

March 23, 1988

DATE/RECEIVED

Mr. Glenn Pratt  
Office of Environmental  
Management  
105 South Meridian Street  
P. O. Box 6015  
Indianapolis, Indiana 46206-6015

MAR 30 1988

DEM

Subject: Hydro-Geological Monitoring Applicable to the South Bend,  
Indiana Divisions of Allied-Signal Inc.

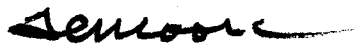
Dear Mr. Pratt:

Enclosed is a copy of the Groundwater Monitoring Quarterly Report for 4th Quarter 1987, submitted by T. A. Gleason Associates. Allied-Signal has also submitted copies of the report to the City of South Bend, the United States Environmental Protection Agency and the St. Joseph County Health Department.

If we can of of assistance with respect to the report, please advise the undersigned.

Sincerely,

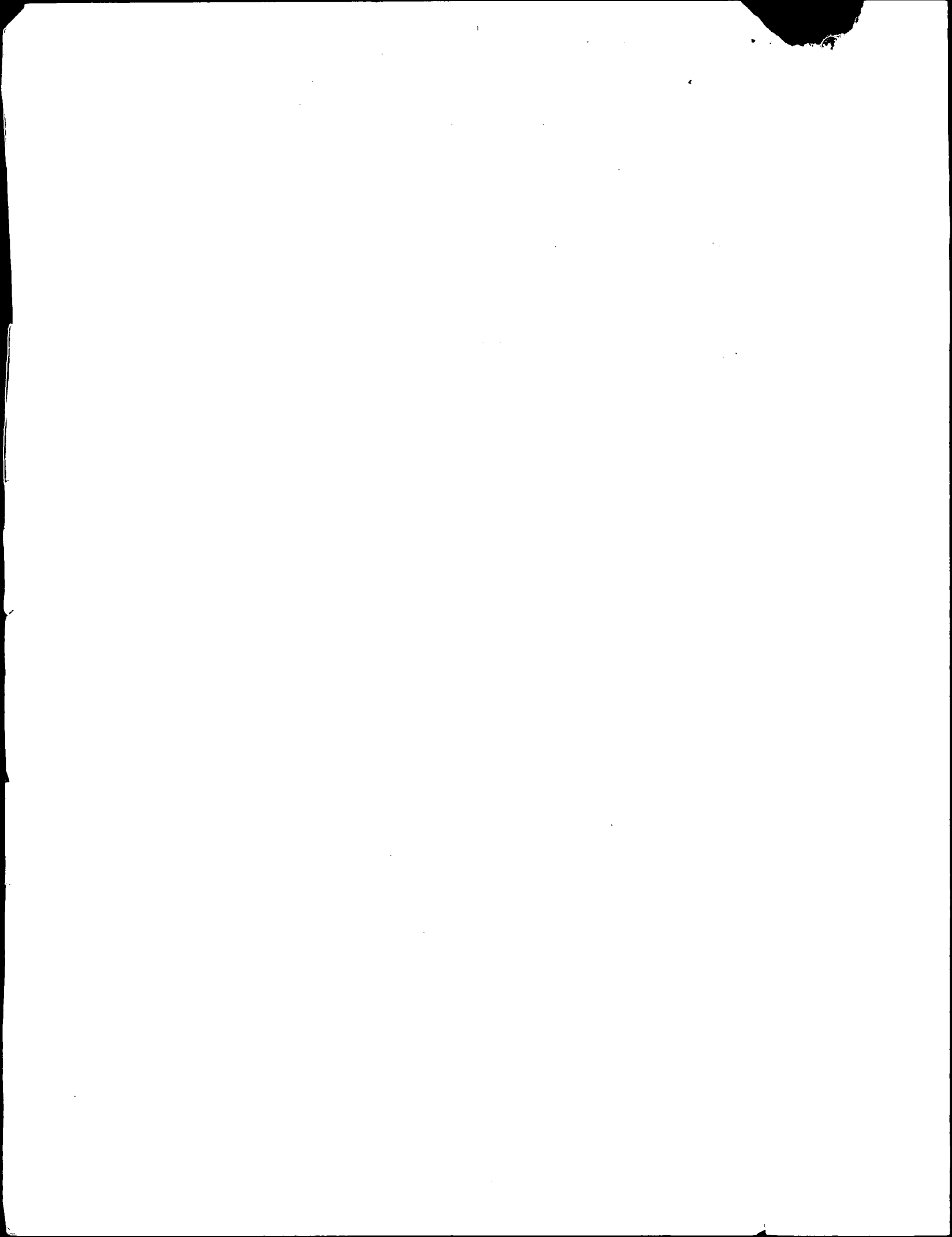
Allied-Signal Inc.  
Bendix Engine Controls Division

A handwritten signature in cursive script, appearing to read "T. L. Moore".

T. L. Moore  
President

TLM/ed

Enclosure



GROUNDWATER MONITORING REPORT  
4TH QUARTER 1987  
ALLIED CORPORATION  
BENDIX DIVISION  
SOUTH BEND, INDIANA

DATE/RECEIVED

MAR 31 1988

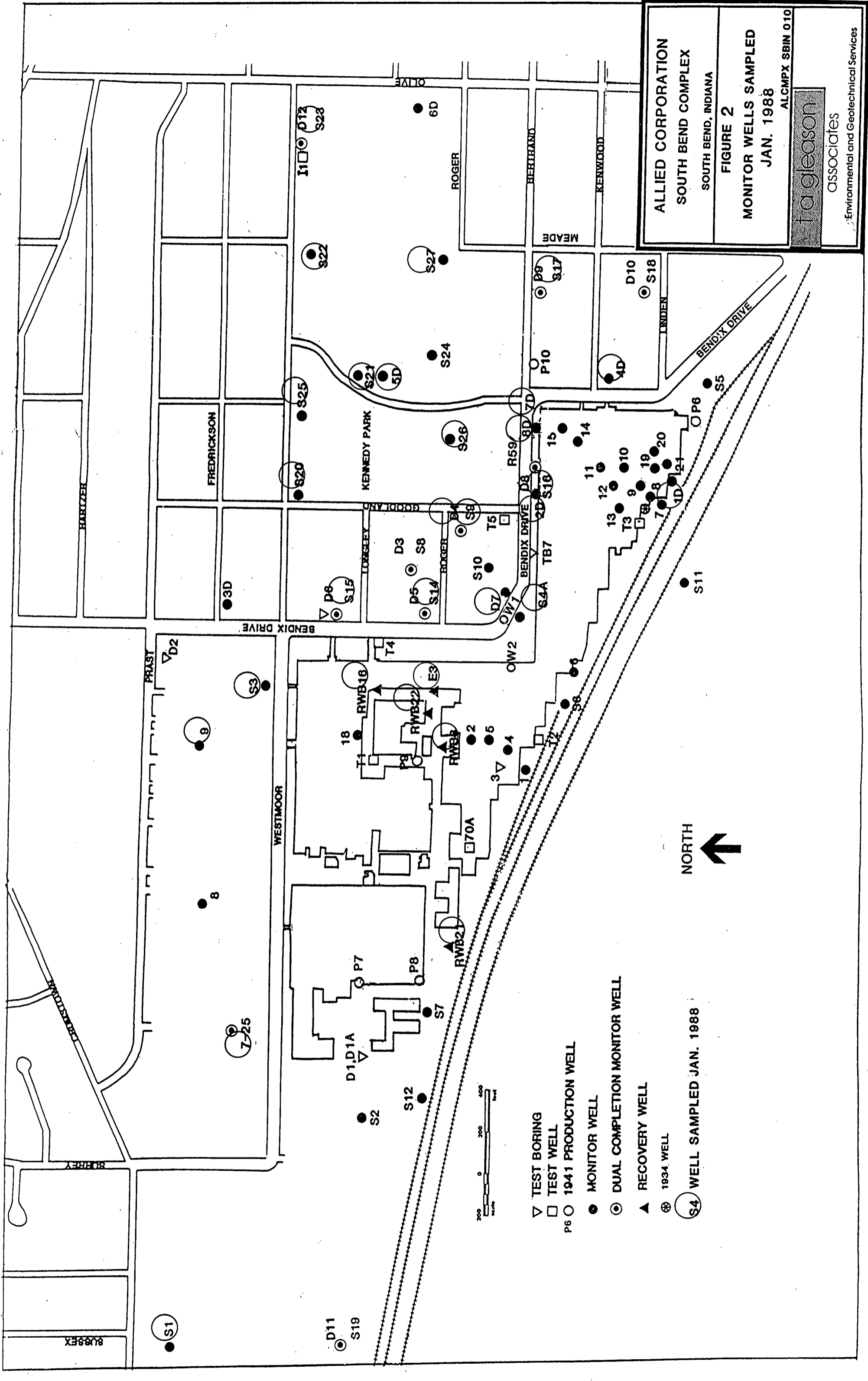
DEM

ALCMPX SBIN 010

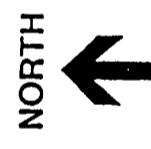
March 1, 1988

COPY # 17





- ▽ TEST BORING
- TEST WELL
- P6 ○ 1941 PRODUCTION WELL
- MONITOR WELL
- ◎ DUAL COMPLETION MONITOR WELL
- ▲ RECOVERY WELL
- ⊗ 1934 WELL
- ⊙ S4 WELL SAMPLED JAN. 1988



**ALLIED CORPORATION**  
**SOUTH BEND COMPLEX**  
 SOUTH BEND, INDIANA  
**FIGURE 2**  
**MONITOR WELLS SAMPLED**  
**JAN. 1988**  
 ALCMPX SBIN 010  
**Tagleason**  
 ASSOCIATES  
 Environmental and Geotechnical Services





ALLIED AUTOMOTIVE  
 SOUTH BEND, INDIANA  
 FIGURE 1  
 SITE LOCATION  
 Project No ALCMPX SBN 010  
 ta gleason  
 associates





TABLE OF CONTENTS

<u>TITLE</u>	<u>PAGE</u>
LIST OF FIGURES.....	ii
LIST OF TABLES.....	iii
1.0 <u>INTRODUCTION AND BACKGROUND</u> .....	1
2.0 <u>WATER LEVEL MEASUREMENTS</u> .....	1
3.0 <u>BLADDER PUMP INSTALLATION</u> .....	1
4.0 <u>WELL SAMPLING</u> .....	2
4.1 PURGING.....	2
4.2 SAMPLING.....	2
4.3 SAMPLE HANDLING.....	3
5.0 <u>ANALYTICAL PROCEDURES AND RESULTS</u> .....	3



LIST OF FIGURES

<u>NUMBER</u>	<u>TITLE</u>
Figure 1	Site Location
Figure 2	Monitor Well Locations



LIST OF TABLES

<u>NUMBER</u>	<u>TITLE</u>
Table 1	Groundwater Measurements
Table 2	Sample Summary
Table 3	Groundwater Quality Analysis Metals, Cyanide and Phenols Monitor Wells
Table 4	Groundwater Quality Analysis Metals, Cyanide and Phenols Recovery Wells
Table 5	Groundwater Quality Analysis Organic Compounds Monitor Wells
Table 6	Groundwater Quality Analysis Organic Compounds Recovery Wells



## 1.0 INTRODUCTION AND BACKGROUND

Presented herein are the results of the most recent groundwater sampling and groundwater elevation measurements performed at the Allied Corporation, Bendix Complex, South Bend, Indiana (Figure 1). These results are a continuation of the groundwater monitoring program initiated by Allied in 1981.

## 2.0 WATER LEVEL MEASUREMENTS

Water elevations were measured from forty-eight (48) groundwater wells in and around the Bendix Complex on January 12, 1988 (see Figure 2). The measurements were made with an electronic water level indicator manufactured by Solinst Inc., Ontario Canada. All measurements were taken to the nearest .01 foot to a point on the well casings which have been surveyed to obtain a reference elevation. The new monitor wells and most of the existing monitor wells were surveyed by Lang, Feeney & Assoc., Inc. during September 1987 to verify the reference elevations.

Water level measurements and the calculated water elevations are presented in Table 1.

## 3.0 BLADDER PUMP INSTALLATION

Bladder pumps were installed in wells S-4A, S-25, S-26, S-27, 7-D, and 8-D during this sampling episode. Well S-24 will have the bladder pump installed during the next scheduled sampling round.





#### 4.0 WELL SAMPLING

Thirty (30) wells were sampled on January 13 through 15, 1988. Table 2 presents a summary of the wells sampled and the parameters for which they were analyzed. As shown in Table 2, twenty-five (25) monitor wells and five (5) recovery wells were sampled. Well S-24 was not sampled this episode but will be sampled during the next quarterly sampling.

#### 4.1 PURGING

Prior to sampling, the water level and total well depth were measured and the well volume was calculated. Three (3) to five (5) well volumes were then removed from each monitor well using a centrifugal pump connected to the water outlet side of the dedicated bladder pumps. The bladder pump was used to purge the low yielding wells. The recovery well taps were allowed to run approximately five minutes prior to sample collection.

#### 4.2 SAMPLING

Monitor well samples were obtained from each well using either a dedicated bladder pump or PVC bailer. The bailer was carefully lowered into and withdrawn from the well to avoid agitation of the samples. Well samples were collected directly from a tap on the outlet pipe from the wells in which a bladder pump had been installed, and on the recovery wells.

In addition, as part of our Quality Assurance Procedures, duplicate samples were taken at monitor wells D-4, 8D and RWB-22 and two (2) field blanks were prepared and submitted for analysis with the samples collected. Samples were measured in the field for pH, Specific Conductivity and Temperature.



#### 4.3 SAMPLE HANDLING

Appropriate EPA-approved containers for the above mentioned parameters were obtained from Aqua Tech Environmental Consultants, Inc., Melmore, Ohio. In addition, the containers for metals, cyanide and phenols contained the required preservatives. All samples for metals analysis including the field blanks were filtered through a .45 micron cellulose filter prior to being placed in the sample containers. All samples were placed in insulated coolers with ice packs immediately after collection and shipped directly to Aqua Tech with the completed chain of custody forms.

#### 5.0 ANALYTICAL PROCEDURES AND RESULTS

Aqua Tech Laboratories performed analysis on all samples in accordance with USEPA analytical protocols.

The results of the analyses for metals (chromium, lead and zinc), cyanide and phenols are presented in Table 3 and 4. The results of the analyses for volatile organic compounds are summarized in Tables 5 and 6.

The laboratory results are maintained in our files and are available upon request.



