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The following document was too large to scan as one unit, therefore, it has been broken down into sections.

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TITLE:	Interim GW Data Summary Report for 1100-EM-1 OU for 1990

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APPENDIX B-1

RELATIVE PERCENT DIFFERENCE RESULTS TABLES

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TABLE 1

GENERAL CHEMISTRY PARAMETERS
RPD SUMMARY

WELL	D/S	RD	ANALYTE	RPD
MW-11	D	1	Turbidity	105
MW-5	D	1	Turbidity	40
MW-12	D	2	TDS	72
MW-12	D	2	TOC	71
MW-12	D	2	Turbidity	120
MW-12	D	2	Nitrite as N	168
MW-12	D	3	COD	140
MW-12	D	3	Turbidity	102
MW-17	D	3	Nitrate Nitrogen	46
MW-17	D	3	Turbidity	35
MW-7	S	4	TOC	175
MW-11	S	4	COD	33
MW-11	S	4	Chloride	56
MW-11	S	4	TDS	42
MW-11	S	4	Nitrate as N	53
MW-11	S	4	Sulfate	197
MW-11	S	4	TOC	173

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TABLE 2

UNFILTERED INORGANIC ANALYTES
RPD SUMMARY

WELL	D/S	RD	Analyte	RPD	REASON
MW-11	D	1	Iron	31	RPD >20%, result >5X <100X the CRQL
MW-8	S	1	Iron	157	RPD >20%, result >5X <100X the CRQL
MW-12	D	1	Iron	118	RPD >100%, result <5X the CRQL
MW-14	S	2	Calcium	28	RPD >20%, result >5X <100X the CRQL
MW-14	S	2	Chromium	106	RPD >100%, result <5X the CRQL
MW-14	S	2	Manganese	176	RPD >20%, result >5X <100X the CRQL
MW-14	S	2	Sodium	26	RPD >20%, result >5X <100X the CRQL
MW-14	S	2	Zinc	122	RPD >100%, result >5X the CRQL
6-S31-E13	S	3	Iron	21	RPD >10%, result >100X the CRQL
MW-4	S	3	Aluminum	141	RPD >100%, result <5X the CRQL
MW-4	S	3	Beryllium	101	RPD >100%, result <5X the CRQL
MW-10	D	4	Aluminum	104	RPD >100%, result <5X the CRQL
MW-10	D	4	Iron	93	RPD >10%, result >5X <100X the CRQL
MW-7	S	4	Manganese	133	RPD >100%, result <5X the CRQL
MW-7	S	4	Zinc	144	RPD >100%, result <5X the CRQL

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TABLE 3

FILTERED INORGANIC ANALYTES
RPD SUMMARY

WELL	D/S	RD	Analyte	RPD	REASON
MW-11	D	1	Iron	31	RPD >20%, result >5X <100X the CRQL
MW-5	D	1	Iron	142	RPD >20% , result >5X <100X the CRQL
MW-5	D	1	Manganese	24	RPD >20%, result >5X <100X the CRQL
MW-17	S	1	Barium	104	RPD >100%, result <5X the CRQL
MW-8	S	1	Zinc	160	RPD >100%, result <5X the CRQL
MW-12	D	2	Zinc	170	RPD >100%, result <5X the CRQL
MW-14	S	2	Calcium	29	RPD >20%, result >5X <100 the CRQL
MW-14	S	2	Magnesium	32	RPD >20%, result >5X <100X the CRQL
MW-14	S	2	Manganese	187	RPD >20%, result >5X <100X the CRQL
MW-14	S	2	Sodium	27	RPD >20%, result >5 <100X the CRQL
MW-6	S	2	Zinc	111	RPD >100%, result <5X the CRQL
MW-4	S	3	Lead	106	RPD >100%, result <5X the CRQL
MW-4	S	3	Manganese	169	RPD >100%, result <5X the CRQL
MW-7	S	4	Aluminum	132	RPD >100%, result <5X the CRQL
MW-7	S	4	Iron	152	RPD >100%, result <5X the CRQL

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TABLE 4

ORGANIC COMPOUNDS
RPD SUMMARY

WELL	D/S	RD	COMPOUND	RPD	REASON
MW-11	D	1	bis (2-Ethylhexyl) phthalate	152	RPD >20%, result >5X <100X the CRQL
MW-17	D	2	bis (2-Ethylhexyl) phthalate	133	RPD >100%, result <5X the CRQL
MW-14	S	2	Tetrachloroethene	157	RPD >100%, result <5X the CRQL
MW-6	S	2	Tetrachloroethene	145	RPD >100%, result <5X the CRQL
MW-4	S	3	Tetrachloroethene	139	RPD >100%, result <5X the CRQL
MW-10	D	4	1,1,1 Trichloroethane	133	RPD >100%, result <5X the CRQL

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APPENDIX B-2

DUPLICATE AND SPLIT RESULTS TABLES

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ABBREVIATIONS

ORGANIC QUALIFIERS:

D - Indicates the compound was reported at a secondary dilution factor.

J - Indicates an estimated value, reported when estimating a tentatively identified compound or
when the result is less than the sample quantitation limit but greater than zero.

JX - Indicates an estimated value and the laboratory has flagged the value with more than one qualifier.

R - Data is qualified as unusable.

U - Indicates compound was analyzed for but not detected at the given detection limit.

INORGANIC QUALIFIERS:

B - Indicates that the reported value is less than the Contract Required Detection Limit but greater than or equal to the Instrument Detection Limit.

J - Indicates an estimated value when the result is less than the sample quantitation limit but greater than zero.

U - Indicates that the analyte was analyzed for but not detected.

UJ - Indicates that the analyte was not detected at the estimated value.

OTHER QUALIFIERS:

NA - not analyzed.

NC - not calculable due to both values reported below the detection limit.

CRQL - Contract Required Quantitation Limit.

TABLE KEY:

WELL - Westinghouse well identification

D/S - indicates if sample was a duplicate or a split sample.

RD - indicates the sampling round from which the sample was collected.

RPD - the relative percent difference between two values.

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Sample ID - identifier of the Westinghouse sample.

Location - location of the groundwater monitoring well.

Analysis (AY) - type of analysis performed on the sample as described below:

DW - drinking water parameters (general chemistry)

Filtered I - filtered inorganics

CLP- analysis includes volatile organic, semivolatile organic, herbicides, and pesticides

RAD - radionuclide

LAB - laboratory performing the analysis as described below:

UST - U.S Testing

W - Weyerhaeuser

HEHF - Hanford Environmental Health Foundation

MM - Martin Marietta

P - Pacific Northwest Environmental Laboratory

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DUPLICATE SAMPLE SUMMARY

SAMPLE ID	SAMPLE ID	LOCATION	ANALYSIS	RD	LAB
B00012	B00015	6-S30-E10B,MW-1	DW	1	UST
B00030	B00032	6-S38-E12B,MW-5	DW	1	UST
B0013D	B0014D	6-S30-E10B,MW-11	FILTERED I	1	W
B0013T	B0014T	6-S30-E10B,MW-11	CLP	1	W
B00029	B00031	6-S38-E12B,MW-5	CLP	1	W
B0029D	B0031D	6-S38-E12B,MW-5	FILTERED I	1	W
B00087	B00091	6-S31-E10A,MW-12	CLP	2	W
B00088	B00092	6-S31-E10A,MW-12	FILTERED I	2	W
B00089	B00093	6-S31-E10A,MW-12	DW	2	HEHF
B00090	B00094	6-S31-E10A,MW-12	RAD	2	MM
B000L1	B000L5	6-S41-E13C,MW-17	CLP	2	MM
B000L2	B000L6	6-S41-E13C,MW-17	FILTERED I	2	W
B000L3	B009W9	6-S41-E13C,MW-17	DW	2	HEHF
B000L4	B009X0	6-S41-E13C,MW-17	RAD	2	MM
B00B31	B00CP5	6-S31-E10A,MW-12	CLP	3	W
B00B32	B00CP6	6-S31-E10A,MW-12	FILTERED I	3	W
B00B33	B00CP7	6-S31-E10A,MW-12	DW	3	HEHF
B00B34	B00CP8	6-S31-E10A,MW-12	RAD	3	MM
B00CP1	B00CY5	6-S34-E10,MW-2	CLP	3	W
B00CP2	B00CY6	6-S34-E10,MW-2	FILTERED	3	W
B00CS3	B00CY1	6-S41-E13C,MW-17	CLP	3	W
B00CS4	B00CY2	6-S41-E13C,MW-17	FILTERED I	3	W
B00CS5	B00CY3	6-S41-E13C,MW-17	DW	3	HEHF
B00CS6	B00CY4	6-S41-E13C,MW-17	RAD	3	MM
B00D27	B00D31	6-S30-E10A,MW-10	CLP	4	P
B00D28	B00D32	6-S30-E10A,MW-10	FILTERED I	4	P
B00D29	B00D33	6-S30-E10A,MW-10	RAD	4	MM
B00D30	B00D34	6-S30-E10A,MW-10	DW	4	HEHF
B00D66	B00D70	6-S38-E12B,MW-5	CLP	4	P
B00D67	B00D71	6-S38-E12B,MW-5	FILTERED I	4	P
B00D68	B00D72	6-S38-E12B,MW-5	RAD	4	MM
B00D69	B00D73	6-S38-E12B,MW-5	DW	4	HEHF

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SPLIT SAMPLE SUMMARY

SAMPLE ID	LAB	SAMPLE ID	LAB	LOCATION	AY	RD
B00038	W	B0040T	P	6-S41-E13C, MW-17	CLP	1
B0038D	W	B0040D	P	6-S41-E13C, MW-17	FI	1
B00041	W	B0042T	P	6-S31-E8, MW-8	CLP	1
B0041D	W	B0042D	P	6-S31-E8, MW-8	FI	1
B00100	W	B000F8	P	6-S31-E10C, MW-14	CLP	2
B000F5	W	B000F9	P	6-S31-E10C, MW-14	FI	2
B000H3	W	B000J6	P	6-S37-E11, MW-6	CLP	2
B000H4	W	B000J7	P	6-S37-E11, MW-6	FI	2
B00CW1	W	B00B35	MM	6-S31-E13	CLP	3
B00CW2	W	B00B36	MM	6-S31-E13	FI	3
B00CR1	W	B00B37	MM	6-S38-E12A, MW-4	CLP	3
B00CR2	W	B00B38	MM	6-S38-E12A, MW-4	FI	3
B00D82	P	B00D86	MM	6-S38-E10B, MW-7	CLP	4
B00D83	P	B00D87	MM	6-S38-E10B, MW-7	FI	4
B00D35	P	B00D37	MM	6-S30-E10B, MW-11	CLP	4
B00D36	P	B00D40	MM	6-S30-E10B, MW-11	FI	4

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Table 1A. Validated Laboratory Results, Duplicate Sample
Round 1

WHC WELL ID: MW-11	SAMPLE ID: B00012	SAMPLE ID: B00015	RPD
General Chemistry (results in mg/L, except where noted)			
Alkalinity as $CaCO_3$	151	150	1
Ammonia as N	1.47	1.62	10
Bromide	1.0 U	1.0 U	NC
Chloride	16.4	16.2	1
Conductivity	783	793	1
Dissolved Solids	512	520	2
Fluoride	0.50 U	0.50 U	NC
Nitrate as N	180	177	2
Nitrite as N	1.0 U	1.0 U	1
Phosphate	1.0 U	1.0 U	NC
Sulfate	88.7	87.9	1
Total Organic Carbon	1.0 U	.9 U	NC
Total Organic Halides	.032	.027	17
Turbidity, NTU	15	4.7	105
pH	7.6	7.7	1
Coliform, MPN/100 ml	2.2 U	2.2 U	NC

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Table 1B. Validated Laboratory Results, Duplicate Sample
Round 1

WHC WELL ID: MW-5	SAMPLE ID: B00030	SAMPLE ID: B00032	RPD
Filtered Inorganics (results in ug/L)			
Alkalinity as $CaCO_3$	132	132	0
Ammonia as N	0.05 U	0.05 U	NC
Bromide	1.0 U	1.0 U	NC
Chemical 0_2 Demand	10.0 U	10 U	NC
Chloride	6.8	6.8	0
Conductivity	313	316	1
Total Dissolved Solids	187	189	1
Fluoride	0.50 U	0.50 U	NC
Nitrate as N	8.3	8.4	1
Nitrite as N	1.0 U	1.0 U	NC
Phosphate	1.0 U	1.0 U	NC
Sulfate	20.5	20.5	0
Total Organic Carbon	0.8 U	0.8 U	NC
Total Organic Halides	0.14	0.14	0
Turbidity, NTU	0.4	0.6	40
pH	8.0	8.0	0
Coliform, MPN/100 ml	2.2 U	2.2 U	NC

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Table 1D. Validated Laboratory Results, Duplicate Sample
Round 1 (Sheet 1 of 2)

WHC WELL ID: MW-11	SAMPLE ID: B0013T	SAMPLE ID: B0014T	RPD
Unfiltered Inorganics (results in ug/L)			
Aluminum	855	706	19
Antimony	23.3 U	21.0 U	NC
Arsenic	1.0 U	1.0 J	0
Barium	111 B	112 B	1
Beryllium	1.0 U	1.0 U	NC
Cadmium	2.0 U	2.0 U	NC
Calcium	90800	91400	1
Chromium	11.4 U	10.0 U	NC
Cobalt	3.0 U	3.0 U	NC
Copper	4.3 U	3.2 U	NC
Iron	1660 J	1210 J	31
Lead	2.0 UJ	3.0 J	40
Magnesium	19300	19800	3
Manganese	216	212	2
Mercury	0.20 U	0.20 U	NC
Nickel	17.5 U	16.5 U	NC
Potassium	9950	9940	0.1
Selenium	2.0 U	2.0 UJ	NC
Silver	2.0 U	2.0 U	NC
Sodium	33800 J	33600 J	1
Thallium	1.0 U	1.0 U	NC
Vanadium	4.5 U	3.9 U	NC
Zinc	5.2 U	7.1 U	NC
Cyanide	10.0 U	10.0 U	NC

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Table 1D. Validated Laboratory Results, Duplicate Sample
Round 1 (Sheet 2 of 2)

WHC WELL ID: MW-11	SAMPLE ID: B0013T	SAMPLE ID: B0014T	RPD
Organics (results in ug/L)			
Ethanol,2-chloro, phosphat (TIC @ = 21.3 min.)	96 JX	60 JX	46
bis(2-Ethylhexyl) phthalate	10 U	73	152
1,1,1-Trichloroethane	0.8 J	0.9 J	12
Trichloroethene	0.9 J	2	76

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Table 1E. Validated Laboratory Results, Duplicate Sample Round 1

WHC WELL ID: MW-5	SAMPLE ID: B00029	SAMPLE ID: B00031	RPD
Unfiltered Inorganics (results in ug/L)			
Aluminum	110 U	112 U	NC
Antimony	21.0 UJ	21.0 UJ	NC
Arsenic	4.8 B	4.6 B	4
Barium	58.2 B	55 B	6
Beryllium	1.0 U	1.0 U	NC
Cadmium	2.0 U	2.0 U	NC
Calcium	33100 J	31600 J	5
Chromium	9.3 U	7.5 U	NC
Cobalt	3.0 U	3.0 U	NC
Copper	2.0 U	2.0 U	NC
Iron	72.3 B	100	32
Lead	1.9 U	2.0 U	NC
Magnesium	7020	6640	6
Manganese	273 J	297 J	8
Mercury	0.20 U	0.20 U	NC
Nickel	7.0 U	9.9 U	NC
Potassium	4610 B	4930 B	7
Selenium	1.0 UJ	1.0 U	NC
Silver	2.0 U	2.0 U	NC
Sodium	19500 J	17800 J	9
Thallium	1.6 U	1.7 UJ	NC
Vanadium	6.2 U	7.7 B	22
Zinc	2.0 U	2.4 U	NC
Cyanide	10.0 U	10.0 U	NC
Organics (results in ug/L)			
Ethanol,2-chloro, phosphat (TIC @ 21.64 min.)	200 JX	140 JX	35
Chloroform	1	1	0
1,1,1-Trichloroethane	4	4	0
Tetrachloroethene	0.8 J	0.8 J	0

Table 1F. Validated Laboratory Results, Duplicate Sample
Round 1

WHC WELL ID: MW-5	SAMPLE ID: B0029D	SAMPLE ID: B0031D	RPD
Filtered Inorganics (results in ug/L)			
Aluminum	99.4 U	48.2 U	NC
Antimony	21.0 U	21.0 U	NC
Arsenic	4.3 B	3.4 B	23
Barium	51.8 J	63.6 J	20
Beryllium	1.0 U	1.0 U	NC
Cadmium	2.0 U	2.0 U	NC
Calcium	29100	33300	13
Chromium	2.0 U	4.2 U	NC
Cobalt	3.0 U	3.0 U	NC
Copper	2.0 U	2.0 U	NC
Iron	92.8 B	15.7 U	142
Lead	1.0 UJ	1.0 UJ	NC
Magnesium	6050	7170	17
Manganese	266	339	24
Mercury	0.20 U	0.20 U	NC
Nickel	7.9 U	7.0 U	NC
Potassium	4180 B	4790 B	14
Selenium	1.0 U	1.0 U	NC
Silver	2.2 B	2.0 U	10
Sodium	16600 J	18600 J	11
Thallium	1.0 U	1.0 U	NC
Vanadium	4.8 U	5.5 U	NC
Zinc	2.1 U	3.0 U	NC

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Table 1G. Validated Laboratory Results, Split Sample Round 1

WHC WELL ID: MW-17	SAMPLE ID: B00038	SAMPLE ID: B0040T	RPD
Unfiltered Inorganics (results in ug/L)			
Aluminum	1280	1420	10
Antimony	21.0 UJ	32.0 U	NC
Arsenic	2.1 B	3.1 B	38
Barium	38.8 B	88.9 U	78
Beryllium	1.0 U	1.4 U	NC
Cadmium	2.0 U	3.2 U	NC
Calcium	24600 J	23400 J	5
Chromium	20.1	16.6	19
Cobalt	3.0 U	11.8 U	NC
Copper	2.0 U	2.0 U	NC
Iron	1930	1650	16
Lead	2.2 U	1.0 U	NC
Magnesium	5590	5430	3
Manganese	84.5 J	76.5 J	10
Mercury	0.20 U	0.20 U	NC
Nickel	7.0 U	16.4 U	NC
Potassium	3830 B	3960 B	3
Selenium	1.0 U	2.0 U	NC
Silver	2.0 U	2.0 U	NC
Sodium	18000 J	16500 J	9
Thallium	1.0 U	3.0 U	NC
Vanadium	4.5 U	7.2 B	46
Zinc	5.1 U	7.9 UJ	NC
Cyanide	10.0 U	10.0 UJ	NC

Table 1H. Validated Laboratory Results, Split Sample Round 1

WHC WELL ID: MW-17	SAMPLE ID: B0038D	SAMPLE ID: B0040D	RPD
Filtered Inorganics (results in ug/L)			
Aluminum	276 U	267	3
Antimony	21.0 U	32.0 U	NC
Arsenic	2.5 B	3.1 B	21
Barium	21.0 J	66.1 U	104
Beryllium	1.0 U	1.5 U	NC
Cadmium	2.0 U	3.3 U	NC
Calcium	24300	18400 J	28
Chromium	8.3 U	4.0 U	NC
Cobalt	3.0 U	9.2 U	NC
Copper	2.0 U	2.0 U	NC
Iron	412	182	77
Lead	2.3 UJ	1.0 U	NC
Magnesium	5340	4100 B	26
Manganese	68.2	45.7 J	40
Mercury	0.20 U	0.20 U	NC
Nickel	7.0 U	10.5 U	NC
Potassium	3490 B	2930 B	17
Selenium	1.0 U	2.0 U	NC
Silver	2.0 U	2.0 U	NC
Sodium	17500 J	13100 J	29
Thallium	1.0 U	3.0 U	NC
Vanadium	2.6 U	6.0 U	NC
Zinc	3.5 U	29.0 UJ	NC

Table 1I. Validated Laboratory Results, Split Sample Round 1

WHC WELL ID: MW-8	SAMPLE ID: B00041	SAMPLE ID: B0042T	RPD
Unfiltered Inorganics (results in ug/L)			
Aluminum	105 U	99.1 U	NC
Antimony	21.0 UJ	33.6 B	46
Arsenic	5.7 B	7.5 B	27
Barium	51.8 B	102 U	65
Beryllium	1.0 U	1.5 U	NC
Cadmium	2.0 U	2.3 U	NC
Calcium	54200 J	53800 J	1
Chromium	4.3 U	4.0 U	NC
Cobalt	3.0 U	9.7 U	NC
Copper	2.0 U	2.0 U	NC
Iron	114	13.8 U	157
Lead	3.1 UJ	1.0 U	NC
Magnesium	13400	13500	1
Manganese	51.0 J	47.7 J	7
Mercury	0.20 U	0.20 U	NC
Nickel	16.8 U	10.1 U	NC
Potassium	5320	5420	2
Selenium	1.0 U	2.0 U	NC
Silver	2.0 U	2.0 U	NC
Sodium	20400 J	19300 J	6
Thallium	1.0 U	3.0 U	NC
Vanadium	9.6 B	6.0 U	46
Zinc	6.9 U	6.8 UJ	NC
Cyanide	10 U	10.0 UJ	NC
Organics (results in ug/L)			
1,1,1-Trichloroethane	0.8 J		NC

Table 1J. Validated Laboratory Results, Split Sample Round 1

WHC WELL ID: MW-8	SAMPLE ID: B0041D	SAMPLE ID: B0042D	RPD
Filtered Inorganics (results in ug/L)			
Aluminum	104 U	212 U	NC
Antimony	21.0 U	32.0 U	NC
Arsenic	5.9 B	7.4 B	23
Barium	49.6 J	103 U	70
Beryllium	1.0 U	1.4 U	NC
Cadmium	2.0 U	3.0 U	NC
Calcium	54400	55400 J	2
Chromium	2.2 U	4.0 U	NC
Cobalt	3.0 U	9.8 U	NC
Copper	2.0 U	2.0 U	NC
Iron	28.8 U	105 U	NC
Lead	1.6 UJ	1.0 U	NC
Magnesium	13200	13600	3
Manganese	40.3	40.8 J	1
Mercury	0.20 U	0.20 U	NC
Nickel	7.0 U	10.0 U	NC
Potassium	5160	5440	5
Selenium	1.0 U	2.0 U	NC
Silver	2.8 B	2.0 U	33
Sodium	19600 J	19600 J	0
Thallium	1.0 U	3.0 U	NC
Vanadium	9.6	8.1 B	17
Zinc	9.5 U	85.8 J	160

Table 2A. Validated Laboratory Results, Duplicate Sample
Round 2 (Sheet 1 of 2)

WHC WELL ID: MW-12	SAMPLE ID: B00087	SAMPLE ID: B00091	RPD
Unfiltered Inorganics (results in ug/L)			
Aluminum	331	137 U	83
Antimony	17.0 U	17.0 U	NC
Arsenic	2.5 B	3.6 B	36
Barium	113 B	114 B	1
Beryllium	1.0 U	1.0 U	NC
Cadmium	3.0 U	3.0 U	NC
Calcium	115000	116000	1
Chromium	17.0	16.8	1
Cobalt	3.0 U	3.0 U	NC
Copper	5.3 B	3.5 B	41
Iron	388	99.5 U	118
Lead	2.0 UJ	2.0 UJ	NC
Magnesium	23800	23800	0
Manganese	41.2	38.4	7
Mercury	0.20 U	0.20 U	NC
Nickel	15.0 U	15.0 U	NC
Potassium	9040	9150	1
Selenium	2.0 U	2.0 U	NC
Silver	3.0 U	3.0 U	NC
Sodium	32800 J	33000 J	1
Thallium	2.0 U	2.0 U	NC
Vanadium	7.3 U	7.4 U	NC
Zinc	2.0 U	2.0 U	NC
Organics (results in ug/L)			
1,1,1-Trichloroethane	2	2	0
Trichloroethene	110 D	97 D	13
Tetrachloroethene	0.7 J	0.7 J	0
Unknown TIC @ 32.24 min.		5.3 JX	NC
Unknown TIC @ 33.67 min.		13 JX	NC
Unknown TIC @ 35.14 min.		12 JX	NC

Table 2A. Validated Laboratory Results, Duplicate Sample Round 2 (Sheet 2 of 2)

WHC WELL ID: MW-12	SAMPLE ID: B00087	SAMPLE ID: B00091	RPD
General Chemistry (results in ug/L)			
Alkalinity as $CaCO_3$	180	180	0
Ammonia as N	0.02 U	0.02 U	NC
Bromide	0.2 U	0.2 U	NC
Chemical O_2 Demand	9	8	12
Chloride	16.0	16.2	1
Conductivity	900	900	0
Dissolved Solids	660	310	72
Fluoride	0.3	0.3	0
Nitrate/Nitrogen	49.0	48.3	1
Nitrate/Nitrite/ Nitrogen	52.1	50.4	3
Sulfate	81.7	81.8	0
Total Organic Carbon	2.1	1.0	71
Total Organic Halides	0.06	0.06	0
Tubidity, NTU	8 J	2 J	120
pH	7.6	7.6	0
CN	0.01 U	0.01 U	NC
TP	0.03	0.03	0
Phosphate	0.5 U	0.5 U	NC

