because of the number of potential interferences with existing utilities in the Forsythe Street right-of-way (see Section 7.3.1).

7.4.2 Environmental Criteria

Sparging combined with SVE should control human exposure to impacted ground water. Although the air sparging will not prevent possible migration of any impacted ground water, it will reduce the levels of VOCs in the ground water.

7.4.3 Institutional Criteria

Additional permits may be required for the construction air sparging and SVE system including an electrical permit and a building permit, plus a license or easement from the City of Franklin to install portions of the system in the city right-of-way. The system could be designed as a closed loop to eliminate any air emissions and eliminate the need to obtain a permit for the air discharge.

8.0 COST ESTIMATES

Table 8.1 summarizes the estimated capital cost for implementing each remedial alternative discussed in the supplemental CMS. The details are provided in Appendix G. Annual operating costs for each alternative have also been estimated and the details are provided in Appendix H.

Unit costs for some items in the estimates were taken from the 1995 Editions of *Means Construction Costs* and the *ECHOS* Environmental Restoration Costs estimating guides. Other costs utilized were based on vendor quotes and past experience with similar remediation equipment and construction services. Cost for shipping, engineering, construction management, and contingencies were calculated as a percentage of either the total equipment costs or total installed costs, as noted in the cost estimate assumptions.

9.0 RECOMMENDATION AND JUSTIFICATION OF THE SELECTED CORRECTIVE MEASURE ALTERNATIVE

9.1 RECOMMENDED CORRECTIVE MEASURE ALTERNATIVE

The recommended corrective measure for off site impacts to ground water in Operable Area 3 is Alternative 2: continued routine monitoring of the ground water quality, specifically from the new monitoring wells MW-31, MW-32, MW-33 and MW-34, and proposed monitoring well MW-35.

9.2 JUSTIFICATION OF THE RECOMMENDED CORRECTIVE MEASURE ALTERNATIVE

The September 1995 CMS report did not evaluate corrective measure alternatives for Operable Area 3 due to a lack of information about aquifer characteristics and ground water quality. As part of this supplemental CMS, four monitoring wells were installed in Operable Area 3, the stratigraphy of the subsurface soils was classified, pump tests were conducted to define the aquifer flow characteristics, and ground water was sampled to define current ground water quality. Ground water quality data indicate that VOC concentrations in the most severely impacted zone of Operable Area 3 showed a significant decrease from those measured in April, 1994. This is not unexpected since the source of the VOCs along Forsythe Street has been eliminated. Because the impacted ground water does not represent an unacceptable risk to human health or the environment, and because contaminant concentrations have been shown to be declining, it is reasonable to continue to allow naturally occurring mechanisms to reduce the contaminant concentrations and to monitor the continued declining trend in VOC concentrations.

Both ground water extraction with treatment and air sparging with SVE are viable remedial alternatives should continued monitoring suggest the need for additional remediation. Direct negative impacts of implementing one of these systems include the additional capital and operating cost to the owner, the adverse impact on the community during the construction of the system because of lane restrictions along Forsythe Street, the adverse impact an property owners along Forsythe Street with construction activities occurring in their front yards, and disturbances during well maintenance activities. The time to reduce impacts to below ARARs could be shortened with an active remedial approach. However, the ground water does not represent an unacceptable risk and a shorter timeframe is not warranted at this time. At some time in the future should it be determined that VOC concentrations are not declining, then an active remedial action can be implemented. Because of the lower cost as well as the substantially lower impact to property owners along Forsythe Street, Alternative 3 would be the recommended supplemental remedial action should future conditions warrant it.

10.0 FINAL RECOMMENDATIONS

The original CMS report for the former Amphenol site recommended the following:

- Continued operation of the ICM.
- Install off site monitoring wells along Forsythe Street.
- Monitor off site and selected on site wells for selected VOCs in ground water semiannually.
- Monitor storm sewer outfall water for selected VOCs semiannually.

- Install focused air sparging and SVE in addition to the ICM should monitoring indicate a need.
- Employ appropriate institutional controls such as signage, notification of local utilities, use of ground water and possible deed restrictions limiting excavation in severely impacted areas.

The findings of this report are as follows:

- The ICM is capable of reducing ground water elevations to levels below the storm sewer invert except in instances of unusually high ground water recharge.
- There is no evidence for the movement of a plume of VOCs in ground water from Forsythe Street.
- Levels of VOCs in ground water both off site and on site show marked decreases in concentration from 1994 levels.
- There is no evidence that Hurricane Creek bottom sediments are acting as a "contaminant sink"
- VOC levels in soils in Operable Area 3 are below ARARs.

Based on the above findings, semiannual monitoring for selected VOCs (TCA, TCE and PCE) at newly installed off site wells (including MW-35), selected on site wells, the storm sewer outfall, and Hurricane Creek at the Forsythe Street Bridge is recommended along with continued operation of the ICM (Alternative 2 of this CMS Addendum). Appropriate institutional controls are also recommended.

Based upon the findings of Task 6, additional sampling of Hurricane Creek sediments is not indicated. Monitoring of off site soils for VOCs is not indicated as VOC levels are not above ARARs, and installation of additional air sparging and SVE systems is not indicated as VOC levels in ground water have decreased markedly since 1994. At some time in the future should it be determined that corrective measures goals are not being attained by the measures recommended in this report, then an evaluation of additional corrective measures can be undertaken.

11.0 BIBLIOGRAPHY

Chiang, Chen, G. Raven and C. Dawson, 1995. The relationship between monitoring well and aquifer solute concentrations: Ground Water 33(5): 718-726.

Walton, W.C., 1962. Selected Analytical Methods for Well and Aquifer Evaluation : Illinois State Water Survey, Bulletin 49, 81p .

_____, 1985. Practical Aspects of Ground Water Modeling: National Water Well Association, 587 p.

Table 3.1.
Geotechnical Data for Soil Samples

Sample Number	Depth Interval (feet)	% Gravel	% Sand	% Silt	% Clay	% Moisture	Dry Density (lbs/cu.ft.)	Permeability (cm/sec)
MW-31	8.0-8.5	11.7	83.2	3.3	1.8	--	--	--
	11.5-12.0	23.4	69.2	5.6	1.8	--	--	--
	13.0-14.0 (C)	7.3	43.1	32.5	17.1	10.8	131.1	5.2 x 10-8
MW-32	6.0-8.0	22.9	59.3	14.9	2.9	--	--	--
	8.0-8.8	24.9	70.1	3.6	1.4	--	--	--
	10.0-10.5 (C)	8.1	41.9	31.9	18.1	--	--	--
MW-33	8.0-8.5	0.1	96.7	1.1	2.1	--	--	--
	8.5-9.0	7.3	89.5	1.6	2.1	--	--	--
MW-34	6.0-8.0	13.1	79.5	5.2	2.2	--	--	--
	12.5-13.0	26.9	67.7	3.7	1.7	--	--	--
SB-1F	3.0-3.5	7.5	73.8	11.9	6.8	--	--	--
	5.0-5.5 (C)	4.3	38.3	37.8	19.6	10.6	137.3	4.0 x 10-8

