



FOSTER WHEELER ENVIRONMENTAL CORPORATION

May 12, 1999

File #: 1284-0018-99-0185

Commanding Officer
Northern Division
Naval Facilities Engineering Command
10 Industrial Highway, Mail Stop #82
Lester, PA 19113
Attn.: Code 4022 (S. Lehman)

Subject: US NAVY CONTRACT NO. N62472-94-D-0398
DELIVERY ORDER NO. 0018-06, NAWC WARMINSTER, PA
March, 1999 GROUNDWATER PUMP & TREAT SYSTEM
MONTHLY REPORT

Dear Mr. Lehman:

This letter report provides the results of the March, 1999 sampling and the activities performed during the reporting period from March 1, 1999 through March 31, 1999. The groundwater treatment plant operated 91% of the reporting period.

As of March 31, 1999 (2400 hours) a total of 917,829 gallons of groundwater had been treated during the period from March 1, 1999 through March 31, 1999. This brings the total amount of water treated to 35,214,307 gallons (March 31, 1999). During March, 1999 the average effluent flowrate was 22.5 gpm.

The process water was sampled on March 29, 1999. The results of this sampling are presented in the attached table. This data shows that no discharge limits were exceeded during the March, 1999 reporting period. Tetrachloroethene was detected in the plant's Area C influent and in the equalization tank effluent sample. As in February, 1999, Trichloroethene was detected in the equalization tank effluent sample. Since Trichloroethene was not detected in the Area C influent, the Trichloroethene is attributed to the discharge of purge and decontamination water from the Area "A" drilling program for treatment at the groundwater pump and treat plant.

The February, 1999 sampling results indicated that 280 ug/L and 13,100 ug/L of Trichloroethene were found in the plant's Area "C" influent and equalization tank, respectively. The Trichloroethene found in the Area "C" influent is attributed to purge water from the Area "A" and "D" drilling program which was discharged to the Area "C" sump for treatment. The Trichloroethene levels detected in the equalization tank effluent is attributed to the pumping of extraction wells EWA-6 and EWA-7. A separate sample will be taken of the Area "A" influent beginning in April, 1999 to determine the contaminant concentrations contributed by each area.

In addition, the February, 1999 laboratory data for the Area "C" influent showed Tetrachloroethene at levels below the detection limit of 0.9 ug/L. This is the first period where this occurred, and a review of the laboratory data submittal shows no abnormal laboratory calibration error, or procedures to which this can be attributed. However, since the Tetrachloroethene levels have been continuously detected in a



stabilized range, the lower concentration indicated may be due to Tetrachloroethene that had volatilized during pump transfer from Area "C" to the plant.

During the reporting period there were two system shutdowns:

- 3/14/99- Pumps P-19 and P-20 in overload at 2227 hours, and the air receiver pressure low at 0042 hours on 3/15/99. Most likely cause would be a brief power outage. No other cause found. The system was restarted on 3/15/99 at 1231 hours.
- 3/21/99- Pump P-19 in overload at 0556 hours. Air receiver pressure low at 0801 hours. No cause found. Power outage probable. The system was restarted on 3/23/99 at 1240 hours.

Maintenance items performed during the month of March are as follows:

- 3/01/99- Reinstalled Area "A" pneumatic pumps into EW-A6 and EW-A7. They had been removed so that USGS could perform their work prior to well screen installation.
- 3/12/99- Replaced PVC barbed elbow on EW-A7 with a brass fitting. Original had begun to melt due to heat trace.
- 3/18/99- Repaired EW-A7. The float inside had become stuck.

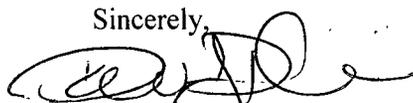
The Tetrachloroethene and Trichloroethene concentrations in the groundwater influent to the system were 19 ug/L and 2.4 ug/l respectively, with a total of 0.14 pounds of Tetrachloroethene and 0.018 pounds of Trichloroethene removed during the March, 1999 reporting period. The cumulative total amounts of Tetrachloroethene and Trichloroethene removed through March, 1999 are 3.392 and 96.484 pounds, respectively.