Table 2B. Validated Laboratory Results, Duplicate Sample Round 2

WHC WELL ID: MW-12	SAMPLE ID: B00088	SAMPLE ID: B00092	RPD
Filtered Inorganics (results in ug/L)			
Aluminum	110 U	98.2 U	NC
Antimony	17.0 U	17.0 U	NC
Arsenic	2.7 B	2.0 U	30
Barium	111 B	114 B	3
Beryllium	1.0 U	1.0 U	NC
Cadmium	3.0 U	3.0 U	NC
Calcium	116000	117000	1
Chromium	5.0 U	5.0 U	NC
Cobalt	3.0 U	3.0 U	NC
Copper	2.0 U	5.2 B	89
Iron	45.5 U	58.6 U	NC
Lead	2.0 U	2.0 U	NC
Magnesium	23900	24600	3
Manganese	36.8	40.2	9
Mercury	0.20U	0.20U	NC
Nickel	15.0 U	15.0 U	NC
Potassium	8910	8960	1
Selenium	2.0 U	2.0 U	NC
Silver	3.0 U	3.0 U	NC
Sodium	32900 J	33700 J	2
Thallium	2.0 U	2.0 U	NC
Vanadium	6.4 U	4.4 U	NC
Zinc	2.0 U	21.4	170

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Table 2C. Validated Laboratory Results, Duplicate Sample
Round 2

WHC WELL ID: MW-12	SAMPLE ID: B00089	SAMPLE ID: B00093	RPD
General Chemistry (results in mg/L, except where noted)			
Chloride	17	16	6
Fluoride	0.37	0.39	5
Nitrate as N	49.7	48.3	3
Nitrite as N	2.3	.2 U	168
Phosphate	0.5U	0.5U	NC
Sulfate	92	87	6
Coliform Colonies/ MPN 100ml	2 U	2 U	NC
Nitrate as N	220.1	213.9	3

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Table 2D. Validated Laboratory Results, Duplicate Sample Round 2

WHC WELL ID: MW-17	SAMPLE ID: B000L1	SAMPLE ID: B000L5	RPD
Unfiltered Inorganics (results in ug/L)			
Aluminum	217	237	9
Antimony	17 U	22.1 U	NC
Arsenic	2.7 B	2.8 B	4
Barium	23.6 B	23.6 B	0
Beryllium	1.0 U	1.0 U	NC
Cadmium	3.0 U	3.0 U	NC
Calcium	23800	23800	0
Chromium	13.5	6.6 B	69
Cobalt	3.0 U	3.0 U	NC
Copper	10.9 U	2.2 U	NC
Iron	207	160 U	26
Lead	3.8 J	2.0 U	62
Magnesium	4340 B	4720 B	8
Manganese	100	95.4	5
Mercury	0.20 U	0.20 U	NC
Nickel	15.0 U	15.0 U	NC
Potassium	3130 B	3340 B	6
Selenium	2.0 UJ	2.0 UJ	NC
Silver	3.0 U	3.0 U	NC
Sodium	20200 J	20400 J	1
Thallium	4.0 U	4.0 U	NC
Vanadium	3.0 U	3.0 U	NC
Zinc	13.6 UJ	9.3 UJ	NC
Organics (results in ug/L)			
Bis(2-Ethylhexyl) phthalate	2 J	10 U	133

Table 2E. Validated Laboratory Results, Duplicate Sample
Round 2 (Sheet 1 of 2)

WHC WELL ID: MW-17	SAMPLE ID: B000L2	SAMPLE ID: B000L6	RPD
Filtered Inorganics (results in ug/L)			
Aluminum	121 U	112 U	NC
Antimony	17.0 U	17.0 U	NC
Arsenic	2.0 U	2.0 U	NC
Barium	18.0 B	18.6 B	3
Beryllium	1.0 U	1.0 U	NC
Cadmium	3.0 U	3.0 U	NC
Calcium	26700	26800	0
Chromium	5.0 U	5.0 U	NC
Cobalt	3.0 U	3.0 U	NC
Copper	2.0 U	2.0 U	NC
Iron	23.2 U	15.0 U	NC
Lead	10.0 U	2.0 UJ	NC
Magnesium	5600	5610	0
Manganese	102	103	1
Mercury	0.20 U	0.20 U	NC
Nickel	15.0 U	15.0 U	NC
Potassium	4110 U	4020 U	NC
Selenium	2.0 UJ	2.0 UJ	NC
Silver	3.0 U	3.0 U	NC
Sodium	20900 J	20400 J	2
Thallium	4.0 U	4.0 U	NC
Vanadium	3.7 B	3.0 U	21
Zinc	18.3 U	15.9 U	NC
General Chemistry (results in mg/L, except where noted)			
Alkalinity as $CaCO_3$	110	111	1

Table 2E. Validated Laboratory Results, Duplicate Sample Round 2 (Sheet 2 of 2)

WHC WELL ID: MW-17	SAMPLE ID: B000L2	SAMPLE ID: B000L6	RPD
Ammonia as N	0.02 U	0.02 U	NC
Bromide	0.2 U	0.2 U	NC
Chemical O_2 Demand	5 U	5 U	NC
Chloride	2.6	2.6	0
Conductivity	260	260	0
Total Dissolved Solids	180	200	11
Fluoride	0.3	0.3	0
Nitrate as N	0.1 U	0.1 U	NC
Nitrate/Nitrite/Nitrogen	0.05 U	0.05 U	NC
Sulfate	15.6	15.4	1
Total Organic Carbon	0.1 U	.1 U	NC
Total Organic Halides	0.01 UJ	0.01 UJ	NC
Turbidity, NTU	1.8	1.6	12
pH	8.1	8.1	0
TP	0.70	0.66	6
CN	0.01 U	0.01 U	NC
Phosphate	2.4	2.6	8

Table 2F. Validated Laboratory Results, Duplicate Sample
Round 2

WHC WELL ID: MW-17	SAMPLE ID: B000L3	SAMPLE ID: B009W9	RPD
General Chemistry (results in mg/L, except where noted)			
Chloride	2.86	2.90	1
Fluoride	0.25	0.25	0
Nitrate as N	0.05	0.05	0
Nitrite as N	.2 U	.2 U	0
Phosphate	2.25	2.41	7
Sulfate	14.9	15.1	1
Coliform Colonies	2 U	2 U	NC
Nitrate	0.22	0.22	0

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Table 2G. Validated Laboratory Results, Split Sample Round 2 (Sheet 1 of 2)

WHC WELL ID: MW-14	SAMPLE ID: B00100	SAMPLE ID: B000F8	RPD
Unfiltered Inorganics (results in ug/L)			
Aluminum	99.6 U	29.1 U	NC
Antimony	17.0 U	40.0 U	NC
Arsenic	2.0 U	2.6 B	26
Barium	105 B	80.1 B	27
Beryllium	1.0 U	1.0 U	NC
Cadmium	3.0 U	5.0 U	NC
Calcium	112000	84200	28
Chromium	5.0 U	16.3	106
Cobalt	3.0 U	10.0 U	NC
Copper	5.2 B	5.0 U	4
Iron	34.0 U	127 U	NC
Lead	2.4 J	3.0 U	22
Magnesium	24600	18200	30
Manganese	214	13.7B	176
Mercury	0.20 U	0.20 U	NC
Nickel	15.0 U	20.0 U	NC
Potassium	10100	8320 J	19
Selenium	2.0 U	3.0 UJ	NC
Silver	3.0 U	10.0 U	NC
Sodium	34300 J	26500	26
Thallium	2.0 U	2.0 U	NC
Vanadium	3.0 U	10.0 U	NC
Zinc	4.2 B	17.4 U	122
Cyanide		10.0 U	NC
Organics (results in ug/L)			
1,1,1-Trichloroethane	1	1 J	0
Trichloroethene	73 D	83	13
Tetrachloroethene	0.6 J	5 U	157
Unk. Hydrocarbon @ (TIC 26.69 min.)		10 J	NC

Table 2G. Validated Laboratory Results, Split Sample
Round 2 (Sheet 2 of 2)

WHC WELL ID: MW-14	SAMPLE ID: B00100	SAMPLE ID: B000F8	RPD
Unk. Alkane (TIC @ 27.64 min.)		24 J	NC
Unk. Alkane (TIC @ 28.52 min.)		52 J	NC
Unk. Alkane (TIC @ 29.37 min.)		60 J	NC
Unk. Alkane (TIC @ 30.19 min.)		58 J	NC
Unk. Alkane (TIC @ 32.04 min.)		44 J	NC
Unk. Alkane (TIC @ 33.19 min.)		36 J	NC
Unk. Alkane (TIC @ 34.52 min.)		24 J	NC
Unk. Alkane (TIC @ 36.12 min.)		20 J	NC
Unk. Alkane (TIC @ 38.04 min.)		14 J	NC

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Table 2H. Validated Laboratory Results, Split Sample Round 2

WHC WELL ID: MW-14	SAMPLE ID: B000F5	SAMPLE ID: B000F9	RPD
Filtered Inorganics (results in ug/L)			
Aluminum	125 U	25.0 U	NC
Antimony	17.0 U	40.0 U	NC
Arsenic	2.0 U	2.4 B	18
Barium	105 B	79.6 B	28
Beryllium	1.0 U	1.0 U	NC
Cadmium	3.0 U	5.0 U	NC
Calcium	114000	85200	29
Chromium	7.9 B	10.0 U	23
Cobalt	3.0 U	10.0 U	NC
Copper	6.1 B	5.0 U	20
Iron	36.9 U	39.7 U	NC
Lead	2.0 U	3.0 U	NC
Magnesium	25300	18400	32
Manganese	216	7.4 B	187
Mercury	0.20 U	0.20 U	NC
Nickel	15.0 U	20.0 U	NC
Potassium	10300	8370 J	21
Selenium	2.0 U	3.0 UJ	NC
Silver	3.0 U	10.0 U	NC
Sodium	35200 J	26800	27
Thallium	2.0 U	2.0 U	NC
Vanadium	3.0 U	10.0 U	NC
Zinc	5.0 B	12.1 U	83

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Table 2I. Validated Laboratory Results, Split Sample Round 2

WHC WELL ID: MW-6	SAMPLE ID: B000H3	SAMPLE ID: B000J6	RPD
Unfiltered Inorganics (results in ug/L)			
Aluminum	165 U	66.9 U	NC
Antimony	17.0 U	40.0 U	NC
Arsenic	3.0 J	2.6 B	14
Barium	50.5 B	48.8 B	3
Beryllium	1.0 U	1.0 U	NC
Cadmium	3.0 U	5.0 U	NC
Calcium	41100	39800	3
Chromium	17.7 J	15.9	11
Cobalt	3.0 U	10.0 U	NC
Copper	3.2 U	5.0 U	NC
Iron	133 UJ	169 U	NC
Lead	2.0 U	3.0 U	NC
Magnesium	8520 J	9270	8
Manganese	9.9 B	10.6 B	7
Mercury	0.20 U	0.20 U	NC
Nickel	22.5 B	20.0 U	12
Potassium	5340	6440 J	19
Selenium	2.0 UJ	3.0 UJ	NC
Silver	3.0 U	10.0 U	NC
Sodium	23400 J	22200	5
Thallium	4.0 U	2.0 U	NC
Vanadium	6.9 B	10.0 U	37
Zinc	2.0 U	13.4 U	NC
Cyanide		10.0 U	NC
Organics (results in ug/L)			
Unk. Hydrocarbon (TIC @ 28.52 min.)		8.0J	NC
Unk. (TIC @ 30.21 min.)		10 J	NC
1,1,1-Trichloroethane	0.9 J	1 J	11
Tetrachloroethene	0.8 J	5 U	145

Table 2J. Validated Laboratory Results, Split Sample Round 2

WHC WELL ID: MW-6	SAMPLE ID: B000H4	SAMPLE ID: B000J7	RPD
Filtered Inorganics (results in ug/L)			
Aluminum	131 U	25.0 U	NC
Antimony	17.0 U	40.0 U	NC
Arsenic	4.3 J	2.3 B	61
Barium	46.4 B	46.7 B	1
Beryllium	1.0 U	1.0 U	NC
Cadmium	3.0 U	5.0 U	NC
Calcium	40100	40800	2
Chromium	5.0 UJ	10.0 U	NC
Cobalt	3.0 U	10.0 U	NC
Copper	2.1 U	5.0 U	NC
Iron	18.6 UJ	25.0 U	NC
Lead	2.0 U	3.0 U	NC
Magnesium	8570 J	9490	10
Manganese	4.9 B	5.0 U	2
Mercury	0.20 U	0.20 U	NC
Nickel	15.0 U	20.0 U	NC
Potassium	5470	6580 J	18
Selenium	2.0 UJ	3.0 UJ	NC
Silver	3.0 U	10.0 U	NC
Sodium	22400 J	22300	0
Thallium	4.0 U	2.0 U	NC
Vanadium	6.3 B	10.0 U	45
Zinc	2.3 B	8.0 U	111

Table 2K. Laboratory Results, Duplicate Sample
Round 2

WHC WELL ID: MW-12	SAMPLE ID: B00090	SAMPLE ID: B00094	RPD
Radionuclides (results in pCi/L)			
Alpha	4.840 +/- 2.480	3.640 +/- 2.400	28
Beta	87.640 +/- 6.900	77.170 +/- 6.600	13
Cesium-137 (Cs-137)	14.000 +/- 36.000	9.000 +/- 31.000	43
Tritium (H3)	-440.000 U +/- 670.000	-420.000 U +/- 670.000	NC
Radium (RA)	.330 U +/- .490	.230 U +/ .510	NC
Strontium (SR)	-1.010 U +/- 1.300	-1.010 U +/- 1.300	NC

Table 2L. Laboratory Results, Duplicate Sample
Round 2

WHC WELL ID: MW-17	SAMPLE ID: B000L4	SAMPLE ID: B009X0	RPD
Radionuclides (results in pCi/L)			
Alpha	.890 U +/- 1.900	.560 U +/- 1.800	NC
Beta	.890 U +/- 3.800	5.370 U +/- 4.000	NC
Cesium-137 (Cs-137)	NA	NA	NC
Tritium (H3)	-400.000 U +/- 670.000	-660.000 U +/- 670.000	NC
Radium (RA)	-.720 U +/- .510	-.640 U +/- .510	NC
Strontium (SR)	-2.040 U +/- 1.500	-1.840 U +/- 1.500	NC

Table 3A. Validated Laboratory Results, Duplicate Sample Round 3 (Sheet 1 of 2)

WHC WELL ID: MW-12	SAMPLE ID: B00B31	SAMPLE ID: B00CP5	RPD
Unfiltered Inorganics (results in ug/L)			
Aluminum	117 U	129 U	NC
Antimony	20 U	20.0 U	NC
Arsenic	4.1 UJ	4.3U J	NC
Barium	111 B	114 B	3
Beryllium	1.0 U	1.0 U	NC
Cadmium	5.0 U	5.0 U	NC
Calcium	111000	113000	2
Chromium	5.0 B	5.0 U	0
Cobalt	2.0 U	2.0 U	NC
Copper	6.0 U	6.0 U	NC
Iron	44.3 U	37.5 U	NC
Lead	2.0 U	2.0 UJ	NC
Magnesium	22600	23200	3
Manganese	5.2 B	5.2 B	0
Mercury	0.25	0.25	0
Nickel	20.0 U	20.0 U	NC
Potassium	8140	8330	2
Selenium	2.0 U	2.0 U	NC
Silver	4.0 U	3.0 U	NC
Sodium	31800	33300	5
Thallium	3.0 U	3.0 UJ	NC
Vanadium	6.9 U	5.8 U	NC
Zinc	3.0 U	3.0 U	NC
Cyanide	10.0 U	10.0 U	NC
Organics (results in ug/L)			
1,1,1-Trichloroethane	2	2	0
Trichloroethene	80	91	13
Unknown (TIC@ 4.8 min.)		85 JX	NC

Table 3A. Validated Laboratory Results, Duplicate Sample Round 2 (Sheet 2 of 2)

WHW WELL ID: MW-12	SAMPLE ID: B00B31	SAMPLE ID: B00CP5	RPD
General Chemistry (results in mg/L, except where noted)			
Alkalinity as $CaCO_3$	170	170	0
Ammonia as N	0.02 U	0.02 U	NC
Bromide	2 U	2 U	NC
Chemical O_2 Demand	6	34	140
Chloride	17.5	17.4	1
Conductivity, µS/Cm	885	890	1
Total Dissolved Solids	700	660	6
Fluoride	0.4 J	0.4 J	NC
Nitrate as N	56.7	70.0	21
Phosphate	0.7 U	0.8	13
Sulfate	81.4	80.6	1
Total Organic Carbon	0.3	0.2	40
Total Organic Halides	0.078 J	0.061 J	24
Turbidity, NTU	0.88	2.7	102
pH	7.7	7.6	1

Table 3B. Validated Laboratory Results, Duplicate Sample Round 3

WHC ID : MW-12	SAMPLE ID: B00B32	SAMPLE ID: B00CP6	RPD
Filtered Inorganics (results in ug/L)			
Aluminum	49.0 U	49.0 U	NC
Antimony	27.0 U	27.0 U	NC
Arsenic	3.3 B	3.3 B	0
Barium	111 B	105 B	6
Beryllium	1.0 U	1.0 U	NC
Cadmium	3.0 U	3.0 U	NC
Calcium	116000	110000	5
Chromium	4.0 U	4.0 U	NC
Cobalt	2.4 B	2.0 U	NC
Copper	4.7 B	5.6 B	17
Iron	13.0 U	13.0 U	NC
Lead	2.0 UJ	2.0 UJ	NC
Magnesium	24200	22900	6
Manganese	5.2 B	5.9 B	13
Mercury	0.20 U	0.20 U	NC
Nickel	21.0 U	21.0 U	NC
Potassium	8600	8770	2
Selenium	2.0 U	2.0 UJ	NC
Silver	4.0 U	4.0 U	NC
Sodium	31800 J	31200 J	2
Thallium	1.0 U	1.0 U	NC
Vanadium	5.8 B	6.9 B	17
Zinc	2.0 UJ	2.0 UJ	NC

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Table 3C. Validated Laboratory Results, Duplicate Sample
Round 3

WHC WELL ID: MW-12	SAMPLE ID: B00B33	SAMPLE ID: B00CP7	RPD
General Chemistry (results in mg/L, except where noted)			
Chloride	18	16	12
Fluoride	0.4	0.4	0
Nitrate as N	49	49	NC
Nitrite as N	0.06 U	0.5 U	NC
Phosphate	0.5 U	0.5 U	NC
Sulfate	80	67	18
Turbidity, NTU	1 U	1 U	NC
Coliform Colonies/100 ml	2 U	2 U	NC

Table 3D. Validated Laboratory Results, Duplicate Sample
Round 3

WHC WELL ID: MW-2	SAMPLE ID: B00CP1	SAMPLE ID: B00CY5	RPD
Unfiltered Inorganics (results in ug/L)			
Aluminum	221 U	217 U	NC
Antimony	20.0 U	20.0 U	NC
Arsenic	4.8 UJ	4.1 UJ	NC
Barium	53.4 B	54.1 B	1
Beryllium	1.0 U	1.0 U	NC
Cadmium	5.0 U	5.0 U	NC
Calcium	44100	44000	1
Chromium	6.7 B	14.5	74
Cobalt	2.0 U	2.0 U	NC
Copper	6.0 U	6.0 U	NC
Iron	121	202	50
Lead	2.0 U	2.0 U	NC
Magnesium	9780	9620	2
Manganese	22.9	26.6	15
Mercury	0.20 U	0.25 J	22
Nickel	20.0 U	20.0 U	NC
Potassium	5750	5660	2
Selenium	2.0 U	2.0 U	NC
Silver	3.0 U	3.0 U	NC
Sodium	23800	23000	3
Thallium	3.0 UJ	3.0 UJ	NC
Vanadium	5.2 U	5.8 U	NC
Zinc	3.0 U	3.0 U	NC
Cyanide	10.0 U	NA	NC

Table 3E. Validated Laboratory Results, Duplicate Sample
Round 3

WHC WELL ID: MW-2	SAMPLE ID: B00CP2	SAMPLE ID: B00CY6	RPD
Filtered Inorganics (results in ug/L)			
Aluminum	49.0 U	49.0 U	NC
Antimony	27.0 U	27.0 U	NC
Arsenic	5.1 B	5.4 B	6
Barium	53.3 B	54.6 B	2
Beryllium	1.0 U	1.0 U	NC
Cadmium	3.0 U	3.0 U	NC
Calcium	44200	44600	1
Chromium	4.0 U	4.0 U	NC
Cobalt	2.0 U	2.0 U	NC
Copper	3.0 U	3.0 U	NC
Iron	13.0 U	13.0 U	NC
Lead	2.0 U	2.0 U	NC
Magnesium	9730	9860	1
Manganese	18.2	17.3	5
Mercury	0.20 U	0.20 U	NC
Nickel	21.0 U	21.0 U	NC
Potassium	6260	6140	2
Selenium	2.0 UJ	2.6 J	26
Silver	4.0 U	4.0 U	NC
Sodium	22100 J	22100 J	0
Thallium	1.0 U	1.0 U	NC
Vanadium	6.9 B	5.9 B	16
Zinc	2.0 UJ	2.0 UJ	NC

Table 3F. Validated Laboratory Results, Duplicate Sample
Round 3

WHC WELL ID: MW-17	SAMPLE ID: B00CS3	SAMPLE ID: B00CY1	RPD
Unfiltered Inorganics (results in ug/L)			
Aluminum	223 U	314	34
Antimony	27.0 U	27.0 U	NC
Arsenic	6.3 B	3.3 B	63
Barium	21.4 B	21.4 B	0
Beryllium	1.0 U	1.0 U	NC
Cadmium	3.0 U	3.0 U	NC
Calcium	24200	23700	2
Chromium	4.0 U	8.6 B	73
Cobalt	2.0 U	2.0 U	NC
Copper	3.0 U	3.5 U	NC
Iron	199	253	24
Lead	2.0 U	2.0 U	NC
Magnesium	5390	5500	2
Manganese	104	103	1
Mercury	0.20 U	0.20 U	NC
Nickel	21.0 U	21.0 U	NC
Potassium	3510 UJ	3720 UJ	NC
Selenium	2.0 UJ	2.0 UJ	NC
Silver	4.0 U	4.0 U	NC
Sodium	16300	16500	1
Thallium	1.0 U	1.0 U	NC
Vanadium	3.7 U	3.2 U	NC
Zinc	2.0 U	2.0 U	NC
Cyanide	10.0 U	10.0 U	NC
Organics (results in ug/L)			
bis(2-Ethylhexyl)-Phthalate	6 J	10 U	50

Table 3G. Validated Laboratory Results, Duplicate Sample
Round 3 (Sheet 1 of 2)

WHC WELL ID: MW-17	SAMPLE ID: B00CS4	SAMPLE ID: B00CY2	RPD
Filtered Inorganics (results in ug/L)			
Aluminum	92.3 U	113 U	NC
Antimony	27.0 U	27.0 U	NC
Arsenic	2.9 B	3.3 B	13
Barium	18.5 B	18.5 B	0
Beryllium	1.0 U	1.0 U	NC
Cadmium	3.0 U	3.0 U	NC
Calcium	24400	24400	0
Chromium	35.3	33.9	4
Cobalt	2.0 U	2.0 U	NC
Copper	3.0 U	3.0 U	NC
Iron	114	129	12
Lead	2.0 U	2.0 U	NC
Magnesium	5240	5490	5
Manganese	98.9	100	1
Mercury	0.20 U	0.20 U	NC
Nickel	21.0 U	21.0 U	NC
Potassium	3470 B	3910 B	12
Selenium	2.0 UJ	2.0 U	NC
Silver	4.0 U	4.0 U	NC
Sodium	17900	18200	2
Thallium	1.0 U	1.0 U	NC
Vanadium	3.0 U	3.0 U	NC
Zinc	2.0 U	2.0 U	NC

Table 3G. Validated Laboratory Results, Duplicate Sample
Round 3 (Sheet 2 of 2)

WHC WELL ID: MW-17	SAMPLE ID: B00CS3	SAMPLE ID: B00CY1	RPD
General Chemistry (results in mg/L, except where noted)			
Alkalinity as Ca CO_3	107	100	7
Ammonia as N	0.02 U	0.02 U	NC
Bromide	0.2 U	0.2 U	NC
Chemical O_2 Demand	5 U	5 U	NC
Chloride	2.8	2.8	0
Conductivity	250	260	4
Dissolved Solids	190	190	0
Fluoride	0.3 J	0.3 J	0
Nitrate as N	0.1 U	0.1 U	0
Phosphate	1.4	1.3	7
Sulfate	14.2	14.2	0
Total Organic Carbon	0.1 U	0.1 U	NC
Total Organic Halides	0.010 U	0.01 U	NC
Turbidity, NTU	2.6	2.5	4
pH	8.1	8.1	0

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Table 3H. Validated Laboratory Results, Duplicate Sample Round 3

WHC WELL ID: MW-17	SAMPLE ID: B00CS5	SAMPLE ID: B00CY3	RPD
General Chemistry (results in mg/L, except where noted)			
Chloride	2.8	2.7	4
Fluoride	0.2	0.2	0
Nitrate as N	0.05	0.08	46
Nitrite as N	0.6 U	0.6 U	NC
Phosphate	0.96	0.98	2
Sulfate	14	13	7
Turbidity, NTU	1.22	.86	35
Coliform, colonies MPN/100 ml	2 U	2 U	NC

