UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107

AUG 28 1985

Mr. Douglas Lorenzen
Dept. of Environmental Resources
Bureau of Solid Waste Management
P.O. Box 2063
Harrisburg, PA 17120

RE: Bishop Tube Co.
PA-568

Dear Mr. Lorenzen:

Enclosed are two copies of the final Site Inspection report for the above referenced project. Please forward one copy to the appropriate regional office, and if you have any questions concerning this matter, please call Laura Boornazian of my staff at 215/597-3153.

Sincerely yours,

Harold G. Bryan

Edmund J. Skernolis, Chief
Site Investigation & Support Section

Enclosures

R-585-11-4-16

SITE INSPECTION OF BISHOP TUBE COMPANY PREPARED UNDER

TDD NO. F3-8405-15
EPA NO. PA-568
CONTRACT NO. 68-01-6699

FOR THE

HAZARDOUS SITE CONTROL DIVISION
U.S. ENVIRONMENTAL PROTECTION AGENCY

JUNE 25, 1985

NUS CORPORATION
SUPERFUND DIVISION

SUBMITTED BY	REVIEWED BY	APPROVED BY
CHARLES MEYER	WILLIAM WENTWORTH	GARTH GLENN
ENVIRON. TECHNICIAN	ASSISTANT MANAGER	MANAGER, FIT III

TABLE OF CONTENTS

APPENDICES

SECTION 1

1.0 INTRODUCTION

1.1 Authorization

NUS Corporation performed this work under Environmental Protection Agency Contract No. 68-01-6699. This specific report was prepared in accordance with Technical Directive Document No. F3-8405-15 for the Bishop Tube Company site located in Frazer, Pennsylvania.

1.2 Scope of Work

NUS FIT III was tasked to conduct a site inspection of the subject site. FIT III conducted the site inspection on June 6, 1984.

1.3 Summary

A hydrogeologic study of surface water and groundwater conditions at the plant was conducted by Betz, Converse, Murdock, Incorporated in October 1981. The Bishop Tube Company site is located in Frazer, in the southeastern portion of Pennsylvania. In the past, the Bishop Tube Company and the site's former owners have discharged sanitary sewage, cooling water, and acid pickling rinse water into an unlined pit and cesspool that were located on the plant property. Area no. 1 is an unlined pit which was approximately 200 square feet in size and was filled with lime, and covered by a concrete floor. Area no. 2 is a cesspool which was approximately 160 square feet in size and is now closed; it was filled with limestone and covered with concrete.

A hydrogeologic study of surface water and groundwater conditions at the plant was conducted by Betz, Converse, Murdock, Incorporated. Betz, Converse, Murdock, Incorporated installed 4 monitoring wells at the site as part of this study. During the NUS site inspection on June 6, 1984, these 4 wells were sampled, along with some surface water in the site area. In 1981, the deep groundwater quality at the site was checked by a representative of the United States Geological Survey (U.S.G.S.), who was doing a county-wide study. All concentrations from this analysis were below the Chester County Health Department's standards, according to the Betz, Converse, Murdock Report.

SECTION 2

2.0 THE SITE

2.1 Location

The Bishop Tube Company site is located in the southeastern portion of Pennsylvania, in the borough of Frazer. The site is located off Route 30 and Malin Road, and is surrounded by residential areas.

2.2 Site Layout

The Bishop Tube Company site is comprised of 2 sites (closed impoundments) situated in a manufacturing plant complex. The sites (area nos. 1 and 2) were once used for the dumping of process waste and sanitary sewage. Area no. 2, which is approximately 160 square feet in size, is located to the west and is directly in front of Plant no. 5. It is filled with lime and covered with concrete. Area no. 1 is located to the west of Plant no. 8, which has been extended in order to cover all of area no. 1 with a concrete floor (see appendix B, figure 2).

2.3 Ownership History

J. Bishop and Company, Platinum Works, opened the site in 1951. The name of the company was changed to Matthey Bishop and Company in 1967. Matthey Bishop sold the plant, as Bishop Tube Company, to the Whittaker Corporation on March 31, 1969. The Whittaker Corporation sold it to Christiana Metals on January 7, 1974. The plant is now called Bishop Tube Company, Division of Christiana Metals Corporation (see appendix D).

2.4 Site Use History

The site was opened in 1951 and was used for the processing of platinum. In 1967, the plant changed ownership and with this change came a switch in the process at the plant. At that time, the purpose of the plant was changed to the manufacturing of special seamless tubing, used for industrial purposes. The plant has been used for this purpose since that time. The present name of the company is Bishop Tube Company, Division of Christiana Metals Corporation.

2.5 Permit and Regulatory Action History

The following table summarizes past inspection activities at the site and permits held for the site:

Date	Activity	Conducted by	Findings
05/02/80	Consultant Report	Betz, Converse, Murdoch, Inc.	PA DER instructed Bishop Tube to conduct a study of groundwater. This study indicated that groundwater flow is in the direction of the tributary of the Little Valley Creek, to the northeast of the site.
06/09/81	Release of Acid Fumes	PA DER	A mixture of nitric acid and hydrofluoric acid was released into the air.
10/25/83	Hazardous Waste Inspection Report	PA DER	Violations were found in both containment and housekeeping practices.
11/29/83	Preliminary Assessment	PA DER	Identification of hazardous materials on site.
06/06/84	Site Inspection	FIT III	Sampling of wells and surface water in the site area.

Permits	Number
NPDES Permit	PA 0013641
Air Permit	15-399-017
RCRA	PAD081868309

2.6 Remedial Action To Date

In 1979, the Bishop Tube Company ceased the use of the unlined pit and on-site cesspool for waste disposal. These 2 sites were then packed with limestone and covered with concrete to enclose the impoundments.

SECTION 3

3.0 ENVIRONMENTAL SETTING

3.1 Water Supply

The water supply for the area surrounding the site is provided by 2 sources: the Philadelphia Suburban Water Company and the Malvern Borough Water Authority. The source for the Philadelphia Suburban Water Company supply is the Springton Reservoir located 7 miles to the southeast of the subject site. The reservoir is fed by the Crum Creek. The Malvern Borough System is supplied by 5 springs and 3 wells, according to Ira Dutter, Malvern Public Works foreman. The wells and springs are located off Ruthland Road, 1-1/2 miles to the east of the subject site. The wells are 140, 190, and 196 feet deep, respectively, and produce from the Wissahickon Formation. Also, in the Wissahickon Formation there is at least 1 home well (no. 2917) located 3,000 feet to the southwest of the site. This was the only home well listed in the area by the state well inventory system (see appendix G).

3.2 Surface Waters

The unnamed tributary which is adjacent to the Bishop Tube Company is the upper tributary of the Little Valley Creek. The Little Valley Creek runs to the northeast for 4 miles where it meets with the Valley Creek. The Valley Creek is used for recreational purposes, but not as a drinking water supply. It runs to the northeast for 2-1/2 miles until it reaches the Schuylkill River (see appendix B).

3.3 Geology and Soils

Native soil, according to the Chester and Delaware Counties Soil Survey, is classified as the Manor loam (see appendix F). These loams are derived from the weathering of mica, schist, and gneiss parent materials. However, these soils have been disturbed. In addition, fill material was brought in prior to the plant construction.

The study area is located in the Piedmont Physiographic Province. The Atlas of Preliminary Geologic Quadrangles, 1981 (see appendix G) indicates that rocks in the region have been both faulted and intruded. The Atlas shows the site area to be straddling the contact of the lower Paleozoic-aged Wissahickon and the Ordovician-aged Conestoga Formations. The Conestoga Formation, characterized as a micaceaus limestone, is located beneath the northern section of the property.

The Wissahickon Formation, a schist, underlies the southern site boundary. This is confirmed by well logs from the Betz, Converse, Murdock Consultant's Report on the Bishop Tube Company site (see appendix A). Well no. 1 (see appendix B, figure 2 for well locations), located on the southern boundary of the site, is finished in the Wissahickon schist at a depth of 48 feet. A home well, located approximately 3,000 feet to the southwest of the site, is also located in the Wissahickon schist (see appendix G). Well no. 4 is finished in colluvium, alluvium, or residual soils above the Conestoga Formation at a depth of 20 feet. Well nos. 2 and 3 extend into the Conestoga Formation to depths of 13.5 to 24 feet.

3.4 Groundwaters

On-site well nos. 2, 3, and 4 (see table 1, appendix G) monitor groundwater within the overburden. Well nos. 2 and 3 are in the Conestoga Limestone. Depth to groundwater in these wells ranges from 5 to 10 feet. Several wells and springs used by Malvern Borough, on-site well no. 1, and at least 1 home well are using groundwater from the Wissahickon Formation. Depth to groundwater in these wells is from 6 to 9.5 feet from the surface, based on home well no. 2917 and monitoring well no. 1. Water level elevations in these wells indicate groundwater flow to be northeast toward the unnamed tributary of the Little Valley Creek. Using the groundwater elevations from available wells and the data presented in appendix H, (Betz, Converse, Murdock Consultants Report), it appears that the Wissahickon and Conestoga formations are interconnected in this area.

3.5 Climate and Meterology

The average annual temperature of the area is 53°F. The coldest month is generally January with a mean temperature of 30.3°F. The hottest month is July with a mean temperature of 67.4°F. The average annual precipitation is 43.05 inches. The month of highest precipitation is August with 4.30 inches; the lowest is January with 2.74 inches. The average snowfall is 22 inches. The highest snowfall is in February with 7 inches; the lowest in November with .9 inches.

3.6 Land Use

To the east of the Bishop Tube Company is the General Warren Village Housing Development. This development consists of 228 single family homes. To the west is an industrial complex, while to the south and north are residential properties.

3.7 Population Distribution

There are approximately 228 housing units bordering the Bishop Tube Company site. The total population in these units is approximately 860 persons.

3.8 Critical Environments

There are no critical environments, as defined by the HRS Model, in close proximity to the site. However, Valley Forge National Park is located about 5 miles downstream on Valley Creek.

SECTION 4

4.0 WASTE TYPES AND QUANTITIES

The amount of material disposed of in area no. 1, the unlined pit which was approximately 200 square feet in size, and area no. 2, a sanitary cesspool approximately 160 square feet, is unknown. Known wastes disposed of included cooling water and acid pickling rinse, according to the Betz, Converse, Murdock, Incorporated proposal of work for Bishop Tube Company. Approximately 8,000 gallons of acid waste per year were discharged into an on-site waste stream. In early 1978, the disposals into the cesspool and unlined pit were halted and the discharges were diverted to a sanitary sewer, a nearby stream, and holding tanks (see appendix E).

At present, the site consists of a 4,000-gallon TCE storage tank and five 55-gallon, on-site drums at the Bishop Tube site. The following is a list of wastes that were detected in the groundwater monitoring wells, as well as surface water adjacent to the site:

vinyl chloride	trichloroethylene
1,1,1-trichloroethane	1,1-dichloroethane
1,1-dichloroethylene	trans-1,2-dichloroethylene
tetrachloroethene	toluene
chloroform	

SECTION 5

5.0 FIELD TRIP REPORT

5.1 Summary

On Wednesday, June 6, 1984, FIT III staff members David Walker, James Strickland, Mark Volatile, Richard Gorrell, Barry Schlesinger, and Thomas Fromm visited the Bishop Tube Company site in Frazer, Pennsylvania. The purpose of the visit was to conduct a site inspection. The team was on site from 11:15 AM to 1:50 PM. The weather at the time of the inspection was sunny, with temperatures in the mid-80s.

5.2 Persons Contacted

5.2.1 Prior to Field Trip

Meirs Johnson
Project Manager
Bishop Tube Company
Frazer, PA 19355
(215) 647-3450

Frank Holmes
PA DER
1875 New Hope Street
Norristown, PA 19401
(215) 270-1920

5.2.2 At The Site

Meirs Johnson
Project Manager
Bishop Tube Company
Frazer, PA 19355
(215) 647-3450

TDD Number F3-8405-15
EPA Number PA-568

5.3 SAMPLE LOG

Site Name Bishop Tube Company

TRAFFIC REPORTS Organic	Inorganic	High Hazard	SAMPLING LOCATION	PHASE	SAMPLE DESCRIPTION	DATE	TIME	pH	COMMENTS/OBSERVATIONS	LABORATORY
C 7083			Monitering Well #1	Aq	Monitering Well #1	6/6/84	12:30	5.93		
C 7084			Monitering Well #2	Aq	Monitering Well #2	6/6/84	12:40	6.75	High PID readings when first uncapped	
C 7085			Monitering Well #3	Aq	Monitering Well #3	6/6/84	12:42	6.61		
C 7086			Monitering Well #4	Aq	Monitering Well #4	6/6/84	12:45	6.15		
C4490			Upstream	Aq	Upstream	6/6/84	13:08	7.35		
C 7087			Downstream	Aq	Downstream	6/6/84	13:35	7.60		
C4491			Tributary From Site	Aq	Tributary From Site	6/6/84	13:17	7.24		
C4492			Swale Along Railroad	Aq	Swale along Railroad	6/6/84	13:38	7.17		
C4493			Blank	Aq	Blank	6/6/84	13:50			

5.4 Site Observations

- The confluence of the swale along the railroad and the tributary revealed that there was more discoloration of the water on the swale side.

- There were lawn mowers and other debris on the side of the tributary.

- Downstream from the site, approximately 100 yards, there was a small business pumping water from the tributary.

- When well no. 2 was initially uncapped, solvent odors were noticed and a reading of 6 ppm was recorded on the HNU.

5.5 PHOTOGRAPH LOG

Photo 1 -
Monitoring well no. 1 - samplers are Thomas Fromm and Mark Volatile.

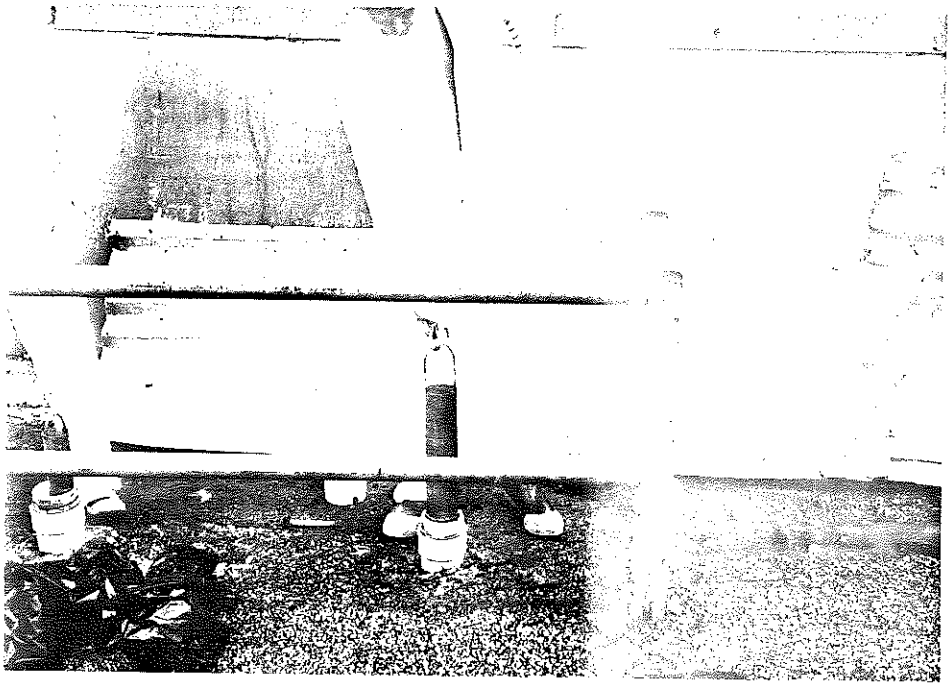


Photo 2 -
Monitoring well no. 2 - sampler is James Strickland.

Bishop Tube Company
F3-8405-15
June 6, 1984
Time 12:30
Photo #1

Monitering well #1 samplers Tom Fromm and Mark Volatile

Taken by Dave Walker

David Walker

Bishop Tube Company
F3-8405-15
June 6, 1984
Time 12:40
Photo #2

Monitering well #2 Jim Strickland Sampler

Taken by Dave Walker

David Walker

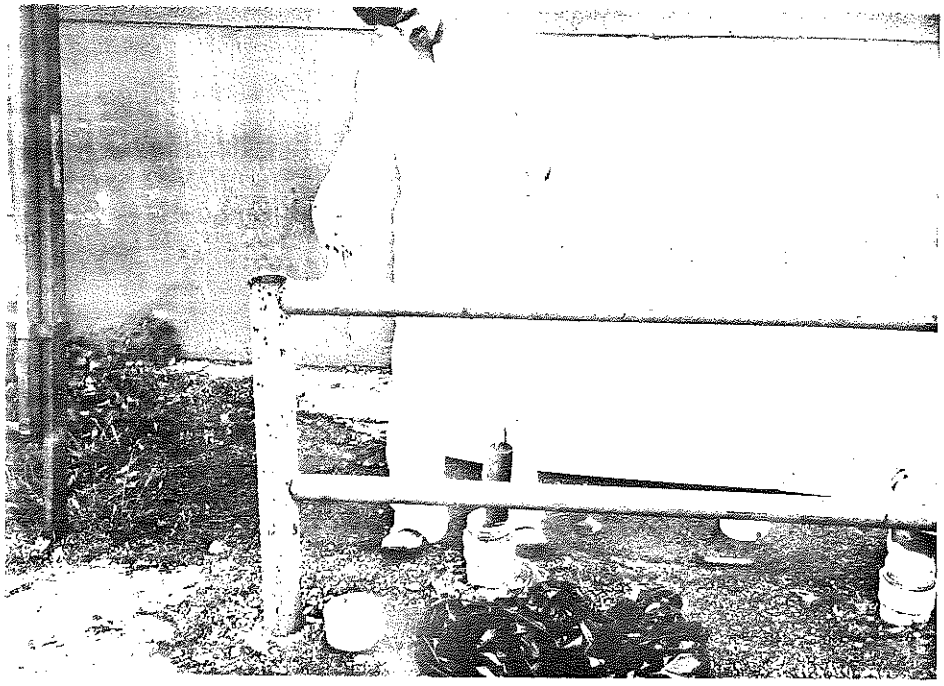


Photo 3 -
Monitoring well no. 3 - sampler is Richard
Gorrell.

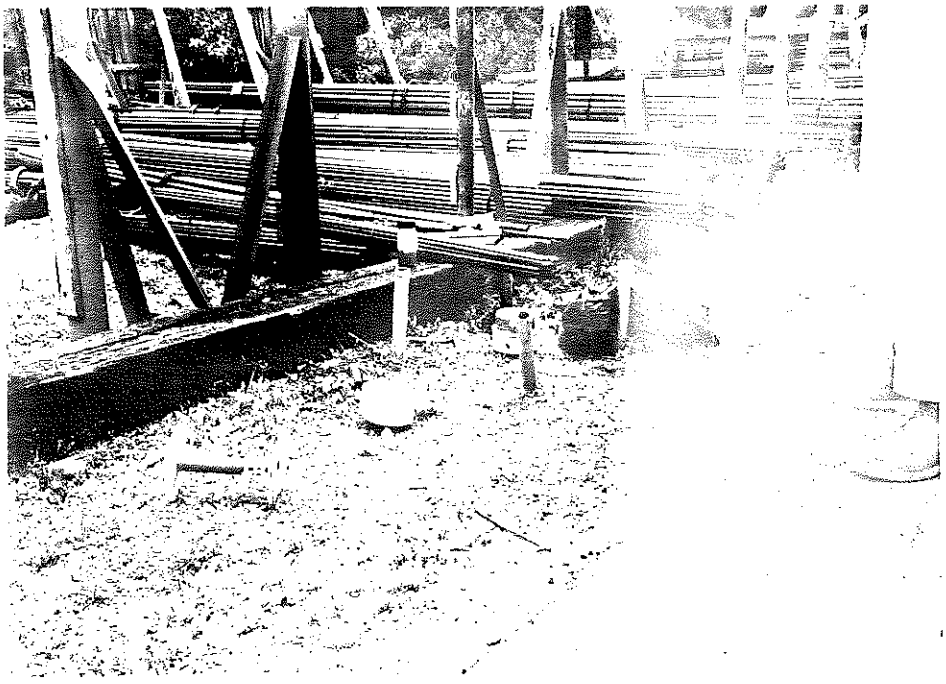


Photo 4 -
Monitoring well no. 4 - sampler is Thomas
Fromm.

Bishop Tube Company
F3-8405-15
June 6, 1984
Time 12:42
Photo # 3

Monitering Well #3 Rick Gorrell sampler

Taken by Dave Walker
Dave Walker

Bishop Tube Company
F3-8405-15
June 6, 1984
Time 12:45
Photo # 4

Monitering well #4 Sampler Tom Fromm

David Walker
Dave Walker

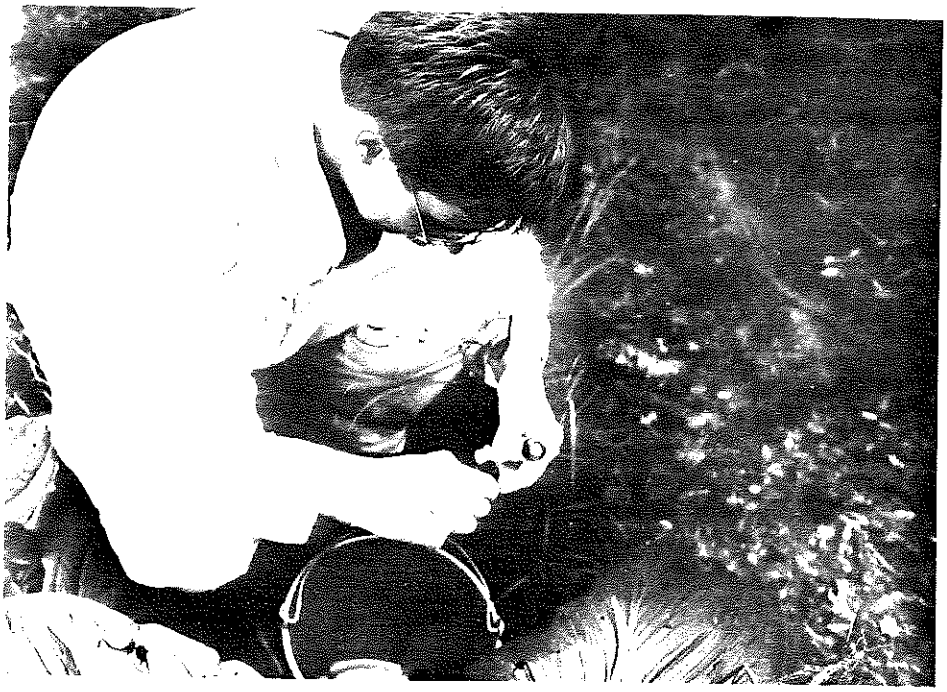


Photo 5 -
Upstream Little Valley Creek - sampler
is Thomas Fromm.

Photo 6 -
Tributary from the site - sampler is
Thomas Fromm.

Bishop Tube Co
F3-8405-15
June 6 1984
Time 13:09
Picture #5

upstream Little Valley Creek sampler Tom Fromm

Taken by Dave Walker
Dave Walker

Bishop Tube Company
F3-8405-15
June 6 1984
Time 13:17
Photo #6

Tributary from site sampler Tom Fromm

Photo by David Walker
Dave Walker

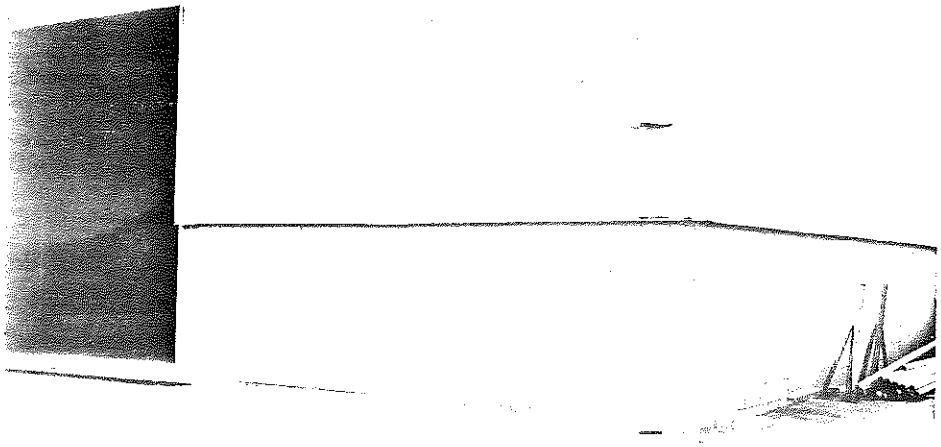


Photo 7 -
Building on top of old impoundment.

Photo 8 -
Downstream on the Little Valle Creek -
sampler is Thomas Fromm.

