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June 10, 1999

Via Hand Delivery

Mr. Dustin A. Armstrong
Project Officer - Environmental Cleanup
Pennsylvania Department of Environmental Protection
Lee Park, Suite 6020
555 North Lane
Conshohocken, Pennsylvania 19428

Site: Bishop Tube Site
Frazer, Pennsylvania
Re: February 1999 Ground Water Sampling
Results
File: 3552/23276 (2.07)

Dear Mr. Armstrong:

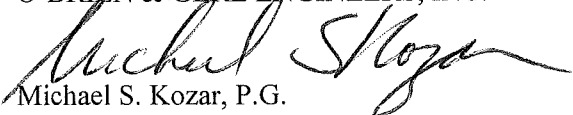
Pursuant to your recent request, O'Brien & Gere Engineers, Inc. is submitting two copies of the enclosed data summary tables for the February 1999 ground water sampling results for the Bishop Tube Site. The enclosed Tables 1 and 2 include validated data and summarize detected volatile organic compounds (VOCs), fluorides and metals (chromium, copper, nickel and zinc). For reference, Table 3 presents the historic VOC detections for monitoring well ground water samples updated from the *Site Characterization/Interim Remedial Action Plan* (O'Brien & Gere, September 1998).

Ground water sampling procedures, protocols and validation process were conducted in accordance with the Interim Remedial Action Work Plan (IRAW, O'Brien & Gere, May 1999) submitted to the PADEP. As specified in the IRAW, the ground water sampling activities, data validation, and data assessment activities will be detailed in the next progress report submittal to the Department.

Please contact the undersigned or Tom Nowlan at (215) 628-9100 if you have any questions regarding the enclosed information.

Very truly yours,

O'BRIEN & GERE ENGINEERS, INC.



Michael S. Kozar, P.G.
Project Associate

cc: John J. McAleese III, Esq. - Morgan, Lewis & Bockius
Thomas A. Nowlan, P.E. - O'Brien & Gere Engineers, Inc.
Craig Fuller - Christiana Metals

Enclosures:

- Table 1 (pp. 1-4)
- Table 2
- Table 3 - (pp. 1-3)

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Table 1
 Baseline Ground Water Sampling Event (February 1999) - Volatile Organic Compounds
 Bishop Tube Site - Frazer, PA

Sample ID	Act 2 Ground Water MSCs (Used Aquifer) (Nonresidential)	MW-8	MW-11	MW-3	MW-15	MW-17	MW-2
Lab Sample Number		114321	114322	114323	114324	114325	114326
Sampling Date		02/18/99	02/18/99	02/18/99	02/19/99	02/19/99	02/19/99
Dilution Factor		10.0	5.0	10.0	25.0	500.0	50.0
Units	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
VOLATILE COMPOUNDS (GC/MS)							
Chloromethane	3	20 U	10 U	20 U	50 U	1000 U	100 U
Bromomethane	10	20 U	10 U	20 U	50 U	1000 U	100 U
Vinyl Chloride	2	980	10 U	20 U	50 U	1000 U	100 U
Chloroethane	28000	20 U	10 U	20 U	50 U	1000 U	150 U
Methylene Chloride	5	30 U	15 U	30 U	75 U	1500 U	100 U
Trichlorofluoromethane	2000	20 U	10 U	20 U	50 U	1000 U	250
1,1-Dichloroethene	7	7.6 J	11	21	100	720 J	60 J
1,1-Dichloroethane	110	50 U	5.8 J	50 U	45 J	910 J	250 U
trans-1,2-Dichloroethene	100	50 U	25 U	50 U	120 U	2500 U	490
cis-1,2-Dichloroethene	70	420	44	220	270	720 J	250 U
Chloroform	100	50 U	25 U	50 U	120 U	2500 U	100 U
1,2-Dichloroethane	5	20 U	10 U	20 U	50 U	1000 U	5200
1,1,1-Trichloroethane	100	73	100	480	2200	16000	100 U
Carbon Tetrachloride	5	20 U	10 U	20 U	50 U	1000 U	50 U
Bromodichloromethane	100	10 U	5.0 U	10 U	25 U	500 U	50 U
1,2-Dichloropropane	5	10 U	5.0 U	10 U	25 U	500 U	250 U
cis-1,3-Dichloropropene	NA	50 U	25 U	50 U	120 U	2500 U	3400
Trichloroethene	5	250	280	1200	1100	52000	250 U
Dibromochloromethane	100	50 U	25 U	50 U	120 U	2500 U	150 U
1,1,2-Trichloroethane	5	30 U	15 U	30 U	75 U	1500 U	50 U
Benzene	5	10 U	5.0 U	10 U	25 U	500 U	250 U
trans-1,3-Dichloropropene	NA	50 U	25 U	50 U	120 U	2500 U	200 U
2-Chloroethyl Vinyl Ether	510	50 U	25 U	50 U	120 U	2500 U	50 U
Bromoform	100	40 U	20 U	40 U	100 U	2000 U	50 U
Tetrachloroethene	5	10 U	5.0 U	10 U	25 U	500 U	50 U
1,1,2,2-Tetrachloroethane	3.2	10 U	5.0 U	10 U	25 U	500 U	250 U
Toluene	1000	50 U	25 U	50 U	120 U	2500 U	250 U
Chlorobenzene	100	50 U	25 U	50 U	120 U	2500 U	200 U
Ethylbenzene	700	40 U	20 U	40 U	100 U	2000 U	250 U
Xylene (Total)	10000	50 U	25 U	50 U	120 U	2500 U	9340
Total Confident Conc. VOAs (s)		1723	435	1921	3670	68000	
VOLATILE COMPOUNDS - TICs:							
Methyl Tert-Butyl Ether (MTBE)	20	ND	68	160	ND	ND	ND
Unknowns/Isomers		ND	ND	94	100	ND	1340
Total Estimated Conc. VOA TICs		0	68	254	100	0	1340

