

URS Greiner Woodward Clyde
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September 24, 1999
47.F0R98104.00.00010

Ms. Beth Shields
U.S. Army Corps of Engineers, New England District
Attn: CENAE-EP-HTW
696 Virginia Road
Concord, MA 01742-2751

**RE: Interim Data Report
Remedial Investigation of the Stratford Army Engine Plant
Stratford, Connecticut**

Dear Ms. Shields:

In accordance with Task 10 of the Remedial Investigation Work Plan for the Stratford Army Engine Plant, URS-Greiner Woodward Clyde Federal Services (URSGWCFS) respectfully submits this Interim Data Report. As stated in the RIWP, the purpose of this deliverable is to review the status of the comprehensive conceptual model for the Site.

This report is segregated into three sections. The sections are:

SECTION 1: Monitoring Well Groundwater Sampling Volatile and Semi-Volatile Organic Results; includes a table (Table 1) of exceedances of the appropriate RSRs and a corresponding map (Figure 1) identifying the sample locations and laboratory results and iso-concentration contours of compounds exceeding the appropriate RSRs.

SECTION 2: Monitoring Well Groundwater Sampling Metals and Other Parameters Results; includes a table (Table 2) of exceedances of the appropriate RSRs and a corresponding map (Figure 2) identifying the sample locations and laboratory results and iso-concentration contours of metals exceeding the RSRs.

SECTION 3: Tidal Study Results; includes a table (Table 3) of 5 time periods of 72 hour statistically filtered mean groundwater elevations and two corresponding maps depicting mean groundwater elevation contours from the July 20 through July 23 (Figure 3) and July 24 through July 26 (Figure 4) monitoring periods.

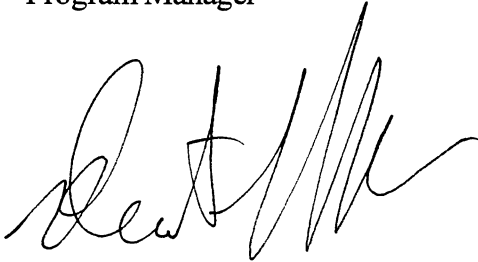
Ms. Beth Shields
June 16, 1999
Page 2 of 2

Please call Bob Wolff (973-812-6805) if you have any questions or need additional information.

Very truly yours,



Winston Stewart
Program Manager



Robert Wolff
Project Manager

Attachments

cc: J. Frye, NYACOE
J. Burleson, TACOM
K. Feathers, CTDEP
M. Cassidy, USEPA
N. Walter, HLA

1 ZOO-TOM'S

TABLE 1

SUMMARY OF VOLATILE AND SEMI-VOLATILE ORGANICS EXCEEDANCES DETECTED IN GROUNDWATER
 Stratford Army Engine Plant
 Stratford, Connecticut
 September, 1999

FIELD ID COLLECT DATE	Maximum	SURFACE-WATER PROTECTION CRITERIA (ug/L)	INDUSTRIAL / COMMERCIAL VOLATILIZATION CRITERIA FOR GROUND WATER (ug/L)	MW-2 07/12/1999 Result	MW-2 (dilution) 07/12/1999 Result	PZ-11D 07/01/1999 Result	PZ-13D 07/07/1999 Result	PZ-1D 07/06/1999 Result	PZ-1D (dilution) 07/06/1999 Result	PZ-5D 07/06/1999 Result	PZ-8D 07/07/1999 Result
VOLATILE ORGANICS (METHOD 8260) (µg/L)											
1,1-DICHLOROETHENE	3700	96	6	<	NA	230	15	140	110	<	560
TETRACHLOROETHYLENE	850	88	3820	<	NA	320	600	850	790	<	63
TRICHLOROETHYLENE	6800	2340	540	<	NA	190	790	2400	2300	0.7	120
VINYL CHLORIDE	3000	15750	2	2.2	NA	<	<	25	<	<	7.1
SEMIVOLATILE ORGANICS (METHOD 8270) (µg/L)											
ACENAPHTHENE	12	0.3	NL	7.71	8.67	<	<	<	NA	12	<

RL - Reporting Limit

Qual - Qualifier

< - Below Reporting Limit

E - Exceeds instrument calibration range

J - Estimated

U - Nondetect

UJ - Estimated nondetect

µg/L - microgram per liter

NA - Not Analyzed

NL - Not listed in the "State of Connecticut Regulation

of DEP" for Surface-Water Protection Criteria

and Industrial / Commercial Criteria for Ground Water.

