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Principals
James E England, P E, Pres
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Douglas C Miller, P E, Exec V P
N Hugh Mathews P E Exec V P

October 28, 1996

Ms Mary C Nogas, P E
Waste Management Section
Department of Environmental Protection
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256

NORTHEAST DISTRICT
RECEIVED
OCT 28 1996
DEP - JACKSONVILLE

Reference Trail Ridge Landfill
FDEP Permit No SC16-184444
ET&M No E96-49-1

Dear Ms Nogas

Pursuant to Chapter 62-701, F A C and on behalf of Trail Ridge Landfill, Inc , please find herewith the application for Solid Waste Management Facility Permit for the operation and construction of the referenced landfill as well as a vertical expansion of the landfill and the continued operation of the waste tire processing facility This application also includes the construction and operation of an active gas collection system which will be submitted to the Department

The preparation of the permit application has been under the direction of Trail Ridge Landfill, Inc in concert with the City of Jacksonville

I would respectfully request that any questions regarding this application be directed to me

Sincerely,

ENGLAND, THIMS & MILLER, INC.

Juanitta Bader Clem

Juanitta Bader Clem, P E
Vice President

cc Greg Mathes w/attachments
Scott McCallister w/attachments
Chris Pearson w/attachments

Attachments Permit Document - 6 copies
Permit Document Drawings - 6 copies
Permit Application - 6 copies
Application Fee for Operation/Construction - $20,000 00

Florida Department of Environmental Regulation
Twin Towers Office Bldg • 2600 Blair Stone Road • Tallahassee, FL 32399-2400

DER Form # 17 701 900(1)

Form Title Solid Waste Management Facility Permit

Effective Date ______________

DER Application No ______________ (Filled by DER)

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

SOLID WASTE MANAGEMENT FACILITY PERMIT

APPLICATION INSTRUCTIONS AND FORMS

INSTRUCTIONS TO APPLY FOR A SOLID WASTE MANAGEMENT PERMIT

I. General

Solid Waste Management Facilities shall be permitted pursuant to Section 403.707, Florida Statutes,(FS) and in accordance with Florida Administrative Code (FAC) Rule 17-701. A minimum of six copies of the application shall be submitted to the Department District Office having jurisdiction over the facility. The appropriate fee in accordance with Chapter 17-4, FAC, and Rule 17-701.320(5)(c), FAC, shall be submitted with the application by check made payable to the Department of Environmental Regulation (DER).

Complete appropriate sections for the type of facility for which application is made. Entries shall be typed or printed in ink. All blanks shall be filled in or marked "not applicable" or "no substantial change". Information provided in support of the application shall be marked "submitted" and the location of this information in the application package indicated. The application shall include all information, drawings, and reports necessary to evaluate the facility. Information required to complete the application is listed on the attached pages of this form.

II. Application Parts Required for Construction and Operation Permits

X A. Landfills and Ash Monofills - Submit parts A,B, D through R, and T
B. Asbestos Monofills - Submit parts A,B,D,E,F,I,K, M through Q, and T
C. Industrial Solid Waste Facilities - Submit parts A,B, D through Q, and T
D. Volume Reduction Facilities - Submit parts A,C,D,S, and T
E. Materials Recovery Facilities - Submit parts A,C,D,S, and T

NOTE: Portions of some parts may not be applicable.

NOTE: For facilities that have been satisfactorily constructed in accordance with thei. construction permit, the information required for A,B,C,D, and E type facilities does not have to be resubmitted for an operation permit if the information has not substantially changed during the construction period. The appropriate portion of the form should be marked "no substantial change".

III. Application Parts Required for Closure Permits

A. Landfills and Ash Monofills - Submit parts A,B, N through R, and T
B. Asbestos Monofills - Submit parts A,B, M through Q, and T
C. Industrial Solid Waste Facilities - Submit parts A,B, N through Q, and T
D. Volume Reduction Facilities - Submit parts A,C,S, and T
E. Materials Recovery Facilities - Submit parts A,C,S, and T

NOTE: Portions of some parts may not be applicable.

IV. Permit Renewals

The above information shall be submitted at time of permit renewal in support of the new permit. However, facility information that was submitted to the Department to support the expiring permit, and which is still valid, does not need to be re-submitted for permit renewal. Portions of the application not re-submitted shall be marked "no substantial change" on the application form.

V. Application Codes

S	-	Submitted
LOCATION	-	Physical location of information in application
N/A	-	Not Applicable
N/C	-	No Substantial Change

VI. LISTING OF APPLICATION PARTS

PART A	-	GENERAL INFORMATION
PART B	-	DISPOSAL FACILITY GENERAL INFORMATION
PART C	-	MATERIALS RECOVERY / VOLUME REDUCTION FACILITY GENERAL INFORMATION
PART D	-	SOLID WASTE MANAGEMENT FACILITY PERMIT GENERAL REQUIREMENTS
PART E	-	LANDFILL PERMIT GENERAL REQUIREMENTS
PART F	-	GENERAL CRITERIA FOR LANDFILLS
PART G	-	LANDFILL CONSTRUCTION REQUIREMENTS
PART H	-	HYDROGEOLOGICAL INVESTIGATION REQUIREMENTS
PART I	-	GEOTECHNICAL INVESTIGATION REQUIREMENTS
PART J	-	VERTICAL EXPANSION OF LANDFILLS
PART K	-	LANDFILL OPERATION REQUIREMENTS
PART L	-	WATER QUALITY AND LEACHATE MONITORING REQUIREMENTS
PART M	-	SPECIAL WASTE HANDLING REQUIREMENTS
PART N	-	LANDFILL CLOSURE REQUIREMENTS
PART O	-	CLOSURE PROCEDURES
PART P	-	LONG TERM CARE REQUIREMENTS
PART Q	-	FINANCIAL RESPONSIBILITY REQUIREMENTS
PART R	-	CLOSURE OF EXISTING LANDFILL REQUIREMENTS
PART S	-	MATERIALS RECOVERY FACILITY REQUIREMENTS
PART T	-	CERTIFICATION BY APPLICANT AND ENGINEER OR PUBLIC OFFICER

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

APPLICATION FOR PERMIT TO CONSTRUCT, OPERATE, MODIFY OR CLOSE A SOLID WASTE MANAGEMENT FACILITY

Please Type or Print

A. GENERAL INFORMATION

1. Type of facility:

Disposal [x]

Class I Landfill	[x]	Ash Monofill	[ ]
Class II Landfill	[ ]	Asbestos Monofill	[ ]
Class III Landfill	[ ]	Industrial Solid Waste	[ ]
Other	[x]	Waste Tire Processing	

Volume Reduction [ ]

Incinerator	[ ]	Pulverizer / Shredder	[ ]
Composting	[ ]	Compactor/Baling Plant	[ ]
Materials Recovery	[ ]	Energy Recovery	[ ]
Other	[ ]		

2. Type of application:

Construction	[ ]	Construction/Operation	[ ]
Operation	[ ]	Closure	[ ]

3. Classification of application: This application includes a vertical expansion over the double lined landfill.

New	[ ]	Substantial Modification	[ ]
Renewal	[x]	Minor Modification	[ ]

4. Facility name: Trail Ridge Landfill

5. DER ID number: GMS3116P03090 County: Duval

6. Facility location (main entrance): 5110 U.S. Hwy. 301
Baldwin, FL 32234

7. Location coordinates:

Section: 18,19 20,21 Township: 3S Range: 23E

UTMs: Zone______ ______ km E ______ km N

Latitude: 30 ° 14 ' 00 " Longitude: 82 ° 02 ' 30 "

8. Applicant name (operating authority): Trail Ridge Landfill, Inc.

Mailing address: 5110 U.S. Hwy. 301 (Street or P.O. Box) Baldwin (City) Florida (State) 32234 (Zip)

Contact person: Greg Mathes Telephone: (904) 289-9100

Title: Division President and General Manager

9. Authorized agent/Consultant: England, Thims & Miller, Inc.

Mailing address: 3131 St. Johns Bluff Rd. S. Jacksonville, FL 32246
Street or P.O. Box City State Zip

Contact person: Juanitta Clem Telephone: (904) 642-8990

Title: Vice President

10. Landowner(if different than applicant): City of Jacksonville

Mailing address: 515 N. Laura St., 6th floor, Jacksonville, FL 32202
Street or P.O. Box City State Zip

Contact person: Chris Pearson Telephone: (904) 632-8081

11. Cities, towns and areas to be served: City of Jacksonville (Duval County) and neighboring environs.

12. Population to be served: (Duval County)

Current: 732,034 (1995) Five-Year Projection: 777,641 (2000)

13. Volume of solid waste to be received: 3,500±* ~~yds³/day~~ tons/day (peak) ~~gallons/day~~
2,600 tons/day (monthly average)

14. Date site will be ready to be inspected for completion: N/A

15. Estimated life of facility: 17± years

16. Estimated costs:

Total Construction: $ 13.5 Million± Closing Costs: $ 14,971,645.14 (See Appendix N)

17. Anticipated construction starting and completion dates:

From: 1997** To: 2002**

** The remaining phases will be constructed prior to completion (filling) of the existing phases.

* This waste receipt may increase in the case of a natural disaster and will vary due to market conditions.

B. DISPOSAL FACILITY GENERAL INFORMATION

1. Provide brief description of disposal facility design and operations planned by this application:

   1. Continued operation of a Class I Landfill.
   2. Construction of Phases IIIC, IVC, and V of the Class I Landfill
   3. Vertical Expansion of the Class I Landfill.
   4. Continued operation of the wasteTire Processing Facility.
   5. Construction and operation of an active gas collection system.

2. Facility site supervisor: Greg Mathes

   Title: Div. President & General Manager Telephone: (904) 289-9100

3. Disposal area: Total 153 acres; Used 91 acres; Available 62 acres

4. Weighing scales used: Yes [X] No [ ]

5. Security to prevent unauthorized use: Yes [X] No [ ]

6. Charge for waste received: N/A $/yds^3 59.00 $/ton

7. Surrounding land use, zoning:

Residential	[ ]	Industrial	[ ]
Agricultural	[ ]	None	[ ]
Commercial	[ ]	Other	[X] Silvaculture

8. Types of waste received:

Residential	[X]	C & D debris	[X]
Commercial	[X]	Shredded/cut tires	[X]
Incinerator / WTE ash	[ ]	Yard trash	[ ]
Treated biohazardous	[X]	Septic tank	[ ]
Water treatment sludge	[X]	Industrial	[X]
Air treatment sludge	[ ]	Industrial sludge	[X]
Agricultural	[X]	Domestic sludge	[X]
Asbestos	[X]		
Other	[X]	Non-Hazardous Special Waste	

9. Salvaging permitted: Yes [ ] No [X]

10. Attendant: Yes [X] No [ ] Trained operator: Yes [X] No [ ]

11. Spotters: Yes [X] No [ ] Number of spotters used: 2

12. Site located in: Floodplain [ ] Wetlands [ ] Other [X] Upland Pine Flatwoods

13. Property recorded as a Disposal Site in County Land Records: Yes [ ] No [X]

14. Days of operation: Monday-Saturday

15. Hours of operation: 5:00 AM - 10:00 PM*

16. Days Working Face covered: Daily with cover dirt or tarpaulin

17. Elevation of water table: varies Ft. NGVD

* May vary dependent upon waste receipt.

18. Number of monitoring wells: 43 (27 wells monitored)

19. Number of surface monitoring points: 3

20. Gas controls used: Yes [X] No [ ] Type controls: Active [X] Passive [ ]

Gas flaring: Yes [X] No [ ] Gas recovery: Yes [ ] No [X]

21. Landfill Unit - liner type:

Natural soils	[ ]	Double geomembrane *	[X]
Single clay liner	[ ]	Geomembrane & composite	[ ]
Single geomembrane	[ ]	Double composite	[ ]
Single composite	[ ]	None	[ ]
Slurry wall	[ ]		
Other	[ ]	w/Bentonite Mat and 6" clay subgrade	

22. Leachate collection method:

Collection pipes	[XX]	Sand layer	[ ]
Geonets	[XX]	Gravel layer	[ ]
Well points	[ ]	Interceptor trench	[ ]
Perimeter ditch	[ ]	None	[ ]
Other	[ ]		

23. Leachate storage method:

Tanks	[XX]	Surface impoundments	[ ]
Other	[ ]		

24. Leachate treatment method:

Oxidation	[ ]	Chemical treatment	[ ]
Secondary	[ ]	Settling	[ ]
Advanced	[ ]	None	[ ]
Other	[X]	Off-Site Treatment at a City Wastewater Treatment Facility.	

25. Leachate disposal method:

Recirculated	[ ]	Pumped to WWTP	[ ]
Transported to WWTP	[XX]	Discharged to surface water	[ ]
Injection well	[ ]	Evaporation (ie: Perc Pond)	[ ]
Other	[ ]		

26. For leachate discharged to surface waters:

Name and Class of receiving water: N/A

27. Storm Water:

Collected: Yes [XX] No [ ] Type of treatment: Detention w/filtration *

Name and Class of receiving water: Headwaters of Deep Creek - Class III

28. Management and Storage of Surface Waters (MSSW) Permit number or status:

Permitted as Solid Waste Permit (DEP File Nos. 184444, 184445 and 184447). Pond was permitted, constructed and certified.

* Note that the existing treatment (detention with filtration) is in the process of being modified to Wet Detention.

N/A

C. MATERIALS RECOVERY / VOLUME REDUCTION FACILITY GENERAL INFORMATION

1. Provide brief description of materials recovery / volume reduction facility design and operations planned by this application:

____

____

____

2. Facility site supervisor: ______________________________________

   Title: ____________________ Telephone: (___)____________________

3. Disposal area: Total _____ acres; Used _____ acres; Available _____ acres

4. Security to prevent unauthorized use: Yes [ ] No [ ]

5. Site located in: Floodplain [ ] Wetlands [ ] Other [ ] ______________

6. Days of operation: ______________________________________

7. Hours of operation: ______________________________________

8. Number of operating staff: ____________________

9. Expected useful life: _____ Years

10. Weighing scales used: Yes [ ] No [ ]

11. Normal processing rate: _____ yd^3/day _____ tons/day _____ gal/day

12. Maximum processing rate: _____ yd^3/day _____ tons/day _____ gal/day

13. Charge for waste received: ______________________________________

14. Type of facility (check one or more):

Incinerator	[ ]	Composting	[ ]
Pulverizer / shredder	[ ]	Materials recovery	[ ]
Compactor/baling	[ ]	Energy recovery	[ ]
Sludge concentration	[ ]	Pyrolysis	[ ]
Other	[ ]	____________________	

15. Material recovered, tons/week:

_____	Paper	_____	Glass
_____	Ferrous metals	_____	Non-ferrous metals
_____	Aluminum	_____	Plastics
_____	Other:	____________________	

16. Energy recovery, in units shown:

_____	High pressure steam, lb/hr	_____	Chilled water, gal/hr
_____	Low pressure steam, lb/hr	_____	Oil, gal/hr
_____	Electricity, kw/hr	_____	Oil, BTU/hr
_____	Gas, ft^3/hr	_____	Gas, BTU/hr
_____	Other:	____________________	

17. Process water management:

Recycled: Yes [ ] No [ ]

Treatment method used: ____________________

Discharged to: Surface waters [ ] Underground [ ] Other [ ]

Name and Class of receiving water: ____________________

18. Storm Water:

Collected: Yes [ ] No [ ] Type of treatment: ____________

Name and Class of receiving water: ____________________

19. MSSW Permit number or status: ____________________

20. Final residue produced:

_______ % of normal processing rate

_______ % of maximum processing rate

Disposed of at (Site name): ____________________

21. Supplemental fuel used:

Type: ______________ Quantity used/hour: ____________

22. Costs:

Estimated operating costs (material-energy revenue): $ ________

Total cost/ton: $ ________ Net cost/ton: $ ________

23. State pollution control bond financing amount: $ ____________

24. Estimated amount of tax exemptions that will be requested: $ ________

D. **SOLID WASTE MANAGEMENT FACILITY PERMIT GENERAL REQUIREMENTS** (17-701.320, FAC)

S	LOCATION	N/A	N/C		
X	Attached			1.	Six copies, at minimum, of the completed application form, all supporting data and reports; (17-701.320(5)(a),FAC)
X	Attached			2.	Engineering and/or professional certification (signature, date and seal) provided on the applications and all engineering plans, reports and supporting information for the application; (17-701.320(6),FAC)
X	Attached			3.	A letter of transmittal to the Department; (17-701.320(7)(a),FAC)
X	Attached			4.	A completed application form dated and signed by the applicant; (17-701.320(7)(b),FAC)
X	Attached			5.	Permit fee specified in Rule 17-4.050, FAC and Rule 17-7-1.320(5)(c), FAC in check or money order, payable to the Department; (17-701.320(7)(c),FAC)
X	Attached			6.	An engineering report addressing the requirements of this rule and with the following format: a cover sheet, text printed on 8 1/2 inch by 11 inch consecutively numbered pages, a table of contents or index, the body of the report and all appendices including an operation plan, contingency plan, illustrative charts and graphs, records or logs of tests and investigations, engineering calculations; (17-701.320(7)(d),FAC))
X	Section VIII			7.	Operation Plan; (17-701.320(7)(e)1,FAC)
X	Section VIII B.			8.	Contingency Plan; (17-701.320(7)(e)2,FAC)
				9.	Plans or drawings for the solid waste management facilities in appropriate format (including sheet size restrictions, cover sheet, legends, north arrow, horizontal and vertical scales, elevations referenced to NGVD) showing; (17-702.320(7)(f),FAC)
X	Drawing No. 1			a.	A regional map or plan with the project location;
X	Drawing No. 2			b.	A vicinity map or aerial photograph no more than 1 year old;
			X	c.	A site plan showing all property boundaries certified by a registered Florida land surveyor;
X	Drawing No. 4 & 5			d.	Other necessary details to support the engineering report.
			X	10.	Proof of property ownership or a copy of appropriate agreements between the facility operator and property owner authorizing use of property; (17-701.320(7)(g),FAC)

S	LOCATION	N/A	N/C		
X	Section II B			11.	For facilities owned or operated by a county, provide a description of how, if any, the facilities covered in this application will contribute to the county's achievement of recycling goals contained in Section 403.706,FS; (17-701.320(7)(h),FAC)
X	Section II C			12.	Provide a history and description of any enforcement actions taken by the Department against the applicant for violations of applicable statutes, rules, orders or permit conditions relating to the operation of any solid waste management facility in this state; (17-701.320(7)(i),FAC)
	Will be provided upon request from the Department.			13.	Proof of publication in a newspaper of general circulation of notice of application for a permit to construct or substantially modify a solid waste management facility; (17-702.320(8),FAC)
X	Section II D (Appendix B)			14.	Provide a description of how the requirements for airport safety will be achieved including proof of required notices if applicable; (17-701.320(12),FAC)

E. LANDFILL PERMIT GENERAL REQUIREMENTS (17-701.330, FAC)

X	Drawing No.	2		1.		Vicinity map or aerial photograph no more than 1 year old and of appropriate scale showing land use and local zoning within one mile of the landfill and of sufficient scale to show all homes or other structures, water bodies, and roads other significant features of the vicinity. All significant features shall be labeled; (17-701.330(4)(a),FAC)
X	Drawing No.	1 & 2		2.		Vicinity map or aerial photograph no more than 1 year old showing all airports that are located within five miles of the proposed landfill; (17-701.330(4)(b),FAC)
X	Drawing No.	4		3.		Plot plan with a scale not greater than 200 feet to the inch showing; (17-701.330(4)(c),FAC)
X					a.	Dimensions;
X	Drawing NO.	2			b.	Locations of proposed and existing water quality monitoring wells;
			X		c.	Locations of soil borings;
X	Drawing No.	6			d.	Proposed plan of trenching or disposal areas;
X	Drawing No.	10			e.	Cross sections showing original elevations and proposed final contours which shall be included either on the plot plan or on separate sheets;
X	Drawing No.	5 & 7			f.	Any previously filled waste disposal areas;
X	Drawing No.	4			g.	Fencing or other measures to restrict access.
				4.		Topographic maps with a scale not greater than 200 feet to the inch with 5-foot contour intervals showing; (17-701.330(4)(d),FAC):
X	Drawing No.	5 & 7			a.	Proposed fill areas;
		N/A			b.	Borrow areas;
X	Drawing No.	4			c.	Access roads;
X	Drawing No.	8			d.	Grades required for proper drainage;
X	Drawing No.	13			e.	Cross sections of lifts;
X	Drawing No.	20 & 21			f.	Special drainage devices if necessary;
X	Drawing No.	4			g.	Fencing;
X	Drawing No.	4			h.	Equipment facilities.

