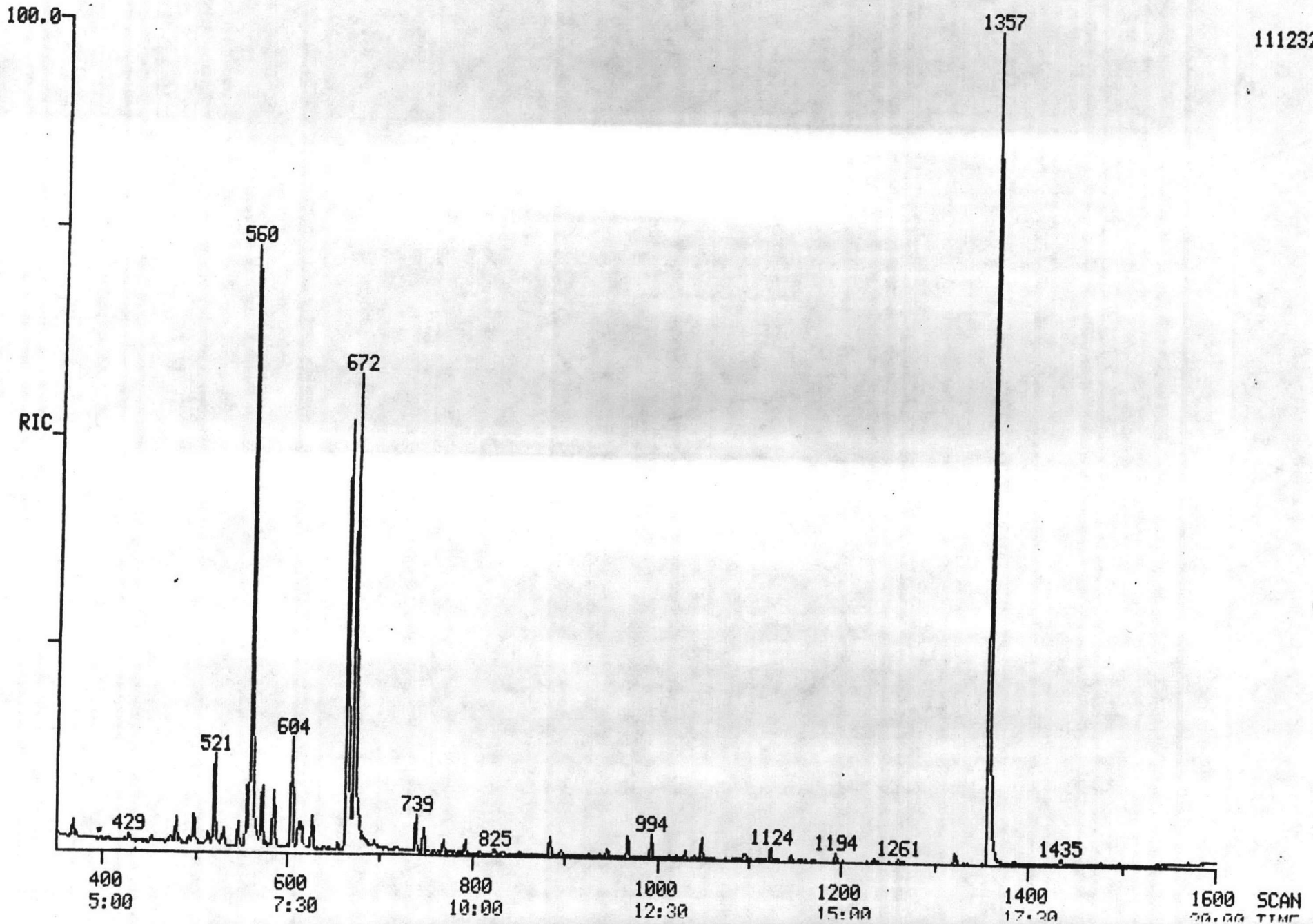


RIC  
04/29/83 14:24:00  
SAMPLE: ACID #3498

MEAD COMPUCEM

DATA: AC003498A02

SCANS 350 TO 1600



111232.  
Doc No: 02 ET - 00360 - 3.04 - 7/14/83





MEAD COMPUCHEM

DATA: A5830429A02

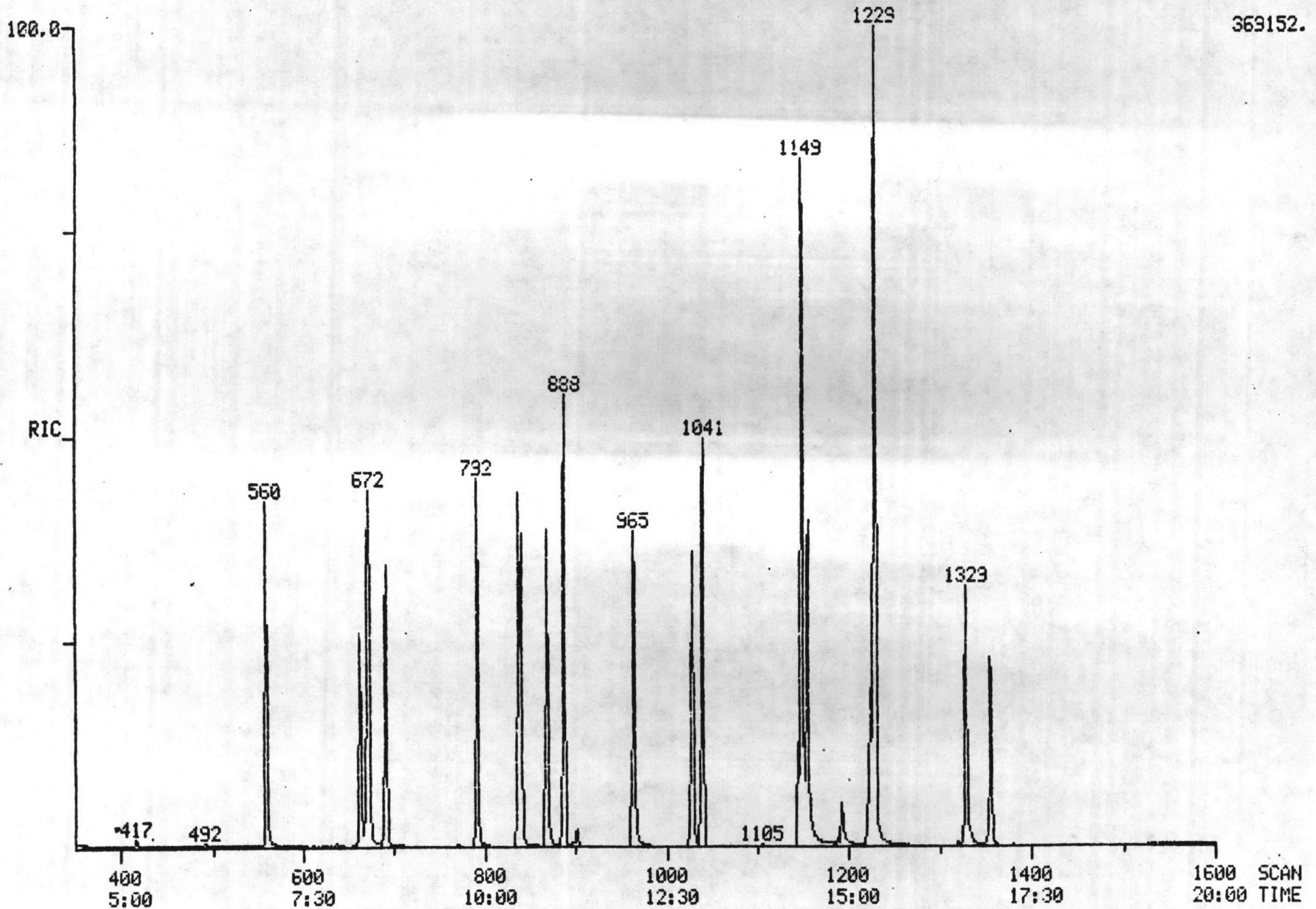
SCANS 350 TO 1600

RIC

04/29/83 8:18:00

SAMPLE: ACID STD #3304, 120 NG , EX 4-28

369152.