Table 3I. Validated Laboratory Results, Split Sample Round 3

WHC WELL ID: 6-S31-E13	SAMPLE ID: B00CW1	SAMPLE ID: B00B35	RPD
Unfiltered Inorganics (results in ug/L)			
Aluminum	198 U	96.9 B	69
Antimony	27.0 U	50.0 U	NC
Arsenic	7.7 B	8.4 B	9
Barium	92.1 B	88.8 B	4
Beryllium	1.0 U	0.30 U	NC
Cadmium	3.0 U	3.0 U	NC
Calcium	74600	76200 J	2
Chromium	5.6 B	10.0 U	56
Cobalt	2.0 U	5.0 U	NC
Copper	3.0 U	8.6 B	97
Iron	13300	10800	21
Lead	3.7	5.1 U	32
Magnesium	15400	15000	3
Manganese	165	160	3
Mercury	0.20 U	0.10 U	NC
Nickel	21.0 U	10.0 U	NC
Potassium	5720	6580	14
Selenium	2.0 U	2.0 U	NC
Silver	4.0 U	6.0 U	NC
Sodium	13600	14700	8
Thallium	1.0 U	2.9 U	NC
Vanadium	24.0 U	20.4 B	16
Zinc	68.8	68.5	0
Cyanide	10.0 U		NC

Table 3J. Validated Laboratory Results, Split Sample
Round 3

WHC WELL ID: 6-S31-E13	SAMPLE ID: B00CW2	SAMPLE ID: B00B36	RPD
Filtered Inorganics (results in ug/L)			
Aluminum	102 U	49.7 B	69
Antimony	27.0 U	50.0 U	NC
Arsenic	2.6 B	2.1 U	21
Barium	71.5 B	69.1 B	3
Beryllium	1.0 U	0.30 U	NC
Cadmium	3.0 U	3.0 U	NC
Calcium	76500	75700 J	1
Chromium	19.3	10.0 U	63
Cobalt	2.0 U	5.0 U	NC
Copper	3.0 U	4.3 B	36
Iron	133	103	25
Lead	2.0 U	0.8 U	NC
Magnesium	15600	15000	4
Manganese	12.3 B	11.9 B	3
Mercury	0.20 U	0.10 U	NC
Nickel	21.0 U	10.0 U	NC
Potassium	6450	6440	0
Selenium	2.0 UJ	2.0 U	NC
Silver	4.0 U	6.0 U	NC
Sodium	15800	14600	8
Thallium	1.0 U	2.9 U	NC
Vanadium	4.3 B	5.0 U	15
Zinc	8.3 U	15.1 B	58

Table 3K. Validated Laboratory Results, Split Sample
Round 3

WHC WELL ID: MW-4	SAMPLE ID: B00CR1	SAMPLE ID: B00B37	RPD
Unfiltered Inorganics (results in ug/L)			
Aluminum	183 U	31.8 B	141
Antimony	20.0 U	50.0 U	NC
Arsenic	5.6 UJ	6.0 B	7
Barium	43.9 B	42.1 B	4
Beryllium	1.0 U	0.33 B	101
Cadmium	5.0 U	3.0 U	NC
Calcium	41300	37100 J	11
Chromium	9.5 B	10.0 U	5
Cobalt	2.0 U	5.0 U	NC
Copper	6.0 U	6.6 B	10
Iron	21.1 U	33.3 B	45
Lead	2.0 U	1.6 U	NC
Magnesium	9000	8320	8
Manganese	2.0 U	1.0 B	67
Mercury	0.25 J	0.10 U	86
Nickel	20.0 U	10.0 U	NC
Potassium	3780 B	4500 B	17
Selenium	2.0 U	2.0 U	NC
Silver	3.0 U	6.0 U	NC
Sodium	14400	13500	6
Thallium	3.0 UJ	2.9 U	NC
Vanadium	7.0 U	9.1 B	26
Zinc	3.0 U	4.6 U	NC
Cyanide	10.0 U		NC
Organics (results in ug/L)			
1,1,1-Trichloroethane	2	1 J	67
Tetrachlorethene	0.9 J	5 U	139

Table 3L. Validated Laboratory Results, Split Sample Round 3

WHC WELL ID: MW-4	SAMPLE ID: B00CR2	SAMPLE ID: B00B38	RPD
Filtered Inorganics (results in ug/L)			
Aluminum	49.0 U	20.0 U	NC
Antimony	27.0 U	50.0 U	NC
Arsenic	4.5 B	4.2 B	7
Barium	52.7 B	41.3 B	24
Beryllium	1.0 U	0.30 U	NC
Cadmium	3.0 U	3.0 U	NC
Calcium	33100	37600 J	13
Chromium	4.0 U	10.0 U	NC
Cobalt	2.0 U	5.0 U	NC
Copper	3.0 U	4.1 B	31
Iron	13.0 U	20.6 U	NC
Lead	2.6 J	0.8 U	106
Magnesium	6860	8510	21
Manganese	11.7 B	1.0 U	169
Mercury	0.20 U	0.10 U	NC
Nickel	21.0 U	10.0 U	NC
Potassium	4830 B	4570 B	6
Selenium	2.0 UJ	2.0 U	NC
Silver	4.0 U	6.0 U	NC
Sodium	17700 J	13500	27
Thallium	1.0 U	2.9 U	NC
Vanadium	7.5 B	8.2 B	9
Zinc	2.0 UJ	3.8 U	NC

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Table 3M. Laboratory Results, Duplicate Sample
Round 3

WHC WELL ID: MW-12	SAMPLE ID: B00B34	SAMPLE ID: B00CP8	RPD
Radionuclides (results in pCi/L)			
Alpha	6.650 +/- 2.000	7.340 +/- 2.100	10
Beta	91.020 +/- 6.600	100.450 +/- 6.900	10
Cesium-137 (Cs-137)	NA	NA	NC
Tritium (H3)	408.000 R +/- 680.000	-656.000 R +/- 680.000	NC
Radium (RA)	.030 U +/- .500	-.040 U +/- .400	NC
Strontium (SR)	-.440 U +/- 1.100	1.220 U +/- .700	NC

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Table 3N. Laboratory Results, Duplicate Sample
Round 3

WHC WELL ID: MW-17	SAMPLE ID: B00CS6	SAMPLE ID: B00CY4	RPD
Radionuclides (results in pCi/L)			
Alpha	-.450 U +/- 2.100	-.920 U +/- 1.900	NC
Beta	5.590 U +/- 3.500	2.910 U +/- 3.400	NC
Cesium-137 (Cs-137)	NA	NA	NC
Tritium (H3)	-92.000 R +/- 664.000	-732.000 R +/- 680.000	NC
Radium (RA)	-.030 U +/- .460	.290 U +/- .400	NC
Strontium (SR)	.300 U +/- .600	.280 U +/- .600	NC

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Table 4A. Validated Laboratory Results, Duplicate Sample Round 4 (Sheet 1 of 2)

WHC WELL ID: MW-10	SAMPLE ID: B00D27	SAMPLE ID: B00D31	RPD
Unfiltered Inorganics (results in ug/L)			
Aluminum	355	112 B	104
Antimony	40.0 U	40.0 U	NC
Arsenic	3.3 B	3.7 B	11
Barium	91.5 B	87.2 B	5
Beryllium	1.0 U	1.0 U	NC
Cadmium	5.0 U	5.0 U	NC
Calcium	93000	92500	1
Chromium	10.0 U	10.0 U	NC
Cobalt	10.0 U	10.0 U	NC
Copper	5.0 U	5.0 U	NC
Iron	667	243	93
Lead	3.4	3.0 U	13
Magnesium	21100	20600	2
Manganese	22.9	13.5 B	52
Mercury	0.20 U	0.20 U	NC
Nickel	20.0 U	20.0 U	NC
Potassium	8320	8330	1
Selenium	3.0 U	3.0 U	NC
Silver	10.0 U	10.0 U	NC
Sodium	30400	29400	3
Thallium	2.0 UJ	2.0 U	NC
Vanadium	10.0 U	10.0 U	NC
Zinc	8.0 U	8.0 U	NC
Cyanide	10.0 U	10.0 U	NC
Organics (results in ug/L)			
1,1,1-Trichloroethane	5 U	1 J	133
Unk. Fatty Acid (TIC @ 22.97 min)	12 J		NC
Unk. Alkane (TIC @ ≈ 27.11 min.)	14 J	12 J	15

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Table 4A. Validated Laboratory Results, Duplicate Sample Round 4 (Sheet 2 of 2)

WHC WELL ID: MW-10	SAMPLE ID: B00D27	SAMPLE ID: B00D31	RPD
Unk. Alkane (TIC @ ≈ 28.74 min.)	12 J	12 J	20
Unk. (TIC @ 37.36 min.)	7.8 J		NC
Diacetone Alcohol (TIC @ 6.73 min.)		7.8 J	NC
General Chemistry (results in mg/L, except where noted)			
Alkalinity as Ca CO_3	152	154	1
Ammonia as N	0.050 U	0.05 U	NC
Bromide	0.500 U	0.5 U	NC
Chemical O_2 Demand	5.00 U	5.0 U	NC
Chloride, IC	19.1	19.3	1
Conductivity	811	813	0
Total Dissolved Solids	559	549	2
Fluoride, SIE	0.356	0.324	9
Nitrate as N	38.3 J	38.2 UJ	0
Nitrite as N	0.10 J	0.10 UJ	0
Ortho Phosphate	0.10 UJ	0.10 UJ	NC
Sulfate	69.8	72.0	3
Total Organic Carbon	26	23 U	12
Total Organic Halides	0.071 U	0.13 U	NC
pH	7.38 J	7.5 J	2

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Table 4B. Validated Laboratory Results, Duplicate Sample Round 4

WHC WELL ID: MW-10	SAMPLE ID: B00D28	SAMPLE ID: B00D32	RPD
Filtered Inorganics (results in ug/L)			
Aluminum	25.0 U	25.0 U	NC
Antimony	40.0 U	40.0 U	NC
Arsenic	3.3 B	5.1 B	43
Barium	84.2 B	85.0 B	1
Beryllium	1.0 U	1.0 U	NC
Cadmium	5.0 U	5.0 U	NC
Calcium	92100	91400	1
Chromium	10.0 U	10.0 U	NC
Cobalt	10.0 U	10.0 U	NC
Copper	5.0 U	5.0 U	NC
Iron	25.0 U	25.0 U	NC
Lead	3.0 U	3.0 U	NC
Magnesium	19600	19700	1
Manganese	8.4 B	10.5 B	22
Mercury	0.20 U	0.20 U	NC
Nickel	20.0 U	20.0 U	NC
Potassium	8120	8000	1
Selenium	3.0 UJ	3.0 UJ	NC
Silver	10.0 U	10.0 U	NC
Sodium	28200	28700	2
Thallium	2.0 U	2.0 U	NC
Vanadium	10.0 U	10.0 U	NC
Zinc	8.0 U	8.0 U	NC

Table 4C. Validated Laboratory Results, Duplicate Sample
Round 4 (Sheet 1 of 2)

WHC WELL ID: MW-5	SAMPLE ID: B00D66	SAMPLE ID: B00D70	RPD
Unfiltered Inorganics (results in ug/L)			
Aluminum	25.0 U	25.0 U	NC
Antimony	40.0 U	40.0 U	NC
Arsenic	7.0 B	6.6 B	6
Barium	54.1 B	54.6 B	1
Beryllium	1.0 U	1.0 U	NC
Cadmium	5.0 U	5.0 U	NC
Calcium	34100	33900	1
Chromium	10.0 U	10.0 U	NC
Cobalt	10.0 U	10.0 U	NC
Copper	5.0 U	5.0 U	NC
Iron	25.0 U	25.0 U	NC
Lead	3.0 U	3.0 U	NC
Magnesium	7140 J	7120 J	0
Manganese	5.9 B	6.9 B	16
Mercury	0.20 U	0.20 U	NC
Nickel	20.0 U	20.0 U	NC
Potassium	5000	4900 B	2
Selenium	3.0 UJ	3.0 UJ	NC
Silver	10.0 U	10.0 U	NC
Sodium	17900 J	17300 J	3
Thallium	2.0 UJ	2.0 UJ	NC
Vanadium	10.0 U	10.0 U	NC
Zinc	8.0 U	8.0 U	NC
Cyanide	10.0 U	10.0 U	NC
Organics (results in ug/L)			
1,1,1-Trichloroethane	3 J	3 J	0
Ethanol, 2-chloro-phosphat (TIC @ 20.89 min.)	76 J	80 J	5

Table 4C. Validated Laboratory Results, Duplicate Sample Round 4 (Sheet 2 of 2)

WHC WELL ID: MW-5	SAMPLE ID: B00D66	SAMPLE ID: B00D70	RPD
General Chemistry (results in ug/L, except where noted)			
Alkalinity as Ca CO_3	126	128	2
Ammonia as N	0.05 U	0.05 U	NC
Bromide	0.50 U	0.5 U	NC
Chemical O_2 Demand	5.00 U	5.00 U	NC
Chloride IC	6.08	5.87	4
Conductivity	314	311	1
Total Dissolved Solids	201	197	2
Fluoride SIE	0.276	0.293	6
Nitrate as N	1.65 J	1.65 J	0
Nitrite as N	0.100 UJ	0.100 UJ	NC
Ortho Phosphate	0.100 UJ	0.100 UJ	NC
Sulfate	18.1	18.3	1
Total Organic Carbon	12 U	14 U	NC
Total Organic Halides	0.102 U	0.100 U	NC
pH	7.31 J	7.40 J	1

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Table 4D. Validated Laboratory Results, Duplicate Sample Round 4

WHC WELL ID: MW-5	SAMPLE ID: B00D67	SAMPLE ID: B00D71	RPD
Filtered Inorganics (results in ug/L)			
Aluminum	25.0 U	31.2 U	NC
Antimony	40.0 U	40.0 U	NC
Arsenic	5.8 UJ	5.8 UJ	NC
Barium	54.4 B	53.1 B	2
Beryllium	1.0 U	1.0 U	NC
Cadmium	5.0 U	5.0 U	NC
Calcium	33500	33600	0
Chromium	10.0 U	10.0 U	NC
Cobalt	10.0 U	10.0 U	NC
Copper	5.0 U	5.0 U	NC
Iron	25.0 U	35.1 B	34
Lead	3.0 U	3.0 U	NC
Magnesium	6990	7020	0
Manganese	5.0 U	5.0 U	NC
Mercury	0.20 U	0.20 U	NC
Nickel	20.0 U	20.0 U	NC
Potassium	4950 B	4910 B	1
Selenium	3.0 UJ	3.0 UJ	NC
Silver	10.0 U	10.0 U	NC
Sodium	17900	18000	1
Thallium	2.0 U	2.0 UJ	NC
Vanadium	10.0 U	10.0 U	NC
Zinc	8.0 U	8.9 U	NC

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Table 4E. Validated Laboratory Results, Split Sample Round 4 (Sheet 1 of 2)

WHC WELL ID: MW-7	SAMPLE ID: B00D82	SAMPLE ID: B00D86	RPD
Unfiltered Inorganics (results in ug/L)			
Aluminum	25.0 U	34.2 B	31
Antimony	40.0 U	50.0 U	NC
Arsenic	8.2 B	7.4 J	10
Barium	40.1 B	39.4 B	2
Beryllium	1.0 U	0.30 U	NC
Cadmium	5.0 U	3.0 U	NC
Calcium	46800	46900	0
Chromium	10.0 U	11.9	17
Cobalt	10.0 U	5.0 U	NC
Copper	5.0 U	4.0 U	NC
Iron	78.5 B	41.5 B	62
Lead	3.0 U	1.5 U	NC
Magnesium	9200 J	9250	1
Manganese	5.0 U	1.0 B	133
Mercury	0.20 U	0.10 UJ	NC
Nickel	20.0 U	10.0 U	NC
Potassium	6300	5760	9
Selenium	3.0 UJ	1.7 UJ	NC
Silver	10.0 U	6.0 U	NC
Sodium	22400 J	21100 J	6
Thallium	2.0 UJ	3.0 U	NC
Vanadium	12.4 B	11.2 B	10
Zinc	8.0 U	1.3 B	144
Cyanide	10.0 U		NC
Organics (results in ug/L)			
Phenol	12 U	10 U	NC

Table 4E. Validated Laboratory Results, Split Sample
Round 4 (Sheet 2 of 2)

WHC WELL ID: MW-7	SAMPLE ID: B00D82	SAMPLE ID: B00D86	RPD
General Chemistry (results in mg/L, except where noted)			
Alkalinity as Ca CO_3	161	156	3
Ammonia as N	0.05 U	0.20 U	NC
Bromide	0.5 U	1 U	NC
Chemical O_2 Demand	5 U	5 U	NC
Chloride, IC	10.8	11	2
Conductivity	425	405	5
Total Dissolved Solids	274	284	4
Fluoride, SIE	0.363	0.3	19
Nitrate	NA	8 J	NC
Nitrate as N	2.11 J	NA	NC
Nitrite	NA	1 UJ	NC
Nitrite as N	0.100 UJ	NA	NC
Ortho Phosphate	0.100 UJ	1 U	NC
Sulfate	35.1	34	3
Total Organic Carbon	15 U	1	175
Total Organic Halides	0.054 U	10 UJ	NC
Turbidity, NTU	NA	0.3 J	NC
pH	7.57 J	8.06 J	6

Table 4F. Validated Laboratory Results, Split Sample Round 4

WHC WELL ID: MW-7	SAMPLE ID: B00D83	SAMPLE ID: B00D87	RPD
Filtered Inorganics (results in ug/L)			
Aluminum	25.0 U	122 B	132
Antimony	40.0 U	50.0 U	NC
Arsenic	7.7 UJ	6.6 J	15
Barium	39.0 B	41.6 B	6
Beryllium	1.0U	0.30 U	NC
Cadmium	5.0 U	3.0 U	NC
Calcium	46600	46900	1
Chromium	10.0 U	10.0 U	NC
Cobalt	10.0 U	5.0 U	NC
Copper	5.0 U	4.0 U	NC
Iron	25.0 U	183	152
Lead	3.0 U	1.5 U	NC
Magnesium	9070	9260	2
Manganese	5.0 U	12.8 B	88
Mercury	0.20 U	0.10 UJ	NC
Nickel	20.0 U	14.3 B	33
Potassium	6450	5740	12
Selenium	3.0 UJ	1.7 UJ	NC
Silver	10.0 U	6.0 U	NC
Sodium	21900	21100 J	4
Thallium	2.0 UJ	3.0 U	NC
Vanadium	11.9 B	11.9 B	0
Zinc	8.0 U	4.4 B	58

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Table 4G. Validated Laboratory Results, Split Sample
Round 4 (Sheet 1 of 2)

WHC WELL ID: MW-11	SAMPLE ID: B00D35	SAMPLE ID: B00D39	RPD
Unfiltered Inorganics (results in ug/L)			
Aluminum	112 B	97.8 U	14
Antimony	40.0 U	50.0 U	NC
Arsenic	2.0 B	2.1 B	5
Barium	90.6 B	90.6 B	0
Beryllium	1.0 U	0.30 U	NC
Cadmium	5.0 U	3.0 U	NC
Calcium	99200	106000	7
Chromium	10.0 U	10.0 U	NC
Cobalt	10.0 U	5.0 U	NC
Copper	5.0 U	6.5 U	NC
Iron	230	109	71
Lead	3.0 U	1.5 U	NC
Magnesium	22700	21300	6
Manganese	107	114	6
Mercury	0.20 U	0.10 U	NC
Nickel	20.0 U	10.0 U	NC
Potassium	9170	9960	8
Selenium	3.0 U	1.7 UJ	NC
Silver	10.0 U	6.0 U	NC
Sodium	31400	32400	3
Thallium	2.0 UJ	3.0 U	NC
Vanadium	10.0 U	5.0 U	NC
Zinc	8.0 U	4.1 U	NC
Cyanide	10.0 U	NA	NC
Organics (results in ug/L)			
Trichloroethene	3	3 J	0
1,1,1-Trichloroethane	1 J	5 U	NC
Unk. Alkane (TIC @ 27.09 min.)	15 J		NC

Table 4G. Validated Laboratory Results, Split Sample Round 4 (Sheet 2 of 2)

WHC WELL ID: MW-11	SAMPLE ID: B00D35	SAMPLE ID: B00D39	RPD
Unk. Alkane (TIC @ 28.74 min.)	11 J		NC
General Chemistry (results in mg/L, except where noted)			
Alkalinity as Ca CO_3	151	151 J	0
Ammonia as N	0.237	0.26	9
Bromide	0.500 U	NA	NC
Chemical O_2 Demand	5.00 U	7	33
Chloride, IC	18.5	33	56
Conductivity	886	898	1
Total Dissolved Solids	600	922	42
Fluoride, SIE	0.290	0.3	3
Nitrate as N	46.5 J	80	53
Nitrite as N	0.736 UJ	NA	NC
Ortho Phosphate	0.100 UJ	NA	NC
Sulfate	75.4	11300	197
Total Organic Carbon	28	2	173
Total Organic Halides	0.077 U	10 UJ	NC
pH	7.57 J	8.0 J	6
Turbidity, NTU	NA	6.0 J	NC

Table 4H. Validated Laboratory Results, Split Sample Round 4

WHC WELL ID: MW-11	SAMPLE ID: B00D36	SAMPLE ID: B00D40	RPD
Filtered Inorganics (results in ug/L)			
Aluminum	25.0 U	48.4 U	NC
Antimony	40.0 U	50.0 U	NC
Arsenic	2.1 B	1.6 U	27
Barium	88.1 B	90.6 B	3
Beryllium	1.0 U	0.30 U	NC
Cadmium	5.0 U	4.1 U	NC
Calcium	101000	106000	5
Chromium	10.0 U	10.0 U	NC
Cobalt	10.0 U	5.0 U	NC
Copper	5.0 U	5.0 U	NC
Iron	25.0 U	15.6 U	NC
Lead	3.0 U	1.5 U	NC
Magnesium	21900	21100	4
Manganese	96.1	93.1	3
Mercury	0.20 U	0.10 U	NC
Nickel	20.0 U	10.0 U	NC
Potassium	9020	10100	11
Selenium	3.0 UJ	1.7 UJ	NC
Silver	10.0 U	6.0 U	NC
Sodium	30800	32500	5
Thallium	2.0 UJ	3.0 U	NC
Vanadium	10.0 U	5.0 U	NC
Zinc	8.0 U	6.5 U	NC

Table 4I. Laboratory Results, Duplicate Sample
Round 4

WHC WELL ID: MW-10	SAMPLE ID: B00D29	SAMPLE ID: B00D33	RPD
Radionuclides (results in pCi/L)			
Alpha	6.570 +/- 1.900	4.770 +/- 1.700	32
Beta	88.880 +/- 6.600	88.090 +/- 6.600	.9
Cesium-137 (Cs-137)	NA	NA	NC
Tritium (H3)	-730.000 U +/- 410.000	-370.000 U +/- 420.000	NC
Radium (RA)	.630 U +/- .400	.650 U +/- .500	NC
Strontium (SR)	-.445 U +/- .800	.698 U +/- .700	NC
Uranium-234 (U-234)	1.250 +/- 1.400	.811 +/- 1.100	43
Uranium-235 (U-235)	0.000 +/- 1.400	.405 +/- .810	200
Uranium-238 (U-238)	.834 +/- 1.700	4.460 +/- 2.900	137

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Table 4J. Laboratory Results, Duplicate Sample
Round 4

WHC WELL ID: MW-5	SAMPLE ID: B00D68	SAMPLE ID: B00D72	RPD
Radionuclides (results in pCi/L)			
Alpha	-.190 U +/- 1.700	-.230 U +/- 1.700	NC
Beta	8.920 +/- 3.500	8.380 +/- 3.500	6
Cesium-137 (Cs-137)	NA	NA	NC
Tritium (H3)	-230.000 U +/- 280.000	-2.600 U +/- 270.000	NC
Radium (RA)	-6.000 U +/- .900	-.050 U +/- 1.000	NC
Strontium (SR)	-.063 U +/- .790	.017 U +/- .840	NC

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APPENDIX C

GROUNDWATER POTENTIOMETRIC DATA AND MAPS

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7 Ground-Water Potentiometric Surface for the Unconfined Aquifer, June 25-27, 1990

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5 Ground-Water Potentiometric Surface Data, January through February, 1991