=26-Jan-88

WLM1		01/12/88		09/01/87		NOTES:
WELL NO.	(1) REFERENCE ELEVATION	WATER DEPTH	WATER ELEVATION	WATER DEPTH	WATER ELEVATION	OUR INTERPRETATIONS OF THESE DATA ARE LIMITED TO OUR WRITTEN REPORTS.
S-1	728.09	NM		25.61	702.48	
S-2	721.82	20.62	701.20	20.90	700.92	
S-3	716.65	19.95	696.70	20.16	696.49	1 = SURVEYED BY LANG, FEENEY & ASSOC., INC. 9/87.
S-5	712.83	14.18	698.65	14.30	698.53	
S-6	713.08	NM		16.24	696.84	WATER ELEVATIONS PRIOR TO JULY 1987 ARE BASED ON FORMER REFERENCE ELEVATIONS.
S-7	716.16	17.72	698.44	17.92	698.24	
S-8	714.65	18.39	696.26	18.56	696.09	
S-9	714.17	17.28	696.89	17.51	696.66	
S-10	*715.40	NM		NM		
S-11	*715.64	NM		NM		* = FORMER REFERENCE ELEVATIONS
S-12	721.45	20.15	701.30	20.43	701.02	
S-13	*721.10	NM		NM		
S-14	711.86	15.42	696.44	15.60	696.26	
S-15	714.37	18.27	696.10	18.47	695.90	
S-16	716.18	18.62	697.56	18.73	697.45	
S-17	716.97	NM		19.11	697.86	
S-18	715.41	17.00	698.41	16.91	698.50	
S-19	723.38	20.43	702.95	20.79	702.59	
S-20	709.97	15.09	694.88	14.32	695.65	
S-21	711.33	NM		15.53	695.80	
S-22	709.33	NM		14.06	695.27	
S-23	710.24	15.95	694.29	15.93	694.31	
S-24	713.03	NM		16.19	696.84	
S-25	710.60	15.30	695.30	15.37	695.23	
S-26	714.50	17.52	696.98	17.53	696.97	
S-27	715.40	18.87	696.53	18.58	696.82	
D-1	*720.73	NM		NM		
D-1A	*721.69	NM		NM		
D-3	714.51	18.06	696.45	18.50	696.01	
D-4	717.85	20.70	697.15	21.07	696.78	
D-5	712.14	15.31	696.83	15.75	696.39	
D-7	713.83	16.42	697.41	16.83	697.00	
D-8	717.04	19.50	697.54	19.91	697.13	
D-9	*717.00	NM		NM		
D-10	716.53	18.00	698.53	18.17	698.36	
D-11	723.47	20.53	702.94	20.91	702.56	
D-12	710.29	22.30	687.99	23.04	687.25	----- TABLE 1 ----- WATER LEVEL MEASUREMENTS
I-1	711.52	16.76	694.76	16.25	695.27	PAGE 1 OF 2
1-D	714.17	16.32	697.85	16.67	697.50	----- GROUNDWATER INVESTIGATIONS ALLIED COMPLEX SOUTH BEND, INDIANA PROJECT # ALCMPX 010
2-D	715.36	17.75	697.61	NM		
3-D	713.29	18.22	695.07	NM		
4-D	712.10	22.56	689.54	22.90	689.20	
5-D	712.01	23.53	688.48	24.35	687.66	-----
6-D	711.41	23.39	688.02	24.12	687.29	T A GLEASON ASSOCIATES
7-D	714.85	17.85	697.00	18.25	696.60	-----
8-D	714.56	17.17	697.39	17.59	696.97	ENVIRONMENTAL AND GEOTECHNICAL SERVICES



=28-Jan-88

WLM2		01/12/88		09/01/87		NOTES:
WELL NO.	(1) REFERENCE ELEVATION	WATER DEPTH	WATER ELEVATION	WATER DEPTH	WATER ELEVATION	OUR INTERPRETATIONS OF THESE DATA ARE LIMITED TO OUR WRITTEN REPORTS.
86-1	*715.70	NM		NM		
86-2	*714.98	NM		NM		
86-4	*715.09	NM		NM		
86-5	*715.04	NM		NM		1 = SURVEYED BY LANG, FEENEY & ASSOC., INC. 9/87.
86-6	***	NM		NM		
86-7	714.15	16.12	698.03	16.57	697.58	WATER ELEVATIONS PRIOR TO JULY 1987 ARE BASED ON FORMER REFERENCE ELEVATIONS.
86-8	*714.62	NM		NM		
86-9	*715.25	NM		NM		
86-10	715.06	17.43	697.63	17.43	697.63	
86-11	*715.14	NM		NM		
86-12	*715.71	NM		NM		
86-13	714.75	NM		17.25	697.50	* = FORMER REFERENCE ELEVATIONS
86-14	*715.05	NM		NM		
86-15	*715.06	NM		NM		
86-18	714.84	18.22	696.62	18.43	696.41	*** = NO REFERENCE ELEVATION
86-19	714.33	NM		16.62	697.71	
86-20	*713.07	NM		NM		
86-21	*713.76	NM		NM		
7-25	720.47	20.84	699.63	21.09	699.38	
7-50	719.83	20.24	699.59	20.52	699.31	
8-27	*715.45	NM		NM		
9-33	716.69	18.38	698.31	18.67	698.02	
OW-1	***	14.36				
OW-2	***	14.40				
S4-A	***	14.21				
RWB-6	715.80	19.00	696.80	19.30	696.50	
RWB-16	715.30	18.31	696.99	18.41	696.89	
RWB-21	717.62	21.10	696.52	21.42	696.20	
RWB-22	715.11	18.44	696.67	18.70	696.41	
RWE-3	714.50	19.51	694.99	18.06	696.44	

TABLE 1

WATER LEVEL MEASUREMENTS

PAGE 2 OF 2

GROUNDWATER INVESTIGATIONS  
ALLIED COMPLEX  
SOUTH BEND, INDIANA  
PROJECT # ALCMPX 010

T A GLEASON ASSOCIATES  
ENVIRONMENTAL AND  
GEOTECHNICAL SERVICES

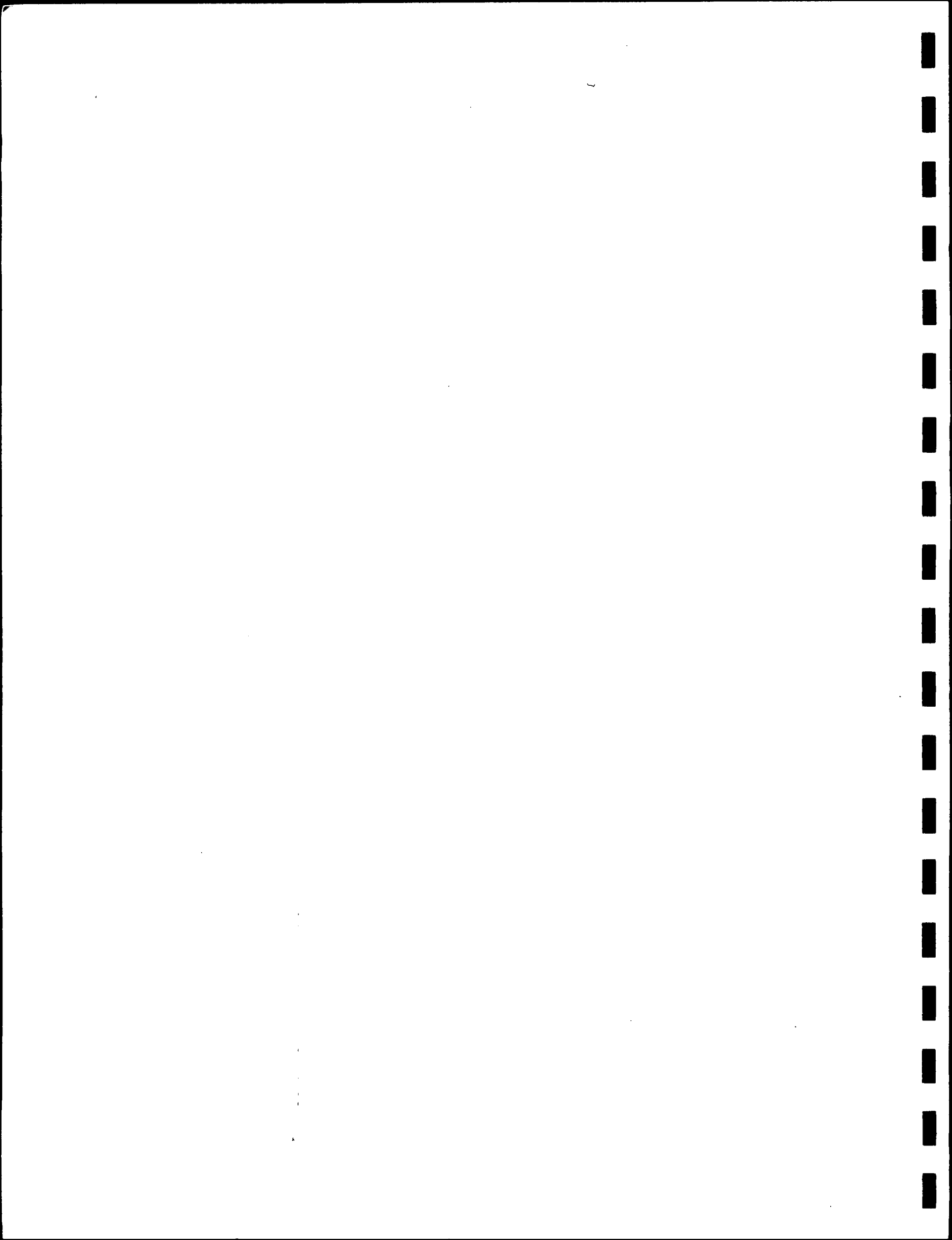




TABLE 2 - SAMPLE SUMMARY  
4TH QUARTER 1987

<u>Quarterly Sampling Wells</u>		<u>Bladder Pumps Installed In Wells</u>	<u>Existing Naptha Recovery Wells</u>
S-1	1D	S-4A	RWB-21
S-3	2D	7-D	RWB-6
S-9	4D	8-D	RWB-22
S-14	5D	S-25	RWB-16
S-15	7-25	S-26	E-3
S-16	9-23	S-27	
S-17	S-4A	S-24*	
S-20	7D		
S-21	8D		
S-22	S-25		
2-23	S-26		
D-4	S-27		
D-7	S-27		
	S-24*		

Parameters

VOC (624)  
 Cyanide  
 Phenols  
 Chrome \*\*  
 Lead \*\*  
 Zinc \*\*

\* Well S-24 not sampled this episode. Bladder pump not installed.

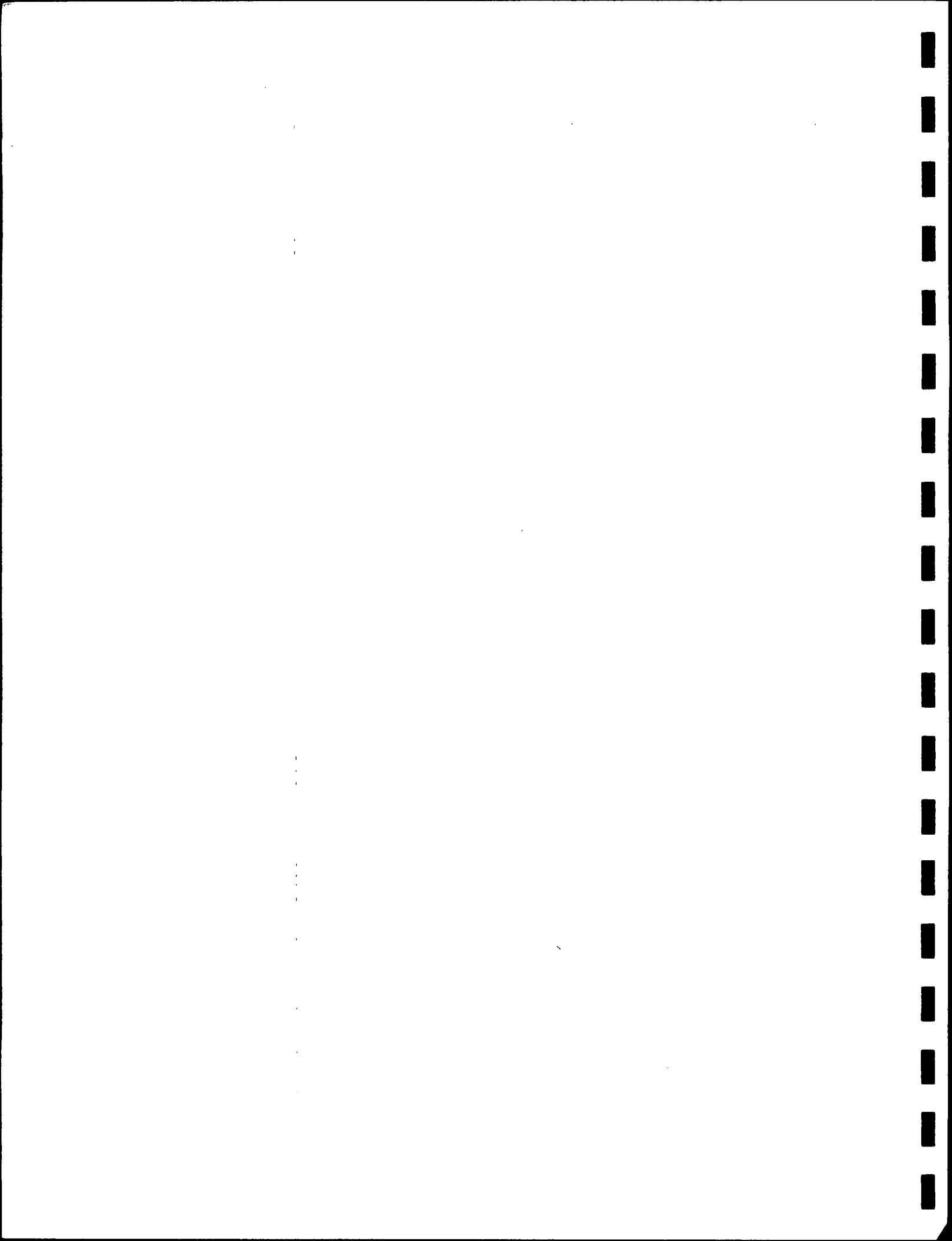
\*\* Field filtered through .45 micron filter.

























WELL NO.	SAMPLE #	DATE	LAB	SPECIFIC CONDUCTANCE	PH	TEMP C	SU	ANTIMONY	ARSENIC	BERYLLIUM	CADMIUM	CHROMIUM	COPPER	LEAD	MERCURY	NICKEL	SELENIUM	SILVER	THALLIUM	ZINC	CYANIDE	PHENOLS
								UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	MG/L	MG/L
8-0	30	09/04/87	AQUA	1300	7.29	16						<10*		<3*						28*	0.014	<0.010
	28	01/15/88	AQUA	2200	6.84	11						<20		<30						10	<0.02	0.010
	29	01/15/88	AQUA									<20*		<30*						10*	<0.02	0.010

NOTES:

OUR INTERPRETATIONS OF THESE DATA ARE LIMITED TO OUR WRITTEN REPORTS.