				5.	A report on the landfill describing the following; (17-701.330(4)(e),FAC)	
X	Section III				a.	The current and projected population and area to be served by the proposed site;
X	Section III				b.	The anticipated type, annual quantity, and source of solid waste, expressed in tons;
X	Section III				c.	The anticipated facility life;
X	Section III				d.	The source and type of cover material used for the landfill.
X	Section IV D			6.	Provide evidence that an approved laboratory shall conduct water quality monitoring for the facility in accordance with Rule 17-160,FAC; (17-701.330(4)(h),FAC)	
X	Section IV E			7.	Provide a statement of how the applicant will demonstrate financial responsibility for the closing and long-term care of the landfill; (17-701.330(4)(i),FAC)	

F. GENERAL CRITERIA FOR LANDFILLS (17-701.340,FAC)

X	Section II E 2 (Appendix D)			1.	Describe (and show on a Federal Insurance Administration flood map, if available) how the landfill or solid waste disposal unit shall not be located in the 100-year floodplain where it will restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the floodplain unless compensating storage is provided, or result is a washout of solid waste; (17-701.340(4)(b),FAC)
X	Section II E 3			2.	Describe how the minimum horizontal separation between waste deposits in the landfill and the landfill property boundary shall be 100 feet, measured from the toe of the proposed final cover slope; (17-701.340(4)(c),FAC)
X	Section II E 4			3.	Describe what methods shall be taken to screen the landfill from public view where such screening can practically be provided; (17-701.340(4)(d),FAC)

G. LANDFILL CONSTRUCTION REQUIREMENTS (17-701.400,FAC)

S	LOCATION	N/A	N/C		
X	Drawing Nos. 11 - 15 Section VI B & C			1.	Describe how the landfill shall be designed so that solid waste disposal units will be constructed and closed at planned intervals throughout the design period of the landfill; (17-701.400(2),FAC)
				2.	Landfill liner requirements; (17-701.400(3),FAC)
				a.	General construction requirements; (17-701.400(3)(a),FAC):
X	Section V A 1			(1)	Provide test information and documentation to ensure the liner will be constructed of materials that have appropriate physical, chemical, and mechanical properties to prevent failure;
X	Section V A 2 (Appendix C)			(2)	Document foundation is adequate to prevent liner failure;
X	Section V A 3 Drawing No. 10			(3)	Constructed so bottom liner will not be adversely impacted by fluctuations of the ground water;
		X		(4)	Designed to resist hydrostatic uplift if bottom liner located below seasonal high ground water table;
X	Section V A 4			(5)	Installed to cover all surrounding earth which could come into contact with the waste or leachate.
				b.	Composite liners; (17-701.400(3)(b),FAC)
		X		(1)	Upper geomembrane thickness and properties;
		X		(2)	Design leachate head for primary LCRS including leachate recirculation if appropriate;
		X		(3)	Design thickness in accordance with Table A and number of lifts planned for lower soil component.
				c.	Double liners; (17-701.400(3)(c),FAC)
X	Section V B			(1)	Upper and lower geomembrane thicknesses and properties;
X	Section V B (Appendix E)			(2)	Design leachate head for primary LCRS to limit the head to one foot above the liner;
X	Section V B (Appendix F Drawing No. 16)			(3)	Lower geomembrane sub-base design;

S	LOCATION	N/A	N/C		
X	Section V B (Appendix E)			(4)	Leak detection and secondary leachate collection system minimum design criteria ($k \geq 1$ cm/sec, head on lower liner ≤ 1 inch, head not to exceed thickness of drainage layer);
				d.	Standards for geomembranes; (17-701.400(3)(d),FAC)
X	Section V C (Appendix F)			(1)	Field seam test methods to ensure all field seams are at least 90 percent of the yield strength for the lining material;
X	Section V D 4 Drawing No. 16			(2)	Design of 24-inch-thick protective layer above upper geomembrane liner;
X	Section VIII F			(3)	Describe operational plans to protect the liner and leachate collection system when placing the first layer of waste above 24-inch-thick protective layer.
				e.	Geosynthetic specification requirements; (17-701.400(3)(e),FAC)
X	Section V C (Appendix F)			(1)	Definition and qualifications of the designer, manufacturer, installer, QA consultant and laboratory, and QA program;
X	Section V C (Appendix F)			(2)	Material specifications for geomembranes, geotextiles, geogrids, and geonets;
X	Section V C (Appendix F)			(3)	Manufacturing and fabrication specifications including geomembrane raw material and roll QA, fabrication personnel qualifications, seaming equipment and procedures, overlaps, trial seams, destructive and nondestructive seam testing, seam testing location, frequency, procedure, sample size and geomembrane repairs;
X	Section V C (Appendix F)			(4)	Geomembrane installation specifications including earthwork, conformance testing, geomembrane placement, installation personnel qualifications, field seaming and testing, overlapping and repairs, materials in contact with geomembrane and procedures for lining system acceptance;
X	Section V C (Appendix F)			(5)	Geotextile and geogrid specifications including handling and placement, conformance testing, seams and overlaps, repair, and placement of soil materials;
X	Section V C (Appendix F)			(6)	Geonet specifications including handling and placement, conformance testing, stacking and joining, repair, and placement of soil materials;

S	LOCATION	N/A	N/C	Requirement
				f. Standards for soil components (17-701.400(3)(f),FAC):
X	Section V C (Appendix F)			(1) Description of construction procedures including overexcavation and backfilling to preclude structural inconsistencies and procedures for placing and compacting soil component in layers;
X	Section V C (Appendix F)			(2) Demonstration of compatibility of the soil component with actual or simulated leachate in accordance with EPA Test Method 9100 or an equivalent test method;
		X		(3) Procedures for testing in-situ soils to demonstrate they meet the specifications for soil liners;
				(4) Specifications for soil component of liner including at a minimum:
X	*			(a) Allowable particle size distribution, Atterberg limits, shrinkage limit;
X	*			(b) Placement moisture and dry density criteria;
X	*			(c) Maximum laboratory-determine saturated hydraulic conductivit_ using simulated leachate;
X	*			(d) Minimum thickness of soil liner;
X	*			(e) Lift thickness;
	One lift only	X		(f) Surface preparation (scarification);
X	*			(g) Type and percentage of clay mineral within the soil component;
X	*			(5) Procedures for constructing and using a field test section to document the desired saturated hydraulic conductivity and thickness can be achieved in the field.

* Section V C and Appendix F

3. Leachate collection and removal system (LCRS); (17-701.400(4),FAC)

S	LOCATION	N/A	N/C	Requirement
				a. The primary and secondary LCRS requirements; (17-701.400(4)(a),FAC)
X	Section V D 1.			(1) Constructed of materials chemically resistant to the waste and leachate;
X	Section V D 2. (Appendix G)			(2) Have sufficient mechanical properties to prevent collapse under pressure;

S	LOCATION	N/A	N/C	Requirement
X	Section V D 3			(3) Have granular material or synthetic geotextile to prevent clogging;
X	Section V D 3			(4) Have method for testing and cleaning clogged pipes or contingent designs for rerouting leachate around failed areas;
				b. Primary LCRS requirements; (17-701.400(4)(b),FAC)
X	Section V D 4			(1) Bottom 12 inches having hydraulic conductivity $\geq 1 \times 10^{3}$ cm/sec;
X	Section V D 4			(2) Total thickness of 24 inches of material chemically resistant to the waste and leachate;
X	Section VII A			(3) Bottom slope design to accomodate for predicted settlement;
X	Section VII A (Appendix E)			(4) Demonstration that synthetic drainage material, if used, is equivalent or better than granular material in chemical compatibility, flow under load and protection of geomembrane liner.
				4. Leachate recirculation; (17-701.400(5),FAC)
		X		a. Describe general procedures for recirculating leachate;
		X		b. Describe procedures for controlling leachate runoff and minimizing mixing of leachate runoff with storm water;
		X		c. Describe procedures for preventing perched water conditions and gas buildup;
		X		d. Describe alternate methods for leachate management when it cannot be recirculated due to weather or runoff conditions, surface seeps, wind-blown spray, or elevated levels of leachate head on the liner;
		X		e. Describe methods of gas management to control odors and migration of methane;
		X		f. If leachate irrigation is proposed, describe treatment methods and standards for leachate treatment prior to irrigation over final cover and provide documentation that irrigation does not contribute significantly to leachate generation.

S	LOCATION	N/A	N/C	
				5. Leachate storage tanks and leachate surface impoundments; (17-701.400(6),FAC)
				a. Surface impoundment requirements; (17-701.400(6)(b),FAC)
		X		(1) Documentation that the design of the bottom liner will not be adversely impacted by fluctuations of the ground water;
		X		(2) Designed in segments to allow for inspection and repair as needed without interruption of service;
				(3) General design requirements;
		X		(a) Double liner system consisting of an upper and lower 60-mil minimum thickness geomembrane;
		X		(b) Leak detection and collection system with hydraulic conductivity $\geq$ 1 cm/sec;
		X		(c) Lower geomembrane placed on subbase $\geq$ 6 inches thick with k $\leq$ $1x10^{5}$cm/sec,
		X		(d) Design calculation to predict potential leakage through the upper liner;
		X		(e) Daily inspection requirements and notification and corrective action requirements if leakage rates exceed that predicted by design calculations;
		X		(4) Description of procedures to prevent uplift, if applicable;
		X		(5) Design calculations to demonstrate minimum two feet of freeboard will be maintained;
		X		(6) Procedures for controlling vectors and off-site odors.
				b. Above-ground leachate storage tanks; (17-701.400(6)(c),FAC)
			X	(1) Describe tank materials of construction and ensure foundation is sufficient to support tank;
		X		(2) Describe procedures for cathodic protection if needed for the tank;

The tanks are fiberglass.

'S	LOCATION	N/A	N/C		
		X		(3)	Describe exterior painting and interior lining of the tank to protect it from the weather and the leachate stored;
	Thr tanks are fiberglass				
X	Section VE 1			(4)	Describe secondary containment design to ensure adequate capacity will be provided and compatibility of materials of construction;
X	Section VE 1			(5)	Describe design to remove and dispose of stormwater from the secondary containment system;
X	Section VE 2			(6)	Describe an overfill prevention system such as level sensors, gauges, alarms and shutoff controls to prevent overfilling;
				(7)	Inspections, corrective action and reporting requirements;
X	Section VE 3			(a)	Overfill prevention system weekly;
X	Section VE 3			(b)	Exposed tank exteriors weekly;
		X		(c)	Tank interiors when tank is drained or at least every three years;
	These are existing fiberglass tanks.				
X	Section VE 3			(d)	Procedures for immediate corrective action if failures detected;
X	Section VE 3			(e)	Inspection reports available for department review.
				c.	Underground leachate storage tanks; (17-701.400(6)(d),FAC)
		X		(1)	Describe materials of construction;
		X		(2)	A double-walled tank design system to be used with the following requirements;
		X		(a)	Interstitial space monitoring at least weekly;
		X		(b)	Corrosion protection provided for primary tank interior and external surface of outer shell;
		X		(c)	Interior tank coatings compatible with stored leachate;
		X		(d)	Cathodic protection inspected weekly and repaired as needed;
		X		(3)	Describe an overfill prevention system such as level sensors, gauges, alarms and shutoff controls to prevent overfilling and provide for weekly inspections;

S	LOCATION	N/A	N/C	
		X		(4) Inspection reports available for department review.
		X		d. Schedule provided for routine maintenance of LCRS; (17-701.400(6)(e),FAC)
				6. Liner systems construction quality assurance (CQA): (17-701.400(7),FAC)
X	*			a. Provide CQA Plan including:
X	*			(1) Specifications and construction requirements for liner system;
X	*			(2) Detailed description of quality control testing procedures and frequencies;
X	*			(3) Identification of supervising professional engineer;
X	*			(4) Identify responsibility and authority of all appropriate organizations and key personnel involved in the construction project;
X	*			(5) State qualifications of CQA professional engineer and support personnel;
X	*			(6) Description of CQA reporting forms and documents;
X	*			b. An independent laboratory experienced in the testing of geosynthetics to perform required testing;
				7. Soil Liner CQA (17-701.400(8)FAC)
X	*			a. Documentation that an adequate borrow source has been located with test results or description of the field exploration and laboratory testing program to define a suitable borrow source;
X	*			b. Description of field test section construction and test methods to be implemented prior to liner installation;
X	*			c. Description of field test methods including rejection criteria and corrective measures to insure proper liner installation.
				8. Surface water management systems; (17-701.400(9),FAC)
X	Section VF			a. Design of surface water management system to isolate surface water from waste filled areas and to control stormwater run-off;
X	Section VF			b. Details of stormwater control design including retention ponds, detention ponds, and drainage ways;

* Section VC and Appendix F

S	LOCATION	N/A	N/C	
				9. Gas control systems; (17-701.400(10),FAC)
	*			a. Design details for gas control system including collection pipes and vents, and passive venting or vacuum extraction details;
	*			b. Documentation that the gas control system will not impact the liner or leachate control system;
	*			c. Proposed methods of odor control including flaring designs in accordance with Chapter 17-296, FAC;
				d. Description of a routine gas monitoring program to ensure gas control system is operating properly including:
X	Section VG 3 Appendix H			(1) Location of monitoring points;
X	Section VG 3			(2) Requirements for quarterly sampling of all monitoring points;
X	Section VG 3			(3) Description of corrective measures to be completed within 60 days of detection of elevated levels of explosive gases;
	*			e. Description of condensate collection and disposal methods.
				10. Landfill gas recovery facilities; (17-701.400(11),FAC)
	*			a. Information required in Rules 17-701.320(7) and 17-701.330(4), FAC supplied;
	*			b. Information required in Rule 17-701.600(4), FAC supplied where relevant and practical;
	*			c. Estimate of current and expected gas generation rates and description of condensate disposal methods provided;
	*			d. Description of procedures for condensate sampling, analyzing and data reporting provided;
	*			e. Closure plan provided describing methods to control gas after recovery facility ceases operation;
	*			f. Performance bond provided to cover closure costs if not already included in other landfill closure costs.
		X		11. For landfills designed in ground water, provide documentation that the landfill will provide a degree of protection equivalent to landfills designed with bottom liners not in contact with ground water; (17-701.400(12),FAC)

* Will be provided upon completion of design.

H. HYDROGEOLOGICAL INVESTIGATION REQUIREMENTS (17-701.410, FAC) See Appendix K

			N/C			
				1.	Submit a hydrogeological investigation and site report including at least the following information:	
___	___	___	X		a.	Regional and site specific geology and hydrogeology;
___	___	___	X		b.	Direction and rate of ground water and surface water flow including seasonal variations;
___	___	___	X		c.	Background quality of ground water and surface water;
___	___	___	X		d.	Any on-site hydraulic connections between aquifers;
___	___	___	X		e.	Site stratigraphy and aquifer characteristics for confining layers, semi-confining layers, and all aquifers below the landfill site that may be affected by the landfill;
___	___	___	X		f.	Site topography and soil characteristics;
___	___	___	X		g.	Inventory of all public and private water wells within a one-mile radius of the landfill including well top of casing and bottom elevations, name of owner, age and usage of each well, stratigraphic unit screened, well construction technique and static water level;
___	___	___	X		h.	Description of topography, soil types and surface water drainage systems;
___	___	___	X		i.	An inventory of all public and private water wells within one mile of the landfill.
___	___	___	X		j.	Existing contaminated areas on landfill site.
___	___	___	X	2.	Report signed, sealed and dated by PE or PG.	

I. GEOTECHNICAL INVESTIGATION REQUIREMENTS (17-701.420,FAC)

S	LOCATION	N/A	N/C		
				1.	Submit a geotechnical site investigation report defining the engineering properties of the site including at least the following:
			X	a.	Description of subsurface conditions including soil stratigraphy and ground water table conditions;
			X	b.	Investigate for the presence of muck, previously filled areas, soft ground, lineaments and sink holes;
			X	c.	Estimates of average and maximum high water table across the site;
				d.	Foundation analysis including:
X	Appendix C			(1)	Foundation bearing capacity analysis;
X	Appendix C			(2)	Total and differential subgrade settlement analysis;
X	Appendix I			(3)	Slope stability analysis;
			X	e.	Description of methods used in the investigation and includes soil boring logs, laboratory results, analytical calculations, cross sections, interpretations and conclusions;
			X	f.	An evaluation of fault areas, seismic impact zones, and unstable areas as described in 40 CFR 258.13, 40 CFR 258.14 and 40 CFR 258.15
			X	2.	Report signed, sealed and dated by PE or PG.

J. VERTICAL EXPANSION OF LANDFILLS (17-701.430,FAC)

S	LOCATION	N/A	N/C		
X	Section VII			1.	Describe how the vertical expansion shall not cause or contribute to leachate leakage from the existing landfill or adversely affect the closure design of the existing landfill;
		X		2.	Describe how the vertical expansion over unlined landfills will meet the requirements of Rule 17-701.400, FAC with the exceptions of Rule 17-701.430(1)(c),FAC;
X	Section VIIA Appendix C			3.	Provide foundation and settlement analysis for the vertical expansion;
X	Section VIIA Appendix C			4.	Provide total settlement calculations demonstrating that the final elevations of the lining system, that gravity drainage, and that no other component of the design will be adversely affected;
X	Section VIIB Appendix I			5.	Minimum stability safety factor of 1.5 for the lining system component interface stability and deep stability;
X	Section VIIC			6.	Provide documentation to show the surface water management system will not be adversely affected by the vertical expansion;
		X		7.	Provide gas control designs to prevent accumulation of gas under the new liner for the vertical expansion.

K. LANDFILL OPERATION REQUIREMENTS (17-701.500,FAC)

S	LOCATION	N/A	N/C		
X	Section VIIIA			1.	Provide documentation that landfill will have at least one trained operator during operation and at least one trained spotter at each working face; (17-701.500(1),FAC)
				2.	Provide a landfill operation plan including procedures for: (17-701.500(2), FAC)
X	Section VIIIA			a.	Designating responsible operating and maintenance personnel;
X	Section VIIIB			b.	Contingency operations for emergencies;
X	Section VIIIC			c.	Controlling types of waste received at the landfill;
X	Section VIIID			d.	Weighing incoming waste;
X	Section VIIIE			e.	Vehicle traffic control and unloading;
X	Section VIIIF			f.	Method and sequence of filling waste;
X	Section VIIIG			g.	Waste compaction and application of cover;
X	Section VIIIH			h.	Operations of gas, leachate, and stormwater controls;
X	Section VIII I			i.	Water quality monitoring

S	LOCATION	N/A	N/C		
X	Section VIII J			3.	Provide a description of the landfill operation record to be used at the landfill; details as to location of where various operational records will be kept (i.e. FDEP permit, engineering drawings, water quality records, etc.) (17-701.500(3),FAC)
X	Section VIII K			4.	Describe the waste records that will be compiled monthly and provided to the Department quarterly; (17-701.500(4),FAC)
X	Section VIII L			5.	Describe methods of access control; (17-701.500(5),FAC)
X	Section VIII M			6.	Describe load checking program to be implemented at the landfill to discourage disposal of unauthorized wastes at the landfill; (17-701.500(6),FAC)
				7.	Describe procedures for spreading and compacting waste at the landfill that include: (17-701.500(7),FAC)
X	Section VIII N			a.	Waste layer thickness and compaction frequencies;
X	*			b.	Special considerations for first layer of waste placed above liner and leachate collection system;
X	*			c.	Slopes of cell working face and side grades above land surface, planned lift depths during operation;
X	*			d.	Maximum width of working face;
				e.	Description of type of initial cover to be used at the facility that controls:
X	*			(1)	Disease vector breeding/animal attraction
X	*			(2)	Fires
X	*			(3)	Odors
X	*			(4)	Blowing litter
X	*			(5)	Moisture infiltration
X	*			f.	Procedures for applying initial cover including minimum cover frequencies;
X	*			g.	Procedures for applying intermediate cover;
X	*			h.	Time frames for applying final cover;
X	*			i.	Description of litter policing methods;
X	*			j.	Erosion control procedures.

* Section VIII N

S	LOCATION	N/A	N/C		
				8.	Describe operational procedures for leachate management including; (17-701.500(8),FAC)
X	Section VIII O			a.	Leachate level monitoring, sampling, analysis and data results submitted to the Department;
X	*			b.	Operation and maintenance of leachate collection and removal system, and treatment as required;
X	*			c.	Procedures for managing leachate if it becomes regulated as a hazardous waste;
X	*			d.	Agreements for off-site discharge and treatment of leachate;
X	*			e.	Contingency plan for managing leachate during emergencies or equipment problems;
X	*			f.	Procedures for recording quantities of leachate generated in gal/day;
X	*			g.	Procedures for comparing precipitation experienced at the landfill with leachate generation rates.
X	Section VIII Q			9.	Describe routine gas monitoring program for the landfill as required by Rule 17-701.400(10),FAC; (17-701.500(9),FAC)
X	Section VIII R			10.	Describe procedures for operating and maintaining the landfill stormwater management system to comply with the standards of Chapters 17-3, 17-302 and 17-25, FAC; (17-701.500(10),FAC)
				11.	Equipment and operation feature requirements; (17-701.500(11),FAC)
X	Section VIII S			a.	Sufficient equipment for excavating, spreading, compacting and covering waste;
X	Section VIII S			b.	Reserve equipment or arrangements to obtain additional equipment within 24 hours of breakdown;
X	Section VIII T			c.	Communications equipment;
X	**			d.	Personnel shelter and sanitary facilities, first aid equipment;
X	**			e.	Dust control methods;
X	**			f.	Fire protection capabilities and procedures for notifying local fire department authorities in emergencies;
X	**			g.	Litter control devices;
X	**			h.	Signs indicating operating authority, traffic flow, hours of operation, disposal restrictions.

* Section VIII O
** Section VIII T

S	LOCATION	N/A	N/C		
X	Section VIII U			12.	Provide a description of all-weather access road, inside perimeter road and other roads necessary for access which shall be provided at the landfill; (17-701.500(12),FAC)
				13.	Additional record keeping and reporting requirements; (17-701.500(13),FAC)
X	Section VIII V			a.	Records used for developing permit applications and supplemental information maintained for the design period of the landfill;
X	Section VIII V			b.	Monitoring information, calibration and maintenance records, copies of reports required by permit maintained for at least 10 years;
X	Section VIII V			c.	Background water quality records shall be maintained for the design period of the landfill;
X	Section VIII V			d.	Maintain annual estimates of the remaining life of constructed landfills and of other permitted areas not yet constructed and submit this estimate annually to the Department.

L. WATER QUALITY AND LEACHATE MONITORING REQUIREMENTS (17-701.510, FAC)

S	LOCATION	N/A	N/C		
X	Proposed modification only. *			1.	Water quality and leachate monitoring plan shall be submitted describing the proposed ground water, surface water and leachate monitoring systems and shall meet at least the following requirements;
			X	a.	Based on the information obtained in the hydrogeological investigation and signed, dated and sealed by the PG or PE who prepared it; (17-701.510(2)(a),FAC)
			X	b.	All sampling and analysis preformed by organizations having Department approved Comprehensive Quality Assurance Plans; (17-701.510(2)(b),FAC)
				c.	Ground water monitoring requirements; (17-701.510(3),FAC)
			X	(1)	Detection wells located downgradient from and within 50 feet of disposal units;
			X	(2)	Downgradient compliance wells as required;
			X	(3)	Background wells screened in all aquifers below the landfill that may be affected by the landfill;
			X	(4)	Location information for each monitoring well;
			X	(5)	Well spacing no greater than 500 feet apart for downgradient wells and no greater than 1500 feet apart for upgradient wells unless site specific conditions justify alternate well spacings;
			X	(6)	Well screen locations properly selected;
			X	(7)	Procedures for properly abandoning monitoring wells;
		X		(8)	Detailed description of detection sensors if proposed.
				d.	Surface water monitoring requirements; (17-701.510(4),FAC)
			X	(1)	Location of and justification for all proposed surface water monitoring points;
			X	(2)	Each monitoring location to be marked and its position determined by a registered Florida land surveyor;
X	*			e.	Leachate sampling locations proposed;(17-701.510(5),FAC)

* Appendix K contains a review of the existing monitoring plan and proposed modifications to the plan.

S	LOCATION	N/A	N/C	
				f. Routine sampling frequency and requirements; (17-701.510(6),FAC)
___	*	___	___	(1) Background ground water and surface water sampling and analysis requirements;
___	*	___	___	(2) Leachate semi-annual and annual sampling and analysis requirements;
___	*	___	___	(3) Detection well semi-annual sampling and analysis requirements;
___	*	___	___	(4) Compliance well sampling and analysis requirements;
___	*	___	___	(5) Surface water sampling and analysis requirements.
___	*	___	___	g. Describe procedures for implementing assessment monitoring and corrective action as required; (17-701.510(7),FAC)
___	*	___	___	h. Water quality monitoring report requirements; (17-701.510(9),FAC)
___	*	___	___	(1) Semi-annual report requirements;
___	*	___	___	(2) Bi-annual report requirements signed, dated and sealed by PG or PE.

* Appendix K contains a review of the existing monitoring plan and proposed modifications to the plan.