Qualifiers
 U - The compound was not detected at the indicated concentration.
 J - Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than zero.
 ND - Not Detected
 NR - Not analyzed.

Table 1
Baseline Ground Water Sampling Event (February 1999) - Volatile Organic Compounds
Bishop Tube Site - Frazer, PA

Sample ID	Act 2 Ground Water MSCs (Used Aquifer) (Nonresidential)	MW-19	Trip_Blank	MW-16	MW-20	MW-12	Duplicate
Lab Sample Number		114327	114328	113962	113963	113964	113965
Sampling Date		02/19/99	02/19/99	02/17/99	02/17/99	02/17/99	02/17/99
Dilution Factor		5000.0	1.0	10.0	20.0	5.0	20.0
Units	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
VOLATILE COMPOUNDS (GC/MS)							
Chloromethane	3	10000 U	2.0 U	50 U	100 U	25 U	100 U
Bromomethane	10	10000 U	2.0 U	50 U	100 U	25 U	100 U
VinylChloride	2	10000 U	2.0 U	50 U	100 U	25 U	100 U
Chloroethane	28000	10000 U	2.0 U	50 U	100 U	25 U	100 U
MethyleneChloride	5	15000 U	3.0 U	30 U	60 U	15 U	60 U
Trichlorofluoromethane	2000	10000 U	2.0 U	50 U	100 U	25 U	100 U
1,1-Dichloroethene	7	17000	2.0 U	63	40 U	10 U	40 U
1,1-Dichloroethane	110	11000 J	5.0 U	20 J	100 U	25 U	100 U
trans-1,2-Dichloroethene	100	25000 U	5.0 U	50 U	100 U	25 U	100 U
cis-1,2-Dichloroethene	70	25000 U	5.0 U	82	100 U	100	100 U
Chloroform	100	25000 U	5.0 U	50 U	100 U	25 U	100 U
1,2-Dichloroethane	5	10000 U	2.0 U	20 U	40 U	10 U	40 U
1,1,1-Trichloroethane	100	140000	5.0 U	1300	28 J	24 J	28 J
CarbonTetrachloride	5	10000 U	2.0 U	20 U	40 U	10 U	40 U
Bromodichloromethane	100	5000 U	1.0 U	10 U	20 U	5.0 U	20 U
1,2-Dichloropropane	5	5000 U	1.0 U	10 U	20 U	5.0 U	20 U
cis-1,3-Dichloropropene	NA	25000 U	5.0 U	50 U	100 U	25 U	100 U
Trichloroethene	5	620000	1.0 U	520	1000	720	1100
Dibromochloromethane	100	25000 U	5.0 U	50 U	100 U	25 U	100 U
1,1,2-Trichloroethane	5	15000 U	3.0 U	30 U	60 U	15 U	60 U
Benzene	5	5000 U	1.0 U	10 U	20 U	5.0 U	20 U
trans-1,3-Dichloropropene	NA	25000 U	5.0 U	50 U	100 U	25 U	100 U
2-ChloroethylVinylEther	510	25000 U	5.0 U	50 U	100 U	25 U	100 U
Bromoform	100	20000 U	4.0 U	40 U	80 U	20 U	80 U
Tetrachloroethene	5	5000 U	1.0 U	10 U	20 U	5.0 U	20 U
1,1,2,2-Tetrachloroethane	3.2	5000 U	1.0 U	10 U	20 U	5.0 U	20 U
Toluene	1000	25000 U	5.0 U	50 U	100 U	25 U	100 U
Chlorobenzene	100	25000 U	5.0 U	50 U	100 U	25 U	100 U
Ethylbenzene	700	20000 U	4.0 U	40 U	80 U	20 U	80 U
Xylene(Total)	10000	25000 U	5.0 U	50 U	100 U	25 U	100 U
Total Confident Conc. VOAs (s)		777000	0	1965	1000	820	1100
VOLATILE COMPOUNDS - TICs:							
Methyl Tert-Butyl Ether (MTBE)	20	ND	ND	ND	ND	ND	ND
Unknowns/isomers		26000	ND	ND	ND	ND	ND
2-methoxy, 2-methyl-propane		ND	ND	ND	1100	39	1100
Total Estimated Conc. VOA TICs		26000	0	0	1100	39	1100
Qualifiers							
U - The compound was not detected at the indicated concentration.							
J - Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than zero.							
The concentration given is an approximate value.							
ND- Not Detected							
NR - Not analyzed.							