6 Top of Casing Elevation for Ground-Water Monitoring Wells

9 2 1 2 6 4 2 0 6 8 2

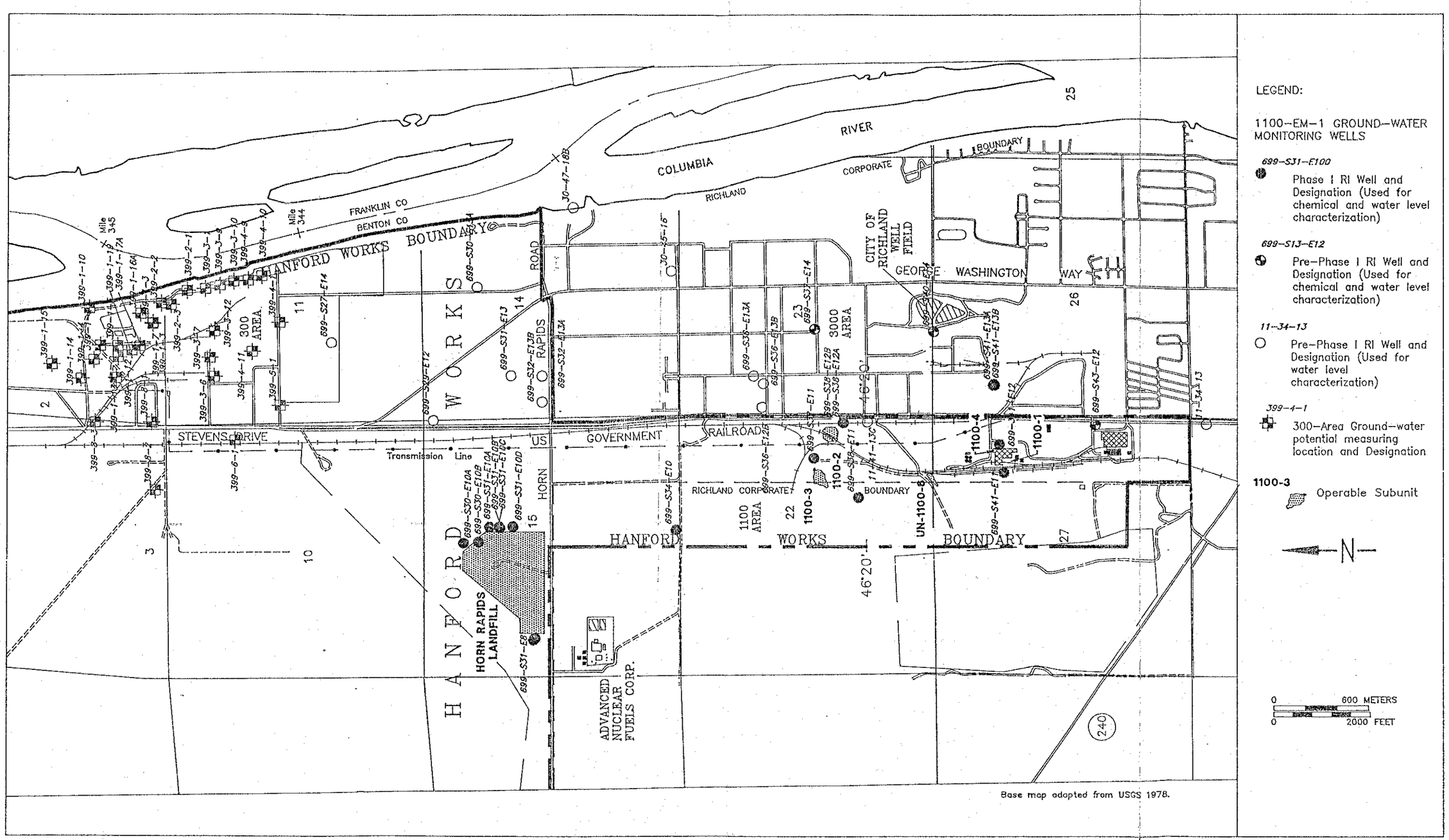

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Figure 1. Ground-Water Potential Measuring Locations

C-1/2

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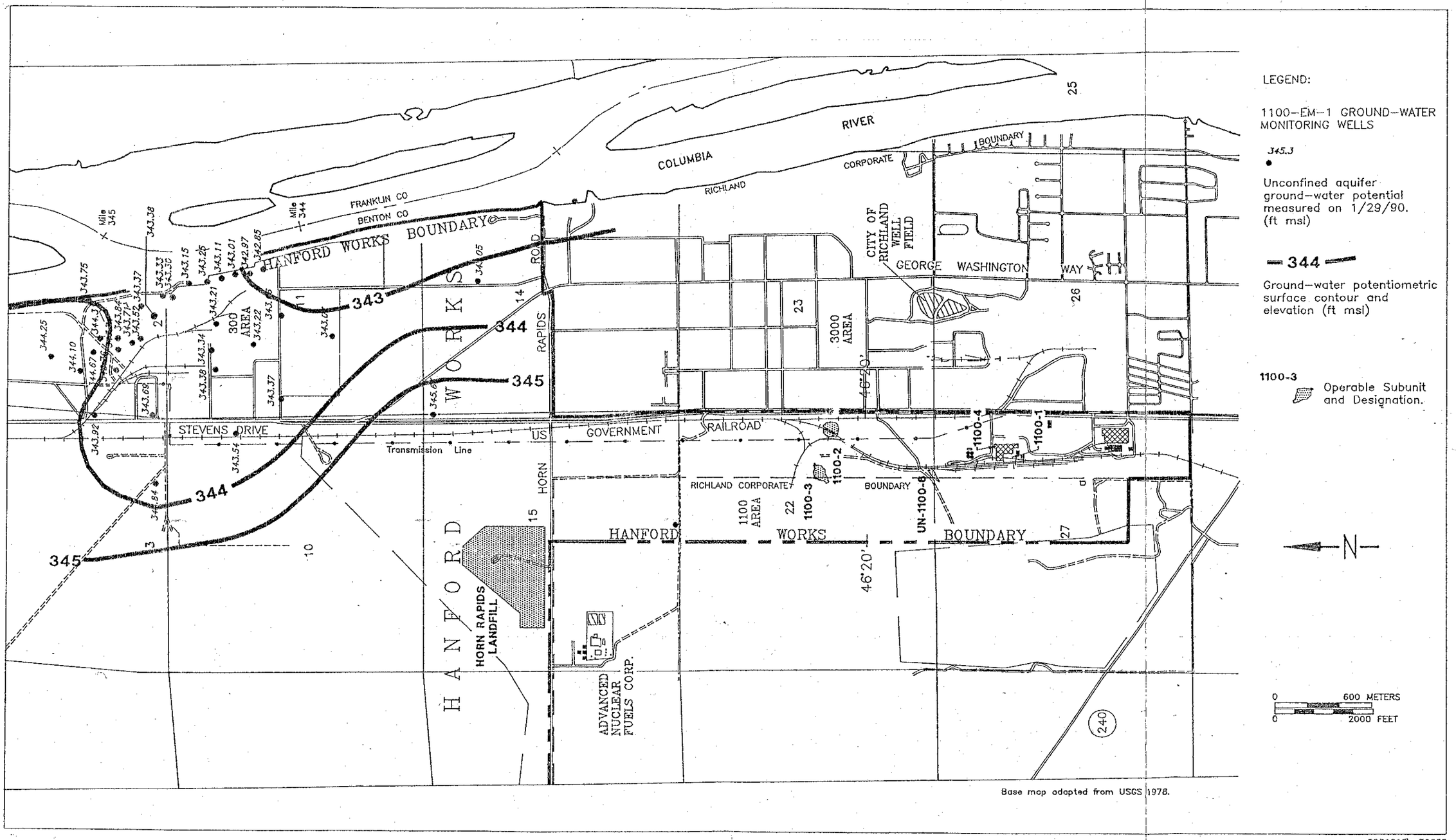

Figure 2. Ground-Water Potentiometric Surface for the Unconfined Aquifer, January 29, 1990.

C-3/-4

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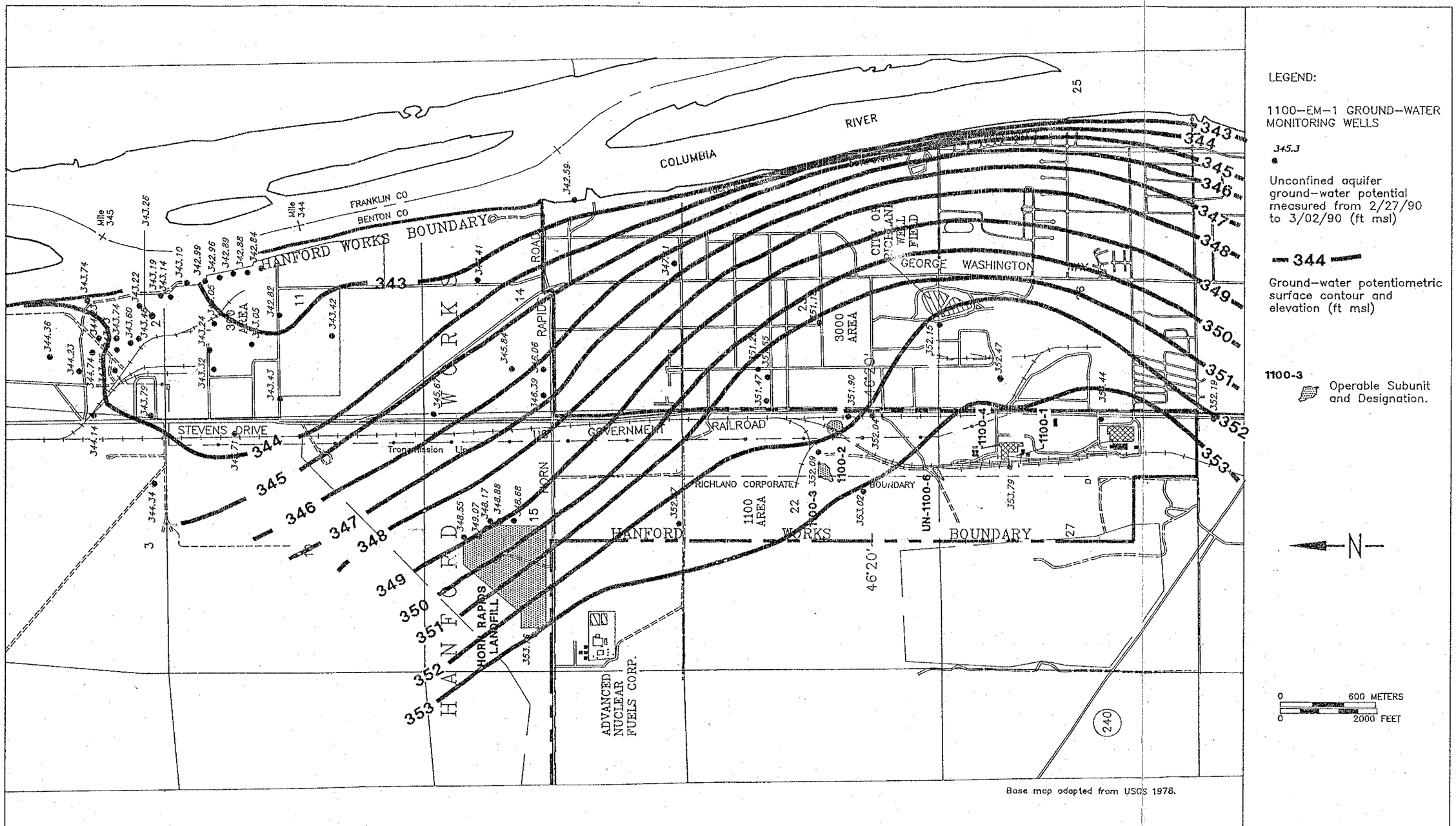

Base map adapted from USGS 1978.

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Figure 3. Ground-Water Potentiometric Surface for the Unconfined Aquifer, February 27 to March 2, 1990.

C-5/C-6

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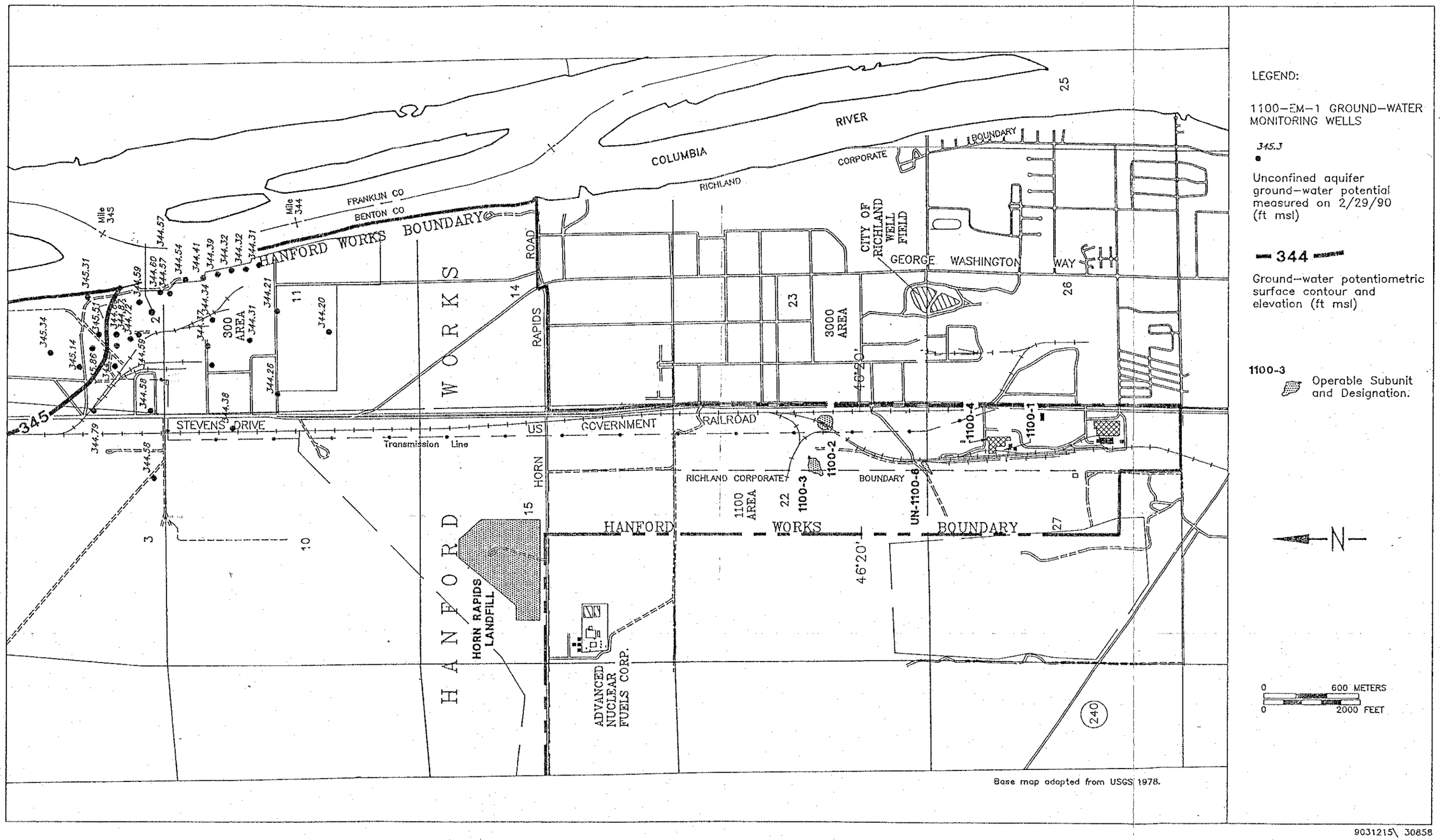

Figure 4. Ground-Water Potentiometric Surface for the Unconfined Aquifer, March 29, 1990.

C-7/-8

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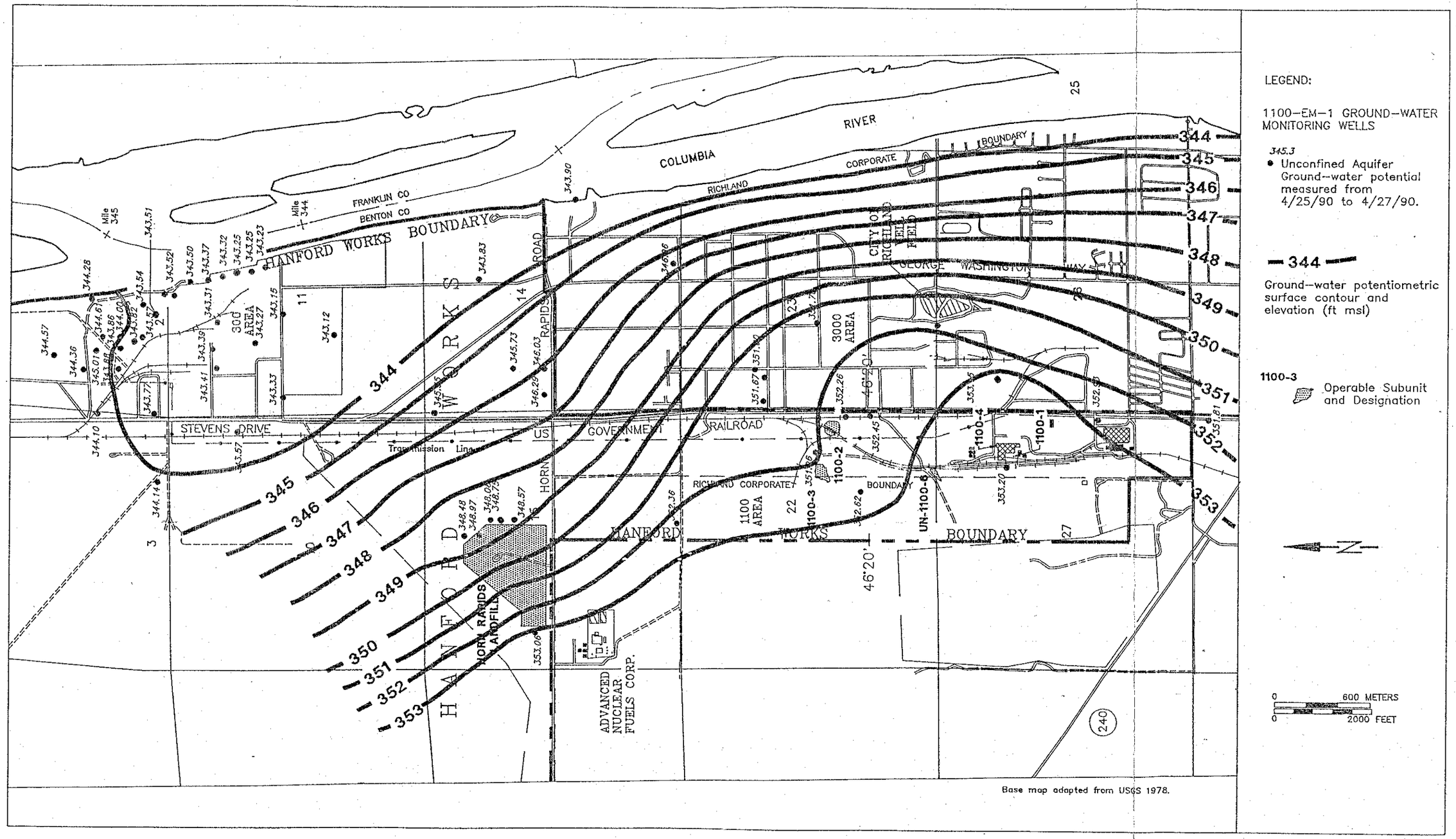

Figure 5. Ground-Water Potentiometric Surface for the Unconfined Aquifer, April 25-27, 1990.

C-9/-10

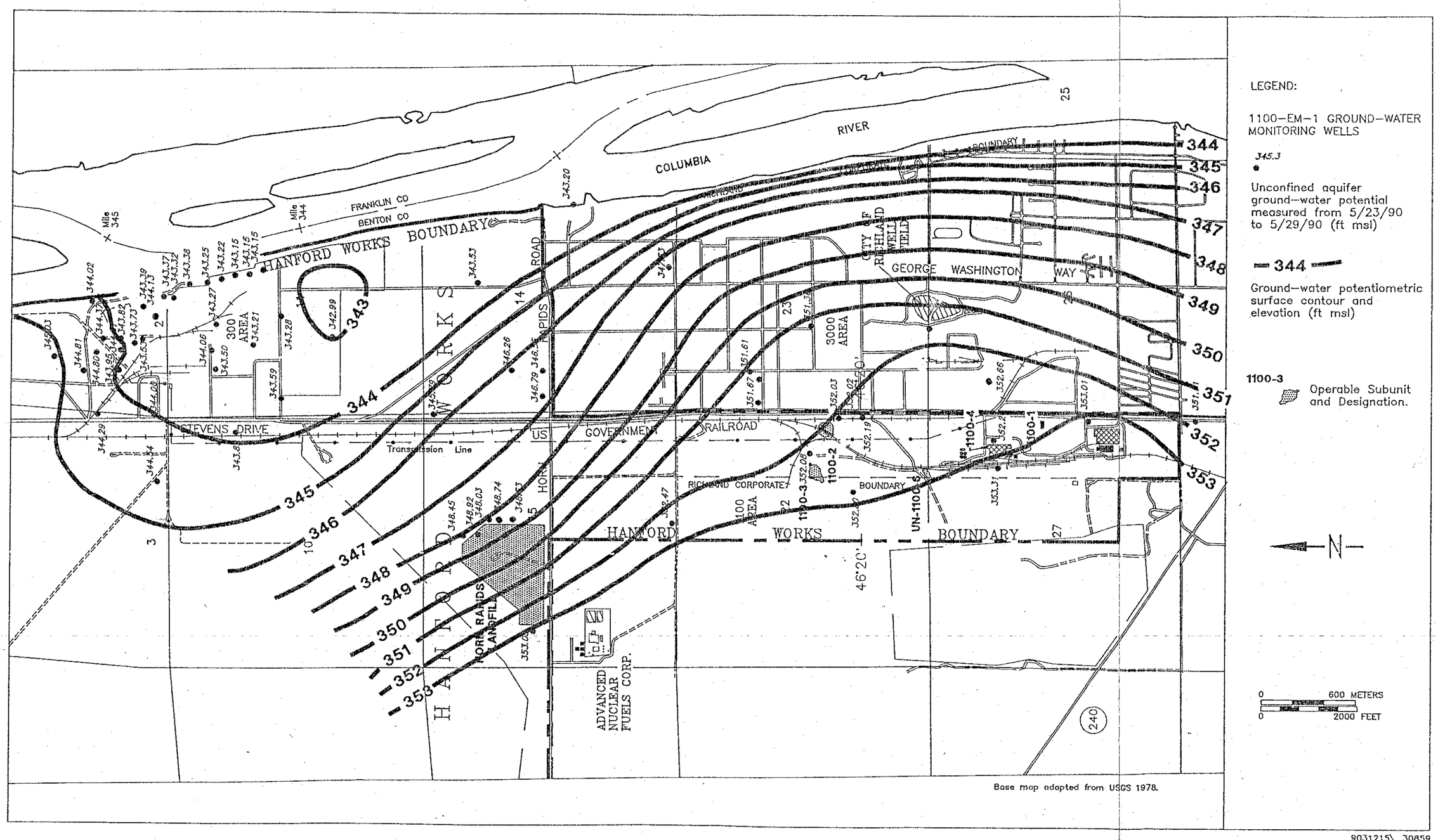

Figure 6. Ground-Water Potentiometric Surface for the Unconfined Aquifer, May 23-29, 1990.

C-11/-12

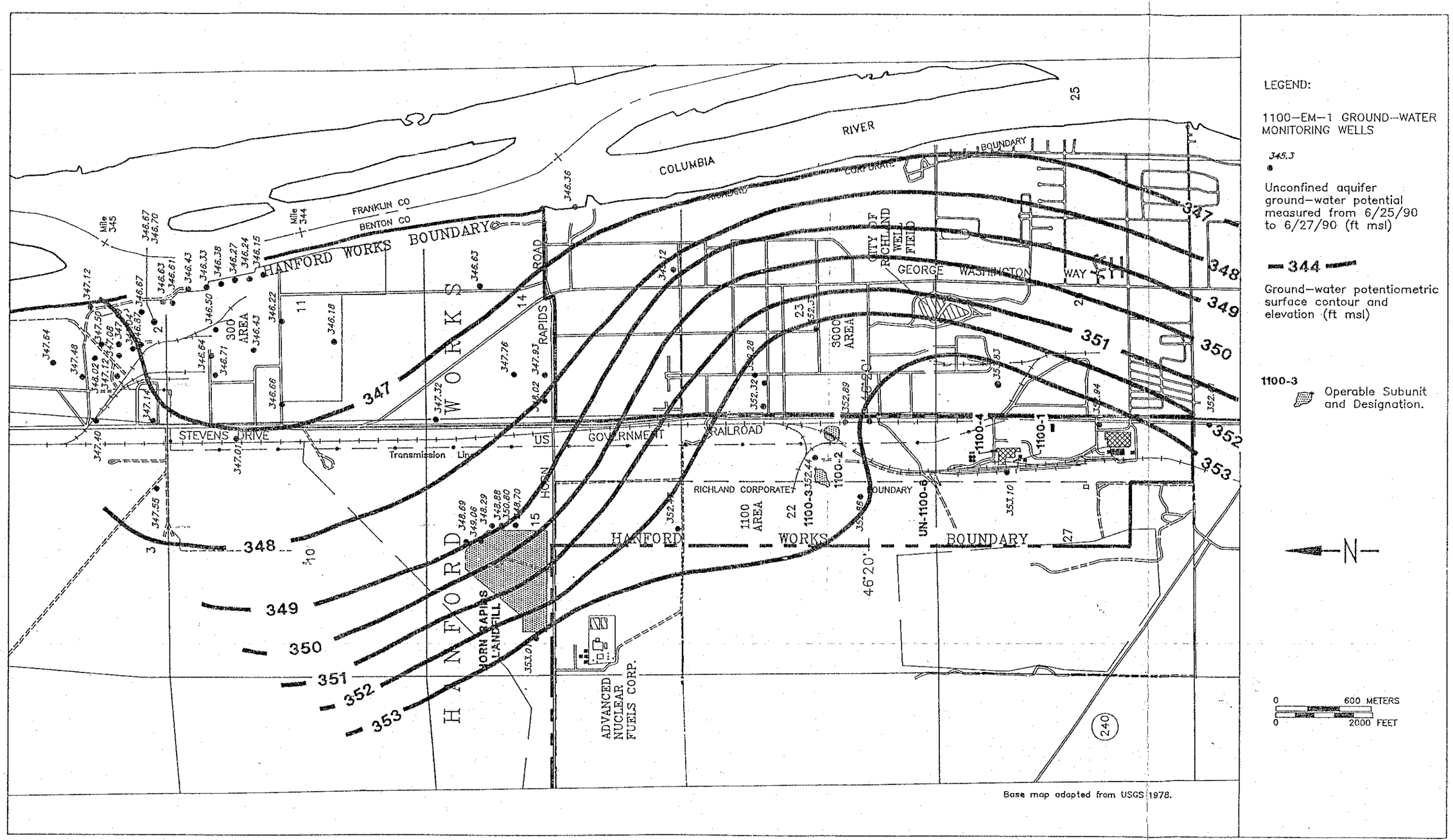

Figure 7. Ground-Water Potentiometric Surface for the Unconfined Aquifer, June 25-27,1990.