< = LESS THAN

\*METAL FILTERED THRU .45 MICRON FILTER

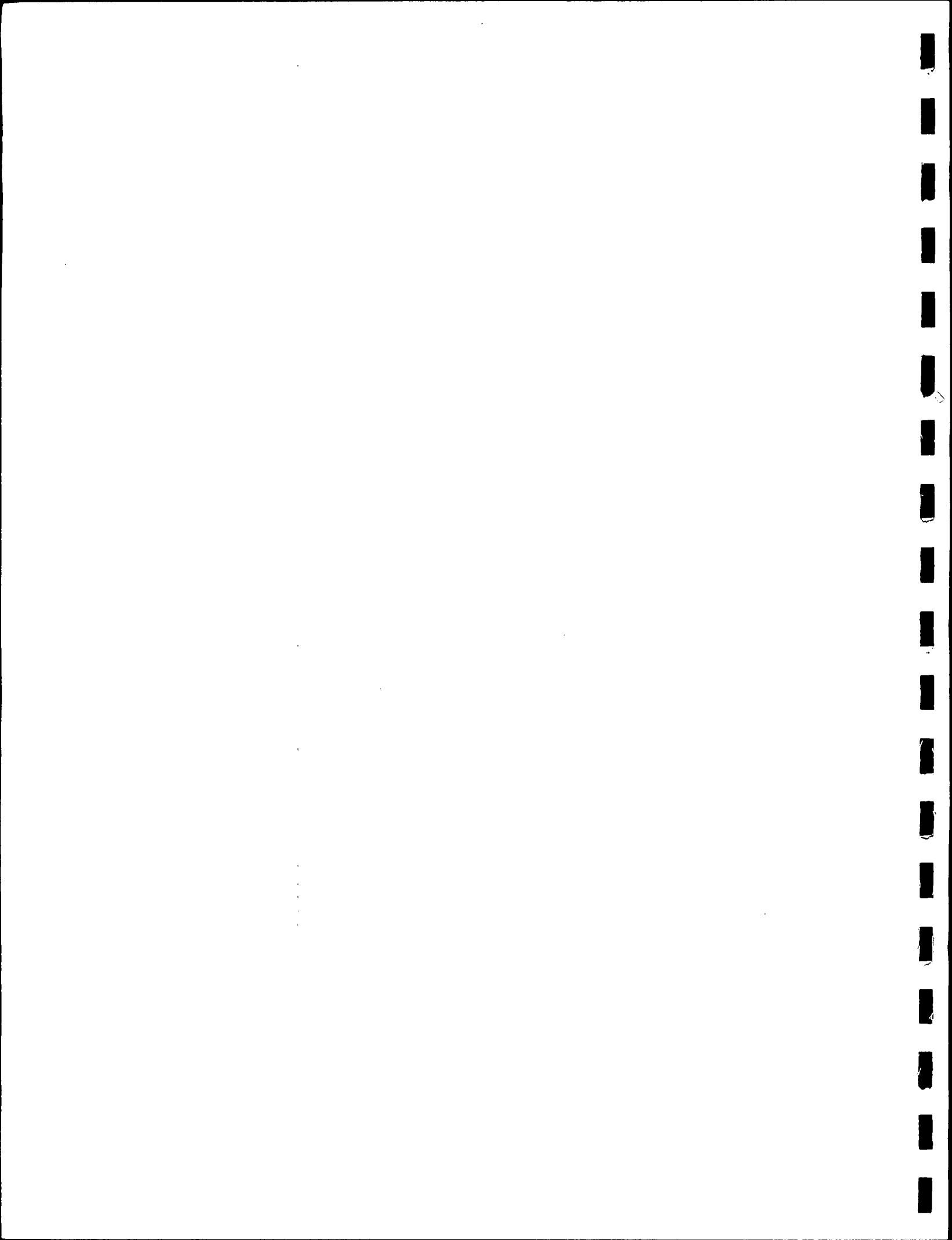
BLANK SPACE INDICATES NOT ANALYZED FOR

TABLE 3

GROUNDWATER QUALITY ANALYSIS  
METALS, CYANIDE AND PHENOLS  
PAGE 6 OF 28  
MONITOR WELLS  
GROUNDWATER INVESTIGATIONS  
ALLIED CORPORATION  
SOUTH BEND, INDIANA  
PROJECT ALCHPX SBIN 010  
T A GLEASON ASSOCIATES  
Environmental and Geotechnical Services

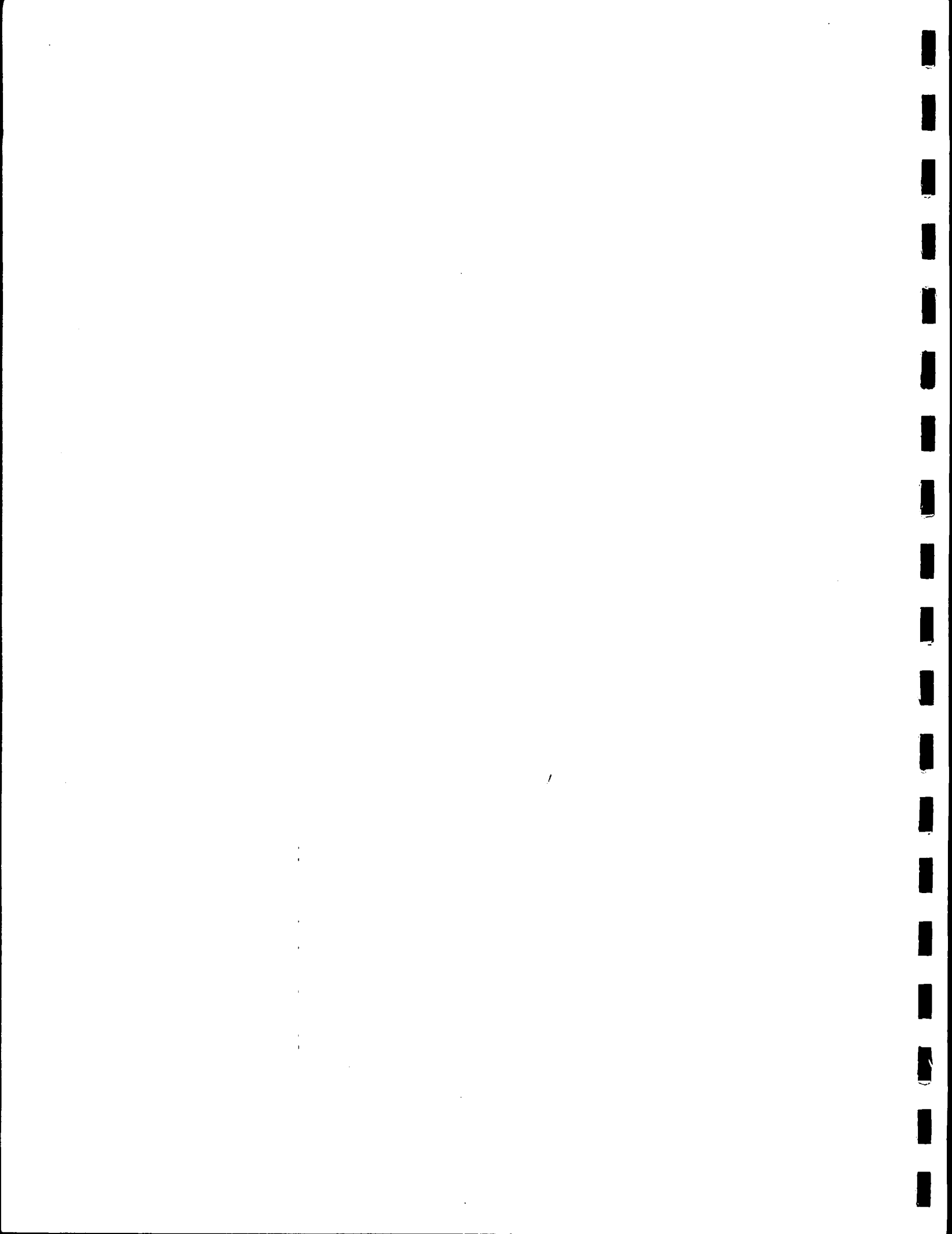


WELL NO.	SAMPLE #	DATE	LAB	SPECIFIC CONDUCTANCE	PH	TEMP C	ANTHONY	ARSENIC	BERYLLIUM	CADMIUM	CHROMIUM	COPPER	LEAD	MERCURY	NICKEL	SELENIUM	SILVER	THALLIUM	ZINC	CYANIDE	PHENOLS	NOTES:
				UMHOS/CH	SU	C	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	MG/L	MG/L	OUR INTERPRETATIONS OF THESE DATA ARE LIMITED TO OUR WRITTEN REPORTS.
7-25	31	11/07/86	AQUA				<6	5	<1	2	12	40	66	<0.3	24	<12	<4	<6	120	0.01	<0.010	
	20A	02/12/87	AQUA	700		10					16		300						170			*METAL FILTERED THRU .45 MICRON FILTER
	20B	02/12/87	AQUA							<10*			3*						12*			
	2	06/05/87	AQUA	600	7.31	12				<5*			<3*						10*	0.026	<0.010	BLANK SPACE INDICATES NOT ANALYZED FOR
	2	09/03/87	AQUA	600	7.51	13				<10*			<3*						<4*	<0.005	<0.010	
	2	01/13/88	AQUA	740	7.09	9				<20*			<30*						<10*	0.02	<0.010	
=====																						
TABLE 3																						
=====																						
GROUNDWATER QUALITY ANALYSIS																						
METALS, CYANIDE AND PHENOLS																						
PAGE 7 OF 28																						
MONITOR WELLS																						
=====																						
GROUNDWATER INVESTIGATIONS																						
ALLIED CORPORATION																						
SOUTH BEND, INDIANA																						
PROJECT ALCHPX SBIN 010																						
=====																						
T A GLEASON ASSOCIATES																						
=====																						
Environmental and Geotechnical Services																						

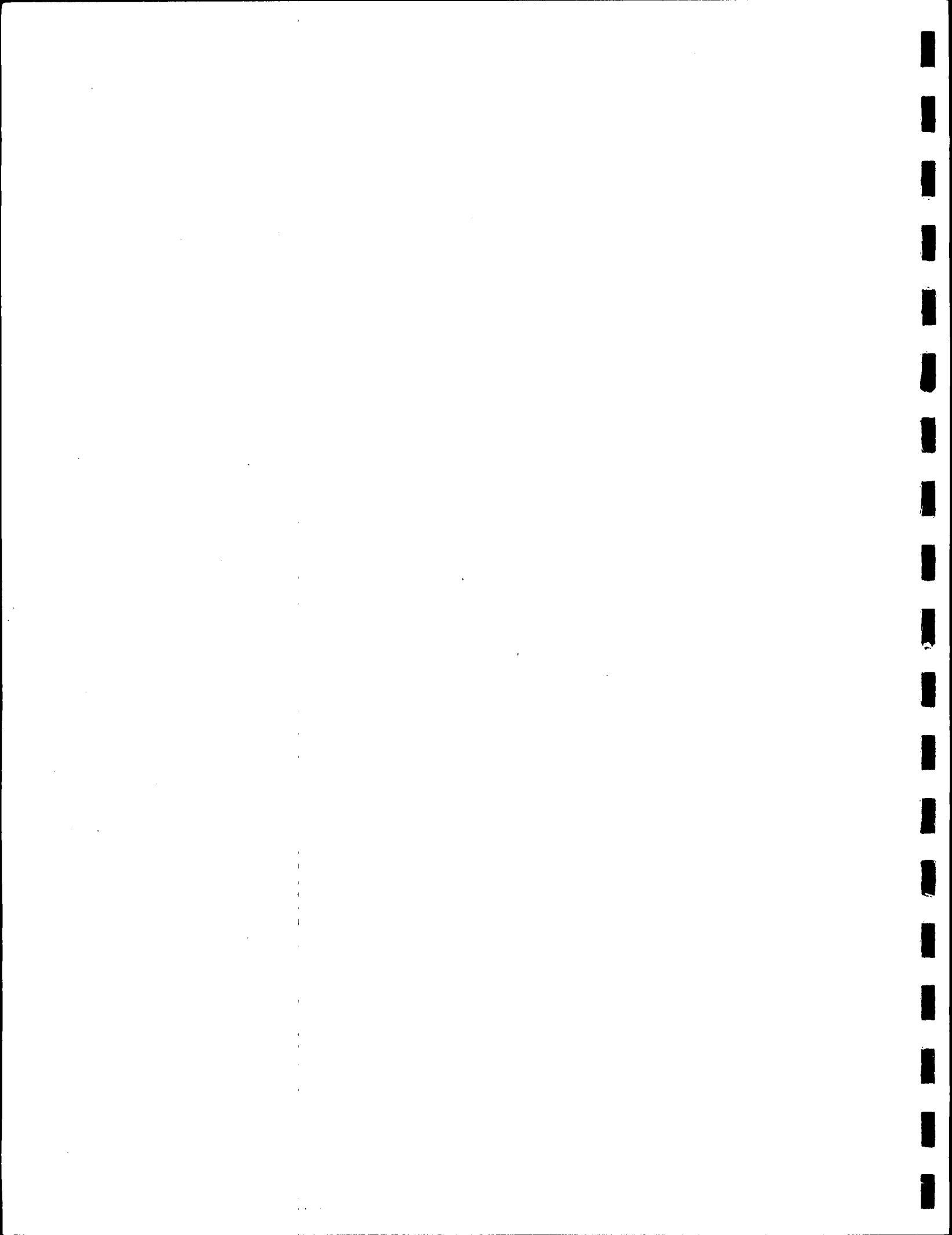








SPECIFIC	CONDUCTANCE	PH	TEMP C	ANTIMONY	ARSENIC	BERYLLIUM	CADMIUM	CHROMIUM	COPPER	LEAD	MERCURY	NICKEL	SELENIUM	SILVER	THALLIUM	ZINC	CYANIDE	PHENOLS
WELL NO.	SAMPLE #	DATE	LAB	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	MG/L	MG/L
R-59	31	09/04/87	AQUA	2500	7.22	17	<10	<3	<.010	12	<.005	<.010						
NOTES: OUR INTERPRETATIONS OF THESE DATA ARE LIMITED TO OUR WRITTEN REPORTS. < = LESS THAN *METAL FILTERED THRU .45 MICRON FILTER BLANK SPACE INDICATES NOT ANALYZED FOR TABLE 3 GROUNDWATER QUALITY ANALYSIS METALS, CYANIDE AND PHENOLS PAGE 9 OF 28 MONITOR WELLS GROUNDWATER INVESTIGATIONS ALLIED CORPORATION SOUTH BEND, INDIANA PROJECT ALCHPX S81N 010 T A GLEASON ASSOCIATES Environmental and Geotechnical Services																		













WELL NO.	SAMPLE #	DATE	LAB	SPECIFIC CONDUCTANCE	PH	TEMP C	ANTHONY	ARSENIC	BERYLLIUM	CADMIUM	CHROMIUM	COPPER	LEAD	MERCURY	NICKEL	SELENIUM	SILVER	THALLIUM	ZINC	CYANIDE	PHENOLS	NOTES:
S-1	1	11/05/86	AQUA				<3	<4	<1	<10	24	15	<0.3	<10	<12	<4	3	20	<0.010	0.02		
	18	12/17/86	AQUA				<3	<4	<1	<10	44	<9	0.3	<10	<8	<10	<6	100	<0.010	<0.010		*METAL FILTERED THRU .45 MICRON FILTER
	1	06/05/87	AQUA	625	7.15	14				<5*		<3*						<10*	0.042	0.02		
	1	09/03/87	AQUA	625	7.01	15				<10*		<3*						<8*	<0.005	0.126		
	1	01/13/88	AQUA	690	6.80	10				<20*		<30*						<10*	<0.02	<0.010		BLANK SPACE INDICATES NOT ANALYZED FOR
=====																						
TABLE 3																						
=====																						
GROUNDWATER QUALITY ANALYSIS																						
METALS, CYANIDE																						
AND PHENOLS																						
PAGE 12 OF 28																						
MONITOR WELLS																						
=====																						
GROUNDWATER INVESTIGATIONS																						
ALLIED CORPORATION																						
SOUTH BEND, INDIANA																						
PROJECT ALCMPX SBIN 010																						
=====																						
T A GLEASON ASSOCIATES																						
Environmental and																						
Geotechnical Services																						
=====																						

OUR INTERPRETATIONS OF THESE DATA ARE LIMITED TO OUR WRITTEN REPORTS.