Bishop Tube Company
F3-8405-15
June 6, 1984
Time 13:30
Photo #7

Building on top of old empoundment

Taken by Dave Walker
Dave Walker

Bishop Tube Company
F3-8405-15
June 6 1984
Time 13:35
Photo #8

Down stream on the Little Valley Creek
Sampler Tom Fromm

Photo by Dave Walker
Dave Walker

— Photo 9 -
— Downstream sample of swale along railroad —
— sampler is Thomas Fromm. —

Bishop Tube Company
F3-8405-15
June 6, 1984
Time 13:38
Photo # 9

Downstream sample of swale along rail Road sampler Tom Fromm

Taken by Dave Walker

Dave Walker

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

E3-8405-15

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
PA	568

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER				
Bishop Tube Company	Route 30 and Malin Road				
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 COUNTY**	**07 COUNTY CODE**	**08 CONG DIST**
Frazer	PA	19355	Chester		

09 COORDINATES		10 TYPE OF OWNERSHIP (Check one)
LATITUDE	LONGITUDE	☒ A. PRIVATE ☐ B. FEDERAL ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL ☐ F. OTHER ☐ G. UNKNOWN
32° 30' 26"	47° 35' 68"	

III. INSPECTION INFORMATION

01 DATE OF INSPECTION	02 SITE STATUS	03 YEARS OF OPERATION
06 / 06 / 84 (MONTH DAY YEAR)	☐ ACTIVE ☒ INACTIVE	1951 (BEGINNING YEAR) 1978 (ENDING YEAR) ___ UNKNOWN

04 AGENCY PERFORMING INSPECTION (Check all that apply)

☐ A. EPA ☒ B. EPA CONTRACTOR NUS Corp. (Name of firm) ☐ C. MUNICIPAL ☐ D. MUNICIPAL CONTRACTOR _____ (Name of firm)
☐ E. STATE ☐ F. STATE CONTRACTOR _____ (Name of firm) ☐ G. OTHER _____ (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO
Charles Meyer	Environmental Technician	NUS Corp.	(215 687-9510
09 OTHER INSPECTORS	**10 TITLE**	**11 ORGANIZATION**	**12 TELEPHONE NO**
Dave Walker	Geologist	NUS Corp.	(215 687-9510
Tom Fromm	Environmental Engineer	NUS Corp.	(215 687-9510
James Strickland	Environmental Technician	NUS Corp.	(215 687-9510
Mark Volatile	Environmental Technician	NUS Corp.	(215 687-9510
Rick Gorrell	Environmental Engineer	NUS Corp.	(215 687-9510

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO
Barry Schlesinger	Environ. Technician	NUS Corporation Wayne, PA	(215) 687-9510
Miers Johnson	Project Eng.	Bishop Tube Company Route 30 and Malin Road	(215) 647-3450
			( )
			( )
			( )
			( )

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
☒ PERMISSION ☐ WARRANT	11:15 to 13:50	Sunny, hot, and humid

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO
Doug Hill	EPA	( ) 215 597-5841

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
Charles Meyer	NUS Corp.	FIT III	215-687-9510	06 / 06 / 84 (MONTH DAY YEAR)

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
PA	568

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- ☐ A. SOLID
- ☐ B. POWDER, FINES
- ☐ C. SLUDGE
- ☐ D. OTHER (Specify)
- ☐ E. SLURRY
- X F. LIQUID
- ☐ G. GAS

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

TONS 16.5
CUBIC YARDS
NO. OF DRUMS

03 WASTE CHARACTERISTICS (Check all that apply)

- X A. TOXIC
- ☐ B. CORROSIVE
- ☐ C. RADIOACTIVE
- ☐ D. PERSISTENT
- ☐ E. SOLUBLE
- ☐ F. INFECTIOUS
- ☐ G. FLAMMABLE
- ☐ H. IGNITABLE
- X I. HIGHLY VOLATILE
- ☐ J. EXPLOSIVE
- ☐ K. REACTIVE
- ☐ L. INCOMPATIBLE
- ☐ M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE			
SOL	SOLVENTS	16.5	Tons	Generated per month
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS			

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
sol	vinyl chloride	75-01-4	cesspool and unlined pit	10 k	
sol	trichloroethylene	79-01-6	cesspool and unlined pit	20,120	
sol	1,1,1-trichloroethane	71-55-6	cesspool and unlined pit	7,700	
sol	1,1-dichloroethane	107-06-2	cesspool and unlined pit	54	
sol	1,1-dichloroethylene	75-35-4	cesspool and unlined pit	690	
sol	trans 1,2-dichloroethylene	156-60-5	cesspool and unlined pit	2,700	
sol	tetrachloroethene	127-18-4	cesspool and unlined pit	160	
sol	toluene	108-88-3	cesspool and unlined pit	5k	
sol	chloroform	67-66-3	cesspool and unlined pit	5k	

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references e.g. state files, sample analysis reports)

FIT III data summay sheet from site inspection of June 6, 1984.
Also, Pennsylvania Department of Environmental Resources (PA DER) preliminary assessment done by Frank Holmes.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE: PA	02 SITE NUMBER: 568

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 [X] A. GROUNDWATER CONTAMINATION
02 [X] OBSERVED (DATE: 6-6-84) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 3,000
04 NARRATIVE DESCRIPTION

There were 2 sites used for the dumping of wastes. One was an on-site cesspool and the other was an unlined pit. On-site wells are contaminated.

01 [X] B. SURFACE WATER CONTAMINATION
02 [X] OBSERVED (DATE: 6-6-84) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: Unknown
04 NARRATIVE DESCRIPTION

The site is located adjacent to a tributary of the Little Valley River, which flows into the Valley River. The Valley River is used for fishing. Contamination was found in a swale along the railroad tracks. The swale is a tributary of the Little Valley River.

01 ☐ C. CONTAMINATION OF AIR
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____
04 NARRATIVE DESCRIPTION

N/A

01 ☐ D. FIRE/EXPLOSIVE CONDITIONS
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____
04 NARRATIVE DESCRIPTION

N/A

01 ☐ E. DIRECT CONTACT
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____
04 NARRATIVE DESCRIPTION

N/A

01 [X] F. CONTAMINATION OF SOIL
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 AREA POTENTIALLY AFFECTED: 60 feet (Acres)
04 NARRATIVE DESCRIPTION

The area of soil contamination at the site is 360 square feet, according to the Notification of Hazardous Waste Sites report submitted by Johnson Matthey, Inc.

01 ☐ G. DRINKING WATER CONTAMINATION
02 ☐ OBSERVED (DATE: _____) [X] POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 3,000
04 NARRATIVE DESCRIPTION

The borough of Malvern is presently using a combination of springs and wells for its municipal source. These wells are located east of the site. One domestic source, located 3,000 feet to the southwest of the site, was found to be using groundwater.

01 ☐ H. WORKER EXPOSURE/INJURY
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 WORKERS POTENTIALLY AFFECTED: _____
04 NARRATIVE DESCRIPTION

N/A

01 ☐ I. POPULATION EXPOSURE/INJURY
02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____
04 NARRATIVE DESCRIPTION

N/A

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
PA	568

II. HAZARDOUS CONDITIONS AND INCIDENTS *(Continued)*

01 ☐ J. DAMAGE TO FLORA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

N/A

01 ☐ K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION *(Include name(s) of species)*

N/A

01 ☐ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

N/A

01 ☒ M. UNSTABLE CONTAINMENT OF WASTES *(Spills Runoff Standing liquids Leaking drums)* — 02 ☐ OBSERVED (DATE: _____) ☒ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

Waste was discharged into the cesspool area and the unlined pit from 1951 until 1978.

01 ☐ N. DAMAGE TO OFFSITE PROPERTY — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

N/A

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

N/A

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

N/A

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

N/A

III. TOTAL POPULATION POTENTIALLY AFFECTED: 12,703

IV. COMMENTS

V. SOURCES OF INFORMATION *(Cite specific references, e g. state files, sample analysis, reports)*

Laboratory data from NUS FIT III site inspection of June 6, 1984 and from EPA files.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
PA	568

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
[X] A. NPDES	PA 0013641			
[ ] B. UIC				
[X] C. AIR	15-339-017			
[X] D. RCRA	PA 0081866309			
[ ] E. RCRA INTERIM STATUS				
[ ] F. SPCC PLAN				
[ ] G. STATE (Specify)				
[ ] H. LOCAL (Specify)				
[ ] I. OTHER (Specify)				
[ ] J. NONE				

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE
[X] A. SURFACE IMPOUNDMENT	8.25	tons/month
[ ] B. PILES		
[ ] C. DRUMS, ABOVE GROUND		
[ ] D. TANK, ABOVE GROUND		
[ ] E. TANK, BELOW GROUND		
[ ] F. LANDFILL		
[ ] G. LANDFARM		
[ ] H. OPEN DUMP		
[X] I. OTHER (Specify) cesspool	8.25	tons/month

04 TREATMENT (Check all that apply)

- [ ] A. INCENERATION
- [ ] B. UNDERGROUND INJECTION
- [ ] C. CHEMICAL/PHYSICAL
- [ ] D. BIOLOGICAL
- [ ] E. WASTE OIL PROCESSING
- [ ] F. SOLVENT RECOVERY
- [ ] G. OTHER RECYCLING/RECOVERY
- [ ] H. OTHER (Specify)

05 OTHER

[X] A. BUILDINGS ON SITE

6

06 AREA OF SITE

7 (Acres)

07 COMMENTS

Bishop Tube Company used an unlined pit and cesspool area to dispose of plant waste that included sanitary sewage, cooling water, and acid pickling rinse water.

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)

[ ] A. ADEQUATE, SECURE [ ] B. MODERATE [ ] C. INADEQUATE, POOR [X] D. INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC.

Waste material was placed in an unlined pit and cesspool with no liners.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: [ ] YES [X] NO

02 COMMENTS

Presently, the unlined pit and cesspool are covered with concrete and packed with limestone.

VI. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)

State PA and information from EPA file.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
PA	568

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as applicable)	SURFACE	WELL
COMMUNITY	A. [X]	B. [X]
NON-COMMUNITY	C. [ ]	D. [X]

02 STATUS: unknown

ENDANGERED	AFFECTED	MONITORED
A. [ ]	B. [ ]	C. [ ]
D. [ ]	E. [ ]	F. [ ]

03 DISTANCE TO SITE
A. 1-1/2 (mi)
B. ~~3,000 feet~~ (mi)

III. GROUNDWATER

01 GROUNDWATER USE IN VICINITY (Check one)

[X] A. ONLY SOURCE FOR DRINKING [ ] B. DRINKING (Other sources available) COMMERCIAL, INDUSTRIAL, IRRIGATION (No other water sources available) [X] C. COMMERCIAL, INDUSTRIAL, IRRIGATION (Limited other sources available) [ ] D. NOT USED, UNUSEABLE

02 POPULATION SERVED BY GROUND WATER: 3,000

03 DISTANCE TO NEAREST DRINKING WATER WELL: 3,000 (mi)

04 DEPTH TO GROUNDWATER	05 DIRECTION OF GROUNDWATER FLOW	06 DEPTH TO AQUIFER OF CONCERN	07 POTENTIAL YIELD OF AQUIFER	08 SOLE SOURCE AQUIFER
5 to 10 (ft)	north-northeast	5 to 10 (ft)	(gpd)	[ ] YES [ ] NO

09 DESCRIPTION OF WELLS (Including useage, depth, and location relative to population and buildings)

The wells that supply the town of Malvern are located approximately 1-1/2 miles southeast of the site. A domestic well is located approximately 3,000 feet southwest of the site.

10 RECHARGE AREA		11 DISCHARGE AREA	
[ ] YES [X] NO	COMMENTS	[X] YES [ ] NO	COMMENTS: Groundwater flows toward the unnamed tributary of the Little Valley River.

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

[X] A. RESERVOIR, RECREATION DRINKING WATER SOURCE [ ] B. IRRIGATION, ECONOMICALLY IMPORTANT RESOURCES [ ] C. COMMERCIAL, INDUSTRIAL [ ] D. NOT CURRENTLY USED

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:	AFFECTED	DISTANCE TO SITE
Tributary to Little Valley River	[ ]	150 feet (mi)
	[ ]	(mi)
	[ ]	(mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE	TWO (2) MILES OF SITE	THREE (3) MILES OF SITE
A. 4,237 NO. OF PERSONS	B. 9,829 NO. OF PERSONS	C. 12,703 NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION: 500 feet (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE	04 DISTANCE TO NEAREST OFF-SITE BUILDING
3,393	250 feet (mi)

05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area)

The population on all sides of the site is urban, but becomes more rural as one moves further away from the site.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
PA	568

VI. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

☐ A. $10^{-6} - 10^{-8}$ cm/sec ☒ B. $10^{-4} - 10^{-6}$ cm/sec ☐ C. $10^{-4} - 10^{-3}$ cm/sec ☐ D. GREATER THAN 10^{-3} cm/sec

02 PERMEABILITY OF BEDROCK (Check one)

☐ A. IMPERMEABLE (Less than 10^{-6} cm/sec) ☒ B. RELATIVELY IMPERMEABLE ($10^{-4} - 10^{-6}$ cm/sec) ☐ C. RELATIVELY PERMEABLE ($10^{-2} - 10^{-4}$ cm/sec) ☐ D. VERY PERMEABLE (Greater than 10^{-2} cm sec)

03 DEPTH TO BEDROCK	04 DEPTH OF CONTAMINATED SOIL ZONE	05 SOIL pH
6 (ft)	6 (ft)	N/A

06 NET PRECIPITATION	07 ONE YEAR 24 HOUR RAINFALL	08 SLOPE: SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
34 (in)	2.5 to 3 (in)	3 %		5 to 7 %

09 FLOOD POTENTIAL

SITE IS IN N/A YEAR FLOODPLAIN

10

N/A ☐ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS (5 acre minimum)

ESTUARINE	OTHER
A. N/A (mi)	B. N/A (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)

N/A (mi)

ENDANGERED SPECIES: N/A

13 LAND USE IN VICINITY

DISTANCE TO:

COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS; NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES	AGRICULTURAL LANDS: PRIME AG LAND	AG LAND
A. 3/4 (mi)	B. 500 feet (mi)	C. N/A (mi)	D. N/A (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

The site is located at the base of a ridge with a steep slope behind the complex and a lesser slope to the front of the property.

VII. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

USGS Malvern and Valley Forge, Pennsylvania Quadrangle, 7.5 Minute series

Report on Bishop Tube Company by Betz Converse Murdoch, Inc.

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
PA	568

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER	4	Environmental Research Group	
SURFACE WATER	4	Environmental Research Group	
WASTE		117 North First Street	
AIR		Ann Arbor, Michigan 48104	
RUNOFF			
SPILL			
SOIL			
VEGETATION			
OTHER Blank	1	Environmental Research Group	

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS
HNU photoionizer	No readings above background were detected, except at monitoring well no. 2 where a reading of 6 ppm was recorded when the well cap was initially removed.

IV. PHOTOGRAPHS AND MAPS

01 TYPE ☒ GROUND ☐ AERIAL

02 IN CUSTODY OF NUS Corporation
(Name of organization or individual)

03 MAPS ☒ YES ☐ NO

04 LOCATION OF MAPS: USGS Malvern, Pennsylvania Quadrangle map, 7.5 minute series

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

N/A

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

FIT III site inspection of June 6, 1984

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 7 - OWNER INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
PA	568

II. CURRENT OWNER(S) / **PARENT COMPANY** *(If applicable)*

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE	08 NAME	09 D+B NUMBER	10 STREET ADDRESS (P.O. Box, RFD #, etc.)	11 SIC CODE	12 CITY	13 STATE	14 ZIP CODE
Bishop Tube Company		Route 30 and Malin Road	3498	Frazer	PA	19355	Christiana Metals		Route 30 and Malin Road		PO Box 1189 Frazer	PA	19355
N/A							N/A						
N/A							N/A						
N/A							N/A						

III. PREVIOUS OWNER(S) *(List most recent first)*

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE
Whittaker Corporation		Unknown				
N/A						
N/A						

IV. REALTY OWNER(S) *(If applicable, list most recent first)*

01 NAME	02 D+B NUMBER	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	05 CITY	06 STATE	07 ZIP CODE
N/A						
N/A						
N/A						

V. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

EPA files and NUS FIT III site inspection of June 6, 1984

EPA FORM 2070-13 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 8 - OPERATOR INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
PA	568

II. CURRENT OPERATOR (Provide if different from owner)

01 NAME	02 D+B NUMBER
Bishop Tube Company	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
Route 30 and Malin Road	

05 CITY	06 STATE	07 ZIP CODE
Frazer	PA	19355

08 YEARS OF OPERATION	09 NAME OF OWNER

OPERATOR'S PARENT COMPANY (If applicable)

10 NAME	11 D+B NUMBER
N/A	

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

III. PREVIOUS OPERATOR(S) (List most recent first; provide only if different from owner)

01 NAME	02 D+B NUMBER
Bishop Tube Company	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
Route 30 and Malin Road	

05 CITY	06 STATE	07 ZIP CODE
Frazer	PA	19355

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD
1974 to 1979	

PREVIOUS OPERATORS' PARENT COMPANIES (If applicable)

10 NAME	11 D+B NUMBER
N/A	

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

01 NAME	02 D+B NUMBER
Whittaker Corporation	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
Unknown	

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD
1969 to 1974	

10 NAME	11 D+B NUMBER
N/A	

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

01 NAME	02 D+B NUMBER
Matthey Bishop	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE

08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD
1951 to 1967	

10 NAME	11 D+B NUMBER
N/A	

12 STREET ADDRESS (P.O. Box, RFD #, etc.)	13 SIC CODE

14 CITY	15 STATE	16 ZIP CODE

IV. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

EPA file information and state information

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
PA	568

II. ON-SITE GENERATOR

01 NAME	02 D+B NUMBER
Bishop Tube Company	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
Route 30 and Malin Road	

05 CITY	06 STATE	07 ZIP CODE
Frazer	PA	19355

III. OFF-SITE GENERATOR(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
N/A		N/A	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
N/A		N/A	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

IV. TRANSPORTER(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
N/A		N/A	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
N/A		N/A	

03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE

05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

V. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

State and EPA file information

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION
01 STATE: PA | 02 SITE NUMBER: 568

II. PAST RESPONSE ACTIVITIES

01 ☐ A. WATER SUPPLY CLOSED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ B. TEMPORARY WATER SUPPLY PROVIDED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ C. PERMANENT WATER SUPPLY PROVIDED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ D. SPILLED MATERIAL REMOVED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ E. CONTAMINATED SOIL REMOVED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ F. WASTE REPACKAGED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ G. WASTE DISPOSED ELSEWHERE — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☒ H. ON SITE BURIAL — 02 DATE ~~late 1979 or~~ early 1980 — 03 AGENCY _____
04 DESCRIPTION
Material was packed with lime and placed under a cement cap.

01 ☐ I. IN SITU CHEMICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ J. IN SITU BIOLOGICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ K. IN SITU PHYSICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☒ L. ENCAPSULATION — 02 DATE ~~late 1979 or~~ early 1980 — 03 AGENCY _____
04 DESCRIPTION
Material was packed with lime and placed under a cement cap.

01 ☐ M. EMERGENCY WASTE TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ N. CUTOFF WALLS — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ O. EMERGENCY DIKING/SURFACE WATER DIVERSION — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ P. CUTOFF TRENCHES/SUMP — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ Q. SUBSURFACE CUTOFF WALL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
PA	568

II PAST RESPONSE ACTIVITIES *(Continued)*

01 ☐ R. BARRIER WALLS CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☒ S. CAPPING/COVERING — 02 DATE ~~late 1979 or~~ early 1980 — 03 AGENCY _____
04 DESCRIPTION
The material was enclosed with a cement cap as the dumping was stopped in 1979.

01 ☐ T. BULK TANKAGE REPAIRED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ U. GROUT CURTAIN CONSTRUCTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ V. BOTTOM SEALED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ W. GAS CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ X. FIRE CONTROL — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ Y. LEACHATE TREATMENT — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ Z. AREA EVACUATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ 1. ACCESS TO SITE RESTRICTED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ 2. POPULATION RELOCATED — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

01 ☐ 3. OTHER REMEDIAL ACTIVITIES — 02 DATE _____ — 03 AGENCY _____
04 DESCRIPTION
N/A

III. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

State EPA and NUS FIT III site inspection information

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
PA	568

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ☐ YES ☒ NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

N/A

III. SOURCES OF INFORMATION *(Cite specific references, e.g., state files, sample analysis, reports)*

NUS FIT III site inspection of June 6, 1984 and State and EPA file information

6.0 LABORATORY DATA

6.1 Sample Data Summary

The following Quality Assurance Review and Sample Data Summary for volatile organics have been prepared by CRL.

These samples were analyzed for volatile organics only.

6.2 Quality Assurance Review

6.2.1 Organic Data: Lab Case 2873

6.2.1.1 Introduction

The findings offered in this report are based upon a review of the volatile organics analyses of nine water samples. Blank analyses results, matrix spike and duplicate analyses results, surrogate spike recoveries, target compound matching quality, tentatively identified compounds, BFB tuning performance, data completeness, calculations, and standards performance were evaluated in detail.

6.2.1.2 Qualifiers

It is recommended that this data package be utilized only with the following qualifier statements:

- All methylene chloride results may be questionable.
- All MEK (2-butanone) results may be questionable.
- All acetone results may be questionable.
- Vinyl acetate results in samples C4490, C4492, and C7085 may be questionable.
- The 1,2-dichloroethane result in sample C7084 may be questionable.
- Concentrations for trichloroethylene in samples C4492, C7084, C7085, and C7086; 1,1,1-trichloroethane in sample C4492, C7084, and C7085; and trans 1,2-dichloroethene in samples C7085 and C7086 may be quantitatively questionable.
- All results for sample C7087 are quantitatively and qualitatively questionable.
- The carbon disulfide result in sample C7084 may be questionable.

6.2.1.3 Findings

- Methylene chloride, acetone, and MEK (2-butanone) contamination of the laboratory blanks, method blank, and field blank C4493, were of sufficient magnitude to question the presence of these three compounds in all samples.

TDD Number F3-8405-15
EPA Number PA-560

SAMPLE DATA SUMMARY
TARGET COMPOUNDS

☑ Organic ☐ Inorganic

Site Name Bisled Tube
Date of Sample 10-10-84

Sample Number	Sample Description and Location	Phase	Units	Compounds Detected: Chloroform	Carbon disulfide													Remarks
C4490	Upstream	AQ	µg/L															
C4491	Tributary From site	AQ	µg/L															
C4492	Swale Along Railroad	AQ	µg/L															
C4493	Field Blank	AQ	µg/L															
C7083	Monitoring Well #4	AQ	µg/L															
C7084	Monitoring Well #2	AQ	µg/L	5K	NDB◇													
C7085	Monitoring Well #3	AQ	µg/L															
C7086	Monitoring Well #1	AQ	µg/L															
C4491	Downstream	AQ	µg/L															

NOTE: For a review of this data and non-target, tentatively identified compounds, please see the Analytical Quality Assurance section of this report.

◇ Denotes results of questionable qualitative significance based upon quality assurance review of data.

- There is one BFB tuning violation, occurring just before the three point standard curve was established at 10:19 on 6/11/84. Three ions are out of specified ranges by small amounts. All tunes of 6/12/84, when the samples were run, are of acceptable quality.

- Most d_8-toluene surrogate recoveries were outside of QC limits. The laboratory notes this surrogate was not quantitatively accurate and states they will correct the problem.

- Eight matrix spike recoveries and two Relative Percent Difference Checks were out of QC limits. Some of these were due to the laboratory's decision to spike a sample containing high levels of the compounds of interest, as mentioned in the laboratory narrative. These recoveries demonstrate the laboratory's problems in accurately quantifying analytes outside the working range of the standards. Most recoveries are consistently high. More useful QC information may have been obtained if the laboratory had chosen a lower level sample to spike.

- No screening for volatiles was performed by the laboratory.

6.2.1.4 Summary

This Quality Assurance Review has identified blank contamination, poor matrix recoveries, improper usage of "ND-B" code, quantification of analytes outside the working range of standards, a minor BFB tuning violation, and possible chromatographic ghosting as primary areas of concern.

Please see the accompanying support documentation appendix for specifics on this Quality Assurance Review.

Report prepared by Charles S. Sands, Jr._____ Date: _____

SECTION 7

7.0 TOXICOLOGICAL EVALUATION

7.1 Summary

Sample analysis in this investigation was restricted to the detection of volatile organics only. Chlorinated ethanes and ethenes (up to 20,000 ug/l), some of which are suspect human carcinogens, and vinyl chloride (up to 44 ug/l), a recognized human carcinogen, were reported in samples from 3 monitoring wells (MW) underlying the site, and in a surface water sample from a swale adjacent to the site. Ingestion of the groundwater could potentially pose a carcinogenic risk.

The presence of volatile organic contaminants in the downstream surface water sample could not be determined due to laboratory error. Based on available data regarding the effects of the identified contaminants on freshwater aquatic life, their lack of persistence in surface waters, and their lack of a tendency to strongly bioaccumulate, the levels of contaminants noted in the swale sample would be expected to have minimal environmental effects.

It is possible that ppb concentrations of contaminants may be present in the ambient air on site or in the vicinity of the site. If present, they might pose a health hazard to local residents.

7.2 Distribution of Contaminants

Only volatile organics were assayed for in this investigation. Whether inorganic or other organic priority pollutants are present at or near this site is not known.

Chlorinated aliphatics were identified in samples from 3 on-site MWs and in the surface water sample from the swale alongside the railroad tracks. There were no volatile organics identified in MW no. 1.

Vinyl chloride was measured in 1 MW at 44 ug/l, and in another MW and the swale below the minimum quantifiable limit of 10 ug/l. The following ethanes and ethenes were measured in MW samples and in the sample from the swale. The swale was reported by the FIT III team to be discolored.

	Monitoring Wells (ug/l)	Swale (ug/l)
trichloroethene	4,800 - 20,120	2,026
1,1,1-trichloroethane	45 - 7,700	1,400
1,1-dichloroethane	14 - 54	9
1,1-dichloroethene	29 - 690	130
trans-1,2-dichloroethene	340 - 2,700	150
tetrachloroethene	21 - 60	8

Due to limitations in instrumentation response, all data for trichloroethene and 1,1,1-trichloroethane, as well as 2 MW values for 1,2-dichloroethene are considered by the quality assurance chemist to be quantitatively questionable. The actual concentrations in some cases may actually be higher than those reported.