BOLD- Exceeds CTDEP Surface-Water Protection Criteria for Groundwater

Italics - Exceeds CTDEP Industrial/Commercial Criteria for Groundwater

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 Stratford, Connecticut
 September, 1999

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VOLATILE ORGANICS (METHOD 8260) (µg/L)											
1,1-DICHLOROETHENE	3700	96	6	3700	280	960	20	4.9	6.8	52	<
TETRACHLOROETHYLENE	850	88	3820	110	5.2	<	400	220	290	11	<
TRICHLOROETHYLENE	6800	2340	540	6800	210	140	24	6	8.8	12	15
VINYL CHLORIDE	3000	15750	2	<	<	<	<	3.3	<	37	1800
SEMIVOLATILE ORGANICS (METHOD 8270) (µg/L)											
ACENAPHTHENE	12	0.3	NL	NA	<	<	<	<	NA	<	3.48

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 Stratford Army Engine Plant
 Stratford, Connecticut
 September, 1999

FIELD ID COLLECT DATE	Maximum	SURFACE-WATER PROTECTION CRITERIA (ug/L)	INDUSTRIAL / COMMERCIAL VOLATILIZATION CRITERIA FOR GROUND WATER (ug/L)	WC-4S 07/08/1999 Result	WC-5S 07/08/1999 Result	WC-5S (dilution) 07/08/1999 Result	WC2-1S 07/07/1999 Result	WC2-3D (dilution) 07/07/1999 Result	WC2-3S 07/13/1999 Result	WC5-1S 07/06/1999 Result	WC5-1S (dilution) 07/06/1999 Result
VOLATILE ORGANICS (METHOD 8260) (µg/L)											
1,1-DICHLOROETHENE	3700	96	6	730	<	<	<	<	<	57	57
TETRACHLOROETHYLENE	850	88	3820	<	<	<	<	99	<	14	17
TRICHLOROETHYLENE	6800	2340	540	67	<	<	39	<i>3100</i>	<	160	150
VINYL CHLORIDE	3000	15750	2	<	<i>3000</i>	<i>3000</i>	<	<	<i>21</i>	<	<
SEMIVOLATILE ORGANICS (METHOD 8270) (µg/L)											
ACENAPHTHENE	12	0.3	NL	<	3.01	NA	1.81	NA	<	<	NA

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 of DEP" for Surface-Water Protection Criteria
 and Industrial / Commercial Criteria for Ground Water

BOLD- Exceeds CTDEP Surface-Water Protection Criteria for Groundwater

Italics - Exceeds CTDEP Industrial/Commercial Criteria for Groundwater

RIPIARIAN RIGHTS: 9.188 ACRES (2,142,650 SQ FT)