Table 1
 Baseline Ground Water Sampling Event (February 1999) - Volatile Organic Compounds
 Bishop Tube Site - Frazer, PA

Sample ID	Act 2 Ground Water MSCs (Used Aquifer) (Nonresidential)	Equipment	MW-14	MW-13	Trip Blank	MW-9	MW-1
Lab Sample Number	Water MSCs	113966	113967	113968	113969	114342	113729
Sampling Date	(Used Aquifer)	02/17/99	02/18/99	02/18/99	02/12/99	02/19/99	02/16/99
Dilution Factor	(Nonresidential)	1.0	1.0	25.0	1.0	10.0	1.0
Units	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
VOLATILE COMPOUNDS (GC/MS)							
Chloromethane	3	5.0 U	5.0 U	120 U	5.0 U	20 U	5.0 U
Bromomethane	10	5.0 U	5.0 U	120 U	5.0 U	20 U	5.0 U
Vinylchloride	2	5.0 U	5.0 U	120 U	5.0 U	14 J	5.0 U
Chloroethane	28000	5.0 U	5.0 U	120 U	5.0 U	20 U	5.0 U
MethyleneChloride	5	3.0 U	3.0 U	75 U	3.0 U	30 U	3.0 U
Trichlorofluoromethane	2000	5.0 U	5.0 U	120 U	5.0 U	20 U	5.0 U
1,1-Dichloroethene	7	2.0 U	1.6 J	58	2.0 U	15 J	2.0 U
1,1-Dichloroethane	110	5.0 U	5.0 U	120 U	5.0 U	50 U	5.0 U
trans-1,2-Dichloroethene	100	5.0 U	5.0 U	120 U	5.0 U	50 U	5.0 U
cis-1,2-Dichloroethene	70	5.0 U	1.5 J	270	5.0 U	190	5.0 U
Chloroform	100	5.0 U	5.0 U	120 U	5.0 U	20 U	5.0 U
1,2-Dichloroethane	5	2.0 U	2.0 U	50 U	2.0 U	20 U	2.0 U
1,1,1-Trichloroethane	100	5.0 U	17	1200	5.0 U	160	5.0 U
CarbonTetrachloride	5	2.0 U	2.0 U	50 U	2.0 U	20 U	2.0 U
Bromodichloromethane	100	1.0 U	1.0 U	25 U	1.0 U	10 U	1.0 U
1,2-Dichloropropane	5	1.0 U	1.0 U	25 U	1.0 U	10 U	1.0 U
cis-1,3-Dichloropropene	NA	5.0 U	5.0 U	120 U	5.0 U	50 U	5.0 U
Trichloroethene	5	1.0 U	42	2500	1.0 U	930	1.0 U
Dibromochloromethane	100	5.0 U	5.0 U	120 U	5.0 U	50 U	5.0 U
1,1,2-Trichloroethane	5	3.0 U	3.0 U	75 U	3.0 U	30 U	3.0 U
Benzene	5	1.0 U	1.0 U	25 U	1.0 U	10 U	1.0 U
trans-1,3-Dichloropropene	NA	5.0 U	5.0 U	120 U	5.0 U	50 U	5.0 U
2-ChloroethylVinylEther	510	5.0 U	5.0 U	120 U	5.0 U	50 U	5.0 U
Bromoform	100	4.0 U	4.0 U	100 U	4.0 U	40 U	4.0 U
Tetrachloroethene	5	1.0 U	1.0 U	25 U	1.0 U	10 U	1.0 U
1,1,2,2-Tetrachloroethane	3.2	1.0 U	1.0 U	25 U	1.0 U	10 U	1.0 U
Toluene	1000	5.0 U	1.1 J	120 U	5.0 U	50 U	5.0 U
Chlorobenzene	100	5.0 U	5.0 U	120 U	5.0 U	50 U	5.0 U
Ethylbenzene	700	4.0 U	0.7 J	100 U	4.0 U	40 U	4.0 U
Xylene(Total)	10000	5.0 U	1.9 J	120 U	5.0 U	50 U	5.0 U
Total Confident Conc. VOAs (s)		0	59	4028	0	1280	0
VOLATILE COMPOUNDS - TICs:							
Methyl Tert-Butyl Ether (MTBE)	20	ND	ND	ND	ND	1200	ND
Unknowns/isomers		ND	ND	ND	5.4	67	8
2-methoxy 2-methyl-propane		ND	5.4	ND	ND	ND	ND
Total Estimated Conc. VOA TICs		0	5.4	0	5.4	1267	8.0