M. SPECIAL WASTE HANDLING REQUIREMENTS (17-701.520, FAC)

S	LOCATION	N/A	N/C		
		X		1.	Describe procedures for managing motor vehicles; (17-701.520(1),FAC)
X	Section X C			2.	Describe procedures for landfilling shredded waste; (17-701.520(3),FAC)
X	Section X A			3.	Describe procedures for asbestos waste disposal; (17-701.520(4),FAC)
X	Section X B			4.	Describe procedures for contaminated soil disposal; (17-701.520(5), FAC)

N. LANDFILL FINAL CLOSURE REQUIREMENTS (17-701.600,FAC)

S	LOCATION	N/A	N/C		
				1.	Closure schedule requirements; (17-701.600(2),FAC)
X	Section XI A			a.	Documentation that a written notice including a schedule for closure will be provided to the Department at least one year prior to final receipt of wastes;
X	Section XI A			b.	Notice to user requirements within 120 days of final receipt of wastes;
X	Section XI A			c.	Notice to public requirements within 10 days of final receipt of wastes.
				2.	Closure permit general requirements; (17-701.600(3),FAC)
		X		a.	Application submitted to Department at least 90 days prior to final receipt of wastes;
				b.	Closure plan shall include the following:
X	Section XI			(1)	Closure report;
X	Section XI B			(2)	Closure design plan;
X	Drawing Nos. 14 & 15 & Section XI D			(3)	Closure operation plan;
X	Section XI D			(4)	Closure procedures;
X	Section XI E			(5)	Plan for long term care;
X	Section XI F			(6)	A demonstration that proof of financial responsibility for long term care will be provided.

S	LOCATION	N/A	N/C		
				3.	Closure report requirements; (17-701.600(4),FAC)
				a.	General information requirements;
		X		(1)	Identification of landfill;
		X		(2)	Location, description and vicinity map;
		X		(3)	Total acres of disposal areas and landfill property;
		X		(4)	Legal property description;
		X		(5)	History of landfill;
		X		(6)	Identification of types of waste disposed of at the landfill.
		X		b.	Geotechnical investigation report and water quality monitoring plan required by Rule 17-701.330(4),FAC;
		X		c.	Land use information report indicating: identification of adjacent landowners; zoning; present land uses; and roads, highways right-of-way, or easements.
		X		d.	Report on actual or potential gas migration at landfills containing biodegradable wastes including detailed description of test and investigation methods used;
		X		e.	Report assessing the effectiveness of the landfill design and operation including results of geotechnical investigations, surface water and storm water management, gas migration and concentrations, condition of existing cover, and nature of waste disposed of at the landfill;
				4.	Closure design requirements to be included in the closure design plan: (17-701.600(5),FAC)
X	Drawing Nos. 14 & 15			a.	Plan sheet showing phases of site closing;
X	Drawing Nos. 5 & 9			b.	Drawings showing existing topography and proposed final grades;
X	Section VI C Drawing Nos. 14 & 15			c.	Provisions to close units when they reach approved design dimensions;
X	Drawing No. 9			d.	Final elevations before settlement;
X	Drawing Nos. 20 & 21			e.	Side slope design including benches, terraces, down slope drainage ways, energy dissipators and discussion of expected precipitation effects;

S	LOCATION	N/A	N/C			
				f.		Final cover installation plans including:
X	Appendix M				(1)	CQA plan for installing and testing final cover;
X	Section VI C Drawings 14 & 15				(2)	Schedule for installing final cover after final receipt of waste;
X	Section XI				(3)	Description of drought-resistant species to be used in the vegetative cover;
X	Drawing No. 9				(4)	Top gradient design to maximize runoff and minimize erosion;
X	Appendix M				(5)	Provisions for cover material to be used for final cover maintenance.
				g.		Final cover design requirements:
X	Drawing Nos. 20 & 21				(1)	Protective soil layer design;
X	Drawing Nos. 20 & 21				(2)	Barrier soil layer design;
X	Drawing Nos. 20 & 21				(3)	Erosion control vegetation;
X	Drawing Nos. 20 & 21				(4)	Geomembrane barrier layer design.
	Existing Stormwater System			h.		Proposed method of stormwater control;
	Fenced Site			i.		Proposed method of access control;
X	Section XI C			j.		Description of proposed final use of the closed landfill, if any;
				5.		Closure operation plan shall include: (17-701.600(6),FAC)
		X		a.		Detailed description of actions which will be taken to close the landfill;
		X		b.		Time schedule for completion of closing and long term care;
		X		c.		Describe proposed method for demonstrating financial responsibility;
		X		d.		Indicate any additional equipment and personnel needed to complete closure.
		X		e.		Development and implementation of the water quality monitoring plan required in Rule 17-701.510, FAC.
		X		f.		Development and implementation of routine gas monitoring program required in Rule 17-701.400(10)(c), FAC.
		X		6.		Justification for and detailed description of procedures to be followed for temporary closure of the landfill, if desired; (17-701.600(7),FAC)

. **CLOSURE PROCEDURES** (17-701.610,FAC)

S	LOCATION	N/A	N/C		
		X		1.	Survey monuments; (17-701.610(2),FAC)
		X		2.	Final survey report; (17-701.610(3),FAC)
		X		3.	Certification of closure construction completion; (17-701.610(4),FAC)
		X		4.	Declaration to the public; (17-701.610(5),FAC)
		X		5.	Official date of closing; (17-701.610(6),FAC)
		X		6.	Use of closed landfill areas; (17-701.610(7),FAC)

P. **LONG TERM CARE REQUIREMENTS** (17-701.620,FAC)

X	Section XI E			1.	Right of property access requirements; (17-701.620(4),FAC)
X	Section XI E			2.	Successors of interest requirements; (17-701.620(5),FAC)
X	Section XI E			3.	Requirements for replacement of monitoring devices; (17-701.620(7),FAC)
		X		4.	Completion of long term care signed and sealed by professional engineer (17-701.620(8), FAC).

Q. **FINANCIAL RESPONSIBILITY REQUIREMENTS** (17-701.630,FAC)

	Section XI F Appendix M			1.	Provide cost estimates for closing, long term care, and corrective action costs estimated by a PE for a third party performing the work, on a per unit basis, with the source of estimates indicated; (17-701.630(3)&(7), FAC).
X	Section XI F			2.	Describe procedures for providing annual cost adjustments to the Department based on inflation and changes in the closing, long-term care, and corrective action plans; (17-701.630(4)&(8), FAC).
X	Escrow Account			3.	Describe funding mechanisms for providing proof of financial assurance and include appropriate financial assurance forms; (17-701.630(5), (6), & (9), FAC).

R. **CLOSURE OF EXISTING LANDFILLS** (17-701.640, FAC)

		X		1.	Demonstration that facility does not pose a bird hazard to aircraft as specified in Rule 17-701.320(12)(b), FAC.
		X		2.	Demonstration that facility does not restrict the flow of the 100-year flood, reduce water storage capacity or result in wash-out of solid waste as specified in Rule 17-701.340(4)(b), FAC.

S	LOCATION	N/A	N/C		
		X		3.	Demonstration that facility is not located in a fault area, seismic zone or unstable area as specified in Rule 17-701.420(1)(c), FAC.
				4.	Request for extension of closure criteria as specified in Rule 17-701.640(2)(a) & (2)(b), FAC.
		X			a. Demonstration of no alternative disposal capacity.
		X			b. Demonstration of no threat to human health or the environment.

S. **MATERIALS RECOVERY FACILITY REQUIREMENTS** (17-701.700,FAC)

S	LOCATION	N/A	N/C		
				1.	Proof of posting a performance bond payable to the Department to cover closing costs, if required; (17-701.700(4),FAC)
				2.	Materials recovery facility requirements; (17-701.700,FAC)
					a. Submit information required in Rule 17-701.320,FAC
					b. Submit an engineering report including the following:
					(1) Description of the solid waste proposed to be collected, stored, processed or disposed;
					(2) Projection with assumptions for waste types and quantities expected in future years;
					(3) Description of operation and functions of all processing equipment with design criteria and expected performance;
					(4) Description of flow of solid waste, expected regular facility operations, procedures for start up and shut down, potential safety hazards and control methods including fire protection;
					(5) Description of loading, unloading, and processing areas;
					(6) Identification and capacity of temporary on-site storage areas for materials handled and provisions for solid waste and leachate containment;
					(7) Identification of potential ground water and surface water contamination;

S	LOCATION	N/A	N/C	
				(8) Plan for disposal of unmarketable recyclables and residue and contingencies for waste handling during breakdowns.
				c. Submit the following operational information:
				(1) **Operation and maintenance manual;**
				(2) **Waste control plan to manage unauthorized wastes;**
				(3) Contingency plan for emergencies;
				(4) Closure plan including the following:
				(a) Notification to Department 180 days prior to closure;
				(b) Procedures for removal of all waste within 30 days of receipt of final waste;
				(c) Completion of closure activities within 180 days of receipt of final waste and notification to the Department that closure is complete.

T. **CERTIFICATION BY APPLICANT AND ENGINEER OR PUBLIC OFFICER**

A. Applicant

The undersigned applicant or authorized representative of Trail Ridge Landfill, Inc. is aware that statements made in this form and attached information are an application for a Solid Waste Constr./Operation Permit from the Florida Department of Environmental Regulation and certifies that the information in this application is true, correct and complete to the best of his knowledge and belief. Further, the undersigned agrees to comply with the provisions of Chapter 403, Florida Statutes, and all rules and regulations of the Department. It is understood that the Permit is not transferable, and the Department will be notified prior to the sale or legal transfer of the permitted facility.

Signature of Applicant or Agent

John Van Gessel - Vice President and General Counsel
Name and Title

Date: Oct 24, 1996

Attach letter of authorization if agent is not a governmental official, owner, or corporate officer.

B. Professional Engineer Registered in Florida or Public Officer as required in Section 403.707 and 403.707(5), Florida Statutes.

This is to certify that the engineering features of this solid waste management facility have been designed/examined by me and found to conform to engineering principals applicable to such facilities. In my professional judgement, this facility, when properly maintained and operated, will comply with all applicable statutes of the State of Florida and rules of the Department. It is agreed that the undersigned will provide the applicant with a set of instructions of proper maintenance and operation of the facility.

Juanitta Bader Clem
Signature

3131 St. Johns Bluff Rd. South
Mailing Address

Juanitta Bader Clem, P.E.
Name and Title (please type)

Jacksonville, Florida 32246
City, State, Zip Code

#43245
Florida Registration Number
(please affix seal)

(904) 642-8990
Telephone Number

Date: Oct 28, 1996

TRAIL RIDGE LANDFILL
PERMIT DOCUMENTS FOR
OPERATION AND CONSTRUCTION RENEWAL

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Juanita Baderem
Oct. 28, 1996

TRAIL RIDGE LANDFILL
PERMIT DOCUMENTS FOR
OPERATION AND CONSTRUCTION RENEWAL

I. INTRODUCTION

A. PURPOSE

The purpose of the Operation and Construction Report is to renew the permit for the continued solid waste disposal for the City of Jacksonville service area Trail Ridge Landfill site is located on approximately 978 remote acres in the sparsely populated southwest area of Duval County, Florida. The landfill is owned by the City of Jacksonville, Florida and is operated by Trail Ridge Landfill, Inc (a Waste Management Company)

The purpose of this Operation and Construction Report is to describe the method of continued operation, construction and vertical expansion of Trail Ridge Landfill. Addressed in this report are the type of wastes accepted at the landfill, operation plan, leachate management, stormwater management, environmental media monitoring, and closure plan as well as the construction of the remainder of the landfill and vertical expansion of the landfill. This report also addresses the operation of the on-site waste tire processing facility

B SUPPLEMENTAL DOCUMENTS

This Operation and Construction Report is supplementary to the Permit Drawings; prepared by England, Thims & Miller, Inc in concert with Trail Ridge Landfill, Inc.

This Operation and Construction Report and its associated Permit Drawings have been developed in accordance with the requirements of the Florida Department of Environmental Protection (the Department) and the St Johns River Water Management District (SJRWMD)

C GENERAL OBJECTIVES

The intent of this Operation and Construction Report, along with its associated Permit Drawings, is to provide for the continued operation, construction and vertical expansion of the Trail Ridge Landfill, in accordance with Waste Management, Inc. corporate standards and applicable Federal, State, and local requirements The primary design objectives are the control of leachate and surface water, and the phased construction, operation and closure of the landfill. To achieve these requirements, a double geomembrane liner system, leachate collection and stormwater containment system, and surface water management system were installed Further, phasing plans for operation and closure have been developed and implemented.

This report includes the continued operation of the on-site waste tire processing facility.

II. GENERAL

A. SITE DESCRIPTION

Trail Ridge Landfill is located in Sections 18, 19, 20 and 21, Township 3 South, Range 23 East. Trail Ridge Landfill is owned by the City of Jacksonville, Florida and operated by Trail Ridge Landfill, Inc (a Waste Management Company). The total land area is approximately 978 acres of which approximately 148 acres will be used for this Class I landfill See the Site Plan on Permit Drawing No. 4

A recent aerial photograph and topographic survey of the site are included in the Permit Drawings (Drawing Nos 2 and 5) Evidence that the landfill is in conformance with local zoning is contained in Appendix A This zoning exception is in the process of being updated to accommodate the vertical expansion as well as potential expansion The updated zoning exception will be provided to the Department, upon receipt

This Class I landfill includes five phases, Phase I through Phase V, for the construction of the liner system Phases I and II were constructed in six sections The first section (Phase IA) was constructed in 1992 and certified on May 15, 1992. Whereas, Phase IB, was certified on June 22, 1992, Phases IIA and IIB were certified on March 4, 1993, and Phases IC and IIC were certified on June 1, 1993 This construction of Phases I and II included construction of the stormwater treatment facility for the entire landfill as well as the conveyance system for these phases

Phase IIIA was constructed in 1995 and certified on September 29, 1995. Phases IIIB, IVA and IVB are currently under construction and certification is forthcoming. This construction included the completion of the stormwater conveyance system for the entire landfill (with the exception of the downcomer system which is associated with closure)

Phases IIIC, IVC and V have not been constructed and based upon the current rate of waste receipt, they are anticipated to be constructed within the next five years

B. RECYCLING EFFORTS

The City of Jacksonville has a separate Materials Recovery Facility (MRF) located at 7580 Phillips Highway in Jacksonville   Recyclable materials are picked up curbside and processed at the MRF for recycling. The materials recycled include aluminum, glass, newspaper, HDPE, steel, cardboard, magazines/catalogs, paper bags and PET The City also has igloos for drop-off of recyclable materials and provides commercial recycling promotion throughout the City

The City of Jacksonville recycles approximately 43 percent of their waste stream according to the City of Jacksonville, 1994/95 Solid Waste Annual Report

C HISTORY

There have been no violations with regard to solid waste operations by Trail Ridge Landfill, Inc

D. AIRPORT PROXIMITY

Trail Ridge Landfill is not located within 10,000 feet of a licensed and operating airport runway used by turbine powered aircraft, or within 5,000 feet of licensed and operating airport runway used only by piston engine aircraft. Please see the clearance letter from the Federal Aviation Administration (FAA) provided in Appendix B as provided in the original permit application. This clearance will be reaffirmed with the FAA and a copy of such reaffirmation will be provided to the Department.

E LOCATION CONSIDERATIONS

1. Foundation

A foundation analysis was conducted in 1990 as part of the original construction permit Since this application includes a vertical expansion of the landfill, the foundation analysis has been updated and is provided in Appendix C. The results of the analysis indicate that the settlement due to the landfill construction will range from 6 inches at the toe of the landfill to approximately 21 inches at the center, which will occur incrementally during operation The results indicate that the site can provide the structural support for the landfill and the liner integrity will not be compromised by this settlement

2. Floodplain

The landfill is located above the 100-year floodplain as shown on the Floodplain Map in Appendix D

3. Proximity to Property Boundary

At the closest point, the landfill (measured from the toe of the proposed final cover slope) is more than 200 feet from the property boundary as shown on Permit Drawing No 4

4 Screening from Public View

The landfill is located over one mile from the nearest highway and is thereby screened from public view Further, the surrounding property is currently utilized for silviculture purposes. (See the Aerial Photograph on Permit Drawing No 2)

III. TYPES AND QUANTITY OF WASTES ACCEPTED

The type of waste accepted at Trail Ridge Landfill typically consist of residential, office, commercial, agricultural, and industrial wastes The materials accepted for disposal include garbage, refuse, treated biohazardous waste, construction and demolition debris, shredded waste tires, asbestos, water treatment sludge, industrial sludge, domestic sludge and non-hazardous special waste The waste stream is monitored as each vehicle enters the site and passes by the ticket office/scale house operator and again at the working face The waste stream is monitored for prohibited wastes such as hazardous waste, non-containerized liquid wastes, and wastes prohibited by Rule 62-701 300(8), F.A C Incoming waste quantities are determined by the use of scales

The site currently serves the City of Jacksonville, Duval County and the neighboring environs This service area has an approximate population of 732,034 persons (1995). An average annual receipt of approximately 806,000 tons is anticipated. This is based on existing measured tonnage The total remaining airspace available for waste is approximately 21 0 million cubic yards (as of July 1, 1996) This volume will accommodate approximately 13 7 million tons of waste (based upon a density of 1,300 lb/cubic yard) It is anticipated that the landfill has a remaining life of approximately 17 years (based upon a receipt rate of 806,000 tons/year)

Currently, the cover material (a clayey, sand material) for the landfill comes from off site. This material is transported to the site and stockpiled on the site adjacent to the working face

IV. FACILITY DESIGN

Trail Ridge Landfill has been designed to meet or exceed the requirements of Chapter 62-701, F.A.C. Details of the design are included in the Permit Drawings. These plans include all maps, plan sheets, permit drawings, cross-sections and aerial photographs. All Permit Drawings have been signed and sealed by a Florida Registered Professional Engineer

A. AERIAL PHOTOGRAPH

An aerial photograph can be found on Permit Drawing No 2 The aerial depicts all land uses and zoning within one mile of the facility.

B. PLOT PLAN

1. Dimensions and Legal Descriptions

A dimensioned site plan is contained on Permit Drawing No 4. The boundary survey and legal description of the site have not changed and were provided to the Department

2. Location and Depth of Soil Borings

The location and depth of soil borings were provided in the original Hydrogeological Investigation and Groundwater Monitoring Plan prepared by Golder & Associates and submitted as part of the original permit documents No new borings have been drilled as part of the permit renewal

3. Plan of Disposal Area

The plan for disposal areas is contained on the Base Grading Plan and Liner Phasing Plan (Permit Drawing Nos 6 and 7)

4 Fencing

The landfill site is fenced in its entirety. See Permit Drawing No 4 for fence and gate locations

5 Cross-Sections

Cross-sections of the original and proposed final elevations are contained on Permit Drawing No 10

6. Operational (Fill) Areas

The location of the current operational areas are shown on Permit Drawing Nos. 5, 6 and 7.

C. TOPOGRAPHIC MAPS

1. Contour Intervals

A topographic map with 2 foot contour intervals on NGVD datum is contained on the Existing Topographic plan (Permit Drawing No 5)

2. Proposed Fill Areas

The proposed fill areas are delineated on the Liner Phasing Plan (Permit Drawing No 7) and the Fill Phasing Plans (Permit Drawing Nos 11 - 13).

3. Borrow Areas

There are no borrow areas on the existing landfill site

4. Access Road

The primary access road to the site consists of a two laned paved industrial roadway which runs from U S 301 west to the ticket office/scale house This paved roadway continues on-site to the perimeter road which encircles the landfill The perimeter road is an all weather stabilized roadway that provides continuous access to all landfill locations.

5. Grades

The Master Drainage Plan is included as Permit Drawing No 8 The site is designed to provide positive drainage of stormwater runoff from the landfill to the perimeter ditch and then directly into the stormwater management pond for treatment prior to discharge Special design features have been incorporated to segregate clean stormwater from any contaminated stormwater which is handled as leachate

6 Cross-Section of Waste Lift

A typical section is contained on Permit Drawing No 13

7. Special Drainage Devices

As a part of closure (including close-as you-go), downcomer pipes are installed in the side slopes to carry the stormwater runoff from the drainage terraces on the side slopes to drainage structures at the toe of the slope These drainage structures discharge to the perimeter ditch and ultimately, the stormwater management pond These drainage structures which connect to downcomer piping have been designed with baffles to prevent stormwater from exiting the structures The Master Drainage Plan is contained on Permit Drawing No 8 and details of the structures are contained on Permit Drawing Nos 20 and 21

8 Fencing

The site is fenced as shown on the Site Plan (Permit Drawing No. 4).

9 Equipment Facilities

Facilities for equipment maintenance and storage have been provided as shown on the Site Plan (Permit Drawing No 4)

10. Additional Uses

a Waste Tire Processing Area

Tires are temporarily stored and when sufficient tires have accumulated, a portable shredder is brought to the site to shred the tires with the shredded remains being landfilled Alternatively, the tires may be hauled off-site to a permitted facility for recycling/disposal

D. ENVIRONMENTAL MEDIA MONITORING

The laboratory analysis of the environmental media monitoring (ground water, surface water and leachate) is conducted by Southeastern Environmental Laboratory, Inc. Their Department CQA Plan number is 880633G.

E. FINANCIAL RESPONSIBILITY

The City of Jacksonville (as the landfill owner) provides financial responsibility for the closure and long-term care of the landfill by means of a Landfill Management Escrow Account

V. LANDFILL PERFORMANCE AND DESIGN STANDARDS

The design of the landfill is based on three fundamental principals These are containment, collection and monitoring Containment is accomplished by a state-of-the-art liner system which includes both primary and secondary liner systems Collection of leachate is accomplished through the primary leachate collection piping system as well as the secondary leak detection/leachate collection system Monitoring of these systems occurs with the sampling and analyses of the leachate and ground water as outlined in the Environmental Media Monitoring Plan

A. GENERAL LINER REQUIREMENTS

1 Construction Materials

The double liner system is composed of the following from top to bottom (See Permit Drawing No 16)

<u>Primary</u>

a. 24" Protective Soil Cover ($k \geq 1 \times 10^{-3}$ cm/sec)
b Geotextile Fabric
c. Drainage Layer (Geonet)
d. 60 mil High Density Polyethylene (HDPE) Primary Liner
e. Geosynthetic Clay Liner

<u>Secondary</u> (Leak Detection System)

a. Geotextile Fabric
b. Drainage Layer (Geonet)
c. 60 mil HDPE Secondary Liner

<u>Subgrade</u>

a 6" Compacted Subgrade ($k \leq 1 \times 10^{-5}$ cm/sec)

This double composite liner system insures containment of leachate to protect the ground water resource The three low permeability layers and two drainage layers provide unsurpassed reliability for a modern Class I Landfill An Evaluation of the High Density Polyethylene Chemical Compatibility was provided as part of the original permit documents.

2 Base Support

At the design height (210 feet above natural ground which includes the proposed vertical expansion), the base of the landfill will support the applied loads with differential settlement of approximately 15 inches based upon a in-place density of 70 pounds per cubic foot (See the updated Foundation Analysis as contained in Appendix C) The landfill base grades have been designed to accommodate this settlement by providing a cross-slope of 2% and a minimum leachate collection trench slope of 0.85%

3 Liner Grades

The base of the landfill is design to be above the seasonal high ground water table and therefore, is not subject to fluctuations of the ground water The cross sections of the landfill which includes natural ground versus proposed base grades are contained on Permit Drawing No. 10.