< = LESS THAN

\*METAL FILTERED THRU .45 MICRON FILTER

BLANK SPACE INDICATES NOT ANALYZED FOR

TABLE 3

GROUNDWATER QUALITY ANALYSIS  
METALS, CYANIDE  
AND PHENOLS  
PAGE 12 OF 28  
MONITOR WELLS

GROUNDWATER INVESTIGATIONS  
ALLIED CORPORATION  
SOUTH BEND, INDIANA  
PROJECT ALCMPX SBIN 010

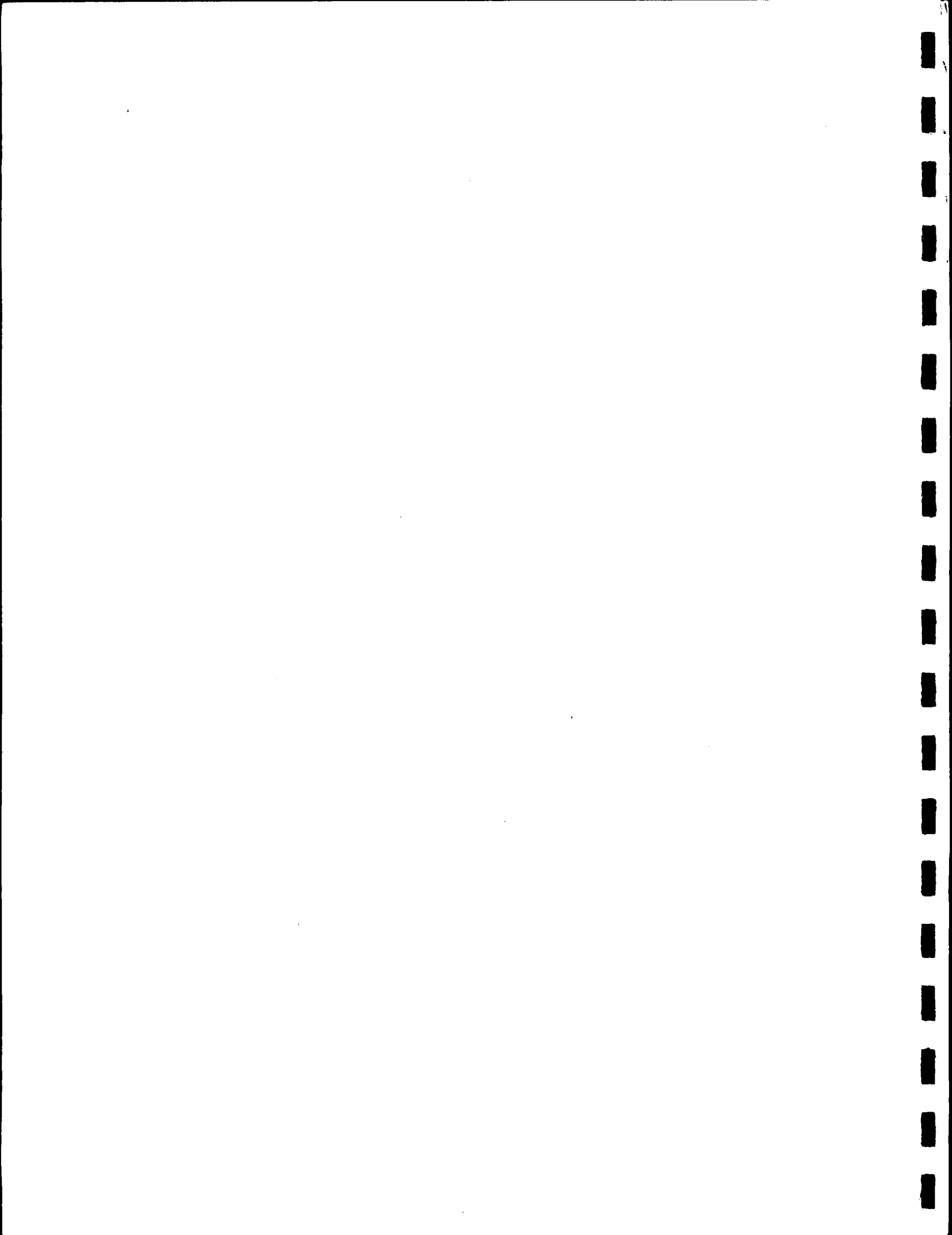
T A GLEASON ASSOCIATES  
Environmental and  
Geotechnical Services







WELL NO.	SAMPLE #	DATE	LAB	SPECIFIC CONDUCTANCE	PH	TEMP C	ANTHONY	ARSENIC	BERYLLIUM	CADMIUM	CHROMIUM	COPPER	LEAD	MERCURY	NICKEL	SELENIUM	SILVER	THALLIUM	ZINC	CYANIDE	PHENOLS	NOTES:	
				UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	MG/L	MG/L	OUR INTERPRETATIONS OF THESE DATA ARE LIMITED TO OUR WRITTEN REPORTS.
S-4	107	09/28/86	AQUA	1930	6.88																		
	307	09/28/86	AQUA				<20	44	<2	<4	24	200	68	<0.3	44	<40	4		920				*METAL FILTERED THRU .45 MICRON FILTER
S-4A	22	06/05/87	AQUA	1600	7.48	16					<5*		<3*										BLANK SPACE INDICATES NOT ANALYZED FOR
	27	09/04/87	AQUA	1700	6.94	15					<10*		3*										
	25	01/14/88	AQUA	2000	6.49	13					<20*		<30*										
=====																							
TABLE 3																							
=====																							
GROUNDWATER QUALITY ANALYSIS																							
METALS, CYANIDE																							
AND PHENOLS																							
PAGE 14 OF 28																							
MONITOR WELLS																							
=====																							
GROUNDWATER INVESTIGATIONS																							
ALLIED CORPORATION																							
SOUTH BEND, INDIANA																							
PROJECT ALCHPX SBIN 010																							
=====																							
T A GLEASON ASSOCIATES																							
=====																							
Environmental and Geotechnical Services																							

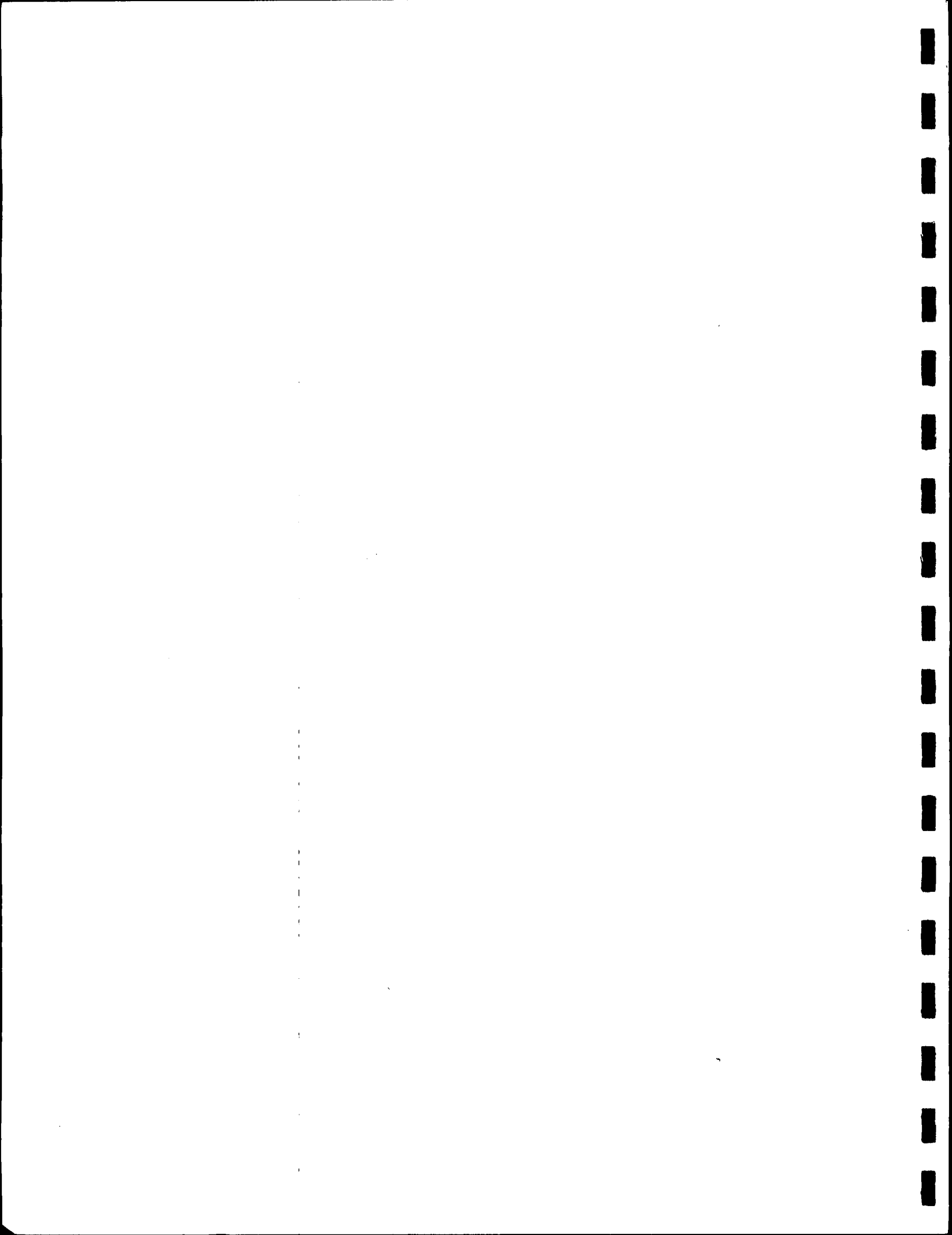




















WELL NO.	SAMPLE #	DATE	LAB	SPECIFIC CONDUCTANCE	PH	TEMP C	ANTIMONY UG/L	ARSENIC UG/L	BERYLLIUM UG/L	CADMIUM UG/L	CHROMIUM UG/L	COPPER UG/L	LEAD UG/L	MERCURY UG/L	NICKEL UG/L	SELENIUM UG/L	SILVER UG/L	THALLIUM UG/L	ZINC UG/L	CYANIDE MG/L	PHENOLS MG/L
S-17	16	11/06/86	AQUA				<3	<4	<1	<1	<10	12	23	<0.3	20	<24	<4	<3	150	<0.010	0.025
	15	06/05/87	AQUA	1350	7.55	15				<5*			<3*						<10*	0.024	<0.010
	20	09/03/87	AQUA	1275	7.62	15				<10*			<3*						4*	<0.005	0.426
	22	01/14/88	AQUA	1475	6.57	13				<20*			<20*						10*	<0.02	0.010

NOTES:

OUR INTERPRETATIONS OF THESE DATA ARE LIMITED TO OUR WRITTEN REPORTS.