Qualifiers
 U - The compound was not detected at the indicated concentration.
 J - Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than zero.
 The concentration given is an approximate value.
 ND- Not Detected
 NR - Not analyzed.

Table 1
 Baseline Ground Water Sampling Event (February 1999) - Volatile Organic Compounds
 Bishop Tube Site - Frazer, PA

Sample ID	Act 2 Ground Water MSCs (Used Aquifer) (Nonresidential)	MW-5	MW-7	MW-6	MW-4	MW-18	Trip Blank
Lab Sample Number		113730	113731	113732	113733	113734	113735
Sampling Date		02/16/99	02/16/99	02/16/99	02/17/99	02/17/99	02/12/99
Dilution Factor		1.0	1.0	2.0	2.0	50.0	1.0
Units	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
VOLATILE COMPOUNDS (GC/MS)							
Chloromethane	3	5.0 U	5.0 U	10 U	10 U	250 U	5.0 U
Bromomethane	10	5.0 U	5.0 U	10 U	10 U	250 U	5.0 U
VinylChloride	2	3.6 J	5.0 U	7.3 J	76	250 U	5.0 U
Chloroethane	28000	2.6 J	5.0 U	10 U	10 U	250 U	5.0 U
MethyleneChloride	5	3.0 U	3.0 U	6.0 U	6.0 U	150 U	3.0 U
Trichlorofluoromethane	2000	5.0 U	5.0 U	10 U	10 U	250 U	5.0 U
1,1-Dichloroethane	7	2.0 U	2.0 U	1.3 J	1.8 J	160	2.0 U
1,1-Dichloroethane	110	8.3	2.1 J	3.6 J	12	250 U	5.0 U
trans-1,2-Dichloroethane	100	5.0 U	1.1 J	10 U	3.2 J	250 U	5.0 U
cis-1,2-Dichloroethane	70	2.7 J	140	54	160	4500	5.0 U
Chloroform	100	5.0 U	5.0 U	10 U	10 U	250 U	5.0 U
1,2-Dichloroethane	5	2.0 U	2.0 U	4.0 U	4.0 U	100 U	2.0 U
1,1,1-Trichloroethane	100	1.0 J	0.8 J	4.3 J	4.8 J	1800	5.0 U
Carbon Tetrachloride	5	2.0 U	2.0 U	4.0 U	4.0 U	100 U	2.0 U
Bromodichloromethane	100	1.0 U	1.0 U	2.0 U	2.0 U	50 U	1.0 U
1,2-Dichloropropane	5	1.0 U	1.0 U	2.0 U	2.0 U	50 U	1.0 U
cis-1,3-Dichloropropene	NA	5.0 U	5.0 U	10 U	10 U	250 U	5.0 U
Trichloroethene	5	2.7	62	190	200	7600	1.0 U
Dibromochloromethane	100	5.0 U	5.0 U	10 U	10 U	250 U	5.0 U
1,1,2-Trichloroethane	5	3.0 U	3.0 U	6.0 U	6.0 U	150 U	3.0 U
Benzene	5	0.9 J	1.0 U	2.0 U	2.0 U	50 U	1.0 U
trans-1,3-Dichloropropene	NA	5.0 U	5.0 U	10 U	10 U	250 U	5.0 U
2-ChloroethylVinylEther	510	5.0 U	5.0 U	10 U	10 U	250 U	5.0 U
Bromoform	100	4.0 U	4.0 U	8.0 U	8.0 U	200 U	4.0 U
Tetrachloroethene	5	1.0 U	1.0 U	2.0 U	12	39 J	1.0 U
1,1,2,2-Tetrachloroethane	3.2	1.0 U	1.0 U	2.0 U	2.0 U	39 J	1.0 U
Toluene	1000	5.0 U	5.0 U	10 U	10 U	37 J	5.0 U
Chlorobenzene	100	5.0 U	5.0 U	10 U	10 U	250 U	5.0 U
Ethylbenzene	700	4.0 U	4.0 U	8.0 U	8.0 U	30 J	4.0 U
Xylene(Total)	10000	5.0 U	5.0 U	10 U	10 U	140 J	5.0 U
Total Confident Conc. VOAs (s)	11	202	244	460	14060	0	0
VOLATILE COMPOUNDS - TICs:							
Methyl Tert-Butyl Ether (MTBE)	20	130	ND	58	ND	ND	ND
Unknowns/isomers		ND	6.7	32	ND	ND	ND
2-methoxy-2-methyl-propane		ND	ND	ND	790	790	ND
Total Estimated Conc. VOA TICs	130	6.7	90	0	790	0	0