Toluene (6 ug/l) and chloroform (below the minimum quantifiable limit of 5 ug/l) were identified in MW no. 2. Toluene was also identified in the swale sample (below the minimum quantifiable limit of 5 ug/l). The presence of 1,2-dichloroethane in MW no. 3 is questionable. MW samples were all acidic, with pHs ranging from 5.93 to 6.15. Acidic groundwater may be a natural hydrological feature of the area.

Chlorinated ethane/ethene levels in the downstream aqueous sample were all reported by the laboratory as ND-B (not detectable due to blank contamination). According to the FIT III quality assurance chemist, many of the contaminants were not present in the blanks; ghosting, however, may have been a problem. Resampling of the downstream site would be necessary to confirm the presence or absence of these contaminants. There were no volatile organic contaminants confidently identified in surface water samples taken upstream of the site.

7.3 Toxicological Considerations

There is evidence that contaminants may be migrating from this site. Volatile organic contaminants were identified in samples taken from 3 on-site MWs, and the surface water (swale) adjacent to the site. They were not detected in samples from upstream surface waters. Their presence in a downstream sample could neither be confirmed nor ruled out. Of all contaminants identified, the highest concentration was of trichloroethene (TCE). A 4,000-gallon storage tank of TCE is reported to be present on site.

Chlorinated aliphatics tend to be persistent and highly mobile in groundwater. Based on a limited study, groundwater flow is expected to be towards the north and east, away from the direction of known current groundwater usage. Fractures in the underlying geology, however, make the prediction of flow difficult.

TCE is a suspect human carcinogen. Based on limited data from animal studies, it has been estimated by EPA's Carcinogen Assessment Group that the lifetime consumption of 2 liters of water/day containing 180 ug/l TCE could result in 1 additional case of cancer for every 10,000 individuals exposed. Using liver toxicity as the most sensitive endpoint, an Adjusted Acceptable Daily Intake (AADI) of 257 ug/l has been calculated. AADIs are calculated to protect against toxicities other than carcinogenic risk. The World Health Organization has recommended 30 ug/l as a tentative guideline for drinking water.[1]

1,1,1-Trichloroethane is not presently considered a carcinogen by EPA, although there is recent limited evidence for carcinogenicity in animals. Based on the preliminary animal data, it has been estimated that the lifetime consumption of 2 liters of water/day containing 21.7 ug/l could result in 1 additional case of cancer for every 1,000,000 individuals exposed. An AADI of 1,000 ug/l has been calculated, using liver damage as the most sensitive endpoint.[1]

There is insufficient information concerning the carcinogenicity of, or effects of chronic low-level exposure to, 1,1-dichloroethane. At high concentrations it can cause cardiac excitation in humans, and has been shown to produce liver toxicity in rodents.[2]

1,1-Dichloroethene has limited evidence of carcinogenicity in animals. Based on animal evidence, it is estimated that the lifetime consumption by humans of water containing 2.3 ug/l could result in 1 additional case of cancer for every 1,000,000 individuals exposed. An AADI of 350 ug/l has been calculated.[1] The toxic effects of 1,2-trans-dichloroethene are not well-documented. There is insufficient evidence as to whether or not it is a carcinogen.[3]

Tetrachloroethene (PCE) has limited evidence of carcinogenicity in animals. Based on animal data, it has been estimated that the lifetime consumption of 2 liters of water/day containing 10 ug/l could result in 1 excess case of cancer for every 100,000 individuals exposed. An AADI of 85 ug/l has been calculated, based only on toxic effects to blood components, the immune system, and the central nervous system. The World Health Organization has recommended a level of 10 ug/l as a tentative guideline for PCE in drinking water.[1]

Vinyl chloride is a recognized human and animal carcinogen, angiosarcoma of the liver being the most common tumor produced.[4] It has been estimated that the consumption over a lifetime of water containing 0.015 ug/l could cause 1 additional case of cancer for every 1,000,000 individuals exposed.[1]

The levels of toluene measured in the groundwater would not be expected to cause any adverse health effects if ingested.[5] Chloroform has evidence of carcinogenicity in animals. It has been estimated that the lifetime consumption of 2 liters of water/day containing approximately 1.9 ug/l could result in 1 additional case of cancer for every 100,000 individuals exposed.[6]

Ingestion of the groundwater could potentially pose a carcinogenic risk. Based on the maximum levels of individual volatile organics measured in MW samples, it can be calculated, for the sake of perspective, that the lifetime ingestion of the groundwater might result in approximately a 7.7 in 1,000 cancer risk.[1,6] In addition, reported levels of trichloroethene, 1,1,1-trichloroethane, and 1,1-dichloroethene exceed AADIs calculated to protect against toxicities other than cancer, and could potentially affect the liver.[1]

Based on available experimental data, it would not be expected that concentrations of volatiles similar to those reported in the swale would cause acute toxicity to aquatic life.[2,7-10] There is a paucity of data concerning potential chronic effects. However, volatile organics do not tend to persist in surface waters or substantially bioaccumulate, so that any long-term effects would be expected to be minimal. Groundwater is reported to discharge into the unnamed tributary of Little Valley Creek, and could potentially affect aquatic life. Chronic exposure to levels of TCE similar to the maximum concentration measured in groundwater samples (approximately 20,000 ug/l) has been reported to have behavioral effects on a species of freshwater fish.[7] It would be expected, however, that dilution of contaminants would occur as they entered the surface water and, as previously noted, would not tend to persist. The presence of volatile organics in downstream surface water could neither be confirmed nor ruled out.

Dermal contact with water in the swale would probably result in the absorption of only small amounts of contaminants. Since some of the contaminants are known or suspect carcinogens, no safe levels of exposure to these substances can be assumed. However, any anticipated health risks from dermal exposure would be expected to be low.

Although HNU readings of ambient air did not exceed background, it is possible that ppb concentrations of some contaminants could be present on site, as well as in the surrounding area. Low ambient air levels of some contaminants, if present, could potentially pose health hazards in individuals living near the site, if inhaled on a chronic basis. An HNU reading of 6 ppm was recorded when uncapping MW no. 2. Although this level is relatively low, the nature of the gas(es) is not known. Based on the sample data, it is likely to be composed of chlorinated aliphatics. Brief inhalation of this level of chlorinated aliphatics is likely to pose a limited health hazard.

Prepared by: Isabel Mandelbaum — Date: February 6, 1985
Isabel Mandelbaum, Ph.D.
Toxicologist

Reviewed by: Kenneth Symms — Date: February 11, 1985
Kenneth Symms, Ph. D., Toxicologist

Site Name: Bishop Tube Company
TDD No.: F3-8405-15

LIST OF SOURCES

1. Federal Register. June 12, 1984. National Primary Drinking Water Regulations: Volatile Synthetic Organic Chemicals; Proposed Rulemaking. 49 (114): 24330.

2. U.S. Environmental Protection Agency. 1980. Ambient Water Quality Criteria for Chlorinated Ethanes. EPA PB81-117400.

3. U.S. Environmental Protection Agency. 1980. Draft Criteria Document for Dichloroethylenes. EPA PB84-199546.

4. U.S. Environmental Protection Agency. 1984. Draft Criteria Document for Vinyl Chloride. EPA PB84-199538.

5. Sandmeyer, E.E. 1981. Aromatic hydrocarbons. In: Patty's Industrial Hygiene and Toxicology, 3rd ed. G.D. Clayton and F.E. Clayton (eds.) pp. 3283-91. New York: John Wiley and Sons.

6. U.S. Environmental Protection Agency. 1980. Ambient Water Quality Criteria for Chloroform. EPA PB81-117442.

7. U.S. Environmental Protection Agency. 1980. Ambient Water Quality Criteria for Trichloroethylene. EPA PB81-117871.

8. U.S. Environmental Protection Agency. 1980. Ambient Water Quality Criteria for Dichloroethylenes. EPA PB81-117525.

9. U.S. Environmental Protection Agency. 1980. Ambient Water Quality Criteria for Tetrachloroethylene. EPA PB81-117830.

10. U.S. Environmental Protection Agency. 1980. Ambient Water Quality Criteria for Toluene. EPA PB81-117855.

APPENDIX A

6. CO

1. COST CENTER:	REM/FIT ZONE CONTRACT TECHNICAL DIRECTIVE DOCUMENT (TDD)	2. NO.:
ACCOUNT NO.:		F3-8405-15

3. PRIORITY:	4. ESTIMATE OF TECHNICAL HOURS:	5. EPA SITE ID:	6. COMPLETION DATE:	7. REFERENCE INFO.:
☐ HIGH ☒ MEDIUM ☐ LOW	200	PA-568	3 wks after QA	☒ YES ☐ NO ☐ ATTACHED ☒ PICK UP
	4A. ESTIMATE OF SUBCONTRACT COST:	5A. EPA SITE NAME: Bishop Tube Co. Frazer, PA		

8. GENERAL TASK DESCRIPTION: Perform site inspection of subject site.

9. SPECIFIC ELEMENTS:

1.) Review background information.
2.) Contact state and local agencies for relevant information.
3.) Submit sampling plan to EPA for approval.
4.) Coordinate lab analysis.
5.) Conduct on and off site inspection and sampling.
6.) Take and ship samples according to standard protocol.
7.) Perform Quality Assurance Review of lab data.
8.) Prepare and submit report .

10. INTERIM DEADLINES:

11. DESIRED REPORT FORM: FORMAL REPORT ☒ LETTER REPORT ☐ FORMAL BRIEFING ☐

OTHER (SPECIFY):

12. COMMENTS:

13. AUTHORIZING RPO:

(SIGNATURE)

14. DATE:

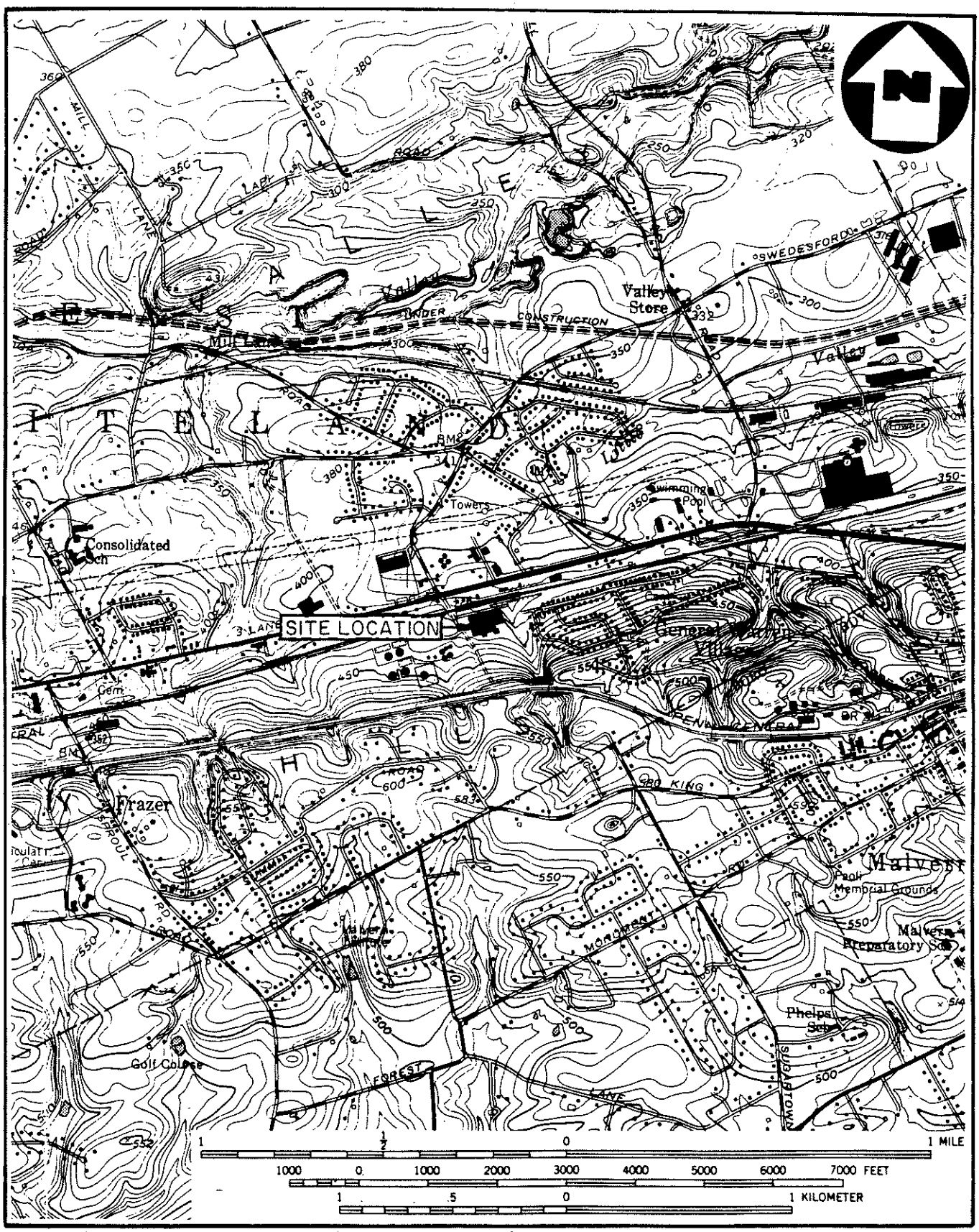
15. RECEIVED BY: ☐ ACCEPTED ☐ ACCEPTED WITH EXCEPTIONS ☐ REJECTED

(CONTRACTOR RPM SIGNATURE)

16. DATE:

Sheet 1 White – FITL Copy
Sheet 2 Canary – DPO Copy
Sheet 3 Pink – Contracting Officer's Copy (Washington, D. C.)
Sheet 4 Goldenrod – Project Officer's Copy (Washington, D. C.)

APPENDIX B



SOURCE : USGS MALVERN, PA. QUAD. (7.5 MINUTE SERIES)

FIGURE 1

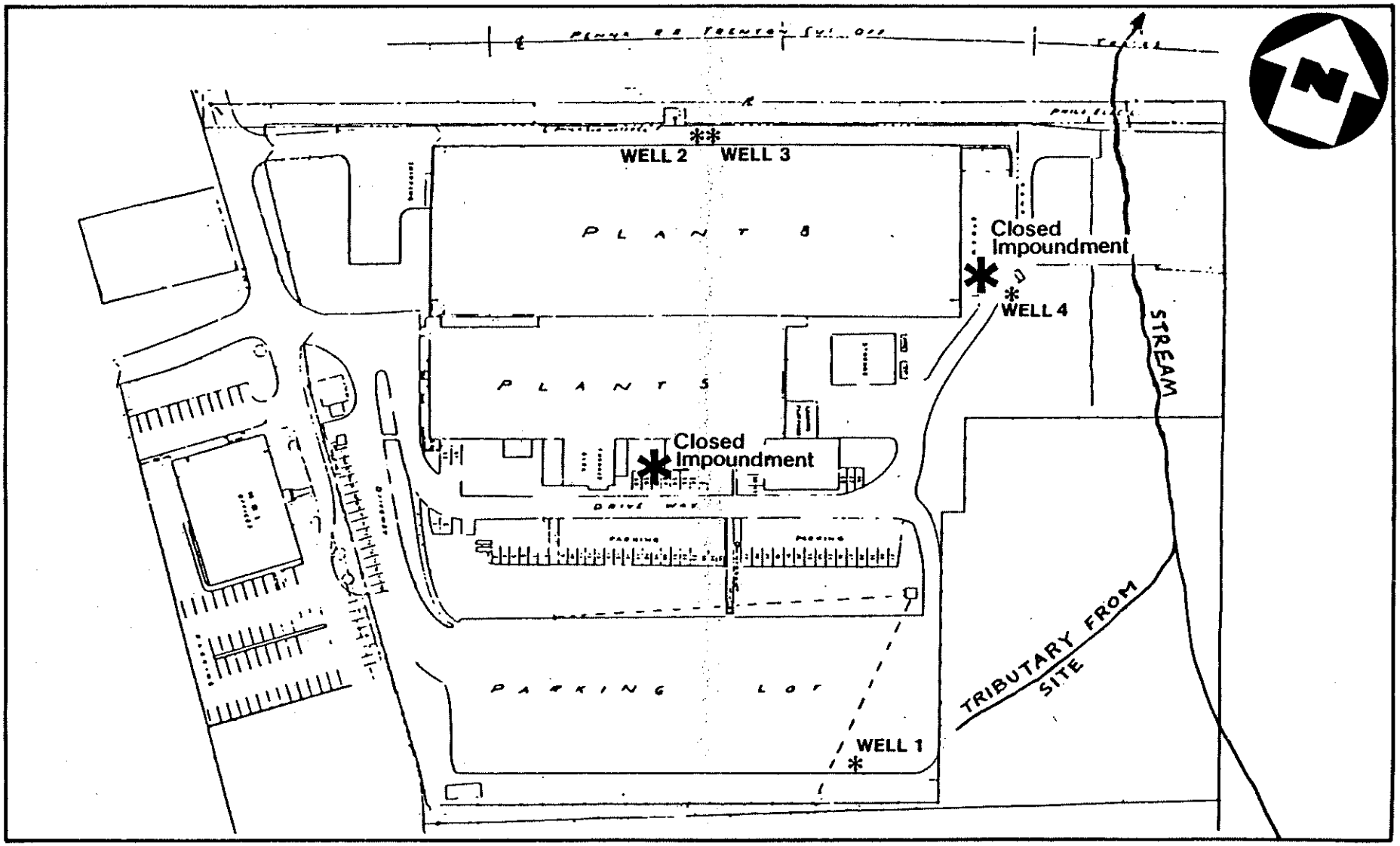
SITE LOCATION MAP

BISHOP TUBE CO., FRAZER, PA.

SCALE 1:24000

NUS CORPORATION

A Halliburton Company



SOURCE : CONSULTANTS REPORT BY : BETZ · CONVERSE · MURDOCH · INC.

FIGURE 2

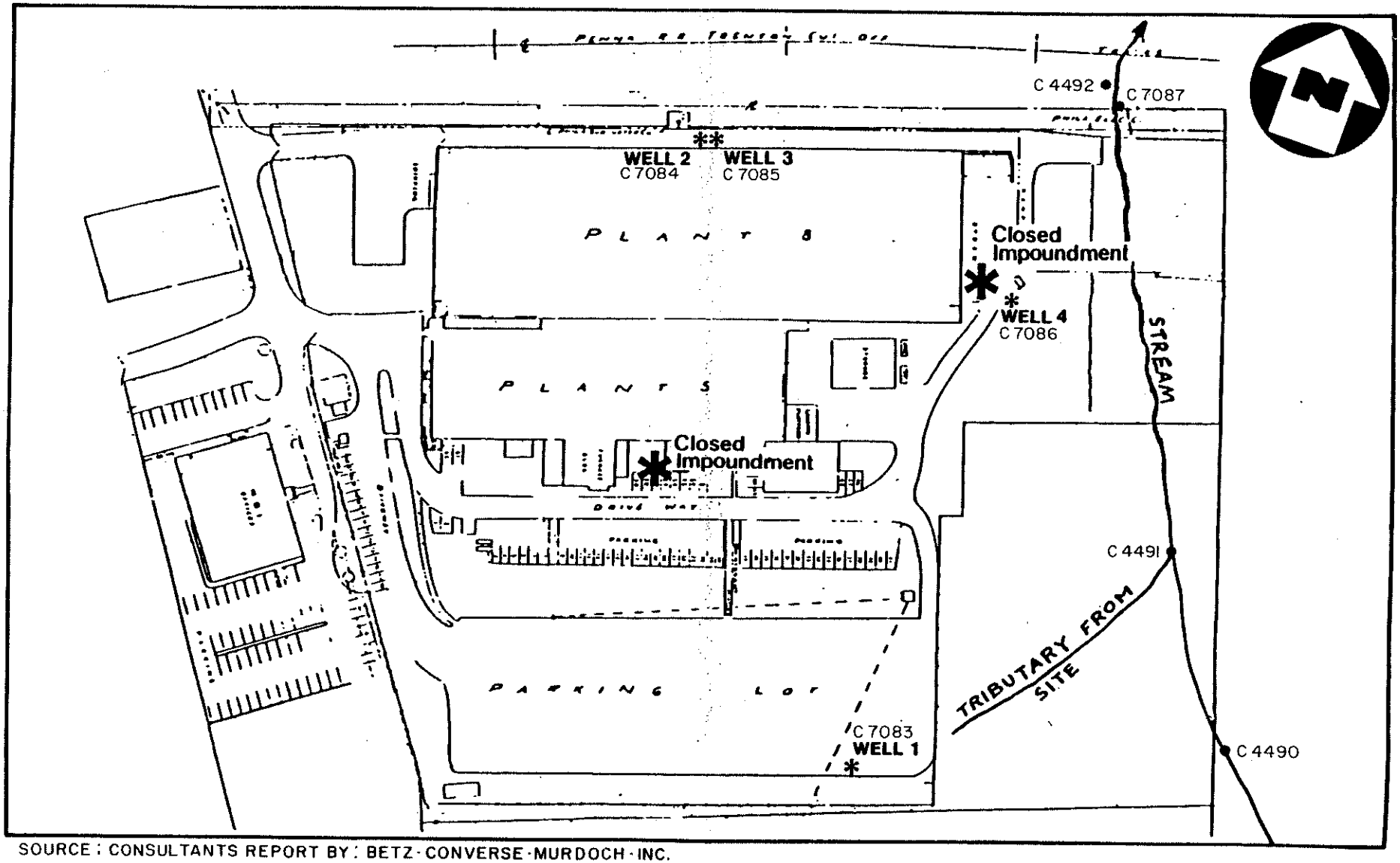
SITE SKETCH

BISHOP TUBE CO., FRAZER, PA.

(NO SCALE)

NUS CORPORATION

A Halliburton Company



SOURCE : CONSULTANTS REPORT BY : BETZ-CONVERSE-MURDOCH-INC.

SAMPLE LOCATION MAP

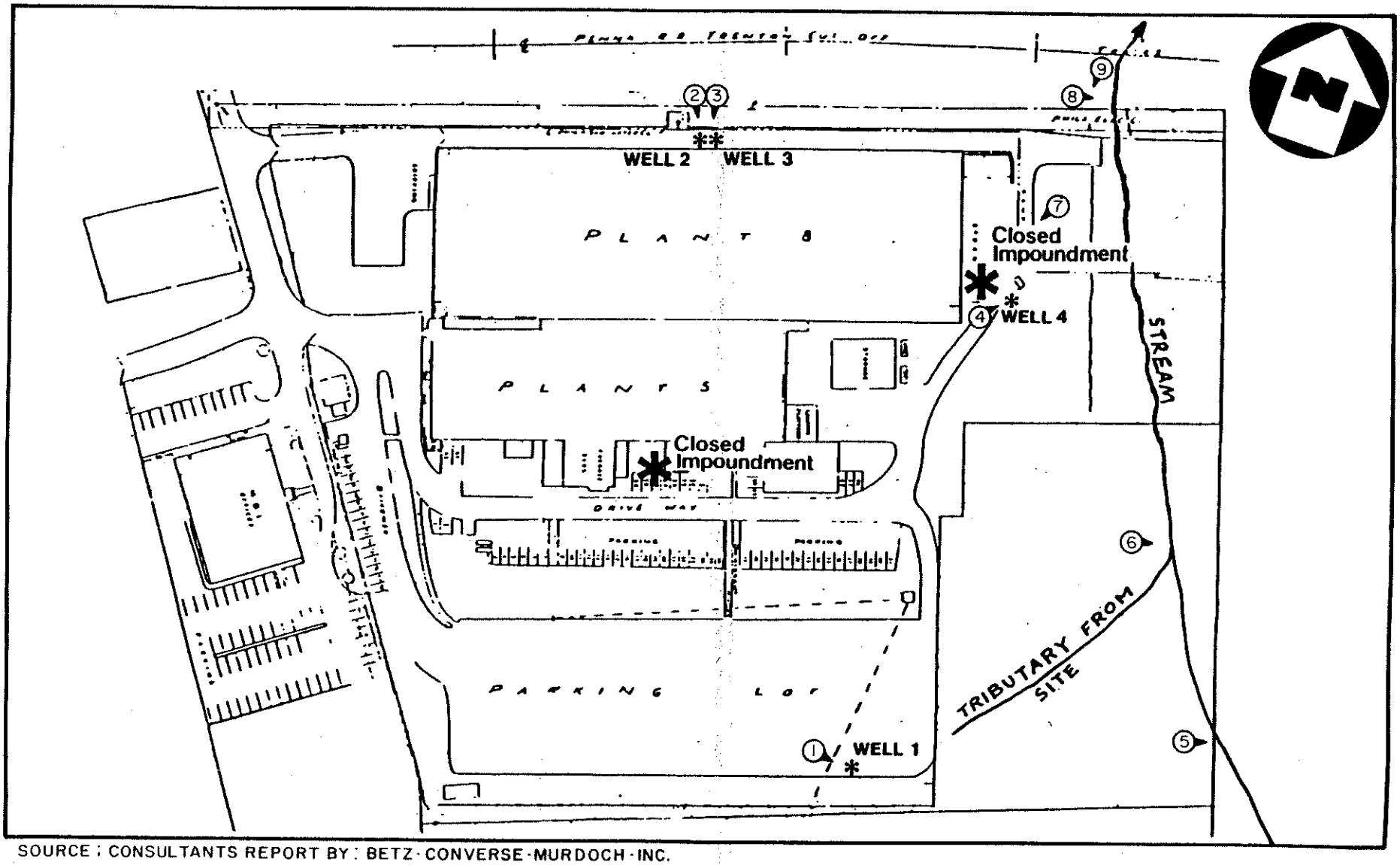
BISHOP TUBE CO., FRAZER, PA.

(NO SCALE)

FIGURE 3

NUS CORPORATION

A Halliburton Company



SOURCE : CONSULTANTS REPORT BY : BETZ · CONVERSE · MURDOCH · INC.