Table 3.2

Ground Water Elevation Data

WELL NUMBER	Elev. TOC	STATIC WATER LEVEL (feet MSL)							STRATI-GRAPHIC UNIT
		25-Mar 1992	02-Jun 1992	23-Jul 1992	07-Jan 1993	02-Feb 1993	16-Feb 1993	8-9-Apr 1996	
IT-1A	736.38	718.27	717.5	717.3	720.10	720.58	720.76	ND	D
IT-2	732.25	718.95	719.5	719.8	ND	719.95	719.78	720.1	B
IT-3	728.71	718.45	718.7	718.90	ND	718.92	716.96	ND	B
MW-3	736.44	719.47	720.40	720.7	720.7	721.09	720.88	721.5	B
MW-9	733.04	720.28	721.6	721.9	ND	722.57	722.41	723.6	B
MW-12	736.38	718.99	719.6	719.9	ND	720.03	719.89	720.2	B
MW-20	734.03	721.14	722.52	722.80	ND	723.28	723.04	724.44	B
MW-21	737.91	719.44	720.31	720.62	720.60	721.03	720.81	721.44	B
MW-22	737.64	719.25	720.08	720.32	720.31	720.61	720.43	720.88	B
MW-23	737.43	718.28	717.51	717.33	720.05	720.61	720.73	ND	D
MW-24	736.02	719.12	719.80	720.00	720.06	720.45	720.21	720.70	B
MW-25	736.21	718.14	717.35	717.16	720.08	720.48	720.62	ND	D
MW-26	736.39	720.31	721.57	721.89	722.01	722.39	722.21	723.26	B
MW-27	736.63	-	-	-	-	721.19	720.96	721.67	B
MW-28	738.04	-	-	-	-	720.93	720.71	721.33	B
MW-29	737.61	-	-	-	-	720.78	720.53	721.17	B
MW-30	734.84	-	-	-	-	719.50	719.36	719.85	B
MW-31	727.72	-	-	-	-	-	-	719.08	B
MW-32	721.44		-	-	-	-	-	716.43	B
MW-33	723.29	-	-	-	-	-	-	718.60	B
MW-34	728.49	-	-	-	-	-	-	719.92	B
SEWER INVERTS									
N Storm Sewer MH	719.72	-	-	-	-	-	-	-	NA
S Storm Sewer MH	719.16	-	-	-	-	-	-	-	NA
E Storm Sewer MH	718.01	-	-	-	-	-	-	-	NA
MH 104	728.14	-	-	-	-	-	-	-	NA
MH 100	720.43	-	-	-	-	-	-	-	NA
MH 108	717.54	-	-	-	-	-	-	-	NA
MH 113	719.47	-	-	-	-	-	-	-	NA
MH 109	716.59	-	-	-	-	-	-	-	NA
MH 110	716.02	-	-	-	-	-	-	-	NA
MH117	720.72	-	-	-	-	-	-	-	NA

Note: All tabulated elevations are 0.76 feet lower than actual elevations

Table 3.3
Aquifer Transmissivity and Hydraulic Conductivity

Well	Specific Capacity Well Data [1]			Storativity	Well Radius	Specific Capacity	Transmissivity		Aquifer Thickness [2]	Hydraulic Conductivity	
	Q (gpm)	Drawdown (feet)	Time (min)		(feet)	(gpm/ft)	(gpd/ft)	(m^2/sec)	(feet)	(gpd/ft^2)	(cm/sec)
Test 03 MW-31	2	2.37	180	0.2	0.427	0.844	625	9.0E-05	3.7	169	8.0E-03
Test 04 MW-31	2	1.53	110	0.2	0.427	1.307	959	1.4E-04	3.7	259	1.2E-02
MW-33	2	0.77	180	0.2	0.333	2.597	2,484	3.6E-04	5.7	436	2.1E-02
MW-34	2	0.42	180	0.2	0.333	4.762	4,927	7.1E-04	7.6	648	3.1E-02

1. Data was determined from field obeservations made during pump tests on monitoring wells MW-31, MW-33, and MW-34.
2. Saturated thickness of the aquifer, determined from tape down measurements, was used as the Aquifer thickness.

TABLE 3.4

GROUNDWATER AND SOIL ARARs

Former Amphenol Site
Franklin, Indiana

Chemical	Final Risk-Based PRG Concentrations for Soil (residential) (mg/kg)	Final Risk-Based PRG Concentrations for Ground Water (ug/L)	Maximum Contaminant Level (MCL) (ug/L)	Maximum Contaminant Level Goal (MCLG) (ug/L)	RCRA Subpart S Action Levels (P)	
					Soil (mg/kg)	Ground Water (ug/L)
Acetone	27400	3650	#N/A	#N/A	8000	4000
2-Butanone	164000	2500	#N/A	#N/A	50000	20000
Carbon tetrachloride	4.91	0.259	5	Zero	5	MCL
Chloroform	105	0.275	80(T)	Zero	100	MCL
1,1-Dichloroethane	27400	768	#N/A	#N/A	8000	4000
1,1-Dichloroethylene	1.06	0.0167	7	7	10	MCL
1,2-Dichloroethene	2460	329	70(cis)	70(cis)	700	MCL
Methylene Chloride	85.2	6.31	5	Zero	90	MCL
4-Methyl-2-pentanone	21900	183	#N/A	#N/A	6000	3000
Tetrachloroethene	12.3	1.43	5	Zero	10	MCL
Toluene	1.6	0.213	1000	1000	2	MCL
1,1,1-Trichloroethane	24600	1550	200	200	7000	MCL
Trichloroethene	58.1	2.54	5	Zero	60	MCL
Xylene, total	548000	73000	10000	10000	200000	MCL
Aluminum	#N/A	#N/A	50(S)	#N/A	#N/A	#N/A
Antimony	110	14.6	6	6	30	MCL
Arsenic	0.355	0.0473	50(U)	#N/A	0.4	MCL
Barium	19200	2560	2000	2000	5000	MCL
Beryllium	0.149	0.0198	4	4	0.2	MCL
Cadmium	137	18.3	5	5	40	MCL
Calcium	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Chromium, VI	1370	183	100(total)	100(total)	400	MCL
Cobalt	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Copper	10200	1350	1300(A)	1300	3000	MCL
Cyanide	5480	730	200(P)	200(P)	2000	700
Iron	#N/A	#N/A	300(S)	#N/A	#N/A	#N/A
Lead	#N/A	#N/A	15(A)	Zero	#N/A	MCL
Magnesium	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Manganese	1370	183	50(S)	#N/A	10000	700
Mercury	82.1	11	2	2	20	MCL
Nickel	5480	730	100	100	2000	MCL
Potassium	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Selenium	1370	183	50	50	400	MCL
Silver	1370	183	100(S)	#N/A	400	200
Sodium	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Thallium	21.9	2.92	2	0.5	6	MCL
Tin	164000	21900	#N/A	#N/A	50000	20000
Vanadium	1920	256	#N/A	#N/A	500	200
Zinc	82100	11000	5000(S)	#N/A	20000	10000

#N/A = Not available

ARAR = Applicable or Relevant and Appropriate Requirements. (P)=Proposed (S)=Secondary standard
PRG = Preliminary Remediation Goal (health-based). (A)=Action Level
(T) = this value for total trihalomethanes. (U) = Under review.
MCLs and MCLGs are from "Drinking Water Regulations and Health Advisories", U.S. EPA, May 1994.
Action Levels were calculated according to the recommended assumptions given in the propsed Subpart S rules.

Table 3.5
Soil Analytical Data.