C-13/-14

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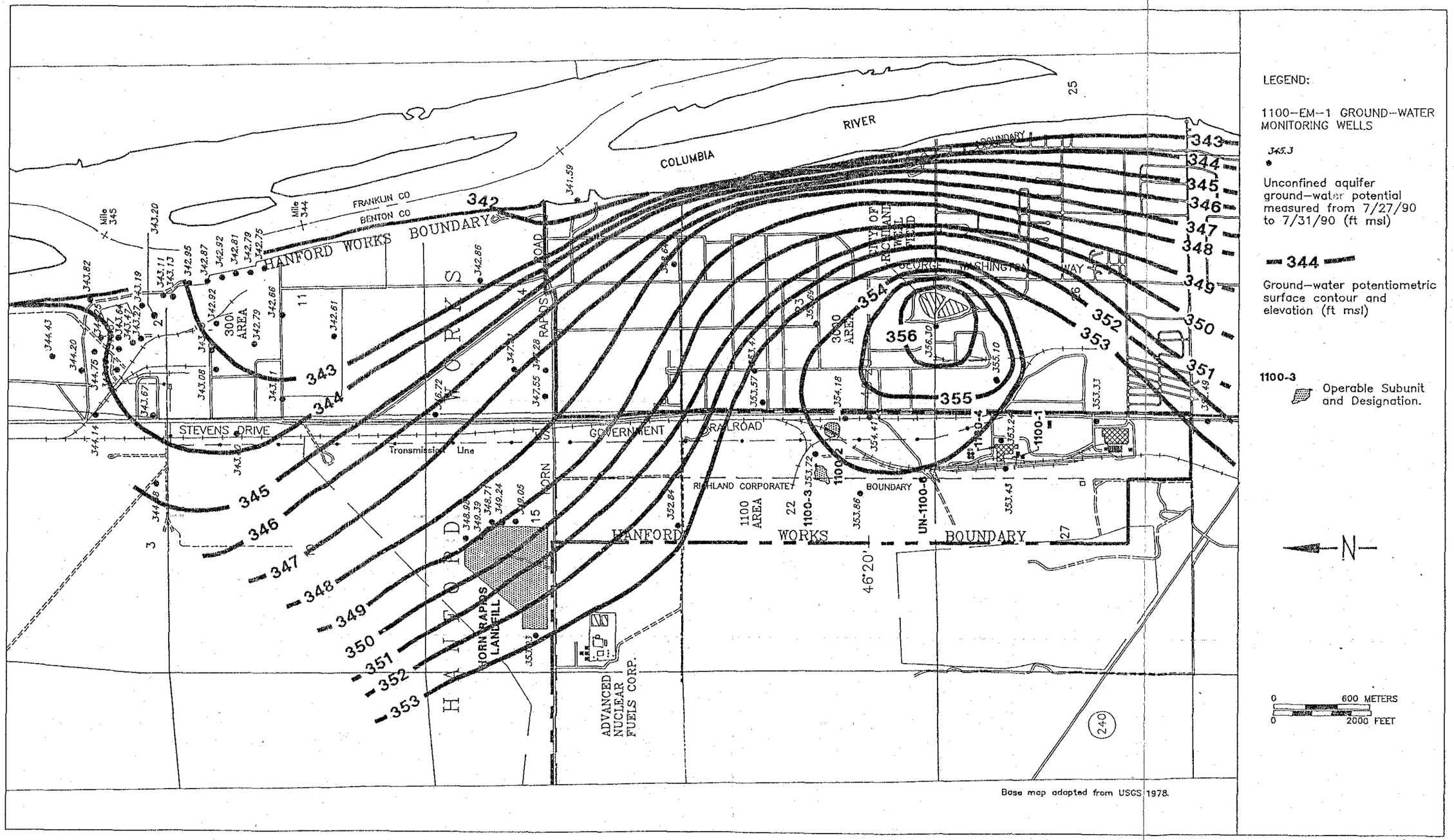

Figure 8. Ground-Water Potentiometric Surface for the Unconfined Aquifer, July 27-31, 1990.

C-15/-16

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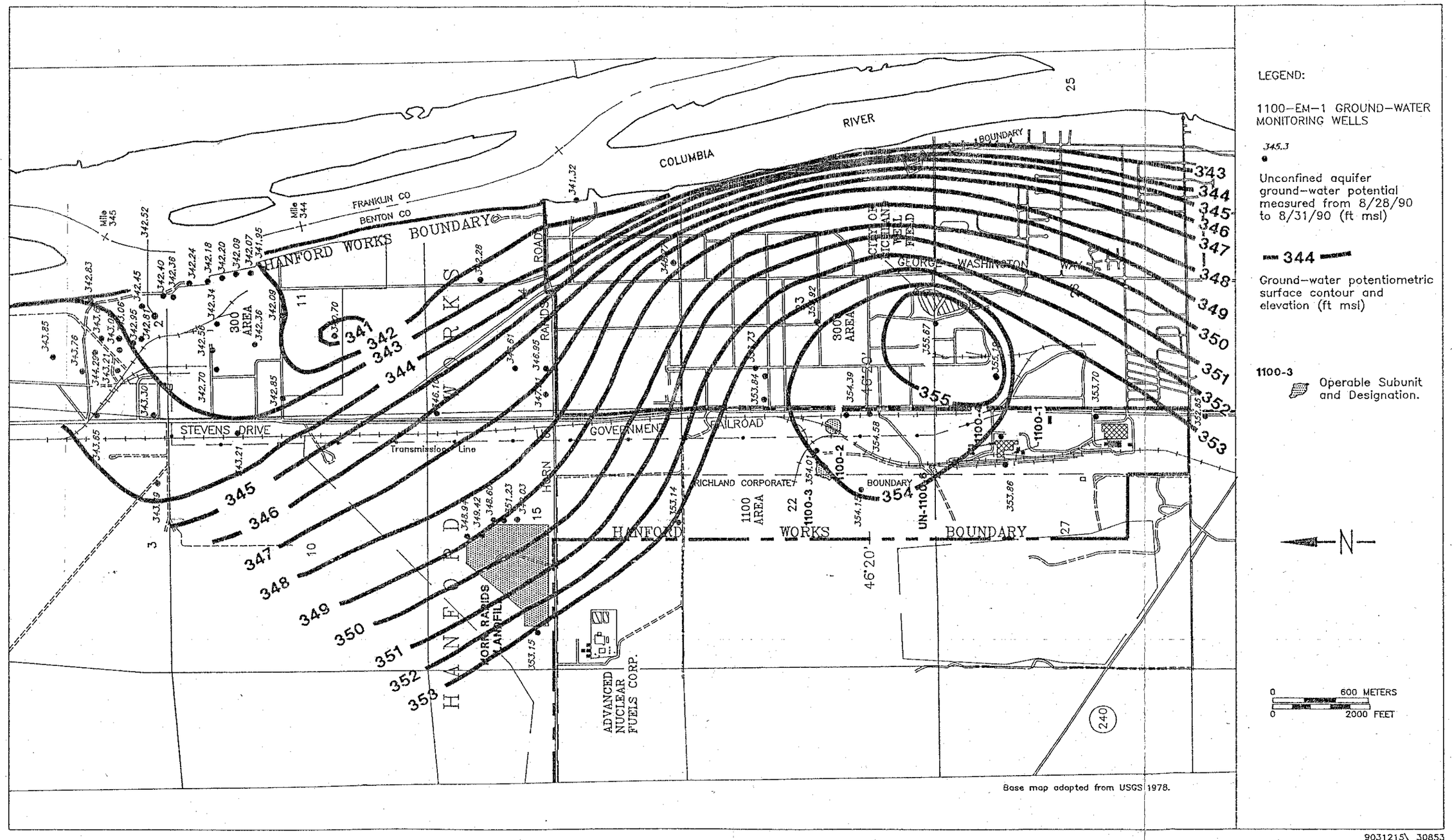

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Figure 9. Ground-Water Potentiometric Surface for the Unconfined Aquifer, August 28-31, 1990.

C-17/-18

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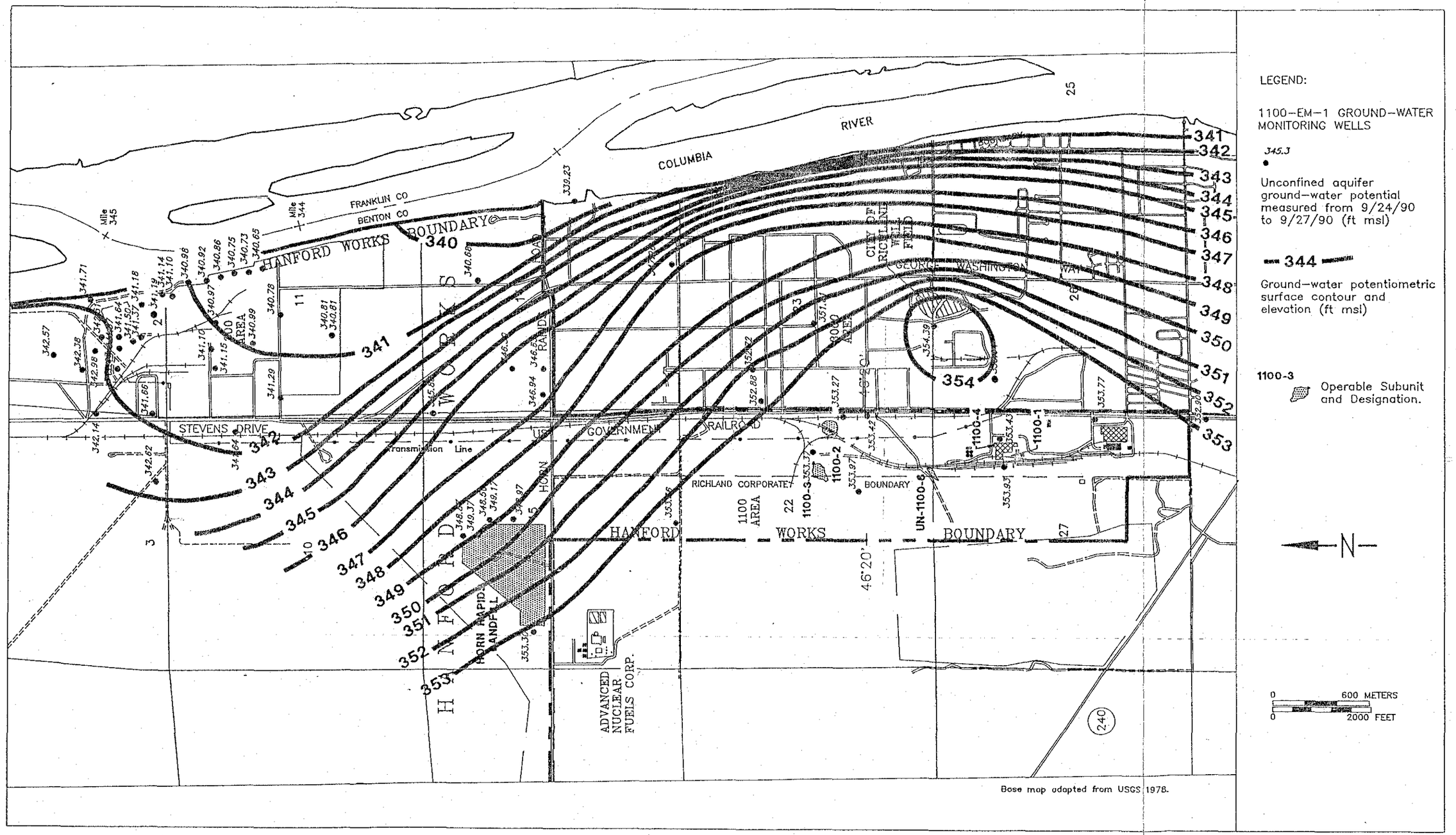

Figure 10. Ground-Water Potentiometric Surface for the Unconfined Aquifer, September 24-27, 1990.

C-19/-20

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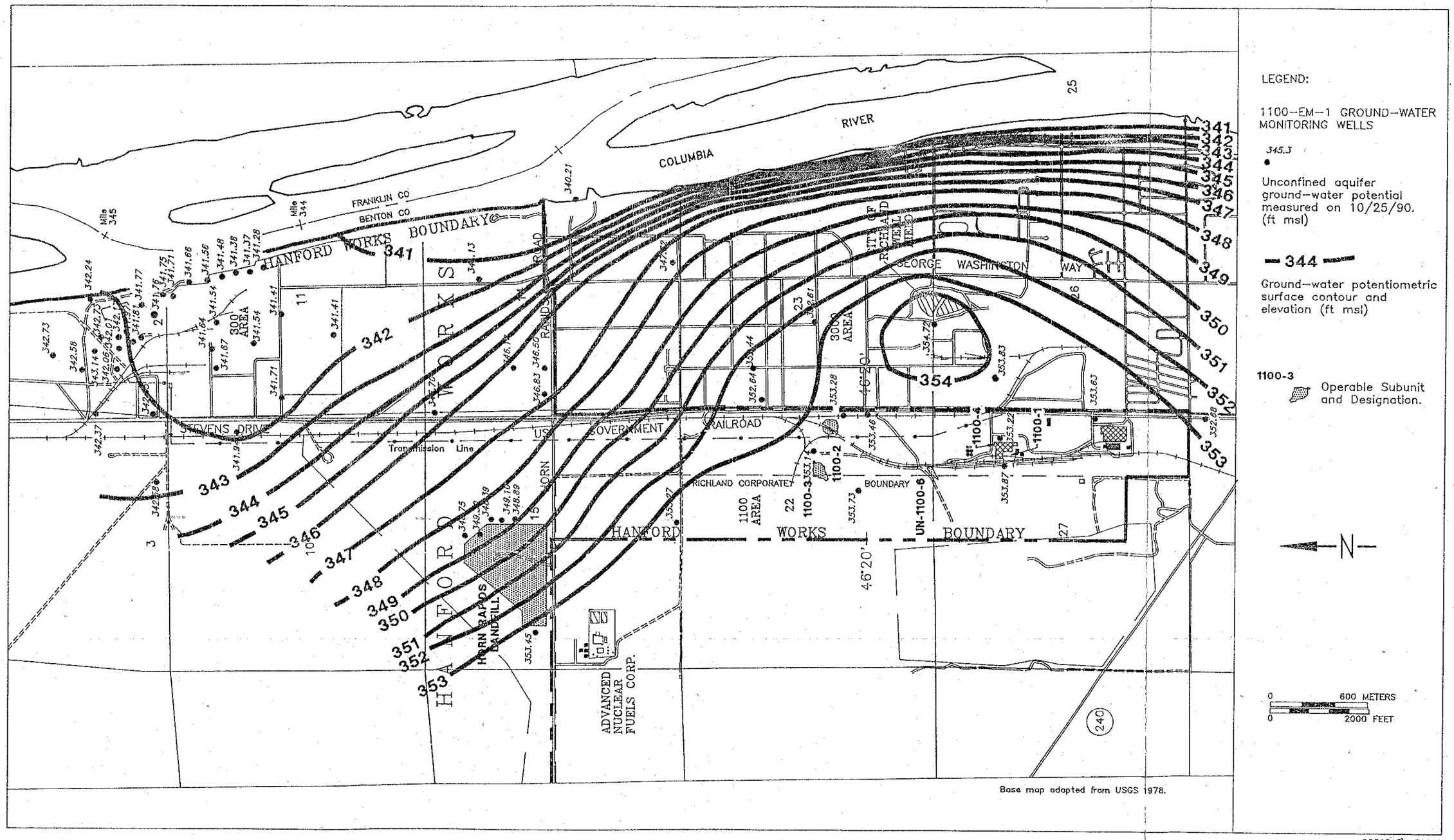

Figure 11. Ground-Water Potentiometric Surface for the Unconfined Aquifer, October 25, 1990.

C-21/-22

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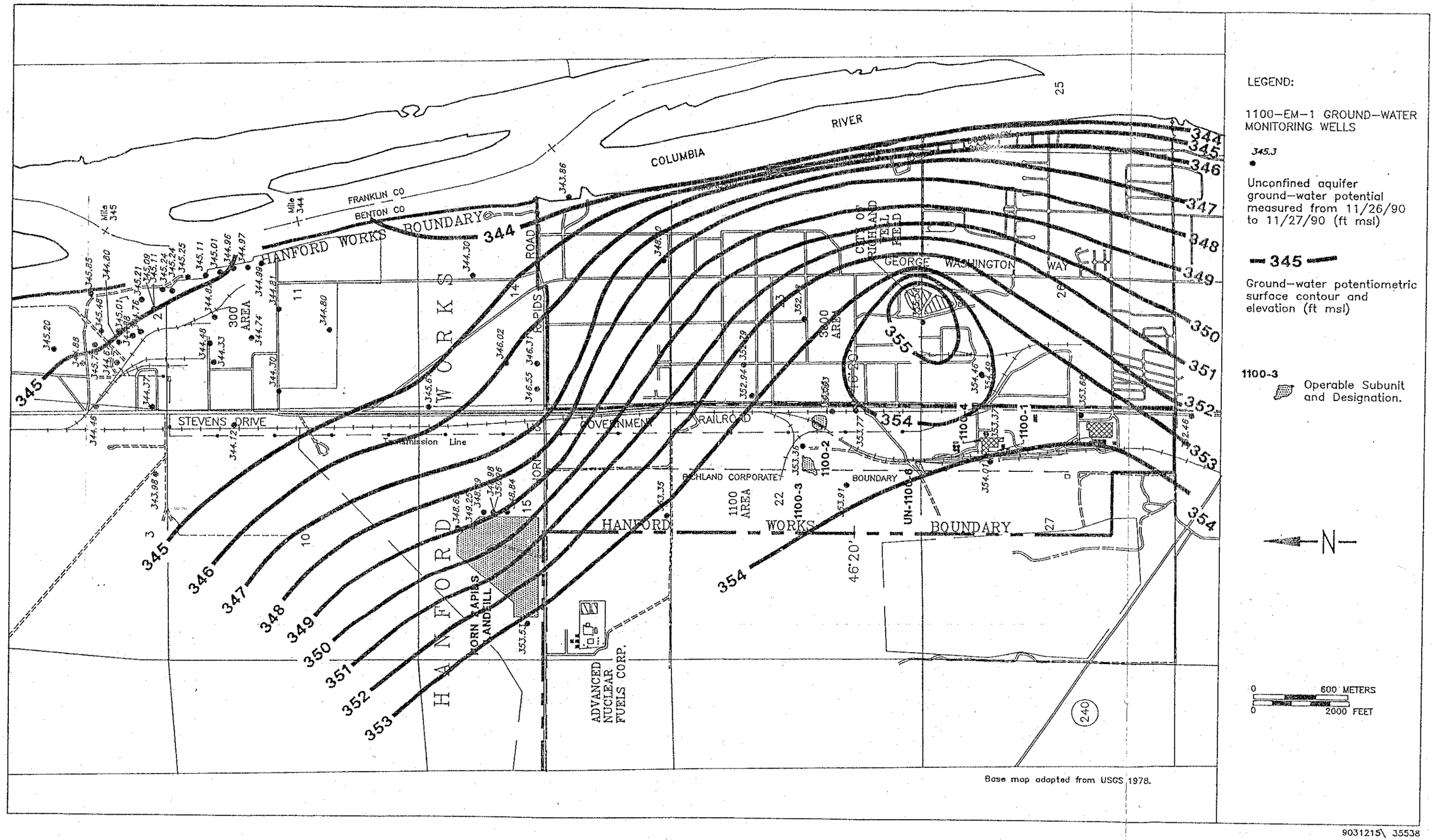

Figure 12. Ground-Water Potentiometric Surface for the Unconfined Aquifer, November 26-27, 1990.

C-23/-24

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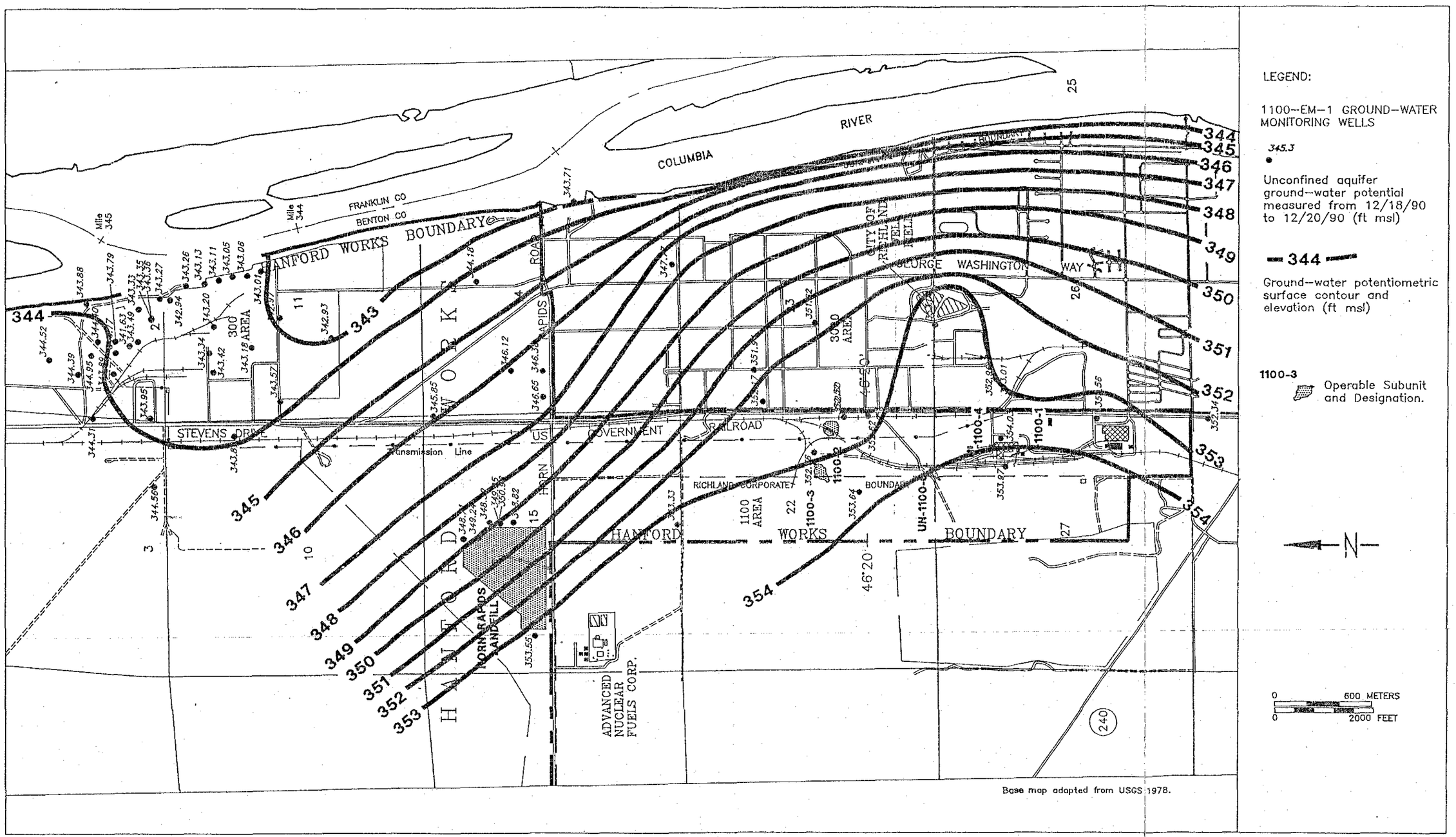

Figure 13. Ground-Water Potentiometric Surface for the Unconfined Aquifer, December 18-20, 1990.