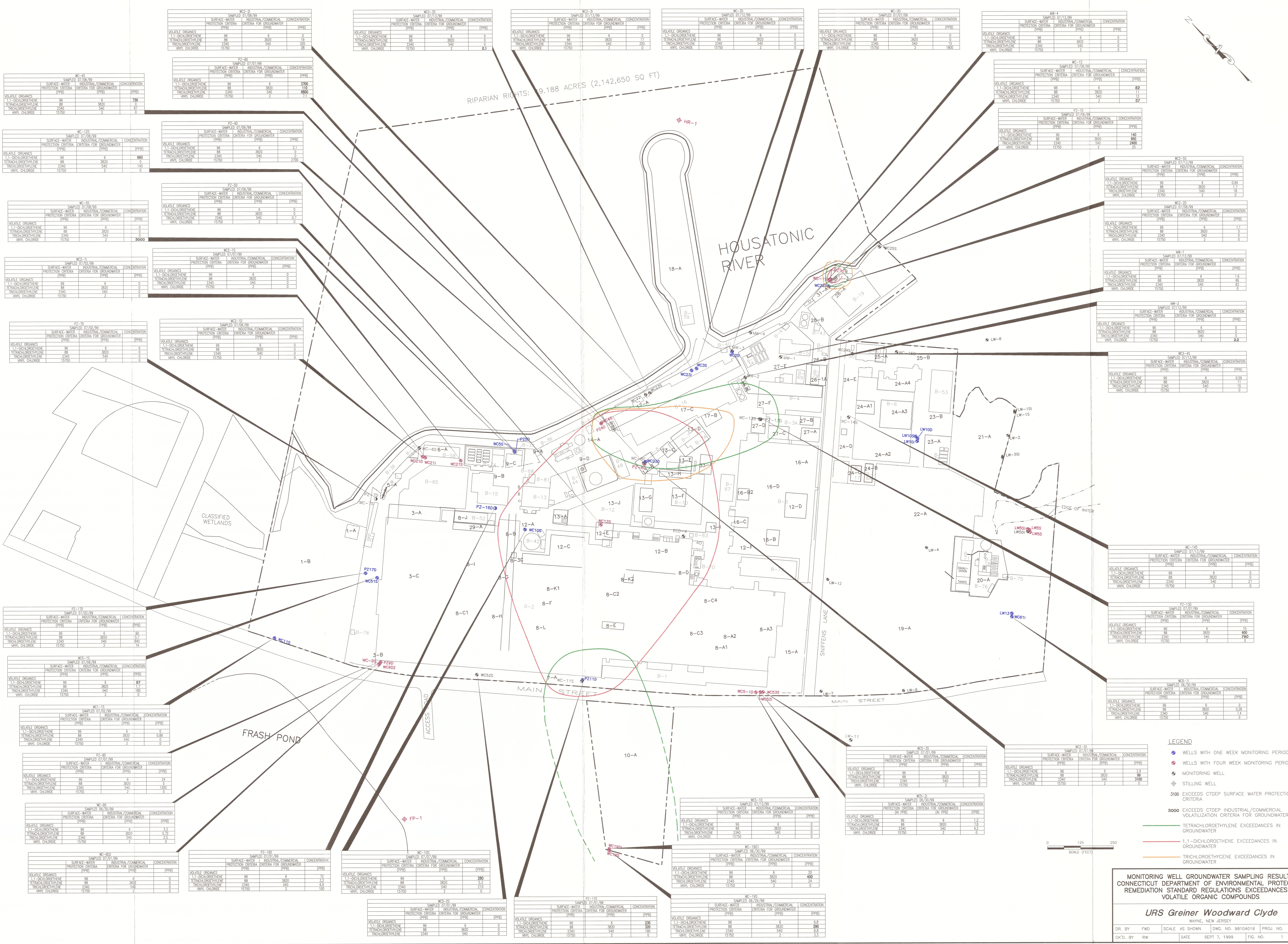
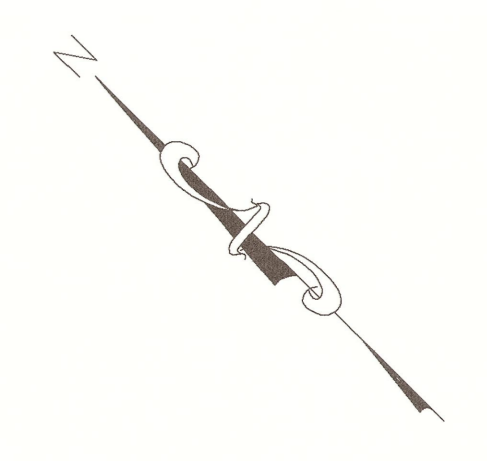
HOUSATONIC RIVER