Sample Number	MW-31	MW-31D	MW-31	MW-32	MW-32	MW-33	MW-33	MW-34	MW-34
Depth Interval	6.0-8.0	6.0-8.0	14.0-15.0	6.0-8.0	8.8-9.3	6.0-7.0	9.0-9.5	6.0-8.0	17.0-17.5
Inorganics (mg/kg)									
Aluminum	1700J	757J	3530J	1200	4260J	1610J	2410J	1600J	4050J
Antimony	2.7BJ	4.1BJ	1.8UJ	3.3UJ	1.8UJ	1.9UJ	2.8BJ	2.3BJ	1.8UJ
Arsenic	3	3	5	1	5	0.52BJ	1	2	3
Barium	15.1J	7.7J	46J	5.3J	32.9J	7.2J	21.6J	11.4J	46.5J
Beryllium	0.12B	0.8B	0	0.05B	0	0.08B	0.14B	0.11B	0
Cadmium	0.28BJ	0.39BJ	0.19UJ	0.22BJ	0.19UJ	0.20UJ	0.25BJ	0.27BJ	0.31BJ
Calcium	156000	187000	119000	169000	93300	63700	135000	174000	85000
Chromium	4.6J	2.5J	6.4J	3.2J	6.5J	3.5J	5J	4.1J	7.3J
Cobalt	2.7J	1.4BJ	5J	1.5BJ	4.8J	1.8BJ	3.7J	3J	5J
Copper	15.6J	5.3J	14.7J	5.4J	12.7J	7.5J	8J	9.9J	13.5J
Cyanide (amenable)	0.50UJ	0.74J	0.96J	1.1J	0.8J	0.50UJ	0.91J	1.2J	0.61J
Cyanide (total)	0.33BJ	0.82J	0.89J	1.3J	0.89J	0.21BJ	1.5J	0.64J	1.3J
Iron	10200J	3200J	10500J	3850J	11900J	3810J	7790J	9910J	10900J
Lead	4	5	7	3	5	3	5	4	5
Magnesium	39200J	89000J	29500J	65000J	31600J	20800J	54800J	33200J	28700J
Manganese	637J	287J	260J	149J	181J	119J	191J	307J	264J
Mercury	0.04U	0.04U	0.04U	0.04U	0.04U	0.04U	0.04U	0.04U	0.04U
Nickel	10.3J	6.4J	13.8J	2.9BJ	18.5J	4.9J	5.7J	10.7J	13.3J
Potassium	322B	210U	729	222U	854	263B	487B	240B	837
Selenium	0.29UJ	0.29UJ	0.31UJ	0.31U	0.31UJ	0.32UJ	0.31U	0.29UJ	0.31U
Silver	0.30U	0.30U	0.32U	0.32U	0.32U	0.34U	0.32U	0.30U	0.32U
Sodium	167B	168B	116B	165B	117B	90.8B	137B	176B	117B
Thallium	0.23BUJ	0.23UJ	0.30BUJ	0.24UJ	0.25UJ	0.25UJ	0.24UJ	0.23UJ	0.24UJ
Vanadium	8.1J	5.4J	9.4J	5.7J	10.9J	4.7J	8J	6.8J	10.5J
Zinc	36.2J	8.7J	34J	12.8J	31.7J	18.5J	17J	34.6J	33.5J
Volatile Organics (ug/kg)									
Acetone	20JB	9JB	20JB	6JB	20JB	12JB	27JB	6JB	37JB
2-Butanone	3J	11U	3J	11U	11U	11U	11U	10U	5J
Carbon Tetrachloride	5U	5U	5U	6U	5U	5U	5U	5U	5U
1,1-Dichloroethane	5UJ	5UJ	5U	6U	5U	5U	5U	5U	5U
1,1-Dichloroethylene	5U	5U	5U	6U	5U	5U	5U	5U	5U
1,2-Dichloroethene (total)	5U	5U	5U	6U	5U	5U	5U	5U	5U
1,2-Dichloropropane	5U	5U	5U	6U	5U	5U	5U	5U	5U
Ethylbenzene	5U	5U	5U	6U	5U	5U	5U	5U	5U
Methylene Chloride	8JB	9JB	21JB	7JB	10JB	8JB	12JB	7JB	15JB
Tetrachloroethene	5U	5U	5U	6U	5U	5U	5U	2J	3J
Toluene	5U	5U	5U	6U	5U	5U	5U	5U	5U
1,1,1-Trichloroethane	5U	5U	5U	6U	5U	5U	5U	5U	8
Trichloroethene	4J	5J	3J	6U	5U	5U	5U	8	37
Xylenes	5U	5U	5U	6U	5U	5U	5U	5U	5U

Table 3.6
Ground Water Analytical Data.

Sample Number	MW-31	MW-32	MW-33	MW-34	MW-34D	MW-12
Inorganics (ug/l)						
Aluminum	219J	173J	297J	122J	198J	NA
Antimony	2.1U	2.1U	2.1U	2.1U	2.1U	NA
Arsenic	1.6UJ	1.6UJ	1.6U	1.6U	1.6U	NA
Barium	52.4	44.3	86.7	58.8	58.2	NA
Beryllium	0.30U	0.30U	0.30U	0.30U	0.30U	NA
Cadmium	0.50U	0.50U	0.50U	0.50U	0.50U	NA
Calcium	103000	85100	100000	90200	89000	NA
Chromium	0.80U	0.80U	0.80U	0.80U	0.80U	NA
Cobalt	0.90U	0.90U	0.90U	0.90U	0.90U	NA
Copper	0.60U	0.61JB	1.1JB	0.60U	0.79JB	NA
Cyanide (amenable)	10.0U	10.0U	10.0U	10.0U	10.0U	NA
Cyanide (total)	2.0U	2.0U	2.0U	2.0U	2.0U	NA
Iron	391J	343J	514J	329J	536J	NA
Lead	1.3U	1.3UJ	1.3UJ	1.8B	1.3U	NA
Magnesium	29500	25700	31600	25000	24700	NA
Manganese	30.6	11.8	108	109	117	NA
Mercury	0.10U	0.10U	0.10U	0.10U	0.10U	NA
Nickel	0.89JB	0.80U	1.9JB	1.0JB	1.4JB	NA
Potassium	2010B	730B	1230B	1790B	1740B	NA
Selenium	2.3B	3.2B	2.0U	3.8B	3.2B	NA
Silver	1.2U	1.2U	1.2U	1.2U	1.2U	NA
Sodium	23500	11900	8910	11500	10900	NA
Thallium	0.90UJ	0.90UJ	0.90U	0.90UJ	0.90UJ	NA
Vanadium	0.65U	0.52B	0.78B	0.50B	0.67B	NA
Zinc	5.3U	5.3U	5.5B	5.3U	5.3U	NA
Volatile Organics (ug/l)						
Acetone	10U	10U	10U	10U	10U	10U
2-Butanone	10U	10U	10U	10U	10U	10U
Carbon Tetrachloride	5U	5U	5U	5U	5U	5U
1,1-Dichloroethane	3J	5U	5U	2J	2J	26JD
1,1-Dichloroethylene	5U	5U	5U	5UJ	5UJ	5U
1,2-Dichloroethene (total)	5U	5U	5U	5U	5U	2J
1,2-Dichloropropane	5U	5U	5U	5U	5U	5U
Ethylbenzene	5U	5U	5U	5U	5U	5U
Methylene Chloride	5U	5U	5U	5U	5U	5U
Tetrachloroethene	15	1J	5U	11	10	1500D
Toluene	5U	5U	5U	5U	5U	5U
1,1,1-Trichloroethane	70	2J	5U	75	73	1000D
Trichloroethene	130DJ	2J	5U	120DJ	160DJ	1200D
Xylenes	5U	5U	5U	5U	5U	5U

Table 5.1
Analytical Results for ICM Influent and Effluent Samples

Location	RW-1					RW-2					RW-3					Stripper Effluent				
Date / Parameter	5/3/95	8/3/95	11/7/95	4/12/96	7/8/96	5/3/95	8/3/95	11/7/95	4/12/96	7/8/96	5/3/95	8/3/95	11/7/95	4/12/96	7/8/96	5/3/95	8/3/95	12/13/95	4/12/96	9/24/96
VOCs (ug/l)																				
1,1-DCA	33	31	30	NS(1)	14	47	48	58	ND	31	28	53	48	ND	39	ND	ND	NA	ND	NA
1,1-DCE	ND(2)	ND	ND	NS	ND	8.1	ND	9.1	ND	7.3	ND	ND	6.9	ND	6.5	ND	ND	NA	ND	NA
cis-1,2-DCE	ND	ND	ND	NS	ND	3.9	ND	5.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA
PCE	100	170	ND	NS	31	1500	1500	2100	980	2100	160	16	1400	93	45	ND	ND	NA	ND	NA
1,1,1-TCA	200	180	190	NS	120	960	1100	1300	530	1200	540	560	950	450	820	ND	ND	NA	ND	NA
TCE	520	400	390	NS	350	4300	3000	2200	1500	2100	2900	870	1700	1200	1100	ND	ND	NA	ND	NA
Total VOCs	853	781	610	NS	515	6819	5648	5672.4	3010	5438.3	3628	1499	4104.9	1743	2010.5	-	-	-	-	-
Inorganics (ug/l)																				
Arsenic	NA(3)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<200	<5	NA	NA
Cadmium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	<5	NA	NA
Chromium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	<10	NA	NA
Copper	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<20	<20	NA	NA
Lead	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<80	<80	NA	<5
Mercury	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.5	<5	NA	NA
Nickel	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<10	<10	NA	NA
Zinc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<20	<20	NA	NA
Cyanide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<5	5	NA	NA

Notes: (1) NS - not sampled; well not in opersation during sampling event
(2) ND - not detected at instrument or method detection limit
(3) NA - not analyzed