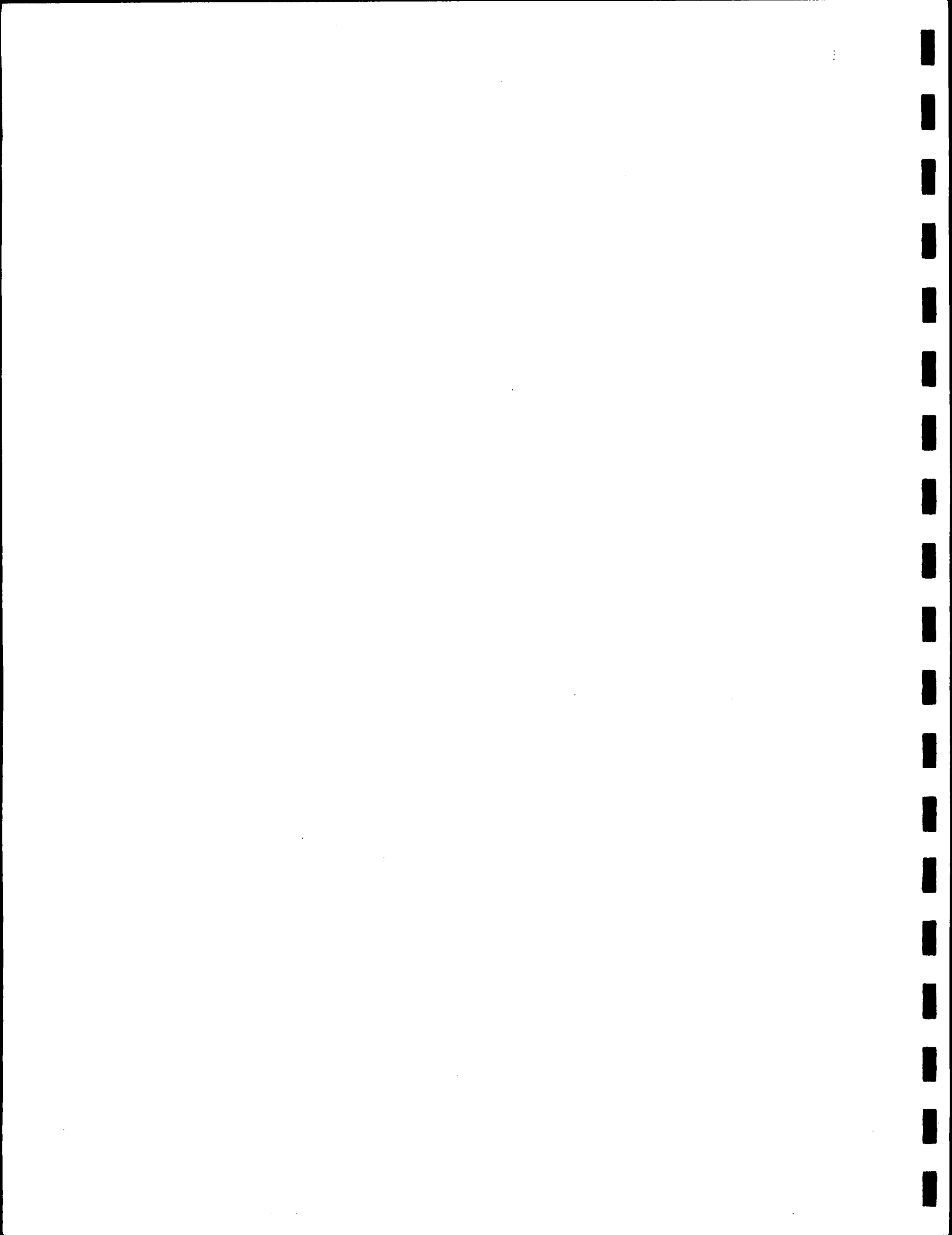
< = LESS THAN

\*METAL FILTERED THRU .45 MICRON FILTER

BLANK SPACE INDICATES NOT ANALYZED FOR

TABLE 3

GROUNDWATER QUALITY ANALYSIS  
METALS, CYANIDE AND PHENOLS  
PAGE 19 OF 28  
MONITOR WELLS  
GROUNDWATER INVESTIGATIONS  
ALLIED CORPORATION  
SOUTH BEND, INDIANA  
PROJECT ALCHPX SBIN 010  
T A GLEASON ASSOCIATES  
Environmental and Geotechnical Services





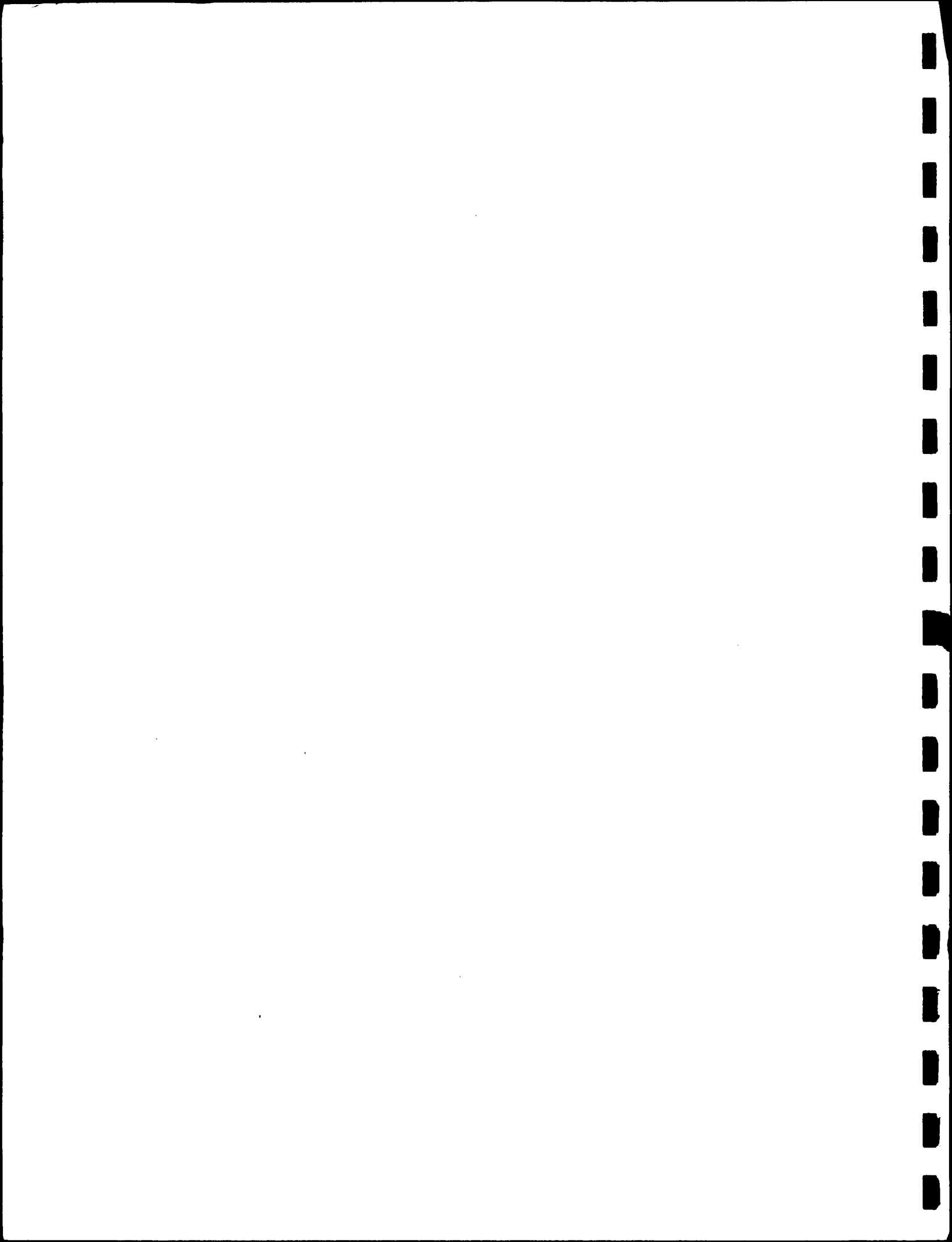




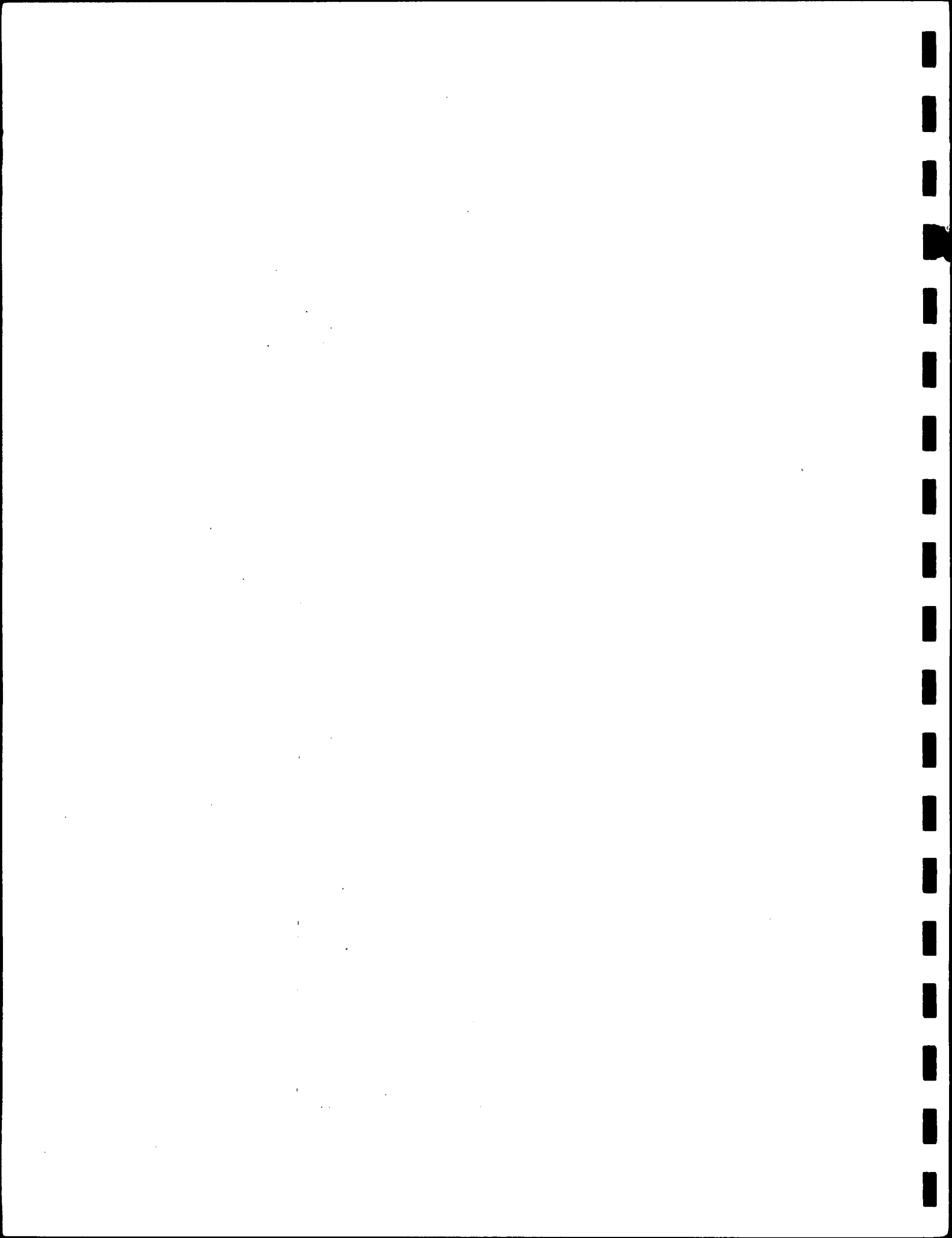




































WELL NO.	SAMPLE #	DATE	LAB	SPECIFIC CONDUCTANCE	PH	TEMP C	ANTIMONY UG/L	ARSENIC UG/L	BERYLLIUM UG/L	CADMIUM UG/L	CHROMIUM UG/L	COPPER UG/L	LEAD UG/L	MERCURY UG/L	NICKEL UG/L	SELENIUM UG/L	SILVER UG/L	THALLIUM UG/L	ZINC UG/L	CYANIDE MG/L	PHENOLS MG/L			
RWB-22	9	03/25/87	AQUA								<20													
	17	01/14/88	AQUA								20		<30											
	18	01/14/88	AQUA								20		<30											

NOTES:

OUR INTERPRETATIONS OF THESE DATA ARE LIMITED TO OUR WRITTEN REPORTS.

< = LESS THAN

\*METAL FILTERED THRU .45 MICRON FILTER

BLANK SPACE INDICATES NOT ANALYZED FOR

TABLE 4

GROUNDWATER QUALITY ANALYSIS  
METALS, CYANIDE AND PHENOLS  
PAGE 3 OF 3  
RECOVERY WELLS  
GROUNDWATER INVESTIGATIONS  
ALLIED CORPORATION  
SOUTH BEND, INDIANA  
PROJECT ALCHPK SBIN 010  
T A GLEASON ASSOCIATES  
Environmental and Geotechnical Services



MCPRV2  
24-Feb-88

WELL NO.	SAMPLE #	DATE	LAB	SPECIFIC											NOTES:								
				CONDUCTANCE	PH	TEMP	SU	CH	ANTIMONY	ARSENIC	BERYLLIUM	CADMIUM	CHROMIUM	COPPER		LEAD	MERCURY	NICKEL	SELENIUM	SILVER	THALLIUM	ZINC	CYANIDE
RWB-16	8	03/25/87	AQUA																				
	20	01/14/88	AQUA																				
RWB-21	12	03/25/87	AQUA																				
	15	01/14/88	AQUA																				

\*METAL FILTERED THRU  
.45 MICRON FILTER

BLANK SPACE INDICATES  
NOT ANALYZED FOR

TABLE 4

GROUNDWATER QUALITY ANALYSIS:  
METALS, CYANIDE  
AND PHENOLS  
PAGE 2 OF 3  
RECOVERY WELLS  
GROUNDWATER INVESTIGATIONS  
ALLIED CORPORATION  
SOUTH BEND, INDIANA  
PROJECT ALCHPX SB1H 010  
T A GLEASON ASSOCIATES  
Environmental and  
Geotechnical Services



WELL NO.	SAMPLE #	DATE	LAB	SPECIFIC CONDUCTANCE	PH	TEMP C	SU	ANTIMONY	ARSENIC	BERYLLIUM	CADMIUM	CHROMIUM	COPPER	LEAD	MERCURY	NICKEL	SELENIUM	SILVER	THALLIUM	ZINC	CYANIDE	PHENOLS	NOTES:	
								UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	MG/L	MG/L	OUR INTERPRETATIONS OF THESE DATA ARE LIMITED TO OUR WRITTEN REPORTS.
E-3	7	03/25/87	AQUA											<20	<3					.080	0.07	0.012		
	19	01/14/88	AQUA											<20	<30					10	<0.02	0.020		*METAL FILTERED THRU .45 MICRON FILTER
RVB-6	10	03/25/87	AQUA											<20	<3					10	0.05	0.131		
	11	03/25/87	AQUA											<20	<3					10	0.05	<.01		
	16	01/14/88	AQUA											<20	<30					10	<0.02	0.010		
TABLE 4																								
GROUNDWATER QUALITY ANALYSIS																								
METALS, CYANIDE AND PHENOLS																								
PAGE 1 OF 3																								
RECOVERY WELLS																								
GROUNDWATER INVESTIGATIONS																								
ALLIED CORPORATION																								
SOUTH BEND, INDIANA																								
PROJECT ALCHPX SBIN 010																								
T A GLEASON ASSOCIATES																								
Environmental and Geotechnical Services																								