Doc No: CLET - 00360-3.04-11/1/83



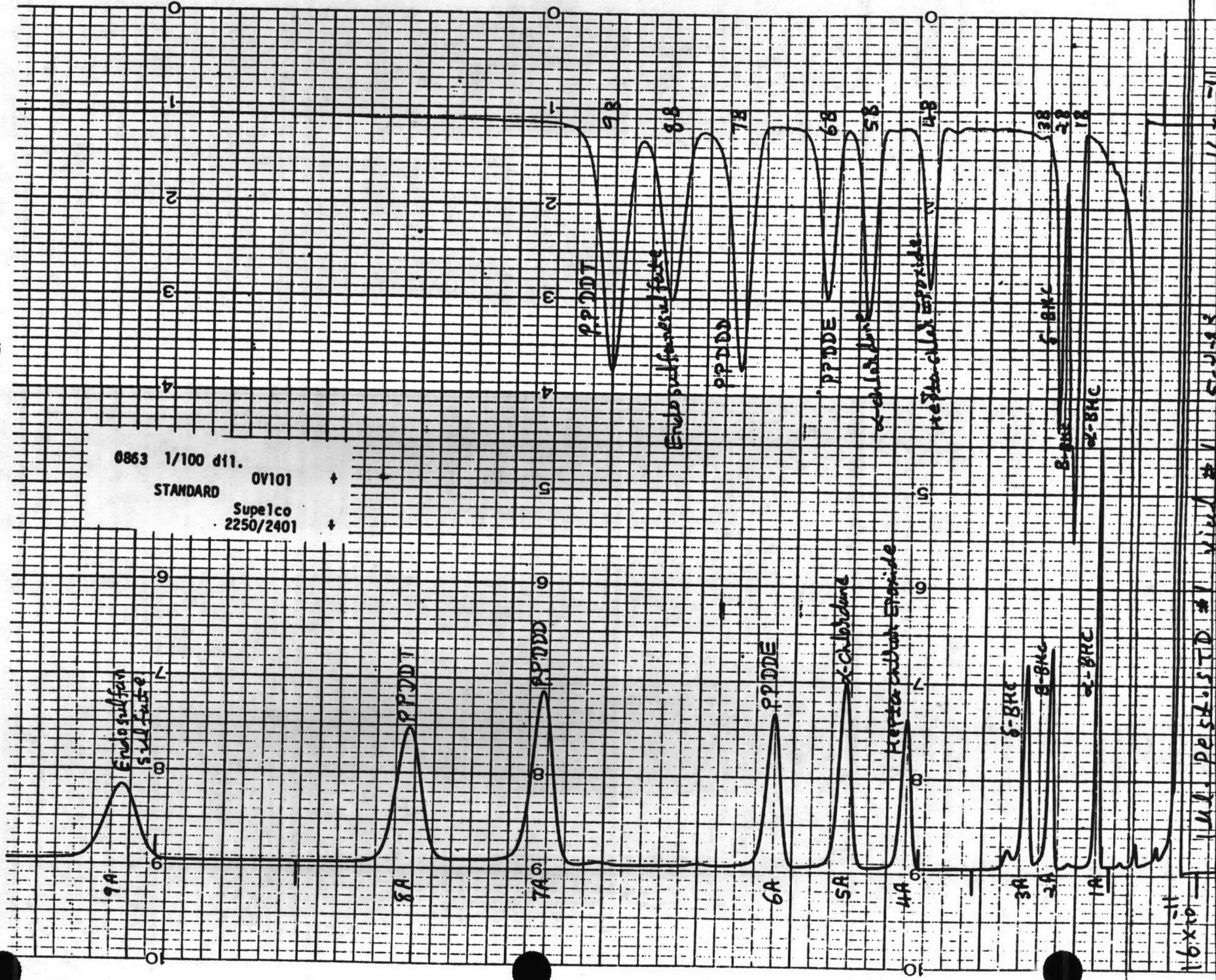








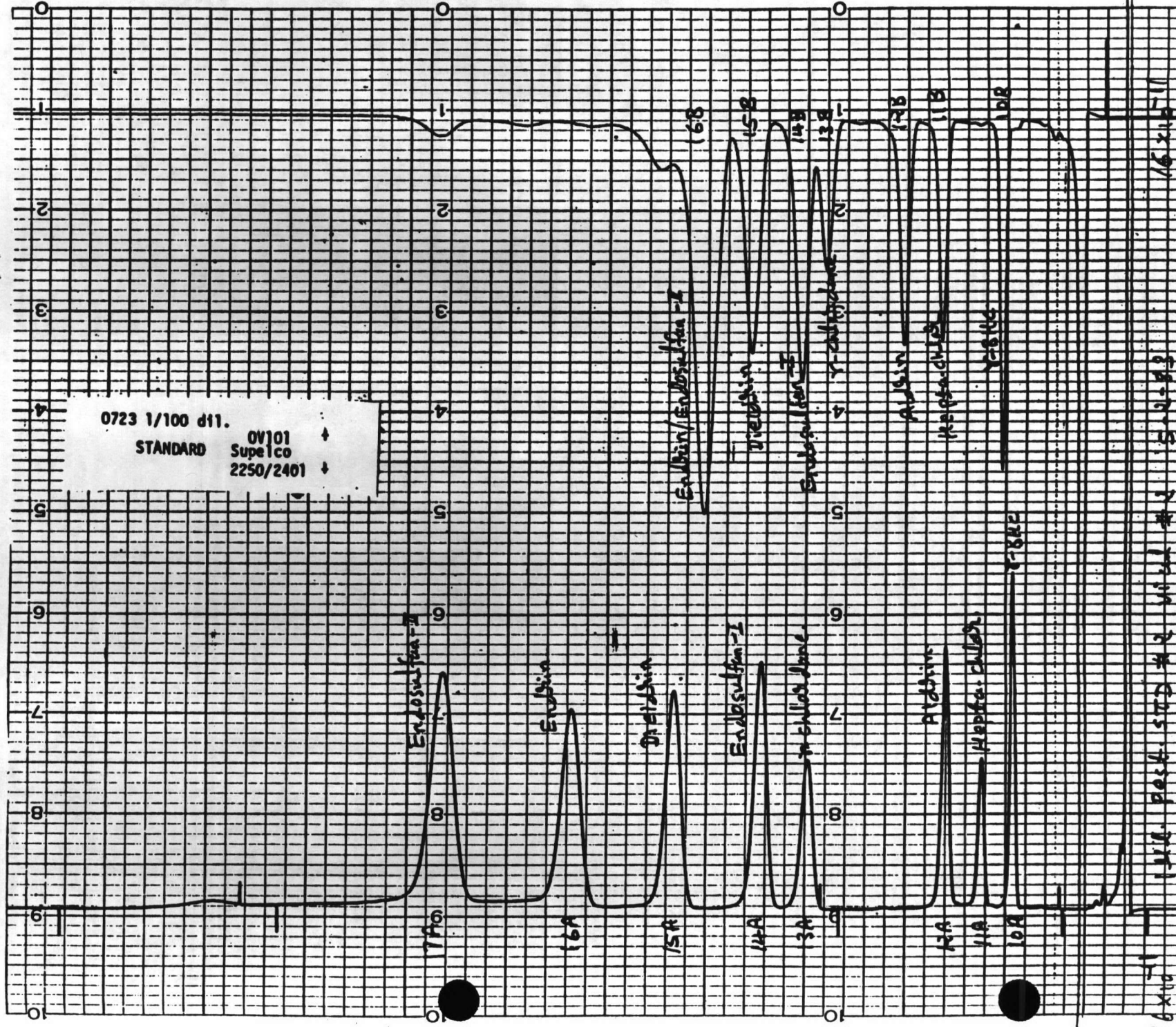
Doc No: CLET-00360-3.04-7/14/83







Doc No: CLEJ - 00360 - 3.04 - 7/14/83







## 2. ANALYTICAL METHODS, DEFINITIONS AND EXPLANATIONS

The CompuChem report contains not only the concentrations of the priority pollutant compounds identified but also additional supportive information which is useful in the review of this data. A complete report includes the following (if ordered):

- Priority Pollutant Data
  - . GC/MS (VOA, B/N/P, Acid)
  - . Pesticides (Method 608)
  - . Inorganics
- Other Analytical Data (EP Toxicity, etc.)
- Conventional Permit Data

The GC/MS priority pollutant data is presented in summary form (concentration of each identified compound) along with the detection limits specified by EPA. In addition, a reconstructed total ion chromatogram (RIC) for each fraction and for the relevant instrument calibration (standards) runs are included.