C-25/-26

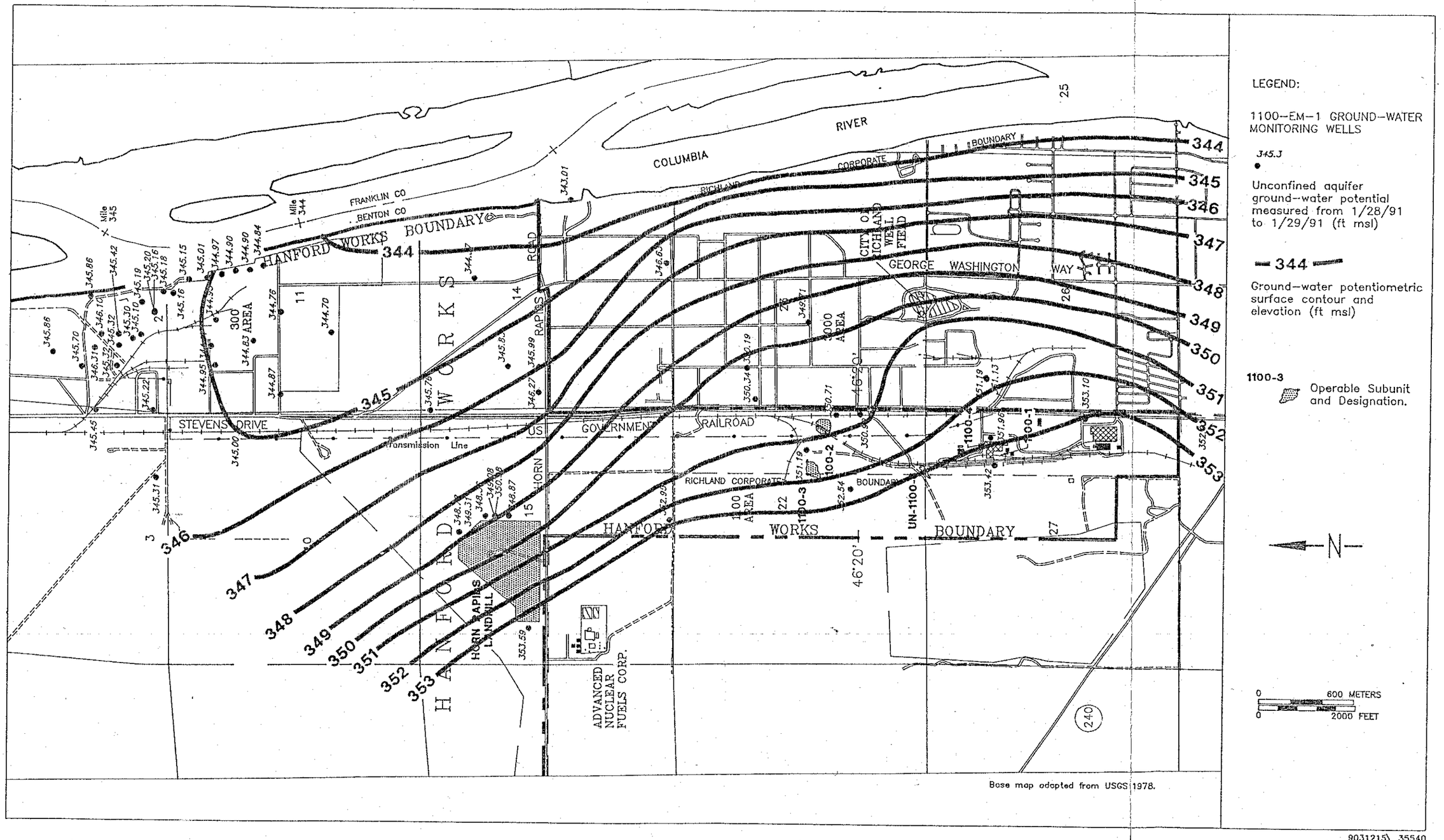

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Figure 14. Ground-Water Potentiometric Surface for the Unconfined Aquifer, January 28-29, 1991

C-27/-28

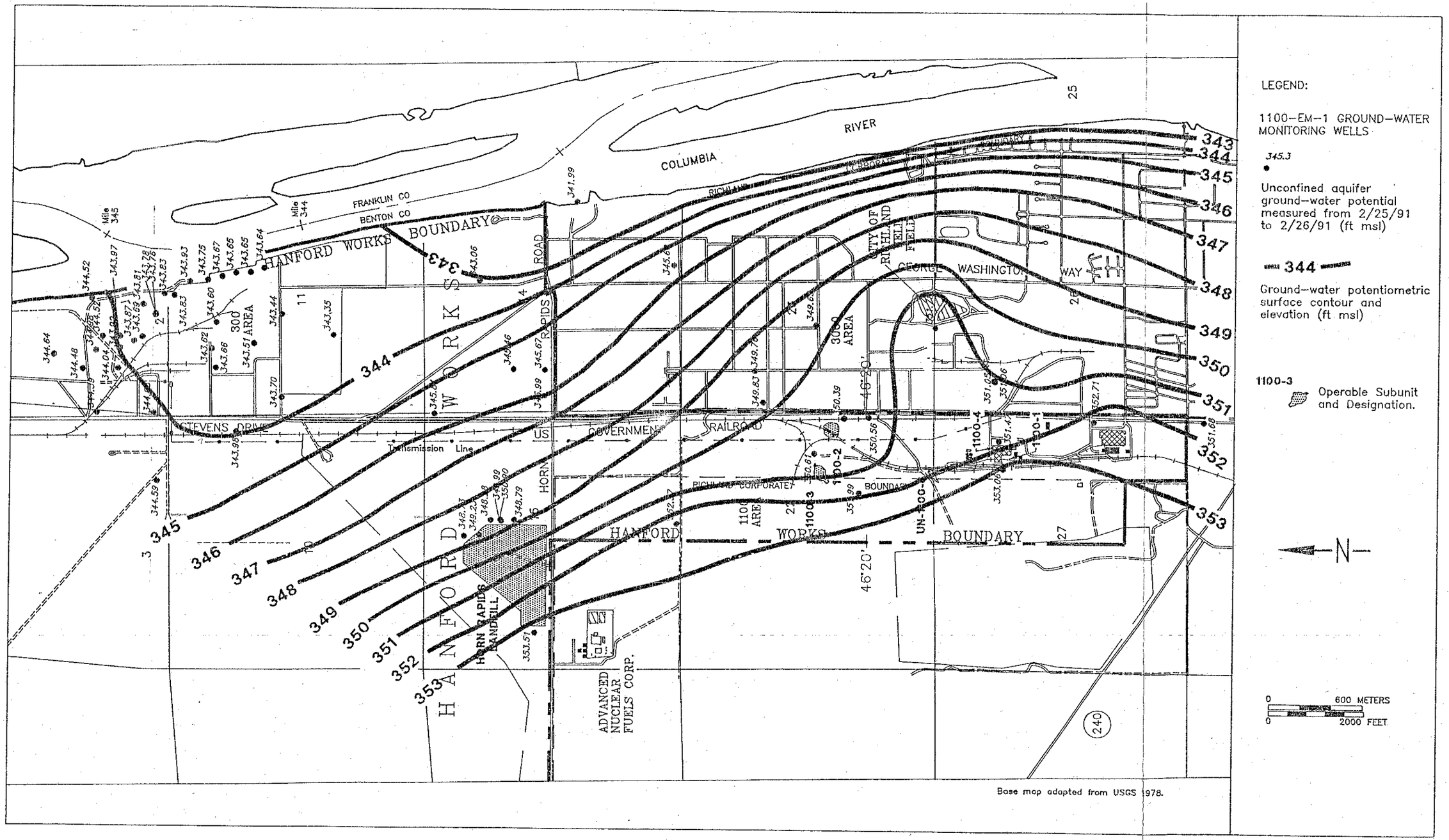

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Figure 15. Ground-Water Potentiometric Surface for the Unconfined Aquifer, February 25-26, 1991.

C-29/-30

9 2 1 2 6 0 0 9 7

Table 1. Ground-Water Potentiometric Surface Data, January through March, 1990

Well ID		NAD '83 Coordinates		Ground-water Potential		
		Easting (ft)	Northing (ft)	Jan. 29,1990 (feet)	Feb. 27-Mar 3,1990 (feet)	Mar. 29,1990 (feet)
1	11-34-13	1947530.05	359905.32	--(a)	352.19	--
2	11-41-13C	1947586.05	366909.32	--	352.04	--
3	30-45-16	1950714.03	370986.08	--	347.11	--
4	30-47-18B	1952013.73	372998.82	--	342.59	--
5	399-1-10	1949927.21	382978.12	343.75	343.74	345.31
6	399-1-11	1949149.23	382748.10	344.31	344.23	345.51
7	399-1-12	1948913.21	382383.11	343.74	343.73	344.66
8	399-1-13	1948487.23	382421.10	343.76	343.80	344.74
9	399-1-14	1948469.22	383145.11	344.10	344.23	345.14
10	399-1-15	1948764.23	383751.11	344.25	344.36	345.34
11	399-1-16A	1949818.22	381930.13	343.37	343.22	344.59
12	399-1-17A	1949144.21	381940.14	343.52	343.46	344.59
13	399-1-19	1949057.20	382109.13	343.71	343.60	344.72
14	399-1-3	1949605.20	381673.11	343.38	343.26	344.57
15	399-1-4	1948857.21	382881.11	344.67	344.74	345.86
16	399-1-5	1949148.21	382393.12	343.84	343.74	344.87
17	399-1-7	1949625.21	381674.13	343.38	343.22	344.56
18	399-2-1	1950294.20	380963.15	343.15	343.10	344.54
19	399-2-2	1950034.19	381496.12	343.33	343.19	344.60
20	399-2-3	1950004.21	381292.12	343.30	343.14	344.57
21	399-3-1	1950335.21	380590.12	343.25	342.99	344.41
22	399-3-10	1950486.19	380011.13	343.01	342.89	344.32
23	399-3-12	1949454.21	380402.13	343.21	343.05	344.34
24	399-3-6	1948513.22	380408.14	343.38	343.32	344.34
25	399-3-7	1948908.22	380495.14	343.34	343.24	344.37
26	399-3-9	1950406.20	380294.13	343.11	342.96	344.39
27	399-4-1	1949632.20	379056.15	343.06	342.82	344.21
28	399-4-10	1950597.21	379431.15	342.85	342.84	344.31
29	399-4-11	1949029.22	379628.16	343.22	343.05	344.31
30	399-4-9	1950507.19	379713.13	342.97	342.88	344.32
31	399-5-1	1947914.24	379042.14	343.37	343.43	344.26

(a) -- Indicates ground-water potential was not measured

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Table 1(cont). Ground-Water Potentiometric Surface Data, January through March, 1990

Well ID		NAD '83 Coordinates		Ground-water Potential		
		Easting (ft)	Northing (ft)	Jan. 29,1990 (feet)	Feb. 27-Mar 3,1990 (feet)	Mar. 29,1990 (feet)
32	399-6-1	1947195.25	379977.14	343.54	343.71	344.38
33	399-8-1	1947565.23	381694.11	343.69	343.79	344.58
34	399-8-2	1946153.24	381611.14	343.84	344.34	344.58
35	399-8-3	1947561.23	382848.10	343.92	344.14	344.79
36	699-S27-E14	1949212.20	377989.08	343.07	343.42	344.2
37	699-S29-E12	1947604.20	375883.08	345.63	345.67	--
38	699-S30-E10A	1945061.32	375257.22	--(a)	348.55	--
39	699-S30-E10B	1945087.11	374945.70	--	349.07	--
40	699-S30-E15A	1950370.20	374989.08	343.05	343.41	--
41	699-S31-E10A	1945397.80	374717.20	--	348.17	--
42	699-S31-E10B	1945382.05	374501.22	--	348.88	--
43	699-S31-E10C	1945406.04	374519.43	--	348.79	--
44	699-S31-E10D	1945407.61	374227.47	--	348.68	--
45	699-S31-E13	1948539.20	374275.08	--	345.84	--
46	699-S31-E8	1943059.94	373793.65	--	353.16	--
47	699-S32-E13A	1948532.31	373626.50	--	346.06	--
48	699-S32-E13B	1947995.24	373625.50	--	351.55	--
49	699-S34-E10	1945346.92	370875.18	--	352.87	--
50	699-S36-E12B	1947888.54	369092.65	--	351.47	--
51	699-S36-E13A	1948538.40	369270.17	--	351.29	--
52	699-S36-E13B	1948378.21	369069.78	--	351.55	--
53	699-S37-E11	1946831.02	368015.67	--	352.09	--
54	699-S37-E14	1949504.51	368003.40	--	351.18	--
55	699-S38-E11	1946019.77	367094.32	--	353.02	--
56	699-S38-E12A	1947570.61	367408.49	--	351.89	--
57	699-S38-E12B	1947570.61	367408.49	--	351.90	--
58	699-S40-E14	1949457.27	365534.93	--	352.15	--
59	699-S41-E11	1946534.6	364082.45	--	353.79	--
60	699-S41-E12	1947114.87	364175.09	--	--	--
61	699-S41-E13A	1948345.40	364273.13	--	352.47	--
62	699-S41-E13B	1948371.00	364287.79	--	352.45	--
63	699-S43-E12	1947525.20	362215.08	--	353.44	--

(a) -- Indicates ground-water potential was not measured

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Table 2. Ground-Water Potentiometric Surface Data, April through June, 1990

Well ID		NAD '83 Coordinates		Ground-water Potential		
		Easting (ft)	Northing (ft)	Apr. 27-29,1990 (feet)	May. 26-27,1990 (feet)	Jun. 25-27,1990 (feet)
1	11-34-13	1947530.05	359905.32	351.81	351.91	352.01
2	11-41-13C	1947586.05	366909.32	352.45	352.19	353.08
3	30-45-16	1950714.03	370986.08	346.96	347.53	349.12
4	30-47-18B	1952013.73	372998.82	343.90	343.20	346.36
5	399-1-10	1949927.21	382978.12	344.28	344.02	347.12
6	399-1-11	1949149.23	382748.10	344.61	344.37	347.50
7	399-1-12	1948913.21	382383.11	343.86	344.37	347.08
8	399-1-13	1948487.23	382421.10	343.88	343.95	347.12
9	399-1-14	1948469.22	383145.11	344.36	344.81	347.48
10	399-1-15	1948764.23	383751.11	344.57	345.03	347.64
11	399-1-16A	1949818.22	381930.13	343.54	344.21	346.67
12	399-1-17A	1949144.21	381940.14	343.57	343.53	346.87
13	399-1-19	1949057.20	382109.13	343.82	343.73	347.04
14	399-1-3	1949605.20	381673.11	343.51	343.39	346.70
15	399-1-4	1948857.21	382881.11	345.01	344.80	348.02
16	399-1-5	1949148.21	382393.12	344.00	343.82	347.09
17	399-1-7	1949625.21	381674.13	343.51	344.13	346.67
18	399-2-1	1950294.20	380963.15	343.50	343.38	346.43
19	399-2-2	1950034.19	381496.12	343.52	343.37	346.63
20	399-2-3	1950004.21	381292.12	--(a)	343.32	346.61
21	399-3-1	1950335.21	380590.12	343.37	343.25	346.33
22	399-3-10	1950486.19	380011.13	343.25	343.15	346.27
23	399-3-12	1949454.21	380402.13	343.31	343.27	346.50
24	399-3-6	1948513.22	380408.14	343.41	343.50	346.71
25	399-3-7	1948908.22	380495.14	343.39	344.06	346.64
26	399-3-9	1950406.20	380294.13	343.32	343.22	346.38
27	399-4-1	1949632.20	379056.15	343.15	343.28	346.22
28	399-4-10	1950597.21	379431.15	343.23	343.15	346.15
29	399-4-11	1949029.22	379628.16	343.27	343.21	346.43
30	399-4-9	1950507.19	379713.13	343.25	343.15	346.24
31	399-5-1	1947914.24	379042.14	343.33	343.59	346.66

(a) -- Indicates ground-water potential was not measured

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Table 2(cont). Ground-Water Potentiometric Surface Data, April through June, 1990

Well ID		NAD '83 Coordinates		Ground-water Potential		
		Easting (ft)	Northing (ft)	Apr. 27-29,1990 (feet)	May. 26-27,1990 (feet)	Jun. 25-27,1990 (feet)
32	399-6-1	1947195.25	379977.14	343.57	343.89	347.01
33	399-8-1	1947565.23	381694.11	343.77	344.00	347.14
34	399-8-2	1946153.24	381611.14	344.14	344.54	347.55
35	399-8-3	1947561.23	382848.10	344.10	344.29	347.40
36	699-S27-E14	1949212.20	377989.08	343.12	342.99	346.18
37	699-S29-E12	1947604.20	375883.08	345.55	345.79	347.32
38	699-S30-E10A	1945061.32	375257.22	348.48	348.45	348.69
39	699-S30-E10B	1945087.11	374945.70	348.97	348.92	349.06
40	699-S30-E15A	1950370.20	374989.08	343.83	343.53	346.63
41	699-S31-E10A	1945397.80	374717.20	348.06	348.03	348.29
42	699-S31-E10B	1945382.05	374501.22	348.75	348.72	348.88
43	699-S31-E10C	1945406.04	374519.43	350.65	350.61	350.80
44	699-S31-E10D	1945407.61	374227.47	348.57	348.53	348.70
45	699-S31-E13	1948539.20	374275.08	345.73	346.26	347.76
46	699-S31-E8	1943059.94	373793.65	353.06	353.03	353.01
47	699-S32-E13A	1948532.31	373626.50	346.03	346.55	347.93
48	699-S32-E13B	1947995.24	373625.50	346.29	346.79	348.02
49	699-S34-E10	1945346.92	370875.18	352.36	352.47	352.47
50	699-S36-E12B	1947888.54	369092.65	351.67	351.67	352.32
51	699-S36-E13A	1948538.40	369270.17	351.60	351.61	352.28
52	699-S36-E13B	1948378.21	369069.78	--(a)	--	--
53	699-S37-E11	1946831.02	368015.67	351.96	352.08	352.44
54	699-S37-E14	1949504.51	368003.40	351.70	351.36	352.39
55	699-S38-E11	1946019.77	367094.32	352.62	352.80	352.88
56	699-S38-E12A	1947570.61	367408.49	352.26	352.02	352.88
57	699-S38-E12B	1947570.61	367408.49	352.17	352.03	352.89
58	699-S40-E14	1949457.27	365534.93	--	--	--
59	699-S41-E11	1946534.6	364082.45	353.20	353.31	353.10
60	699-S41-E12	1947114.87	364175.09	--	352.24	352.44
61	699-S41-E13A	1948345.40	364273.13	353.15	352.66	353.79
62	699-S41-E13B	1948371.00	364287.79	353.16	352.66	353.83
63	699-S43-E12	1947525.20	362215.08	352.93	353.01	352.94

(a) -- Indicates ground-water potential was not measured

9 2 1 2 6 4 2 0 7 0 1

Table 3. Ground-Water Potentiometric Surface Data, July through September, 1990

	Well ID	NAD '83 Coordinates		Ground-Water Potential		
		Easting (ft)	Northing (ft)	Jul. 27-31, 1990 (feet)	Aug. 28-31, 1990 (feet)	Sept. 24-27, 1990 (feet)
1	11-34-13	1947530.05	359905.32	352.49	352.85	352.90
2	11-41-13C	1947586.05	366909.32	354.41	354.58	353.42
3	30-45-16	1950714.03	370986.08	348.64	348.77	347.96
4	30-47-18B	1952013.73	372998.82	341.59	341.32	339.23
5	399-1-10	1949927.21	382978.12	343.82	342.83	341.71
6	399-1-11	1949149.23	382748.10	344.25	343.69	342.51
7	399-1-12	1948913.21	382383.11	343.57	343.06	341.57
8	399-1-13	1948487.23	382421.10	343.63	343.21	341.67
9	399-1-14	1948469.22	383145.11	344.20	343.76	342.38
10	399-1-15	1948764.23	383751.11	344.43	343.85	342.57
11	399-1-16A	1949818.22	381930.13	343.19	342.45	341.18
12	399-1-17A	1949144.21	381940.14	343.27	342.81	341.37
13	399-1-19	1949057.20	382109.13	343.47	342.95	341.50
14	399-1-3	1949605.20	381673.11	343.20	342.52	341.19
15	399-1-4	1948857.21	382881.11	344.75	344.29	342.98
16	399-1-5	1949148.21	382393.12	343.64	343.06	341.64
17	399-1-7	1949625.21	381674.13	343.07	342.52	341.19
18	399-2-1	1950294.20	380963.15	342.95	342.24	340.98
19	399-2-2	1950034.19	381496.12	343.11	342.40	341.14
20	399-2-3	1950004.21	381292.12	343.13	342.36	341.10
21	399-3-1	1950335.21	380590.12	342.87	342.18	340.92
22	399-3-10	1950486.19	380011.13	342.81	342.09	340.75
23	399-3-12	1949454.21	380402.13	342.92	342.34	340.97
24	399-3-6	1948513.22	380408.14	343.08	342.70	341.15
25	399-3-7	1948908.22	380495.14	343.05	342.56	341.10
26	399-3-9	1950406.20	380294.13	342.92	342.20	340.86
27	399-4-1	1949632.20	379056.15	342.66	342.09	340.78
28	399-4-10	1950597.21	379431.15	342.75	341.95	340.65
29	399-4-11	1949029.22	379628.16	342.79	342.36	340.99
30	399-4-9	1950507.19	379713.13	342.79	342.07	340.73
31	399-5-1	1947914.24	379042.14	343.21	342.85	341.29

(a) -- Indicates ground-water potential was not measured

9 2 1 2 6 2 0 7 0 2

Table 3(cont). Ground-Water Potentiometric Surface Data, July through September, 1990

Well ID		NAD '83 Coordinates		Ground-Water Potential		
		Easting (ft)	Northing (ft)	Jul. 27-31, 1990 (feet)	Aug. 28-31, 1990 (feet)	Sept. 24-27, 1990 (feet)
32	399-6-1	1947195.25	379977.14	343.60	343.21	341.64
33	399-8-1	1947565.23	381694.11	343.67	343.30	341.66
34	399-8-2	1946153.24	381611.14	344.68	343.89	342.62
35	399-8-3	1947561.23	382848.10	344.14	343.65	342.14
36	699-S27-E14	1949212.20	377989.08	342.61	340.70	340.81
37	699-S29-E12	1947604.20	375883.08	346.72	346.10	345.88
38	699-S30-E10A	1945061.32	375257.22	348.98	348.94	348.87
39	699-S30-E10B	1945087.11	374945.70	349.39	349.42	349.37
40	699-S30-E15A	1950370.20	374989.08	342.86	342.28	340.68
41	699-S31-E10A	1945397.80	374717.20	348.71	348.60	348.50
42	699-S31-E10B	1945382.05	374501.22	349.24	349.21	349.17
43	699-S31-E10C	1945406.04	374519.43	351.16	351.23	351.08
44	699-S31-E10D	1945407.61	374227.47	349.05	349.03	348.97
45	699-S31-E13	1948539.20	374275.08	347.01	346.61	346.30
46	699-S31-E8	1943059.94	373793.65	353.03	353.15	353.30
47	699-S32-E13A	1948532.31	373626.50	347.28	346.95	346.63
48	699-S32-E13B	1947995.24	373625.50	347.55	347.21	346.94
49	699-S34-E10	1945346.92	370875.18	352.84	353.14	353.36
50	699-S36-E12B	1947888.54	369092.65	353.57	353.84	352.88
51	699-S36-E13A	1948538.40	369270.17	353.47	353.73	352.72
52	699-S36-E13B	1948378.21	369069.78	--(a)	--	--
53	699-S37-E11	1946831.02	368015.67	353.72	354.01	353.37
54	699-S37-E14	1949504.51	368003.40	353.69	353.92	351.61
55	699-S38-E11	1946019.77	367094.32	353.86	354.15	353.97
56	699-S38-E12A	1947570.61	367408.49	354.18	354.39	353.27
57	699-S38-E12B	1947570.61	367408.49	354.21	354.41	353.29
58	699-S40-E14	1949457.27	365534.93	356.30	355.67	354.39
59	699-S41-E11	1946534.6	364082.45	353.43	353.86	353.93
60	699-S41-E12	1947114.87	364175.09	353.24	353.57	353.43
61	699-S41-E13A	1948345.40	364273.13	355.10	355.19	353.95
62	699-S41-E13B	1948371.00	364287.79	355.13	355.21	353.94
63	699-S43-E12	1947525.20	362215.08	353.33	353.70	353.77

(a) -- Indicates ground-water potential was not measured

9 2 1 2 6 4 2 0 7 0 3

Table 4. Ground-Water Potentiometric Surface Data, October through December, 1990

Well ID		NAD '83 Coordinates		Ground-water Potential		
		Easting (ft)	Northing (ft)	Oct. 25-29,1990 (feet)	Nov. 26-27,1990 (feet)	Dec. 18-20,1990 (feet)
1	11-34-13	1947530.05	359905.32	352.68	352.46	352.34
2	11-41-13C	1947586.05	366909.32	353.46	353.77	352.62
3	30-45-16	1950714.03	370986.08	347.72	348.00	347.77
4	30-47-18B	1952013.73	372998.82	340.21	343.86	343.71
5	399-1-10	1949927.21	382978.12	342.24	345.85	343.88
6	399-1-11	1949149.23	382748.10	342.73	345.48	344.40
7	399-1-12	1948913.21	382383.11	342.01	344.80	343.77
8	399-1-13	1948487.23	382421.10	342.06	344.67	343.89
9	399-1-14	1948469.22	383145.11	342.58	344.88	344.39
10	399-1-15	1948764.23	383751.11	342.73	345.20	344.52
11	399-1-16A	1949818.22	381930.13	341.77	345.21	343.33
12	399-1-17A	1949144.21	381940.14	341.81	344.76	343.49
13	399-1-19	1949057.20	382109.13	341.97	344.88	341.63
14	399-1-3	1949605.20	381673.11	341.76	345.09	343.35
15	399-1-4	1948857.21	382881.11	343.14	345.70	344.95
16	399-1-5	1949148.21	382393.12	342.17	345.01	343.79
17	399-1-7	1949625.21	381674.13	341.76	345.11	343.36
18	399-2-1	1950294.20	380963.15	341.66	345.25	343.26
19	399-2-2	1950034.19	381496.12	341.75	345.24	343.27
20	399-2-3	1950004.21	381292.12	341.71	345.24	342.94
21	399-3-1	1950335.21	380590.12	341.56	345.11	343.13
22	399-3-10	1950486.19	380011.13	341.38	344.96	343.05
23	399-3-12	1949454.21	380402.13	341.54	344.82	343.20
24	399-3-6	1948513.22	380408.14	341.67	344.33	343.42
25	399-3-7	1948908.22	380495.14	341.64	344.48	343.34
26	399-3-9	1950406.20	380294.13	341.48	345.01	343.11
27	399-4-1	1949632.20	379056.15	341.41	344.81	342.97
28	399-4-10	1950597.21	379431.15	341.28	344.99	343.01
29	399-4-11	1949029.22	379628.16	341.54	344.74	343.18
30	399-4-9	1950507.19	379713.13	341.37	344.97	343.06
31	399-5-1	1947914.24	379042.14	341.71	344.30	343.57