CLASSIFIED WETLANDS

FRASH POND

MAIN STREET

SNIFFENS LANE



- LEGEND**
- WELLS WITH ONE WEEK MONITORING PERIOD
 - WELLS WITH FOUR WEEK MONITORING PERIOD
 - ⊕ MONITORING WELL
 - ⊕ STILLING WELL
 - 3100 EXCEEDS CTDEP SURFACE WATER PROTECTION CRITERIA
 - 3000 EXCEEDS CTDEP INDUSTRIAL/COMMERCIAL VOLATILIZATION CRITERIA FOR GROUNDWATER
 - TETRACHLOROETHENE EXCEEDANCES IN GROUNDWATER
 - 1,1-DICHLOROETHENE EXCEEDANCES IN GROUNDWATER
 - TRICHLOROETHENE EXCEEDANCES IN GROUNDWATER

MONITORING WELL GROUNDWATER SAMPLING RESULTS
 CONNECTICUT DEPARTMENT OF ENVIRONMENTAL PROTECTION
 REMEDIATION STANDARD REGULATIONS EXCEEDANCES - VOLATILE ORGANIC COMPOUNDS

URS Greiner Woodward Clyde
 WAYNE, NEW JERSEY

DR. BY FWD SCALE AS SHOWN DWG. NO. 98104016 PROJ. NO. R98104
 Ckd. BY RW DATE SEPT 7, 1999 FIG. NO. 1

2 ZONE-10000

TABLE 2

SUMMARY OF METALS AND OTHER PARAMETERS EXCEEDANCES DETECTED IN GROUNDWATER
 Stratford Army Engine Plant
 Stratford, Connecticut
 September, 1999

FIELD ID		SURFACE-WATER	MW-2	PZ-16D	PZ-17D	PZ-1D	PZ-4D	PZ-5D	WC-12S	WC-14S	WC-1S	WC-3S
COLLECT DATE	Maximum	PROTECTION CRITERIA	07/12/1999	07/01/1999	07/02/1999	07/06/1999	07/06/1999	07/06/1999	07/08/1999	07/13/1999	07/08/1999	07/12/1999
		(mg/L)	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
METALS (mg/L)												
ARSENIC	0 05	0 004	0.017	0.0051	<	0.0047	0.018	0.038	<	0.0074	0.0061	0.005
CADMIUM	0027 J	0 006	<	<	0 0022	<	<	<	<	<	<	<
CHROMIUM, TOTAL	0 35	0 11	<	<	<	<	0 019	<	0.35	<	<	<
LEAD	0 02	0 013	<	<	<	0 0016	0.019	<	<	<	<	<
MERCURY	000318 J	0 0004	<	0 000318	<	<	0 000242	<	<	<	<	<
SELENIUM	0072 J	0 05	<	<	<	<	<	<	<	<	0 0043	<
SILVER	05 J	0 012	<	<	<	0 005	<	<	<	<	<	<
OTHER PARAMETERS (mg/L)												
CYANIDE	0 078	0 052	<	<	<	<	<	<	0.078	<	<	<

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Qual - Qualifier

< - Below Reporting Limit

E - Exceeds instrument calibration range

J - Estimated

UJ - Estimated nondetect

mg/L - milligram per liter

NL - Not listed in the "State of Connecticut Regulation
 of DEP" for Surface-Water Protection Criteria