Also included in the report are the spectra for all organic (except for certain pesticides) priority pollutant compounds identified above EPA specified detection limits, as well as a laboratory chronicle of completion dates.

To assist in the interpretation and utilization of this data, a Glossary of frequently used terms, a Compound Cross-Reference List and a typical Spectral Match Diagram with explanatory notation are also included.

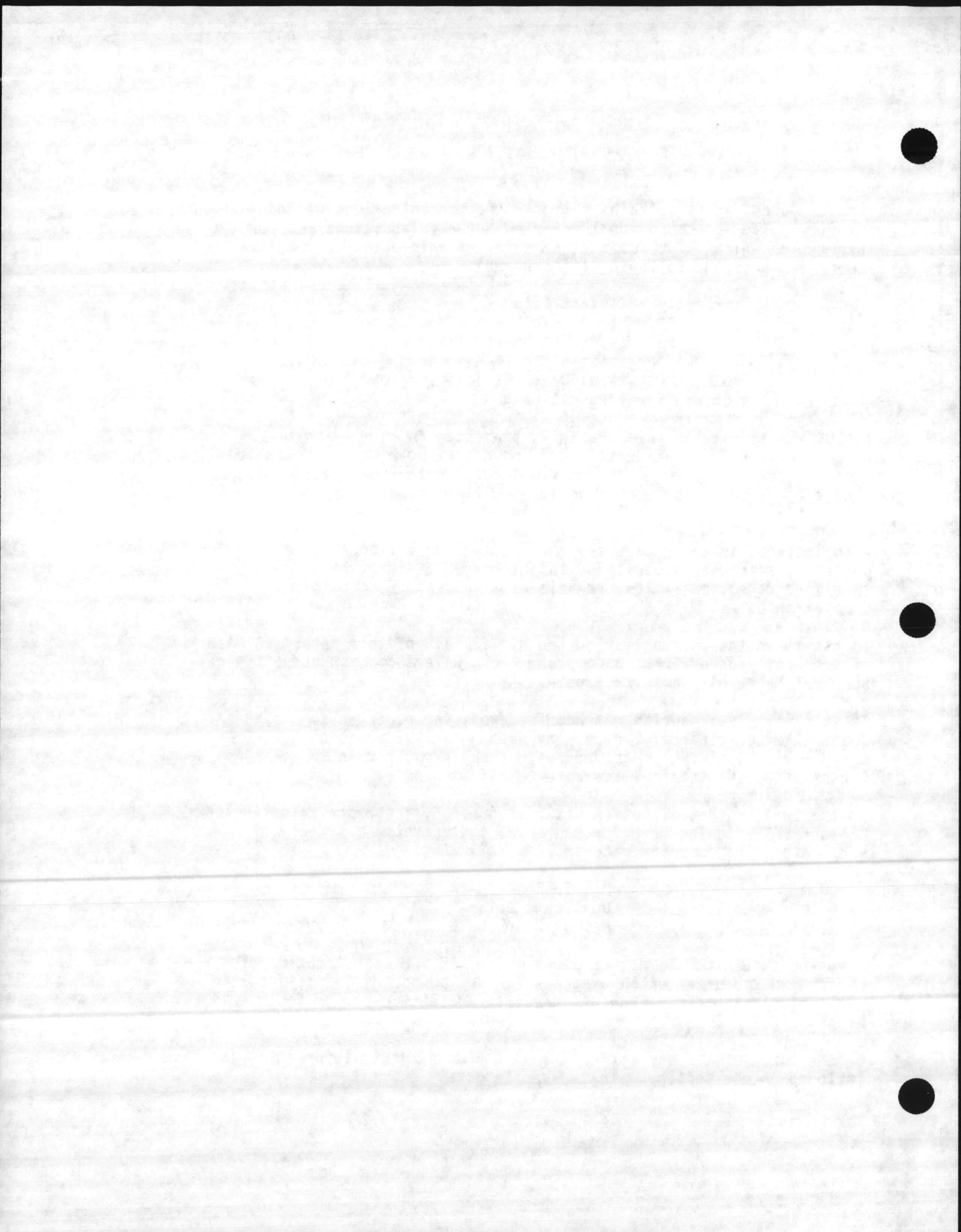
If the Twenty Peak option has been ordered, the report also includes spectral match diagrams for as many as twenty (20) additional non-priority pollutant compounds with peaks greater than 25% of the intensity of the internal standard (d<sub>10</sub>-anthracene).

If the Quality Control option has been ordered, the report also includes BFB and DFTPP tuning data for the GC/MS instruments, a summary of surrogate spike recovery data and the following:

- Matrix Spike Data
- Duplicate Data
- Method Blank Data

Also included with the method blank is an RIC for each fraction plus spectra and spectral match diagrams for any compounds identified with concentrations greater than EPA specified detection limits found in the blank.

