



FOSTER WHEELER ENVIRONMENTAL CORPORATION

January 19, 1998
File #: 1284-0018-98-0033

Commanding Officer
Northern Division
Naval Facilities Engineering Command
10 Industrial Highway, Mail Stop #82
Lester, PA 19113
Attn.: Code 4023 (S. Lehman)

Subject: US NAVY CONTRACT NO. N62472-94-D-0398
DELIVERY ORDER NO. 0018-06, NAWC WARMINSTER, PA
December, 1997 GROUNDWATER PUMP & TREAT SYSTEM MONTHLY REPORT

Dear Mr. Lehman:

This letter report provides the results of the December, 1997 sampling and the activities performed during the reporting period from December 1, 1997 through December 31, 1997. The groundwater treatment plant operated 100% of the reporting period.

As of December 31, 1997 (2400 hours) a total of 1,003,334 gallons of groundwater had been treated during the period from December 1, 1997 through December 31, 1997. This brings the total amount of water treated to 24,203,209 gallons (December 31, 1997). During December, 1997 the average effluent flowrate was 22.5 gpm.

The process water was sampled on December 22, 1997, the results of this sampling are presented in the attached table. This data shows that no discharge limits were exceeded during the December, 1997 reporting period.

There were no alarm/system or operator induced shutdowns during the reporting period.

The following maintenance was performed on the groundwater treatment system during December, 1997:

1. Ran all chemical feed systems with water. (Chemicals are currently not being used in the treatment system).
2. Ran sludge transfer pumps.
3. Cleaned sand filter injection tube, and drained and cleaned air moisture knockout. Reset both to factory specified settings.
4. Pump P-20 was not running properly. Problem was corrected by locking and tagging out P-20, closing the proper ball valves, relieving pressure in the piping, disconnecting piping from the pump, and opening up the check valve which was stuck in the closed position. System was not shutdown during maintenance.

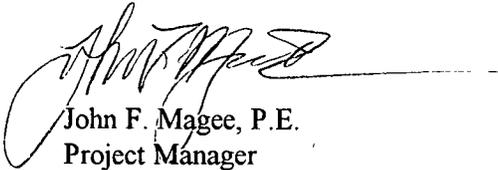
The Tetrachloroethene concentration in the groundwater influent to the system was 4.1 ug/l, with a total of 0.034 pounds of Tetrachloroethene removed during the December, 1997 reporting period. The total amount of Tetrachloroethene removed through December 31, 1997 is 2.096 pounds.

Calculation:
Average PCE concentration = 4.1 ug/l
Average water flowrate for month of December, 1997 = 22.5 gpm
Pounds of PCE removed = $(22.5 \text{ gpm})(44640 \text{ min})(4.1 \text{ ug/l})(3.785 \text{ l/gal})$ $(1 \text{ g} / 1,000,000 \text{ ug})(1 \text{ lb} / 454 \text{ g}) = 0.034 \text{ pounds of PCE}$

The scheduled dates which Foster Wheeler Environmental's operator will be on-site during the month of February, 1998 are presented in the attached schedule.

If you should have any questions or comments regarding the December, 1997 reporting period, please feel free to contact either me at 215-702-4007 or Dave DiCesare at 215-702-4074.

Sincerely,



John F. Magee, P.E.
Project Manager



David J. DiCesare
Project Engineer

cc: L. Monaco (USEPA)
T. Ames (CSO)
N. Crickman (PADEP)
M. Hunter (CSO)
E. Beatty (ROICC)
D. Kennedy (PADEP)
D. Ostrauskas (USEPA)
A. Wills (Bucks Co. Dept. of Health)
D. Fennimore (Earth Data Inc.)
A. Holcomb (FWENC)
File



**Foster Wheeler Environmental Corporation
NAWC, Warminster Groundwater Pump and Treatment Plant
Operator Schedule for February, 1998**

**Monday, February 2, 1998
Wednesday, February 4, 1998
Monday, February 9, 1998
Wednesday, February 11, 1998
Wednesday, February 18, 1998
Monday, February 23, 1998
Wednesday, February 25, 1998**



FOSTER WHEELER ENVIRONMENTAL CORPORATION
NAWC, Warminster - Groundwater Pump and Treat Plant
Sampling Results - Decemb r, 1997

FWENC - Sample ID		DO-0018-06-001	DO-0018-06-02	DO-0018-06-003	DO-0018-06-004	DO-0018-06-05	DO-0018-06-06	DO-0018-06-007	
Sample Location		Area C Influent	Equalization Tank Effluent	Inclined Plate Separator Effluent	Sand Filter Effluent	Air Stripper Effluent	Lead Carbon Unit Effluent	Treatment Plant Effluent	Discharge Limits
Sample Date	Method	22-Dec-97	22-Dec-97	22-Dec-97	22-Dec-97	22-Dec-97	22-Dec-97	22-Dec-97	Instantaneous Maximum
Total Discharge (gal.) thru								1,003,334	
Average Discharge Flowrate (gpm) for December, 1997								22.5	
pH	EPA 150.1	6.9	7.3	N/A	7.4	N/A	N/A	7.9	6.0-9.0
Total Suspended Solids (mg/l)	EPA 160.2	4	3	<1	<1	N/A	N/A	<1	75 mg/l
Total Organic Carbon (mg/l)	415.1/EPA600	N/A	BDL	N/A	N/A	N/A	BDL	BDL	-
Carbon Tetrachloride	EPA 8260A	N/A	BDL	N/A	N/A	BDL	BDL	BDL	4.2 ug/l
Tetrachloroethene	EPA 8260A	N/A	4.1	N/A	N/A	BDL	BDL	BDL	10.0 ug/l
Trichloroethene	EPA 8260A	N/A	BDL	N/A	N/A	BDL	BDL	BDL	42.5 ug/l
Vinyl Chloride	EPA 8260A	N/A	BDL	N/A	N/A	BDL	BDL	BDL	0.27 ug/l
1,1-Dichloroethene	EPA 8260A	N/A	BDL	N/A	N/A	BDL	BDL	BDL	0.85 ug/l
Cadmium	SW846	N/A	BDL	N/A	BDL	N/A	N/A	BDL	4.0 ug/l
Copper	SW846	N/A	BDL	N/A	BDL	N/A	N/A	BDL	24.0 ug/l
Lead	SW846	N/A	BDL	N/A	BDL	N/A	N/A	BDL	11.0 ug/l
Zinc	SW846	N/A	66.8	N/A	34.8	N/A	N/A	30.2	157 ug/l
Arsenic	SW846	N/A	BDL	N/A	BDL	N/A	N/A	BDL	0.27 ug/l
Aluminum	SW846	N/A	BDL	N/A	BDL	N/A	N/A	BDL	1875 ug/l
Total Iron	SW846	N/A	329	N/A	115	N/A	N/A	BDL	3600 ug/l
Total Manganese	SW846	N/A	BDL	N/A	BDL	N/A	N/A	BDL	3750 ug/l
Mercury	SW846	N/A	BDL	N/A	BDL	N/A	N/A	BDL	0.045 ug/l
Total Cyanide (mg/l)	SW846 9010A	N/A	<0.02	N/A	<0.02	N/A	N/A	<0.02	-
Chromium (+6) - (mg/l)	SW846 7196	N/A	<0.01	N/A	<0.01	N/A	N/A	<0.01	23.2 ug/l

NOTES:

1 - All concentrations are in ug/l unless otherwise noted.
N/A - indicates compound was not analyzed for.
BDL - Below Detection Limits