Qualifiers
 U - The compound was not detected at the indicated concentration.
 J - Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than zero.
 The concentration given is an approximate value.
 ND- Not Detected
 NR - Not analyzed.

Table 2
Baseline Ground Water Sampling Event (February 1999) - Metals and Flouride
Bishop Tube Site - Frazer, PA

Sample ID	Act 2 Ground Water MSCs (Used Aquifer)	MW-8	MW-11	MW-3	MW-15	MW-17	MW-2
Lab Sample Number		114321	114322	114323	114324	114325	114326
Sampling Date		02/18/99	02/18/99	02/18/99	02/19/99	02/19/99	02/19/99
Dilution Factor							
METALS (dissolved)	units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Chromium (total)	100	2.9	4.1	2.9	2.9	2.9	2.9
Copper	1000	2.6	6.2	2.6	3.0	2.6	2.6
Nickel	100	9.4	5.0	5.0	5.0	5.0	5.0
Zinc	2000	192	10.9	22.0	1.2	23.9	19.0
FLUORIDE (total)	units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Flouride	2	2.2	0.21	0.26	0.16	0.1	0.1
Qualifiers							
U - The compound was not detected at the indicated concentration.							
B - Reported value is less than the method detection limit but greater than or equal to the instrument detection limit							
NR - Not analyzed.							

Table 2
 Baseline Ground Water Sampling Event (February 1999) - Metals and Flouride
 Bishop Tube Site - Frazer, PA

Sample ID	Act 2 Ground	MW-19	Trip_Blank	MW-2-T	MW-16	MW-20	MW-12
Lab Sample Number	Water MSCs	114327	114328	114329	113962	113963	113964
Sampling Date	(Used Aquifer)	02/19/99	02/19/99	02/19/99	02/17/99	02/17/99	02/17/99
Dilution Factor	(Nonresidential)	WATER	WATER	WATER	WATER	WATER	WATER
		ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
METALS (dissolved)							
Chromium (total)	100	2.9	U	NR	5.6	3.4	130
Copper	1000	2.6	U	NR	2.6	4.3	6.5
Nickel	100	7.3	B	NR	5.0	5.0	5.0
Zinc	2000	28.6	JB	NR	3.3	2.0	88.7
FLUORIDE (total)							
Flouride	units	mg/L		NR	mg/L	mg/L	mg/L
		2		NR	0.14	0.1	1.2
Qualifiers							
U -	The compound was not detected at the indicated concentration.						
B -	Reported value is less than the method detection limit but greater than or equal to the instrument detection limit						
NR -	Not analyzed.						