If the Chain-of-Custody option has been ordered, this information is included in the section with the sample data.



ANALYTICAL METHODS

The analytical methods used by CompuChem for priority pollutant, RCRA and NPDES permit analyses are based on those promulgated by EPA. These methods have appeared in the Federal Register as noted below.

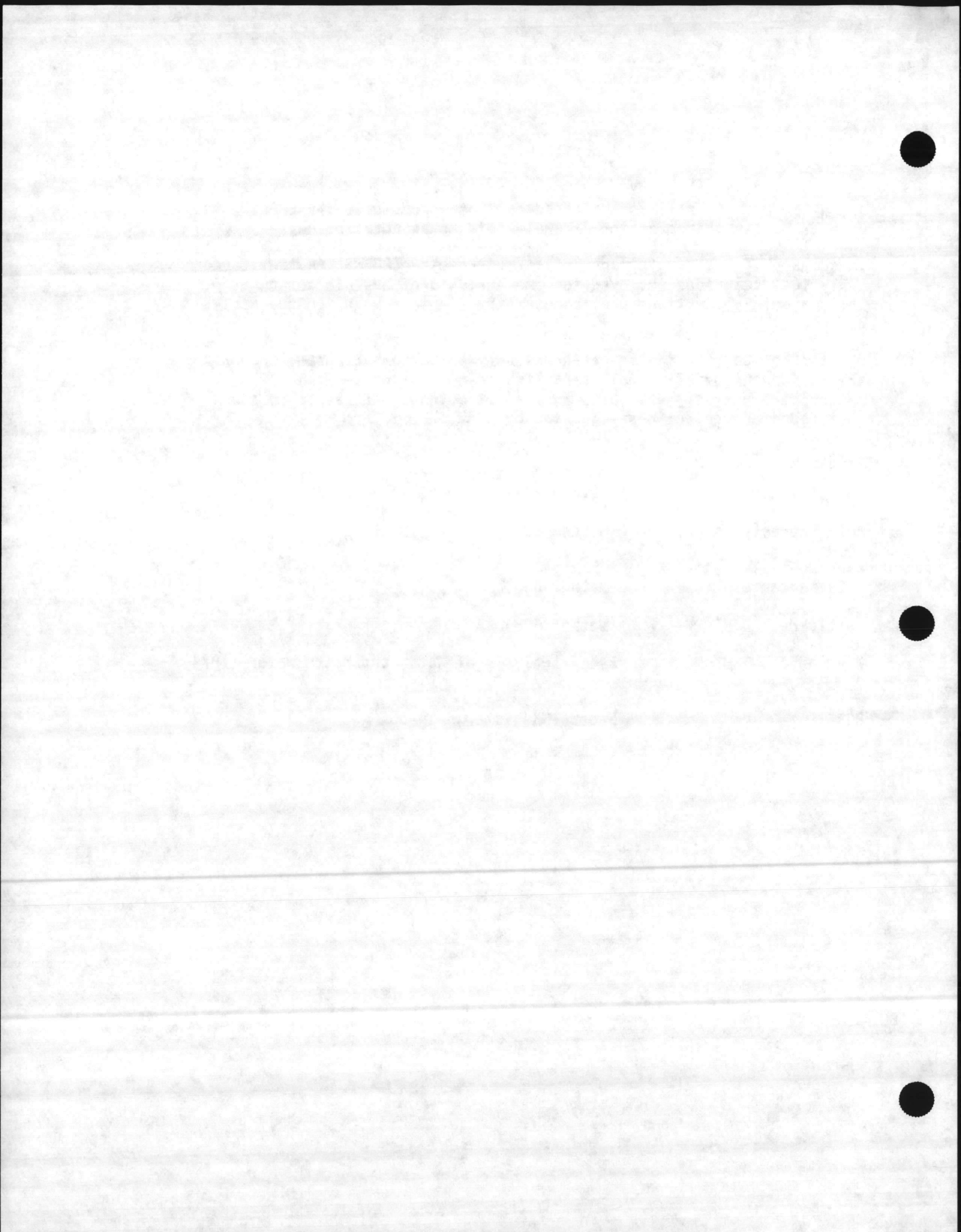
In summary, gas chromatography/mass spectrometry (GC/MS) is the analytical technique employed for the analysis of organic compounds while atomic absorption spectrophotometry (AAS) is used for the analysis of metals.

On occasion CompuChem also performs analyses for other parameters which are not on the priority pollutant list. In these cases also, EPA methods are used if available, and if not methods are developed and verified along guidelines suggested by EPA.

References for Methods

Volatile Organics	(Method 624)	Federal Register	12-3-79
Acid Extractables	(Method 625)	"	"
Base/Neutral/Pesticide Extractables	(Method 625)	"	"
Pesticides	(Method 608)	"	"
Inorganics	EPA: Analysis of Water and Waste Water (1974, 1979)		
RCRA	Federal Register	5-19-80	





Doc No: 01-50-300-304-07/14/83

## GLOSSARY OF TERMS

### ACID FRACTION

Those compounds which solvent extract from the sample when it is pH-adjusted acidic (pH<2).

### BFB TUNING

Each GC/MS instrument dedicated to VOA analyses is certified according to protocol prior to each 8-hour shift by injecting BFB (bromofluorobenzene) and comparing relationships between ion abundances for certain key mass numbers. If the prescribed relative ion abundances are not present, the instrument is adjusted until the criteria are met. With the available QC option, these parameters are included in the report for the BFB analysis following the specific sample analyzed.

### B/N/P FRACTION

Those compounds which solvent extract from the sample when it is pH-adjusted basic (pH>11). This includes the pesticides (P); bases (B) and since this step is performed first, the neutral (N) compounds.

### DFTPP TUNING

Each GC/MS instrument dedicated to Base/Neutral or Acid analyses is certified according to protocol prior to each 8-hour shift by injecting DFTPP (decafluorotriphenylphosphine) and comparing the relationships between ion abundances for certain key mass numbers. If the prescribed relative ion abundances are not present, the instrument is adjusted until the criteria are met. With the available QC option, these parameters are included in the report for the DFTPP analysis following the specific sample analyzed.

### INDISTINGUISHABLE ISOMERS

Compounds with essentially the same mass spectrum and which have the same elution time from the gas chromatograph. An example is anthracene and phenanthrene.

### INTERNAL STANDARD

CompuChem uses the internal standard method of quantitation. The same amount of d<sub>10</sub>-anthracene is added to both the calibration standard and the sample. All calculations are referenced to a signal produced by this compound. Then all results are automatically corrected for any change in instrument sensitivity.





**MATRIX SPIKES**

Actual priority pollutants which are added to a second aliquot of the sample to determine the effect, if any, of the sample matrix on the analytical procedure.

**METHOD BLANK**

A sample of organic-free laboratory water which undergoes exactly the same extraction procedure at the same time as the actual samples. This monitors for possible contamination from glassware, solvents, or the extraction procedure.