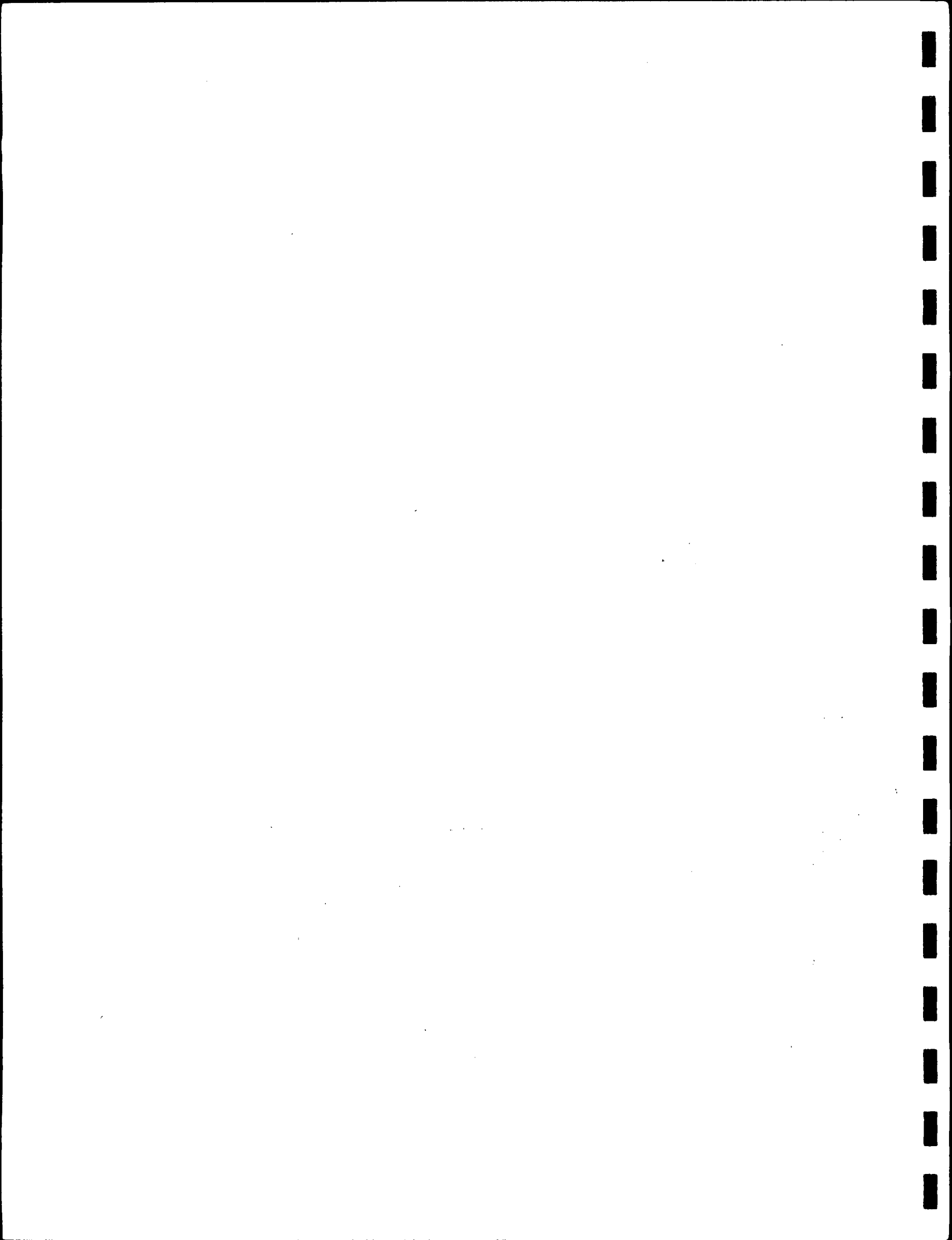
< = LESS THAN

BLANK SPACE INDICATES NOT ANALYZED FOR

GROUNDWATER QUALITY ANALYSIS  
METALS, CYANIDE AND PHENOLS  
PAGE 1 OF 3  
RECOVERY WELLS

GROUNDWATER INVESTIGATIONS  
ALLIED CORPORATION  
SOUTH BEND, INDIANA  
PROJECT ALCHPX SBIN 010

T A GLEASON ASSOCIATES  
Environmental and Geotechnical Services

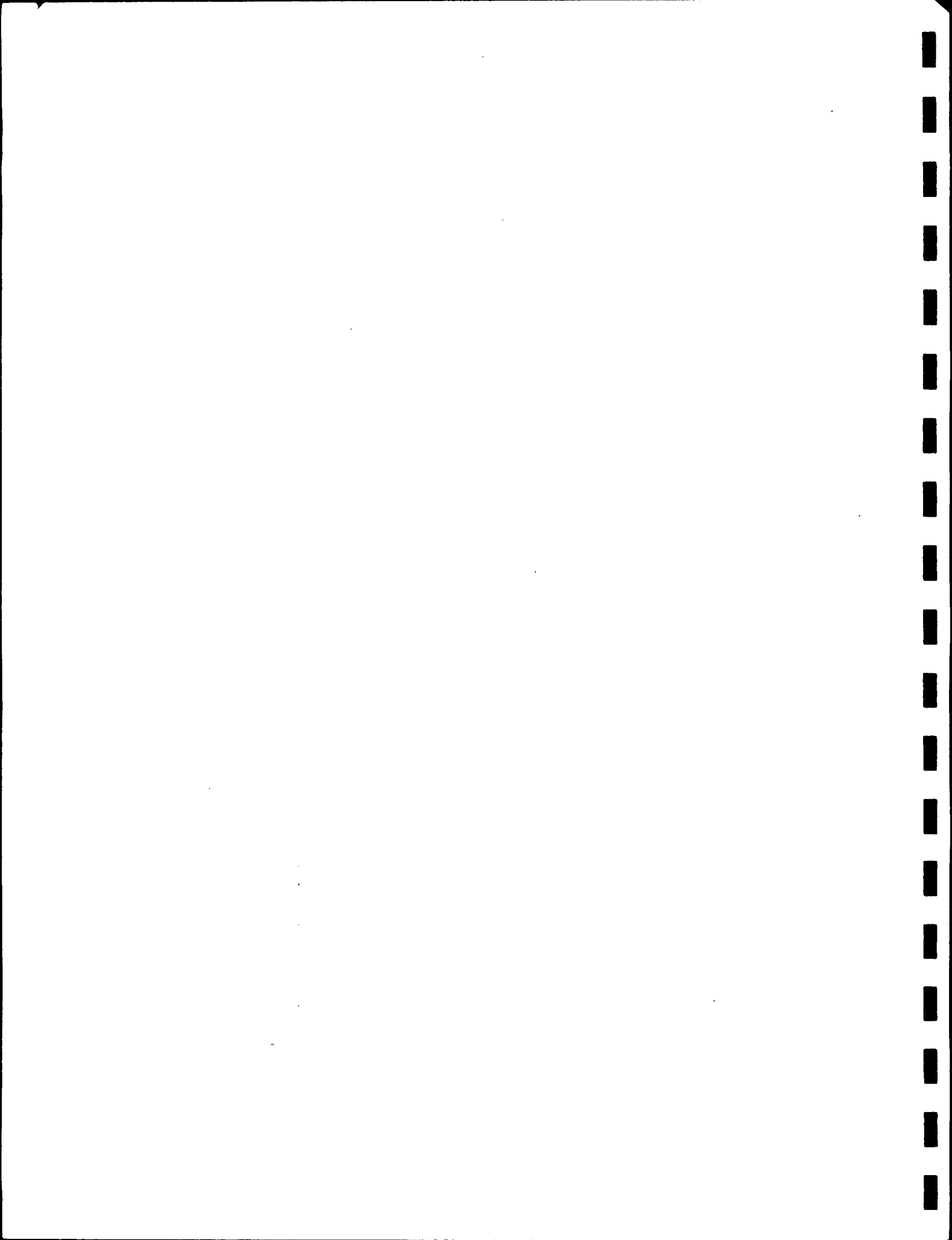




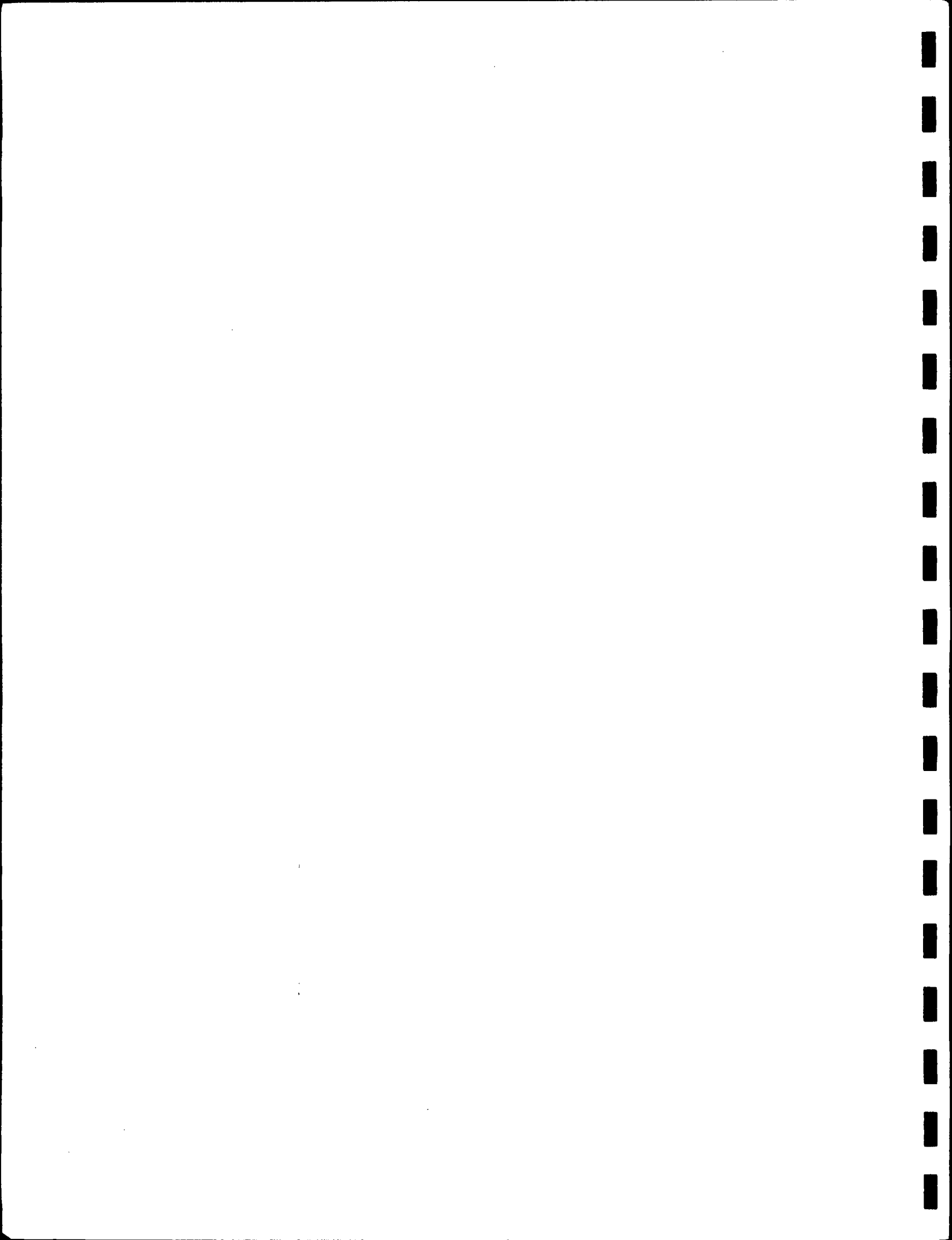




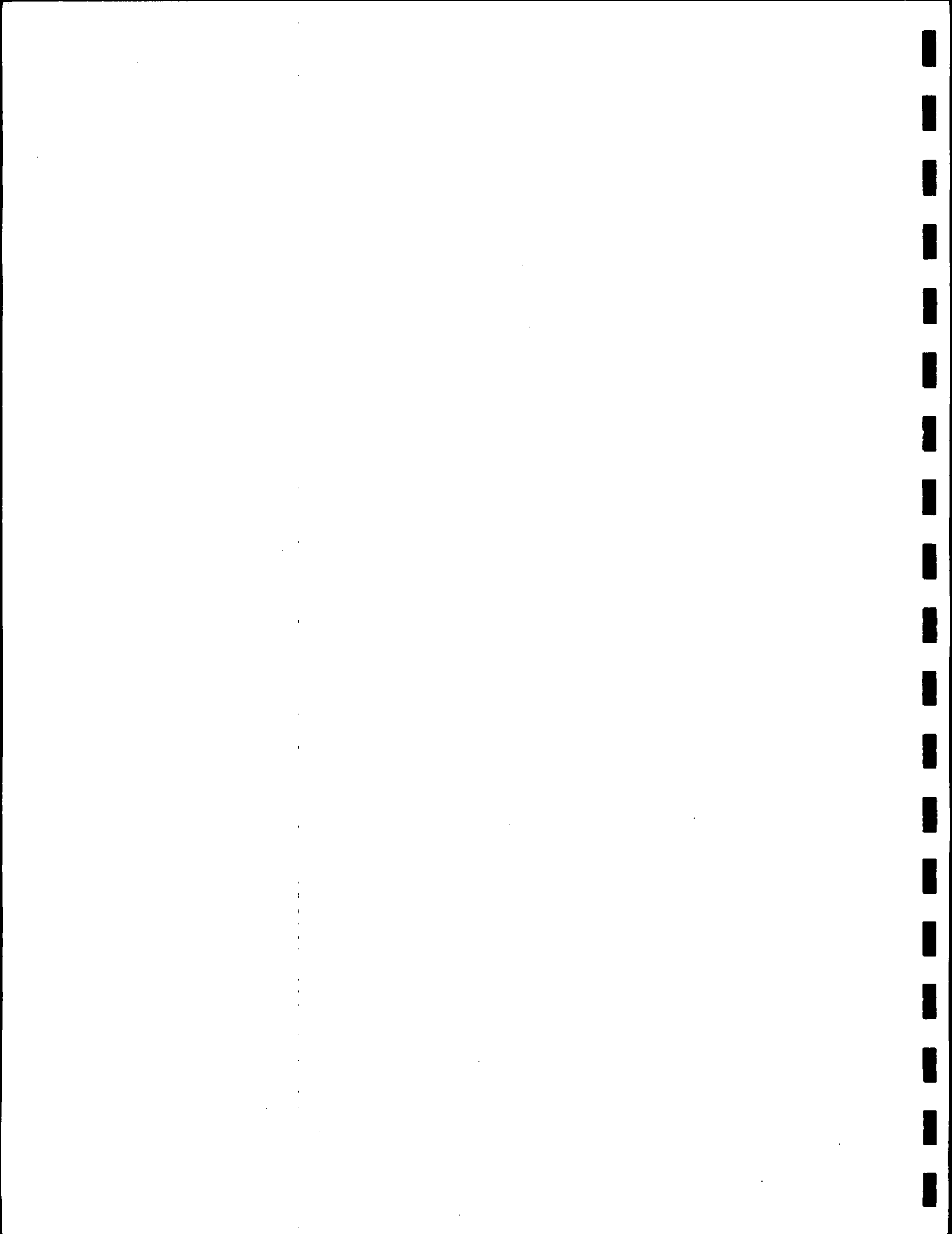






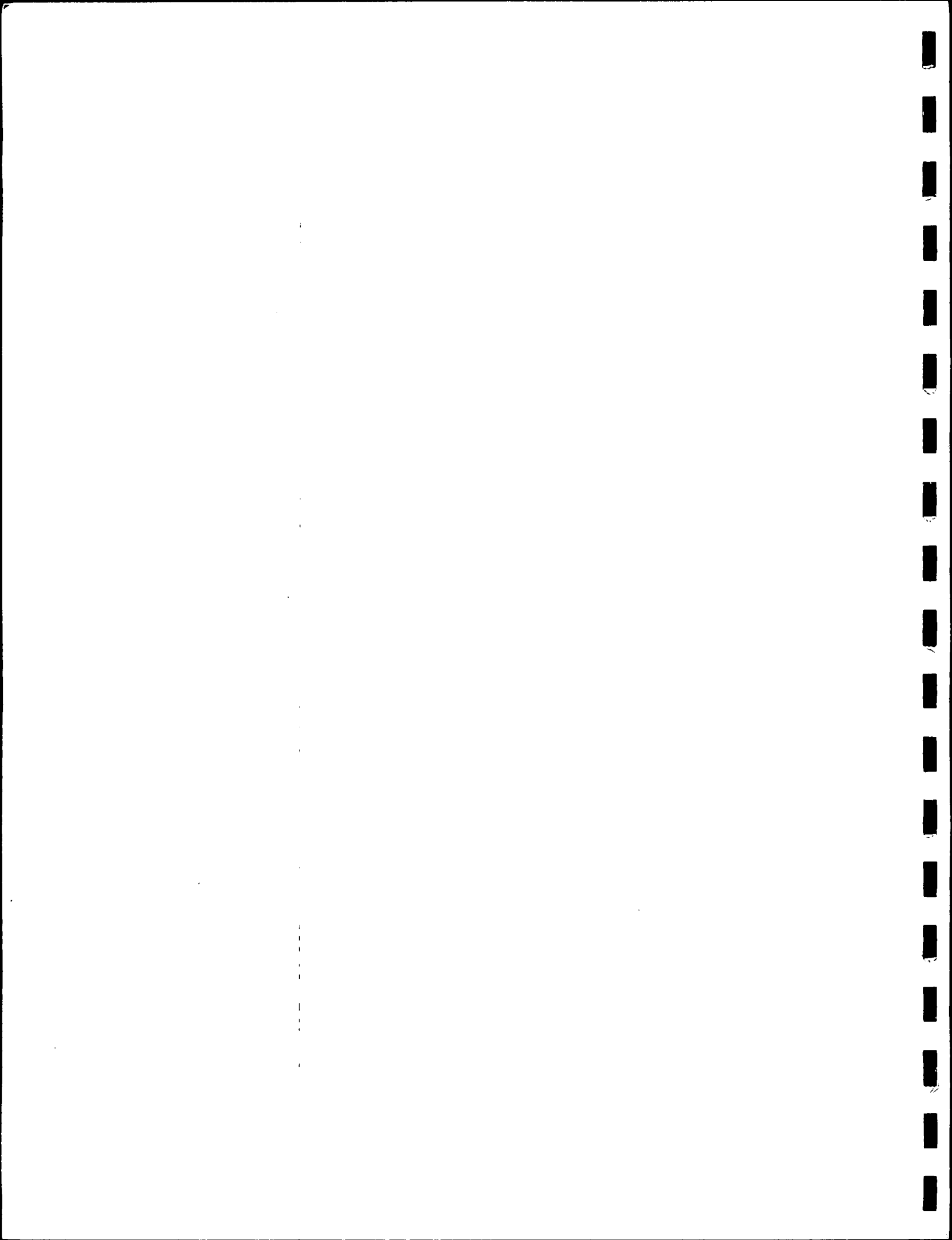






























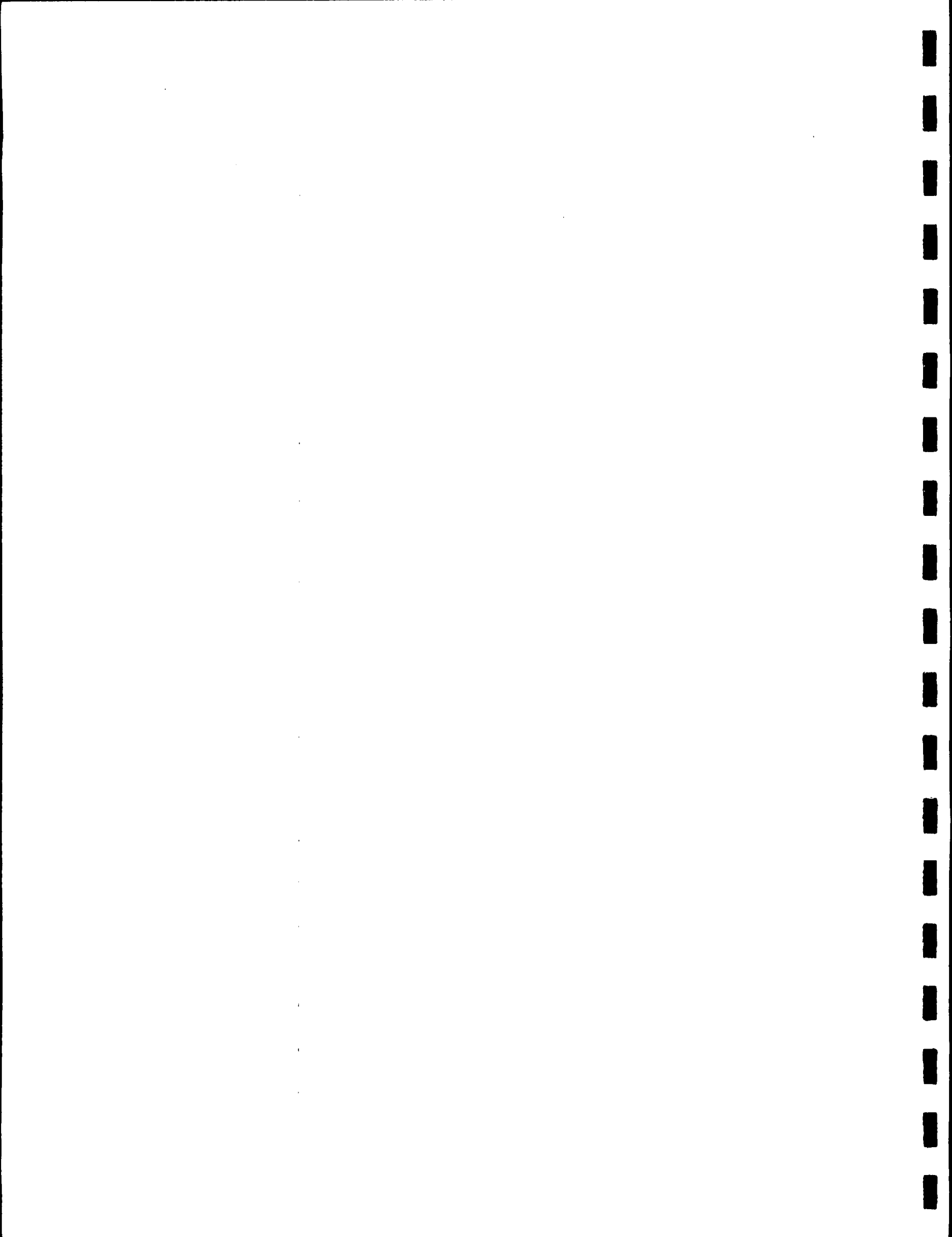






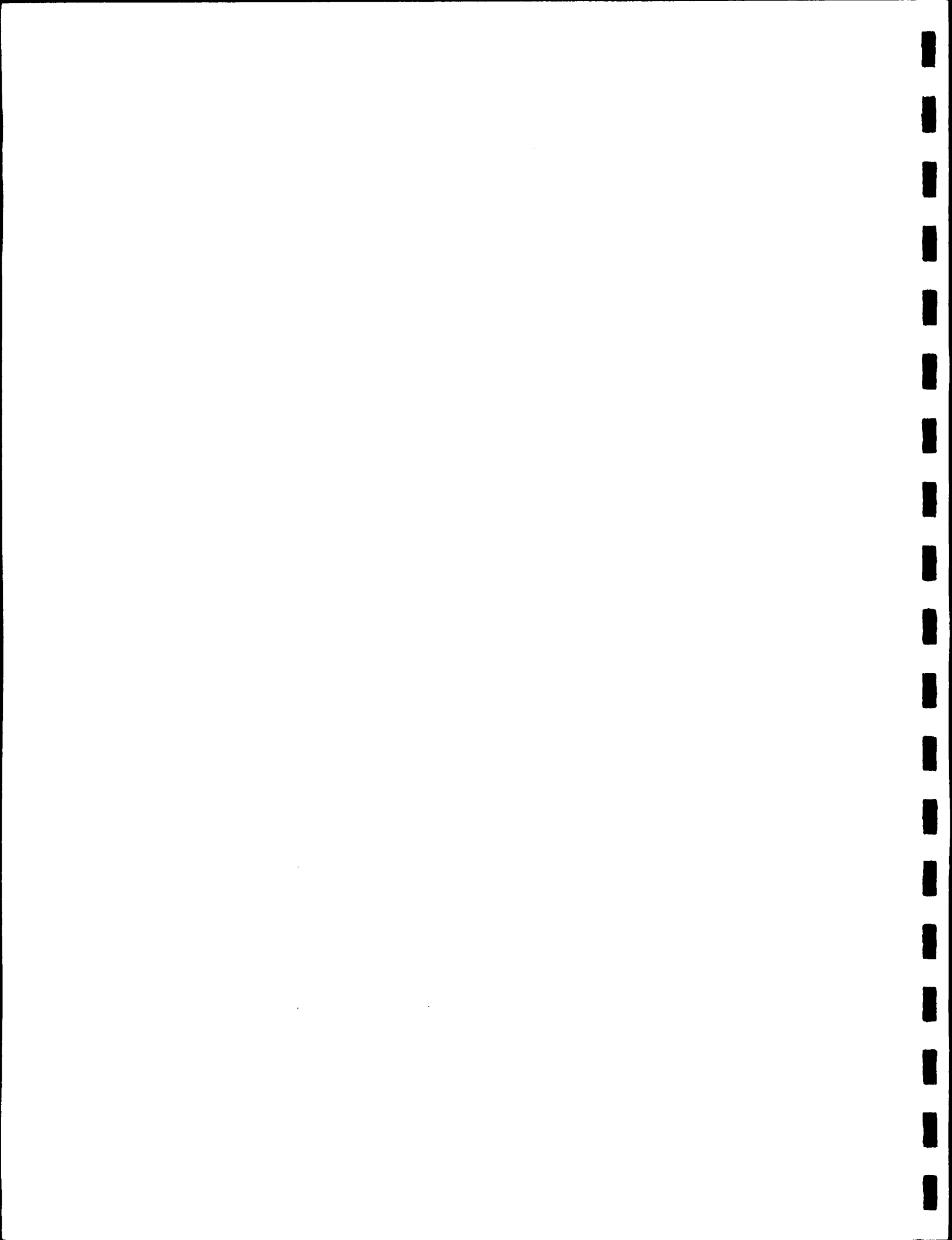








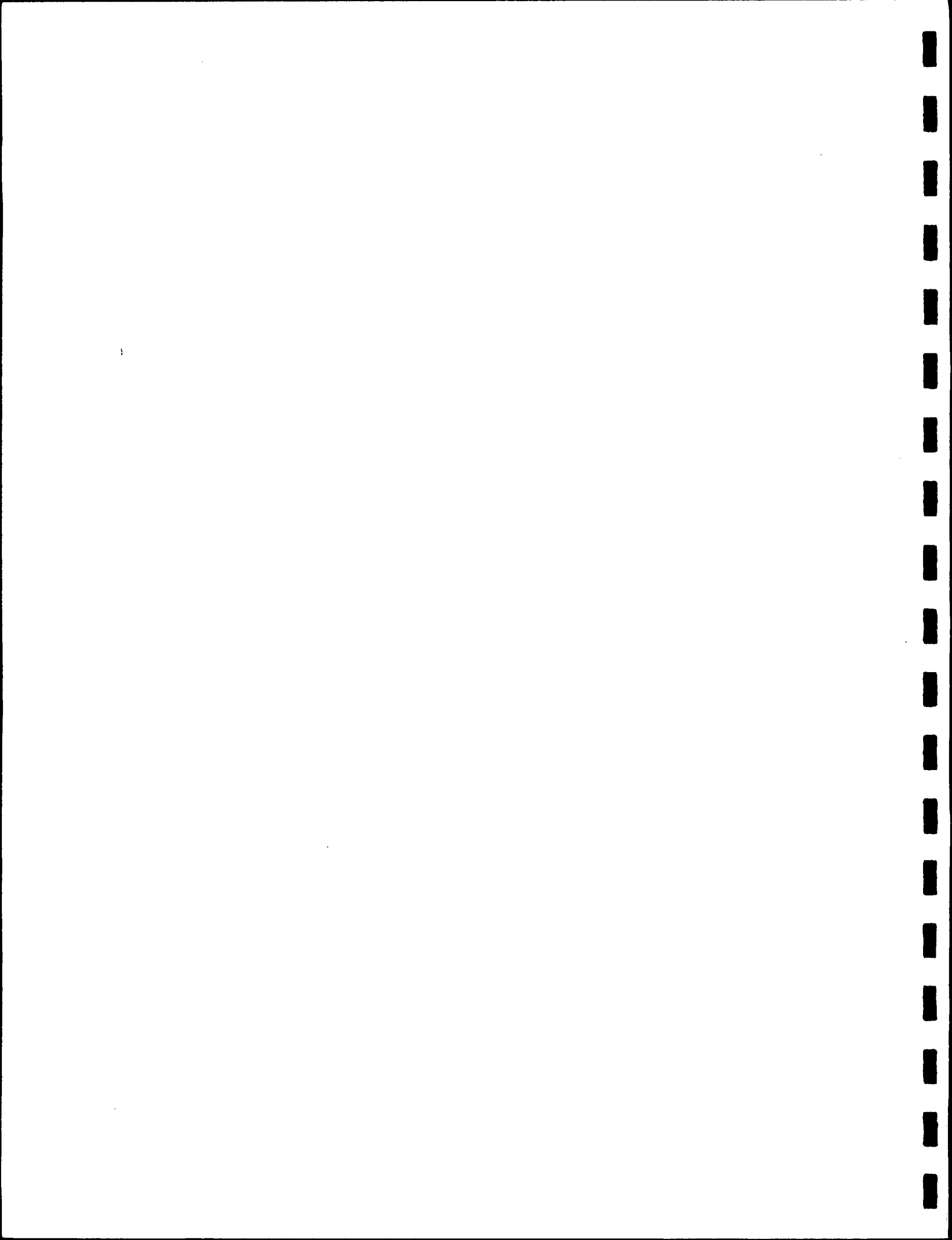




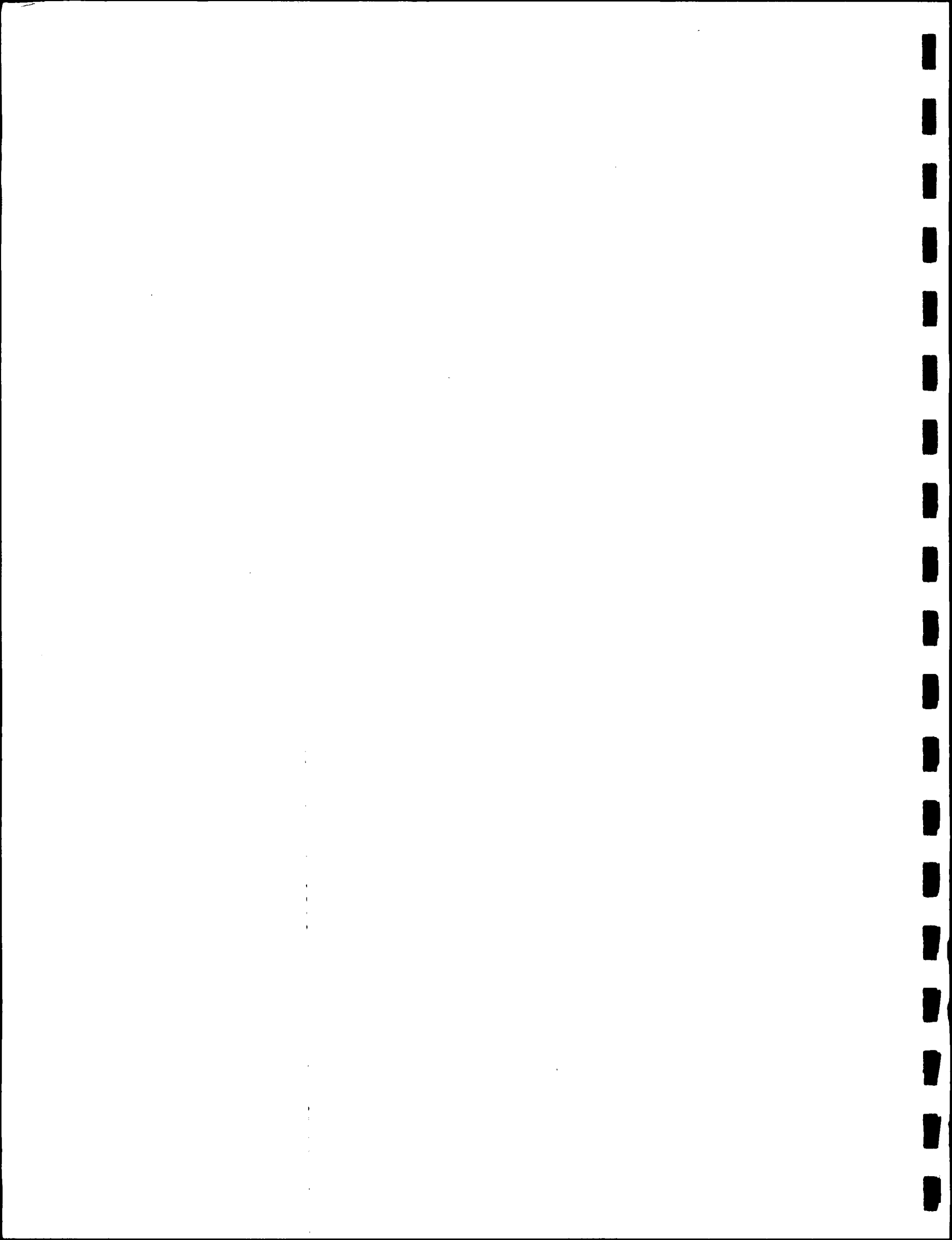














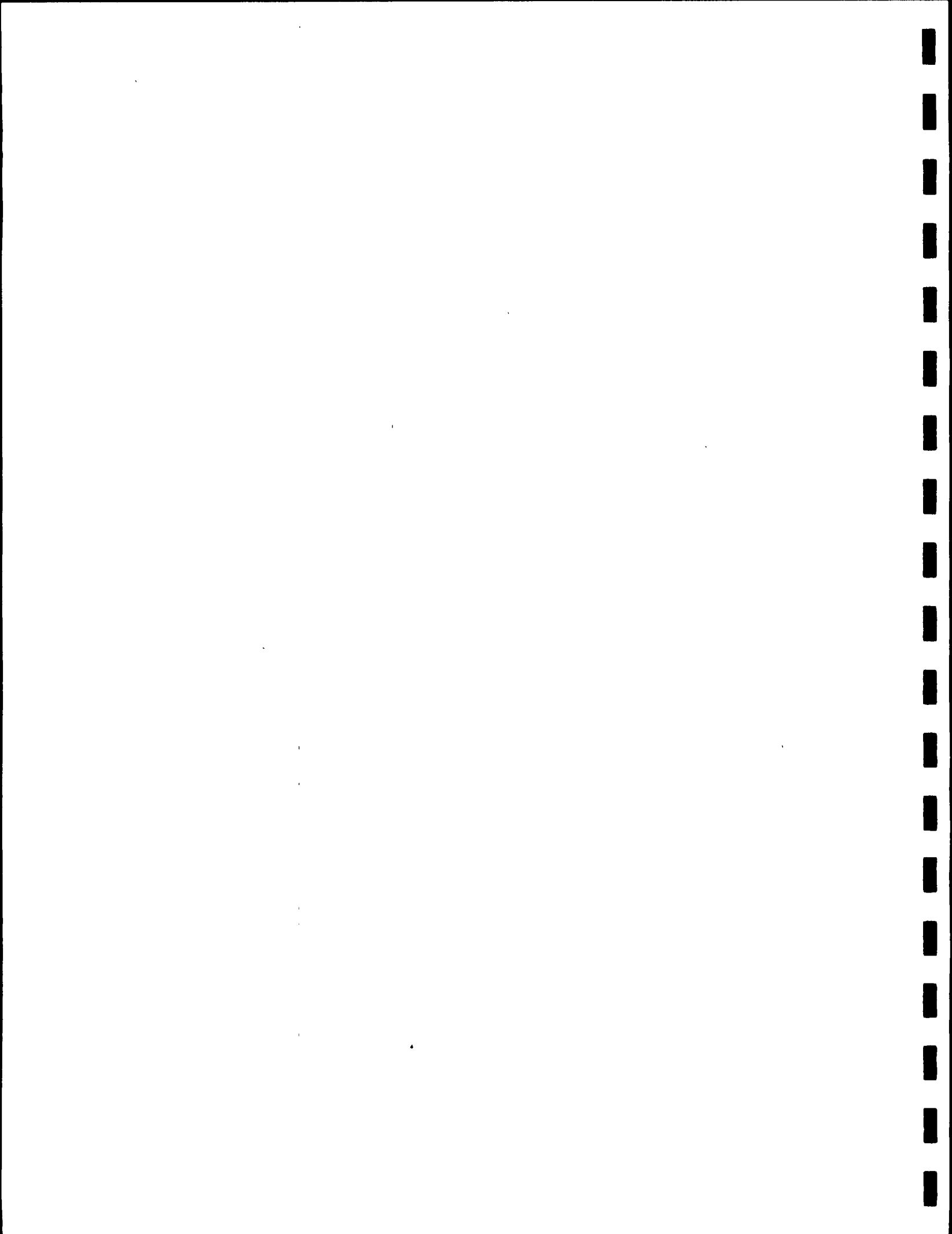




























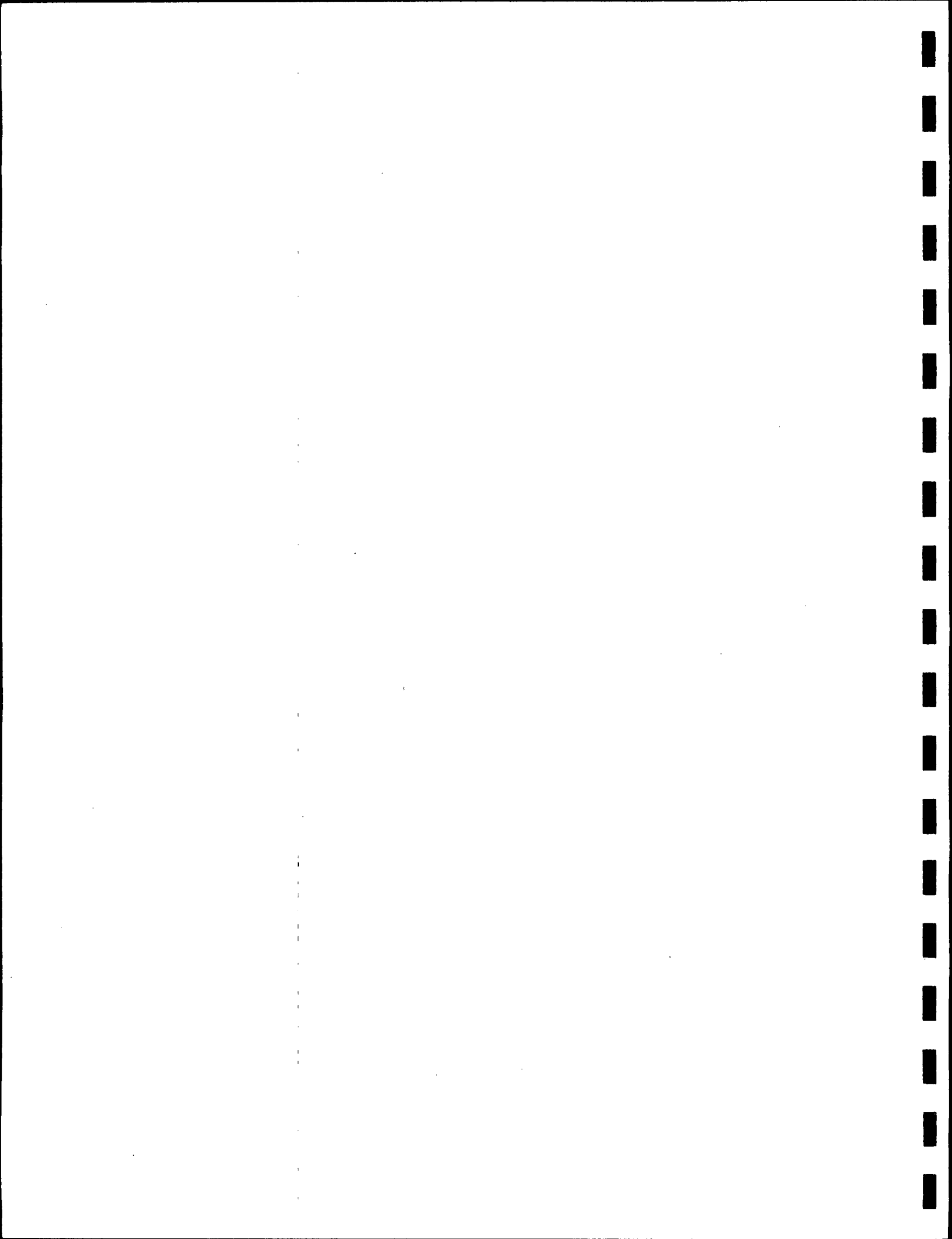














70











































































OCR#1

01-Mar-88