**Table 2
Baseline Ground Water Sampling Event (February 1999) - Metals and Flouride
Bishop Tube Site - Frazer, PA**

Sample ID	Act 2 Ground Water MSCs (Used Aquifer) (Nonresidential)	MW-1	MW-5	MW-7	MW-6	MW-4	MW-18
Lab Sample Number		113729	113730	113731	113732	113733	113734
Sampling Date		02/16/99	02/16/99	02/16/99	02/16/99	02/17/99	02/17/99
Dilution Factor							
METALS (dissolved)							
Chromium (total)	100	2.9	2.9	301	17.6	225	2.9
Copper	1000	19.2	2.6	2.6	18.0	13.7	5.8
Nickel	100	5.0	566	241	16.5	197	5.0
Zinc	2000	105	109	168	494	30.4	72.5
FLUORIDE (total)							
Flouride	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	2	0.1	15.0	4.9	3.6	16.4	0.12
	units						
Qualifiers							
U - The compound was not detected at the indicated concentration.							
B - Reported value is less than the method detection limit but greater than or equal to the instrument detection limit							
NR - Not analyzed.							

Table 3
East Side of Plant Monitoring Wells
Summary of Volatile Organics in Ground Water
Bishop Tube Site
Frazer, Pennsylvania

Monitoring Well ID./ Monitored Depth Interval**	Compound: Statewide Standard (1) Sample Date	Volatile Organic Compound																			
		PCE	TCE	o-1,2-DCE	1,1-DCE	Vinyl Cl	1,1,1-TCA	1,2-DCA	1,1-DCA	Chl. Ethane	Methylene Cl	Chloroform	1,4-DCB	CB	TOFM	DECM	BDCM	Bromoform	Bromometh.	MTBE	Benzene
		5	70	100	7	2	200	5	110*	58000	100	75	100	2000	100	100	100	10	20	5	
MW-1 24 - 48 (rock)	08/15/87	<1	5.1	<1	<1	<1	1.2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ND
	08/29/89	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ND
	11/27/89	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ND
	03/22/90	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ND
	07/18/90	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ND
MW-4 7 - 20 (unconsolidated)	02/16/89	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	08/15/87	73.9	421	287	11.7	58.8	18.4	<1	15.6	<1	<1	<1	5.7	<1	<1	<1	<1	<1	<1	<1	ND
	08/29/89	24.9	1110	316	5.5	<1	18.9	<1	11.2	<1	<1	<1	<1	42.2	<1	<1	<1	<1	<1	<1	ND
	11/27/89	12.5	457	158	4.1	23.3	17	<1	10.9	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ND
	03/22/90	75.6	1450	538	6.5	74.2	15.3	<1	21.9	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ND
MW-5 10 - 20 (unconsolidated)	07/18/90	24.4	823	<10	<10	26	<10	<10	11.3	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	01/24/96	23	490	<10	<10	<10	13	<10	12	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	02/17/99	12	200	160	3.2 J	1.8 J	76	1.8 J	4	12	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	08/15/87	<1	83.5	407	6.4	28	6.1	8.4	22.6	13.2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ND
	08/29/89	<1	<1	18.5	<1	4.2	<1	<1	16.6	3.3	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ND
MW-6 11 - 21 (unconsolidated)	11/27/89	<1	2.2	11.2	<1	<1	1.2	<1	15.4	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ND
	03/22/90	<1	13.6	34.3	1.5	3.9	36.1	<1	19.9	3.3	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ND