**PERCENT RECOVERY (SURROGATES AND MATRIX SPIKES)**

The formula for determining percent recovery is:

$$\% \text{ Recovery (Spike)} = \frac{\text{Conc. in Spike} - \text{Conc. in Sample}}{\text{Amount of Spike Added}} \times 100\%$$

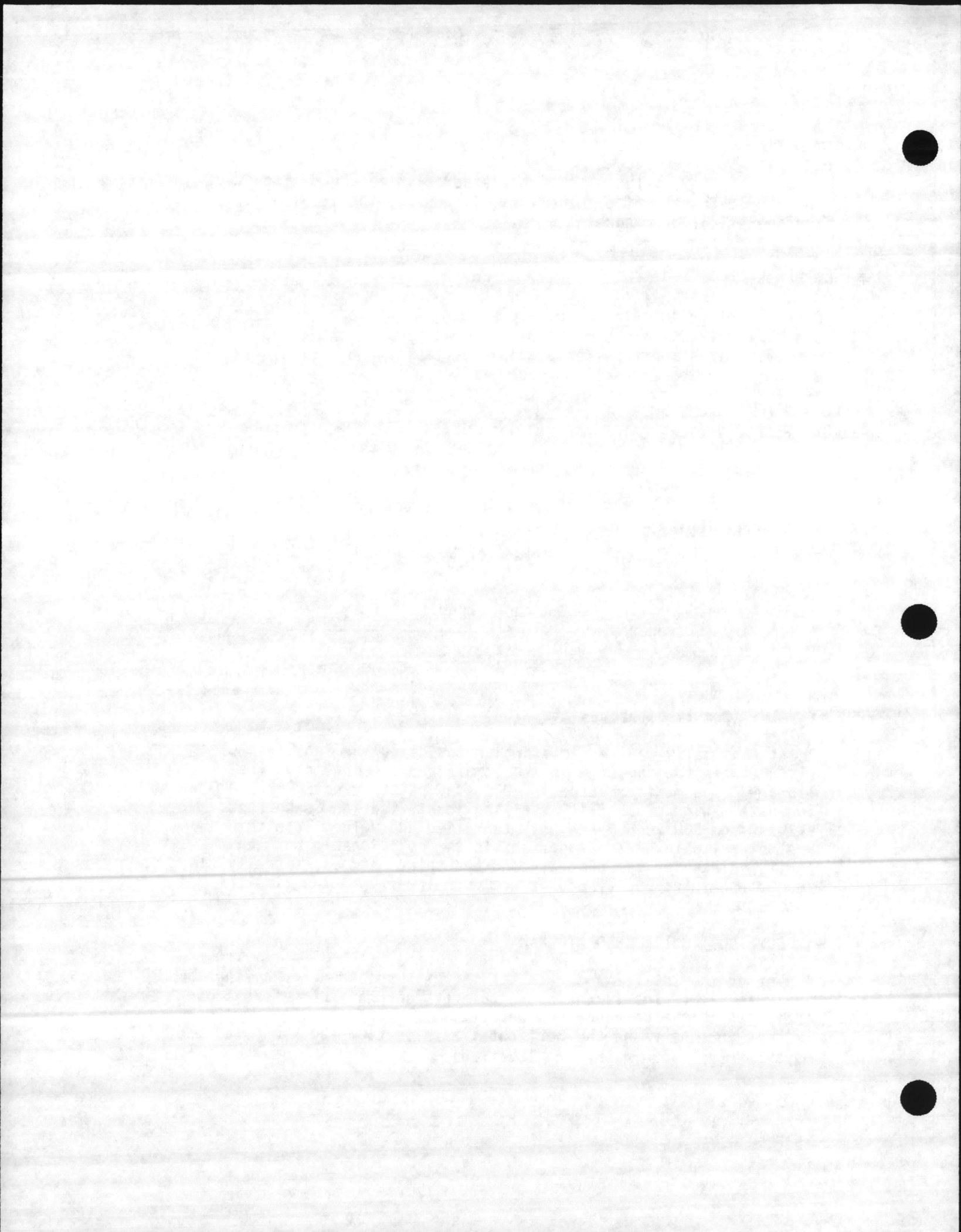
$$\% \text{ Recovery (Surrogate)} = \frac{\text{Amount found}}{\text{Amount added}} \times 100\%$$

**PURITY VALUE (sometimes abbreviated PUR)**

A mathematically devised index which indicates the "goodness of fit" between the spectrum in the sample and a compound in the library. The maximum value is 1000, and values greater than 800 indicate a high probability that the identification is correct. Values from 500 to 800 are only tentative and values less than 500 are not reliable. Also important is the relationship between purity values for the best, second and third matches; ideally the second and third purity scores are much lower than the first.

**RIC - RECONSTRUCTED ION CHROMATOGRAM**

A plot of the total ion current of the mass spectrometer during the analysis. The plot is analogous to a gas chromatogram where a peak indicates that a compound was detected at that time. The vertical axis is intensity and the horizontal axis is time (both minutes and mass spectral scan marks are labelled).



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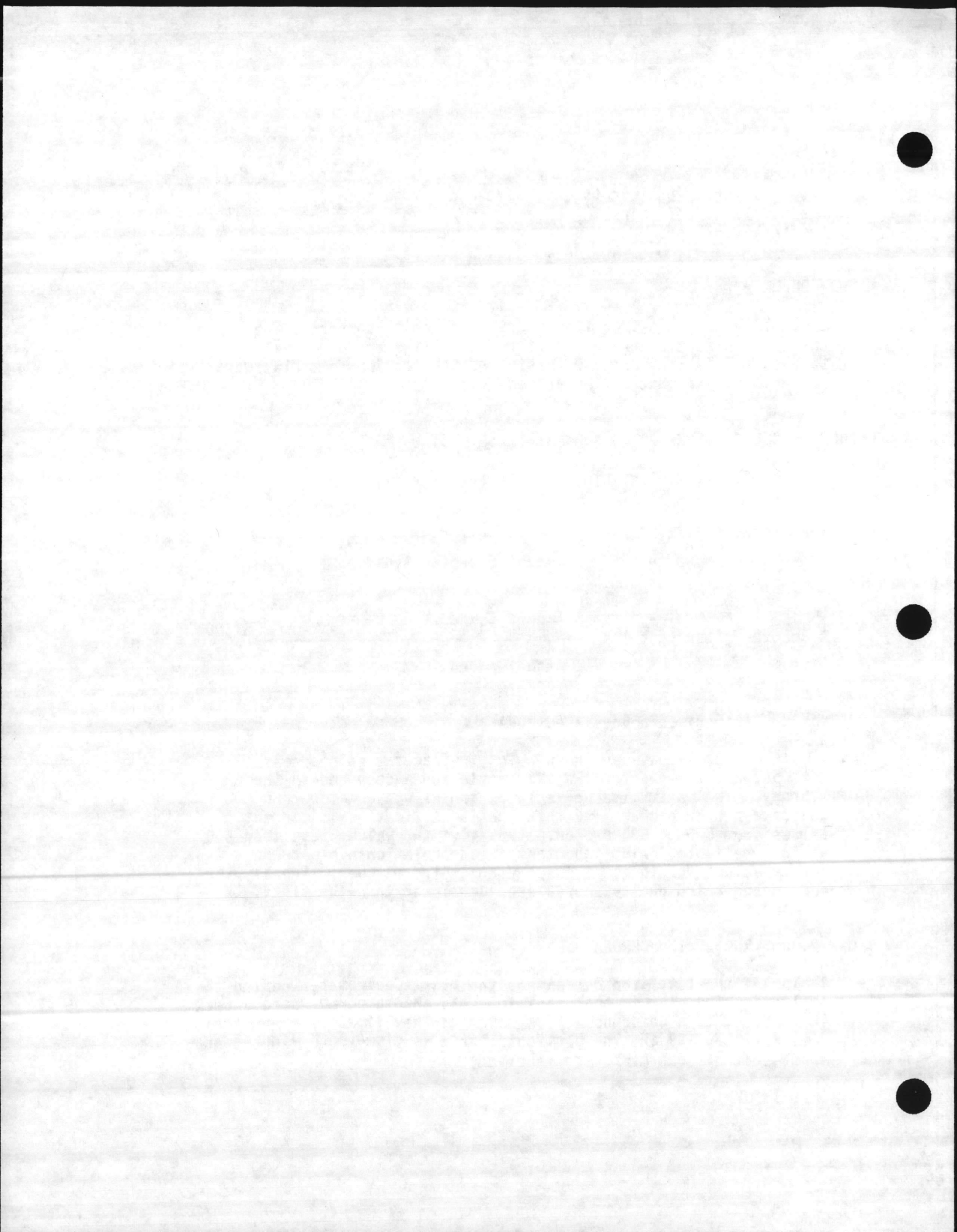
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#### RPD - RELATIVE PERCENT DIFFERENCE