BOLD - Exceeds CTDEP Surface-Water Protection Criteria for Groundwater

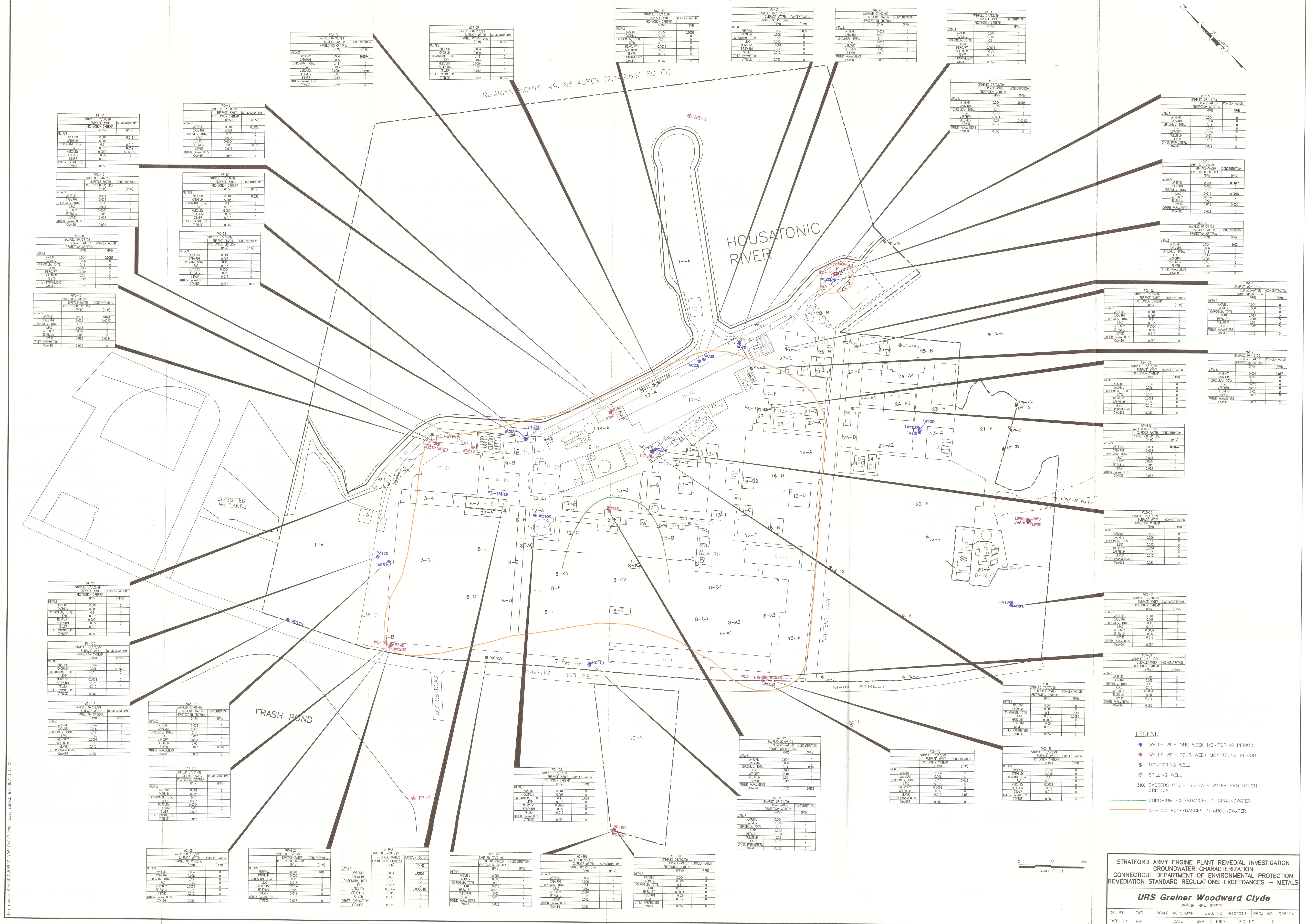
TABLE 2

SUMMARY OF METALS AND OTHER PARAMETERS EXCEEDANCES DETECTED IN GROUNDWATER
 Stratford Army Engine Plant
 Stratford, Connecticut
 September, 1999

FIELD ID		SURFACE-WATER	WC-4S	WC-5S	WC-9D2	WC2-1D	WC2-1I	WC2-2D	WC2-2I	WC2-3I	WC5-1D
COLLECT DATE	Maximum	PROTECTION CRITERIA	07/08/1999	07/08/1999	07/01/1999	07/06/1999	07/02/1999	07/08/1999	07/08/1999	07/13/1999	07/13/1999
		(mg/L)	Result	Result	Result	Result	Result	Result	Result	Result	Result
METALS (mg/L)											
ARSENIC	0.05	0.004	0.0055	<	0.05	0.024	0.0086	0.02	0.0074	0.0059	<
CADMIUM	0.027 J	0.006	<	<	<	0.0027	<	<	<	<	<
CHROMIUM, TOTAL	0.35	0.11	<	<	<	<	<	<	<	<	0.052
LEAD	0.02	0.013	<	<	<	<	<	<	<	<	<
MERCURY	0.00318 J	0.0004	<	<	<	<	<	<	0.000309	<	<
SELENIUM	0.072 J	0.05	0.0072	<	<	<	<	<	<	<	<
SILVER	0.5 J	0.012	<	<	<	0.0064	<	<	<	<	0.05
OTHER PARAMETERS (mg/L)											
CYANIDE	0.078	0.052	<	0.013	<	<	<	<	<	<	<