PHOTO LOCATION MAP

BISHOP TUBE CO., FRAZER, PA.

(NO SCALE)

FIGURE 4

NUS CORPORATION

A Halliburton Company

APPENDIX C

PROJECT NAME: Bicron Tube
TDD NO: [illegible]-1425-15

EPA SITE NO.: PA-562
REGION: III

QUALITY ASSURANCE REVIEW OF ORGANIC ANALYSIS LAB DATA PACKAGE

Case No.: 2873
Contract No.: 68-01-6861
Contract Laboratory: ERA (Environmental Research Associates)
Applicable IFB No.: WA 83-A199
Reviewer: C. SANDS
Review Date: 7/19/84

Applicable Sample No's.: C4490 C4491 C4492 (Field Blank) C4493

The organic analytical data for this case has been reviewed. The quality assurance evaluation is summarized in the following table:

Reviewer's Evaluation*	Fraction				
	VOLATILES	ACIDS	BASE/ NEUTRALS	PCB/ PEST.	TCDD
Acceptable					
Acceptable with exception(s)	1,2,3,4,5,7				
Questionable					
Unacceptable					

* Definitions of the evaluation score categories are listed on next page.

This evaluation was based upon an analysis of the review items indicated below:

- ⊘ DATA COMPLETENESS
- ⊘ BLANK ANALYSIS RESULTS
- ⊘ SURROGATE SPIKE RESULTS
- ○ MATRIX SPIKE RESULTS
- ○ DUPLICATE ANALYSIS RESULTS
- ○ EVALUATION OF CONFIRMATIONS
- ○ QUANTITATIVE CALCULATIONS
- ⊘ TARGET COMPOUND MATCHING QUALITY
- ⊘ TENTATIVELY IDENTIFIED COMPOUNDS
- ○ CHROMATOGRAPHIC SENSITIVITY CHECKS
- ⊘ DFTPP AND BFB SPECTRUM TUNE RESULTS
- ⊘ STANDARDS
- ⊘ CALIBRATION CHECK STANDARDS
- ⊘ INTERNAL STANDARDS PERFORMANCE

Data review forms are attached for each of the review items indicated above.

‡ No errors noted, no form attached.

⊘ Spot Check performed.

Comments: (1) See DATA Completeness
(2) See Blank Analysis Results
(3) See Surrogate Spike Results
(4) See Target Compound Matching Quality
(5) See Internal Standards Performance
(6) See Standards

DATA EVALUATION SCORE CATEGORIES

ACCEPTABLE: Data is within established control limits, or the data which is outside established control limits does not affect the validity of the analytical results.

ACCEPTABLE WITH EXCEPTION(S): Data is not completely within established control limits. The deficiences are identified and specific data is still valid, given certain qualifications which are listed below.

QUESTIONABLE: Data is not within established control limits. The deficiences bring the validity of the entire data set into question. However, the data validity is neither proved nor disproved by the available information.

UNACCEPTABLE: Data is not within established control limits. The deficiences imply the results are not meaningful.

DATA COMPLETENESS	CONC./MATRIX	AQ	AQ	AQ	AQ	AQ	AQ	AQ	AQ	AQ
		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
FRACTION	TRAFFIC REPORT #									
	LAB I.D. #	V109616	V109617	V109618	V109622	V109623	V109624	V109625R	V109626	V109627
VOA :	RUN DATE/TIME	6-12 11:56	6-12 15:16	6-12 16:54	6-12 7:00	6-12 2:02	6-12 9:17	6-13 3:55	6-12 12:54	6-12 17:45
	TARGET COMPOUND TAB.	✓	✓	✓	✓	✓	✓	✓	✓	✓
	TARGET COMPOUND D.L.	✓	✓	✓	✓	✓	✓	✓	✓	✓
	TENT. I.D. COMPOUND TAB.	✓	✓	✓	✓	✓	✓	✓	✓	✓
	SURROGATE RECOVERY	✓	✓	✓	✓	✓	✓	✓	✓	✓
(1) →	GC SCREEN TABULATION	MS	MS	MS	MS	MS	MS	MS	MS	MS
	GC/MS CHROMATOGRAMS	✓	✓	✓	✓	✓	✓	✓	✓	✓
	TARGET CMPD. QUAN. LIST	✓	✓	✓	✓	✓	✓	✓	✓	✓
	TARGET CMPD. SPECTRA	✓	✓	✓	✓	✓	✓	✓	✓	✓
	TENT. I.D. CMPD. Q.L.	✓	✓	✓	✓	✓	✓	✓	✓	✓
	TENT. CMPD. LIB. SRCH.	✓	✓	✓	✓	✓	✓	✓	✓	✓
(2) →	CHRO./SENS. CHECKS	2	2	2	2	2	2	2	2	2
	BFB/DFTPP TUNE DATA	✓	✓	✓	✓	✓	✓	✓	✓	✓
(3) →	I.S AREAS CHARTS	MS	MS	MS	MS	MS	MS	MS	MS	MS
(3) →	I.S. REL. RESP. FORM	MS	MS	MS	MS	MS	MS	MS	MS	MS
	RF & AMTS.: CALIB. CHK.	✓	✓	✓	✓	✓	✓	✓	✓	✓
	RF & AMTS.: 3-PT CALIB.	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Chromatograms: Calib. Chk.	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Chromatograms: 3-Pt. Calib.	✓	✓	✓	✓	✓	✓	✓	✓	✓
	LINEARITY: 3-PT. CALIB	4	4	4	4	4	4	4	4	4
	RF COMPARISON	✓	✓	✓	✓	✓	✓	✓	✓	✓
	SAMPLE/FIELD BLANK	✓	✓	✓	✓	✓	✓	✓	✓	✓
	METHOD/INSTR. BLANK	✓	✓	✓	✓	✓	✓	✓	✓	✓
	LAB DUPLICATE									
	FIELD DUP/REP									
	MAT. SPK./M. STD.	✓	✓	✓	✓	✓	✓	✓	✓	✓

COMMENTS: (1) LAB states "NO VOA Screening [illegible]."
See [illegible] [illegible]

(2) [illegible] BFB [illegible] for 3pt CAL Calib [illegible] - See support Docum[entation] and Lab Nar[rative]

(3) IS Area AND Relative Response DATA Missing

(4) Correlation coefficient Calculated instead of RSD for 3 point calibration"

See [illegible] AND on 3 point STANDARD Form

MISSING IS INFO Requested SMO 7/19/84

KEY TO DATA COMPLETENESS FORM

Abbreviation Used on Form	Description of Checklist Item
Conc./Matrix	Concentration category submitted in analysis request (low, med, hi); and matrix (sol., aq.)
Fraction	Fill in acid, base/neutral, acid/base/neutral, or volatiles analysis
Run Date/Time	Instrument run date (to be used for correlating calibration)
Target Cmpd. Tab.	Tabulated results for target compounds
Target Cmpd. D.L.	Detection limits for target compounds (actual/level indicated by screen
Tent. I.D. Cmpd. Tab.	Tabulated results for tentatively identified compounds
Surr. Rec.	Surrogate recoveries results
GC Screen Tab.	Tabulated GC screen results indicating required level of followup
GC/MS Chromatograms	Chromatograms of GC/MS analysis runs
Target Cmpd. Quan. List	Target compounds quantitation list, showing areas, ret. times
Target Cmpd. Spectra	Enhanced and unenhanced spectra of target compound hits
Tent. I.D. Cmpd. Q.L.	Quantitation list for tentatively identified compounds
Tent. Cmpd. Lib. Srch.	Spectra and library match spectra of tentatively identified compounds
Chro./Sens. Checks	EICP's and R.R.F.'s for chromatographic sensitivity checks
BFB/DFTPP Tune Data	Spectra intensity lists, and criteria comparison forms for BFB, DFTPP
I.S. Areas Charts	Internal standards area control charts and description of remedial action
I.S. Rel. Resp. Form	Internal standards relative response listings for each sample run
RF and amts.: Calib. Chk.	Tabulated response factors and amount injected for all cmpds. in calibration check
RF and amts.: 3-Pt. Calib.	Tabulated response factors and amount injected for all cmpds. in 3-point calibration
Chromatograms: Calib. Chk.	Chromatograms for calibration check standard
Chromatograms: 3-Pt. Calib.	Chromatograms for 3-point multilevel calibration standards.
Linearity: 3-Pt. Calib.	Tabulated correlation coefficient or relative standard deviation for calibration
RF Comparison	Tabulated comparison of calibration Response Factor with check standard
Sample/Field Blank	Equipment rinse or reagent water blank shipped with samples from field
Method/Instr. Blank	Method or instrument blank which is prepared at lab
Lab Duplicate	Sample which was split by lab for duplicate analysis
Field Dup/Rep	Sample which was split or collected twice in the field
Mat. Spk./M. Std.	Matrix spike or method standard (blind, or done by lab)
Pest. Tab.	Tabulated results for pesticides
Pest. D.L. Tab.	Tabulated detection limits for pesticides
Pest. Chro.	Chromatograms for pesticide screening
2nd Col. Conf.	Confirmation of pesticide results by using a second GC column and temperature
GC/MS Conf.	Confirmation of pesticide results by GC/MS analysis
Pest. Dup., Spk. Blk.	Pesticide duplicate, spike, and blank
Pest. Std. Chro.	Chromatogram of pesticide standard
Pest. Std. I.D.	Pesticide standard identification form
TCDD	2,3,7,8-tetrachlorodibenzodioxin
TCDD Tab., D.L., EICP, Blk.	TCDD tabulated results, detection limits, extracted ion current profile, blank

KEY TO SYMBOLS USED IN DATA COMPLETENESS TABLE

Symbol	Meaning	Symbol	Meaning
✓	Data item present	I	Incomplete data item
NA	Data item not applicable or not required	NC	Data item not clearly explained (units of conc., etc)
P	Data item within established control limits		
F	Data item outside established control limits	* or [number]	See footnote
MS	Missing item	XX/XX/XX XX:XX	Date/Time of run (calibration, etc.)

RUN CHRONICLE

FRACTION: [illegible]A			FRACTION:			FRACTION:		
RUN ORDER	RUN ID / DESCRIPTION	DATE / TIME	RUN ORDER	RUN ID / DESCRIPTION	DATE / TIME	RUN ORDER	RUN ID / DESCRIPTION	DATE / TIME
	V200S611A 20 ng Std	6-11 / 11:17						
	V100S611A 10 ng Std	6-11 / 12:05						
	V200S611A 20 ng Std	6-11 / [illegible]						
	V100S612A 100 ng Check Std	6-12 / 9:05						
	VBLK612A Blank	6-12 / 9:50						
	V109621 method blank	6-12 / 10:09						
	V109622 - Field blank C4493	6-12 / 11:00						
	V109623 C7083	6-12 / [illegible]						
	V109624 C7084	6-12 / [illegible]						
	V100S612B 100 ng Check Std	6-12 / 13:16						
	VBLK612C Blank	6-12 / 13:51						
	V109616 C4490	6-12 / [illegible]						
	V109617 C449[illegible]	6-12 / 15:45						
	V109618 C449[illegible]	6-12 / 16:54						
	V109622 C7055	6-12 / 17:4[illegible]						
	V109[illegible] C7056	6-12 / [illegible]						
	V100S612C 100 ng Check Std	6-12 / 21:[illegible]						
	V109619 C4492 MS	6-12 / 23:5[illegible]						
	V109[illegible] C449[illegible] MSD	6-13 / 1:57						
	VBLK612[illegible] Blank	6-12 / [illegible]						
	V109[illegible] C[illegible]	6-12 / [illegible]						
	V100S612D 100 ng [illegible]	6-12 / [illegible]						

BLANK ANALYSIS RESULTS FOR TARGET COMPOUNDS

	FRACTION	TYPE / CONC / MATRIX	SAMPLE #	SOURCE OF H_2O	CONTAMINANTS (CONCENTRATION / DETECTION LIMIT)
(1)	VOA	LAB Blank Aqueous	VBLK612A	POCOLH reported by LAB (1)	67 ng Methylene Chloride 13.4 (µg/L) / 5 µg/L 55 ng Acetone 10.9 (µg/L) / 5 µg/L 18 ng MEK (2-Butanone) 3.6 (µg/L) / 5 µg/L 2.2 ng Chlorobenzene 0.4 (µg/L) / 5 µg/L
(1)	VOA	LAB Blank Aqueous	VBLK612C		[illegible] ng Methylene Chloride 11.5 (µg/L) / 5 µg/L 34 ng Acetone 6.8 (µg/L) / 5 µg/L 20 ng MEK (2-Butanone) 4.0 (µg/L) / 5 µg/L 48 ng Vinyl Acetate 9.7 (µg/L) / 5 µg/L
(1)	VOA	Method Blank Aquemus	V109621		29 ng Methylene Chloride 5.8 (µg/L) / 5 µg/L 32 ng Acetone 6.4 (µg/L) / 5 µg/L 9.7 ng MEK (2-Butanone) 1.9 (µg/L) / 5 µg/L
(1)	VOA	Field Blank	C4493 V109622		73 ng Methylene Chloride (C) 8.8 µg/L / 5 µg/L 15 ng Acetone NDB / 5 µg/L 7.5 ng MEK (2-Butanone) NDB / 5 µg/L
(1)	VOA	LAB Blank Aqueous	VBLK612H		27 ng Methylene Chloride 5.4 µg/L / 5 µg/L 21 ng Acetone 4.1 µg/L / 5 µg/L 19 ng MEK (2-Butanone) 3.8 µg/L / 5 µg/L 43 ng Vinyl Acetate 8.7 µg/L / 5 µg/L 17 ng Trichloroethylene 3.3 µg/L / 5 µg/L
(2)	VOA	LAB Blank Aqueous	VBLK612[illegible]	(2) Inferred From Quan List	1.5 ng 1,1,1-trichloroethane 0.3 µg/L / 5 µg/L 2.8 ng Toluene 0.6 µg/L / 5 " 2.0 ng Chlorobenzene 0.4 " / 5 "
(2)	VOA	Field Blank Aqueous	C4493 V109622		3.8 ng Vinyl Acetate [illegible] µg/L / 5 µg/L 2.6 ng Toluene 0.5 " / 5 "

LABORATORY REPORTED FIELD BLANK DATA IS COMPARED WITH THE SAMPLE DATA IN A TABULATION FORM WITHIN T SAMPLE ANALYTICAL DATA SUMMARY. TENTATIVELY IDENTIFIED COMPOUNDS IN BLANKS ARE LISTED ON A SEPARATE F

COMMENTS:

(1) RESULT REPORTED BY LABORATORY AND CONFIRMED BY REVIEWER.

(2) RESULT INFERRED FROM QUANTITATION LIST, DIAGNOSTICS, CHROMATOGRAM AND/OR SPECTRA.

BLANK ANALYSIS RESULTS FOR TARGET COMPOUNDS

	FRACTION	TYPE	CONC	MATRIX	SAMPLE #	SOURCE OF H_2O	CONTAMINANTS (CONCENTRATION / DETECTION LIMIT)
(1)	VOA	LAB BLANK AQUEOUS			V3IIC[illegible]A	(2) Inferred from Quan List	166 ng Vinyl Acetate 33.6 (µg/L) / [illegible]
							2.0 ng Benzene 0.4 " / 5
							1.7 ng 2-Hexanone (MBK) 0.3 " / 5
							3.0 ng Toluene 0.6 " / 5
							2.8 ng Ethyl Benzene 0.6 " / 5
							2.1 ng Styrene 0.4 " / 5
(2)	VOA	LAB BLANK AQUEOUS			VBLK612C		3.2 ng Trichloroethylene 0.6 (µg/L) / 5
							1.9 ng Toluene 0.4 " / 5
							4.0 ng Styrene 0.8 " / 5
(2)	VOA	Method Blank AQUEOUS					222 ng Vinyl Acetate 44.4 (µg/L) / 5
							2.6 ng Toluene 0.5 " / 5

LABORATORY REPORTED FIELD BLANK DATA IS COMPARED WITH THE SAMPLE DATA IN A TABULATION FORM WITHIN T SAMPLE ANALYTICAL DATA SUMMARY. TENTATIVELY IDENTIFIED COMPOUNDS IN BLANKS ARE LISTED ON A SEPARATE F

COMMENTS:

(1) RESULT REPORTED BY LABORATORY AND CONFIRMED BY REVIEWER.

(2) RESULT INFERRED FROM QUANTITATION LIST, DIAGNOSTICS, CHROMATOGRAM AND/OR SPECTRA.

BLANK ANALYSIS RESULTS FOR TENTATIVELY IDENTIFIED COMPOUNDS

ALL TENTATIVELY IDENTIFIED COMPOUNDS FOUND IN BLANK ANALYSES ARE LISTED BELOW:

	SAMPLE #	FRACTION	SCAN #(S)	SPECTRUM MATCH INDICES TYPE	SCORE	TYPE	SCORE	ESTIMATED CONCENTRATION	COMPOUND NAME	COMMENTS
Field Blank	C4463 (V[illegible]22)	VOA						No tentatives Found		
[illegible] Blank	V03121	VOA						No tentatives Found		
3 VOA LAB Blanks	VBLK[illegible]	VOA						No tentatives Noted		
	VBLK[illegible]							No tentative sheet included — apparently		
	VBLK[illegible]							no tentative search of these 3 lab Blanks		

WATER SURROGATE PERCENT RECOVERY SUMMARY

CASE NO. 2873
LOW LEVEL X
WATER X
QC REPORT NO.

CONTRACTOR ERG. INC.
MED. LEVEL

CONTRACT NO. 68-01-6869
HIGH LEVEL
OTHER (specify)

[---------Volatile----------][----------Semi-Volatile----------]-[Pesticide-]-[-Dioxin-]

SMO Traffic Report No.	D_8 Toluene (86-119)	BFB (85-121)	D_4-1,2-Dichloroethane (77-120)	D_5-Nitrobenzene (41-120)	2-Fluorobiphenyl (44-119)	D_{14}-p-Terphenyl (33-128)	D_5-Phenol (15-96)	2-Fluorophenol (23-107)	2,4,6-Tribromophenol (20-106)	Dibutylchlorendate (67-114)**	1,2,3,4-TCDD (23-148)
C4490	137.1 *	100.8	111.4								
C4491	145.6 *	107.6	118.1								
C4492	128.1 *	95.2	102.6								
C4492 A	127.1 *	92.1	87.3								
C4492 B	130.2 *	95.9	96.0								
C4492BLK	151.8 *	100.5	119.0								
C4493	165.6 *	117.3	122.8 *								
C7083	154.9 *	115.3	110.6								
C7084	116.3	99.0	23.1 *								
C7085	109.7	99.2 *	102.7								
C7086	125.9 *	97.5	109.2								
C7087	142.2 *	101.2	112.8								
VBLK612A	138.9 *	88.2	123.7 *								
VBLK612C	134.9 *	87.9	117.8								
VBLK612H	127.1 *	91.0	114.1								

*Asterisked values are outside of QC limits
**Advisory Limit

Comments: TOTAL OF NINE WATER SAMPLES — VOA ONLY.

NA = NOT APPLICABLE.

Volatiles:	17	out of	45;	outside of QC limits
Semi-Volatiles:	NA	out of	NA;	outside of QC limits
Pesticides:	NA	out of	NA;	outside of QC limits
Dioxin:	NA	out of	NA;	outside of QC limits

Limits Revised 12/83

MATRIX SPIKE DUPLICATE/RECOVERY

CASE NO. 2873
LOW LEVEL X
WATER X
QC REPORT NO.

CONTRACTOR ERG. INC.
MED. LEVEL
SOIL/SED.

CONTRACT NO. 68-01-6569
HIGH LEVEL
OTHER (Specify)
UNITS (Circle) ug/kg (ug/L)

FRACTION	COMPOUND	CONC. SPIKE ADDED	CONC. MS	% REC.	CONC. MSD	% REC	RPD	QC %RECOVERY LIMITS* RPD	WATER	SOIL	COMMENTS
VOA SMO # C 4492	1,1-Dichloroethylene	26.1	72	276 *	49	188 *	38 *	<15%	61-145	59-177	
	Trichloroethylene	25.0	90	360 *	0	0 *	200*	<15%	71-120	62-137	COMMENT (1)
	Chlorobenzene	25.0	34	136 *	36	144*	6	<15%	75-130	60-133	
	Toluene	25.0	27	108	29	116	7	<15%	76-125	59-139	
	Benzene	25.0	36	144 *	40	160*	10	<15%	76-127	66-142	
B/N SMO #	1,2,4-Trichlorobenzene							<50%	39- 98	38-107	
	Acenaphthene							<50%	46-118	31-137	
	2,4-Dinitrotoluene							<50%	24- 96	28- 89	
	Di-N-Butylphthalate							<50%	11-117	29-135	
	Pyrene							<50%	26-127	35-142	
	N-Nitrosodi-N-Propylamine							<50%	41-116	41-126	
	1,4-Dichlorobenzene							<50%	36- 97	28-104	
ACID SMO #	Pentachlorophenol							<40%	9-103	17-109	
	Phenol							<40%	12- 89	26- 90	
	2-Chlorophenol							<40%	27-123	25-102	
	P-Chlor-M-Cresol							<40%	23- 97	26-103	
	4-Nitrophenol							<40%	10- 80	11-114	
PEST SMO #	Lindane							<40%	56-123	46-127	
	Heptachlor							<40%	40-131	35-130	
	Aldrin							<40%	40-120	34-132	
	Dieldrin							<40%	52-126	31-134	
	Endrin							<40%	56-121	42-139	
	P,p-DDT							<40%	38-127	23-134	

*Asterisked values are outside QC limits.

RPD: VOAs 2 out of 5 ; outside QC limits
B/N NA out of NA ; outside QC limits
ACID NA out of NA ; outside QC limits
PEST NA out of NA ; outside QC limits

RECOVERY: VOAs 8 out of 10 ; outside of QC limits
B/N NA out of NA ; outside of QC limits
ACID NA out of NA ; outside of QC limits
PEST NA out of NA ; outside of QC limits

(1) ZERO RECOVERY IN MSD IN DUE TO SAMPLE AMOUNT BEING LARGER THAN AMOUNT FOUND IN MSD .

*Advisory Limits
Revised 12/83

DUPLICATE ANALYSIS RESULTS

DUPLICATE TYPE (SAMPLE/SPIKE/BLANK)				C4492MS	C4492MSD				
SAMPLE NO'S									
FIELD DUPLICATE									
LAB DUPLICATE									
SAMPLE TYPE	LO,MED,HI			No Screen	No Screen				
	SOL,AQ,LIQ			Aqueous	Aqueous				
Fraction				VOA	VOA				

The relative percent difference (RPD) for each parameter group was evaluated. The duplicate analysis RPD acceptance criteria should be:

Fraction	Maximum Acceptable Percent Difference
Volatile	15%
Base/Neutral	50%
Acid	40%
Pesticides	40%

The RPDs exceeding the maximum acceptable percent difference were:

Fraction	Compound	Actual RPD		SAMPLE	CONC.	SAMPLE	CONC.	UNITS
				Spike/recovery Comparison		Spike recovery		
VOA - C4492 MS	1,1-Dichloroethene (61-145)	30	MS	276%	261/72	MSD 359%	25/49	ug/L
	Trichloroethylene (71-120)	200	MS	360%	25/90	MSD 0%	25/0	ug/L
	Chlorobenzene (75-130)	6	MS	136%	25/34	MSD 144%	25/36	ug/L
	Benzene (76-127)	10	MS	144%	25/36	MSD 160%	25/40	ug/L

Comments: 1,1-Dichloroethene, trichloroethene found in large quantities C4492. See note in Lab Narrative.