An average used to compare duplicate analyses:

$$\text{RPD} = \frac{2 (C_1 - C_2)}{(C_1 + C_2)} \times 100\%$$

where  $C_1$  and  $C_2$  are the concentrations found in two separate aliquots of the same sample.

#### SATURATED ION

If a compound is present at a high enough concentration in the sample, the intensity of the major ions is generally so strong that the detector is overloaded by the signal. This is a result of the instrument having been adjusted for maximum sensitivity in order to reach lower detection limits.

#### SPECTRAL MATCH DIAGRAM

A display of the mass spectrum of the sample followed by the mass spectra of the three compounds in the library which are most similar to the sample (see Purity Value).

#### SURROGATES

A surrogate compound is chemically similar to one of the priority pollutants except that it is deuterated or fluorinated or in some other manner distinguishable by GC/MS from the other compounds in the sample.

#### TWENTY (20) PEAK SEARCH

An available option in which up to 20 non-priority peaks larger than half the internal standard peak are identified by searching the NBS spectral library. Only an estimate of concentration can be given which is:

Low	< 50 ug/l
Medium	50 - 200 ug/l
High	> 200 ug/l

#### VOA - VOLATILE ORGANICS ANALYSIS

Those highly volatile compounds detected by introducing the sample directly into the GC/MS through a purge and trap apparatus.





HOW TO INTERPRET "DATA: BN3436A4 #640"

In addition to the actual data, the headers of all RIC's, spectra, and spectral match diagrams contain informatin on the date, the sample and the instrumentation. Some of this information is coded in the following format:

DATA: BN3436A4 #640

BN

In this particular example, BN indicates that the sample analyzed was the base/neutral fraction. Other codes which are used are listed below:

VOA	Volatile Fraction	
AC	Acid Fraction	
BN	Base/Neutral Fraction	(Also includes Pesticides)
VOASTD	Volatile Standard	(sometimes VOASD)
ACSTD	Acid Standard	(sometimes ACSD)
BNSTD	Base/Neutral Standard	(sometimes BNSD)
VOABK	Volatile Blank	(sometimes VOAB)
ACBK	Acid Blank	(sometimes ACB)
BNBK	Base/Neutral Blank	(sometimes BNB)

3436

This is the CompuChem sample number. (In the case of a blank or standard, the number represents the date: two digits for month followed by two digits for day.)

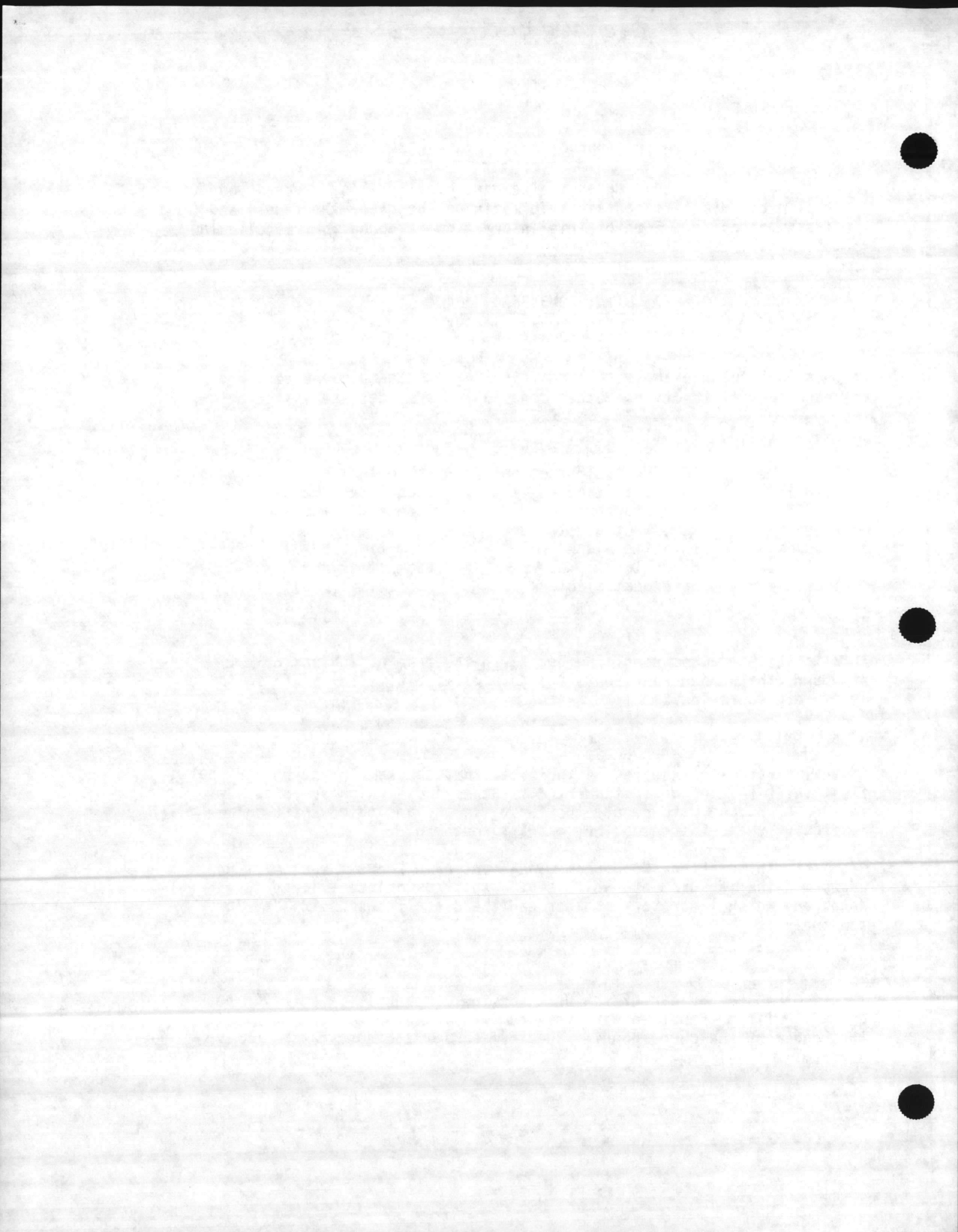
A4

In this particular example, A4 indicates that the sample was run on the first shift (A) and on instrument #4. Other codes which are used include A, B, and C to denote the first, second and third shift respectively and instrument numbers 1 through 18.