	07/18/90	<1	10.6	<1	<1	<1	4.1	<1	26.5	3.2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ND
	02/16/89	<1	2.7	2.7 J	<1	3.6 J	1 J	<1	8.3	2.6 J	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	130
	08/15/87	3	255	86.2	13.1	13	94.7	5.4	14.9	<1	<1	<1	<1	1.3	<1	<1	<1	<1	<1	<1	ND
MW-7 10 - 20 (unconsolidated)	08/29/89	<1	526	82.4	6.5	8.7	70.1	<1	9.9	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ND
	11/27/89	2.3	482	68.8	5.8	6.8	71.1	1.9	9.6	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ND
	03/22/90	<10	630	<10	<10	7.5	55.2	<10	13.1	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	07/18/90	<10	788	<10	<10	7.3 J	4.3 J	<10	3.6 J	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	02/16/89	<2	190	54	1.3 J	7.2	<1	24.8	<1	17.3	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<10
MW-8 8 - 18 (unconsolidated)	08/15/87	4.4	346	343	4.2	<1	2.5	<1	1.3	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ND
	08/29/89	<1	78.9	49.3	<1	<1	16.3	<1	11.8	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ND
	11/27/89	3.7	413	452	<1	<1	8.1	<1	11.6	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ND
	03/22/90	<5	257	395	<5	<5	10.6	<5	10.2	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ND
	07/18/90	<5	482	<5	<5	<5	0.8 J	<5	2.1 J	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	ND
MW-9 48 - 63 (rock)	02/16/99	<1	62	140	1.1 J	<2	355	9.6	12.8	<1	13.9	<1	<1	<1	<1	<1	<1	<1	<1	<1	ND
	08/15/87	6.5	628	477	64.2	171	389	<1	3.2	16.8	1.6	<1	<1	<1	<1	<1	<1	<1	<1	<1	ND
	08/29/89	9.3	2860	803	37.7	86.8	399	<1	2.8	<1	1.1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ND
	(duplicate)	9.2	2750	798	37.7	60.8	395	<1	3.3	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ND
	11/27/89	8.3	10100	934	23	128	309	<1	3.3	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ND
MW-9 48 - 63 (rock)	03/22/90	<50	52200	276	50	<50	755	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	07/18/90	<50	63200	<50	<50	<50	684	<50	<50	<50	83	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	02/16/89	<10	250	420	7.6 J	880	73	<20	<50	<20	<30	<50	<50	<20	<50	<50	<50	<50	<50	<50	<10
	08/15/87	11	739	119	90.7	12.1	390	2.4	93.3	<1	4.3	<1	<1	<1	<1	<1	<1	<1	<1	<1	ND
	08/29/89	14.9	4130	482	63.3	14.4	621	<1	20.5	<1	2.4	<1	<1	<1	<1	<1	<1	<1	<1	<1	ND
MW-9 48 - 63 (rock)	11/27/89	40.6	24100	1150	79.8	13.6	1130	1	15.5	<1	1.9	<1	<1	<1	<1	<1	<1	<1	<1	<1	ND
	(duplicate)	26.4	27900	1080	112	12.1	1050	<1	17.6	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	ND
	03/22/90	<50	100000	668	103	<50	1310	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	(duplicate)	<50	107000	690	116	<50	1420	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
	07/18/90	<50	84300	<50	<50	<50	970	<50	<50	<50	98.1	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
02/16/89	<50	96500	<50	<50	<50	290	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	
01/24/96	<50	2300	<50	<50	<50	14 J	160	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<10	
02/19/99	<10	930	190	15 J	14 J	160	<20	<50	<50	<50	<50	<50	<20	<50	<50	<50	<50	<50	<50	<10	