Table 5.2

Ground Water Level Measurements

Well Number	Date	TOC Elevation (feet)	Depth to Water (feet)	Ground Water Elevation (feet)	Change from Previous (feet)
IT-2	2/23/95	732.25	13.25	719.00	-
	3/2/95		13.15	719.10	+ 0.10
	8/29/95		12.36	719.89	+ 0.79
	11/7/95		13.07	719.18	- 0.71
	4/12/96		13.45	718.8*	- 0.38
	5/29/96		10.82	721.43	+ 2.63
	6/4/96		11.08	721.17	-0.26
	7/8/96		11.84	720.41	-0.76
	8/1/96		12.04	720.21	-0.20
IT-3	2/23/95	728.71	11.20	717.51	-
	3/2/95		11.18	717.53	+ 0.02
	8/29/95		9.52	719.19	+ 1.68
	11/7/95		11.14	717.57*	- 1.62
	4/12/96		12.09	716.62*	- 0.95
	5/29/96		9.41	719.30	+ 2.68
	6/4/96		10.11	718.60	-0.70
	7/8/96		10.44	718.27	-0.33
	8/1/96		10.63	718.08	-0.19
MW-3	2/23/95	736.44	16.55	719.89	-
	3/2/95		16.49	719.95	+ 0.06
	8/29/95		15.23	721.21	+ 1.26
	11/7/95		16.40	720.04	- 1.17
	4/12/96		14.91	721.53	+ 1.49
	5/29/96		13.16	723.28	+ 1.75
	6/4/96		13.15	723.29	+0.01
	7/8/96		14.03	722.41	-0.88
	8/1/96		14.53	721.91	-0.50
MW-9	2/23/95	733.04	11.82	721.22	-
	3/2/95		11.80	721.24	+ 0.02
	8/29/95		9.70	723.34	+ 2.10
	11/7/95		11.47	721.57	- 1.77
	4/12/96		9.46	723.58	+ 2.01
	5/29/96		3.94	729.10	+ 5.52
	6/4/96		5.81	727.73	-1.37
	7/8/96		6.90	726.14	-1.59
	8/1/96		7.65	725.39	-0.75
MW-12	2/23/95	726.38	17.28	719.10	-
	3/2/95		17.27	719.11	+ 0.01
	8/29/95		16.43	719.95	+ 0.84
	11/7/95		17.18	719.2*	- 0.75
	4/12/96		16.21	720.17	+ 0.97
	5/29/96		15.07	721.31	+ 1.14
	6/4/96		15.31	721.07	-0.24
	7/8/96		15.88	720.50	-0.57
	8/1/96		16.16	720.22	-0.28
MW-20	2/23/95	734.03	not measured	not measured	-
	3/2/95		not measured	not measured	-
	8/29/95		10.35	723.68	-
	11/7/95		12.16	721.87	- 1.81
	4/12/96		9.70	724.33	+ 2.46
	5/29/96		6.30	727.73	+ 3.40
	6/4/96		7.63	726.40	-1.33
	7/8/96		8.58	725.45	-0.95
	8/1/96		8.93	725.10	-0.35
MW-21	2/23/95	737.91	18.03	719.88	-
	3/2/95		18.02	719.89	+ 0.01
	8/29/95		16.81	721.10	+ 1.21
	11/7/95		17.92	719.99	- 1.11
	4/12/96		16.48	721.43	+ 1.44
	5/29/96		14.82	723.09	+ 1.66
	6/4/96		14.82	723.09	0.00
	7/8/96		15.67	722.24	-0.85
	8/1/96		16.16	721.75	-0.49

Table 5.2
(cont.)

Well Number	Date	TOC Elevation (feet)	Depth to Water (feet)	Ground Water Elevation (feet)	Change from Previous (feet)
MW-22	2/23/95	737.64	18.03	719.61	-
	3/2/95		18.12	719.52	- 0.09
	8/29/95		17.05	720.59	+ 1.07
	11/7/95		17.90	719.74*	- 0.85
	4/12/96		16.74	720.90	+ 1.16
	5/29/96		15.52	722.12	+ 1.22
	6/4/96		15.63	722.01	-0.11
	7/8/96		16.22	721.42	-0.41
	8/1/96		16.58	721.06	-0.36
MW-24	2/23/95	736.02	16.85	719.17	-
	3/2/95		16.55	719.47	+ 0.30
	8/29/95		15.59	720.43	- 0.04
	11/7/95		16.41	719.61	- 0.82
	4/12/96		15.29	720.73	+ 1.12
	5/29/96		13.77	722.25	+ 1.52
	6/4/96		13.80	722.22	-0.03
	7/8/96		14.54	721.48	-0.74
	8/1/96		15.01	721.01	-0.47
MW-26	2/23/95	736.39	15.81	720.58	-
	3/2/95		15.19	721.20	- 0.38
	8/29/95		13.46	722.93	+ 1.73
	11/7/95		15.02	721.37	- 1.56
	4/12/96		13.17	723.22	+ 1.85
	5/29/96		9.53	726.86	+ 3.64
	6/4/96		10.47	725.92	-0.94
	7/8/96		11.62	724.77	-1.15
	8/1/96		12.16	724.23	-0.54
MW-27	2/23/95	736.63	16.54	720.09	-
	3/2/95		16.60	720.03	- 0.06
	8/29/95		15.37	721.26	+ 1.23
	11/7/95		16.66	719.97	- 1.29
	4/12/96		15.01	721.62	+ 1.65
	5/29/96		13.23	723.40	+ 1.78
	6/4/96		13.44	723.19	-0.21
	7/8/96		14.38	722.25	-0.94
	8/1/96		14.79	721.84	-0.41
MW-28	2/23/95	738.04	18.18	719.86	-
	3/2/95		18.21	719.83	- 0.06
	8/29/95		17.03	721.01	+ 1.18
	11/7/95		18.19	719.85	- 1.16
	4/12/96		16.72	721.32	+ 1.47
	5/29/96		15.21	722.83	+ 1.51
	6/4/96		15.32	722.72	-0.11
	7/8/96		16.12	721.92	-0.80
	8/1/96		16.54	721.50	-0.42
MW-29	2/23/95	737.61	17.92	719.69	-
	3/2/95		17.92	719.60	0.00
	8/29/95		16.83	720.78	+ 1.18
	11/7/95		17.99	719.62	- 1.16
	4/12/96		16.46	721.15	+ 1.53
	5/29/96		15.01	722.60	+ 1.45
	6/4/96		15.19	722.42	-0.18
	7/8/96		16.04	721.57	-0.85
	8/1/96		16.40	721.21	-0.36
MW-30	2/23/95	734.84	15.70	719.14	-
	3/2/95		15.72	719.12	- 0.02
	8/29/95		15.54	719.30	+ 0.18
	11/7/95		15.93	718.91	- 0.39
	4/12/96		14.95	719.89	+ 0.98
	5/29/96		14.10	720.74	+ 0.85
	6/4/96		14.38	720.46	-0.28
	7/8/96		14.84	720.00	-0.46
	8/1/96		15.06	719.78	-0.22

Table 5.2
(cont.)

RW-1	8/29/95	730.97	2.58	728.39	-
	11/7/95		not recorded	-	-
	4/12/96		11.02	719.95	- 8.44
	5/29/96		10.84	720.13	+ 0.18
	6/4/96		11.12	719.85	-0.28
	7/8/96		11.28	719.69	-0.16
	8/1/96		not recorded	NA	-
RW-2	8/29/95	732.05	4.42	727.63	-
	11/7/95		nor recorded	-	-
	4/12/96		12.72	719.33	- 8.3
	5/29/96		11.50	720.55	+ 1.22
	6/4/96		11.88	720.17	-0.38
	7/8/96		12.48	719.57	-0.60
	8/1/96		12.76	719.29	-0.28
RW-3	8/29/95	733.19	4.08	729.11	-
	11/7/95		not recorded	-	-
	4/12/96		13.07	720.12	- 8.99
	5/29/96		11.73	721.46	+ 1.34
	6/4/96		12.68	720.51	-0.95
	7/8/96		13.26	719.93	-0.58
	8/1/96		13.10	720.09	+0.16

Note: All tabulated elevations are 0.76 feet lower than actual elevations

* - Indicates that this ground water elevation is likely lower than the storm sewer invert