From this information, CompuChem management also knows the chemist who performed the measurement, which senior spectroscopist reviewed the data, and which laboratory manager had the overall responsibility for the analysis.

#640

This is the scan number of the peak (or the compound). A specific peak on a RIC will be labelled with this number, and it will also appear in the header of the corresponding spectrum and/or the spectral match diagram.

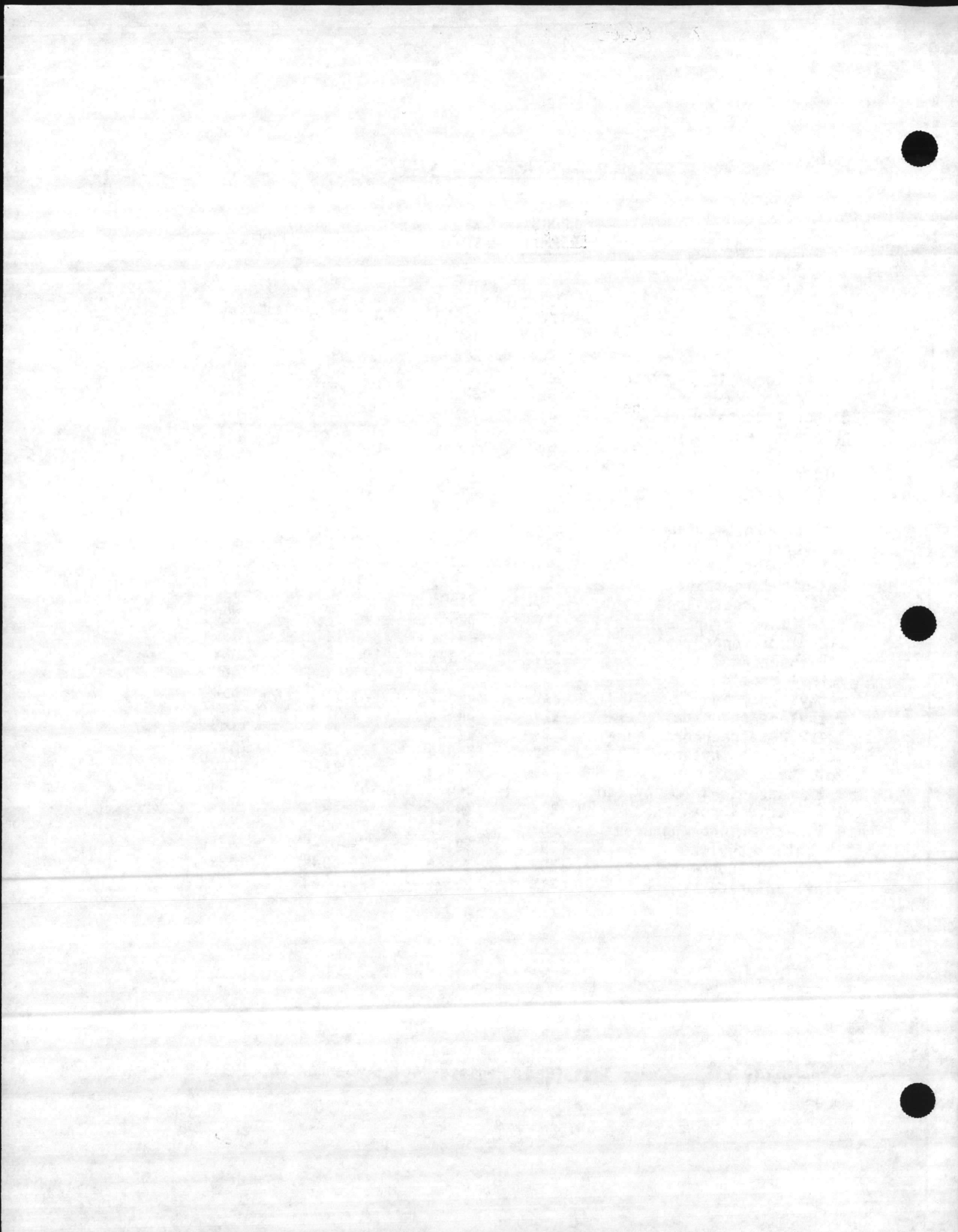


COMPOUND CROSS-REFERENCE LIST

<u>COMPOUND</u>	<u>NPDES PERMIT</u>	<u>STORET</u>	<u>CAS</u>	<u>EPA CONTRACTORS</u>
<u>VOLATILES</u>				
acrolein	1V	34210	107-02-8	2V
acrylonitrile	2V	34215	107-13-1	3V
benzene	3V	34236	71-43-2	4V
bis (chloromethyl) ether	4V	N/A	542-88-1	N/A
bromoform	5V	32104	75-25-2	47V
carbon tetrachloride	6V	32102	56-23-5	6V
chlorobenzene	7V	34301	108-90-7	7V
chlorodibromomethane	8V	34105	124-48-1	51V
chloroethane	9V	34311	75-00-3	16V
2-chloroethylvinyl ether	10V	34576	110-75-8	19V
chloroform	11V	32106	67-66-3	23V
dichlorobromomethane	12V	32101	75-27-4	48V
dichlorodifluoromethane*	13V	N/A	75-71-8	50V
1,1-dichloroethane	14V	34496	75-34-3	13V
1,2-dichloroethane	15V	34531	107-06-2	10V
1,1-dichloroethylene	16V	34501	75-35-4	29V
1,2-dichloropropane	17V	34541	78-87-5	32V
1,2-dichloropropylene	18V	34561	542-75-6	33V
ethylbenzene	19V	34371	100-41-4	38V
methyl bromide	20V	34413	74-83-9	46V
methyl chloride	21V	34418	74-87-3	45V
methylene chloride	22V	34423	75-09-2	44V
1,1,2,2-tetrachloroethane	23V	34516	79-34-5	15V
tetrachloroethylene	24V	34475	127-18-4	85V
toluene	25V	34010	108-88-3	86V
1,2-trans-dichloroethylene	26V	34546	156-60-5	30V
1,1,1-trichloroethane	27V	34506	71-55-6	11V
1,1,2-trichloroethane	28V	34511	79-00-5	14V
trichloroethylene	29V	39180	79-01-6	87V
trichlorofluoromethane*	30V	34488	75-69-4	49V
vinyl chloride	31V	39175	75-01-4	88V