4 Liner Coverage

The liner system covers the entire base of refuse disposal area as well as the leachate containment facilities (storage tanks with concrete containment). See Permit Drawing Nos 6 and 7

B. DOUBLE LINER SYSTEM

1. Double Liner System Design

The double liner system includes both primary and secondary geomembrane liners. These shall be 60 mil HDPE liners with a maximum water vapor transmission rate of 0.24 g/m^2 x day

The Hydrologic Evaluation of Landfill Performance (HELP) Model, Version 3, was used to calculate the leachate generation during landfill operation after the first 10-foot lift of waste is placed and covered with daily cover (6 inches) The results indicate that on the peak day, less than 0.1 inches of leachate head accumulates over the liner during this worst case time frame (See the HELP Model results in Appendix E). Using the impingement rate from the HELP Model results and Moore's Equation, the primary leachate collection and removal system above the primary liner (the primary geonet) will limit the leachate head to less than the thickness of this drainage layer (the geonet with a minimum thickness of 0.2 inches) during routine landfill operations, except in the sumps and leachate collection trenches These calculations are also contained in Appendix E. Note that the design cross slope of 2% has been adjusted to 1 93% to accommodate the predicted settlement upon completion of filling

The double liner system also includes a leak detection and secondary leachate collection system between the primary and secondary liners. As shown in the calculations contained in Appendix E, the secondary leak detection and collection system above the secondary liner will limit the leachate head to less than the thickness of the drainage layer (the geonet with a minimum thickness of 0 2 inches) during routine landfill operations, except in the sumps and leachate collection trenches.

The secondary liner is placed directly on a compacted subgrade which is a minimum of six inches in thickness and has a saturated hydraulic conductivity no greater than 1 x 10^{-5} cm/sec

C LINER SYSTEM SPECIFICATIONS AND QUALITY ASSURANCE

The standards for the double synthetic liner system are contained in the following:

1 "Quality Assurance Manual for the Installation of Geosynthetic Lining Systems"
2. Project Specific Addendum to Quality Assurance Manual

Copies of the Quality Assurance Manual and Project Specific Addendum are contained in Appendix F

D LEACHATE COLLECTION AND REMOVAL SYSTEM

1 Construction Materials

The primary leachate collection system is composed of a drainage geonet laid on a 2% cross slope to an 8" HDPE perforated collection pipe laid in a trench (leachate collection trench) sloped at a minimum of 0.85% (See Permit Drawing No 6) The secondary leak detection and collection system consists of a geonet which also drains to the leachate collection trench The geonets and pipe are both HDPE which is chemically resistant to waste and leachate

2 Mechanical Properties

The basis of design for the geonet loading was 20,000 pounds per square foot (PSF) design loading with a transmissibility of 2 2 x 10^{-3} m^2/sec. This would allow a fill height of 416 feet. Actual loadings are projected to be a maximum of 14,700 PSF @ 210 feet of height above the geonet (based upon the proposed vertical expansion)

The leachate collection pipe is HDPE SDR 11 perforated pipe This pipe will support the proposed design load including the proposed vertical expansion The pipe strength calculations are contained in Appendix G.

3. Measures to Prevent Clogging

The leachate collection piping is accessible at both ends for cleaning via a clean-out High pressure flushing as well as mechanical cleaning can be used to remove any solids However, the primary method of preventing clogging is the gravel (aggregate) envelope which surrounds the collection pipe This gravel is wrapped in a filter fabric (geotextile) which prevents the infiltration of solids while allowing leachate to pass into the pipe. This gravel also provides a drainage media should the pipe become clogged (See Permit Drawing No 17 for design details)

4. Protective Soil Cover

A 24" layer of protective sand layer is provided above the primary drainage layer. This sand layer has a minimum hydraulic conductivity of 1 x 10^{-3} cm/sec. The sand provides drainage to the geonet as well as a protective layer for the double synthetic liner system

The sand for this protective soil laver is a clean, non-calcareous sand which is thereby chemically resistant to waste and leachate

5. Central Collection Point for Removal (Leachate Sumps)

a. Primary

All leachate collection pipes terminate at a leachate collection sump. The leachate collection sump consists of an 18" or 24" diameter HDPE perforated pipe (riser pipe) surrounded by an aggregate sump The 8" HDPE leachate collection pipe discharges directly into the riser pipe as well as the sump. Inside the riser pipe, a small submersible pump is installed Level sensors in the riser pipe are used to control the pump which removes leachate as it accumulates. The pumps are mounted on wheels and can easily be removed for maintenance See Permit Drawing Nos 17 and 18

b. Secondary - Leak Detection System

The leak detection system is constructed and operates similar to the primary collection system with the exception that the 8" HDPE perforated collection pipe is replaced with multiple layers of geonet. This modification is made based on the much smaller quantity of flow. Additionally, the layered geonet increases the constructability of the liner system All other components of this system are identical. See Permit Drawing No 17

E. LEACHATE STORAGE TANKS

1. Design

The leachate is pumped from each sump into a force main and to the leachate storage area where six existing fiberglass storage tanks provide temporary storage (five tanks for primary leachate storage and one tank for secondary leachate storage) Each tank has a storage capacity of 20,000 gallons See Permit Drawing No 19

The leachate storage tanks are surrounded by a concrete secondary containment basin which can hold 140 percent the total tanks volume plus one foot of free board These leachate handling facilities including the concrete containment basin underlain by the liner system

The leachate storage tanks are emptied as required by tanker with the leachate transported to a wastewater treatment plant for treatment and disposal

The secondary containment basin includes a sump and discharge pipe for draining stormwater from the basin The basin is drained of stormwater within 24 hours or when 10 percent of the storage capacity is reached, whichever occurs first The stormwater is discharged either to a leachate tanker or the stormwater management system, depending upon whether it has been contaminated with leachate

2. Overfill Prevention System

The existing tanks are equipped with an overfill prevention system which includes level sensors and gauges, high level alarms and automatic shutoff controls

3. Inspection and Corrective Action

The exterior of these fiberglass tanks are inspected weekly by the facility operator for leaks and maintenance deficiencies Since the tanks are fiberglass, an independent exterior inspection of the tanks (rather than an interior inspection per Rule 62-701.400 (6) (c) 9 , F.A C.) shall be performed at a minimum of every three years If the inspection reveals a tank or equipment deficiency, leak, or any other deficiency which could result in failure of the tank to contain leachate, remedial measures shall be taken immediately to eliminate the leak or correct the deficiency Inspection reports shall be maintained and made available to the Department upon request for the lifetime of the leachate storage system

F SURFACE WATER MANAGEMENT SYSTEM

The existing stormwater management system was permitted as part of the original Solid Waste Permit (SC16-184444) and constructed as part of the original construction This system was designed and constructed to accommodate a 25-year, 24-hour storm event and treat stormwater to meet the requirements of Rule 62-25, F A C

The stormwater management system is in the process of being redesigned to meet the wet detention criteria of Rule 40C-42 026(5), F.A.C A modification to the existing MSSW permit is provided in Appendix O. The stormwater management system was designed, constructed and will continue to detain a 25-year, 24-hour storm event and treat stormwater to meet the requirements of Rule 62-25 F A C The design high water in the pond due to a 25-year, 24-hour storm event was determined to be Elevation 110.0, whereas the perimeter swale below the toe of the landfill slope is at Elevation 118.7 at the lowest point. Therefore, stormwater from the 25-year, 24-hour storm event will not peak at or above the toe of the landfill slope Further, the facility was designed and constructed with perimeter swales and ditches to direct stormwater to the detention pond and away from the landfill, thereby preventing stormwater from coming into contact with waste

The primary objective of the surface water management system is to manage stormwater, provide required detention and treatment, and control discharge.

To prevent water contamination, refuse placement operations at the Trail Ridge Landfill follow an orderly sequence of steps, as described in the Operation Plan and outlined in the Permit Drawings

In summary, these activities consists of the following

1. Limit daily operations within an active sector for as long as practical

2. Maintain only a minimum active working face to allow for daily refuse placement

3. Apply daily cover to any exposed refuse as soon after disposal as practical

4. Final cover and seeding of any area completed to design grade as soon as practical

The above are practical measures implemented during daily operations to prevent stormwater contamination

G. GAS CONTROL SYSTEM

1. Gas Control System Design

The installation of the liner system will prohibit lateral migration of methane. Gas collection wells will be installed into the waste (but well above the liner and leachate collection system) as phases of the landfill receive final cover These wells will inhibit the accumulation of methane gas.

2. Odor Control

An active gas collection system design is provided in Appendix P. This system will connect the gas wells to an active collection system with blower and flare station This design will also include gas condensate collection and disposal methods

3 Gas Monitoring Program

Methane gas monitoring has been conducted quarterly since the site opened. To date, there have been no exceedences of the lower explosive limits Migration of methane gas outside of the landfill footprint is not anticipated to occur due to the design of the site The site has a double liner and a recompacted sub-base that is constructed near the natural ground elevation These factors make it extremely unlikely that methane gas would enter the subsurface and migrate laterally As mentioned above, five years of data indicates that gas migration is not occurring at the site Therefore, we propose to install permanent gas probes and monitor them on a semi-annual basis

The location of the permanent probes would be in the same general location as the barhole probes These locations and a detail of the permanent probes is provided in Appendix H The data collected from the probes would be submitted semi-annually with the ground water data

If methane gas levels exceed the lower explosive limits at the property boundary, Trail Ridge Landfill will

a. Immediately take all necessary steps to ensure protection of human health and notify the Department and

b. Within 7 days of detection, submit to the Department for approval a remediation plan for the methane gas releases. The plan shall describe the nature and extent of the problem and the proposed remedy. The remedy shall be completed within 60 days of detection unless otherwise approved by the Department

VI. CONSTRUCTION

A. PHASING PLAN

The landfill liner system has been developed in five phases (Phases I through V) with one surface water management facility as shown on the Liner Phasing Plan (Permit Drawing No 7) The Final Contour Plan for the landfill is presented on Permit Drawing No 9.

Phases I and II (Initial Construction Increment)

Phases I and II were previously constructed (including the stormwater pond) and are currently in operation Once these phases have been filled to design closure grades, the side slopes will be or have been closed in units (side slope units) as shown on Permit Drawing Nos 14 and 15

Phases IIIA, IIIB, IVA and IVB (Second Construction Increment)

Phase IIIA was constructed in 1995 (including the southern outfall into the stormwater pond) and is currently in operation

Phases IIIB, IVA and IVB are under construction and are anticipated to be certified complete in the fall/winter of 1996 This construction included the construction of the southern portion of the perimeter ditch and roadway around the landfill Therefore, future construction phases will be contained within an existing, controlled stormwater management system

Phases IIIC, IVC and V (Future Construction)

Within the five year permitting period, it is anticipated that these phases may be constructed (possibly, in more than one increment) Each increment of construction will proceed as follows

1. Site Preparation

   a. Site clearing of proposed liner area

   b. Rough grade to approximate base grade elevation

   c. Construct 6" compacted subgrade base ($k \leq 1 \times 10^{-5}$ cm/sec)

   d. Finish grading to base grade elevation

   e Install primary and secondary liner system

   f. Install the leachate collection system

   g. Install 24" of protective sand blanket

   h. Begin select waste placement and compaction with an initial four foot compacted layer, continue filling and placement to a height of 8' to 12'

2. Leachate Collection and Storage

   a. Install primary and secondary (detection) leachate collection sumps during liner installation

   b. Install pumps and construct the pump stations including vault boxes, level controls and piping to connect the leachate collection sumps (LCS) to the existing leachate storage tanks

3. Surface Water Management System

a. Maintain the existing stormwater management system (detention pond, structures, swales and ditches) as needed during construction

b. Construct and maintain temporary stormwater conveyance system as needed during construction

c. Clean existing stormwater management system, after construction is complete.

Future phases of the landfill liner construction will be a repeat of Items 1, 2 and 3

B FILL PHASING PLAN

The sequence of fill operations will initially correspond to the liner phasing, as described above The overall sequence of the fill operations are shown on Permit Drawing Nos 11, 12 and 13 As shown on the plans, the landfill will be initially filled to EL. 210± Then on the eastern half, the landfill will be filled to EL 270± which leaves access to the top from the south west corner and western slopes The next fill phase (the vertical expansion phase) is the filling of the eastern portion to EL 330± The final fill phase is filling the western slope (the operations access location) and the top area

C. CLOSURE PHASING PLAN

The closure phasing shall correspond to the fill phasing The Closure Phasing Plans are contained in Permit Drawing Nos 14 and 15. When side slope units have been filled to their final design grade, they shall be closed in a close-as-you-go fashion.

VII. VERTICAL EXPANSION

This application for permit renewal includes a vertical expansion on top of the landfill. This expansion includes raising the final grade from EL 285 to EL. 349±.

This proposed vertical expansion is not anticipated to cause or contribute leachate leakage from the landfill The closure design has been modified to include four additional terraces to accommodate the vertical rise of the expansion The expansion is not anticipated to adversely affect the closure design

A FOUNDATION ANALYSIS

The foundation analysis was updated to accommodate the proposed vertical expansion (See Appendix C) The maximum settlement due to the landfill construction including the vertical expansion was calculated to be approximately 21 inches at the center of the landfill The results of the analysis indicate that the site can provide structural support for the landfill and the liner integrity will not be compromised by this settlement

The foundation analysis includes the estimated settlement across the liner system at the center of the landfill Based upon these results, the cross slope was determined to be 1 93%, whereas the base design cross slope is 2.0%. This new cross slope was used to calculate the head on the liner system (both primary and secondary) The calculations are shown in Appendix E and indicate that the head on the liner system is within the regulations

B SLOPE STABILITY

A global stability analysis was performed in order to determine the potential for global shear failure and is provided in Appendix I The analysis indicates that the landfill configuration will be stable with an acceptable safety factor (at a minimum of 1.5)

C SURFACE WATER MANAGEMENT

The proposed vertical expansion is expansion over the top of the landfill and not expansion over existing side slopes Further, as stated above, the expansion shall include four additional side slope terraces to accommodate surface water management on the new vertical slopes These new terraces will be the same as the existing terraces including

1 2.5' in depth,
2. 15' in width,
3 1% minimum cross slope,
4 Underdrains in the bottom of the terraces, and
5 Downcomer pipes for drainage to the bottom of the slope.

D GAS CONTROL SYSTEM

The proposed vertical expansion will be directly on top of waste Since this expansion does not require a new liner between the existing waste and the expansion, it does not require any gas venting below such a new liner

VIII. OPERATION PLAN

A. OPERATION PERSONNEL AND HOURS OF OPERATION

The General Manager is responsible for the overall operation of the Trail Ridge Landfill The manager's responsibility is to assure that operations at the site are performed in accordance with the procedures outlined in this Operation Plan.

At least one certified operator shall be on-site during operating hours when the landfill receives waste Further, at least one spotter shall be at the working face at all times the landfill receives waste

The operating hours and site personnel are as follows

1 Hours of Operation

a	Normal Monday - Friday	6 00 A M to 7 00 P M
b	Normal Saturday	6 00 A M to 1·00 P M
c.	Maximum Hours	5 00 A M to 10.00 P M

If adjustment to these hours is necessary to accommodate the waste receipt rate, the Florida Department of Environmental Protection shall be notified.

2 Personnel

The site will be operated by sufficient personnel to properly dispose of the in-coming volume of waste This personnel shall include the General Manager, the Operations Manager, equipment operators and spotters This personnel may fluctuate depending upon waste receipt.

B. CONTINGENCY OPERATIONS

The on-site entrance road is an all-weather road The entrance road and administration area are paved The pavement extends beyond the ticket office/scale house to the perimeter road around the landfill The perimeter road is a stabilized limerock road Haul roads beyond this point shall be maintained for adverse weather condition usage

Emergency conditions at the facility may be created by a natural disaster (i.e. hurricane or tornado), flooding and fire. Waste is not normally delivered to the site during emergency conditions, however, the following procedures will be implemented with the imminent threat of a major storm

1. Initial cover shall be applied and compacted to all exposed waste

2. All landfill equipment shall be fueled and parked near natural wind screens, earthen mounds or tree areas

3. All lightweight signs and equipment shall be secured

The surface water management system allows disposal operations to continue during periods of inclement weather This shall include the utilization of temporary berms and ditches to drain stormwater away from the active face. The surface water management system provides control of flood events and provides for segregation of the stormwater from waste

In the event a natural disaster occurs in the area, operational hours may be extended as appropriate to meet the needs of the community and the Department shall be notified

C. WASTE CONTROL

The waste stream shall be monitored by the scale house operator, as each vehicle passes by the ticket office/scale house and then again at the working face by the spotter.

There shall be at least one spotter on the working face to observe the wastes disposed If any prohibited materials are found, they shall be given back to the hauler for disposal. If prohibited wastes are discovered and a hauler cannot be identified, the material shall be removed and properly disposed The only exception to this rule is waste that appears to be hazardous, whereas, the material will be isolated and the General Manager shall be notified immediately Once the General Manager has determined the type of material and proper disposal, he shall arrange for returning the material to its owner or provide proper disposal

D WEIGHING WASTE

All incoming waste shall be weighed and recorded on a daily basis at the on-site scales prior to disposal. The on-site scales include two scales for incoming vehicles and one scale for outgoing vehicles

E VEHICLE TRAFFIC CONTROL

Signs shall be provided to direct traffic to the disposal area The spotter shall direct incoming vehicles to their final disposal area

F. METHOD AND SEQUENCE OF FILLING WASTE

The working face shall be consistent with orderly traffic control, waste spreading, and compaction activities

Once the two feet of protective sand cover has been placed over the liner, the initial lift of waste shall be placed In general, the initial fill shall be placed from east to west in a 300 foot wide section that corresponds to the leachate collection area. Extreme care shall be taken during initial waste placement to prevent damage to the liner system

Site personnel shall take extreme care to assure that no large rigid objects are placed directly on the protective sand cover which could be pushed through and damage the liner or leachate collection system To further minimize potential damage to the liner by landfill equipment, the first lift shall be spread in a careful and orderly manner and shall be pushed downslope onto the initial two foot protective sand layer The placement of this initial waste shall be observed and documented

In the construction of subsequent lifts, waste shall be placed near the base of the working slope for working faces being pushed up or near the top of the working slope for working faces being pushed down It shall then be spread over the working face in uniform layers (approximately two feet thick) and compacted to approximately one foot in thickness

Typical refuse lifts shall be approximately eight to twelve feet high Working slopes shall not be allowed to be any steeper than three horizontal to one vertical

G. WASTE COMPACTION AND INITIAL COVER

Waste shall be spread in layers of approximately two (2) feet in thickness and compacted to approximately one (1) foot in thickness or as thin a layer as practical before the next layer is applied In general three to five passes with the compactor shall be made on each layer of refuse

Initial cover shall be placed in accordance with Rule 62-701.500(7)(e), F.A.C.

An intermediate cover of one (1) foot of compacted earth in addition to the six (6) inch initial cover shall be applied within seven (7) days of cell completion, if final cover or an additional lift is not to be applied within 180 days of cell completion. All or part of this intermediate cover may be removed before placing additional waste or installing final cover.

Final cover shall be applied to those portions of the landfill which have been filled with waste to the extent of designed dimensions The final cap and cover system including permanent vegetation shall be placed over the entire surface of each completed solid waste disposal unit within 180 days after final waste placement. Solid waste disposal units are shown on Permit Drawing Nos. 14 and 15

The final cover for the side slopes consists of the following section from top to bottom

- 24" Vegetative Cover Layer
- 12" Compacted Clay Layer ($k \leq 1 \times 10^{-7}$ cm/sec)
- 12" Intermediate Soil Layer

The final cover for the top area consists of the following section from top to bottom

- 12" Vegetative Cover Layer
- 12" Sand Layer
- 40 mil HDPE Liner
- 12" Intermediate Soil Layer

Sections of the side slope closure and top area closure are provided in detail on Permit Drawing No 20

H OPERATION OF GAS, LEACHATE AND STORMWATER CONTROLS

1. Gas Collection System

The gas collection system shall be installed as each phase reaches its final contour and within six months of final cover being applied Initially, the gas collection wells shall be used to passively vent the accumulated methane gases The gas collection wells have been designed for connection to an active gas collection system including collection lines, blowers and flare station This gas collection system is currently under design and the operation of the system will be provided as part of the design

2. Leachate Management

The primary leachate collection system consists of an 8" perforated HDPE collection pipe surrounded by an aggregate encasement which is covered by a geotextile fabric to prevent clogging This collection system is located in a trench on top of the primary liner Leachate is collected within each leachate sector (300' wide, typical) and directed to the collection system by a geonet drainage blanket located on top of the primary liner

The leachate collection pipes terminate at the leachate collection sumps Each sump is comprised of an 18" or 24" HDPE perforated pipe (riser pipe) in an aggregate filled depressional sump. The 8" HDPE collection pipe is directly connected to the HDPE riser pipe Inside the riser pipe a submersible pump is installed to remove accumulated leachate Level controls are installed within each riser pipe to maintain leachate levels below the elevation of the primary liner to ensure gravity performance of the collection system The submersible pump is installed on a wheeled trolley and can be easily removed for maintenance

The leachate pumps discharge into a leachate force main which transfers the leachate to the existing fiberglass storage tanks (five tanks for primary leachate storage and one tank for secondary leachate storage @ 20,000 gallons each) Each leachate pump discharges through a flow meter which is monitored daily, Monday through Friday. Therefore, each leachate sector is monitored for leachate generation. The leachate storage tanks shall be monitored daily, Monday through Friday, by on-site personnel A daily log (Monday through Friday) shall be kept outlining leachate generation and storage volumes. Leachate shall be transported off-site by tanker at regular intervals ~~based-on-leachate-production~~ Final disposal of leachate shall be at a wastewater treatment plant

~~The-secondary-(detection)-~~leachate collection system is constructed and operates similar to the primary system The exceptions for this system include.

a Multiple layers of geonet are used instead of an 8" HDPE perforated pipe This provides for added constructability of the system There is no loss in performance since this system will serve for leak detection as a primary function

b The secondary leachate collection system is piped to a separate storage tank

3 Stormwater Treatment and Detention

The Stormwater Management System was designed in accordance with Rules 62-25, 40C-4 and 40C-42, F A C for both treatment and peak flow attenuation. The treatment is currently in the process of being modified from detention with filtration to wet detention This permit modification is provided in Appendix O

In general, a minimum of the first 1" of runoff is treated prior to discharge The treated stormwater shall be discharged from the stormwater pump station via the wetland irrigation system

4. Stormwater Management

a. Stormwater/Leachate Separation

Each phase of the liner installation includes a surface water collection system to serve that phase A perimeter ditch prevents surface water runoff from reaching the lined landfill area . Stormwater which falls on a section of the lined landfill which is not currently being used for waste disposal shall be separated from the leachate collection. This shall be accomplished by closing the valve upstream of the active phase and isolating this portion of the leachate collection system A 36" high HDPE flap is welded to the liner at this phase line to prevent stormwater from flowing to the active area A temporary pump-out is provided upstream of each valve and flap to pump uncontaminated stormwater from the inactive liner into the perimeter ditch Any stormwater that comes in contact with waste shall be considered leachate and handled as leachate.

b Stormwater Collection

All stormwater is collected and directed into the existing stormwater pond The collection system includes terraces on the final landfill slopes in conjunction with downcomer piping Details of this system are shown on Permit Drawing Nos 20 and 21 This system will control runoff and minimize erosion on the landfill side slopes. The wetland discharge of treated stormwater is provided through a 2" perforated spreader pipe The wetland irrigation is provided adjacent to the stormwater management pond

I. WATER QUALITY MONITORING

There is an existing Environmental Media Monitoring Plan (Ground Water, Surface Water and Leachate) for this facility which is part of the current Solid Waste Permit and shall continue a part of this renewal permit. The sampling and testing required by the Plan are described in Appendix K.