Table 5.3
Cumulative ICM Pumpage in Gallons

	Recovery Well Pumpage			Total
Date	RW-1	RW-2	RW-3	
2/24/95	-	-	-	-
3/3/95	20,984	31,644	80,228	132,856
3/29/95	84,695	88,774	152,228	325,697
4/14/95	136,654	133,675	224,228	494,557
5/3/95	200,683	193,729	284,420	678,832
5/14/95	237,115	228,577	319,268	784,960
5/18/95	255,043	245,727	354,116	854,886
5/23/95	255,043	245,727	354,116	854,886
5/26/95	276,211	266,031	374,420	916,662
6/19/95	445,555	428,463	536,852	1,410,870
8/3/95	445,555	428,463	536,852	1,410,870
8/4/95	448,963	431,997	543,600	1,424,560
8/9/95	473,414	453,496	590,792	1,517,702
8/11/95	482,414	461,556	609,202	1,553,172
8/14/95	496,474	474,106	637,152	1,607,732
8/29/95	561,302	533,550	768,644	1,863,496
10/6/95	664,814	629,975	985,749	2,820,538
11/7/95	665,305	763,804	1,159,950	2,589,059
12/8/95	686,316	766,356	1,253,348	2,706,020
1/15/96	778,585	873,570	1,263,941	2,916,096
4/12/96	778,585	1,170,564	1,651,617	3,600,766
5/29/96	873,365	1,376,384	1,823,668	4,073,417
6/26/96	915,555	1,414,873	1,884,622	4,215,050
7/8/96	972,328	1,474,048	1,987,350	4,433,726
7/18/96	1,006,046	1,516,919	2,060,742	4,583,707
8/1/96	1,049,996	1,577,801	2,164,916	4,792,713
8/16/96	1,091,112	1,638,683	2,246,037	4,975,832
8/27/96	1,118,169	1,684,621	2,314,606	5,117,396

Table 5.3
Cumulative ICM Pumpage in Gallons

	Recovery Well Pumpage			Total
Date	RW-1	RW-2	RW-3	
2/24/95	-	-	-	-
3/3/95	20,984	31,644	80,228	132,856
3/29/95	84,695	88,774	152,228	325,697
4/14/95	136,654	133,675	224,228	494,557
5/3/95	200,683	193,729	284,420	678,832
5/14/95	237,115	228,577	319,268	784,960
5/18/95	255,043	245,727	354,116	854,886
5/23/95	255,043	245,727	354,116	854,886
5/26/95	276,211	266,031	374,420	916,662
6/19/95	445,555	428,463	536,852	1,410,870
8/3/95	445,555	428,463	536,852	1,410,870
8/4/95	448,963	431,997	543,600	1,424,560
8/9/95	473,414	453,496	590,792	1,517,702
8/11/95	482,414	461,556	609,202	1,553,172
8/14/95	496,474	474,106	637,152	1,607,732
8/29/95	561,302	533,550	768,644	1,863,496
10/6/95	664,814	629,975	985,749	2,820,538
11/7/95	665,305	763,804	1,159,950	2,589,059
12/8/95	686,316	766,356	1,253,348	2,706,020
1/15/96	778,585	873,570	1,263,941	2,916,096
4/12/96	778,585	1,170,564	1,651,617	3,600,766
5/29/96	873,365	1,376,384	1,823,668	4,073,417

TABLE 8.1

Capital and Annual Operating Cost Summary
for Corrective Measure Alternatives

Alternative Number	Corrective Measure Technology	Capital Cost ($)	Annual Operating Cost ($)
1	No Action	NA	NA
2	Monitoring	0	6,600
3	Monitoring; Groundwater Extraction and Treatment	62,000	32,000
4	Monitoring; Air Sparging with SVE	136,000	46,000