TARGET COMPOUND MATCHING QUALITY

TARGET COMPOUNDS OF QUESTIONABLE SPECTRUM OR RETENTION TIME MATCHING QUALITY ARE LISTED BELOW:

SAMPLE #	FRACTION	SCAN #(S) OB/EXP	SPECTRUM MATCH INDICES TYPE	SCORE	TYPE	SCORE	ESTIMATED CONCENTRATION	COMPOUND NAME	COMMENTS
C4490	VOA						NDB	Methylene Chloride	No spectra
							NDA	Acetone	included
							NDB	MEK	
							NDB	Vinyl Acetate	
C4491	VOA						NDB	Methylene Chloride	No Spectra
							NDB	MEK	included
C4492	VOA						NDB	Methylene Chloride	No Spectra
							NDB	MEK	INCLUDED
		376					(6 µg/L)	Vinyl Acetate	
							reject Spectra no m/e 86 present, which is parent ion of vinyl acetate (m/e) 86 See Support Documents		
		469					(2.7 µg/L)	1,2 Dichloroethane	
							present on QUAN LIST, No Spectra included, Detection Limit listed (1 µg/L)		
C4493	VOA						NDB	Acetone	No Spectra
							NDB	MEK	included
C7023	VOA						NDB	Methylene Chloride	No Spectra
							NDB	MEK	Included
C7024	VOA						NDB	Methylene Chloride	No Spectra
		253					NDB	Carbon Disulfide	Included
							WHAT BLANK IS CS_2 IN? Reviewer can't Find that Blank — Not on QUAN Lists		
		380					(3 µg/L)	1,2-Dichloroethane	
							FAIR Match But other ions present — coelutes with $C_2Cl_3F_3$ — Noted By LAB AS System Contaminant — Good match when eliminate $C_2Cl_3F_3$ ions $C_2Cl_3F_3$ concentration at least 1 order magnitude greater than 1,2-Dichloroethane		
C7025	VOA						60.0 µg/L	Vinyl Acetate — other ions present	See Support Documents
C7026	VOA						NDB	Methylene Chloride	No Spectra
							NDB	MEK	included
C7027	VOA						NDB	Methylene Chloride	
							NDB	MEK	No Spectra
					[illegible]	[illegible]	NDB	trichloroethylene	No BLANK N[illegible]
					221	rr	NDB	1,1,1-trichloroethane	Last 3 Anal[illegible]
					0	rr	NDB	1,1-Dichloroethane	Why weren't
					33	rr	NDB	1,1-Dichloroethylene	they Quantif[illegible]
					61	rr	NDB	trans-1,2-Dichloroethylene	

TENTATIVELY IDENTIFIED COMPOUND SAMPLE RESULTS

ALL TENTATIVE IDENTIFICATIONS OF CONFIDENT MATCHING QUALITY, WHICH AREN'T SUSPECTED ARTIFACTS/CONTAMINANTS, ARE LISTED BELOW:

SAMPLE #	FRACTION	SCAN #(S)	SPECTRUM MATCH INDICES				ESTIMATED CONCENTRATION	COMPOUND NAME	COMMENTS
			TYPE	SCORE	TYPE	SCORE			
C7084	VOA	170	?	85%	=	85%	(1.0 PB/L)	chlorotrifluoroethene (C_2ClF_3)	Good Match
		207	?	75%	F	76%	(2.0 PB/L)	2-Butene	Agree that this is a C4H8 hydrocarbon but could also be 3rd choice 1-Butene (purity 75%) or 3rd choice 2-methyl-1-propene (purity 75%)
		372						UNKNOWN	
C7085	VOA	410						UNKNOWN	
		607	?	92%	F	96%	(5.0 PB/L)	2,4,4-trimethylpentene (C_8H_{16})	close but not exact spectral match Agree this is probably C_8H_{16} Aliphatic Alkene, but may be another isomer

QUANTITATIVE CALCULATIONS

CALCULATION ERRORS AND CORRECTED RESULTS ARE LISTED BELOW:

(1) Chloroform %D CALCULATION Std V100S612C

RF = 0.950 TRF = 1.005

%D = $\frac{TRF - RF}{TRF}$ = $\frac{1.005 - 0.950}{1.005}$ = $\frac{.055}{1.005}$ = 2.49%

Reported 24.9% with wrong Decimal spot location

(2) Sample C7035

5 X Dilution Factor

All Detection Limits Should be elevated (X5).

APPENDIX D

U.S. ENVIRONMENTAL PROTECTION AGENCY - CLP Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

Sample Number
C 4490

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: ERG, INC.
Lab Sample ID No: 06/109616
Sample Matrix: WATER
Data Release Authorized By:

Case No: 2873
QC Report No:
Contract No.: 68-01-6369
Date Sample Received: 6/17/84

VOLATILES

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: —
DATE ANALYZED: 6/12/84
PERCENT MOISTURE: NA
CONC./DILUTION FACTOR: NA

PP #	CAS #		(ug/l or ug/kg)	
(2V)	107-02-8	acrolein	100	U
(3V)	107-13-1	acrylonitrile	100	U
(4V)	71-43-2	benzene	5	U
(6V)	56-23-5	carbon tetrachloride	5	U
(7V)	108-90-7	chlorobenzene	5	U
(10V)	107-06-2	1,2-dichloroethane	1	U
(11V)	71-55-6	1,1,1-trichloroethane	5	U
(13V)	75-34-3	1,1-dichloroethane	5	U
(14V)	79-00-5	1,1,2-trichloroethane	5	U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10	U
(16V)	75-00-3	chloroethane	10	U
(19V)	110-75-8	2-chloroethylvinyl ether	10	U
(23V)	67-66-3	chloroform	5	U
(29V)	75-35-4	1,1-dichloroethene	5	U
(30V)	156-60-5	trans-1,2-dichloroethene	5	U
(32V)	78-87-5	1,2-dichloropropane	10	U
(33V)	10061-02-6	trans-1,3-dichloropropene	5	U
	10061-01-05	cis-1,3-dichloropropene	5	U
(38V)	100-41-4	ethylbenzene	5	U
(44V)	75-09-2	methylene chloride	ND	B
(45V)	74-87-3	chloromethane	10	U
(46V)	74-83-9	bromomethane	10	U
(47V)	75-25-2	bromoform	10	U
(48V)	75-27-4	bromodichloromethane	5	U
(49V)	75-69-4	fluorotrichloromethane	10	U
(50V)	75-71-8	dichlorodifluoromethane	10	U
(51V)	124-48-1	chlorodibromomethane	10	U
(85V)	127-18-4	tetrachloroethene	5	U
(86V)	108-88-3	toluene	5	U
(87V)	79-01-6	trichloroethene	5	U
(88V)	75-01-4	vinyl chloride	10	U
	67-64-1	acetone	ND	B
	78-93-3	2-butanone	ND	B
	75-15-0	carbondisulfide	1	U
	519-78-6	2-hexanone	5	U
	108-10-1	4-methyl-2-pentanone	5	U
	100-42-5	styrene	5	U
	108-05-4	vinyl acetate	ND	B
	1330-20-7	total xylenes	5	U

PESTICIDES (BY GC)

CONCENTRATION: LOW MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED:
DATE ANALYZED:
PERCENT MOISTURE:
CONC./DILUTION FACTOR:

PP #	CAS #		(ug/l or ug/kg)
(89P)	309-00-2	aldrin	NA
(90P)	60-57-1	dieldrin	
(91P)	57-74-9	chlordane	
(92P)	50-29-3	4,4'-DDT	
(93P)	72-55-9	4,4'-DDE	
(94P)	72-54-8	4,4'-DDD	
(95P)	115-29-7	α-endosulfan	
(96P)	115-29-7	β-endosulfan	
(97P)	1031-07-8	endosulfan sulfate	
(98P)	72-20-8	endrin	
(99P)	7421-93-4	endrin aldehyde	
(100P)	76-44-8	heptachlor	
(101P)	1024-57-3	heptachlor epoxide	
(102P)	319-84-6	α-BHC	
(103P)	319-85-7	β-BHC	
(104P)	319-86-8	δ-BHC	
(105P)	58-89-9	γ-BHC (lindane)	
(106P)	53469-21-9	PCB-1242	
(107P)	11097-69-1	PCB-1254	
(108P)	11104-28-2	PCB-1221	
(109P)	11141-16-5	PCB-1232	
(110P)	12672-29-6	PCB-1248	
(111P)	11096-82-5	PCB-1260	
(112P)	12674-11-2	PCB-1016	
(113P)	8001-35-2	toxaphene	

DIOXINS

CONCENTRATION: LOW MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED:
DATE ANALYZED:
PERCENT MOISTURE:
CONC./DILUTION FACTOR:

PP #	CAS #		(ug/l or ug/kg)
(129B)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	NA

December 1983

U - Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.
K - Actual value, within the limitations of this method, is less than the value given.
CX - Compounds which were concentrated by a factor of 10 times.
B - Blank > 1/2 method D.L. and > 1/2 conc. in sample. Report ND B
C - Blank > 1/2 method D.L. and ≤ 1/2 conc. in sample. Report (corrected conc.) C

U.S. ENVIRONMENTAL PROTECTION AGENCY - CLP Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

Sample Number C 4491

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: ERG. INC.
Lab Sample ID No: 06 109617
Sample Matrix: WATER
Data Release Authorized By: [signature]

Case No: 2873
QC Report No:
Contract No.: 68-01-6869
Date Sample Received: 6/7/84

VOLATILES

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: NA
DATE ANALYZED: 6/12/84
PERCENT MOISTURE: NA
CONC./DILUTION FACTOR: NA

PP #	CAS #		ug/l or ug/kg (circle one)	
(2V)	107-02-8	acrolein	100	U
(3V)	107-13-1	acrylonitrile	100	U
(4V)	71-43-2	benzene	5	U
(6V)	56-23-5	carbon tetrachloride	5	U
(7V)	108-90-7	chlorobenzene	5	U
(10V)	107-06-2	1,2-dichloroethane	1	U
(11V)	71-55-6	1,1,1-trichloroethane	5	U
(13V)	75-34-3	1,1-dichloroethane	5	U
(14V)	79-00-5	1,1,2-trichloroethane	5	U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10	U
(16V)	75-00-3	chloroethane	10	U
(19V)	110-75-8	2-chloroethylvinyl ether	10	U
(23V)	67-66-3	chloroform	5	U
(29V)	75-35-4	1,1-dichloroethene	5	U
(30V)	156-60-5	trans-1,2-dichloroethene	5	U
(32V)	78-87-5	1,2-dichloropropane	10	U
(33V)	10061-02-6	trans-1,3-dichloropropene	5	U
	10061-01-05	cis-1,3-dichloropropene	5	U
(38V)	100-41-4	ethylbenzene	5	U
(44V)	75-09-2	methylene chloride	ND	B
(45V)	74-87-3	chloromethane	10	U
(46V)	74-83-9	bromomethane	10	U
(47V)	75-25-2	bromoform	10	U
(48V)	75-27-4	bromodichloromethane	5	U
(49V)	75-69-4	fluorotrichloromethane	10	U
(50V)	75-71-8	dichlorodifluoromethane	10	U
(51V)	124-48-1	chlorodibromomethane	10	U
(85V)	127-18-4	tetrachloroethene	5	U
(86V)	108-88-3	toluene	5	U
(87V)	79-01-6	trichloroethene	5	U
(88V)	75-01-4	vinyl chloride	10	U
	67-64-1	acetone	5	U
	78-93-3	2-butanone	ND	B
	75-15-0	carbondisulfide	1	U
	519-78-6	2-hexanone	5	U
	108-10-1	4-methyl-2-pentanone	5	U
	100-42-5	styrene	5	U
	108-05-4	vinyl acetate	5	U
	1330-20-7	total xylenes	5	U

PESTICIDES (BY GC)

CONCENTRATION: LOW MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED:
DATE ANALYZED:
PERCENT MOISTURE:
CONC./DILUTION FACTOR:

PP #	CAS #		ug/l or ug/kg (circle one)
(89P)	309-00-2	aldrin	NA
(90P)	60-57-1	dieldrin	
(91P)	57-74-9	chlordane	
(92P)	50-29-3	4,4'-DDT	
(93P)	72-55-9	4,4'-DDE	
(94P)	72-54-8	4,4'-DDD	
(95P)	115-29-7	α-endosulfan	
(96P)	115-29-7	β-endosulfan	
(97P)	1031-07-8	endosulfan sulfate	
(98P)	72-20-8	endrin	
(99P)	7421-93-4	endrin aldehyde	
(100P)	76-44-8	heptachlor	
(101P)	1024-57-3	heptachlor epoxide	
(102P)	319-84-6	α-BHC	
(103P)	319-85-7	β-BHC	
(104P)	319-86-8	δ-BHC	
(105P)	58-89-9	γ-BHC (lindane)	
(106P)	53469-21-9	PCB-1242	
(107P)	11097-69-1	PCB-1254	
(108P)	11104-28-2	PCB-1221	
(109P)	11141-16-5	PCB-1232	
(110P)	12672-29-6	PCB-1248	
(111P)	11096-82-5	PCB-1260	
(112P)	12674-11-2	PCB-1016	
(113P)	8001-35-2	toxaphene	

DIOXINS

CONCENTRATION: LOW MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED:
DATE ANALYZED:
PERCENT MOISTURE:
CONC./DILUTION FACTOR:

PP #	CAS #		ug/l or ug/kg (circle one)
(129B)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	NA

U - Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.
K - Actual value, within the limitations of this method, is less than the value given.
CX - Compounds which were concentrated by a factor of 10 times.
B - Blank > 1/2 method D.L. and > 1/2 conc. in sample. Report ND B
C - Blank > 1/2 method D.L. and ≤ 1/2 conc. in sample. Report (corrected conc.) C

U.S. ENVIRONMENTAL PROTECTION AGENCY - CLP Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

Sample Number
C 4492

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: ERG, INC.
Lab Sample ID No: 06/109618
Sample Matrix: WATER
Data Release Authorized By: [signature]

Case No: 2873
QC Report No:
Contract No.: 68-01-6369
Date Sample Received: 6/7/84

VOLATILES

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: NA
DATE ANALYZED: 6/12/84
PERCENT MOISTURE: NA
CONC./DILUTION FACTOR: NA

PP #	CAS #		ug/l or ug/kg (circle one)	
(2V)	107-02-8	acrolein	100	U
(3V)	107-13-1	acrylonitrile	100	U
(4V)	71-43-2	benzene	5	U
(6V)	56-23-5	carbon tetrachloride	5	U
(7V)	108-90-7	chlorobenzene	5	U
(10V)	107-06-2	1,2-dichloroethane	1	U
(11V)	71-55-6	1,1,1-trichloroethane	1400.0	
(13V)	75-34-3	1,1-dichloroethane	9.0	
(14V)	79-00-5	1,1,2-trichloroethane	5	U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10	U
(16V)	75-00-3	chloroethane	10	U
(19V)	110-75-8	2-chloroethylvinyl ether	10	U
(23V)	67-66-3	chloroform	5	U
(29V)	75-35-4	1,1-dichloroethene	130.0	
(30V)	156-60-5	trans-1,2-dichloroethene	150.0	
(32V)	78-87-5	1,2-dichloropropane	10	U
(33V)	10061-02-6	trans-1,3-dichloropropene	5	U
	10061-01-05	cis-1,3-dichloropropene	5	U
(38V)	100-41-4	ethylbenzene	5	U
(44V)	75-09-2	methylene chloride	ND	B
(45V)	74-87-3	chloromethane	10	U
(46V)	74-83-9	bromomethane	10	U
(47V)	75-25-2	bromoform	10	U
(48V)	75-27-4	bromodichloromethane	5	U
(49V)	75-69-4	fluorotrichloromethane	10	U
(50V)	75-71-8	dichlorodifluoromethane	10	U
(51V)	124-48-1	chlorodibromomethane	10	U
(85V)	127-18-4	tetrachloroethene	8.0	
(86V)	108-88-3	toluene	5	K
(87V)	79-01-6	trichloroethene	2024.0	C
(88V)	75-01-4	vinyl chloride	10	K
	67-64-1	acetone	5	U
	78-93-3	2-butanone	ND	B
	75-15-0	carbondisulfide	1	U
	519-78-6	2-hexanone	5	U
	108-10-1	4-methyl-2-pentanone	5	U
	100-42-5	styrene	5	U
	108-05-4	vinyl acetate	6.0	
	1330-20-7	total xylenes	5	U

PESTICIDES (BY GC)

CONCENTRATION: LOW MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED:
DATE ANALYZED:
PERCENT MOISTURE:
CONC./DILUTION FACTOR:

PP #	CAS #		ug/l or ug/kg (circle one)
(89P)	309-00-2	aldrin	NA
(90P)	60-57-1	dieldrin	
(91P)	57-74-9	chlordane	
(92P)	50-29-3	4,4'-DDT	
(93P)	72-55-9	4,4'-DDE	
(94P)	72-54-8	4,4'-DDD	
(95P)	115-29-7	α-endosulfan	
(96P)	115-29-7	β-endosulfan	
(97P)	1031-07-8	endosulfan sulfate	
(98P)	72-20-8	endrin	
(99P)	7421-93-4	endrin aldehyde	
(100P)	76-44-8	heptachlor	
(101P)	1024-57-3	heptachlor epoxide	
(102P)	319-84-6	α-BHC	
(103P)	319-85-7	β-BHC	
(104P)	319-86-8	δ-BHC	
(105P)	58-89-9	γ-BHC (lindane)	
(106P)	53469-21-9	PCB-1242	
(107P)	11097-69-1	PCB-1254	
(108P)	11104-28-2	PCB-1221	
(109P)	11141-16-5	PCB-1232	
(110P)	12672-29-6	PCB-1248	
(111P)	11096-82-5	PCB-1260	
(112P)	12674-11-2	PCB-1016	
(113P)	8001-35-2	toxaphene	

DIOXINS

CONCENTRATION: LOW MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED:
DATE ANALYZED:
PERCENT MOISTURE:
CONC./DILUTION FACTOR:

PP #	CAS #		ug/l or ug/kg (circle one)
(129B)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	NA

December 1983

U - Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.
K - Actual value, within the limitations of this method, is less than the value given.
CX - Compounds which were concentrated by a factor of 10 times.
B - Blank > 1/2 method D.L. and > 1/2 conc. in sample. Report ND B
C - Blank > 1/2 method D.L. and ≤ 1/2 conc. in sample. Report (corrected conc.) C

U.S. ENVIRONMENTAL PROTECTION AGENCY - CLP Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

Sample Number
C 4493

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: ERG, INC.
Lab Sample ID No: 06 / 109622
Sample Matrix: WATER
Data Release Authorized By:

Case No: 2873
QC Report No:
Contract No.: 68-01-6869
Date Sample Received: 6/7/84

VOLATILES

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: NA
DATE ANALYZED: 6/12/84
PERCENT MOISTURE: NA
CONC./DILUTION FACTOR: NA

PP #	CAS #		ug/l or ug/kg (circle one)	
(2V)	107-02-8	acrolein	100	U
(3V)	107-13-1	acrylonitrile	100	U
(4V)	71-43-2	benzene	5	U
(6V)	56-23-5	carbon tetrachloride	5	U
(7V)	108-90-7	chlorobenzene	5	U
(10V)	107-06-2	1,2-dichloroethane	1	U
(11V)	71-55-6	1,1,1-trichloroethane	5	U
(13V)	75-34-3	1,1-dichloroethane	5	U
(14V)	79-00-5	1,1,2-trichloroethane	5	U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10	U
(16V)	75-00-3	chloroethane	10	U
(19V)	110-75-8	2-chloroethylvinyl ether	10	U
(23V)	67-66-3	chloroform	5	U
(29V)	75-35-4	1,1-dichloroethene	5	U
(30V)	156-60-5	trans-1,2-dichloroethene	5	U
(32V)	78-87-5	1,2-dichloropropane	10	U
(33V)	10061-02-6	trans-1,3-dichloropropene	5	U
	10061-01-05	cis-1,3-dichloropropene	5	U
(38V)	100-41-4	ethylbenzene	5	U
(44V)	75-09-2	methylene chloride	8.8	C
(45V)	74-87-3	chloromethane	10	U
(46V)	74-83-9	bromomethane	10	U
(47V)	75-25-2	bromoform	10	U
(48V)	75-27-4	bromodichloromethane	5	U
(49V)	75-69-4	fluorotrichloromethane	10	U
(50V)	75-71-8	dichlorodifluoromethane	10	U
(51V)	124-48-1	chlorodibromomethane	10	U
(85V)	127-18-4	tetrachloroethene	5	U
(86V)	108-88-3	toluene	5	U
(87V)	79-01-6	trichloroethene	5	U
(88V)	75-01-4	vinyl chloride	10	U
	67-64-1	acetone	ND	B
	78-93-3	2-butanone	ND	B
	75-15-0	carbondisulfide	1	U
	519-78-6	2-hexanone	5	U
	108-10-1	4-methyl-2-pentanone	5	U
	100-42-5	styrene	5	U
	108-05-4	vinyl acetate	5	U
	1330-20-7	total xylenes	5	U

PESTICIDES (BY GC)

CONCENTRATION: LOW MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED:
DATE ANALYZED:
PERCENT MOISTURE:
CONC./DILUTION FACTOR:

PP #	CAS #		ug/l or ug/kg (circle one)
(89P)	309-00-2	aldrin	NA
(90P)	60-57-1	dieldrin	
(91P)	57-74-9	chlordane	
(92P)	50-29-3	4,4'-DDT	
(93P)	72-55-9	4,4'-DDE	
(94P)	72-54-8	4,4'-DDD	
(95P)	115-29-7	α-endosulfan	
(96P)	115-29-7	β-endosulfan	
(97P)	1031-07-8	endosulfan sulfate	
(98P)	72-20-8	endrin	
(99P)	7421-93-4	endrin aldehyde	
(100P)	76-44-8	heptachlor	
(101P)	1024-57-3	heptachlor epoxide	
(102P)	319-84-6	α-BHC	
(103P)	319-85-7	β-BHC	
(104P)	319-86-8	δ-BHC	
(105P)	58-89-9	γ-BHC (lindane)	
(106P)	53469-21-9	PCB-1242	
(107P)	11097-69-1	PCB-1254	
(108P)	11104-28-2	PCB-1221	
(109P)	11141-16-5	PCB-1232	
(110P)	12672-29-6	PCB-1248	
(111P)	11096-82-5	PCB-1260	
(112P)	12674-11-2	PCB-1016	
(113P)	8001-35-2	toxaphene	

DIOXINS

CONCENTRATION: LOW MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED:
DATE ANALYZED:
PERCENT MOISTURE:
CONC./DILUTION FACTOR:

PP #	CAS #		ug/l or ug/kg (circle one)
(129B)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	NA

December 1983

U - Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.
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CX - Compounds which were concentrated by a factor of 10 times.
B - Blank > 1/2 method D.L. and > 1/2 conc. in sample. Report ND B
C - Blank > 1/2 method D.L. and ≤ 1/2 conc. in sample. Report (corrected conc.) C

U.S. ENVIRONMENTAL PROTECTION AGENCY - CLP Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

Sample Number: C 7083

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: ERG. INC.
Lab Sample ID No: 06 109623
Sample Matrix: WATER
Data Release Authorized By: [signature]

Case No: 2373
QC Report No:
Contract No.: 68-01-6369
Date Sample Received: 6/7/84

VOLATILES

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: NA
DATE ANALYZED: 6/12/84
PERCENT MOISTURE: NA
CONC./DILUTION FACTOR: NA

PP #	CAS #		(ug/l) or ug/kg (circle one)
(2V)	107-02-8	acrolein	100 U
(3V)	107-13-1	acrylonitrile	100 U
(4V)	71-43-2	benzene	5 U
(6V)	56-23-5	carbon tetrachloride	5 U
(7V)	108-90-7	chlorobenzene	5 U
(10V)	107-06-2	1,2-dichloroethane	1 U
(11V)	71-55-6	1,1,1-trichloroethane	5 U
(13V)	75-34-3	1,1-dichloroethane	5 U
(14V)	79-00-5	1,1,2-trichloroethane	5 U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10 U
(16V)	75-00-3	chloroethane	10 U
(19V)	110-75-8	2-chloroethylvinyl ether	10 U
(23V)	67-66-3	chloroform	5 U
(29V)	75-35-4	1,1-dichloroethene	5 U
(30V)	156-60-5	trans-1,2-dichloroethene	5 U
(32V)	78-87-5	1,2-dichloropropane	10 U
(33V)	10061-02-6	trans-1,3-dichloropropene	5 U
	10061-01-05	cis-1,3-dichloropropene	5 U
(38V)	100-41-4	ethylbenzene	5 U
(44V)	75-09-2	methylene chloride	ND B
(45V)	74-87-3	chloromethane	10 U
(46V)	74-83-9	bromomethane	10 U
(47V)	75-25-2	bromoform	10 U
(48V)	75-27-4	bromodichloromethane	5 U
(49V)	75-69-4	fluorotrichloromethane	10 U
(50V)	75-71-8	dichlorodifluoromethane	10 U
(51V)	124-48-1	chlorodibromomethane	10 U
(85V)	127-18-4	tetrachloroethene	5 U
(86V)	108-88-3	toluene	5 U
(87V)	79-01-6	trichloroethene	5 U
(88V)	75-01-4	vinyl chloride	10 U
	67-64-1	acetone	5 U
	78-93-3	2-butanone	ND B
	75-15-0	carbondisulfide	1 U
	519-78-6	2-hexanone	5 U
	108-10-1	4-methyl-2-pentanone	5 U
	100-42-5	styrene	5 U
	108-05-4	vinyl acetate	5 U
	1330-20-7	total xylenes	5 U

PESTICIDES (BY GC)

CONCENTRATION: LOW MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED:
DATE ANALYZED:
PERCENT MOISTURE:
CONC./DILUTION FACTOR:

PP #	CAS #		ug/l or ug/kg (circle one)
(89P)	309-00-2	aldrin	NA
(90P)	60-57-1	dieldrin	↓
(91P)	57-74-9	chlordane	
(92P)	50-29-3	4,4'-DDT	
(93P)	72-55-9	4,4'-DDE	
(94P)	72-54-8	4,4'-DDD	
(95P)	115-29-7	α-endosulfan	
(96P)	115-29-7	β-endosulfan	
(97P)	1031-07-8	endosulfan sulfate	
(98P)	72-20-8	endrin	
(99P)	7421-93-4	endrin aldehyde	
(100P)	76-44-8	heptachlor	
(101P)	1024-57-3	heptachlor epoxide	
(102P)	319-84-6	α-BHC	
(103P)	319-85-7	β-BHC	
(104P)	319-86-8	δ-BHC	
(105P)	58-89-9	γ-BHC (lindane)	
(106P)	53469-21-9	PCB-1242	
(107P)	11097-69-1	PCB-1254	
(108P)	11104-28-2	PCB-1221	
(109P)	11141-16-5	PCB-1232	
(110P)	12672-29-6	PCB-1248	
(111P)	11096-82-5	PCB-1260	
(112P)	12674-11-2	PCB-1016	
(113P)	8001-35-2	toxaphene	↓

DIOXINS

CONCENTRATION: LOW MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED:
DATE ANALYZED:
PERCENT MOISTURE:
CONC./DILUTION FACTOR:

PP #	CAS #		ug/l or ug/kg (circle one)
(129B)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	NA

December 1983

U - Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.
K - Actual value, within the limitations of this method, is less than the value given.
CX - Compounds which were concentrated by a factor of 10 times.
B - Blank > 1/2 method D.L. and > 1/2 conc. in sample. Report ND B
C - Blank > 1/2 method D.L. and ≤ 1/2 conc. in sample. Report (corrected conc.) C

U.S. ENVIRONMENTAL PROTECTION AGENCY - CLP Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