J. OPERATION RECORD

Operating record shall include:

1. All records, reports, analytical results, demonstrations, and notifications required by Chapter 62-701, F A C ,

2. Any construction, operation, and closure plans, including all modifications to those permits issued by the Department and Permit Plans, and

3. The training verifications required by Chapter 62-703, F.A.C.

The operating record shall be kept with the plans at the landfill facility and shall be available for inspection at reasonable times by Department personnel.

K. WASTE RECORDS

All solid waste shall be weighed as it is received Landfill operators shall record, in tons per day, the amount of solid waste received and shall estimate the amount of wastes listed below Waste reports shall be compiled monthly, and copies provided to the Department quarterly

Types of waste received

a. Residential waste
b. Commercial waste
c. Treated biohazardous
d. Water treatment sludge
e. Construction and demolition debris
f. Agricultural waste
g. Industrial waste
h. Shredded waste tires
I Asbestos
j. Industrial sludge
k. Domestic sludge
l. Non-Hazardous special wastes

L ACCESS CONTROL

Access to the landfill is provided by the paved entrance road from U.S. 301.

The entire site is fenced Access is restricted by a gate near the entrance off U.S. 301 as well as a second gate closer to the site Gates shall be locked at night and whenever the landfill is closed Public access and receipt of wastes shall occur only when an attendant is on duty

Traffic control on-site is accomplished by signage and site personnel The spotter shall assist with traffic control at the working face by directing in-coming trucks to their final unloading area

Access to areas restricted from traffic shall be controlled by temporary earthen berms and barricades

M WASTE MONITORING

1. The operator shall provide a load checking program to detect and discourage attempts to dispose of unauthorized wastes at the landfill The load checking program consists of the following minimum requirements

   a. The landfill operator shall examine at least three random loads of solid waste delivered to the landfill each week The waste collection vehicle selected by the inspector shall be directed to discharge their loads at a designated location within the landfill (near the working face) A detailed inspection of the discharged material shall be made for any unauthorized wastes

   b. If unauthorized wastes are found, the facility shall contact the generator, hauler, or other party responsible for shipping the waste to the landfill to determine the identity of the waste sources.

2. Handling Hazardous Wastes

   a If any regulated hazardous wastes are identified by random load checking, or are otherwise discovered to be improperly deposited at the landfill, the landfill owner/operator shall promptly notify the Department, the person responsible for shipping the wastes to the landfill, and the generator of the wastes, if known The area where the wastes are deposited shall be immediately cordoned off from public access If the generator or hauler cannot be identified, the landfill owner/operator shall assure the cleanup, transportation, and disposal of the waste at a permitted hazardous waste management facility b Subsequent shipments from sources found or suspected to be previously responsible for shipping regulated hazardous waste shall be subject to precautionary measure prior to the solid waste management facility accepting wastes

3 Recording Inspection Results - Information and observations resulting from each random inspection shall be recorded in writing and retained at the landfill for at least three years The recorded information shall include: the date and time of the inspection, the names of the hauling firm and the driver of the vehicle, the vehicle license plate number, the source of the waste, as stated by the driver, and observations made by the inspector during the detailed inspection The written record shall be signed by the inspector

4 Training - Inspectors, equipment operators and spotters shall be trained to identify unauthorized wastes or potential sources or regulated hazardous wastes The training program shall emphasize familiarity with containers and labels typically used for hazardous wastes and hazardous materials

N WASTE HANDLING

All solid waste shall be spread in layers of approximately two feet in thickness and compacted to approximately one foot in thickness or as thin a layer as practical before the next buyer is applied Bulky materials which are not easily compacted shall be worked into other materials as much as practical

The first layer of waste placed above the liner and leachate collection system shall be a minimum of four feet in compacted layer thickness and shall consist of selected waste loads containing no large rigid objects that may damage the liner or leachate collection system

Solid waste shall be formed into cells to construct horizontal lifts The working face of the cell and side grades shall be at a slope no greater than three feet horizontal to one foot vertical rise Lift depth shall normally not exceed ten feet but may be deeper, depending on specific operations, daily volume of waste, width of working face, and good safety practices

The working face shall be only wide enough to accommodate vehicles discharging the waste, and to minimize the exposed area and unnecessary use of cover material.

Initial cover shall be applied and maintained at the landfill in order to minimize any adverse environmental, safety, or health effects such as those resulting from birds, unauthorized wastes, blowing litter, odors, disease vectors, or fires The minimum frequency for applying initial cover is at the end of each work day

In lieu of initial cover, temporary cover, such as a tarpaulin, may be placed on the working face at the end of the work day and removed prior to deposition of additional waste. The maximum time any area may be covered with a tarpaulin is 30 days In areas where an additional lift or final cover will not be applied within 180 days, the tarpaulin shall be in place for a maximum of 7 days, at which time it shall be removed and intermediate cover applied

Additionally, waste tires that have been cut into sufficiently small parts may be utilized as initial cover on the landfill, in accordance with Rule 62-711.400(3), F.A.C

An intermediate cover shall be applied and maintained within seven days of cell completion, if additional solid waste will not be deposited within 180 days of cell completion The landfill operator may remove all or part of the intermediate cover before placing additional waste or installing final cover.

Solid waste disposal units which have been filled to design dimensions shall receive final cover within 180 days after attaining final elevation or in accordance with the closure plan for the landfill Solid waste disposal units are shown on Permit Drawing Nos 14 and 15

Uncontrolled and unauthorized scavenging is not permitted at the landfill site. Salvaging is also not permitted

A litter policing operation is employed to keep litter from leaving the working area of the landfill Litter outside the working area shall be picked up on a regular basis Some litter may be exposed through the initial cover if it is in traffic areas and away from public view

Erosion control measures shall be employed to correct any erosion which exposes waste or causes malfunction of the stormwater management system.

Asbestos containing waste materials may be accepted at the site for disposal. The waste generator shall make arrangements with the landfill operator before disposal of such regulated asbestos-containing waste materials, and inform the operator of the quantity of the waste and the scheduled date the shipment will arrive at the landfill The landfill operator shall direct the waste transporter to the asbestos designated disposal location The disposal location shall be recorded in accordance with 40 C F R Part 61.154, and a record of the asbestos location shall be maintained

O LEACHATE MANAGEMENT

The landfill operator shall monitor the leachate level in the leachate collection sumps on a daily basis, Monday through Friday. The operator/owner shall sample and analyze the leachate in accordance with the Environmental Media Monitoring Plan and shall submit the results to the Department

The operator shall operate and maintain the leachate collection system to collect and remove leachate from the landfill The leachate shall be stored on-site in the six 20,000 gallon leachate storage tanks and shall be transported to a wastewater treatment plant

The quantity of leachate collected by the leachate collection and removal system shall be recorded (in gallons) on a daily basis, Monday through Friday.

A recording rain gauge is operated and maintained to record precipitation at the landfill These precipitation records shall be maintained and used to compare with leachate generation rates

P LEACHATE SPILLAGE CONTROL PLAN

The leachate storage and pumping facilities are inside a concrete containment area which will hold 140% of the volume of the storage tanks plus one foot of free-board. This facility is constructed on top of the liner system. Therefore, the Leachate Spillage Control Plan is directed at those spills that would occur outside the containment area

The Leachate Spillage Control Plan consist of four major elements, Training, Containment, Remediation and Notification as described below

1. Training

The tanker driver and/or site personnel (the Attendant for the purposes of this subsection) shall be trained to prevent spills. The Attendant shall perform the following prior to loading the tanker truck·

a Inspect the tanker for signs of leakage

b. Verify all tanker discharge valves are closed c Verify the tanker is completely within the leachate loading area containment curbing

d Verify the liquid level in the containment sump is at or below the discharge pipe

e. Verify the containment sump discharge gate valve is closed

f. Verify the leachate fill hose is securely fastened to the inlet port of the tanker

g. Verify the available tanker volume

Upon completion of this inspection, the Attendant shall begin the following fill sequence·

1. Operate the leachate loading pump for approximately 5 minutes or until 500 gallons of leachate has been pumped and then discontinue pumping.

2. Inspect the tanker, fill hose and pumping system for leakage

3. Upon verification that no spills or leaking has occurred, restart pumping

4. Continuously monitor the tanker fill operations

5 Monitor the leachate flow meter until approximately 95% of the available tanker volume has been filled

6. Discontinue filling operations and remove fill hose

7. Perform a final inspection of tanker and tanker fill area

2 Containment

If a spill occurs, the Attendant shall notify the General Manager of the spill and request assistance The Attendant shall institute the following containment sequence

a. Cease pumping.

b. Place sandbags around drainage structures down slope from the loading area to prevent any spillage from entering the drainage system (NOTE: The first 500 gallons of spillage inside the containment curb will drain naturally into the 500 gallon containment sump)

c Create an earthen berm around the spill with on-site sands taken from the daily cover stockpile

3. Remediation

After the spill has been securely contained, the following cleanup shall begin·

a. Pump the leachate in the containment sump into the on-site storage tanks.

b Spread absorbent sands across all areas in contact with the spill

c. Remove the contaminated sand to the landfill disposal area

4 Notification

In the event of a leachate spill, the Department shall be notified

The outlined Spillage Control Plan focuses primarily on a spill at the tanker truck loading area However, if a leachate spill is discovered at any location on-site, the pertinent containment, remediation and notification procedures described above shall be implemented

Q GAS MONITORING PROGRAM

The gas monitoring system as shown in Appendix H shall be monitored semi-annually with results submitted to the Department.

If methane gas levels exceed the lower explosive limits at the property boundary, Trail Ridge Landfill will

a Immediately take all necessary steps to ensure protection of human health and notify the Department and

b Within 7 days of detection, submit to the Department for approval a remediation plan for the methane gas releases. The plan shall describe the nature and extent of the problem and the proposed remedy The remedy shall be completed within 60 days of detection unless otherwise approved by the Department

R. STORMWATER MANAGEMENT

1. Stormwater Handling

The stormwater handling system was installed as part of the initial construction and is operated and maintained in accordance with the requirements of the existing permit A Management and Storage of Surface Waters Permit application to modify the stormwater treatment to wet detention is provided in Appendix O However, the stormwater conveyance and stormwater detention were previously permitted, constructed and certified (or will be certified in the very near future, as it relates to the southern stormwater conveyance) and will remain unchanged

The system includes swales, drainage ditches and culverts, discharge structures, and other appurtenances as required Pertinent features of the stormwater handling system include

a. Potentially contaminated stormwater will be segregated from clean stormwater and contaminated stormwater will not be discharged from the site,

b A 24-hour, 25-year rainfall event is detained on site,

c. Stormwater is treated to meet the requirements of Rule 62-25, F.A C.,

d The maximum discharge rate following a 25-year, 24-hour storm event does not exceed the pre-development discharge from this design storm.

Stormwater is routed through the internal ditch and culvert network to the pond for treatment The discharge structure releases excess stormwater detained in the pond to a dispersion pond which ultimately discharges to the adjacent wetlands

The discharge structure was designed to effectively prevent floating materials from being released from the site

2 Stormwater Treatment

a Clean Stormwater

Stormwater runoff is treated in the existing pond, which will be converted to wet detention This pond is designed to treat 1.0 inches of runoff from the landfill site and detain a 25-year, 24-hour storm event b Other Stormwater

Stormwater which comes into contact with refuse will be segregated from the clean stormwater and will not be discharged from the site This potentially contaminated water includes stormwater which falls on uncovered refuse or has otherwise made contact with refuse

Temporary berms will be constructed in advance of the active fill face to collect stormwater which falls in the active area This potentially contaminated stormwater will be pumped onto the working face or back into previously filled portions of the landfill

3. Erosion Control

Stormwater terraces will be constructed on the side slopes of the completed landfill These berms will route surface water flow to downcomer pipes buried in the final cover, and ultimately to the perimeter drainage ditch This system of terraces and pipes will minimize erosion of the final cover Vegetative cover will be established and maintained, as soon as practical, after finish contours are completed

S. EQUIPMENT

Sufficient equipment (including compactors, dozers, a grader, a water wagon, and earth moving equipment) is provided to ensure proper operation of the landfill and for spreading, compacting and covering waste Substitutions and additions to the equipment listed above may occur However, equipment capable of performing comparably to the listed equipment shall be maintained on-site In addition, equipment is available within 24 hours from other company operations and distributors should any situation dictate the requirement for additional equipment

T OPERATION FEATURES

The scale house and the administrative building both have telephones for routine emergency communications Further, both facilities provide shelter, sanitary facilities and first aid equipment

Dust originating from haul road surfaces shall be controlled by periodic sweeping and/or watering of road surfaces, as required Additionally, final cover shall be vegetated as soon as practical after application of final cover, in order to minimize the blowing of dust on-site

Should a fire occur at the landfill, the application of additional compacted cover shall be utilized to cut off the flow of oxygen into the burning area If this does not contain the fire, the affected area shall be thoroughly wetted, excavated, and wetted again prior to reconstructing the cells The chance of fire occurring at a properly run sanitary landfill is minimal

Instruction in fire fighting procedures are routinely provided to site personnel, and portable fire extinguishers are located on each machine and vehicle Local Fire Departments shall be employed to assist the site personnel and equipment if necessary

Fire hydrants are located on-site and are connected to the pump system which drawings water from the stormwater pond

Trail Ridge Landfill, Inc has developed an extensive program regarding safety and accident prevention As part of this program, employees are trained in proper operation and emergency procedures Telephone communication and First Aid equipment are provided at the facility Operating vehicles are in compliance with current OSHA safety requirements, including caging and shields to protect operators All appropriate equipment have back-up alarms and those alarms are maintained in good repair

The problem of blowing litter shall be minimized bv limiting the active working face and using initial cover or tarpaulins over the active fill areas Other methods, such as the utilization of casual labor pickers and portable fencing shall be employed as required to contain loose paper and other wind-blown refuse during fill operations Any loose paper or similar refuse blown outside the working area shall be picked up on a regular basis

Signage indicating the name of facility, operating authority, hours of operation and charges for disposal is located adjacent to the gate, prior to the ticket/scale house. Additional signs are placed on-site to direct traffic Warning signs are located in operating areas dealing with leachate and gas collection.

U ROADS

The entrance road and ticket office/scale house area are paved Beyond the paved area, all-weather perimeter roads shall be maintained to the active fill area, monitoring devices and stormwater controls Service and haul road construction and maintenance shall be coordinated with the landfill phasing and development.

V RECORD KEEPING

The Landfill Operator Shall

1 Keep records of all information used to develop or support the permit applications and any supplemental information pertaining to construction of the landfill throughout the design period Records pertaining to the operation of the landfill shall be kept for the design period of the landfill

2 Retain records of all monitoring information, including calibration and maintenance records, all original chart recordings for continuous monitoring instrumentation, and copies of all reports required by permit, for at least ten years Background water quality records shall be kept for the design period of the landfill

3. Maintain an annual estimate of the remaining life and capacity in cubic yards of the existing, constructed landfill and remaining capacity and site life of other permitted areas not yet constructed. The annual estimate shall be based on a summary of the heights, lengths, and widths of the solid waste disposal units The estimate shall be made and reported annually to the Department

W WASTE TIRE PROCESSING AREA

The landfill includes a waste tire processing area The permit application and operations plan for the waste tire processing are contained in Appendix J.

IX. WATER QUALITY MONITORING

A. SURFACE WATER MONITORING

A surface water monitoring plan was approved as part of the original permit and shall be updated as part of this permit renewal The proposed modifications to the Environmental Media Monitoring Plan are provided in Appendix K.

B. GROUNDWATER MONITORING

A groundwater monitoring plan was approved as part of the original permit and shall be updated as part of this permit renewal The proposed modification to the Environmental Media Monitoring Plan are provided in Appendix K.

X. SPECIAL WASTE HANDLING

It is Trail Ridge Landfill, Inc's policy to control the disposal of acceptable non-hazardous Special Wastes in the landfill A written description of the Special Waste must be submitted by the customer Before certain Special Wastes are accepted, a laboratory analysis of a representative sample may be required Approval to dispose of a Special Waste is given only after review by Trail Ridge Landfill, Inc. A log of Special Wastes disposal is maintained at the landfill

A ASBESTOS

Asbestos shall be landfilled in accordance with all requirements of Federal (40 CFR, Part 61, Subpart M), local and state regulations Bags must have the OSHA required label Each shipment will be accompanied by shipping papers

Trail Ridge Landfill requires that the waste generator make arrangements before disposal of regulated asbestos-containing waste materials and inform the operator of the quantity of the waste and the scheduled date the shipment will arrive at the landfill

Asbestos containing waste shall be disposed in an area separate from the active working face, and covered immediately with a minimum of six inches of soil or appropriate refuse A coordinate grid system shall be used to record the locations of disposed asbestos and a record of the asbestos location shall be maintained

B CONTAMINATED SOIL

Non-hazardous petroleum contaminated soil may be accepted at the landfill for disposal upon approval by Trail Ridge Landfill, Inc However, a laboratory analysis of a representative sample may be required prior to acceptance.

C OTHER WASTES

Other waste material such as shredded waste and ash residue may be accepted for disposal, upon review by Trail Ridge Landfill, Inc

Ash residue from the burning of solid waste shall be handled in accordance with Chapter 62-702, F A.C Ash residue which meets the criteria of Rules 62-702.570(6) and 62-701.200(40), F A C may be used as initial cover

XI. CLOSURE

The Trail Ridge Landfill will be closed in accordance with closure requirements of Chapter 62-701.600, F.A.C.

A. SCHEDULE

1. At least one year prior to the projected date when wastes will no longer be accepted or all solid waste disposal units are expected to reach design dimensions, a written notice will be provided to the Department and the local pollution control agency with a schedule for cessation of waste acceptance and closure of the landfill In accordance with Chapter 62-701.071, F.A.C if unforeseen circumstances do not allow the one year notification, notice will be provided as soon as the need to close the facility becomes apparent

2 At least 120 days prior to the date when wastes will no longer be accepted at the landfill, users will be advised of the intent to close the facility by posting signs at the entrance of the facility giving the date of closing, the location of alternative disposal facilities and the name of the person responsible for closing the landfill These signs will be maintained throughout the closing period

3. At least 90 days prior to the date when wastes will no longer be accepted, a closure permit application will be submitted to the Department

B. DESIGN

The closure design and details are provided in Permit Drawing Nos. 9, 20 and 21. The design includes the final cover as described below and the stormwater terraces and downcomer pipes

1 Intermediate Cover

In areas where active filling will not occur for a period of 180 days or more, a minimum of one foot of intermediate cover will be applied Intermediate cover will consist of clean soil

2 Final Cover

a. Side Slopes

The landfill side slopes will be completed with 2 5 feet of final cover A twelve-inch intermediate soil layer will first be placed over the refuse and/or initial cover This will provide a level surface for applying twelve inches of compacted clay (with a maximum permeability of 1.0 x 10^{-7} cm/sec) A 24-inch layer of loosely compacted soil capable of sustaining vegetation will be placed over the compacted clay to complete the final cover construction. Final cover will be applied in accordance with the Phasing Plan as shown on Permit Drawing Nos 14 and 15

An alternate closure design demonstration for the side slope closure is provided in Appendix L The Quality Assurance/Quality Control Plan for the final cover on the side slopes, which will be installed during operation (close-as-you-go), is provided in Appendix M

b. Top Area

The top area of the landfill will be closed with a geomembrane liner and a 24-inch vegetative cover layer A 12-inch intermediate soil layer will first be placed over the refuse and/or initial cover. This will provide a level surface for applying a 40 mil (minimum) textured HDPE liner (with a maximum water vapor transmission rate of 2 4 g/(m^2 x day). A 12-inch sand layer will be placed over the geomembrane lıner to provide drainage to the top swale underdrain system A 12-ınch layer of loosely compacted soil capable of sustaining vegetation will be placed over the sand layer

3. Vegetation

The final surface of the landfill will be vegetated (with bahia grass and/or bermuda grass) as soon as possible after the final cover has been placed. This will be done progressively with final cover completion. It may be necessary to provide mulch to prevent erosion prior to the seed taking hold Vegetation, fertilizer, and seed rates will be consistent with the recommendations of the Regional Soil Conservation Service and/or past experience on this site

C FINAL USE

The City of Jacksonville does not have a proposed final use at this time. Nevertheless, the City will consult the Department prior to conducting activities at the landfill after closure

D. CLOSURE OPERATIONS

Upon issuance of the closure permit, the landfill will be closed in accordance with the approved plans and any special permit provisions The closure operations shall include the procedures required by Chapter 62-701.610, F.A C including Department closure ınspections, a final survey report, certification of closure constructıon completıon, and declaration to the public.

E. LONG TERM CARE

Trail Ridge Landfill will be monitored and maintained for thirty (30) years in accordance with Chapter 62-701 620, F A C

F. FINANCIAL RESPONSIBILITY

Proof of financial responsibility shall be provided by the City of Jacksonville in accordance with Chapter 62-701.630, F.A C Cost estimates for both closure and post-closure are provided in Appendix N These cost estimates will be updated annually in accordance with Rule 62-701.630(8)(a), F.A.C.

APPENDIX A
ZONING EXCEPTION

ORDER OF THE PLANNING COMMISSION OF THE CITY OF JACKSONVILLE, FLORIDA GRANTING ZONING EXCEPTION

No. E-91-184

WHEREAS, Gilman Timberland and Land Development Company, the owner of the real property described in this order, applied for a zoning exception applicable to that property permitting a sanitary landfill in AGR District; and

WHEREAS, the Planning and Development Department has reviewed the application and has made a recommendation, which has been duly considered by the Planning Commission; and

WHEREAS, upon review and consideration of the application and the facts presented to the Commission at the public hearing on said application, this Commission finds:

1. The granting of the sought exception is consistent with the overall public health, safety, morals, order, comfort, convenience, prosperity and general welfare of the City of Jacksonville.

2. The proposed use is compatible with the existing land use and zoning patterns in the area, if properly conditioned.

3. The granting of the proposed exception is consistent with all applicable criteria of Section 656.131(c)(1) of the Zoning Code, for the following reasons:

a. The subject property contains approximately 977.887 acres of land.

b. The primary land use within the general area is predominantly forestry related.

c. Due to the sparseness of existing development in the area and limited site access, the effect of the proposed landfill on the character of the surrounding area would be minimal.

d. The subject property is located outside the boundary of urbanization according to the 2010 Comprehensive Plan.

e. The subject property is located in the southwest portion of the 2010 Comprehensive Plan which projects the same in the Agricultural land use designation.

4 A previous Application for Zoning Exception, E-89-201 (Sanitary Landfill), was approved on the subject property.

NOW THEREFORE, it is ORDERED by the Planning Commission:

1. The owner of the real property described herein is permitted to operate a sanitary landfill, and a zoning exception for that purpose is hereby granted to the AGR District as defined and classified under the Zoning Code, City of Jacksonville, Florida, with respect to such property.