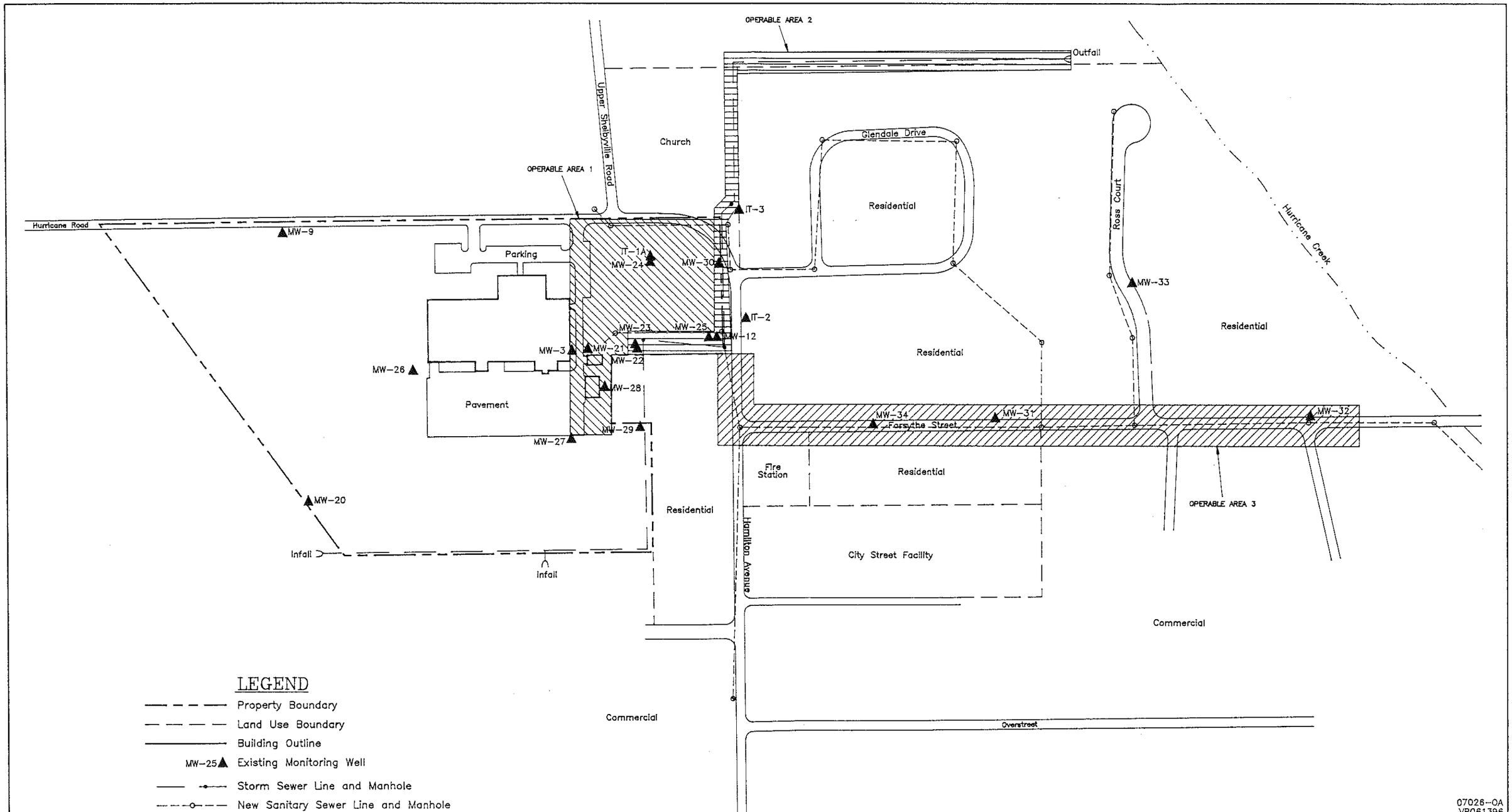


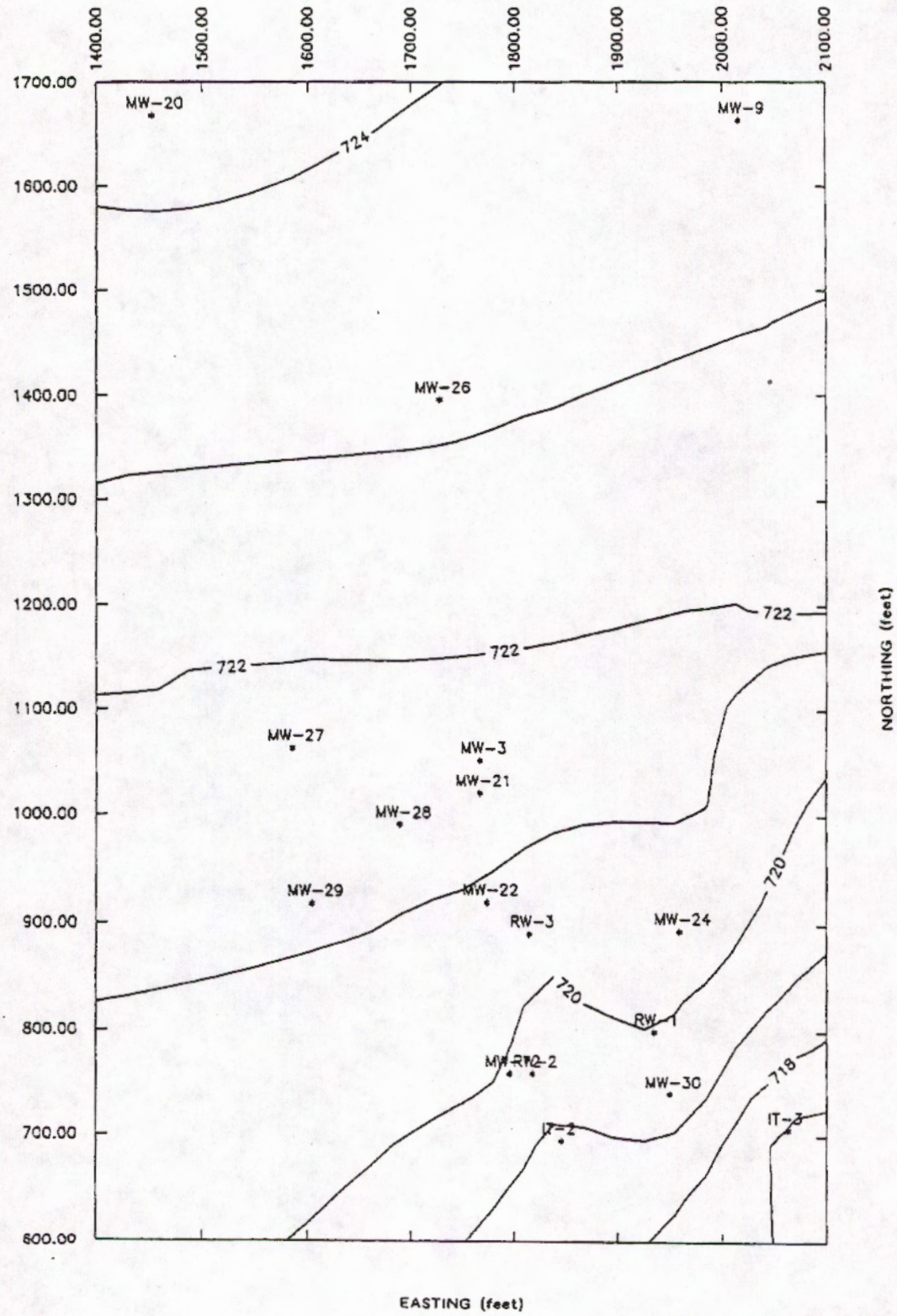
FIGURE 2.1

OPERABLE AREAS 1,2 & 3

FORMER AMPHENOL SITE
FRANKLIN, INDIANA

JUNE, 1996

07026.08



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NW061496

FIGURE 5.1

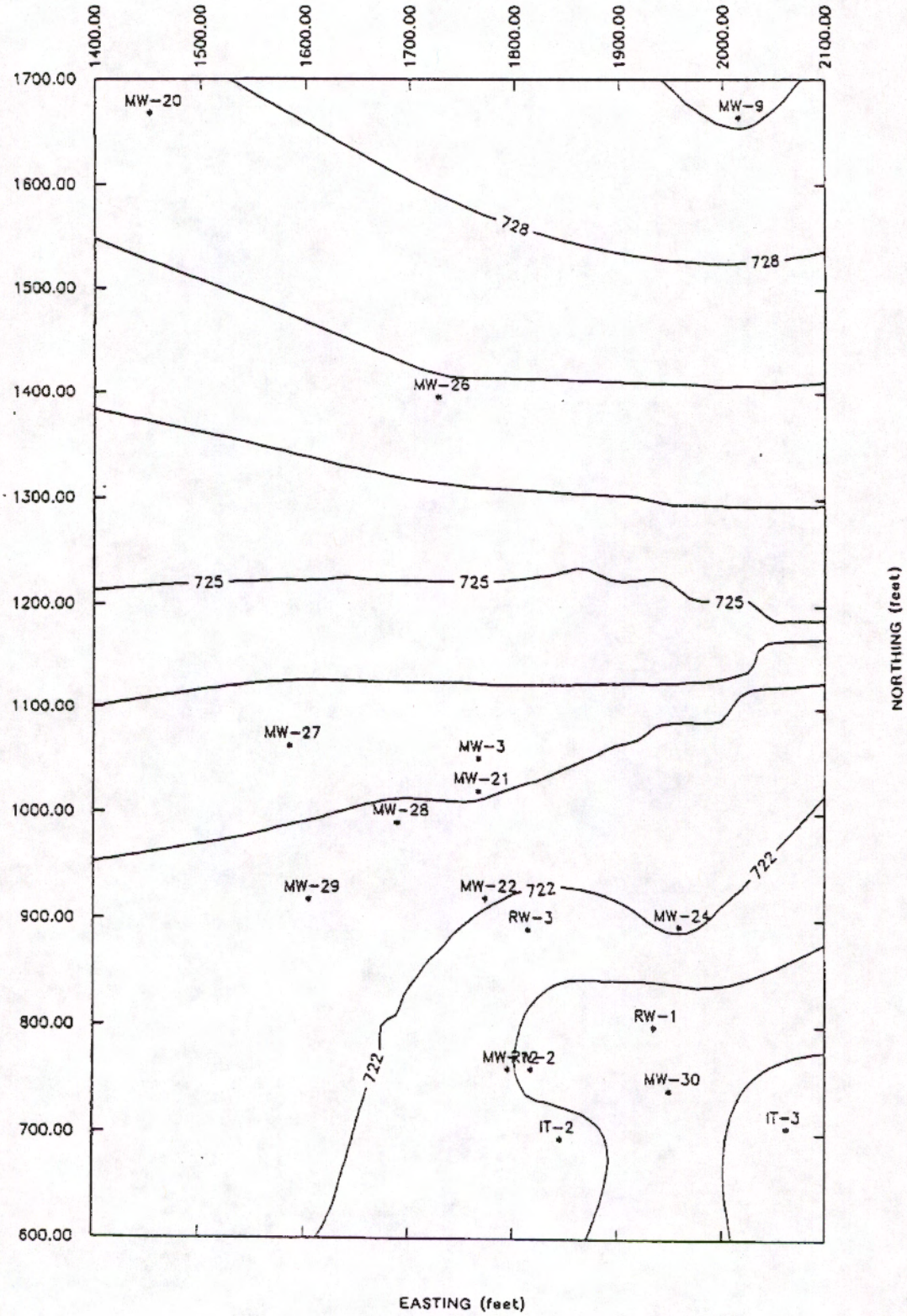
POTENTIOMETRIC SURFACE CONTOURS IN THE VICINITY OF THE ICM, APRIL 12, 1996

(CONTOUR MAP PREPARED BY HANDEX)

JUNE, 1996

07026.08

EARTH TECH



1:1
70260852
NW061496

FIGURE 5.2
POTENTIOMETRIC SURFACE CONTOURS
IN THE VICINITY OF THE ICM,
MAY 29, 1996
(CONTOUR MAP PREPARED BY HANDEX)

JUNE, 1996 07026.08

EARTH TECH

EARTH TECH

5010 Stone Mill Road, Bloomington, IN 47408, Phone (812) 336-0972, Fax (812) 336-3991

Site	Curtis - Franklin	Boring No.	SB-1F
Date	04-04-96	Driller	A. Schrader
Logged by	M. Lytle	Elevation	
Location		Page	1 of 1

Water Level	7.60				Start		Finish	
Time	1145				Time	1045	Time	1130
Date	04-04-96				Date	4/4/96	Date	4/4/96

SAMPLE TYPE	DRIVEN	RECOVERED	BLOWS (6")	DEPTH (ft.)	GRAPHIC	HNu	DESCRIPTION
SS-1	2.0	2.0	5	0		0.0	Silt loam, black (10YR2/1) moist, friable, nonplastic, massive, structureless, noncalcareous, gradual color change to dark brown (10YR3/3).
			5				
			6	1			
			7			0.0	
SS-2	2.0	1.7	6	2		0.0	Sand, coarse, with gravel, yellowish brown (10YR5/8) dry, loose, poorly washed and sorted, abrupt contact at 3.5' with silty clay loam, pebbles, dark brown (10YR3/3) moist-wet, soft, plastic, slightly sticky, massive, structureless, noncalcareous.
			12				
			10	3			
			8			0.5	
SS-3	2.0	2.0	4	4		0.0	Sandy loam, pebbles, dark brown (10YR4/1) moist, friable, plastic, nonsticky, massive, structureless, calcareous.
			7				
			8	5			
			4			0.0	
SS-4	2.0	1.8	12	6		0.0	Loam, pebbles, dark gray (10YR4/1) moist, very hard, nonplastic, nonsticky, massive, structureless, calcareous.
			15				
			30	7			
			50			0.0	
				8			
				9			T.D. 8.0'
				10			
				1			
				2			
				3			
				4			
				5			
				6			
				7			
				8			
				9			
				20			