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 < - Below Reporting Limit
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 UJ - Estimated nondetect
 mg/L - milligram per liter
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 Handwritten number: 2.70



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HOUSATONIC RIVER

CLASSIFIED WETLANDS

FRASH POND

MAIN STREET

MAIN STREET

SNIFFENS LANE

ACCESS ROAD

- LEGEND**
- WELLS WITH ONE WEEK MONITORING PERIOD
 - WELLS WITH FOUR WEEK MONITORING PERIOD
 - MONITORING WELL
 - ⊕ STILLING WELL
 - 3100 EXCEEDS CTEP SURFACE WATER PROTECTION CRITERIA
 - CHROMIUM EXCEEDANCES IN GROUNDWATER
 - ARSENIC EXCEEDANCES IN GROUNDWATER

0 125 250
SCALE (FEET)

STRATFORD ARMY ENGINE PLANT REMEDIAL INVESTIGATION
GROUNDWATER CHARACTERIZATION
CONNECTICUT DEPARTMENT OF ENVIRONMENTAL PROTECTION
REMEDIAION STANDARD REGULATIONS EXCEEDANCES - METALS

URS Greiner Woodward Clyde
WAYNE, NEW JERSEY

DR. BY FWD SCALE AS SHOWN DWG. NO. 98104013 PROJ. NO. RB8104
CK'D. BY RW DATE SEPT 7, 1999 FIG. NO. 2

SECTION
3

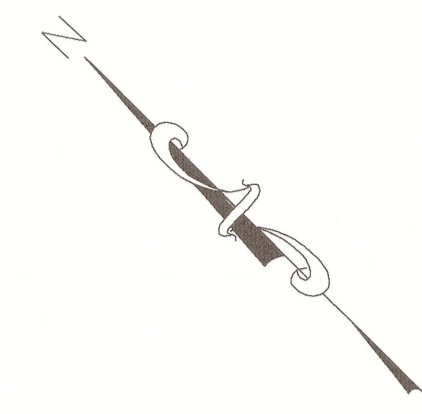
TABLE 3

Summary of 72 Hour Statistical Filtering Mean Groundwater Elevations
 Stratford Army Engine Plant
 Stratford, Connecticut
 September, 1999

Monitoring Location	72 Hour Filtering Period				
	7/20(20:15) - 7/23(20:15)	7/24(0:15) - 7/26(23:15)	7/27(0:00) - 7/29(23:00)	8/3(0:00)-8/5(23:00)	8/10(0:00)-8/12(23:00)
Elevation (ft)					
Drainage Area	1 87	2 08	2 25	2 11	2 33
Housatonic River	0 87	1 26	1 34	1 40	1 34
Frash Pond	1 65	1 80	1 95	1 90	2 16
LW-5d	1 15	1 14	1 14	1 14	1 24
LW-5s	1.69	1 72	1 74	1 73	2 28
LW-5s1	1 79	1 86	1.89	1 87	2 15
PZ-4d	2 20	2 20	2 19	2 20	2 34
PZ-9d	2 24	2 22	2 21	2 22	2 33
WC-12s	2 23	2 24	2 22	2 21	2 31
WC-19d	2.13	2 11	2 11	2 12	2 28
WC-19s	2 17	2 16	2.16	2 17	2 35
WC2-1d	1 88	1 88	1 87	1 89	2 06
WC2-1i	2 00	2 01	2 00	2 01	2 14
WC2-1s	1 64	1 69	1 75	1 75	1 91
WC-4s	1 81	1 92	2 03	2 03	2 26
WC5-1d	1 68	1 82	1 86	2 05	2 23
WC5-2i	2.28	2.27	2 25	2 24	2 34
WC5-3s	2.28	2 27	2 25	2 24	2 35
WC-9d2	2 18	2 05	2 32	2 80	3 15
WC-9s	2 08	2 06	2 05	2 06	2 18
LW-10d	1 57	1 12	NM	NM	NM
LW-10i	1 63	1 62	NM	NM	NM
LW-10s	2 58	2 55	NM	NM	NM
LW-13	2.36	2 35	NM	NM	NM
PZ-11d	2 33	2 31	NM	NM	NM
PZ-17d	1 89	1 87	NM	NM	NM
PZ-5d	2.20	2 20	NM	NM	NM
WC-10s	2 21	2 20	NM	NM	NM
WC1-1s	2 43	2 70	NM	NM	NM
WC2-2d	1 04	0 98	NM	NM	NM
WC2-3d	1 97	1 97	NM	NM	NM
WC-2d	1 95	1 97	NM	NM	NM
WC3-3i	1 99	2 00	NM	NM	NM
WC-3s	1 46	1 67	NM	NM	NM
WC5-1s	2 13	2 12	NM	NM	NM
WC-5s	1 73	1 81	NM	NM	NM
WC6-1i	2 13	2 15	NM	NM	NM