2. The land as to which a zoning exception is granted by this order is owned by Gilman Timberland and Land Development Company, and described as follows:

See Exhibit "A" attached hereto and made a part hereof.

3. The right and exception herein granted shall be transferable and shall run with the title to the property.

4. This exception is granted subject to the condition that:

a. The sanitary landfill shall be limited to the classification/criteria of Class I and Class III landfills only, as described in Chapter 17.7.050 (Sanitary Landfill Criteria), Florida Administrative Code and hazardous and/or infectious waste shall be prohibited. Yard waste shall be prohibited for disposal if alternative processing systems are available as may be determined by the Department of Public Utilities.

b. The zoning exception shall terminate twenty-five (25) years from the effective date of this order.

c. The maximum height of the sanitary landfill including provisions for final closure shall not exceed a maximum height of one hundred forty five (145) feet above the existing ground level measured at the center of the proposed sanitary landfill.

d. Buffer areas shall be provided and maintained throughout the entire duration of the zoning exception on the border of the parcel on the north, south, and east borders. Said buffer shall be at least 200 feet along said borders in their natural state.

e. The driveway from U. S. Highway 301 shall be constructed according to industrial road specification for the City of Jacksonville, Florida (but not dedicated to City of Jacksonville) from U. S. Highway 301 to the area designated as "scale house".

f. Trash, refuse, etc. shall be picked up on a daily basis along U. S. Highway 301 from Interstate 10 to Normandy Boulevard.

g. No refuse, trash, etc. shall be accepted from outside the City of Jacksonville without the consent of the City of Jacksonville.

h. Ground water monitoring shall be conducted in accordance with DER (Department of Environmental Regulations) permit for the landfill.

i. Approvals/permits from all applicable federal, state and local agencies must be received by the Department of Public Utilities.

j. That the subject property shall be developed in accordance with the revised site plan dated December 6, 1991, and on file in the office of the Planning and Development Department.

5. This order shall become effective as of the 12th day of December, 1991. Failure to exercise the exception herein granted by commencement of the

(Continued)
E-91-184

use or action herein approved within one year of the effective date of this order shall render this exception invalid and all rights arising therefrom shall terminate.

Executed this 26th day of December, 1991.

CURTIS L. HART, Chairman of the Planning Commission, City of Jacksonville, Florida

ATTEST:

Ida M. Denson

IDA M. DENSON, Secretary to the Planning Commission

FORM APPROVED:

ASSISTANT COUNSEL

Sunshine State Surveyors, inc.

TRAIL RIDGE
LANDFILL

AUGUST 12, 1991

WORK ORDER No. S91-456

PARCEL A (REVISED)

A portion of Sections 18 and 19, Township 3 South, Range 23 East, Jacksonville, Duval County, Florida, being more particularly described as follows:

For a Point of Refernce, commence at the Southwest corner of said Section 19, thence North 00° 06' 42" West, along the West line of said Section 19, a distance of 1000 02 feet to the Point of Beginning.

From the Point of Beginning, continue North 00° 06' 42" West, along said West line of Section 19, a distance of 4246 29 feet to the Northwesterly corner thereof, continue North 00° 06' 42" West, along the West line of said Section 18, a distance of 4646.30 feet; thence North 89° 43' 31" East, departing said West line, 4665.72 feet, said line being parallel and 600.00 feet Southerly of the North line of said Section 18; thence South 00° 19' 03" West, parallel and 616 98 feet Westerly of the East line of said Section 18, a distance of 4625.31 feet to a point lying on the South line of said Section 18; thence South 00° 17' 46" West, parallel and 616.98 feet Westerly of the East line of said Section 19, a distance of 682.99 feet; thence South 89° 42' 14" East, 616.98 feet to a point lying on the East line of said Section 19; thence South 00° 17' 46" West, along said East line, 700.02 feet; thence North 89° 42' 14" West, departing said East Line, 616 98 feet; thence South 00° 17' 46" West, parallel and 616 98 feet Westerly of the East line of said Section 19, a distance of 2871.05 feet; thence South 89° 33' 20" West, parallel and 1,000 00 feet Northerly of the South line of said Section 19, a distance of 4600 88 feet to the Point of Beginning.

Said lands containing 954.959 acres more or less and being subject to any and all easements, rights-of-way, restrictions and reservations of record.

Sunshine State
Surveyors, inc.

TRAIL RIDGE
LANDFILL

OCTOBER 29, 1991 WORK ORDER No. S91-456-2

PARCEL B

A portion of Section 20, Township 3 South, Range 23 East, Jacksonville, Duval County, Florida, being more particularly described as follows:

For a Point of Reference, begin at the Northwest corner of said Section 20, thence South 00° 17' 46" West, along the West line of said Section 20, 1091.96 feet to the Point of Beginning.

From the Point of Beginning, thence North 89° 03' 11" East, departing said West line, 1396.84 feet; thence South 74° 29' 55" East, 624.12 feet; thence South 70° 15' 45" East, 1692.00 feet; thence South 59° 25' 01" East, 1913.07 feet to a point lying on the East line of said Section 20; thence South 00° 19' 33" West, along said East line, 127.49 feet; thence North 49° 19' 49" West, departing said East line, 57.82 feet; thence North 59° 25' 01" West, 1910.90 feet; thence North 70° 15' 45" West, 1678.81 feet; thence North 74° 29' 55" West, 605.97 feet; thence South 89° 03' 11" West, 1384.55 feet to a point lying on the West line of said Section 20; thence North 00° 17' 46" East, along said West line, 100.02 feet to the Point of Beginning.

Said lands containing 12.927 acres more or less and being subject to any and all easements, rights-of-way, restrictions and reservations of record.

 904/642-8550

Sunshine State Surveyors, inc.

TRAIL RIDGE
LANDFILL

AUGUST 12, 1991

WORK ORDER No. S91-456

PARCEL C (REVISED)

A portion of Section 21, Township 3 South, Range 23 East, Jacksonville, Duval County, Florida, being more particularly described as follows:

For a Point of Reference, commence at the Southwest corner of said Section 21; thence North 00° 19' 33" East, along the West line of said Section 21, a distance of 2305.48 feet to the Point of Beginning.

From the Point of Beginning, continue North 00° 19' 33" East, along said West line, 127.49 feet; thence South 50° 06' 02" East, departing said West line, 210.33 feet; thence South 49° 19' 49" East, 1989.21 feet; thence North 40° 40' 11" East, 85.00 feet; thence South 49° 19' 49" East, 217.74 feet to the Point of Curvature of a curve concave Northeasterly and having a radius of 576 50 feet; thence Southeasterly, along and around the arc of said curve, through a central angle of 11° 14' 16", an arc distance of 113.07 feet to the Point of Tangency of said curve, said arc being subtended by a chord bearing and distance of South 54° 56' 57" East, 112.89 feet, thence South 60° 34' 05" East, 120.84 feet to the Point of Curvature of a curve concave Northeasterly and having a radius of 643.90 feet; thence Southeasterly, along and around the arc of said curve, through a central angle of 11° 00' 00", an arc distance of 123.62 feet to the Point of Tangency of said curve, said arc being subtended by a chord bearing and distance of South 66° 04' 05" East, 123 43 feet; thence South 71° 34' 05" East, 145.22 feet to a point lying on the Northwesterly right-of-way line of U. S. Highway No. 301, a 206 foot right-of-way as presently established, thence South 18° 21' 55" West along said Northwesterly right-of-way line, 397.38 feet; thence North 49° 19' 49" West, departing said Northwesterly right-of-way line, 852.08 feet; thence North 40° 40' 11" East, 57.53 feet; thence North 49° 19' 49" West, 2116.98 feet to the Point of Beginning.

Said lands containing 10.001 acres more or less and being subject to any and all easements, rights-of-way, restrictions and reservations of record.

904/642-8550

APPENDIX B
FEDERAL AVIATION ADMINISTRATION
CLEARANCE LETTER

US Department
of Transportation
**Federal Aviation
Administration**

Orlando Airports District Office
4100 Tradecenter Street
Orlando, Florida 32827-5096

February 26, 1990

Mr. Joseph A. Tarver
England-Thims & Miller, Inc.
Consulting & Designing Engineers
3131 St. Johns Bluff Road South
Jacksonville, FL 32216

Dear Mr. Tarver:

This is in response to your letter of January 23, 1990 referenced to a proposed landfill site in Duval County.

The Federal Aviation Administration has performed a circle search of airports near-by the proposed site and found that the nearest airport is six to seven miles away; we do not foresee any problems.

Sincerely,

for Armando L. Rovira
Airports Planning and
Development Specialist

Enclosure

APPENDIX C
FOUNDATION ANALYSIS

LAW
ENGINEERING AND ENVIRONMENTAL SERVICES INC
3901 Carmichael Avenue
Jacksonville Florida 32207
Phone 904 396 5173
Fax 904 396 5703

MEMORANDUM

TO Juanitta Clem, P E
England, Thims and Miller, Inc

FROM S Laroia, P E/J Horton, P E (LAW)

DATE October 7, 1996

SUBJECT **Post Construction Settlement Evaluation**
Trail Ridge Landfill Vertical Expansion
Jacksonville, Florida
LAW Project No. 40522-6-7221

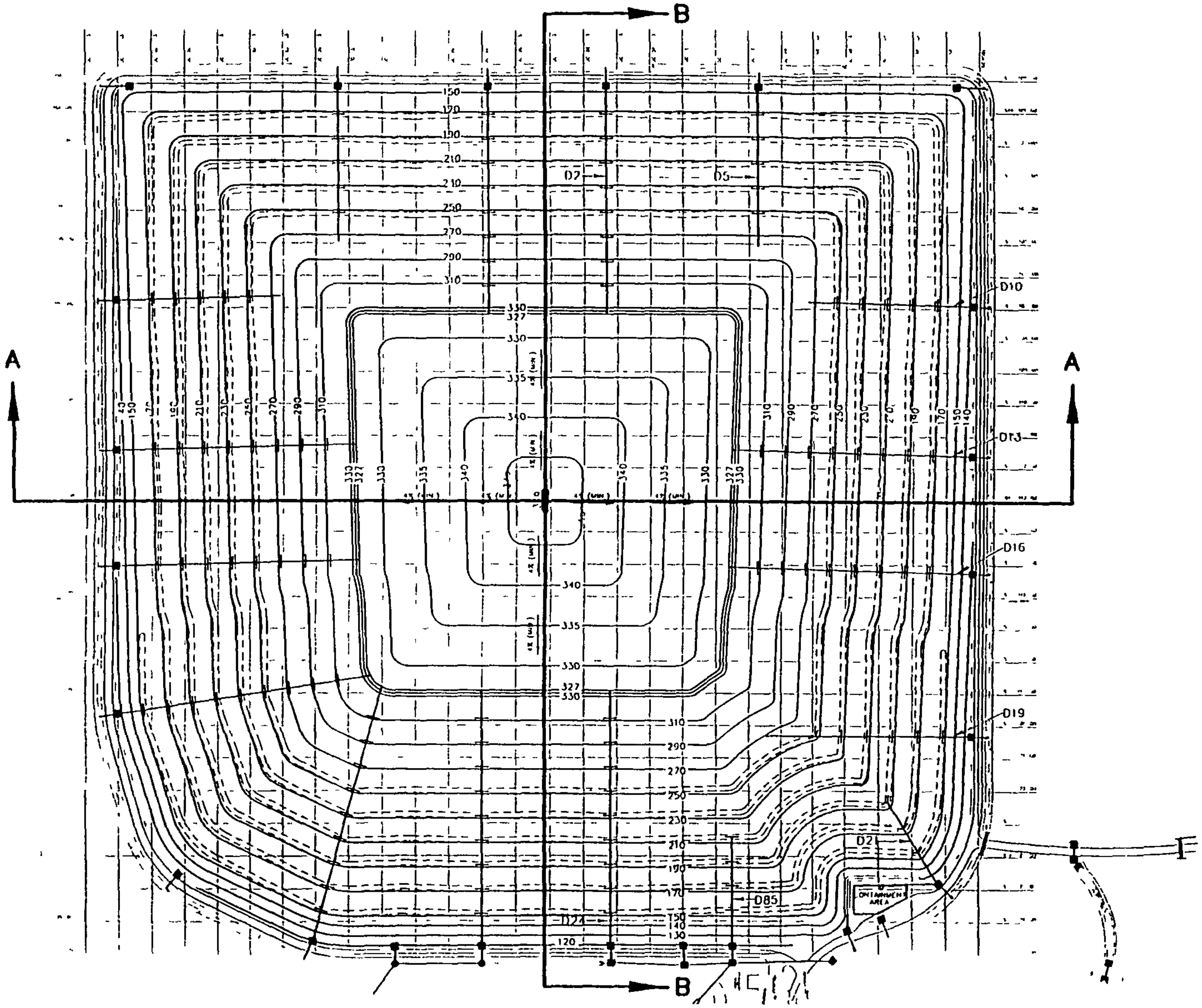
As authorized by you on August 9, 1996, we have performed a revised settlement evaluation for the subject landfill in accordance with our Work Authorization Sheet No 96-4393S (dated August 19, 1996) LAW previously performed a settlement evaluation which was documented in our report dated December 12, 1994 (LAW Project No 442-07221-01) This previous settlement evaluation was based on a maximum landfill elevation of +285 feet and an average waste (fill) unit weight of 60 pcf We now understand that a revised maximum landfill elevation of +350 feet has been established, along with an average waste unit weight of 70 pcf

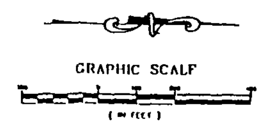
Evaluation procedures similar to those documented in our December 12, 1994 report were utilized for the currently planned landfill configuration Our current evaluation indicates a maximum landfill related ground settlement of about 1 8 feet (at the center of the landfill) This settlement magnitude does not include the subsidence of the fill material itself due to decomposition and/or consolidation under self-weight We understand that you desire that the settlement magnitudes be presented along two perpendicular sections (Sections AA and BB) Such estimated settlement magnitudes are presented on the attached table The locations of the sections are indicated on the attached drawing

From a landfill stability viewpoint, settlement magnitudes presented in the attached table are considered to be acceptable The differential settlements should be fairly uniform from the center to the edges or corners of the landfill Accordingly, in our opinion, the liner integrity will not be compromised by this magnitude of settlement We understand that the impact of such settlements on the leachate collection system integrity and operation will be evaluated by others

We appreciate the opportunity to be of continued assistance and look forward to serving you in the future If you have any questions concerning this memorandum, please contact us

ATTACHMENT





REFFRENCE Preliminary Drawing
Furnished by England Thims & Miller Inc
Undated

LAW ENGINEERING
JACKSONVILLE FLORIDA

SITE PLAN
Trail Ridge Landfill Vertical Expansion
Jacksonville Florida

DRAWN SI	DATE 8/29/96	SCALE 1 1000
CHECKED JAH	PROJ NO 40577-6-7211	APPROX

Estimated Landfill Construction Related Settlements
Trail Ridge Landfill Vertical Expansion
Jacksonville, Florida
LAW Project No. 40522-6-7221

Section	Station	Constructed Elevation (feet)	Estimated Settlement (Feet)	Estimated Post Settlement Elevation (Feet)
	74+60	139 3	0 5	138 8
	76+10	136 3	0 7	135 6
	77+60	140 8	1 0	139 8
	79+10	137 8	1 2	136 6
	80+60	141 8	1 5	140 3
	82+10	138 8	1 6	137 2
	83+60	142 8	1 7	141 1
	85+10	139 8	1 8	138 0
	86+60	142 8	1 8	141 0
A-A	88+10	139 8	1 8	138 0
	89+60	142 8	1 7	141 1
	91+10	139 8	1 6	138 2
	92+60	142 8	1 5	141 3
	94+10	138 3	1 2	137 1
	95+60	141 3	1 0	140 3
	97+10	136 3	0 7	135 6
	99+10	140 3	0 5	139 8
	101+00	153 0	0 5	152 5
	102+00	151 9	0 7	151 2
B-B	104+00	150 2	1 0	149 2
	106+00	148 5	1 3	147 2
	108+00	146 8	1 6	145 2
	110+00	145 1	1 7	143 4
	112+00	143 4	1 8	141 6

Estimated Landfill Construction Related Settlements
Trail Ridge Landfill Vertical Expansion
Jacksonville, Florida
LAW Project No. 40522-6-7221

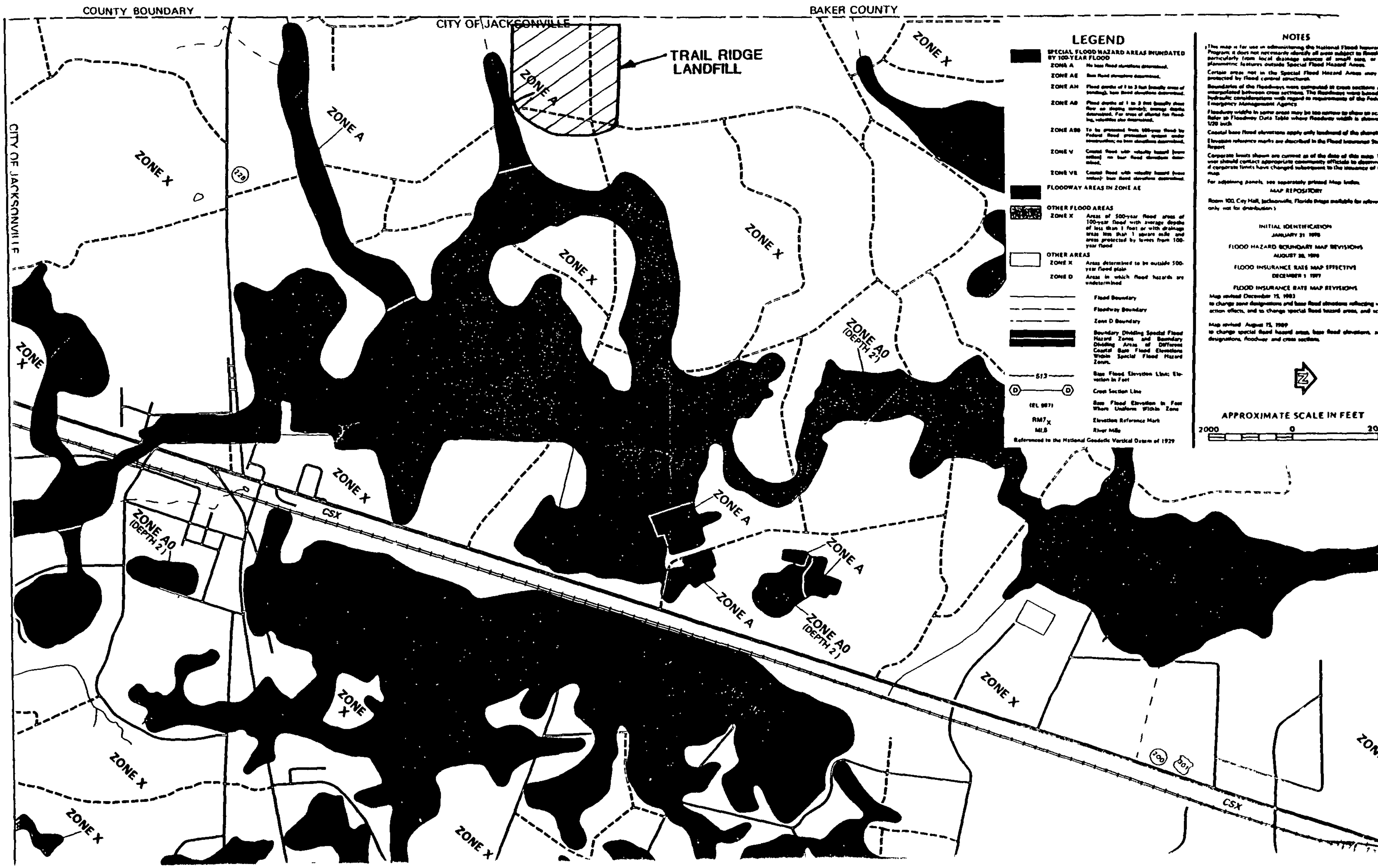
Section	Station	Constructed Elevation (feet)	Estimated Settlement (Feet)	Estimated Post Settlement Elevation (Feet)
B-B	114+00	141 7	1 8	139 9
	116+00	140 0	1 7	138 3
	118+00	137 7	1 6	136 1
	120+00	135 4	1 3	134 1
	122+00	133 1	1 0	132 1
	124+00	130 8	0 7	130 1
	126+00	128 5	0 5	128 0

Notes

1 Please refer to the attached drawing for the location of Sections AA and BB

2 The "Estimated Settlement" magnitudes presented in the table above indicate the anticipated settlements at the bottom of the landfill

APPENDIX D
FLOODPLAIN MAP


COUNTY BOUNDARY
CITY OF JACKSONVILLE
BAKER COUNTY
TRAIL RIDGE LANDFILL
ZONE A
ZONE X
ZONE A0 (DEPTH 2')
CSX
228
200
301
LEGEND
SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD
FLOODWAY AREAS IN ZONE AE
OTHER FLOOD AREAS
OTHER AREAS
NOTES
MAP REPOSITORY
INITIAL IDENTIFICATION
FLOOD HAZARD BOUNDARY MAP REVISIONS
FLOOD INSURANCE RATE MAP EFFECTIVE
FLOOD INSURANCE RATE MAP REVISIONS
APPROXIMATE SCALE IN FEET
2000
0

APPENDIX E
DESIGN CALCULATIONS
FOR LINER SYSTEM

TRAIL RIDGE LANDFILL
DESIGN CALCULATIONS
FOR LINER SYSTEM

A. HEAD ON PRIMARY LINER - DURING ROUTINE OPERATION

1. DETERMINE IMPINGEMENT RATE

Use the HELP Model, Version 3 and the following

- a. Default Rainfall and Temperature Data for Jacksonville, Florida
- b. Maximum Leaf Area Index of 2.0 - Fair Grass
- c. Evaporative Zone Depth at 10 0 Inches
- d. Growing Season - 365 Days
- e. Runoff Potential - 50%
- f Runoff Curve Number - 80

Average Annual Totals from the HELP Model Results (see attached)

Precipitation - 46 43 in
Runoff - 0.92 in
Evapotranspiration - 34 54 in

Thus.