\* Recently removed from list (Fed. Register 46, 5, January 8, 1981)





COMPOUND CROSS-REFERENCE LIST (Continued)

<u>COMPOUND</u>	<u>NPDES PERMIT</u>	<u>STORET</u>	<u>CAS</u>	<u>EPA CONTRACTORS</u>
<u>BASE/NEUTRALS (Cont'd)</u>				
1,2-diphenylhydrazine	30B	34346	122-66-7	37B
fluoranthene	31B	34376	206-44-0	39B
fluorene	32B	34381	86-73-7	80B
hexachlorobenzene	33B	39700	118-71-1	9B
hexachlorobutadiene	34B	34391	87-68-3	52B
hexachlorocyclopentadiene	35B	34386	77-47-4	53B
hexachloroethane	36B	34396	67-72-1	12B
indeno (1,2,3-cd) pyrene	37B	34403	193-39-5	83B
isophorone	38B	34408	78-59-1	54B
naphthalene	39B	39250	91-20-3	55B
nitrobenzene	40B	34447	98-95-3	56B
N-nitrosodimethylamine	41B	34438	62-75-9	61B
N-nitrosodi-n-propylamine	42B	34428	621-64-7	63B
N-nitrosodiphenylamine	43B	34433	86-30-6	62B
phenanthrene	44B	34461	85-01-8	81B
pyrene	45B	34469	129-00-0	84B
1,2,4-trichlorobenzene	46B	34551	120-82-1	8B

PESTICIDES

aldrin	1P	39330	309-00-2	89P
alpha-BHC	2P	39337	319-84-6	102P
beta-BHC	3P	39338	319-85-7	103P
gamma-BHC	4P	34259	58-89-9	104P
delta-BHC	5P	39340	319-86-8	105P
chlordane	6P	39350	57-74-9	91P
4,4'-DDT	7P	39300	50-29-3	92P
4,4'-DDE	8P	39320	72-55-9	93P
4,4'-DDD	9P	39310	72-54-8	94P
dieldrin	10P	39380	60-57-1	90P
alpha-endosulfan	11P	34361	115-29-7	95P
beta-endosulfan	12P	34356	115-29-7	96P
endosulfan sulfate	13P	34351	1031-07-8	97P
endrin	14P	39390	72-20-8	98P
endrin aldehyde	15P	34366	7421-93-4	99P
heptachlor	16P	39410	76-44-8	100P
heptachlor epoxide	17P	39420	1024-57-3	101P
PCB-1242	18P	39496	53469-21-9	106P
PCB-1254	19P	39504	11097-69-1	107P
PCB-1221	20P	39488	11104-28-2	108P
PCB-1232	21P	39492	11141-16-5	109P
PCB-1248	22P	39500	12672-29-6	110P
PCB-1260	23P	39508	11096-82-5	111P
PCB-1016	24P	34671	12674-11-2	112P
toxaphene	25P	39400	8001-35-2	113P

1951 FORM 2-10-51

MEMORANDUM

TO : SAC, NEW YORK  
FROM : SAC, PHOENIX  
SUBJECT: [Illegible]

11-20-51  
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COMPOUND CROSS-REFERENCE LIST (Continued)

<u>COMPOUND</u>	<u>NPDES PERMIT</u>	<u>STORET</u>	<u>CAS</u>	<u>EPA CONTRACTORS</u>
<u>ACIDS</u>				
2-chlorophenol	1A	34586	95-57-8	24A
2,4-dichlorophenol	2A	34601	120-83-2	31A
2,4-dimethylphenol	3A	34606	105-67-9	34A
4,6-dinitro-o-cresol	4A	34657	534-52-1	60A
2,4-dinitrophenol	5A	34616	51-28-5	59A
2-nitrophenol	6A	34591	88-75-5	57A
4-nitrophenol	7A	34646	100-02-7	58A
p-chloro-m-cresol	8A	34452	59-50-7	22A
pentachlorophenol	9A	39094	87-86-5	64A
phenol	10A	34694	108-95-2	65A
2,4,6-trichlorophenol	11A	34621	88-06-2	21A
<u>BASE/NEUTRALS</u>				
acenaphthene	1B	34205	83-32-9	1B
acenaphthylene	2B	34200	208-96-8	77B
anthracene	3B	34220	120-12-7	78B
benzidine	4B	39120	92-87-5	5B
benzo (a) anthracene	5B	34526	56-55-3	72B
benzo (a) pyrene	6B	34247	50-32-8	73B
3,4-benzofluoranthene	7B	34230	205-99-2	74B
benzo (g,h,i) perylene	8B	34521	191-24-2	79B
benzo (k) fluoranthene	9B	34242	207-08-9	75B
bis (2-chloroethoxy) methane	10B	34278	111-91-1	43B
bis (2-chloroethyl) ether	11B	34273	111-44-4	18B
bis (2-chloroisopropyl) ether	12B	34283	39638-32-9	42B
bis (2-ethylhexyl) phthalate	13B	39100	117-81-7	66B
4-bromophenyl phenyl ether	14B	34636	101-55-3	41B
butylbenzyl phthalate	15B	34292	85-68-7	67B
2-chloronaphthalene	16B	34581	91-58-7	20B
4-chlorophenyl phenyl ether	17B	34641	7005-72-3	40B
chrysene	18B	34320	218-01-9	76B
dibenzo (a,h) anthracene	19B	34556	53-70-3	82B
1,2-dichlorobenzene	20B	34536	95-50-1	25B
1,3-dichlorobenzene	21B	34566	541-73-1	26B
1,4-dichlorobenzene	22B	34571	106-46-7	27B
3,3'-dichlorobenzidine	23B	34631	91-94-1	28B
diethyl phthalate	24B	34336	84-66-2	70B
dimethyl phthalate	25B	34341	131-11-3	71B
di-n-butyl phthalate	26B	39110	84-74-2	68B
2,4-dinitrotoluene	27B	34611	121-14-2	35B
2,6-dinitrotoluene	28B	34626	606-20-2	36B
di-n-octyl phthalate	29B	34596	117-84-0	69B



COMPOUND CROSS-REFERENCE LIST (Continued)

<u>COMPOUND</u>	<u>NPDES PERMIT</u>	<u>STORET</u>	<u>CAS</u>	<u>EPA CONTRACTORS</u>
<u>METALS, CYANIDE, and PHENOLS (ALL TOTAL)</u>				
Antimony	1M		7440-36-0	
Arsenic	2M		7440-38-2	
Beryllium	3M		7440-41-7	
Cadmium	4M		7440-43-9	
Chromium	5M		7440-47-3	
Copper	6M		7550-50-8	
Lead	7M		7439-92-1	
Mercury	8M		7439-97-6	
Nickel	9M		7440-02-0	
Selenium	10M		7782-49-2	
Silver	11M		7440-22-4	
Thallium	12M		7440-28-0	
Zinc	13M		7440-66-6	
Cyanide	14M		57-12-5	
Phenols	15M		N/A	

DIOXIN2,3,7,8-tetrachlorodi-  
benzo-p-dioxin

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1764-01-6

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1950-1951

STATE OF TEXAS

COMMISSIONERS OF THE GENERAL LAND OFFICE

STATE LANDS

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