Sample Number: C 7084

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: ERG. INC.
Lab Sample ID No: 06/109624
Sample Matrix: WATER
Data Release Authorized By: [signature]

Case No: 2873
QC Report No:
Contract No.: 68-01-6869
Date Sample Received: 6/7/84

VOLATILES

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: NA
DATE ANALYZED: 6/12/84
PERCENT MOISTURE: NA
CONC./DILUTION FACTOR: NA

PP #	CAS #		ug/l or ug/kg (circle one)
(2V)	107-02-8	acrolein	100 U
(3V)	107-13-1	acrylonitrile	100 U
(4V)	71-43-2	benzene	5 U
(6V)	56-23-5	carbon tetrachloride	5 U
(7V)	108-90-7	chlorobenzene	5 U
(10V)	107-06-2	1,2-dichloroethane	3.0
(11V)	71-55-6	1,1,1-trichloroethane	4200.0
(13V)	75-34-3	1,1-dichloroethane	41.0
(14V)	79-00-5	1,1,2-trichloroethane	5 U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10 U
(16V)	75-00-3	chloroethane	10 U
(19V)	110-75-8	2-chloroethylvinyl ether	10 U
(23V)	67-66-3	chloroform	5 K
(29V)	75-35-4	1,1-dichloroethene	690.0
(30V)	156-60-5	trans-1,2-dichloroethene	340.0
(32V)	78-87-5	1,2-dichloropropane	10 U
(33V)	10061-02-6	trans-1,3-dichloropropene	5 U
	10061-01-05	cis-1,3-dichloropropene	5 U
(38V)	100-41-4	ethylbenzene	5 U
(44V)	75-09-2	methylene chloride	ND B
(45V)	74-87-3	chloromethane	10 U
(46V)	74-83-9	bromomethane	10 U
(47V)	75-25-2	bromoform	10 U
(48V)	75-27-4	bromodichloromethane	5 U
(49V)	75-69-4	fluorotrichloromethane	10 U
(50V)	75-71-8	dichlorodifluoromethane	10 U
(51V)	124-48-1	chlorodibromomethane	10 U
(85V)	127-18-4	tetrachloroethene	21.0
(86V)	108-88-3	toluene	6.0
(87V)	79-01-6	trichloroethene	4800.0
(88V)	75-01-4	vinyl chloride	10 K
	67-64-1	acetone	5 K
	78-93-3	2-butanone	5 U
	75-15-0	carbondisulfide	ND B
	519-78-6	2-hexanone	5 U
	108-10-1	4-methyl-2-pentanone	5 U
	100-42-5	styrene	5 U
	108-05-4	vinyl acetate	5 U
	1330-20-7	total xylenes	5 U

PESTICIDES (8Y GC)

CONCENTRATION: LOW MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED:
DATE ANALYZED:
PERCENT MOISTURE:
CONC./DILUTION FACTOR:

PP #	CAS #		ug/l or ug/kg (circle one)
(89P)	309-00-2	aldrin	NA
(90P)	60-57-1	dieldrin	
(91P)	57-74-9	chlordane	
(92P)	50-29-3	4,4'-DDT	
(93P)	72-55-9	4,4'-DDE	
(94P)	72-54-8	4,4'-DDD	
(95P)	115-29-7	α-endosulfan	
(96P)	115-29-7	β-endosulfan	
(97P)	1031-07-8	endosulfan sulfate	
(98P)	72-20-8	endrin	
(99P)	7421-93-4	endrin aldehyde	
(100P)	76-44-8	heptachlor	
(101P)	1024-57-3	heptachlor epoxide	
(102P)	319-84-6	α-BHC	
(103P)	319-85-7	β-BHC	
(104P)	319-86-8	δ-BHC	
(105P)	58-89-9	γ-BHC (lindane)	
(106P)	53469-21-9	PCB-1242	
(107P)	11097-69-1	PCB-1254	
(108P)	11104-28-2	PCB-1221	
(109P)	11141-16-5	PCB-1232	
(110P)	12672-29-6	PCB-1248	
(111P)	11096-82-5	PCB-1260	
(112P)	12674-11-2	PCB-1016	
(113P)	8001-35-2	toxaphene	

DIOXINS

CONCENTRATION: LOW MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED:
DATE ANALYZED:
PERCENT MOISTURE:
CONC./DILUTION FACTOR:

PP #	CAS #		ug/l or ug/kg (circle one)
(129B)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	NA

December 1983

U - Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.
K - Actual value, within the limitations of this method, is less than the value given.
CX - Compounds which were concentrated by a factor of 10 times.
B - Blank > 1/2 method D.L. and > 1/2 conc. in sample. Report ND B
C - Blank > 1/2 method D.L. and $\leq$ 1/2 conc. in sample. Report (corrected conc.) C

U.S. ENVIRONMENTAL PROTECTION AGENCY - CLP Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

Sample Number
C 7085

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: ERG, INC.
Lab Sample ID No: 06 / 109625R
Sample Matrix: WATER
Data Release Authorized By:

Case No: 2873
QC Report No:
Contract No.: 68-01-6369
Date Sample Received: 6 / 7 / 84

VOLATILES

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: NA
DATE ANALYZED: 6 / 13 / 84
PERCENT MOISTURE: NA
CONC./DILUTION FACTOR: NA

PP #	CAS #		ug/l or ug/kg (circle one)	
(2V)	107-02-8	acrolein	100	U
(3V)	107-13-1	acrylonitrile	100	U
(4V)	71-43-2	benzene	5	U
(6V)	56-23-5	carbon tetrachloride	5	U
(7V)	108-90-7	chlorobenzene	5	U
(10V)	107-06-2	1,2-dichloroethane	1	U
(11V)	71-55-6	1,1,1-trichloroethane	7700	
(13V)	75-34-3	1,1-dichloroethane	54.0	
(14V)	79-00-5	1,1,2-trichloroethane	5	U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10	U
(16V)	75-00-3	chloroethane	10	U
(19V)	110-75-8	2-chloroethylvinyl ether	10	U
(23V)	67-66-3	chloroform	5	U
(29V)	75-35-4	1,1-dichloroethene	612.0	
(30V)	156-60-5	trans-1,2-dichloroethene	1754.0	
(32V)	78-87-5	1,2-dichloropropane	10	U
(33V)	10061-02-6	trans-1,3-dichloropropene	5	U
	10061-01-05	cis-1,3-dichloropropene	5	U
(38V)	100-41-4	ethylbenzene	5	U
(44V)	75-09-2	methylene chloride	22.0	C
(45V)	74-87-3	chloromethane	10	U
(46V)	74-83-9	bromomethane	10	U
(47V)	75-25-2	bromoform	10	U
(48V)	75-27-4	bromodichloromethane	5	U
(49V)	75-69-4	fluorotrichloromethane	10	U
(50V)	75-71-8	dichlorodifluoromethane	10	U
(51V)	124-48-1	chlorodibromomethane	10	U
(85V)	127-18-4	tetrachloroethene	43.0	
(86V)	108-88-3	toluene	5	U
(87V)	79-01-6	trichloroethene	2020	
(88V)	75-01-4	vinyl chloride	10	U
	67-64-1	acetone	5	U
	78-93-3	2-butanone	22.0	C
	75-15-0	carbondisulfide	1	U
	519-78-6	2-hexanone	5	U
	108-10-1	4-methyl-2-pentanone	5	U
	100-42-5	styrene	5	U
	108-05-4	vinyl acetate	60.0	C
	1330-20-7	total xylenes	5	U

PESTICIDES (BY GC)

CONCENTRATION: LOW MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED:
DATE ANALYZED:
PERCENT MOISTURE:
CONC./DILUTION FACTOR:

PP #	CAS #		ug/l or ug/kg (circle one)
(89P)	309-00-2	aldrin	NA
(90P)	60-57-1	dieldrin	
(91P)	57-74-9	chlordane	
(92P)	50-29-3	4,4'-DDT	
(93P)	72-55-9	4,4'-DDE	
(94P)	72-54-8	4,4'-DDD	
(95P)	115-29-7	α-endosulfan	
(96P)	115-29-7	β-endosulfan	
(97P)	1031-07-8	endosulfan sulfate	
(98P)	72-20-8	endrin	
(99P)	7421-93-4	endrin aldehyde	
(100P)	76-44-8	heptachlor	
(101P)	1024-57-3	heptachlor epoxide	
(102P)	319-84-6	α-BHC	
(103P)	319-85-7	β-BHC	
(104P)	319-86-8	δ-BHC	
(105P)	58-89-9	γ-BHC (lindane)	
(106P)	53469-21-9	PCB-1242	
(107P)	11097-69-1	PCB-1254	
(108P)	11104-28-2	PCB-1221	
(109P)	11141-16-5	PCB-1232	
(110P)	12672-29-6	PCB-1248	
(111P)	11096-82-5	PCB-1260	
(112P)	12674-11-2	PCB-1016	
(113P)	8001-35-2	toxaphene	

DIOXINS

CONCENTRATION: LOW MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED:
DATE ANALYZED:
PERCENT MOISTURE:
CONC./DILUTION FACTOR:

PP #	CAS #		ug/l or ug/kg (circle one)
(129B)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	NA

December 1983

U - Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.
K - Actual value, within the limitations of this method, is less than the value given.
CX - Compounds which were concentrated by a factor of 10 times.
B - Blank > 1/2 method D.L. and > 1/2 conc. in sample. Report ND B
C - Blank > 1/2 method D.L. and $\leq$ 1/2 conc. in sample. Report (corrected conc.) C

U.S. ENVIRONMENTAL PROTECTION AGENCY - CLP Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

Sample Number
C 7086

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: ERG, INC.
Lab Sample ID No: 00 / 109626
Sample Matrix: WATER
Data Release Authorized By:
Case No: 2873
QC Report No:
Contract No.: 68-01-6369
Date Sample Received: 6/7/84

VOLATILES

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: NA
DATE ANALYZED: 6/12/84
PERCENT MOISTURE: NA
CONC./DILUTION FACTOR: NA

PP #	CAS #		ug/l or ug/kg (circle one)
(2V)	107-02-8	acrolein	100 U
(3V)	107-13-1	acrylonitrile	100 U
(4V)	71-43-2	benzene	5 U
(6V)	56-23-5	carbon tetrachloride	5 U
(7V)	108-90-7	chlorobenzene	5 U
(10V)	107-06-2	1,2-dichloroethane	1 U
(11V)	71-55-6	1,1,1-trichloroethane	45.0 C
(13V)	75-34-3	1,1-dichloroethane	14.0 C
(14V)	79-00-5	1,1,2-trichloroethane	5 U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10 U
(16V)	75-00-3	chloroethane	10 U
(19V)	110-75-8	2-chloroethylvinyl ether	10 U
(23V)	67-66-3	chloroform	5 U
(29V)	75-35-4	1,1-dichloroethene	29.0 C
(30V)	156-60-5	trans-1,2-dichloroethene	2700.0 C
(32V)	78-87-5	1,2-dichloropropane	10 U
(33V)	10061-02-6	trans-1,3-dichloropropene	5 U
	10061-01-05	cis-1,3-dichloropropene	5 U
(38V)	100-41-4	ethylbenzene	5 U
(44V)	75-09-2	methylene chloride	ND B
(45V)	74-87-3	chloromethane	10 U
(46V)	74-83-9	bromomethane	10 U
(47V)	75-25-2	bromoform	10 U
(48V)	75-27-4	bromodichloromethane	5 U
(49V)	75-69-4	fluorotrichloromethane	10 U
(50V)	75-71-8	dichlorodifluoromethane	10 U
(51V)	124-48-1	chlorodibromomethane	10 U
(85V)	127-18-4	tetrachloroethene	160.0
(86V)	108-88-3	toluene	5 U
(87V)	79-01-6	trichloroethene	4800.0
(88V)	75-01-4	vinyl chloride	44.0
	67-64-1	acetone	5 U
	78-93-3	2-butanone	ND B
	75-15-0	carbondisulfide	1 U
	519-78-6	2-hexanone	5 U
	108-10-1	4-methyl-2-pentanone	5 U
	100-42-5	styrene	5 U
	108-05-4	vinyl acetate	5 U
	1330-20-7	total xylenes	5 U

PESTICIDES (BY GC)

CONCENTRATION: LOW MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED:
DATE ANALYZED:
PERCENT MOISTURE:
CONC./DILUTION FACTOR:

PP #	CAS #		ug/l or ug/kg (circle one)
(89P)	309-00-2	aldrin	NA
(90P)	60-57-1	dieldrin	
(91P)	57-74-9	chlordane	
(92P)	50-29-3	4,4'-DDT	
(93P)	72-55-9	4,4'-DDE	
(94P)	72-54-8	4,4'-DDD	
(95P)	115-29-7	α-endosulfan	
(96P)	115-29-7	β-endosulfan	
(97P)	1031-07-8	endosulfan sulfate	
(98P)	72-20-8	endrin	
(99P)	7421-93-4	endrin aldehyde	
(100P)	76-44-8	heptachlor	
(101P)	1024-57-3	heptachlor epoxide	
(102P)	319-84-6	α-BHC	
(103P)	319-85-7	β-BHC	
(104P)	319-86-8	δ-BHC	
(105P)	58-89-9	γ-BHC (lindane)	
(106P)	53469-21-9	PCB-1242	
(107P)	11097-69-1	PCB-1254	
(108P)	11104-28-2	PCB-1221	
(109P)	11141-16-5	PCB-1232	
(110P)	12672-29-6	PCB-1248	
(111P)	11096-82-5	PCB-1260	
(112P)	12674-11-2	PCB-1016	
(113P)	8001-35-2	toxaphene	

DIOXINS

CONCENTRATION: LOW MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED:
DATE ANALYZED:
PERCENT MOISTURE:
CONC./DILUTION FACTOR:

PP #	CAS #		ug/l or ug/kg (circle one)
(129B)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	NA

December 1983

U - Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.
K - Actual value, within the limitations of this method, is less than the value given.
CX - Compounds which were concentrated by a factor of 10 times.
B - Blank > 1/2 method D.L. and > 1/2 conc. in sample. Report ND B
C - Blank > 1/2 method D.L. and $\leq$ 1/2 conc. in sample. Report (corrected conc.) C

STANDARDS

U.S. ENVIRONMENTAL PROTECTION AGENCY - CLP Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313 - 703/557-2490

Sample Number
C 7087

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: ERG, INC.
Lab Sample ID No: 06/109627
Sample Matrix: WATER
Data Release Authorized By:

Case No: 2373
QC Report No:
Contract No.: 68-01-6869
Date Sample Received: 6/7/84

VOLATILES

CONCENTRATION: (LOW) MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED: NA
DATE ANALYZED: 6/12/84
PERCENT MOISTURE: NA
CONC./DILUTION FACTOR: NA

PP #	CAS #		(ug/l or ug/kg (circle one))	
(2V)	107-02-8	acrolein	100	U
(3V)	107-13-1	acrylonitrile	100	U
(4V)	71-43-2	benzene	5	U
(6V)	56-23-5	carbon tetrachloride	5	U
(7V)	108-90-7	chlorobenzene	5	U
(10V)	107-06-2	1,2-dichloroethane	1	U
(11V)	71-55-6	1,1,1-trichloroethane	ND	B
(13V)	75-34-3	1,1-dichloroethane	ND	B
(14V)	79-00-5	1,1,2-trichloroethane	5	U
(15V)	79-34-5	1,1,2,2-tetrachloroethane	10	U
(16V)	75-00-3	chloroethane	10	U
(19V)	110-75-8	2-chloroethylvinyl ether	10	U
(23V)	67-66-3	chloroform	5	U
(29V)	75-35-4	1,1-dichloroethene	ND	B
(30V)	156-60-5	trans-1,2-dichloroethene	ND	B
(32V)	78-87-5	1,2-dichloropropane	10	U
(33V)	10061-02-6	trans-1,3-dichloropropene	5	U
	10061-01-05	cis-1,3-dichloropropene	5	U
(38V)	100-41-4	ethylbenzene	5	U
(44V)	75-09-2	methylene chloride	ND	B
(45V)	74-87-3	chloromethane	10	U
(46V)	74-83-9	bromomethane	10	U
(47V)	75-25-2	bromoform	10	U
(48V)	75-27-4	bromodichloromethane	5	U
(49V)	75-69-4	fluorotrichloromethane	10	U
(50V)	75-71-8	dichlorodifluoromethane	10	U
(51V)	124-48-1	chlorodibromomethane	10	U
(85V)	127-18-4	tetrachloroethene	5	U
(86V)	108-88-3	toluene	5	U
(87V)	79-01-6	trichloroethene	ND	B
(88V)	75-01-4	vinyl chloride	10	U
	67-64-1	acetone	5	U
	78-93-3	2-butanone	ND	B
	75-15-0	carbondisulfide	1	U
	519-78-6	2-hexanone	5	U
	108-10-1	4-methyl-2-pentanone	5	U
	100-42-5	styrene	5	U
	108-05-4	vinyl acetate	5	U
	1330-20-7	total xylenes	5	U

PESTICIDES (BY GC)

CONCENTRATION: LOW MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED:
DATE ANALYZED:
PERCENT MOISTURE:
CONC./DILUTION FACTOR:

PP #	CAS #		(ug/l or ug/kg (circle one))
(89P)	309-00-2	aldrin	NA
(90P)	60-57-1	dieldrin	
(91P)	57-74-9	chlordane	
(92P)	50-29-3	4,4'-DDT	
(93P)	72-55-9	4,4'-DDE	
(94P)	72-54-8	4,4'-DDD	
(95P)	115-29-7	α-endosulfan	
(96P)	115-29-7	β-endosulfan	
(97P)	1031-07-8	endosulfan sulfate	
(98P)	72-20-8	endrin	
(99P)	7421-93-4	endrin aldehyde	
(100P)	76-44-8	heptachlor	
(101P)	1024-57-3	heptachlor epoxide	
(102P)	319-84-6	α-BHC	
(103P)	319-85-7	β-BHC	
(104P)	319-86-8	δ-BHC	
(105P)	58-89-9	γ-BHC (lindane)	
(106P)	53469-21-9	PCB-1242	
(107P)	11097-69-1	PCB-1254	
(108P)	11104-28-2	PCB-1221	
(109P)	11141-16-5	PCB-1232	
(110P)	12672-29-6	PCB-1248	
(111P)	11096-82-5	PCB-1260	
(112P)	12674-11-2	PCB-1016	
(113P)	8001-35-2	toxaphene	

DIOXINS

CONCENTRATION: LOW MEDIUM HIGH (circle one)
DATE EXTRACTED/PREPARED:
DATE ANALYZED:
PERCENT MOISTURE:
CONC./DILUTION FACTOR:

PP #	CAS #		(ug/l or ug/kg (circle one))
(129B)	1746-01-6	2,3,7,8-tetrachlorodibenzo-p-dioxin	NA

December 1983

STANDARDS

U - Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.
K - Actual value, within the limitations of this method, is less than the value given.
CX - Compounds which were concentrated by a factor of 10 times.
B - Blank > 1/2 method D.L. and > 1/2 conc. in sample. Report ND B
C - Blank > 1/2 method D.L. and $\leq$ 1/2 conc. in sample. Report (corrected conc.) C

APPENDIX E

EPA Notification of Hazardous Waste Site

United States Environmental Protection Agency Washington DC 20460

This initial notification information is required by Section 103(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and must be mailed by June 9, 1981.

Please type or print in ink. If you need additional space, use separate sheets of paper, indicate the letter of the item which applies.

A Person Required to Notify:
Enter the name and address of the person or organization required to notify.

Name: Johnson Matthey Inc.
Street: 4 Malin Road
City: Malvern State: PA Zip Code: 19355

B Site Location:
Enter the common name (if known) and actual location of the site.

Name of Site: Bishop Tube Co.
Street: Route 30 and Malin Road
City: Malvern County: Chester State: PA Zip Code: 19355

PAD-08-136-3304

C Person to Contact:
Enter the name, title (if applicable), and business telephone number of the person to contact regarding information submitted on this form.

Name (Last, First and Title): Curtis, Barbara Environ. Specialist
Phone: (215) 648-8278

D Dates of Waste Handling:
Enter the years that you estimate waste treatment, storage, or disposal began and ended at the site.

From (Year): 1951 To (Year): 1979 - disposal ended by Bishop Tube Co.
1969 - sold to Whittaker Corp.

E Waste Type: Choose the option you prefer to complete

Option 1: Select general waste types and source categories. If you do not know the general waste types or sources, you are encouraged to describe the site in Item I—Description of Site.

General Type of Waste: Place an X in the appropriate boxes. The categories listed overlap. Check each applicable category.

1. ☐ Organics
2. ☐ Inorganics
3. ☐ Solvents
4. ☐ Pesticides
5. ☐ Heavy metals
6. ☒ Acids
7. ☐ Bases
8. ☐ PCBs
9. ☐ Mixed Municipal Waste
10. ☐ Unknown
11. ☒ Other (Specify) Non EP Toxic Metals

Source of Waste: Place an X in the appropriate boxes.

1. ☐ Mining
2. ☐ Construction
3. ☐ Textiles
4. ☐ Fertilizer
5. ☐ Paper/Printing
6. ☐ Leather Tanning
7. ☐ Iron/Steel Foundry
8. ☐ Chemical, General
9. ☐ Plating/Polishing
10. ☐ Military/Ammunition
11. ☐ Electrical Conductors
12. ☐ Transformers
13. ☐ Utility Companies
14. ☐ Sanitary Refuse
15. ☐ Photofinish
16. ☐ Lab Hospital
17. ☐ Unknown
18. ☒ Other (Specify) Stainless Steel pickling

Option 2: This option is available to persons familiar with the Resource Conservation and Recovery Act (RCRA) Section 3001 regulations (40 CFR Part 261).

Specific Type of Waste:
EPA has assigned a four-digit number to each hazardous waste listed in the regulations under Section 3001 of RCRA. Enter the appropriate four-digit number in the boxes provided. A copy of the list of hazardous wastes and codes can be obtained by contacting the EPA Region serving the State in which the site is located.

Form Approved OMB No. 2060-0138

Notification of Hazardous Waste Site — Side Two

F Waste Quantity

Place an X in the appropriate boxes to indicate the facility types found at the site.

In the "total facility waste amount" space give the estimated combined quantity (volume) of hazardous wastes at the site using cubic feet or gallons.

In the "total facility area" space, give the estimated area size which the facilities occupy using square feet or acres.

Facility Type

1. ☐ Piles
2. ☐ Land Treatment
3. ☐ Landfill
4. ☐ Tanks
5. ☐ Impoundment
6. ☒ Underground Injection
7. ☐ Drums, Above Ground
8. ☐ Drums, Below Ground
9. ☐ Other (Specify) _____

Total Facility Waste Amount

cubic feet: Note (A)

gallons: Note (A)

Total Facility Area

square feet: 360

acres: _____

G Known, Suspected or Likely Releases to the Environment:

Place an X in the appropriate boxes to indicate any known, suspected, or likely releases of wastes to the environment.

☐ Known ☐ Suspected ☐ Likely ☐ None

Note (B)

Note: Items H and I are optional. Completing these items will assist EPA and State and local governments in locating and assessing hazardous waste sites. Although completing the items is not required, you are encouraged to do so.

H ~~Sketch Map of Site Location.~~ (Optional)

Sketch a map showing streets, highways, routes or other prominent landmarks near the site. Place an X on the map to indicate the site location. Draw an arrow showing the direction north. You may substitute a publishing map showing the site location.

(A) The amount of hazardous waste to be found at the site is unknown due to the unavailability of data as to the amount rendered non-hazardous by natural process. Approximately 8,000 gallons of acid waste was discharged per year in a stream containing 3.25 million gallons of non-hazardous waste water.

I Description of Site: (Optional)

Describe the history and present conditions of the site. Give directions to the site and describe any nearby wells, springs, lakes, or housing. Include such information as how waste was disposed and where the waste came from. Provide any other information or comments which may help describe the site conditions.

J. Bishop & Co. Platinum Works opened the site in 1951. The name was changed to Matthey Bishop, Inc. in 1967. Matthey Bishop sold the Plant as Bishop Tube Co. to the Whittaker Corporation on 31 March, 1969. Whittaker sold it to Christiana Metals on 7 January, 1974. The Plant is now called: Bishop Tube Co., Division of Christiana Metals Corp. Matthey Bishop changed its name to Johnson Matthey Inc. on 1 April, 1980.

(B) Unknown. No release of hazardous waste from the above facility has been observed or detected, however, the possibility of some release cannot be discounted.

In the absence of recorded data, it has been necessary to compile the foregoing data on the basis of the personal knowledge, recollection and estimates of currently employed personnel of Bishop Tube Co.

J Signature and Title:

The person or authorized representative (such as plant managers, superintendents, trustees or attorneys) of persons required to notify must sign the form and provide a mailing address (if different than address in item A). For other persons providing notification, the signature is optional. Check the boxes which best describe the relationship to the site of the person required to notify. If you are not required to notify check "Other"

Name: Johnson Matthey Inc.

Street: 4 Malin Road

City: Malvern State: PA Zip Code: 19355

Signature: _____ Date: 6/8/81

Howard S. Roberts
Senior Vice President

☐ Owner, Present
☒ Owner, Past
☐ Transporter
☐ Operator, Present
☒ Operator, Past
☐ Other

APPENDIX F

ıries 1959, No. 19

Issued May 1963

SOIL SURVEY

Chester and Delaware Counties, Pennsylvania

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
In cooperation with
PENNSYLVANIA STATE UNIVERSITY
College of Agriculture and Agricultural Experiment Station
and the
PENNSYLVANIA DEPARTMENT OF AGRICULTURE
Soil Conservation Commission

discontinuous films of silt on peds; friable; medium acid (pH 5.8); gradual, wavy lower boundary; 8 to 10 inches thick.