Calculation:
Average PCE concentration = 19 ug/l
Average water flowrate for month of March, 1999 = 22.5 gpm
Pounds of PCE removed = (22.5 gpm)(40,512 min)(19 ug/L)(3.785 L/gal) (1 g / 1,000,000 ug)(1 lb. / 454 g) = 0.14 lbs. PCE

Calculation:
Average TCE concentration = 2.4 ug/l
Average water flowrate for month of March, 1999 = 22.5 gpm
Pounds of TCE removed = (22.5 gpm)(40,512 min)(2.4 ug/L)(3.785 L/gal) (1 g/1,000,000 ug)(1 lb. / 454 g) = 0.018 lbs. TCE

If you should have any questions or comments regarding the March, 1999 reporting period, please feel free to contact Dave DiCesare at 215-702-4074.

Sincerely,



David J. DiCesare
Project Engineer

cc: L. Monaco (NORTHDIV)
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File

**Foster Wheeler Environmental Corporation
NAWC, Warminster - Groundwater Pump and Treat Plant
March, 1999 - Sampling Results**

FWENC - Sample ID		DO-0018-06-001	DO-0018-06-002	DO-0018-06-003	DO-0018-06-004	DO-0018-06-005	DO-0018-06-006	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 Instantaneous Maximum
Sample Date	Method	29-Mar-99	29-Mar-99	29-Mar-99	29-Mar-99	29-Mar-99	29-Mar-99	29-Mar-99	
Total Discharge (gal) thru 3/31/99									917,829
Average Discharge Flowrate (gpm) for March, 1999									22.5
pH	EPA 150 1	6.65	7.05	N/A	7.15	N/A	N/A	7.25	6.0-9.0
Total Suspended Solids (mg/l)	EPA 160 2	23	21	28	22	N/A	N/A	24	75 mg/l
Total Organic Carbon (mg/l)	415 1/EPA600	N/A	<10	N/A	N/A	N/A	<10	<10	-
Carbon Tetrachloride	EPA 8260B	BDL	BDL	N/A	N/A	BDL	BDL	BDL	4.2 ug/l
Tetrachloroethene	EPA 8260B	19	8.4	N/A	N/A	BDL	BDL	BDL	10.0 ug/l
Trichloroethene	EPA 8260B	BDL	2.4	N/A	N/A	BDL	BDL	BDL	42.5 ug/l
Vinyl Chloride	EPA 8260B	BDL	BDL	N/A	N/A	BDL	BDL	BDL	0.27 ug/l
1,1-Dichloroethene	EPA 8260B	BDL	BDL	N/A	N/A	BDL	BDL	BDL	0.85 ug/l
1,1,1,2-Tetrachloroethane	EPA 8260B	BDL	BDL	N/A	N/A	BDL	BDL	BDL	-
Cadmium	SW846	N/A	BDL	N/A	BDL	N/A	N/A	BDL	4.0 ug/l
Copper	SW846	N/A	N/A	N/A	N/A	N/A	N/A	N/A	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	31.9	N/A	61.2	N/A	N/A	57.3	157 ug/l
Arsenic	SW846	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.27 ug/l
Aluminum	SW846	N/A	47.6	N/A	8.4	N/A	N/A	BDL	1875 ug/l
Total Iron	SW846	N/A	161	N/A	BDL	N/A	N/A	BDL	3600 ug/l
Total Manganese	SW846	N/A	22	N/A	BDL	N/A	N/A	BDL	3750 ug/l
Mercury	EPA 7470A	N/A	BDL	N/A	BDL	N/A	N/A	BDL	0.045 ug/l
Total Cyanide (mg/l)	EPA 9010	N/A	BDL	N/A	BDL	N/A	N/A	BDL	-
Chromium (+6) - (mg/l)	SW846 7196	N/A	<.025	N/A	<.025	N/A	N/A	<.025	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