NM - Well not monitored during period

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HOUSATONIC RIVER

CLASSIFIED WETLANDS

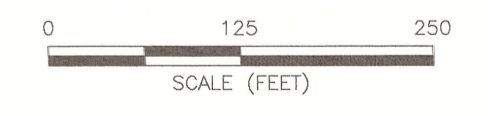
MAIN STREET

SMIFFENS LANE

FRASH POND

LEGEND

- WELLS WITH ONE WEEK MONITORING PERIOD
- WELLS WITH FOUR WEEK MONITORING PERIOD
- MONITORING WELL
- ⊕ STILLING WELL
- 2.13 MEAN GROUNDWATER ELEVATION



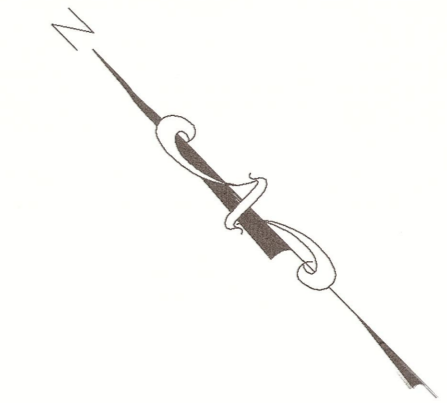
JULY 20-JULY 23, 1999 MEAN
GROUNDWATER ELEVATION CONTOUR MAP
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

URS Greiner Woodward Clyde

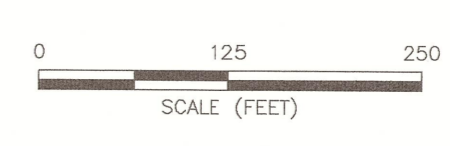
WAYNE, NEW JERSEY

DR. BY	FWD	SCALE AS SHOWN	DWG. NO. 98104015	PROJ. NO. R98104
CK'D. BY	RW	DATE	SEPT 7, 1999	FIG. NO. 3

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- LEGEND**
- WELLS WITH ONE WEEK MONITORING PERIOD
 - WELLS WITH FOUR WEEK MONITORING PERIOD
 - ⊕ MONITORING WELL
 - ⊕ STILLING WELL
 - 2.20 MEAN GROUNDWATER ELEVATION



JULY 24-JULY 26, 1999 MEAN
GROUNDWATER ELEVATION CONTOUR MAP
STRATFORD ARMY ENGINE PLANT
STRATFORD, CONNECTICUT

URS Greiner Woodward Clyde

DR. BY	FWD	SCALE	AS SHOWN	DWG. NO.	98104014	PROJ. NO.	R98104
CK'D. BY	RW	DATE	SEPT 7, 1999	FIG. NO.	4		

File name: K:\CAD\98104\98104014.dwg Date: 09/07/99 13:47