(a) -- Indicates ground-water potential was not measured

9 2 1 2 6 2 0 7 0 4

Table 4(cont). Ground-Water Potentiometric Surface Data, October through December, 1990

Well ID		NAD '83 Coordinates		Ground-water Potential		
		Easting (ft)	Northing (ft)	Oct. 25-29,1990 (feet)	Nov. 26-27,1990 (feet)	Dec. 18-20,1990 (feet)
32	399-6-1	1947195.25	379977.14	341.94	344.12	343.87
33	399-8-1	1947565.23	381694.11	342.05	344.37	343.95
34	399-8-2	1946153.24	381611.14	342.58	343.98	344.56
35	399-8-3	1947561.23	382848.10	342.37	344.46	344.31
36	699-S27-E14	1949212.20	377989.08	341.41	344.80	342.93
37	699-S29-E12	1947604.20	375883.08	345.70	345.61	345.85
38	699-S30-E10A	1945061.32	375257.22	348.75	348.69	348.71
39	699-S30-E10B	1945087.11	374945.70	349.30	349.25	349.24
40	699-S30-E15A	1950370.20	374989.08	341.13	344.30	344.18
41	699-S31-E10A	1945397.80	374717.20	348.39	348.29	348.32
42	699-S31-E10B	1945382.05	374501.22	349.10	348.98	349.05
43	699-S31-E10C	1945406.04	374519.43	351.01	350.96	350.96
44	699-S31-E10D	1945407.61	374227.47	348.89	348.84	348.82
45	699-S31-E13	1948539.20	374275.08	346.18	346.02	346.12
46	699-S31-E8	1943059.94	373793.65	353.45	353.53	353.55
47	699-S32-E13A	1948532.31	373626.50	346.50	346.31	346.38
48	699-S32-E13B	1947995.24	373625.50	346.83	346.55	346.65
49	699-S34-E10	1945346.92	370875.18	353.27	353.35	353.33
50	699-S36-E12B	1947888.54	369092.65	352.64	352.94	352.17
51	699-S36-E13A	1948538.40	369270.17	352.44	352.79	351.94
52	699-S36-E13B	1948378.21	369069.78	--(a)	--	--
53	699-S37-E11	1946831.02	368015.67	353.14	353.36	352.76
54	699-S37-E14	1949504.51	368003.40	352.61	352.78	351.62
55	699-S38-E11	1946019.77	367094.32	353.73	353.91	353.64
56	699-S38-E12A	1947570.61	367408.49	353.28	353.53	352.50
57	699-S38-E12B	1947570.61	367408.49	353.30	353.57	352.52
58	699-S40-E14	1949457.27	365534.93	354.72	355.56	353.09
59	699-S41-E11	1946534.6	364082.45	353.87	354.01	353.97
60	699-S41-E12	1947114.87	364175.09	353.22	353.37	354.03
61	699-S41-E13A	1948345.40	364273.13	353.83	354.46	353.01
62	699-S41-E13B	1948371.00	364287.79	353.85	354.49	352.96
63	699-S43-E12	1947525.20	362215.08	353.63	353.68	353.56

(a) -- Indicates ground-water potential was not measured

9212642070 5

Table 5. Ground-Water Potentiometric Surface Data, January through Feburary, 1991

Well ID		NAD '83 Coordinates		Ground-water Potential	
		Easting (ft)	Northing (ft)	Jan. 28-29,1991 (feet)	Feb. 25-26,1991 (feet)
1	11-34-13	1947530.05	359905.32	352.01	351.68
2	11-41-13C	1947586.05	366909.32	350.90	350.56
3	30-45-16	1950714.03	370986.08	346.63	345.60
4	30-47-18B	1952013.73	372998.82	343.01	341.99
5	399-1-10	1949927.21	382978.12	345.86	344.52
6	399-1-11	1949149.23	382748.10	346.10	344.52
7	399-1-12	1948913.21	382383.11	345.32	343.92
8	399-1-13	1948487.23	382421.10	345.32	344.04
9	399-1-14	1948469.22	383145.11	345.70	344.48
10	399-1-15	1948764.23	383751.11	345.86	344.64
11	399-1-16A	1949818.22	381930.13	345.19	343.81
12	399-1-17A	1949144.21	381940.14	345.10	343.69
13	399-1-19	1949057.20	382109.13	345.30	343.87
14	399-1-3	1949605.20	381673.11	345.20	343.78
15	399-1-4	1948857.21	382881.11	346.31	344.98
16	399-1-5	1949148.21	382393.12	345.42	343.97
17	399-1-7	1949625.21	381674.13	345.16	343.76
18	399-2-1	1950294.20	380963.15	345.15	343.93
19	399-2-2	1950034.19	381496.12	345.18	343.83
20	399-2-3	1950004.21	381292.12	345.16	343.83
21	399-3-1	1950335.21	380590.12	345.01	343.75
22	399-3-10	1950486.19	380011.13	344.90	343.65
23	399-3-12	1949454.21	380402.13	344.93	343.60
24	399-3-6	1948513.22	380408.14	344.95	343.66
25	399-3-7	1948908.22	380495.14	344.97	343.62
26	399-3-9	1950406.20	380294.13	344.97	343.67
27	399-4-1	1949632.20	379056.15	344.76	343.44
28	399-4-10	1950597.21	379431.15	344.84	343.64
29	399-4-11	1949029.22	379628.16	344.83	343.51
30	399-4-9	1950507.19	379713.13	344.90	343.65
31	399-5-1	1947914.24	379042.14	344.87	343.70

(a) -- Indicates ground-water potential was not measured

9 2 1 2 6 2 0 7 0 6

Table 5(cont). Ground-Water Potentiometric Surface Data, January through Feburary, 1991

Well ID		NAD '83 Coordinates		Ground-water Potential	
		Easting (ft)	Northing (ft)	Jan. 28-29,1991 (feet)	Feb. 25-26,1991 (feet)
32	399-6-1	1947195.25	379977.14	345.00	343.98
33	399-8-1	1947565.23	381694.11	345.22	344.06
34	399-8-2	1946153.24	381611.14	345.31	344.59
35	399-8-3	1947561.23	382848.10	345.45	344.39
36	699-S27-E14	1949212.20	377989.08	344.70	343.35
37	699-S29-E12	1947604.20	375883.08	345.76	345.81
38	699-S30-E10A	1945061.32	375257.22	348.78	348.73
39	699-S30-E10B	1945087.11	374945.70	349.31	349.23
40	699-S30-E15A	1950370.20	374989.08	344.37	343.06
41	699-S31-E10A	1945397.80	374717.20	348.36	348.28
42	699-S31-E10B	1945382.05	374501.22	349.08	348.99
43	699-S31-E10C	1945406.04	374519.43	350.98	350.90
44	699-S31-E10D	1945407.61	374227.47	348.87	348.79
45	699-S31-E13	1948539.20	374275.08	345.83	345.46
46	699-S31-E8	1943059.94	373793.65	353.59	353.51
47	699-S32-E13A	1948532.31	373626.50	345.99	345.67
48	699-S32-E13B	1947995.24	373625.50	346.27	345.99
49	699-S34-E10	1945346.92	370875.18	352.95	352.57
50	699-S36-E12B	1947888.54	369092.65	350.34	349.83
51	699-S36-E13A	1948538.40	369270.17	350.19	349.76
52	699-S36-E13B	1948378.21	369069.78	--(a)	--
53	699-S37-E11	1946831.02	368015.67	351.19	350.61
54	699-S37-E14	1949504.51	368003.40	349.71	349.63
55	699-S38-E11	1946019.77	367094.32	352.54	351.99
56	699-S38-E12A	1947570.61	367408.49	350.70	350.39
57	699-S38-E12B	1947570.61	367408.49	350.71	350.42
58	699-S40-E14	1949457.27	365534.93	351.02	351.78
59	699-S41-E11	1946534.6	364082.45	353.42	353.06
60	699-S41-E12	1947114.87	364175.09	351.96	351.47
61	699-S41-E13A	1948345.40	364273.13	351.19	351.05
62	699-S41-E13B	1948371.00	364287.79	351.13	351.06
63	699-S43-E12	1947525.20	362215.08	353.10	352.71

(a) -- Indicates ground-water potential was not measured

9 2 1 2 6 4 2 0 7 0 7

Table 6. Top of Casing Elevation for Ground-Water Monitoring Wells.

Well ID		Elevation (ft msl)	Well ID		Elevation (ft msl)
1	11-34-13	394.78	33	399-8-1	394.88
2	11-41-13C	405.98	34	399-8-2	396.06
3	30-45-16	408.77	35	399-8-3	393.11
4	30-47-18B	373.97	36	699-S27-E14	399.76
5	399-1-10	373.65	37	699-S29-E12	387.96
6	399-1-11	377.79	38	699-S30-E10A	392.30
7	399-1-12	384.45	39	699-S30-E10B	392.08
8	399-1-13	388.62	40	699-S30-E15A	400.14
9	399-1-14	383.23	41	699-S31-E10A	384.58
10	399-1-15	379.59	42	699-S31-E10B	383.73
11	399-1-16A	381.51	43	699-S31-E10C	384.92
12	399-1-17A	377.47	44	699-S31-E10D	380.59
13	399-1-19	374.64	45	699-S31-E13	394.06
14	399-1-3	384.73	46	699-S31-E8	374.77
15	399-1-4	381.11	47	699-S32-E13A	390.46
16	399-1-5	379.82	48	699-S32-E13B	394.72
17	399-1-7	385.63	49	699-S34-E10	382.38
18	399-2-1	375.26	50	699-S36-E12B	399.04
19	399-2-2	375.53	51	699-S36-E13A	399.31
20	399-2-3	375.44	52	699-S36-E13B	399.63
21	399-3-1	384.43	53	699-S37-E11	399.31
22	399-3-10	385.40	54	699-S37-E14	408.28
23	399-3-12	386.38	55	699-S38-E11	398.61
24	399-3-6	392.85	56	699-S38-E12A	404.96
25	399-3-7	394.22	57	699-S38-E12B	405.01
26	399-3-9	387.31	58	699-S40-E14	402.85
27	399-4-1	395.00	59	699-S41-E11	401.37
28	399-4-10	377.59	60	699-S41-E12	401.93
29	399-4-11	404.53	61	699-S41-E13A	410.56
30	399-4-9	381.40	62	699-S41-E13B	410.10
31	399-5-1	395.60	63	699-S43-E12	405.60
32	399-6-1	386.93			

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APPENDIX D

LETTERS AND MEMORANDA

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ADVANCED NUCLEAR FUELS CORPORATION

2101 HORN RAPIDS ROAD, PO BOX 130, RICHLAND, WA 99352-0130
(509) 375-8100 TELEX 15-2878

REGULATORY COMPLIANCE

January 12, 1990
SRL:90:003

Washington State Department of Ecology
Attn: Mr. Chuck Cline
Mail Stop PV-11
Olympia, WA 98504

Dear Mr. Cline:

TEST WELL DATA

Please find enclosed the Advanced Nuclear Fuels Corporation (ANF) test well data that you requested. This data was also requested and sent on January 9, 1990 to Maryanne Olascaga of Westinghouse Hanford.

Very truly yours,

Stephen R. Lockhaven, Specialist
Industrial Regulations

jrs

Enclosure
As Stated

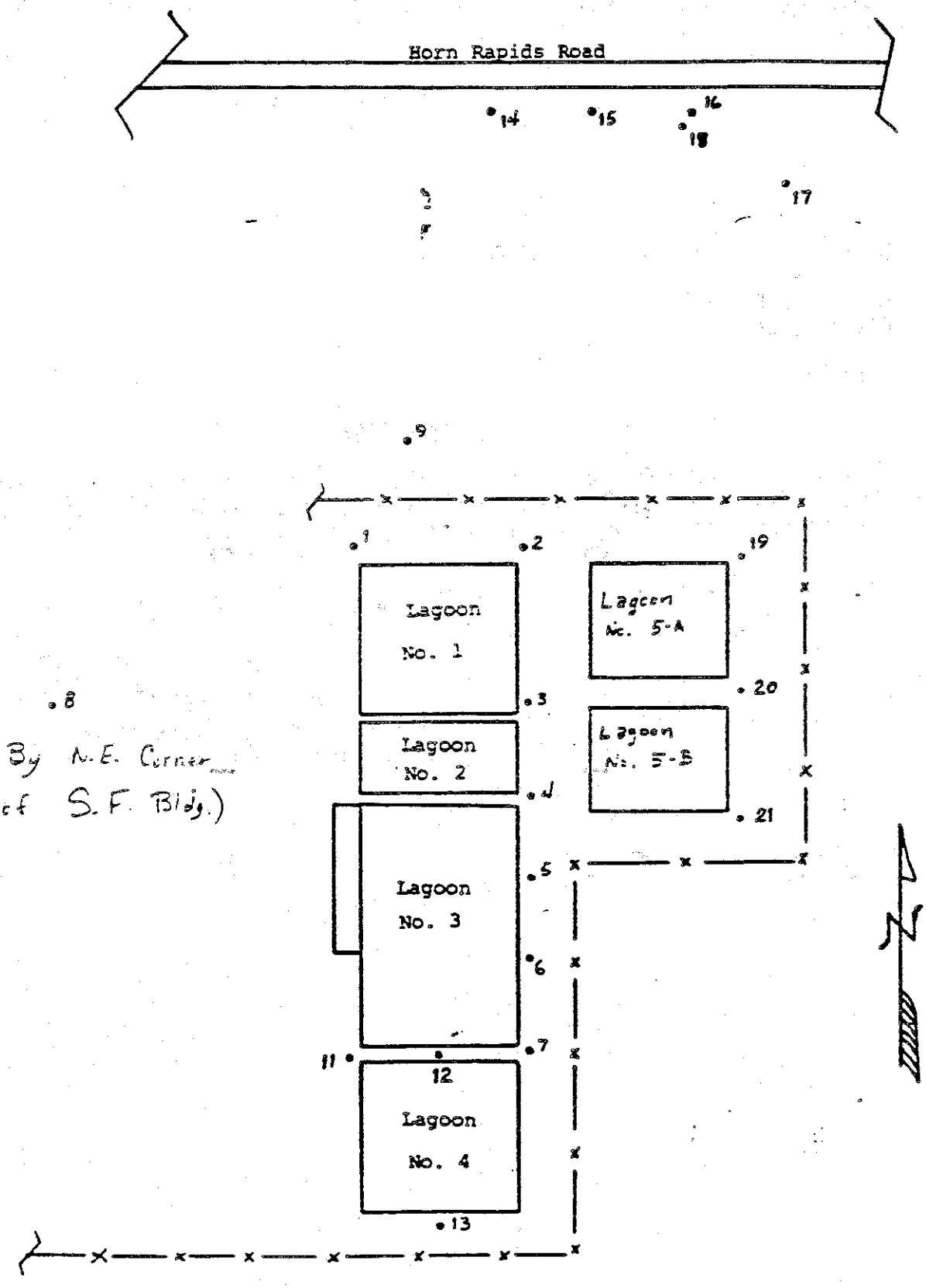

Figure 1-6 Lagoon Test Well Locations

D-2

WELL #1

Yr/Qtr	U ppm	Alpha pCi/L	Beta pCi/L	F ppm	NO_3 ppm	NH_3 ppm
81/1	<0.1			5.20	68	72
81/2	<0.1			5.10	79	81
81/3	<0.1			7.60	38	26
81/4	<0.1			11.20	27	30
82/1	<0.1			21.80	72	73
82/2	<0.1			9.70	63	94
82/3	<0.1			6.00	49	107
82/4	<0.1			11.70	81	108
83/1	<0.1			4.00	99	72
83/2	<0.1			6.00	81	69
83/3	<0.1			4.80	60	35
83/4	<0.1			2.90	52	46
84/1	<0.1			3.80	52	49
84/2		24.4	24.4	4.00		
84/3		8.7	46.4	5.00	53	29
84/4		9.9	91.7	4.00		
85/1		11.1	55.6	4.00	71	90
85/2		12.1	29.2	2.00		
85/3		8.0	18.0	2.90	64	-
85/4		42.4	30.4	6.20		
86/1		22.1	17.4	3	46	20
86/2		19.1	24.8	2.6		
86/3		12.8	15.8	3	42	19
86/4		52.6	23.2	5		
87/1		19.6	33.3	2	51.25	52.41
87/2		15.7	14.1	3	23.6	33.5
87/3						
87/4		75.4	42.4	6	34.6	
88/1		44.41	39	5	52.6	64.2
88/2		15.4	30	3		
88/3		5.8	14.5	1.8	17.4	34.6
88/4		10.5	17.6	4.7		
[illegible]		[illegible]	[illegible]	3.4	46.6	62.5
[illegible]		5.0	9.5	[illegible]	[illegible]	[illegible]

WELL #2

Yr/Qtr	Li ppm	Alpha pCi/L	Beta pCi/L	F ppm	NO_3 ppm	NH_3 ppm
81/1	<0.1			14.00	34	145
81/2	<0.1			9.70	65	147
81/3	<0.1			7.00	42	85
81/4	<0.1			6.50	18	85
82/1	<0.1			18.90	34	99
82/2	<0.1			11.60	37	114
82/3	<0.1			7.10	33	102
82/4	<0.1			8.00	39	29
83/1	<0.1			8.50	65	163
83/2	<0.1			3.30	57	108
83/3	<0.1			4.50	18	55
83/4	<0.1			4.10	6	46
84/1	<0.1			7.60	44	60
84/2		148	77.6	7.20		
84/3		131	61.1	7.00	43	36
84/4		111	68.1	7.00		
85/1		91.1	70.1	7.50	57	823
85/2		281.0	87.3	4.00		
85/3		98.3	50.3	8.40	69	-
85/4		86.2	30.4	5.20		
86/1		22.1	17.4	3	38	38
86/2		36.5	27.3	5.8		
86/3		58.6	33.7	8	43	34
86/4		34.8	30.1	4		
87/1						
87/2		—	—	—	—	—
87/3		44.6	45.8	6.4	44.7	35.7
87/4		35.3	34.7	6	37.7	43.5
		24.4	32.6	5		12.4
88/1						
88/2		31.3	45	7	25.8	
88/3		19.6	47.2	5		
88/4		27.1	52.5	4.4	59.5	53.5
		45.8	43.4	4.7		
89/1						
89/2		22.2	17.4	12.4	62.6	42
89/3		11.5	10.1	6.6		
89/4		17.7	10.8	4.0	60.8	3.9
		7.4	11.5	4.2		

WELL #3

Yr/Qtr	U ppm	Alpha pCi/L	Beta pCi/L	F ppm	NO_3	NH_4
81/1	<0.1			0.92		
81/2	<0.1			0.80		
81/3	<0.1			0.54		
81/4	<0.1			0.46		
82/1	<0.1			0.52		
82/2	<0.1			0.81		
82/3	<0.1			0.56		
82/4	<0.1			0.40		
83/1	<0.1			1.30		
83/2	<0.1			0.65		
83/3	<0.1			0.41		
83/4	<0.1			0.45		
84/1	<0.1			0.46		
84/2		5.1	40.6	0.50		
84/3		5.6	19.9	1.00		
84/4		11.6	31.7	6.00		
85/1		19.8	48.5	0.80		
85/2		44.1	24.5	1.50		
85/3		9.2	22.4	0.50		
85/4		6.6	28.2	0.48		
86/1		3.8	17.2			
86/2		8.3	27.3	.4		
86/3		6.1	41.6	.5		
86/4		2.6	14.7	.5		
87/1		—	—	—		
87/2		2.8	27.2	.5	52.0	51.3
87/3		2.3	19.1	.4		
87/4		4.7	26.6	.8		7.8
88/1						
88/2		1.0	23	2		
88/3		2.9	23.5	.4		
88/4		3.3	24.1	1.2		
		1.7	20	1.6		
89/1		3.8	8.6	.4		
89/2		1.8	10.7	.4		
89/3		2.5	9.9	.4		
89/4		2.3	9.2	.5		

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WELL #4

Yr/Qtr	U ppm	Alpha = pCi/L	Beta pCi/L	F ppm		
81/1	<0.1			0.83		
81/2	<0.1			0.63		
81/3	<0.1			0.68		
81/4	<0.1			0.65		
2/1	<0.1			0.45		
2/2	<0.1			0.67		
2/3	<0.1			0.39		
2/4	<0.1			0.43		
[illegible]	<0.1			0.91		
[illegible]	<0.1			0.37		
[illegible]	<0.1			0.36		
[illegible]	<0.1			0.42		
[illegible]	<0.1			0.35		
[illegible]		46.4	28.6	0.40		
[illegible]		5.0	26.2	0.70		
[illegible]		7.1	26.7	0.50		
[illegible]		6.9	29.1	0.70		
[illegible]		9.9	33.1	2.00		
[illegible]		7.6	19.5	0.50		
[illegible]		3.9	19.8	0.45	NO3	NH4
86/1		4.2	18.9	.4		
86/2		7.3	19.4	.4		
86/3		4.8	41.8	1.0		
86/4		2.3	13.8	.5		
87/1						
87/2		—	—	—	—	—
87/3		1.9	19	.6	25.1	
87/4		2.39	22	.3		4.7
		2.2	18.4	.5		
88/1					—	3.1
88/2		2.6	12.9	.4		
88/3		1.7	18.2	.3		
88/4		2.7	13.2	1.7		
		1.8	17.1	.5		
89/1						
89/2		2.8	6.0	.4		
89/3		1.2	6.8	.4		
89/4		2.3	10.3	.4		
		2.7	7.9	.4		

WELL #5

Yr/Qtr	U ppm	Alpha pCi/L	Beta pCi/L	F ppm	NO_3	NH_4
81/1	<0.1			0.51		
81/2	<0.1			0.28		
81/3				0.29		
81/4				0.31		
82/1				0.27		
82/2				0.60		
82/3				0.27		
82/4				0.41		
83/1				0.85		
83/2				0.40		
83/3				0.28		
83/4				0.28		
84/1				0.35		
84/2		3.2	32.9	0.45		
84/3		3.3	28.8	14.0		
84/4		1.8	5.54	0.30		
85/1		7.8	38.9	0.40		
85/2		1.4	10.7	0.50		
85/3		0.2	10.4	0.30		
85/4		0.03	8.8	0.21		
86/1		1.6	7.4	.2		
86/2		.23	6.5	.2		
86/3		1.69	8.9	.7		
86/4		.05	7.3	.4		
87/1						
87/2		—	—	—		
87/3		.03	5.5	.7		
87/4		.38	6.4	.3		
88/1		.48	7.2	.3		3.1
88/2		1.1	23.2	.3		
88/3		1.5	5.3	.2		
88/4		.47	6.0	.3		
89/1		1.4	6.6	.5		
89/2		2.1	5.5	.4		
89/3		.9	3.2	.3		
89/4		.9	5.1	.3		
		.6	4.2	.3		

WELL #6

Yr/Qtr	U ppm	Alpha pCi/L	Beta pCi/L	F ppm
81/1	<0.1			0.51
81/2	<0.1			0.54
81/3	<0.1			0.25
81/4	<0.1			0.33
82/1	<0.1			0.53
82/2	<0.1			0.49
82/3	<0.1			0.30
82/4	<0.1			0.34
83/1	<0.1			0.83
83/2	<0.1			4.80
83/3	<0.1			0.30
83/4	<0.1			0.40
84/1	<0.1			0.39
84/2		8.3	19.7	0.60
84/3		3.4	9.0	0.40
84/4		4.4	27.2	0.30
85/1		8.8	23.1	0.80
85/2		6.7	14.6	1.30
85/3		0.1	11.0	0.50
85/4		5.4	14.3	0.30
86/1		2.5	12	.2
86/2		2.5	8.1	.2
86/3		2.4	11.5	.3
86/4		2.2	11.3	.3
87/1				
87/2		—	—	—
87/3		1.0	9.6	.4
87/4		.6	6.3	.3
88/1		1.98	20.3	.3
88/2		.9	10.3	.3
88/3		1.6	10	.3
88/4		2.2	10.3	.3
89/1		1.2	9.6	.5
89/2		1.4	5.7	.3
89/3		2.7	3.7	.3
89/4		1.4	5.7	.3
		1.2	5.7	.4

WELL #7

Yr/Qtr	U ppm	Alpha pCi/L	Beta pCi/L	F ppm
81/1	<0.1			0.39
81/2	<0.1			0.28
81/3	<0.1			0.35
81/4	<0.1			0.38
82/1	<0.1			0.42
82/2	<0.1			0.48
82/3	<0.1			0.31
82/4	<0.1			0.37
83/1	<0.1			1.53
83/2	<0.1			0.50
83/3	<0.1			0.33
83/4	<0.1			0.40
84/1	<0.1			0.39
84/2		2.2	5.1	0.47
84/3		2.6	4.5	0.70
84/4		3.1	5.7	0.40
85/1		3.2	5.0	0.70
85/2		3.9	5.9	0.70
85/3		2.0	7.0	0.30
85/4		2.0	5.3	0.30
86/1		.8	4.7	.3
86/2		.92	5	.2
86/3		.27	5.9	.2
86/4		.79	4.6	.4
87/1		—	—	—
87/2		1.0	2.7	.3
87/3		.7	5.3	.2
87/4		1.0	4.7	.4
88/1		1.3	3.9	2
88/2		1.0	3.7	.2
88/3		1.0	7.5	.2
88/4		1.3	4.3	.4
89/1		1.3	6.7	.2
89/2		0.7	1.3	1.1
89/3		1.4	5.7	.2
89/4		0.45	4.97	.3