Remarks

EARTH TECH

5010 Stone Mill Road, Bloomington, IN 47408, Phone (812) 336-0972, Fax (812) 336-3991

Site	Curtis - Franklin	Boring No.	MW-31
Date	04-05-96	Driller	A. Schrader
Logged by	M. Lytle	Elevation	
Location		Page	1 of 1

Water Level	8.10				Start		Finish	
Time	1445				Time	1400	Time	1445
Date	04-05-96				Date	4/5/96	Date	4/5/96

SAMPLE	TYPE	DRIVEN	RECOVERED	BLOWS (6")	DEPTH (ft.)	GRAPHIC	HNu	DESCRIPTION
SS-1		2.0	1.5	8	0		0.0	Silt loam, black (10YR3/1) moist, friable, nonplastic, massive structureless, noncalcareous
				7				contact at 0.5' with silt loam, pebbles, dark yellowish brown (10YR3/4), moist, friable,
				8	1			nonplastic, massive, structureless, noncalcareous.
				8			0.0	
SS-2		2.0	1.8	8	2		0.0	Silty clay loam, dark yellowish brown (10YR3/4) moist abrupt sand.
				9				
				9	3			
				10			0.0	
SS-3		2.0	1.3	10	4		0.0	Silty clay loam, as 2.0 above, contact at 4.8' with sand, coarse, with gravel, yellowish brown,
				11				(10YR5/4) moist-wet, loose, poorly washed and sorted, slightly calcareous.
				11	5			
				15			0.0	
SS-4		2.0	1.5	11	6		0.0	Sand and gravel, yellowish brown (10YR3/4) moist, wet, poorly washed and sorted.
				14				
				13	7			
				15			0.0	
SS-5		2.0	2.0	12	8		0.0	Sand and gravel, as 6.0' above, saturated.
				14				
				17	9			
				18			0.0	
SS-6		2.0	2.0	13	10		0.0	Sand and gravel, as 8.0' above.
				14				
				18	1			
				18			0.0	
SS-7		2.0	0.8	17	2		0.0	Loam, dark gray (10YR4/1) dry-moist, hard, nonplastic, non sticky, massive,
				18				structureless, calcareous.
				31	3			
				28			0.0	
					4			
								T.D. 15.0'
					5			
					6			
					7			
					8			
					9			
					20			

Remarks

EARTH TECH

5010 Stone Mill Road, Bloomington, IN 47408, Phone (812) 336-0972, Fax (812) 336-3991

Site	Curtis - Franklin	Boring No.	MW-32
Date	04-04-96	Driller	A. Schrader
Logged by	M. Lytle	Elevation	
Location		Page	1 of 1

Water Level	4.90				Start		Finish	
Time	0920				Time	1300	Time	1355
Date	04-05-96				Date	4/4/96	Date	4/4/96

SAMPLE TYPE	DRIVEN	RECOVERED	BLOWS (6")	DEPTH (ft.)	GRAPHIC	HNu	DESCRIPTION
SS-1	2.0	2.0	3	0		0.0	Silt loam, black (10YR2/1) wet, very friable, slightly plastic, massive structureless, noncalcareous contact at 1.2' with silt loam, dark brown (10YR3/3), as above.
			3				
			4	1			
			5				
SS-2	2.0	1.0	3	2		0.0	Silty clay loam, pebbles, dark yellowish brown (10YR4/4) moist, friable, plastic, sticky, massive, structureless, noncalcareous, contact at 2.8' peat, black, (10YR2/1) plant debris.
			4				
			4	3			
			6				
SS-3	2.0	1.3	6	4		0.0	Sand and gravel, yellowish brown (10YR5/4) moist, very dense, poorly washed and sorted, slightly calcareous.
			12				
			20	5			
			30			1.0	
SS-4	2.0	1.5	10	6		1.0	Sand and gravel, as 4.0' above, saturated.
			13				
			14	7			
			18			0.5	
SS-5	2.0	2.0	18	8		0.0	Sand and gravel, as 6.0' above, contact at 8.8' with loam, pebbles, dark gray (10YR4/1) moist-dry, hard, massive, structureless, calcareous.
			20				
			21	9			
			30			0.0	
				10			T.D. 10.50'
				1			
				2			
				3			
				4			
				5			
				6			
				7			
				8			
				9			
				20			

Remarks

10.0-12.0' Drive 3" spoon for permeability sample, sand heaving in angers, will try again.

EARTH TECH

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Site	Curtis - Franklin	Boring No.	MW-33
Date	04-04-96	Driller	A. Schrader
Logged by	M. Lytle	Elevation	
Location		Page	1 of 1

Water Level	4.55				Start		Finish	
Time	0930				Time	1500	Time	1530
Date	04-05-96				Date	4/4/96	Date	4/4/96

SAMPLE TYPE	DRIVEN	RECOVERED	BLOWS (6")	DEPTH (ft.)	GRAPHIC	HNu	DESCRIPTION
SS-1	2.0	1.8	3	0		0.0	Silt loam, black (10YR2/1) moist, very friable, nonplastic, nonstructureless, massive structureless, noncalcareous, contact at 0.5' with sandy loam, coarse, pebbles, dark yellowish brown (10YR4/4) moist, friable, nonplastic, nonsticky, massive, noncalcareous.
			4				
			8	1			
			10			0.0	
SS-2	2.0	1.5	8	2		0.0	Sand loam, as 0.5' above, abrupt contact at 2.6' with sand and gravel, coarse, yellowish brown (10YR5/4) moist, loose, poorly washed and sorted, slightly calcareous, gradual change in color to dark gray (10YR4/1).
			7				
			9	3			
			11			0.0	
SS-3	2.0	1.6	10	4		0.0	Sand and gravel, dark gray (10YR4/1) saturated, as above.
			10				
			11	5		0.0	
			12				
SS-4	2.0	1.0	9	6			Sand and gravel, as 4.0' above.
			8				
			14	7			
			15				
SS-5	2.0	1.5	10	8		0.5	Sand and gravel, as 4.0' above, contact at 9.2' with loam, coarse, pebbles, dark gray (10YR4/1) moist-dry, very firm, calcareous.
			12				
			17	9		0.0	
			18				
				10			T.D. - 10.8'
				1			
				2			
				3			
				4			
				5			
				6			
				7			
				8			
				9			
				20			

Remarks

EARTH TECH

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Site	Curtis - Franklin	Boring No.	MW-34
Date	04-05-96	Driller	A. Schrader
Logged by	M. Lytle	Elevation	
Location		Page	1 of 1

Water Level	8.00				Start		Finish	
Time	1200				Time	1030	Time	1200
Date	04-05-96				Date	4/5/96	Date	4/5/96

SAMPLE	TYPE	DRIVEN	RECOVERED	BLOWS (6")	DEPTH (ft.)	GRAPHIC	HNu	DESCRIPTION
SS-1		2.0	1.9	10	0			Gravel fill, gray, contact at 0.5' with silt loam, pebbles, dark grayish brown (10YR4/2) moist, friable, slightly plastic, slightly sticky, massive, noncalcareous, gradual change in color to dark yellowish brown (10YR3/4).
				15				
				20	1			
				21				
SS-2		2.0	2.0	9	2			Silt loam, as 0.5' above, contact at 3.0' with sand, medium to coarse, dark yellowish brown, (10YR3/4) moist, loose, washed and sorted, noncalcareous.
				10				
				8	3			
				7				
SS-3		2.0	1.8	6	4			Sand as 3.0' above.
				7				
				9	5			
				10				
SS-4		2.0	1.7	8	6		0.6	Sand and gravel, yellowish brown (10YR5/4) moist, loose, poorly washed and sorted.
				10				
				12	7			
				14			1.5	
SS-5		2.0	1.5	10	8		1.0	Sand and gravel, as 6.0' above, wet at 9.0'.
				11				
				14	9			
				13			1.0	
SS-6		2.0	2.0	11	10			Sand and gravel, as 8.0' above.
				12				
				11	1		1.0	
				10				
SS-7		2.0	1.0	11	2			Sand and gravel, as 8.0' above.
				10			1.5	
				10	3			
				10				
					4			
					5			
					6			
					7			
SS-8		1.0	1.0	50				Loam, pebbles, dark gray (10YR4/1) dry, very hard, massive, structureless, calcareous.
				50	8			
								T.D. - 18.0'
					9			
					20			