SAMPLE SOURCE	DATE	SAMPLE #	LAB	NOTES:													
				1,1-DI- CHLORO- ETHANE	1,1-DI- CHLORO- ETHYLENE	BENZENE	ETHYL BENZENE	TOLUENE	CIS-1,2 DICHLORO- ETHANE	TRANS-1,2 DI- CHLORO- ETHYLENE	TOTAL XYLENES	1,2 DI- CHLORO- ETHANE	CHLORO- ETHANE	TRI- CHLORO- ETHANE			
E-3	03/25/87	7	AQUA	72	56	ND	10	10	53	ND	23	ND	ND	ND	ND	ND	ND
	01/14/88	19	AQUA	60	25	ND	9.4	9.2	48	ND	19	ND	ND	ND	ND	ND	ND
RMB-6	03/25/87	10	AQUA	ND	300	8.7	50	ND	410	54	65	ND	ND	ND	ND	ND	ND
	03/25/87	11	AQUA	ND	300	12	50	ND	410	72	69	ND	ND	ND	ND	ND	ND
	09/04/87	33	AQUA	ND	ND	ND	ND	ND	700	45	ND	290	ND	ND	ND	ND	ND
	01/14/88	16	AQUA	ND	ND	ND	ND	ND	460	ND	ND	250	ND	ND	ND	ND	ND
TABLE 6																	
GROUNDWATER QUALITY ANALYSIS																	
ORGANIC COMPOUNDS																	
PAGE 1 OF 3																	
RECOVERY WELLS																	
GROUNDWATER INVESTIGATIONS																	
ALLIED CORPORATION																	
SOUTH BEND, INDIANA																	
PROJECT # ALCHPX SBIN 010																	
T A GLEASON ASSOCIATES																	