WELL #9

	U ppm	Alpha pCi/L	Beta pCi/L	F ppm	NO_3 ppm	NH_3 ppm
1					75	193
2					75	129
3					40	112
4					37	90
					47	107
					64	164
	<0.1				53	131
	<0.1				56	130
	<0.1				58	132
	<0.1				67	120
	<0.1				48	96
	<0.1				11	95
	<0.1				21	105
	<0.1					
		109.0	47.0		86	178
		17.4	73.8		94	84
3		69.4	36.3		75	14
86A		80.2	39.7		59	92
86B		49.5	44.7	1.0	86	70
86H						
87A		—	—	—	—	—
87B		—				
87H		84.1	56.2	8	77.9	104.8
88A		192	128			
88B		—			41.5	23.6
88H		54.3	44.3		61.5	45.0
89A		87.8	32.6	6.9	20.3	24.0
89B		—				
89H		45.4	18.9	7.5	83.1	38.8

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WELL #11

Date	U ppm	Alpha pCi/L	Beta pCi/L	F ppm
1				0.51
2				0.46
3				0.38
4				0.38
				0.45
				0.62
				0.37
	<0.1			0.43
	<0.1			0.62
	<0.1			0.50
	<0.1			0.42
	<0.1			0.43
	<0.1			0.34
		1.3	7.5	0.38
		2.1	5.0	0.70
		4.3	5.0	0.40
		3.9	9.0	1.00
		4.6	9.1	0.60
		0.1	6.6	0.30
		2.7	3.9	0.30
84/1		.3	5.1	.3
84/2		.2	4.9	.2
84/3		2.5	6.9	.3
84/4		1.4	5.0	.3
87/1		—	—	—
87/2		3.7	10.5	1.4
87/3		.8	10.1	.4
87/4		1.6	7.4	.5
88/1		2.4	4.5	1.6
88/2		1.7	12.1	.3
88/3		.6	5.5	.3
88/4		1.1	11.3	.6
89/1		5.1	10.1	.3
89/2		1.0	5.5	.4
89/3		3.1	5.0	.4
89/4		1.7	9.5	.1

WELL #12

Yr/Qtr	U ppm	Alpha pCi/L	Beta pCi/L	F ppm
81/1				0.60
81/2				0.39
81/3				0.39
81/4				0.40
82/1				0.49
82/2				0.65
82/3				0.40
82/4	<0.1			0.33
83/1	<0.1			0.61
83/2	<0.1			0.55
83/3	<0.1			0.35
83/4	<0.1			0.57
84/1	<0.1			0.41
84/2		7.1	7.0	3.00
84/3		0.8	8.3	0.60
84/4		1.8	5.0	0.40
85/1		0.2	7.3	1.00
85/2		2.6	6.7	1.00
85/3		3.7	4.0	0.30
85/4		1.0	6.7	0.23
86/1		2.6	4.8	0.2
86/2		4.5	6.7	0.3
86/3		3.25	6.16	0.4
86/4		.15	6.7	0.3
87/1		—	—	—
87/2		2.2	8.7	0.2
87/3		1.3	5.8	0.6
87/4		1.2	6.3	0.4
88/1		.4	8.1	0.4
88/2		.3	6.4	0.3
88/3		1.0	1.4	0.3
88/4		1.3	4.9	0.7
89/1		2.1	7.6	0.5
89/2		0.2	3.9	0.3
89/3		2.5	3.4	0.3
89/4		2.5	7.8	0.3

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9 2 1 2 6 4 2 0 7 2 1

WELL #13

r/Qu	U ppm	Alpha = pCi/L	Beta pCi/L	F ppm	NO_3 ppm	NH_3 ppm
81/1				0.35	2.6	0.19
81/2				0.27	3.2	0.02
81/3				0.55	2.1	0.19
81/4				0.38	1.4	0.53
82/1				0.29	2.5	0.33
82/2				0.46	3.1	0.12
82/3				0.38	1.4	0.16
82/4	<0.1			0.25	0.8	0.22
83/1	<0.1			0.41	3.5	0.10
83/2	<0.1			0.45	4.4	0.90
83/3	<0.1			0.39	1.6	0.35
[illegible]	<0.1			0.60	1.3	0.67
[illegible]	<0.1			0.34	2.8	0.11
[illegible]		2.1	0.5	0.47		
[illegible]		2.6	0.7	0.70	2.7	0.16
[illegible]		3.1	1.9			
85/1		4.3	6.9	~~8.00~~ 1.0	10.2	0.74
85/2		3.0	5.6	.3		
85/3		1.6	3.5	~~8.00~~ .3 .3	5.6	-
85/4		1.8	6.6			
86/1		1.1	4.0	0.3	5.6	1.4
86/2		2.4	4.2	0.3		
86/3		1.4	4.92	0.4	3.4	1.9
86/4						
87/1		—	—	—	—	—
87/2						
87/3		[redacted].6	3.8	0.5		
87/4		1.2	5.1	0.2		
88/1		1.7	6.4	0.5		
88/2		0.44	6.8	0.3		
88/3		.0	3.2	0.3		
88/4		1.5	4.9	0.2		
89/1		2.3	3.8	0.5		
89/2		1.6	6.6	0.4		
89/3		2.7	6.4	0.4		
89/4		1.5	3.9	0.3		
[illegible]		[illegible]	[illegible]	0.3		

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WELL #14

Yr/Qtr	U ppm	Alpha pCi/L	Beta pCi/L	F ppm	NO_3 ppm	NH_3 ppm
81/1					53	71
81/2					77	43
81/3					34	58
81/4					21	84
82/1					40	86
82/2					37	111
82/3					51	170
82/4	<0.1				65	72
83/1	<0.1				68	84
83/2	<0.1				68	85
83/3	<0.1				52	148
83/4	<0.1				41	71
84/1	<0.1				75	120
84/2						
84/3		25.0	18.0		64	77
84/4						
85/1		68.0	25.0		46	38
85/2						
85/3		55.0	23.0		49	-
85/4						
86/1		59	29.8		52	9
86/2						
86/3		65	27.9	6	49	8.5
86/4						
87/1		—	—	—	—	—
87/2		—				
87/3						
87/4		2.4	35.7		64.2	43.5
88/1		—				
88/2		72.8	53.2		42.0	25.6
88/3		—				
88/4		33.0	27.4	2.7	46.4	17.1
		23.2	28.5	4.5		
89/1		19.8	19.6	3.1	56.5	1.9
89/2		—				
89/3						
89/4		17.8	1.8	3.7	63.9	9.3
		—				

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WELL #15

Yr/Qtr	U ppm	Alpha pCi/L	Beta pCi/L	F ppm	NO_3 ppm	NH_3 ppm
81/1					80	225
81/2					65	123
81/3					39	134
81/4					22	129
82/1					46	101
82/2					61	123
82/3					41	135
82/4	<0.1				31	160
83/1	<0.1				54	94
83/2	<0.1				51	90
83/3	<0.1				11	69
83/4	<0.1				39	87
84/1	<0.1				64	73
84/2						
84/3		88.0	52.0		53	122
84/4						
85/1		82.0	80.0		85	100
85/2						
85/3		29.0	34.0		49	-
85/4						
86/1						
86/2		71.0	46.2		56.0	73.0
86/3						
86/4		46.3	49.1	13.0	33.9	101.0
87/1						
87/2		—	—	—	—	—
87/3		—			—	—
87/4		—			59.4	97.1
88/1		94.7	123		58.4	93.2
88/2		—				
88/3		59.4	63.2	8.0	35.4	27.9
88/4		64.1	55.9	7.8		
89/1		64.7	26.1	7.6	64.2	65.2
89/2		—				
89/3		71.4	17.7	8.3	63.9	93.2
89/4		—				

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9 2 1 2 6 2 0 4 7 2 4

WELL #16

Yr/Qtr	U ppm	Alpha pCi/L	Beta pCi/L	F ppm	NO_3 ppm	NH_3 ppm
81/1						
81/2						
81/3						
81/4						
82/1						
82/2						
82/3	<0.1				24	43
82/4	<0.1				13	72
83/1	<0.1				41	36
83/2	<0.1				0.90	32
83/3	<0.1				1.2	43
83/4	<0.1				1.5	38
84/1	<0.1				1.4	33
84/2						
84/3		2.3	10.0		1.4	54
84/4						
85/1		4.9	20.0		1.8	44
85/2						
85/3		0.9	11.5		1.1	-
85/4						
86/1						
86/2		.86	12.7		1.4	22
86/3						
86/4		.8	10.4	9.0	1.4	34
87/1		—				
87/2		—				
87/3		0.86	8.48		2.3	166.9
87/4		—				
88/1						
88/2		0.26	7.1		1.1	24.1
88/3		—				
88/4		0.14	10.6	2.3	1.8	15.5
		0 1.77	9.0	5.0		
89/1						
89/2		0.53	9.1	4.4	5.7	20.2
89/3		—				
89/4		0.55	5.0	6.0	2.5	7.8
		—				

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9 2 1 2 6 4 2 0 7 2 5

WELL #19

Year	U ppm	= Alpha pCi/L	Beta pCi/L	F ppm
81/1				
81/2				
81/3				
81/4				
82/1				
82/2				
82/3				
82/4	<0.1			0.46
83/1	<0.1			1.70
83/2	<0.1			0.55
83/3	<0.1			0.40
83/4	<0.1			0.55
84/1	<0.1			0.43
84/2		4.2	5.5	3.00
84/3		2.8	5.0	2.00
84/4		1.0	4.4	0.30
85/1		4.9	9.3	1.50
85/2		4.1	19.1	2.00
85/3		4.5	19.0	0.20
85/4		4.0	11.5	0.20
86/1		1.2	5.3	0.3
86/2		2.2	8.2	0.3
86/3		2.2	13.6	0.4
86/4		1.5	7.2	0.4
87/1		—		
87/2				
87/3		3.6	5.8	0.4
87/4		1.2	10.7	0.3
88/1		1.7	4.2	0.3
88/2		1.8	11.6	0.3
88/3		3.1	6.1	0.2
88/4		2.5	4.7	0.3
89/1		1.4	12.4	0.4
89/2		2.4	5.5	0.2
89/3		5.4	10.5	0.3
89/4		1.4	6.3	0.3
		3.4	5.4	0.8

WELL #19

Year	U ppm	Alpha pCi/L	Beta pCi/L	F ppm
81/1				
81/2				
81/3				
81/4				
82/1				
82/2				
82/3				
82/4	<0.1			0.46
83/1	<0.1			1.70
83/2	<0.1			0.55
83/3	<0.1			0.40
83/4	<0.1			0.55
84/1	<0.1			0.43
84/2		4.2	5.5	3.00
84/3		2.8	5.0	2.00
84/4		1.0	4.4	0.30
85/1		4.9	9.3	1.50
85/2		4.1	19.1	2.00
85/3		4.5	19.0	0.20
85/4		4.0	11.5	0.20
86/1		1.2	5.3	0.3
86/2		2.2	8.2	0.3
86/3		2.2	13.6	0.4
86/4		1.5	7.2	0.4
87/1		—		
87/2		3.6	5.8	0.4
87/3		1.2	10.7	0.3
87/4		1.7	4.2	0.3
88/1		1.8	11.6	0.3
88/2		3.1	6.1	0.2
88/3		2.5	4.7	0.3
88/4		1.4	12.4	0.4
89/1		2.4	5.5	0.2
89/2		5.4	10.5	0.3
89/3		1.4	4.3	0.3
89/4		3.4	5.4	0.8

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WELL #20

Yr/Qtr	U ppm	Alpha pCi/L	Beta pCi/L	F ppm
81/1				
81/2				
81/3				
81/4				
82/1				
82/2				
82/3				
82/4	<0.1			0.35
83/1	<0.1			0.50
83/2	<0.1			0.50
83/3	<0.1			0.35
83/4	<0.1			0.41
84/1	<0.1			0.37
84/2		2.2	4.8	1.00
84/3		0.8	3.2	1.00
84/4		1.5	5.9	0.40
85/1		3.8	11.0	1.00
85/2		2.4	19.0	0.70
85/3		2.8	8.9	0.30
85/4		3.1	4.1	0.30
86/1				
86/2		1.7	6.2	0.3
86/3		3.8	9.9	0.2
86/4		1.7	8.4	0.5
87/1		2.8	5.3	0.3
87/2		—		
87/3		1.1	7.9	0.4
87/4		2.1	7.9	0.4
88/1		1.9	8.1	0.3
88/2		2.7	6.6	0.3
88/3		2.0	5.2	0.3
88/4		.7	7.2	0.2
89/1		.9	6.8	0.6
89/2		1.4	5.3	0.5
89/3		1.0	2.1	0.7
89/4		1.5	7.0	0.3
		1.6	4.8	0.4

WELL #21

Yr/Qtr	U ppm	Alpha pCi/L	Beta pCi/L	F ppm
81/1				
81/2				
81/3				
81/4				
82/1				
82/2				
82/3				
82/4				
83/1	<0.1			
83/2	<0.1			0.80
83/3	<0.1			0.35
83/4	<0.1			0.51
84/1	<0.1			0.41
84/2		3.2	8.2	
84/3		2.4	5.9	1.00
84/4		1.6	7.1	0.40
85/1		4.1	17.1	0.50
85/2		2.5	24.0	0.80
85/3		2.6	4.0	0.30
85/4		3.5	4.0	0.30
86/1				
86/2		2.1	3.7	0.2
86/3		2.4	7.6	0.3
86/4		1.3	6.6	0.6
87/1		1.4	5.6	0.3
87/2		2.2	5.5	0.3
87/3		2.4	5.3	0.4
87/4		1.9	4.9	0.3
88/1				
88/2		1.5	6.5	0.3
88/3		2.7	7.5	0.2
88/4		.6	2.2	0.3
		1.7	5.3	0.4
89/1				
89/2		2.6	12.4	0.5
89/3		2.7	2.7	0.4
89/4		3.7	6.4	0.3
		3.1	5.2	0.4

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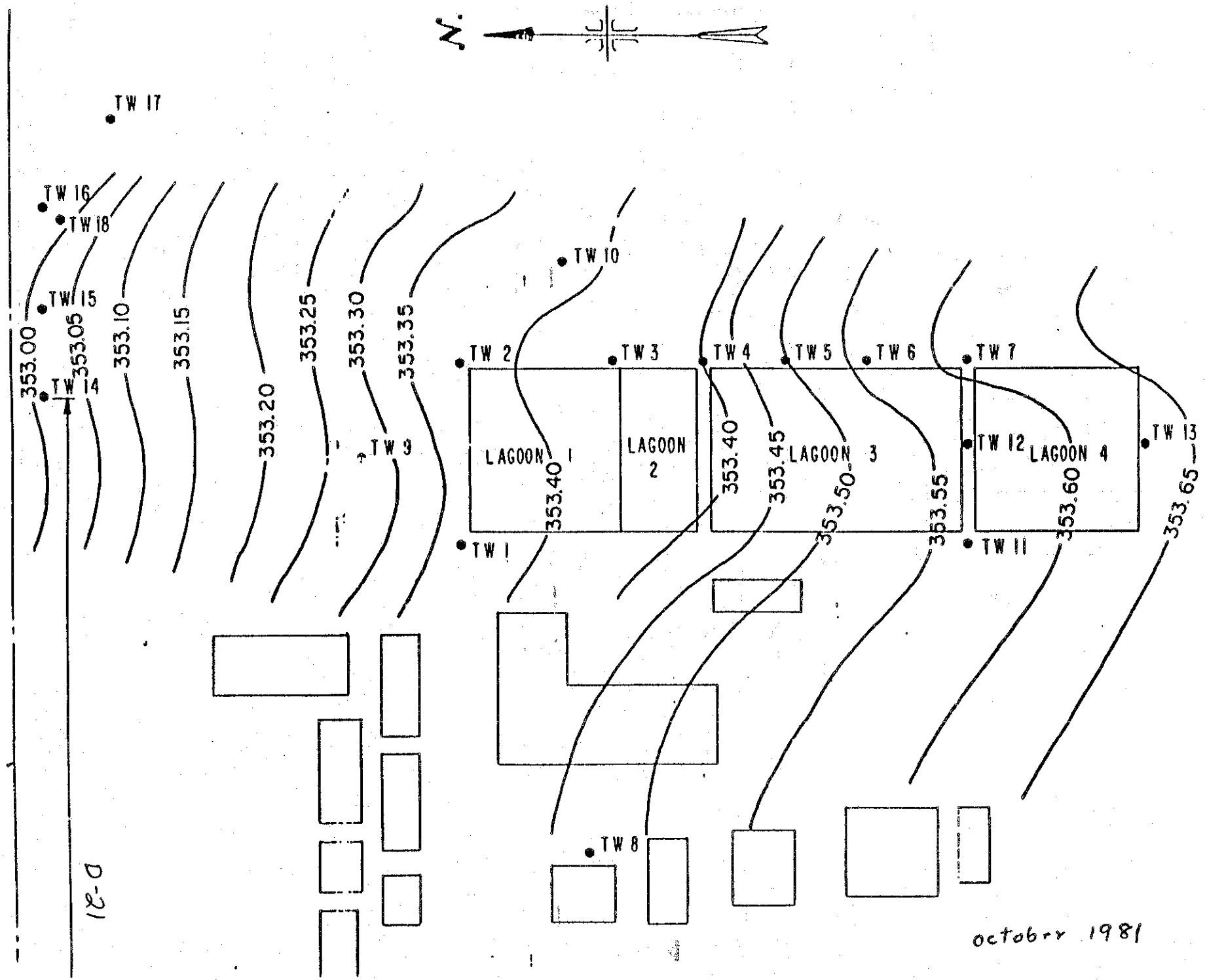
9 2 1 2 6 4 2 8 7 2 9



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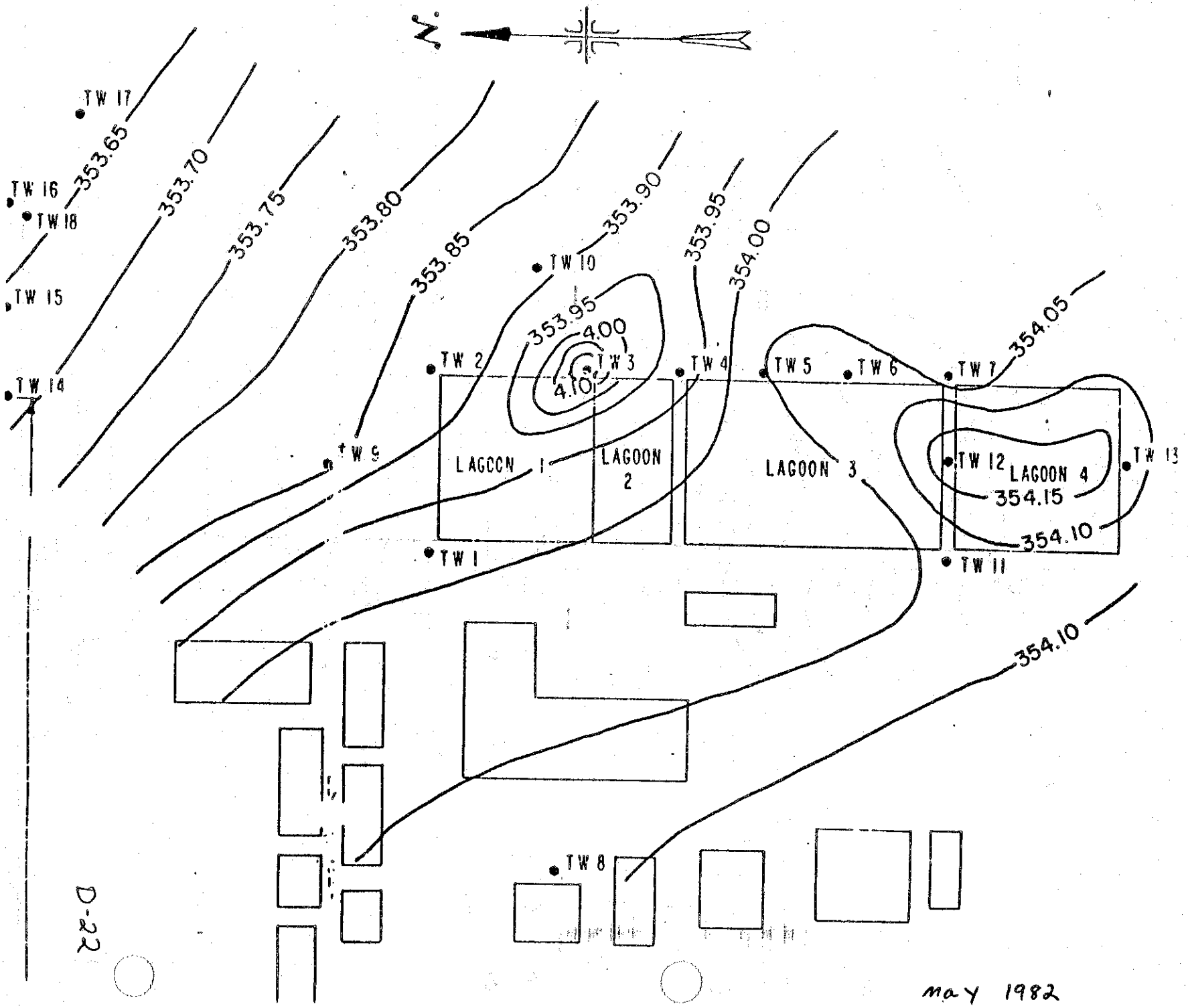
October 1981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May 1982

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Washington Department of Ecology

MEMORANDUM

TO: Russ Taylor

THROUGH: Clar Pratt

FROM: Jim Milton and Dennis Bowhay

SUBJECT: Exxon Nuclear (meeting November 3, 1986)

DATE: October 31, 1986

On October 28, 1986 Mr. Charles W. Malody called to set up a meeting with Russ et. al. on the possible sale of all or part of Exxon Nuclear to a German Corporation. Mr. Malody relayed five specific concerns of the clients investigating purchase. They are as follows with my associated response.

1. What are future liabilities concerning 1982 JUB Engineering's study of leaking lagoons?

   On June 1983 we received a copy of a report to NRC describing the leakage of wastewater from the Exxon treatment lagoons. The report described a plume 40 to 50 feet deep by 500 to 600 feet wide by 1000 to 11000 feet long extending northwesterly from the Exxon facilities. Contaminant levels were judged not to have a detrimental impact on the public due to restricted land use in the area (south part of 300 area) and no effect on the Columbia River, which the plume is projected to reach in 75 years. Contamination levels exceed EPA drinking water standards as follows: NO_3 standard of 10 mg/l exceeded by a high of 70 mg/l; Fluorides standard of 2 mg/l exceeded by a high of 17 mg/l; and a SO_4 standard of 250 exceeded by a high of 423.

   Remedial action has been taken with the installation of double lined lagoon with monitoring required by the State Waste Discharge Permit.

   Figure 9 page 18 of JUB Engineer's Report shows test wells and the location of the projected plume of contaminated groundwater. The downstream plume area should be investigated to ensure that there are no conduits for downward migration of pollutants into the lower aquifer.

   The report submitted basically complies with requirements for designation under Part III of WDOE Cleanup Policy, Ground Water

WHC-MR- 0298

Protection Levels. This spill has not bee through the formal process because it preceded the Policy. Follow up for Protection Cleanup Levels requires long term monitoring to verify that there is no threat to public health or the environment. This is a condition of the State Waste Discharge Permit. No additional requirements are anticipated other than monitoring of the plume and ensuring that lower aquifers are not vulnerable.

2. Are there any changes regarding Gaseous Fluorides Emissions and/or testing.

In 1983 the NRC required that the fluoride stack sampling method used by Exxon Nuclear be approved by the State of Washington. A report was submitted along with a sampling program. That program was approved by this office, after consultation with WDOE monitoring experts, March 23, 1983. No major changes to Fluoride limits or testing procedures have occurred since that time which would result in the need for modification.

3. WDOE Policy on G.W. use and discharge to it?

G.W. use is by permit evaluated on a case by case basis. There are no known pre-existing uses or conditions which would impair addition withdrawals in that area.

Discharge requires known reasonable and available treatment prior to discharge and protection of groundwaters (drinking water standards) for additional future uses. SEPA review, an engineering report and P & S approval is required for treatment and/or disposal facilities.

4. Waste discharge permit renewal?

The current permit expires May 27, 1987.

If and when the City of Richland gets up to full speed on their pretreatment program the permitting responsibility could shift to the city with state oversight. It is not anticipated that this would have a material impact on the discharge requirements unless problems with the city's WWTP are traced to the Exxon discharge.

5. Dangerous waste designation of Waste Storage lagoon?

There is the need to determine if individual waste streams and/or the combined wastes are dangerous waste. The only point which has previously been evaluated has been the discharge to Richland STP. Since the new lagoons are built to dangerous waste lagoon standards they have been assigned a low priority for follow up.

Last information we have is that their Waste Storage Impoundments were being evaluated by Olympia - Status unknown?

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This appears to be major area for potential future impact on this facilities. Such impact would basically be administrative assuming no unusual findings.

JM:ch

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