Remarks

Sand heaving in angers 2' at 12'
Due to sand heaving, was forced to anger to 17' to stop it
Tried to sample, but was not successfull from 14 to 17'
till at 15.0'

EARTH TECH

Well Completion Diagram

Well No. MW-31

Project Curtis - Franklin

Time & Date: Start 4/8/96 1135

Completed 4/8/96 1430

Installed By A. Schrader

Inspected By M. Lytle

Ground Surface _____ FT. (MSL)

Reference Point (Top of Casing) 727.72 FT. (MSL)

Note: Elevation is 0.76 feet lower than true elevation

Guard Pipe

Drilling Metho 6 1/4" HSA

Mobile B-57

Screen:

Type	4" Threaded PVC
Slot Size	0.010
Top Blank	0.03
Bottom Blank	0.20
Total Screen	4.80
Total Length	5.03

Stand Pipe:

Type	4" Threaded PVC
Total Length	10.01

Backfill

Bentonite

6.00 FT.

Bentonite Seal

6.50 FT.

Granular Pack

#4 Quartz

Sand

7.84 FT.

Well Screen

12.64 FT. = 15.04 (Tot. Pipe) - 2.70 (Cut Off) - 0.20 (Bot. Blk.) - -0.50 (Stick)

Bottom of Borehole

13.75 FT.

Well-2.xls

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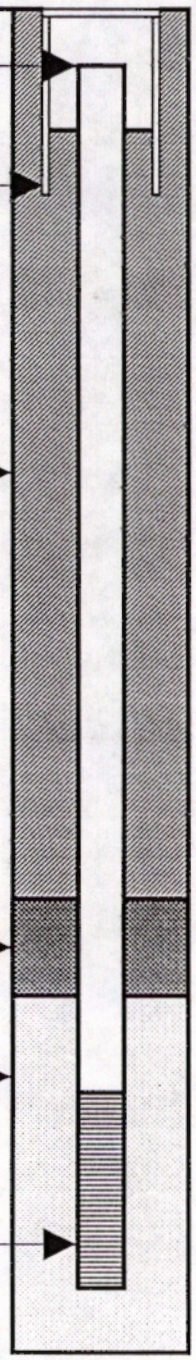
EARTH TECH

Well Completion Diagram

Well No.	MW-32				
Project	Curtis - Franklin			Installed By	A. Schrader
Time & Date:	Start	4/4/96	1400	Inspected By	M. Lytle
	Completed	4/4/96	1450		



Ground Surface _____ FT. (MSL)

Reference Point (Top of Casing) 721.44 FT. (MSL)

Note: Elevation is 0.76' lower than true elevation

Guard Pipe

Drilling Method 4 1/4" HSA
Mobile B-57

Screen:

Type	2" Threaded PVC
Slot Size	0.01
Top Blank	0.10
Bottom Blank	0.15
Total Screen	4.70
Total Length	4.95

Stand Pipe:

Type	2" Threaded PVC
Total Length	10.00

Backfill
Bentonite chips

2.00 FT.

Bentonite Seal

3.20 FT.

Granular Pack
#4 Quartz
Sand

4.95 FT.

Well Screen

9.65 FT. = 14.95 (Tot. Pipe) - 5.75 (Cut Off) - 0.15 (Bot. Blk.) - -0.60 (Stick)

Bottom of Borehole 10.50 FT.

Well-2.xls

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EARTH TECH

Well Completion Diagram

Well No. MW-33

Project Curtis - Franklin

Time & Date: Start 4/4/96 1615

Completed 4/4/96 1650

Installed By A. Schrader

Inspected By M. Lytle

Ground Surface _____ FT. (MSL)

Reference Point (Top of Casing) 723.27 FT. (MSL)

Note: Elevation is 0.76' lower than true elevation

Guard Pipe

Drilling Method 4 1/4" HSA

Mobile B-57

Screen:

Type 2" Threaded PVC

Slot Size 0.010

Top Blank 0.12

Bottom Blank 0.15

Total Screen 4.83

Total Length 5.10

Stand Pipe:

Type 2" Threaded PVC

Total Length 10.00

Backfill

Bentonite chips

3.30 FT.

Bentonite Seal

4.32 FT.

Granular Pack

#4 Quartz

Sand

4.92 FT.

Well Screen

9.75 FT. = 15.10 (Tot. Pipe) - 5.50 (Cut Off) - 0.15 (Bot. Blk.) - -0.30 (Stick)

Bottom of Borehole 10.80 FT.

Well-2.xls

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EARTH TECH

Well Completion Diagram

Well No. MW-34

Project Curtis - Franklin

Time & Date: Start 4/5/96 1245

Completed 4/5/96 1335

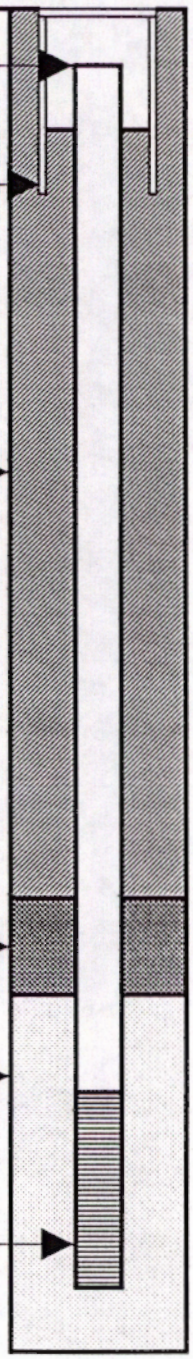
Installed By A. Schrader

Inspected By M. Lytle

Ground Surface _____ FT. (MSL)

Reference Point (Top of Casing) 728.49 FT. (MSL)

Note: Elevation is 0.76' lower than true elevation



Guard Pipe

Backfill

Bentonite

Bentonite Seal 5.00 FT.

8.80 FT.

Granular Pack #4 Quartz Sand 10.95 FT.

Well Screen

15.72 FT. = 15.02 (Tot. Pipe) - 0.0 (Cut Off) - 0.15 (Bot. Blk.) - -0.85 (Stick)

Bottom of Borehole 16.0 FT.

Drilling Method 4 1/4" HSA

Mobile B-57

Screen:

Type	2" Threaded PVC
Slot Size	0.010
Top Blank	0.10
Bottom Blank	0.15
Total Screen	4.77
Total Length	5.02

Stand Pipe:

Type	2" Threaded PVC
Total Length	10.00

Well-2.xls

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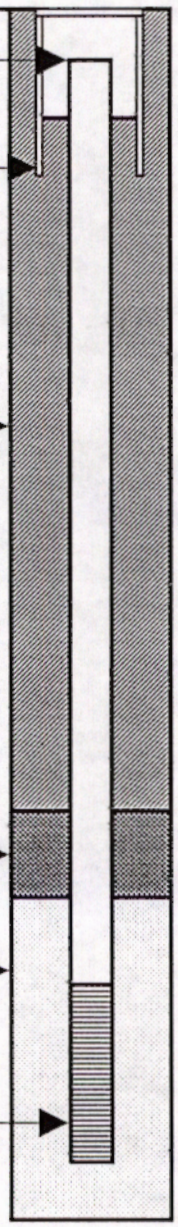
EARTH TECH

Well Completion Diagram

Well No.	P-1		
Project	Curtis - Franklin		
Time & Date:	Start	4/5/96	1445
	Completed	4/5/96	1539

Installed By	A. Schrader
Inspected By	M. Lytle



Ground Surface _____ FT. (MSL)

Reference Point (Top of Casing) _____ FT. (MSL)

Guard Pipe

Backfill

Bentonite

Bentonite Seal — 6.50 FT.

7.70 FT.

Granular Pack — 9.97 FT. _____ FT. (MSL)

#4 Quartz

Sand

Well Screen

14.50 FT. = 15.05 (Tot. Pipe) - 1.00 (Cut Off) - 0.15 (Bot. Blk.) - -0.6 (Stick)

Bottom of Borehole 15.00 FT.

Drilling Method	4 1/4" HSA
Mobile B-57	

Screen:

Type	2" Threaded PVC
Slot Size	0.010
Top Blank	0.37
Bottom Blank	0.15
Total Screen	4.53
Total Length	5.05

Stand Pipe:

Type	2" Threaded PVC
Total Length	10.00

Well-2.xls

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