IMPINGEMENT RATE (e) = Precipitation - Runoff - Evapotranspiration
= 46 43 in/yr - 0 92 in/yr - 34.54 in/yr
= 10 97 in/yr
= 0 03 in/day = 8 84x10^{-9} m/sec

2 DETERMINE MAXIMUM HEAD OVER LINER - T_{MAX}

Using Moore's Equation

$$T_{MAX} = C \times L\, [(4(e/k)+(\tan B)^2)^{1/2} - \tan B] / 2 \times \cos B$$

Where·

L = Length of horizontal projection of the leachate collection layer from top to collector, m
e = Impingement rate, m/sec
k = Saturated hydraulic conductivity of the drainage layer, m/sec
tan B = Slope to collection pipe, dimensionless
C = Constant, 39 37 in/m

Therefore

$L = 200 \text{ ft} = 60\ 96 \text{ m}$

$e = 8.84\text{x}10^{-9} \text{ m/sec}$

$k = \frac{\text{Transmissivity}}{\text{Thickness}} = \frac{1\text{x}10^{-3} \text{ m}^2\text{/sec}}{5.1\text{x}10^{-3} \text{ m}} = 0\ 196 \text{ m/sec}$

$\tan B = 0.0193$

$\cos B = 0.999$

Thus:

$T_{MAX} = 39.37\text{x}60.96[(4(8\ 84\text{x}10^{-9}/0\ 196)+(0.0193)^2)^{½} - 0\ 0193] / 2 \text{ x } 0\ 999$

$T_{MAX} = .0056 \text{ in} = 5.6 \text{ mils}$

Therefore, the leachate head above the primary liner during routine landfill operations is in accordance with Rule 62-701 400(3)(c), F.A C., which limits the leachate head to a maximum of one foot above the primary liner Further, the leachate head of 6.1 mils is less than the thickness of the primary drainage layer which is a geonet with a thickness of 200 mil.

B. HEAD ON SECONDARY LINER - DURING ROUTINE OPERATIONS

1 DETERMINE IMPINGEMENT RATE

Use Average Annual Total from the HELP Model Results for Lateral Drainage Collected from Secondary Geonet

e = Lateral Drainage from Layer 6 = 0 40 in/yr = $3\ 22\text{x}10^{-10}$ m/sec

2. DETERMINE MAXIMUM HEAD OVER LINER - T_{MAX}

Using Moore's Equation (All values the same except the Impingement Rate).

$T_{MAX} = 39.37 \text{ x } 60.96\ [(4(3\ 22\text{x}10^{-10}/0\ 196)+(0.0193)^2)^{½} - 0.0193] / 2 \text{ x } 0.999$

$T_{MAX} = 2.0 \text{ x } 10^{-4} \text{ in} = 0\ 2 \text{ mils}$

Therefore, the leachate head above the secondary liner during routine landfill operations is in accordance with Rule 62-701 400(3)(c), F.A.C. which limits the leachate head to a maximum of one inch above the secondary liner Further, the leachate head of 0.2 mils is less than the thickness of the primary drainage layer which is a geonet with a thickness of 200 mil

C. HYDRAULIC CONDUCTIVITY OF SECONDARY LEACHATE COLLECTION SYSTEM - AFTER VERTICAL EXPANSION

The hydraulic conductivity of the secondary leachate collection system was tested by the National Seal Company in December of 1994 and the results are attached Note that the proposed design (including the vertical expansion) will have a pressure of 15,000 pounds per square foot (PSF) (210' at 70 pounds per cubic foot) Based upon the pressure of 15,000 PSF and a 2 percent grade, the hydraulic conductivity ranged from 37.59 to 73 77 cm/sec Therefore, the proposed design exceeds the required minimum hydraulic conductivity of 10 cm/sec (Rule 62-701 400(3)(c)2., F A C)

```
******************************************************************************
******************************************************************************
**                                                                          **
**                                                                          **
**              HYDROLOGIC EVALUATION OF LANDFILL PERFORMANCE               **
**               HELP MODEL VERSION 3 01    (14 OCTOBER 1994)               **
**                 DEVELOPED BY ENVIRONMENTAL LABORATORY                    **
**                   USAE WATERWAYS EXPERIMENT STATION                      **
**              FOR USEPA RISK REDUCTION ENGINEERING LABORATORY             **
**                                                                          **
**                                                                          **
******************************************************************************
******************************************************************************

PRECIPITATION DATA FILE:     C·\HELP3\TRLFOP.D4
TEMPERATURE DATA FILE:       C:\HELP3\TRLPOP.D7
SOLAR RADIATION DATA FILE:   C \HELP3\TRLPOP.D13
EVAPOTRANSPIRATION DATA      C:\HELP3\TRLFOP.D11
SOIL AND DESIGN DATA FILE:   C:\HELP3\TRLFOP.D10
OUTPUT DATA FILE.            C·\HELP3\TRLFOP.OUT

TIME:   9.46     DATE·   9/23/1996

******************************************************************************

     TITLE   TRAIL RIDGE LANDFILL - DURING OPERATIONS

******************************************************************************

     NOTE·  INITIAL MOISTURE CONTENT OF THE LAYERS AND SNOW WATER WERE
              COMPUTED AS NEARLY STEADY-STATE VALUES BY THE PROGRAM.


                                  LAYER  1
                                  --------

                       TYPE 1 - VERTICAL PERCOLATION LAYER
                           MATERIAL TEXTURE NUMBER   7
           THICKNESS                  =       6 00    INCHES
           POROSITY                   =       0.4730 VOL/VOL
           FIELD CAPACITY             =       0.2220 VOL/VOL
           WILTING POINT              =       0.1040 VOL/VOL
           INITIAL SOIL WATER CONTENT =       0 0881 VOL/VOL
           EFFECTIVE SAT  HYD. COND   =  0 520000001000E-03 CM/SEC
         NOTE:  SATURATED HYDRAULIC CONDUCTIVITY IS MULTIPLIED BY  3.00
                  FOR ROOT CHANNELS IN TOP HALF OF EVAPORATIVE ZONE


                                  LAYER  2
                                  --------

                       TYPE 1 - VERTICAL PERCOLATION LAYER
                           MATERIAL TEXTURE NUMBER  18
           THICKNESS                  =      60.00    INCHES
           POROSITY                   =       0 6710 VOL/VOL
           FIELD CAPACITY             =       0.2920 VOL/VOL
           WILTING POINT              =       0.0770 VOL/VOL
           INITIAL SOIL WATER CONTENT =       0.2812 VOL/VOL
           EFFECTIVE SAT  HYD. COND   =  0.100000005000E-02 CM/SEC
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```
                              LAYER  3
                              --------

                TYPE 1 - VERTICAL PERCOLATION LAYER
                    MATERIAL TEXTURE NUMBER   5
THICKNESS                        =      24.00    INCHES
POROSITY                         =       0.4570 VOL/VOL
FIELD CAPACITY                   =       0.1310 VOL/VOL
WILTING POINT                    =       0.0580 VOL/VOL
INITIAL SOIL WATER CONTENT       =       0 1776 VOL/VOL
EFFECTIVE SAT. HYD. COND.        =   0.100000005000E-02 CM/SEC


                              LAYER  4
                              --------

                  TYPE 2 - LATERAL DRAINAGE LAYER
                    MATERIAL TEXTURE NUMBER  34
THICKNESS                        =       0.20    INCHES
POROSITY                         =       0.8500 VOL/VOL
FIELD CAPACITY                   =       0.0100 VOL/VOL
WILTING POINT                    =       0.0050 VOL/VOL
INITIAL SOIL WATER CONTENT       =       0.0111 VOL/VOL
EFFECTIVE SAT  HYD. COND.        =    33.0000000000      CM/SEC
SLOPE                            =       1.93    PERCENT
DRAINAGE LENGTH                  =     200 0     FEET


                              LAYER  5
                              --------

                  TYPE 4 - FLEXIBLE MEMBRANE LINER
                    MATERIAL TEXTURE NUMBER  35
THICKNESS                        =       0.06    INCHES
POROSITY                         =       0 0000 VOL/VOL
FIELD CAPACITY                   =       0.0000 VOL/VOL
WILTING POINT                    =       0.0000 VOL/VOL
INITIAL SOIL WATER CONTENT       =       0.0000 VOL/VOL
EFFECTIVE SAT. HYD  COND.        =   0.199999996000E-12 CM/SEC
FML PINHOLE DENSITY              =       1.00    HOLES/ACRE
FML INSTALLATION DEFECTS         =       1.00    HOLES/ACRE
FML PLACEMENT QUALITY            =   2 - EXCELLENT


                              LAYER  6
                              --------

                  TYPE 2 - LATERAL DRAINAGE LAYER
                    MATERIAL TEXTURE NUMBER  34
THICKNESS                        =       0.20    INCHES
POROSITY                         =       0.8500 VOL/VOL
FIELD CAPACITY                   =       0 0100 VOL/VOL
WILTING POINT                    =       0.0050 VOL/VOL
INITIAL SOIL WATER CONTENT       =       0.0100 VOL/VOL
EFFECTIVE SAT. HYD. COND.        =    33.0000000000      CM/SEC
SLOPE                            =       1.93    PERCENT
DRAINAGE LENGTH                  =     200.0     FEET
```

LAYER 7

TYPE 4 - FLEXIBLE MEMBRANE LINER
MATERIAL TEXTURE NUMBER 35

THICKNESS	=	0 06 INCHES
POROSITY	=	0.0000 VOL/VOL
FIELD CAPACITY	=	0.0000 VOL/VOL
WILTING POINT	=	0.0000 VOL/VOL
INITIAL SOIL WATER CONTENT	=	0 0000 VOL/VOL
EFFECTIVE SAT. HYD COND	=	0.199999996000E-12 CM/SEC
FML PINHOLE DENSITY	=	1 00 HOLES/ACRE
FML INSTALLATION DEFECTS	=	1.00 HOLES/ACRE
FML PLACEMENT QUALITY	=	2 - EXCELLENT

LAYER 8

TYPE 3 - BARRIER SOIL LINER
MATERIAL TEXTURE NUMBER 16

THICKNESS	=	6.00 INCHES
POROSITY	=	0.4270 VOL/VOL
FIELD CAPACITY	=	0.4180 VOL/VOL
WILTING POINT	=	0.3670 VOL/VOL
INITIAL SOIL WATER CONTENT	=	0.4270 VOL/VOL
EFFECTIVE SAT. HYD COND.	=	0.100000001000E-06 CM/SEC

GENERAL DESIGN AND EVAPORATIVE ZONE DATA

NOTE: SCS RUNOFF CURVE NUMBER WAS USER-SPECIFIED.

SCS RUNOFF CURVE NUMBER	=	80.00	
FRACTION OF AREA ALLOWING RUNOFF	=	50.0	PERCENT
AREA PROJECTED ON HORIZONTAL PLANE	=	1.000	ACRES
EVAPORATIVE ZONE DEPTH	=	10 0	INCHES
INITIAL WATER IN EVAPORATIVE ZONE	=	1.051	INCHES
UPPER LIMIT OF EVAPORATIVE STORAGE	=	5 522	INCHES
LOWER LIMIT OF EVAPORATIVE STORAGE	=	0.932	INCHES
INITIAL SNOW WATER	=	0 000	INCHES
INITIAL WATER IN LAYER MATERIALS	=	24.231	INCHES
TOTAL INITIAL WATER	=	24 231	INCHES
TOTAL SUBSURFACE INFLOW	=	0 00	INCHES/YEAR

EVAPOTRANSPIRATION AND WEATHER DATA

NOTE: EVAPOTRANSPIRATION DATA WAS OBTAINED FROM
JACKSONVILLE FLORIDA

MAXIMUM LEAF AREA INDEX	=	2.00
START OF GROWING SEASON (JULIAN DATE)	=	0
END OF GROWING SEASON (JULIAN DATE)	=	367
AVERAGE ANNUAL WIND SPEED	=	8.20 MPH
AVERAGE 1ST QUARTER RELATIVE HUMIDITY	=	73 00 %
AVERAGE 2ND QUARTER RELATIVE HUMIDITY	=	72.00 %
AVERAGE 3RD QUARTER RELATIVE HUMIDITY	=	79 00 %
AVERAGE 4TH QUARTER RELATIVE HUMIDITY	=	78.00 %

NOTE: PRECIPITATION DATA FOR JACKSONVILLE FLORIDA
WAS ENTERED FROM THE DEFAULT DATA FILE

NOTE: TEMPERATURE DATA WAS SYNTHETICALLY GENERATED USING
COEFFICIENTS FOR JACKSONVILLE FLORIDA

NORMAL MEAN MONTHLY TEMPERATURE (DEGREES FAHRENHEIT)

JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
53 20	55.10	61.30	67.70	74 10	79.00
81.30	81.00	78.20	69.50	60.80	54.80

NOTE SOLAR RADIATION DATA WAS SYNTHETICALLY GENERATED USING
COEFFICIENTS FOR JACKSONVILLE FLORIDA
STATION LATITUDE = 30.50 DEGREES

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AVERAGE MONTHLY VALUES IN INCHES FOR YEARS 1974 THROUGH 1978

	JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
PRECIPITATION						
TOTALS	2 99	2 19	2.81	2 39	6.66	3.89
	6 14	6 74	6 73	1 78	1.21	2.90
STD. DEVIATIONS	1 64	1 35	1.10	1.98	3.02	1.63
	2.65	3.16	1.83	1.21	0.97	1.30
RUNOFF						
TOTALS	0.030	0.011	0 010	0.082	0 382	0.017
	0.030	0 183	0.169	0 000	0.000	0.005
STD DEVIATIONS	0 061	0 025	0.015	0.177	0.377	0.031
	0.023	0.234	0.194	0.000	0 001	0.012

EVAPOTRANSPIRATION

TOTALS	2.129	2.141	2.495	1.870	4.081	3 966
	4.660	4.975	3.546	1 999	0 998	1 686
STD. DEVIATIONS	1.008	0.678	0 922	0 803	1 660	1.201
	1.778	1.232	0.493	0 582	0 911	0 553

LATERAL DRAINAGE COLLECTED FROM LAYER 4

TOTALS	0.7002	0.7534	0 4080	0 2584	0.9357	1 2138
	0.4184	1.0786	2.2114	1.6124	0.4815	0.2977
STD. DEVIATIONS	0.9313	1.0138	0.4001	0.1820	0.8872	0 9751
	0.2404	1.6308	1.9949	0.8049	0.2080	0 1921

PERCOLATION/LEAKAGE THROUGH LAYER 5

TOTALS	0.0303	0.0278	0.0254	0.0199	0.0354	0.0420
	0.0271	0.0331	0.0533	0.0520	0 0303	0 0233
STD DEVIATIONS	0.0196	0.0239	0.0140	0.0093	0.0194	0.0217
	0.0096	0.0242	0.0302	0.0191	0 0064	0 0054

LATERAL DRAINAGE COLLECTED FROM LAYER 6

TOTALS	0.0303	0.0278	0.0254	0 0199	0.0354	0 0420
	0 0271	0.0331	0.0533	0.0520	0.0303	0 0233
STD. DEVIATIONS	0.0196	0.0239	0.0140	0.0093	0.0194	0.0217
	0.0096	0.0242	0.0302	0.0191	0.0064	0 0054

PERCOLATION/LEAKAGE THROUGH LAYER 8

TOTALS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	0.0000	0.0000	0.0000	0 0000	0.0000	0.0000
STD. DEVIATIONS	0 0000	0 0000	0.0000	0 0000	0 0000	0.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	0 0000

AVERAGES OF MONTHLY AVERAGED DAILY HEADS (INCHES)

DAILY AVERAGE HEAD ACROSS LAYER 5

AVERAGES	0.0012	0 0015	0 0007	0.0005	0.0017	0 0022
	0 0007	0.0019	0.0041	0.0029	0 0009	0.0005
STD. DEVIATIONS	0 0017	0.0020	0.0007	0.0003	0.0016	0.0018
	0.0004	0.0029	0.0037	0.0014	0.0004	0.0003

DAILY AVERAGE HEAD ACROSS LAYER 8

AVERAGES	0.0001	0.0001	0 0001	0.0001	0.0001	0.0001
	0.0001	0.0001	0.0002	0.0002	0.0001	0.0001
STD. DEVIATIONS	0.0001	0.0001	0.0000	0.0000	0.0001	0.0001
	0.0000	0.0001	0.0001	0.0001	0.0000	0.0000

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AVERAGE ANNUAL TOTALS & (STD. DEVIATIONS) FOR YEARS 1974 THROUGH 1978

	INCHES		CU FEET	PERCENT
PRECIPITATION	46.43	(4.511)	168533.6	100 00
RUNOFF	0.920	(0.3602)	3340 62	1 982
EVAPOTRANSPIRATION	34.546	(3.1227)	125402 34	74 408
LATERAL DRAINAGE COLLECTED FROM LAYER 4	10.36946	(1 86751)	37641 141	22.33450
PERCOLATION/LEAKAGE THROUGH FROM LAYER 5	0.40010	(0.02185)	1452.349	0 86176
AVERAGE HEAD ACROSS TOP OF LAYER 5	0.002	(0.000)		
LATERAL DRAINAGE COLLECTED FROM LAYER 6	0.40010	(0.02185)	1452.346	0.86175
PERCOLATION/LEAKAGE THROUGH FROM LAYER 8	0.00000	(0.00000)	0.003	0 00000
AVERAGE HEAD ACROSS TOP OF LAYER 8	0.000	(0.000)		
CHANGE IN WATER STORAGE	0.192	(1 3657)	697.19	0.414

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PEAK DAILY VALUES FOR YEARS 1974 THROUGH 1978

	(INCHES)	(CU FT)
PRECIPITATION	5.40	19602.000
RUNOFF	0.782	2839.8628
DRAINAGE COLLECTED FROM LAYER 4	0 42894	1557 05505
PERCOLATION/LEAKAGE THROUGH LAYER 5	0.005556	20.16901
AVERAGE HEAD ACROSS LAYER 5	0.024	
DRAINAGE COLLECTED FROM LAYER 6	0.00556	20.16899
PERCOLATION/LEAKAGE THROUGH LAYER 8	0 000000	0 00002
AVERAGE HEAD ACROSS LAYER 8	0.001	
SNOW WATER	0.00	0 0000

MAXIMUM VEG SOIL WATER (VOL/VOL)	0.4305
MINIMUM VEG SOIL WATER (VOL/VOL)	0.0477

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FINAL WATER STORAGE AT END OF YEAR 1978

LAYER	(INCHES)	(VOL/VOL)
1	1 4120	0.2353
2	16.9119	0.2819
3	4.3016	0.1792
4	0.0022	0.0112
5	0.0000	0.0000
6	0.0020	0.0100
7	0.0000	0.0000
8	2.5620	0.4270
SNOW WATER	0.000	

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NSC®

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December 23, 1994

England-Thims & Miller, Inc.
3131 St. Johns Bluff Road So.
Jacksonville, FL 32246
Attention: Juanitta Clem

Subject: Trail Ridge Project - Transmissivity Testing

Dear Ms. Clem:

Per your request, the NSC Technical Center, Galesburg, IL has conducted the transmissivity analysis for the configuration proposed for the secondary leachate detection and collection system.

Specification data for the two proposed geotextile materials was previously submitted along with our correspondence of December 9, 1994. The two alternative geotextiles, produced by two competitive manufacturers, Typar 3601 and Trevira T-1620 (former designation: T-1120HC) were then incorporated in hydraulic conductivity tests using your prescribed site specific parameters of LOAD - 15,000 PSF and 22,000 PSF, and GRADIENT - 1% and 2%.

The objective was to comply with FLA DER 17-701.400 (3) (c) 2. - Solid Waste Management Facilities regulation which require a minimum hydraulic conductivity of ten cm/sec in the secondary leak detection and collection system.

The attached test results confirm that the required transmissivity targets can be achieved by utilizing either material in conjunction with a standard PN3000 Polynet® drainage product.

Please call us with any questions or comments.

Regards,

Fred Staab

Fred Staab
National Accounts Manager

FS/yt

cc: Ted Dzierzbicki/Mark Dillon, NSC

Enc.: Test Results

22 December 1994

TRAIL RIDGE TRANSMISSIVITY COMPARISONS
(NSC Research No. 94100S)

INTRODUCTION

A request was made by Fred Staab for a comparison of two transmissivity profiles. The purpose was to determine what type of geotextile provided the best barrier between a geosynthetic clay liner and a geonet. The textiles to be compared were Trevira 1620 (1120 heat calendared) and Typar 3601.

PROCEDURE

Net thickness was determined using a dead weight micrometer in accordance with ASTM D 751. Four thickness measurements from each specimen were used to determine an average geonet thickness Geonet thickness used in calculating hydraulic conductivity was 0.2117 inches (.5377 cm).

Transmissivity testing was conducted in accordance with ASTM D 4716, *Constant Head Hydraulic Transmissivity*. Parameters included confining pressures were 15,000 PSF and 22,000 PSF with gradients of 0.01 and 0.02. Profiles observed a one hour seating with continuous hydraulic flow at each pressure before readings were taken. Profiles evaluated were: Top plate/ Bentofix/ Geotextile/ PN 3000 geonet/ 60 mil HDPE liner/ Bottom Plate.

DISCUSSION

Both profiles exhibited similar hydrations with intrusion being sparse. The Trevira 1620 profile produced slightly better properties. Overall, both products provide more than adequate barrier protection between a GCL and net in order to meet a hydraulic conductivity of 10 cm/sec. Test results are summarized on Table 1. The units in which the data are recorded are included on the tables.

NATIONAL SEAL COMPANY

Beth DeSchepper

Beth DeSchepper
Laboratory Technician

Files: WP60\PHYSICAL\94100S.TRN

TRAIL RIDGE TRANSMISSIVITY
(NSC Research No. 94100S)

TABLE 1.

	Transmissivity (m^2/sec x 10^{3})		Hydraulic Conductivity (cm/sec)	
	Trevira 1620	Typar 3601	Trevira 1620	Typar 3601
Pressure/Gradient	15K	15K	15K	15K
0.01	2.774 2.219 4.607 3.200	3.627 3 086 2.264 2.990	51 59 41.27 85 68 59 51	67.45 57.39 42 10 55 65
0 02	3.967 2.213 3 140 3.107	3 334 2.724 2 041 2.700	73.77 41.16 58 40 57.77	62.00 50.66 37 95 50.20
Pressure/Gradient	22K	22K	22K	22K
0 01	1.125 0 735 1.516 1.126	1 486 0 491 0 574 0.850	20 94 13.67 28 19 20 93	27.63 9.13 10.67 15.81
0.02	1.548 0 748 1 204 1.167	1.828 0 714 0 942 1 161	28.79 13 91 22 39 21 70	33.99 13.28 17 52 21.60

APPENDIX F
LINER SYSTEM
QUALITY ASSURANCE

QUALITY ASSURANCE MANUAL
FOR THE INSTALLATION OF LINER SYSTEMS

QUALITY ASSURANCE MANUAL
FOR THE INSTALLATION OF
LINING SYSTEMS

QUALITY ASSURANCE MANUAL
FOR THE INSTALLATION OF
LINING SYSTEMS

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1.0 GENERAL

1.1 SCOPE

This Quality Assurance Manual (QAM) addresses the quality assurance of the installation of soil and geosynthetic materials used in lining systems by Waste Management companies (Owner) for their land disposal, surface impoundment and other waste containment facilities. This QAM is applicable for lining systems which include base liner and final cover systems. Extreme care and detailed documentation are required in the selection and installation of all materials used in lining systems for waste containment applications.

This QAM primarily addresses quality assurance and is directed toward the Quality Assurance Consultant. In the context of this manual, **quality assurance** refers to means and actions employed by the Owner to assure conformity of the lining system production and installation with the project-specific Quality Assurance Plan (QAP), contractual and regulatory requirements. **Quality control** refers only to those actions taken to ensure that materials and workmanship meet the requirements of the project plans and specifications. Quality control is provided by the manufacturers, suppliers, contractors and installers of the various components of the lining system.