D_1 24 to 50 inches, yellowish-red (5YR 5/6) silt loam; common, medium, distinct mottles of gray (10YR 5/1); thick, platy structure that breaks to pieces that subdivide into moderate fine, subangular blocky structure; firm; strongly acid (pH 5.2).

The variations in this soil are in the thickness and color of the horizons. The texture of the subsoil ranges from loam to silty clay loam. The parent material consists of alluvium washed from the Hagerstown or Conestoga soils. In a few places the alluvium has been transported for short distances through areas of soils underlain by mica, schist, or quartzite.

The Lindside soils are moderately permeable. They have high available moisture capacity and are moderately high in fertility. In most places the soils are free of stones. They are saturated for prolonged periods and have mottles in the lower part of the subsoil. In most places they are subject to occasional and light overflow and deposition.

Lindside silt loam (Ls).—The profile of this soil is the same as the profile described as typical for the series.

This soil is used mostly for pasture or hay, but corn and small grain also grow well. The soil is productive and has high available moisture capacity. Ash, sycamore, hickory, white oak, red oak, and tulip-poplar grow well on this soil.

The soil is in capability unit IIw–2; woodland group 8; and group 13 for building sites.

Made Land

Made land consists of areas in which the soil has been covered by other materials or from which the soil has been moved about or removed to provide materials for urban or industrial development. Because the areas consist of variable materials, they have not been given a capability classification or a woodland suitability classification. They have, however, been included in the groups for building sites.

Made land, gravelly materials (Ma).—This miscellaneous land type consists of areas in which the profile of the normal soil has been destroyed or covered by earthmoving equipment used for urban or industrial development. In these areas the soil materials consist of sand, gravel, and clay in various mixtures, but gravelly materials predominate. This mapping unit is in group 1 for building sites.

Made land, silt and clay materials (Mc).—This miscellaneous land type consists of areas in which the profile of the normal soil has been destroyed or covered by earthmoving equipment. In most places the exposed materials consist of silt and clay, but small areas of sandy and gravelly materials are intermingled with the silt and clay This unit is in group 3 for building sites.

Made land, gabbro and diabase materials (Md).—This miscellaneous land type consists of areas that have been graded or filled and the profile of the normal soil destroyed or covered. Large, grayish-brown boulders of diabase, and coarse-grained, salt-and-pepper colored boulders of gabbro make up most of the mass of material; the rest consists mainly of a mixture of reddish silty clay loam or clay from the subsoil and gray to brown silt loam from the surface layer. This mapping unit is in group 3 for building sites.

Made land, schist and gneiss materials (Me).—This miscellaneous land type consists of areas in which the profile of the normal soil has been destroyed or covered by earthmoving equipment used for urban or industrial development. In these areas the soil material consists of a mixture of grayish-brown material from the surface layer, silt loam from the subsoil, and partially weathered micaceous schist and gneiss rocks. This unit is in group 1 for building sites.

Made land, sanitary land fill (Mf).—This miscellaneous land type is made up of alternate layers of soil material and trash and has been compacted by heavy equipment. It is in group 5 for building sites.

Manor Series

The Manor series consists of shallow, well-drained soils of uplands. The soils occur in both Chester and Delaware Counties, but in Chester County they are more common south of Chester Valley. The parent material of these soils is mostly mica, schist, and gneiss. The schist is fairly soft and weathers easily. The soils formed on schist appear to be deep, but, actually, they have little development in the B horizon. The soils formed on gneiss are shallow over bedrock in many places.

The Manor soils have a dark-brown surface layer. Their subsoil is yellowish red or yellowish brown and is micaceous. In many places the soil has a slippery or greasy feeling caused mainly by the abundance of mica that it contains. The native forest consisted mostly of red oak, white oak, chestnut, hickory, black oak, tulip-poplar, and beech.

The Manor soils are near the deep, well-drained Chester soils and the moderately deep, well-drained Glenelg soils. They are also near the Glenville and Worsham soils, but they are shallower and better drained than those soils.

Typical profile of Manor loam, 8 to 15 percent slopes, moderately eroded:

A_p 0 to 7 inches, dark-brown (10YR 4/3) loam; weak, fine, granular structure; very friable; very strongly acid (pH 5.0); clear, smooth lower boundary; 6 to 8 inches thick.

B_2 7 to 13 inches, yellowish-red (5YR 4/8) loam; weak, fine, granular structure; friable; strongly acid (pH 5.2); gradual, wavy lower boundary; 5 to 8 inches thick.

B_3 13 to 21 inches, yellowish-brown (10YR 5/6), smooth loam; weak, fine, subangular blocky structure; friable; strongly acid (pH 5.4); gradual, wavy lower boundary; 8 to 12 inches thick.

C 21 to 50 inches, dark yellowish-brown (10YR 4/4) very fine sandy loam containing yellow (10YR 7/6) lenses that are ½ inch thick; weak, medium, somewhat platy structure that breaks to weak, fine, granular structure; loose to very friable; medium acid (pH 5.6).

The texture of the surface layer is loam or light silt loam. The color of the surface layer ranges from pale brown to dark grayish brown, and that of the subsoil, from yellowish brown to reddish brown. Depth to bedrock ranges from 15 inches in some places that are underlain by gneiss to between 8 and 10 feet in soils that are underlain by mica schist.

In most places the subsoil is very micaceous and is underlain by highly weathered mica schist. The mica schist is interspersed with partially disintegrated fragments of rock. In some areas near South Valley Hills, where the underlying rocks are albite-chlorite schist, 40 to 60 percent of the profile, by volume, consists of frag-

ments of schist. The fragments vary in size. They are as much as 3 or 4 inches across and ½ inch to 2 inches thick.

Manor loam, 0 to 3 percent slopes, moderately eroded (MgA2).—In this soil depth to the C horizon is greater than in the profile described as typical for the series. In most places, however, part of the original surface layer has been lost through erosion. In a few places the surface layer has been removed for use as casing soil in mushroom houses.

Manor loam, 0 to 3 percent slopes, moderately eroded, is easy to work. It has moderate to low available moisture capacity, and its productivity is moderately low.

If this soil is managed properly, most farm crops grow fairly well on it. Contour cultivation is needed to help control erosion. A cropping system is needed in which grasses and legumes are grown every 3 or 4 years. Large amounts of lime and fertilizer are required. Red oak, black oak, chestnut oak, hickory, and tulip-poplar grow well on this soil.

The soil is in capability unit IIs–1; woodland group 13; and group 5 for building sites.

Manor loam, 3 to 8 percent slopes, moderately eroded (MgB2).—Except that depth to parent material is greater, the profile of this soil is similar to the one described as typical for the series. The soil has lost about 50 percent of its original surface layer through erosion.

Most of this soil is easy to work. It has moderate to low available moisture capacity and is moderately to highly permeable.

This soil is moderately well suited to the general farm crops grown in the area. Contour stripcropping and diversion terraces will help to control erosion. Growing a sod crop of grasses and legumes at least 50 percent of the time also helps to control erosion and increases the supply of organic matter in the soil. Red oak, white oak, black oak, tulip-poplar, and hickory grow well on this soil.

The soil is in capability unit IIe–5; woodland group 13; and group 5 for building sites.

Manor loam, 3 to 8 percent slopes, severely eroded (MgB3).—This soil has lost nearly all of the original surface layer through erosion, and part of the subsoil has been mixed with the remaining surface soil. Otherwise, the profile is similar to the one described as typical for the series. In a few places the surface layer has been removed to provide casing soil for use in mushroom houses.

This soil can be used for small grain, but it is better suited to hay or pasture. If the soil is cultivated, it should be tilled on the contour to help control erosion. Diversion terraces would be needed. The soil is well suited to a permanent cover of hay or pasture. Large amounts of fertilizer and lime are needed for adequate yields. The lime and fertilizer should be applied according to the needs indicated by soil tests. Red oak, black oak, chestnut oak, and hickory grow fairly well on this soil.

The soil is in capability unit IIIe–4; woodland group 13; and group 5 for building sites.

Manor loam, 8 to 15 percent slopes (MgC).—Most of this inextensive soil is wooded. It has a layer of leaf mold, about 1 inch thick, on the surface. Just beneath the leaf mold is an A_1 horizon, 2 inches thick, of dark grayish-brown loam that is very friable and contains many roots. The A_2 horizon, underlying the A_1, consists of dark-brown silt loam, 4 to 6 inches thick that contains 15 to 20 percent, by volume, of fragments of schist. The profile underlying the A_2 horizon is similar to the on described as typical for the series, except that the dept to parent material is between 20 and 24 inches.

This soil is moderately permeable and has moderat available moisture capacity. If cleared, it is well suite to hay or pasture. Its use for row crops and small grai is limited. If this soil is used for tilled crops, contou stripcropping and diversion terraces are needed to contro erosion. A hay crop is needed 2 years out of 4 to hel maintain organic matter in the soil. Red oak, black oak white oak, beech, chestnut oak, and hickory grow fairl well on this soil.

The soil is in capability unit IIIe–4; woodland grou 15; and group 6 for building sites.

Manor loam, 8 to 15 percent slopes, moderately erode (MgC2).—The profile of this soil is the one described a typical for the series.

This soil is fairly well suited to the general farm crop grown in this area. Its available moisture capacity however, is moderately low to low. During dry periods crops grown on this soil are among the first in the are to be damaged by lack of moisture.

The soil is well suited to permanent pasture. If it i used for cultivated crops, contour stripcropping an diversion terraces are needed to help control erosion Growing a sod of grasses and legumes 50 percent of th time also helps to control erosion and adds organic matte to the soil. Red oak, white oak, black oak, hickory, an beech grow well on this soil.

The soil is in capability unit IIIe–4; woodland group 15 and group 6 for building sites.

Manor loam, 8 to 15 percent slopes, severely erode (MgC3).—The profile of this soil is shallower, in mos places, than the profile described as typical for the series Nearly all of the original surface layer has been washe away, and material from the upper part of the subsoil ha been mixed with the remaining surface layer. Gullies ar common.

In several places the surface layer of this soil has bee removed to provide casing soil for use in mushroom houses In these areas gullies form soon after the surface layer i removed unless practices are applied immediately t protect the soil.

This soil needs a permanent sod of hay or pasture t help control erosion. To obtain a satisfactory cover lime and fertilizer should be applied before seeding according to the needs indicated by soil tests. Black oak chestnut oak, red oak, beech, and hickory are suited.

This soil is in capability unit IVe–4; woodland grou 15; and group 6 for building sites.

Manor loam, 15 to 25 percent slopes (MgD).—This soi is nearly all forested. On the surface is a layer of lea mold about 1 inch thick. Just beneath the leaf mold is layer of dark grayish-brown loam, about 2 inches thick that is very friable and contains many roots. Underlyin this layer is an A_2 horizon, 4 to 6 inches thick, of dark brown silt loam that contains 15 to 20 percent, by volume of fragments of schist. The profile below the A_2 horizo is similar to the one described as typical for the series.

This soil has moderately low available moisture capacity It is easily penetrated by air, moisture, and plant roots

Because of its strong slopes and susceptibility to ero sion, the soil is not well suited to cultivated crops. Thi soil needs a permanent cover of sod or trees. If it i cleared for pasture, a large amount of lime and fertilize

...ded for satisfactory yields. White oak, red oak, ... oak, beech, hickory, and tulip-poplar are suited to ... soil.

... soil is in capability unit IVe–4; woodland group ... and group 6 for building sites.

Manor loam, 15 to 25 percent slopes, moderately eroded (MkD2).—The profile of this soil is shallower than the ... described as typical for the series, but, otherwise, ... is similar. Most of this soil is wooded or in pasture. ... areas that have been cleared, between 50 and 75 percent ... the original surface layer has been lost through erosion. This soil is well suited to permanent hay or pasture. ... and fertilizer are required to obtain adequate yields. Red oak, white oak, black oak, beech, tulip-poplar, and ... kory are the dominant kinds of trees that grow on this ...

This soil is in capability unit IVe–4; woodland group ... and group 6 for building sites.

Manor loam, 15 to 25 percent slopes, severely eroded (MkD3).—The profile of this soil is shallower than the one described as typical for the series, and gullies are common. Practically all of this soil has been cleared and was cultivated at one time. Permeability is moderately high, but the available moisture capacity is low.

This soil is not well suited to corn or small grain, but it is fairly well suited to permanent pasture or trees. Large amounts of fertilizer and lime are needed for plants to grow vigorously. White pine, Virginia pine, Banks pine, and pitch pine are suited to this soil.

The soil is in capability unit VIe–2; woodland group 15; and group 6 for building sites.

Manor loam and channery loam, 25 to 35 percent slopes (MhE).—The profile of this soil is shallower over bedrock than the profile described as typical for the series, and there is a mat of leaves, about 1 inch thick, on the surface. The mat is underlain by a layer, 6 to 7 inches thick, of grayish-brown loam that has granular structure. This layer contains many fragments of rock that occupy from 40 to 60 percent of the soil mass. The profile beneath this horizon is similar to the profile described as typical for the series.

This soil has not been cleared and is used as woodland. It is well suited to trees. If cleared, it has only a limited use for pasture. Red oak, white oak, black oak, chestnut oak, beech, and hickory grow fairly well on this soil.

This soil is in capability unit VIe-2; woodland group 17; and group 9 for building sites.

Manor loam and channery loam, 25 to 35 percent slopes, severely eroded (MhE3).—The profile of this soil is shallower over bedrock than the one described as typical for the series. It is shallow to very shallow. The present surface layer is mostly material from the former subsoil. In a few places bedrock is near the surface, and there are a few rock outcrops. In a few other areas, 40 to 60 percent of the profile consists of fragments of rock. The number of rocks increases with increasing depth.

This soil is probably best suited to use as woodland. It has steep slopes, is droughty, and is low in fertility. Furthermore, the areas are inaccessible to farm machinery, and erosion is difficult to control. White pine, red pine, Virginia pine, Banks pine, and pitch pine grow fairly well on this soil.

The soil is in capability unit VIIe-1; woodland group 17; and group 9 for building sites.

Manor soils, 35 to 60 percent slopes (MkF).—These soils are shallow. Most of the areas are wooded and have a thin layer of leaf mold, about one-half inch thick, on the surface. In most places the soils are only slightly to moderately eroded, but a few areas have been cleared and have become severely eroded. There are numerous fragments of rock in the surface layer and throughout the profile. In eroded areas the subsoil is very thin. The available moisture capacity is fairly low, but permeability is rapid to very rapid.

These soils are not suited to cultivated crops or pasture. They are well suited to trees, which are needed to provide a permanent cover. Red oak, white oak, black oak, chestnut oak, beech, and hickory grow fairly well on these soils if the areas are not severely eroded. In areas that are severely eroded, red pine, Virginia pine, Banks pine, white pine, and pitch pine can be grown.

This soil is in capability unit VIIe-1; woodland group 17; and group 9 for building sites.

Manor very stony loam, 0 to 8 percent slopes (MmB).—Except that it is stony and is thicker, 20 to 24 inches to the C horizon, the profile of this soil is similar to the one described as typical for the series. There is a layer of leaf mold, about 1 inch thick, on the surface. The leaf mold is underlain by a layer, 2 to 3 inches thick, of dark grayish-brown loam that contains many small roots. Beneath this layer is the A_2 horizon, which is 4 to 8 inches thick and consists of dark-brown silt loam that contains a few fragments of schist.

The many large stones on the surface make this soil unsuitable for cultivation. In some places, however, the soil has a limited use for pasture. Red oak, white oak, black oak, beech, and hickory are fairly well suited.

This soil is in capability unit VIIs-1; woodland group 13; and group 5 for building sites.

Manor very stony loam, 8 to 25 percent slopes (MmD).—This soil has a thin layer of leaf mold, about 1 inch thick, on the surface. Just beneath the leaf mold is a layer, 1 to 2 inches thick, of dark grayish-brown loam that is very friable and contains many roots. Underlying this layer is an A_2 horizon, 5 to 7 inches thick, of dark-brown silt loam that contains, by volume, 15 to 20 percent of fragments of schist. The profile beneath the A_2 horizon is similar to the one described as typical for the series.

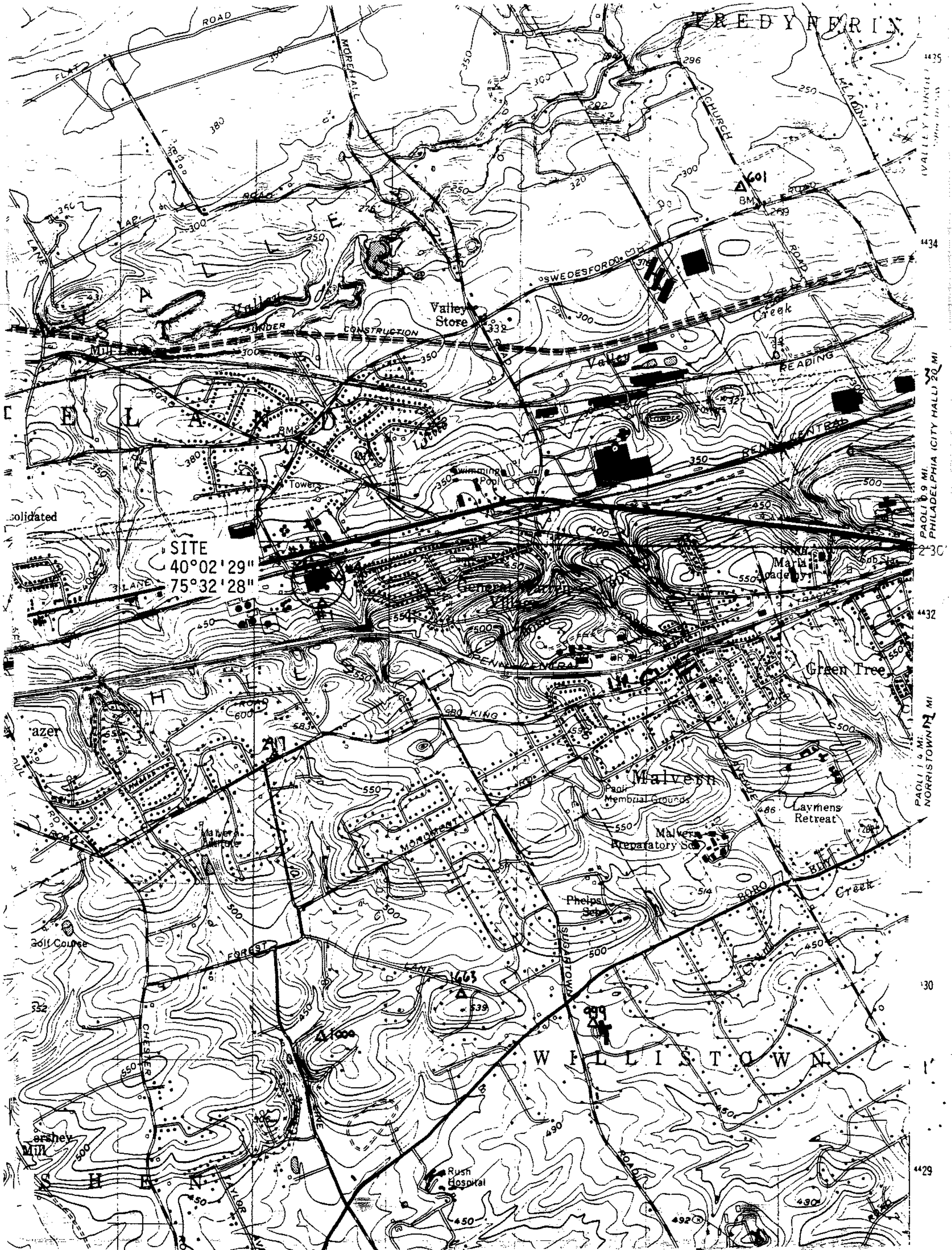
The many large stones on the surface and in the profile of this soil make cultivation impractical. Some areas, if cleared, can be used for pasture, providing the stones are not so numerous as to prevent the control of woody and undesirable kinds of plants. White oak, red oak, black oak, tulip-poplar, hickory, and beech are well suited to this soil.

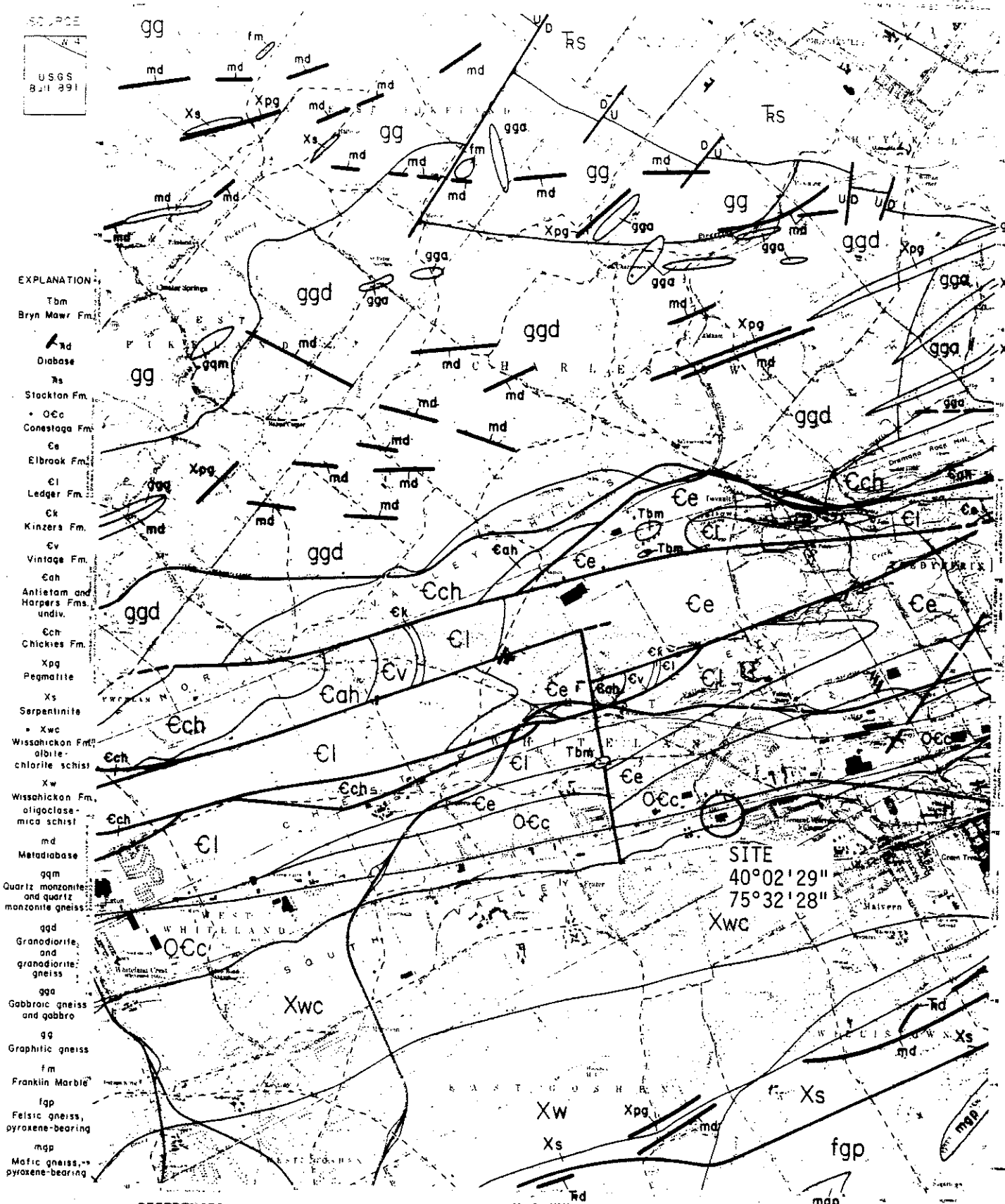
This soil is in capability unit VIIs–1; woodland group 15; and group 6 for building sites.

Manor very stony loam, 25 to 60 percent slopes (MmF).—This soil has a thin layer of leaf mold, about 1 inch thick, on the surface. The leaf mold is underlain by 1 to 2 inches of dark grayish-brown loam that is very friable and contains many small roots. Just beneath this layer is a horizon, 3 to 6 inches thick, of dark-brown silt loam 20 to 25 percent of which, by volume, consists of fragments of schist. Depth to the C horizon ranges from 15 to 20 inches.

The many large stones make this soil unsuitable for cultivation or for use as pasture. The soil is probably

APPENDIX G


SITE
40°02'29"
75°32'28"
Valley Store
Swedesford Rd
Valley Creek
Reading
Penn Central
Swimming Pool
Towers
General Warren Village
Malvern
Green Tree
Paoli Memorial Grounds
Laymens Retreat
Malvern Preparatory Sch
Phelps Sch
Golf Course
Rush Hospital
Willistown
Tredyffrin
Church
Monument
King
Forest
Lane
Sugartown
Chester
Taylor
Mill Lane
Under construction
Consolidated
Frazer
Hershey Mill
PAOLI 0.9 MI.
PHILADELPHIA (CITY HALL) 20 MI
PAOLI 1.4 MI.
NORRISTOWN 12 MI
4434
4432
4429



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Rima, D. R., Meisler, Harold, and Longwill, Stanley (1962), *Geology and hydrology of the Stockton Formation in southeastern Pennsylvania*, Pennsylvania Geological Survey, 4th ser., Water Resource Report 14, 111 p.