Concentrations in ug/l (ppb)

1,2-DCA - 1,2-Dichloroethane
1,1-DCA - 1,1-Dichloroethane
1,1,1-TCA - 1,1,1-Trichloroethane
1,4-DCB - 1,4-Dichlorobenzene
PCE - Tetrachloroethane
c-1,2-DCE - cis-1,2-Dichloroethane
t-1,2-DCE - trans-1,2-Dichloroethane
1,1-DCE - 1,1-Dichloroethane
TCE - Trichloroethane
MTBE - Methyltert butyl ether

CB - Chlorobenzene
TOFM - Trichlorofluoromethane
BDCM - Dibromochloromethane
BDCM - Bromodichloromethane

(1) - Medium Specific Concentration for Used Aquifer
* - nonresidential used aquifer where notated
-- - feet below grade
(-) - Not analyzed
J - Estimated concentration below method detection limit
ND - Compound not detected (detection limit not shown for historical data or library search compound)

Table 3
Off-Site Area Monitoring Wells
Summary of Volatile Organics in Ground Water
Bishop Tube Site
Frazer, Pennsylvania

Monitoring Well ID / Monitored Depth Interval**	Compound: Statewide Standard (1) Sample Date	Volatile Organic Compound																				
		PCE	TOE	c-1,2-DCE	1,1,2-DCE	1,1-DCE	Vinyl Cl	1,1,1-TCA	1,2-DCA	1,1-DCA	Chl. Ethane	Meth. Cl	Chloroform	1,4-DCB	CB	1,2-DCP	TCFM	DBCM	Bromoform	Toluene	Ethyl Benz	Xylenes
		5	5	70	100	7	2	200	5	27*	58000	5	100	76	100	5	2000	100	100	1000	700	10000
MW-13 27 - 37 (rock)	08/29/89	23.5	10600	-	110	164	<1	3470	<1	33.6	<1	<1	<1	<1	<1	<1	<1	<1	<1	ND	ND	ND
	09/28/89	<10	863	-	12.3	22.6	<10	490	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ND	ND	ND
	01/23/86	<500	2900	-	<500	<500	<500	1400	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	<500	ND	ND	ND
	02/18/89	<25	2500	270	<120	56	<120	1200	<50	<120	<120	<120	<120	ND	<120	<25	<120	<120	<120	<100	<120	<120
MW-14 5 - 15 (unconsolidated)	08/29/89	<1	666	-	10.6	16.6	<1	287	<1	8.9	<1	<1	<1	<1	<1	<1	<1	<1	<1	ND	ND	ND
	(duplicate)	<1	751	-	12.5	13.2	<1	323	<1	7.3	<1	<1	<1	<1	<1	<1	<1	<1	<1	ND	ND	ND
	09/28/89	31.3	13800	-	140	229	<10	3930	<10	35.9	<10	<10	<10	<10	<10	<10	<10	<10	<10	ND	ND	ND
	01/23/86	<10	1200	-	<10	14	<10	310	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	ND	ND	ND
MW-15 68 - 78 (rock)	02/18/89	<1	42	-	<10	1.6 J	<5	17	<2	<5	<5	<5	<5	ND	<5	<5	<5	<5	<5	1.1 J	0.7 J	1.9 J
	08/29/89	39.3	44400	-	570	564	<1	7800	<1	53.8	<1	<1	<1	<1	<1	<1	<1	<1	<1	ND	ND	ND
	09/28/89	97.6	116000	-	446	789	<1	10100	<1	66.4	<1	<1	<1	<1	<1	<1	<1	<1	<1	ND	ND	ND
	01/23/86	<500	1400	-	<500	<500	<500	4800	<500	<500	<500	<500	<500	<500	<500	380 J	<500	<500	<500	ND	ND	ND
MW-16 7 - 21 (unconsolidated)	02/19/89	<25	1100	270	<120	100	<50	2200	<50	45 J	<50	<75	<120	ND	<120	<25	<50	<120	<120	<100	<100	<120
	08/29/89	7.4	4580	-	169	140	<1	2340	41.8	18.6	<1	<1	<1	<1	<1	<1	<1	<1	<1	ND	ND	ND
	09/28/89	3	1144	-	110	103	<1	1320	<1	265	<1	<1	<1	<1	<1	<1	<1	<1	<1	ND	ND	ND
	01/23/86	<50	660	-	<50	<50	<50	920	<50	<50	<50	<50	<50	<50	<50	110	<50	<50	<50	ND	ND	ND
MW-17 200 - 301 (rock)	(duplicate)	<50	660	-	<50	<50	<50	950	<50	<50	<50	<50	<50	<50	<50	90	<50	<50	<50	ND	ND	ND
	02/17/89	<10	520	82	<50	63	<50	1300	<20	20 J	<30	<30	ND	<50	<10	<50	<50	<50	<50	<40	<40	<50
	01/23/86	<5000	110000	-	<5000	<5000	<5000	50000	<5000	<5000	<5000	<5000	<5000	<5000	13000	<5000	<5000	<5000	<5000	ND	ND	ND
	02/19/89	<500	52000	720 J	<2500	720 J	<1000	16000	<1000	910 J	<1000	<1000	<2500	ND	<2500	<500	<1000	<2500	<2000	<2000	<2500	<2500

Concentrations in ug/l (ppb)

(1) - Medium Specific Concentration for Used Aquifer

* - residential used aquifer where notated

** - feet below grade

(-) - Not analyzed

J - Estimated concentration below method detection limit

ND - Compound not detected (detection limit not shown for historical data or library search compound)

Note: Methylene Chloride (1.2 ppb) and TCE (12.7 ppb) were detected in the trip blank submitted on 9/29/88.

Methylene Chloride (1.2 ppb) and TCE (3.5 ppb) were detected in the field blank submitted on 9/28/88.

June 10, 1989

1,1-DCA - 1,1 Dichloroethane
CF - Chloroform
TCFM - Trichlorofluoromethane
DBCM - Dibromochloromethane
c-1,2-DCE - cis-1,2-Dichloroethane
t-1,2-DCE - trans-1,2-Dichloroethane
TCE - Trichloroethene
PCE - Tetrachloroethene
CB - Chlorobenzene