ENVIRONMENTAL AND GEOTECHNICAL SERVICES																	

ND = NOT DETECTED.  
SEE LAB REPORT FOR DETECTION  
LIMITS.

OUR INTERPRETATIONS OF THESE DATA  
ARE LIMITED TO OUR WRITTEN REPORTS.









OCR#3  
01-Mar-88

SAMPLE SOURCE	DATE	SAMPLE #	LAB	1,1-D1-CHLORO-ETHYLENE		1,1-D1-CHLORO-ETHANE		1,2-D1-CHLORO-ETHANE		TRANS-1,2-D1-CHLORO-ETHYLENE		CIS-1,2-D1-CHLORO-ETHYLENE		TOLUENE		ETHYL BENZENE		TOTAL XYLENES		1,2-D1-CHLORO-ETHANE		CHLORO-ETHANE		TRI-CHLORO-ETHYLENE		NOTES:
				UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	MG/L	MG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L	
RWB-22	03/25/87	9	AQUA	184	124	ND	94	ND	60	199	ND	60	ND	199	ND	60	ND	199	ND	60	ND	199	ND	60	ND	ND = NOT DETECTED. SEE LAB REPORT FOR DETECTION LIMITS.
	09/04/87	34	AQUA	ND	ND	ND	81	ND	ND	160	ND	ND	ND	160	ND	ND	ND	160	ND	ND	ND	ND	ND	ND		
	01/14/88	17	AQUA	117	48	ND	47	22	36	85	ND	36	ND	85	ND	36	ND	85	ND	36	ND	85	ND	36		
	01/14/88	18	AQUA	122	53	ND	51	24	38	91	ND	38	ND	91	ND	38	ND	91	ND	38	ND	91	ND	38		

89