Compiled by A. A. SOCOLOW, 1978

MALVERN

		MONITORING **			
WELL NO.	2917 *	# 1	# 2	# 3	# 4
OWNER	D. GLAZAR	BISHOP TUBE CO			
LATITUDE & LONGITUDE	40°01'50" 75°32'23"		40° 02' 29" 75° 32' 28"		
WELL DEPTH (FT.)	105	48	24	13.5	20
DIAMETER OF WELL (INS)	6	4	4	4	4
CASING	21	30' PVC	15' PVC	8' PVC	7' PVC
SCREEN	OPEN	20' FROM BOTTOM	9' FROM BOTTOM	5' FROM BOTTOM	13' FROM BOTTOM
BEDROCK FORMATION	WISSAHICKON SCHIST	SCHIST	LIMESTONE	LIMESTONE	LIMESTONE
DEPTH TO BEDROCK	9	20 (UNWEATHERED)	13	13	20
@ FIRST WATER BEARING	93	30	–	–	–
WATER LEVEL	6	15	–	–	–
DISTANCE TO SITE	~3,000's	ON-SITE			

* PA DER GROUND WATER INVENTORY SYSTEM, CHESTER CO, WILLISTOWN TOWNSHIP.

** HYDROGEOLOGIC STUDY, BISHOP TUBE CO., FRAZER, PA.
RETZ · CONVERSE · MURDOCH · INC., OCT. 1981

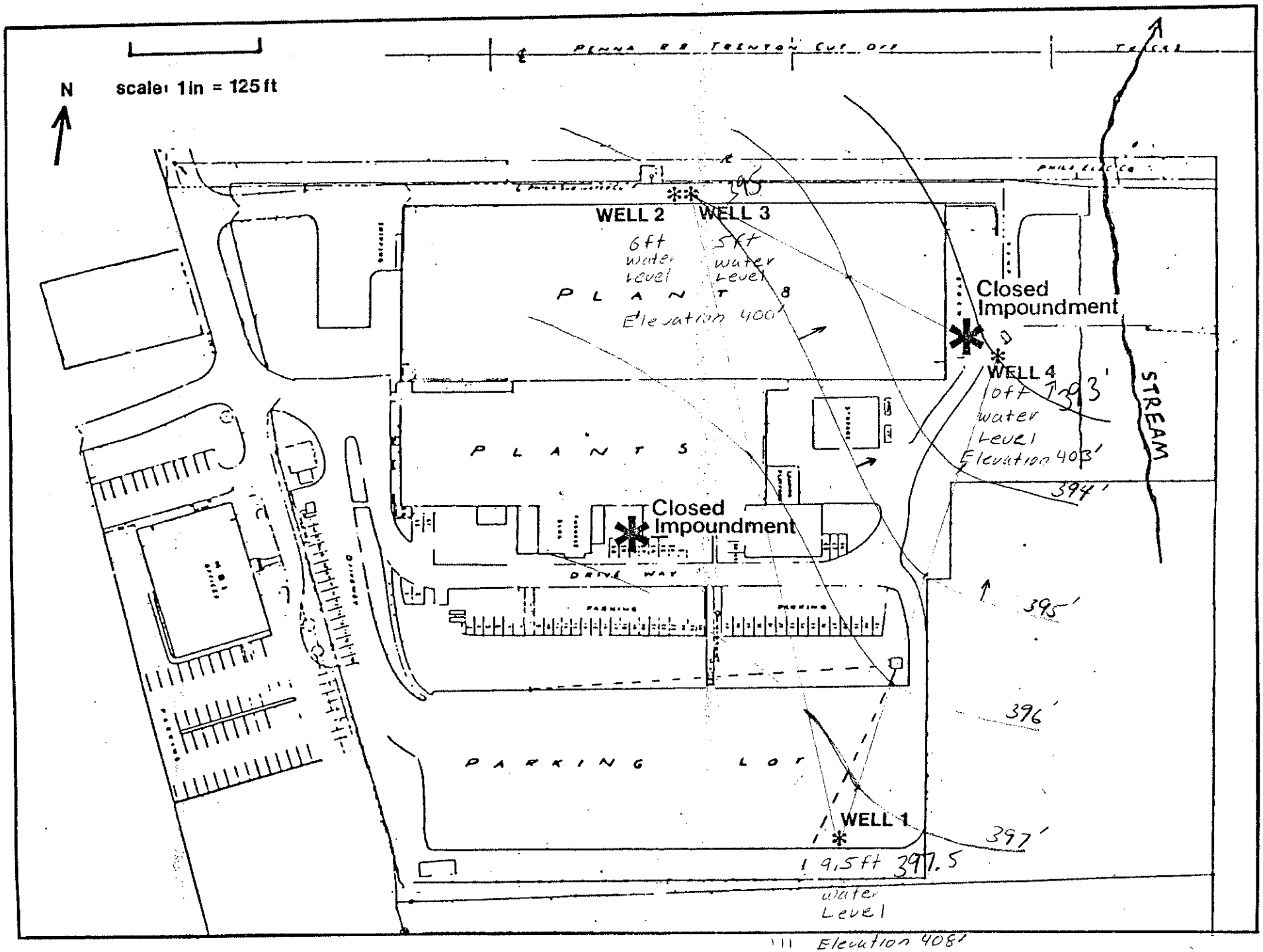


FIGURE 1. LOCATION OF MONITORING WELLS AND CLOSED IMPOUNDMENTS

1140 Well #1 opened
4" PVC construction
No HNu readings above
Background either in well
or ambient air
Background Reading 2.0 ppm
Sounding 9.5 feet to water
Total Depth 49 feet.
26 Gallons for each volume
78 Bails with 1 Gallon Bailer

wells are cutoff 6" above
surface

1144 Begin Bailing Well #1

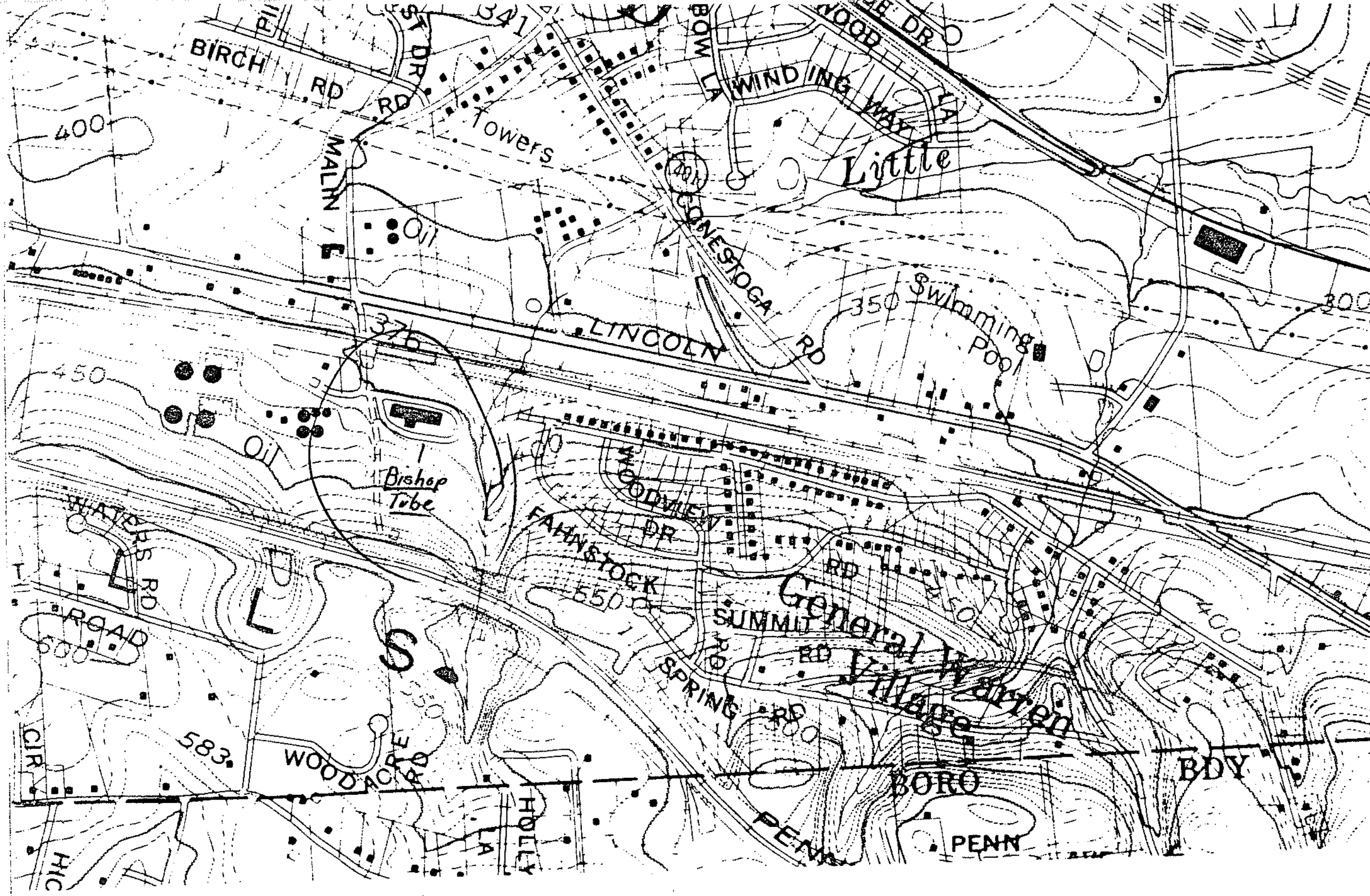
1150 Well #2
HNu readings In hole immediate
after opening Peak at 6 ppm
Ambient was background
Readings in hole dropped to 5 ppm
6 feet to water
Total Depth 22 feet. 16 feet
of Water. 1 Gallon Bailer
Dave Walker

10 Gallons per volume
3 volumes 30 Ba. Ls

Well # 3
No HNu readings above background
5' to water
14' Total Depth
9' column of water = 6 Gallons/column
~~1/2 ga~~
18 Gallons total
36 Gals with 1/2 gallon Bailer
Begin at 1200

1210 well # 4 4" pvc
HNu reading 4 ppm in hole
Ambient Air 3 ppm
Background 3 ppm
Depth to water 10 feet
Total Depth 20 feet
10' column of water

Faun Walker



BIRCH RD
MALIN RD
Towers
Little
WINDING WAY
BOW LA
CONESTOGA RD
LINCOLN
Swimming Pool
Oil
Bishop Tube
WOODVIEW DR
FAHNSTOCK
SUMMIT RD
SPRING RD
General Warren Village
BORO BDY
PENN
WOODACRE RD
HOLLY LA
400
450
350
550
583

NUS CORPORATION — TELECON NOTE

CONTROL NO:	DATE:	TIME:
F3-8405-15	Monday March 25, 1985	2:30

DISTRIBUTION:

BETWEEN:	OF:	PHONE:
IRA Dutton	Malvern Public Works Foreman	(215) 644-1859

AND: Chuck Meyer (NUS)

DISCUSSION:

The water supply for the Boro of Malvern is serviced by 5 springs and 3 wells. The wells are 140, 190 and 196 feet deep in the Wissahickon Formation off of Ruthland Road off of King Street located 2 1/4 miles to the southeast of the subject site.

ACTION ITEMS:

APPENDIX H

Betz · Converse · Murdoch · Inc.

E. Whiteland Twp
Chester Co.

PROPOSAL Received 12/10/80

TO

BISHOP TUBE COMPANY
MALIN ROAD
FRAZER, PA 19355

FOR

HYDROGEOLOGIC STUDY

BCM PROPOSAL NO. 13-8326-41R

MAY 2, 1980

PREPARED BY:

Robert D. Buller Allen Robinson

ROBERT D. BULLER
SENIOR GEOLOGIST

BETZ·CONVERSE·MURDOCH·INC.
ONE PLYMOUTH MEETING MALL
PLYMOUTH MEETING, PENNSYLVANIA 19462

INTRODUCTION

Bishop Tube Company of Frazer, Pennsylvania has been instructed by the Pennsylvania Department of Environmental Resources (PA DER) to retain a consultant to conduct a study of groundwater conditions in the vicinity of their plant site. In the past, Bishop Tube and its former owners discharged sanitary sewage, cooling water, and acid pickling rinse water to an unlined pit and cesspool located on plant property. Over the past 1-1/2 years, these discharges were diverted to a sanitary sewer, a nearby stream, and holding tanks. Consequently, the use of the pit and cesspool was discontinued.

SCOPE OF WORK

Betz·Converse·Murdoch·Inc. (BCM) proposes the following scope of work to complete the hydrogeologic study at the Frazer site:

1. Initial Data Collection

A BCM geologist will collect pertinent data at the site relative to past disposal practices, existing wells and core boring records. The number of required monitoring wells and their location will be established.

2. Monitoring Well Installation

BCM will subcontract with a reputable well driller to install monitoring wells at locations established in Section 1.

A BCM geologist will supervise installing the monitoring wells and will inspect and certify their construction and the nature of subsurface conditions. It is assumed that three (3) monitoring wells will be required.

3. Water Sampling

BCM will collect water samples from the following locations:

- Existing wells - east and west wells
- Monitoring wells
- Discharge junction box and discharge outlet
- Stream - Above and below discharge outlet

The samples will be analyzed for the following parameters:

Nitrate	Fluoride	Iron
Ammonia	Chromium	Nickel
Zinc	Manganese	pH
		Temperature

Samples will be collected once from each sampling point. If additional sampling is required, it will be done on a per diem basis, plus expenses. These parameters and sampling locations have been designated by the PA DER Bureau of Water Quality Management staff member assigned to follow-up on this investigation.

4. Report

A draft final report will be prepared and submitted to Bishop Tube upon completion of the study. This report will include an Introduction, Methods, Results, Conclusions, and Recommendations. BCM will meet with Bishop Tube to discuss the report, and to subsequently prepare a final report suitable for submission to PA DER. A meeting with the DER is also included under this task.

5. Discharge Pipe Flow Measurement (Optional)

At the discretion of the Bishop Tube Company, BCM will measure flows in the discharge pipe between the junction box and the discharge outlet. These measurements will determine if groundwater is leaking into the pipe in that interval, thereby degrading the quality of the discharge to the stream.

QUALIFICATIONS AND EXPERIENCE

BCM has the qualifications and experience necessary to perform the full range of work required for the completion of this hydrogeologic study. BCM's staff of geologists has supervised the installation of numerous monitoring wells and has completed the hydrogeologic interpretation of subsurface conditions and groundwater flow patterns. Hydrogeologic studies completed by BCM have also included groundwater sampling and negotiations with the PA DER on behalf of our clients.

The BCM geologists assigned to this study are Robert D. Buller, Senior Geologist, and William S. Neubeck, Geologist/Hydrologist. Mr. Buller has completed over twenty hydrogeologic studies in his seven years with BCM. He will be actively involved in all aspects of the project. Mr. Neubeck has extensive experience in the supervision of well drilling and sampling and will play an integral role in similar activities for this study. BCM's experienced technicians would perform the discharge pipe flow measurements, if that option is selected. Resumes of participants are attached.

APPENDIX 2

USGS REPORT ON EAST WELL

United States Department of the Interior

GEOLOGICAL SURVEY
Water Resources Division
35 Great Valley Parkway
Great Valley Corporate Center
Malvern, PA 19355

Bishop Tube
Route 30 & Malin Road
Frazer, PA 19355

Attention: Mr. Chuck Thompson

Dear Mr. Thompson:

Thank you for allowing us to sample your well as part of the Chester County Ground Water Quality Monitoring Program. Enclosed is a copy of the laboratory report. Your well water meets EPA's safe drinking water standards. We may wish to sample your well again in the future as part of the program.

The quantity of dissolved substances in your well water are shown in quantities of milligrams per liter (MG/L) and micrograms per liter (UG/L). One milligram per liter of dissolved substance is equivalent to one part of the substance in one million parts of water. One microgram per liter of dissolved substance is equivalent to one part of the substance in one billion parts of water.

If you have any questions concerning the sampling procedure, please call me anytime at 647-9008. If you have any questions concerning health related problems and contaminants, please call Philip Terry, Chester County Health Department, at 431-6247.

Sincerely,

Charles R. Wood
Subdistrict Chief

DKD/cdk
Encl.

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
CENTRAL LABORATORY ATLANTA, GEORGIA

WATER QUALITY ANALYSIS
LAB-ID # 161031 RECORD-# 53682

SAMPLE LOCATION: 2432
STATION ID: 400221075321201 LAT.LONG.SEQ.: 400221 0753212 01
DATE OF COLLECTION: BEGIN--810603 END-- TIME--1100
STATE CODE: 42 COUNTY CODE: 029 PROJECT IDENTIFICATION: 444209300
DATA TYPE: 2 SOURCE: GROUND WATER GEOLOGIC UNIT:
COMMENTS: UNIQUE-#:
OWNER BISHOP TUBE

ALDRIN, TOT (WATER)	UG/L	<	0.01	LEAD, DIS.	UG/L		1
ANALYZING AGENCY			80010	LINDANE, TOT (WATER)	UG/L	<	0.01
ARSENIC, DISSOLVED	UG/L		1	MANGANESE, DISSOLV.	UG/L		1
BENZENE, TOTAL	UG/L		0.0	MERCURY, DISSOLVED	UG/L		0.3
BROMOFORM, TOTAL	UG/L		0.0	METALS DISS CHE-EXT			0
CADMIUM, DIS.	UG/L		1	METHOXYCHLOR T.(WAT)	UG/L	<	0.01
CARBON TETRA., TOT.	UG/L		0.0	METHYLBROMIDE, TOTAL	UG/L		0.0
CHLORDANE, T (WATER)	UG/L	<	0.1	METHYLENE CHLORIDE,T	UG/L		0.0
CHLOROBENZENE, TOTAL	UG/L		0.0	MIREX, TOT.	UG/L	<	0.01
CHLORODIBROMO., TOT.	UG/L		0.0	NICKEL, DIS.	UG/L		8
CHLOROETHANE, TOTAL	UG/L		0.0	PERTHANE, TOT.	UG/L	<	0.01
CHLOROFORM, TOTAL	UG/L		0.0	PH FIELD	UNITS		7.1
CHROMIUM, DISSOLVED	UG/L		0	PHENOLS, TOTAL	UG/L		0
CONFIRMATION ABOVE 2	UG/L		0	SP. CONDUCTANCE FLD	UMHOS		325
CYANIDE, TOTAL	DETR. DELETED			TETRACHLOROETHYLEN,T	UG/L		0.0
DDD, TOTAL (WATER)	UG/L	<	0.01	TOLUENE, TOTAL	UG/L		0.0
DDE, TOTAL (WATER)	UG/L	<	0.01	TOXAPHENE, T (WATER)	UG/L	<	0.1
DDT, TOTAL. (WATER)	UG/L	<	0.01	TRICHLOROETHYLENE,T	UG/L		0.0
DICHLOROBROMOMETHA,T	UG/L		0.0	TRICHLOROFLUOROMET,T	UG/L		0.0
DICHLORODIFLUOROME,T	UG/L		0.0	VINYL CHLORIDE, TOTA	UG/L		0.0
DIELDRIN, T. (WATER)	UG/L	<	0.01	WATER TEMPERATURE	DEG C		12.0
ENDOSULFAN I TOTAL	UG/L	<	0.01	1,1-DICHLORETHYLEN,T	UG/L		0.0
ENDRIN, TOTAL(WATER)	UG/L	<	0.01	1,1-DICHLOROETHANE,T	UG/L		0.0
ETHYLBENZENE, TOTAL	UG/L		0.0	1,1,1-TRICHLOROETH,T	UG/L		0.0
FLUORIDE, DISSOLVED	MG/L		1.0	1,1,2-TRICHLOROETH,T	UG/L		0.0
GROSS PCBS T (WATER)	UG/L	<	0.1	1,1,2,2-TETRCHLORO,T	UG/L		0.0
GROSS PCNS T (WATER)	UG/L	<	0.1	1,2-DICHLOROETHANE,T	UG/L		0.0
HEPT EPOX, T (WATER)	UG/L	<	0.01	1,2-DICHLOROPROPAN,T	UG/L		0.0
HEPTACHLOR T.(WATER)	UG/L	<	0.01	1,3-DICHLOROPROPAN,T	UG/L		0.0
IRON, DIS.	UG/L		10	12TRANSDICL-ETHYLENE	UG/L		0.0
				2-CL-ETHYLVINYLETHER	UG/L		0.0

CONTINUED ON NEXT PAGE

TDD Number F3-8405-15
EPA Number PA-560

SAMPLE DATA SUMMARY
TARGET COMPOUNDS
☑ Organic ☐ Inorganic

Site Name Bishop Tube
Date of Sample 6-10-84

Sample Number	Sample Description and Location	Phase	Units	Methylene Chloride	MEK (2-Butanone)	Acetone	Vinyl Acetate	Chloroethene (Vinyl Chloride)	Trichloroethylene	1,1,1-trichloroethane	1,1-Dichloroethane	1,1-Dichloroethylene	trans 1,2-Dichloroethylene	Tetrachloroethene	Toluene	1,2-Dichloroethane	Remarks
C4490	Upstream	AQ	UG/L	NDB◇	NDB◇	NDB◇	NDB◇										
C4491	Tributary From SW	AQ	UG/L	NDB◇	NDB◇												
C4492	Swale Along Railroad	AQ	UG/L	NDB◇	NDB◇		6◇	10K	200◇	1400	9	130	150	3	5K		
C4493	Field Blank	AQ	UG/L	8.8C◇	NDB◇	NDB◇											
C7083	Monitoring Well #1	AQ	UG/L	NDB◇	NDB◇												
C7084	Monitoring Well #2	AQ	UG/L	NDB◇		5K◇		10K	4800	4200	41	690	340	21	6	3◇	
C7085	Monitoring Well #3	AQ	UG/L	22C◇	22C◇		60C◇		29000	7700	54	612	1754	43			
C7086	Monitoring Well #4	AQ	UG/L	NDB◇	NDB◇			44	4800	45	14	29	270	160			
C7087	Downstream	AQ	UG/L	NDB◇	NDB◇				NDB◇	NDB◇	NDB◇	NDB◇	NDB◇				

NOTE: For a review of this data and non-target, tentatively identified compounds, please see the Analytical Quality Assurance section of this report.

◇ Denotes results of questionable qualitative significance based upon quality assurance review of data.

- The presence of vinyl acetate in samples C4492 and C7085 is questionable because of poor spectral matching quality. In addition, vinyl acetate was observed in the quantitation lists of two laboratory blanks in sufficient quantity to question the vinyl acetate results of samples C4490, C4492, and C7085. The spectra provided for vinyl acetate confirmation in the laboratory blanks is also of poor quality.

- The presence of 1,2-dichloroethane in sample C7084 is questionable because of poor spectral matching quality. The laboratory states that this sample contains a "system contaminant", trichlorotrifluoroethane, which coelutes with 1,2-dichloroethane. The laboratory uses 1,1,2-trichloro-1,2,2-trifluoroethane in oil and grease extractions. Both the enhanced and unenhanced spectra of 1,2-dichloroethane contain constituent ions of the contaminant and the contaminant is present in a concentration at least one order of magnitude greater than 1,2-dichloroethane. There is a possibility this chlorofluorocarbon is a sample constituent, since it was not found in blanks or any other samples. Another chloroflurocarbon was found as a tentatively identified compound and many chlorinated volatile priority pollutants were found in C7084.

- No 1,2-dichloroethane was noted for sample C4492, though the analyte is present on the quantitation list at 2.7 ug/L, above the detection limit of 1 ug/L. No spectral confirmation was provided.

- Diminished quantitative accuracy is suggested for trichloroethylene, 1,1,1,-trichloroethane and trans-1,2-dichloroethene in several samples because instrument response was either saturated or significantly above the calibrated range. The laboratory narrative details efforts to quantify trichloroethylene and 1,1,1-trichloroethane in sample C7084 and trichloroethylene in samples C7085 and C7086 using secondary ions and average response factors calculated utilizing internal standard areas.

- Sample C7087 was run after sample C4492, which contained high levels of the analytes found in C7087. No blank was run after sample C4492 to demonstrate contaminant-free conditions. No spectral confirmations were provided for C7087, no analytes were quantified and instead the lab states--"None detected - blank" for each analyte. Many of these analytes were not found in any blank. It is not clear if compounds found in sample C7087 are present, or if they are a result of chromatographic ghosting from sample C4492. All results for C7087 are quantitatively and qualitatively questionable. Sample reanalysis has been requested.

- The quantitation list of sample C7084 noted carbon disulfide at a concentration of 1.6 ug/l, slightly above the laboratory detection limit of 1 ug/l. The lab reported ND-B, None Detected-Blank, though carbon disulfide was not found in any blank. No spectra were included. The presence of carbon disulfide is questionable in sample C7084.

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
CENTRAL LABORATORY ATLANTA, GEORGIA

WATER QUALITY ANALYSIS
LAB-ID # 162811 RECORD-# 58928

AMPLE LOCATION: 2432
STATION ID: 400221075321201 LAT.LONG.SEQ.: 400221 0753212 01
DATE OF COLLECTION: BEGIN--810603 END-- TIME--1100
DATE CODE: 42 COUNTY CODE: 029 PROJECT IDENTIFICATION: 444240300
DATA TYPE: 2 SOURCE: GROUND WATER GEOLOGIC UNIT:
COMMENTS: UNIQUE-#:
OWNER BISHOP TUBE

ALYZING AGENCY		80010	NITR DISS NH4 AS N	MG/L	0.02
CARBON, ORGANIC, TOT	MG/L	0.9	NITR. DIS NH4 AS NH4	MG/L	0.03
TR DIS NO2 AS N	MG/L <	0.01	PH FIELD	UNITS	7.1
TR DIS NO2+NO3 -N	MG/L	0.14	SP. CONDUCTANCE FLD	UMHOS	325
			WATER TEMPERATURE	DEG C	12.0

CATIONS			ANIONS		
	(MG/L)	(MEQ/L)		(MG/L)	(MEQ/L)
			NITR DIS NO2+N	0.14	0.010
TOTAL			TOTAL		0.010