The QAM is one component of the overall QAP. A project-specific QAP is required for each project. At a minimum, the QAP shall consist of the following:

1. Pertinent Sections of this QAM or other applicable QAMs.

2. Project-Specific Addenda to the QAM Sections. Project-Specific Addenda shall be used to provide for additions, deletions, and changes necessary to the QAM Sections used for a particular project.

3. Project-Specific Plans and Specifications.

The QAP should contain all of the elements necessary to ensure that the project is constructed in accordance with project plans and specifications as well as regulatory requirements. This QAM serves as a foundation for a QAP, and is not a QAP in itself.

1.2 PARTIES

The parties discussed in this section are associated with the ownership, design, supply, manufacture, transportation, installation, and quality assurance of a lining system. The definitions, responsibilities, qualifications, and submittals of these parties are outlined in the following subsections.

1.2.1 Project Manager

1.2.1.1 *Definitions*

The Project Manager is the official representative of the Owner. In this manual, the term Project Manager shall apply equally to "Construction Coordinator", defined as the individual who coordinates construction and quality assurance activities for the project.

1.2.1.2 *Responsibilities*

The Project Manager is responsible for coordination of all construction quality assurance activities. The Project Manager is responsible for the organization and implementation of the QAP for the project as outlined in Section 1.1 of this manual. Other responsibilities include selection or approval of Earthwork Contractor, Geosynthetic Installer, Quality Assurance Consultant and the Quality Assurance Laboratory.

The Project Manager shall serve as communications coordinator for the project, initiating the resolution, pre-construction and construction meetings outlined in Section 1.3. As communications coordinator, the Project Manager shall serve as a liaison between all parties involved in the project to ensure that communications are maintained. The Project Manager shall also be responsible for proper resolution of all quality assurance issues that arise during construction.

1.2.1.3 *Qualifications*

The selection of the Project Manager is the direct responsibility of the Owner. Qualifications for this position include familiarity with the following:

1. Sections of this QAM or other applicable QAMs.

2. General earthwork construction techniques.

3. General geosynthetic installation techniques.

4. All applicable regulatory requirements.

5. Company policies and procedures for project management.

1.2.2 Designer

1.2.2.1 *Definitions*

The Designer is the individual and/or firm who prepares the design, including project plans and specifications for the lining system.

1.2.2.2 *Responsibilities*

The Designer is responsible for performing the engineering design and preparing the associated project plans and specifications for the lining system. The Designer is responsible for approving all design and specification changes and making design clarifications necessitated during construction of the lining system. Upon the request of the Project Manager, the Designer shall attend the resolution and pre-construction meetings outlined in Section 1.3 of this manual.

1.2.2.3 *Qualifications*

The Designer shall be a qualified engineer, certified or licensed as required by regulation. The Designer shall be familiar with the use of soils and/or geosynthetics including detailed design methods and procedures. In addition, the Designer should be familiar with applicable regulatory requirements.

1.2.2.4 *Submittals*

The Designer shall submit the project plans, specifications and associated engineering reports to the Project Manager. The Designer shall also submit completed design clarification forms to the Project Manager in a timely manner upon request. Other information may also be required by the Owner.

1.2.3 Manufacturer

1.2.3.1 *Definitions*

The Manufacturer is the firm which produces any of the various geosynthetic lining system components outlined in this QAM. In the case of a geocomposite, the Manufacturer is the firm which combines the components into the final product.

1.2.3.2 *Responsibilities*

Each Manufacturer is responsible for the production of its geosynthetic product. In addition, each Manufacturer is responsible for the condition of the geosynthetic product until the material is accepted by the Project Manager upon delivery. Each Manufacturer shall produce a consistent product that meets the project specifications. Each Manufacturer shall provide quality control documentation for its product as specified in this QAM.

1.2.3.3 *Qualifications*

Each Manufacturer shall:

1. Be pre-qualified and approved by the Owner.

2. Provide sufficient production capacity and qualified personnel to meet the demands of the project.

3. Have an internal quality control program for its product that meets the requirements presented in this QAM.

1.2.3.4 *Submittals*

Pre-qualification: At a minimum, the Manufacturer shall meet the following requirements and submit the following information to the Project Manager to be considered for pre-qualification:

1. Corporate background and information.

2. Manufacturing capabilities:

   a. Information on plant size, equipment, personnel, number of shifts per day, and capacity per shift.
   b. Daily production quantity of the specified product available for the Owner's facilities.
   c. A list of material properties including certified test results with attached geosynthetic samples.
   d. A list of at least 15 completed landfill or surface impoundment facilities totalling a minimum of 15,000,000 ft^2 (1,500,000 m^2), for which the Manufacturer has manufactured a geosynthetic. For each facility, the following information shall be provided:

      (1) Name and purpose of facility, its location and date of installation.
      (2) Name of Owner, Project Manager, Designer, Installer and Fabricator (if any).
      (3) Type of geosynthetic and surface area of geosynthetic manufactured.
      (4) Available information on the performance of the lining system.

3. The Manufacturer's quality control manual, including a description of the quality control laboratory facilities.

4. The origin (supplier's name and production plant) and identification (brand name and number) of resin used to manufacture the product.

Additional information may need to be submitted if requested by the Project Manager.

Pre-installation: Prior to the installation of any geosynthetic material, the Manufacturer shall submit to the Project Manager all quality control documentation required by the appropriate section of this QAM. This documentation shall be reviewed by the Geosynthetic Quality Assurance Consultant as outlined in Section 1.2.7 of this QAM before installation can begin.

1.2.4 Earthwork Contractor

1.2.4.1 *Definitions*

The Earthwork Contractor is the firm which performs the site earthwork preparation and construction of the soil components of the lining system. The Earthwork Superintendent is the individual responsible for the Earthwork Contractor's field crew. The Earthwork Superintendent represents the Earthwork Contractor at all site meetings and acts as the Earthwork Contractor's spokesman on the project.

1.2.4.2 *Responsibilities*

The Earthwork Contractor is responsible for constructing soil components of the lining systems in conformance to the project plan and specifications. The Earthwork Contractor may also be responsible for locating and transporting the required earth and granular materials, concrete, piping, and other work, as outlined in the project specifications.

1.2.4.3 *Qualifications*

The Earthwork Contractor shall be:

1. Pre-qualified and approved by the Owner.

2. Able to provide qualified personnel to meet the demands of the project.

At a minimum, the Earthwork Contractor shall provide a Superintendent as described below.

The Superintendent must be qualified based on previously demonstrated experience, management ability, and authority. The Superintendent shall be approved by the Project Manager.

1.2.4.4 *Submittals*

Pre-qualification: At a minimum, the Earthwork Contractor shall meet the following requirements and submit the following information to the Project Manager to be considered for prequalification:

1. Company background and information

2. Demonstration of bonding capability

3. List of outstanding contracts

4. List of readily available equipment required to perform the work (i.e., scrapers, graders, scarifiers, compactors, disking equipment, water trucks, and admixing equipment, if required)

5. List of at least five comparable projects with the following information for each project:

   a. Name of the facility, its location, date of installation.
   b. Name of project manager or contact person for the installation.
   c. Description and purpose of installation and definition of contractor's scope of work.

Additional information may need to be submitted if requested by the Project Manager.

Pre-installation: Prior to commencement of the earthwork activities, the Earthwork Contractor shall submit to the Project Manager:

1. Resume of the Earthwork Superintendent to be assigned to this project, including the dates and duration of employment.

2. Schedule of construction activities.

3. List of specific equipment and personnel to be used on the project.

Installation: During the installation, the Earthwork Contractor shall submit to the Project Manager:

1. Subgrade acceptance certificates for each area to be covered by the lining system signed by the Earthwork Contractor.

Completion: Upon completion of the installation, the Earthwork Contractor shall submit a Certificate of Completion.

1.2.5 Geosynthetic Installer

1.2.5.1 *Definitions*

The Geosynthetic Installer (Installer) is the firm which installs the geosynthetic components of the lining system. The Geosynthetic Superintendent is the individual responsible for the Installer's field crew. The Geosynthetic Superintendent shall represent the Installer at all site meetings and act as the Installer's spokesman on the project. The Master Seamer shall be an experienced seamer on the Installer's field crew who shall provide direct supervision over less experienced seamers.

1.2.5.2 *Responsibilities*

The Installer is responsible for field handling, storing, deploying, seaming, temporary restraining and all other aspects of the geosynthetics installation. The Installer may also be responsible for transportation of these materials to the site and for anchor systems, if required by the project specifications. The Installer shall be responsible for submittal of the documentation listed in Section 1.2.5.4.

1.2.5.3 *Qualifications*

The Installer shall be pre-qualified and approved by the Owner. The Installer shall be able to provide qualified personnel to meet the demands of the project. At a minimum, the Installer shall provide a Geosynthetic Superintendent and a Master Seamer.

The Geosynthetic Superintendent shall be qualified based on previously demonstrated experience, management ability and authority. The Geosynthetic Superintendent shall be approved by the Project Manager.

For geomembrane installation, all personnel performing seaming operations shall be qualified by experience or by successfully passing seaming tests. The Master Seamer shall have experience seaming and approved by the Project Manager.

1.2.5.4 *Submittals*

Pre-qualification: At a minimum, the Installer shall submit the following information to the Project Manager to be considered for pre-qualification:

1. Corporate background and information

2. Description of installation capabilities:

   a. Information on equipment (numbers and types), and personnel (number of Superintendents, number of crews).
   b. Average daily production anticipated.
   c. Samples of field geomembrane seams and a list of minimum values for geomembrane seam properties.

3. A list of at least ten completed facilities, totalling a minimum of 2,000,000 ft^2 (200,000 m^2) for which the Installer has installed geosynthetics. For each installation, the following information shall be provided:

   a. Name and purpose of facility, its location, and date of installation.
   b. Name of owner, project manager, designer, manufacturer, fabricator (if any), and name of contact at the facility who can discuss the project.
   c. Name and qualifications of the Superintendent(s) of the Installer's crew(s).
   d. Type of geosynthetic, and surface area installed.
   e. Type of seaming and type of seaming apparatus used.
   f. Duration of installation.
   g. Available information on the performance of the lining system.

4. The Installer's quality control manual.

5. A copy of a letter of recommendation supplied by the geomembrane manufacturer.

Pre-installation: Prior to commencement of the installation, the Installer must submit to the Project Manager:

1. Resume of the Geosynthetic Superintendent to be assigned to this project, including dates and duration of employment.

2. Resume of the Master Seamer to be assigned to this project, including dates and duration of employment.

3. A panel layout drawing showing the installation layout identifying field seams as well as any variance or additional details which deviate from the project plans or specifications. The layout shall be adequate for use as a construction plan and shall include dimensions and details as appropriate.

4. Installation schedule.

5. A list of personnel performing field seaming operations along with pertinent experience information.

6. All geosynthetic quality control certificates as required by this QAM, unless submitted directly to the Project Manager by the Manufacturer.

7. Certification that extrudate to be used is comprised of the same resin as the geomembrane to be used.

This documentation shall be reviewed by the Geosynthetic Quality Assurance Consultant before installation of the geosynthetic can begin.

Installation: During installation, the Installer shall be responsible for the submission of:

1. Quality control documentation recorded during installation.

2. Subgrade surface acceptance certificates signed by the Installer for each area to be covered by the lining system.

Completion: Upon completion of the installation, the Installer shall submit:

1. The warranty obtained from the Manufacturer.

2. The installation warranty.

1.2.6 Soil Quality Assurance Consultant

1.2.6.1 *Definitions*

The Soil Quality Assurance Consultant (Soil QAC) is the firm which observes and documents activities related to the quality assurance of the installation of the soil components of the lining system on behalf of the Owner. The Soil QAC and Geosynthetic QAC may be the same party.

In this QAM, the term Soil Quality Assurance Engineer (Soil QAE) refers to the engineer employed by the QAC who is personally in charge of the quality assurance work. In some cases, the duties of the Soil QAE may be shared by two individuals: a Soil Quality Assurance

Certifying Engineer and a Soil Quality Assurance Resident Engineer. Although not located at the site, the Soil Quality Assurance Certifying Engineer shall visit the site often enough to be familiar with the details of the project. The Soil Quality Assurance Certifying Engineer may also be known as the Soil Quality Assurance Officer.

The personnel of the Soil QAC also include Soil Quality Assurance Monitors (Soil QA Monitors) who are located at the site for construction observation and documentation.

1.2.6.2 *Responsibilities*

The Soil QAC is responsible for observing and documenting activities related to the quality assurance of the construction of the soil components of the lining systems. The Soil QAC is responsible for the implementation of the project QAP prepared by the Project Manager. The Soil QAC is also responsible for issuing a final Quality Assurance Report, sealed by a licensed Professional Engineer, as outlined in Section 2.0 of this QAM. Other duties of the Soil QAC shall include overseeing the soil laboratory testing.

The specific duties of the Soil QAC personnel are as follows:

1. The Soil QAE:

    a. Reviews all project plans and specifications.
    b. Reviews other site-specific documentation.
    c. Develops site-specific addenda for quality assurance of soil components with the assistance of the Project Manager as necessary.
    d. Administers the soil portions of the QAP, including assigning and managing all soil quality assurance personnel, reviews all field reports, and provides engineering review of all quality assurance related issues.
    e. Familiarizes himself with all applicable changes to project plans and specifications as issued by the Designer.
    f. Acts as on-site (resident) representative of the Soil QAC.
    g. Familiarizes all Soil QA Monitors with the site and the project QAP.
    h. Assigns Soil QA Monitors to observe and document all activities requiring monitoring.
    i. Attends all quality assurance related meetings, including resolution, pre-construction, daily, weekly meetings.
    j. Reviews the Earthwork Contractor's personnel qualifications for conformance with those qualifications preapproved for work on-site.
    k. Reviews the calibration certification of the on-site and off-site soil testing equipment.
    l. Manages the preparation of the record drawings.
    m. Reviews the Soil QA Monitors' daily reports, logs, and photographs.
    n. Notes any on-site activities that could result in damage to the installed soil components.
    o. Reports to the Project Manager, and logs in the daily report, any relevant observations reported by the Soil QA Monitors.
    p. Prepares his own daily report.
    q. Prepares a daily summary of the soil component quantities estimates installed each day of construction activity.

r. Prepares a weekly summary of soil quality assurance activities at the end of each week of the construction activity.
s. Oversees marking, packaging and shipping of all laboratory test samples.
t. Reviews the results of laboratory testing and makes appropriate recommendations.
u. Recommends the approval of the final soils acceptance to the Project Manager.
v. Designates a Soil QA Monitor to represent the QAE whenever he is absent from the site while operations are ongoing.
w. Reports any unapproved deviations from the QAP to the Project Manager.
x. Maintains field files of all logs and reports.
y. Maintains qualifications of all personnel and calibration of equipment.
z. Prepares the final Quality Assurance Report.

2. The Soil QA Monitor:

   a. Monitors, logs, photographs and/or documents all soil component installation operations. Photographs shall be taken routinely and in critical areas of the installation sequence. These duties shall be assigned by the Soil QAE.
   b. Monitors and documents the following operations for all soil components:
      (1) Material delivery
      (2) Unloading and on-site transport and storage
      (3) Sampling and conformance testing
      (4) Deployment operations
      (5) Condition of the soil components as placed
      (6) Visual observation, by walkover, of the finished soil components
      (7) Sampling and field testing of the finished soil components
      (8) Repair operations, if and when necessary
   c. Conducts soil sampling and testing.
   d. Documents any on-site activities that could result in damage to the constructed soil components. Any problems noted shall be reported as soon as possible to the Soil QAE.

Any differences of the Soil QAC's interpretation of the project plans and specifications from the Earthwork Contractor's interpretation shall be properly and adequately assessed by the Soil QAC through discussion with the Earthwork Contractor. If such assessment indicates any actual or suspected work deficiencies, the Soil QAC shall inform the Earthwork Contractor of these deficiency issues.

1.2.6.3 *Qualifications*

The Soil QAC shall be pre-qualified and approved by the Owner. The Soil QAC shall be experienced in the preparation of quality assurance documentation including quality assurance forms, reports, certifications and manuals.

The Soil QAE shall hold a B.S., M.S., or Ph.D degree in civil engineering or related fields and be licensed as a Professional Engineer. If the duties of the Soil QAE are shared by two parties, only the Soil Quality Assurance Certifying Engineer shall be required to be a licensed

Professional Engineer. The Soil QAE shall be specifically experienced in the installation of soil liners and shall have the necessary training and certification by the Soil QAC in the duties of a Soil QAE. The Soil QAE shall be approved by the Project Manager.

Soil QA Monitors shall have specific training in construction quality assurance of engineered soil structures and be so designated by the Soil QAE. The Monitors shall be approved by the Project Manager.

1.2.6.4 *Submittals*

Pre-qualification: At a minimum, the Soil QAC shall submit the following information in writing to the Project Manager to be considered for pre-qualification:

1. Corporate background and information:
    a. General company information
    b. Proof of insurance
        (1) Professional liability
        (2) "Umbrella" coverage
        (3) Other coverages as required by statute and/or proposed contractual agreement

2. Quality assurance capabilities:
    a. A summary of the firm's experience in quality assurance, specifically quality assurance of soil components of lining systems.
    b. A summary of quality assurance documentation and methods used by the firm, including sample quality assurance forms, reports, certifications, and manuals prepared by the firm.
    c. Resumes of key personnel.

Additional information may need to be submitted if required by the Project Manager.

Pre-construction: Prior to beginning work on a project, the Soil QAC shall, in writing, provide the Project Manager with the following:

1. Resumes of personnel to be involved in the project including Soil QAE and Soil Quality Assurance Monitors.
2. Proof of professional engineering registration in the appropriate state of the engineer to be designated as the Soil Quality Assurance Certifying Engineer, as well as proof of B.S., M.S. or Ph.D in civil engineering or related field degree.
3. Proof of the required soil components quality assurance experience of all of the quality assurance personnel.
4. Examples of forms to be used in documentation of the project.

1.2.7 Geosynthetic Quality Assurance Consultant

1.2.7.1 *Definitions*

The Geosynthetic Quality Assurance Consultant (Geosynthetic QAC) is the firm which observes and documents activities related to the quality assurance of the production and installation of the geosynthetic components of the lining systems on behalf of the Owner. The Geosynthetic QAC and Soil QAC may be the same party.

In this QAM, the term Geosynthetic Quality Assurance Engineer (Geosynthetic QAE) shall be used to designate the engineer working for the Geosynthetic QAC in charge of the quality assurance work. In some cases the duties of the Geosynthetic QAE may be shared by two individuals: a Geosynthetic Quality Assurance Certifying Engineer and a Geosynthetic Quality Assurance Resident Engineer. Although not located at the site, the Geosynthetic Quality Assurance Certifying Engineer shall visit the site often enough to be familiar with the details of the project. The Geosynthetic Quality Assurance Certifying Engineer may also be known as the Geosynthetic Quality Assurance Officer.

The personnel of the Geosynthetic QAC also include Geosynthetic Quality Assurance Monitors who are located at the site for construction observation and documentation.

1.2.7.2 *Responsibilities*

The Geosynthetic QAC is responsible for observing and documenting activities related to the quality assurance of the production and installation of the geosynthetic components of the lining systems. The Geosynthetic QAC is responsible for implementation of the project QAP prepared by the Project Manager as well as reviewing work products of the Geosynthetic Quality Assurance Laboratory. The Geosynthetic QAC is also responsible for issuing a final Quality Assurance Report, sealed by a licensed Professional Engineer, as outlined in Section 2.0 of this QAM.

The specific duties of the Geosynthetic QAC personnel are as follows:

1. The Geosynthetic QAE:

    a. Familiarizes himself with all project plans and specifications.
    b. Reviews other site-specific documentation, including proposed layouts, and manufacturer's and installer's literature.
    c. Develops site-specific addenda for quality assurance of geosynthetics with the assistance of the Project Manager, as necessary.
    d. Administers the geosynthetic portions of the QAP, including assigning and managing all geosynthetic quality assurance personnel, reviewing all field reports, and providing engineering review of all quality assurance related issues.
    e. Reviews for familiarity all appropriate changes to design drawings and project specifications as issued by the Designer.
    f. Acts as the on-site (resident) representative of the Geosynthetic QAC.

g. Familiarizes all Geosynthetic Quality Assurance Monitors with the site and the project QAP.
h. Assigns Geosynthetic Quality Assurance personnel to observe and document geosynthetic installation activities requiring certification.
i. Attends all quality assurance related meetings, including resolution, pre-construction, daily, weekly.
j. Reviews all Manufacturer and Installer certifications and documentation and makes appropriate recommendations.
k. Reviews the Installer's personnel qualifications for conformance with those qualifications preapproved for work on site.
l. Manages the preparation of the record drawings.
m. Reviews the calibration certification of the on-site testing equipment, as required.
n. Reviews all Geosynthetic Quality Assurance Monitor's daily reports, logs and photographs.
o. Notes any on-site activities that could result in damage to the geosynthetics.
p. Reports to the Project Manager, and logs in the daily report, any relevant observations reported by the Geosynthetic Quality Assurance Monitors.
q. Prepares his own daily report.
r. Prepares a daily summary of the quantities estimates of geosynthetics installed that day.
s. Prepares the weekly summary of geosynthetic quality assurance activities.
t. Oversees the marking, packaging and shipping of all laboratory test samples.
u. Reviews the results of laboratory testing and makes appropriate recommendations.
v. Recommends the approval of the final liner acceptance to the Project Manager.
w. Designates a Geosynthetic Quality Assurance Monitor to represent the QAE whenever he is absent from the site while operations are ongoing.
x. Reports any unapproved deviations from the QAP immediately to the Project Manager.
y. Prepares the final Quality Assurance Report.

2. The Geosynthetic Quality Assurance Monitor:

   a. Monitors, logs, photographs and/or documents all geosynthetic installation operations. Photographs shall be taken routinely and in critical areas of the installation. These duties shall be assigned by the Geosynthetic QAE.

   b. Monitors the following operations for all geosynthetics:

      (1) Material delivery
      (2) Unloading and on-site transport and storage
      (3) Sampling for conformance testing
      (4) Deployment operations
      (5) Joining and/or seaming operations
      (6) Condition of panels as placed
      (7) Visual inspection by walkover
      (8) Repair operations

c. Monitors and documents the geomembrane seaming operations, including:
   (1) Trial seams
   (2) Seam preparation
   (3) Seaming
   (4) Nondestructive seam testing
   (5) Sampling for destructive seam testing
   (6) Field tensiometer testing
   (7) Laboratory sample marking
   (8) Repair operations
   (9) Measurements of uninstalled quantities

d. Documents any on-site activities that could result in damage to the geosynthetics. Any problems noted shall be reported as soon as possible to the Geosynthetic QAE.

Any differences between the Geosynthetic QAC's and Installer's interpretation of the project plans and specifications shall be properly and adequately assessed by the Geosynthetic QAC. If such assessment indicates any actual or suspected work deficiencies, the Geosynthetic QAC shall inform the Installer, or the Installer's representative, of these deficiencies.

1.2.7.3 *Qualifications*

The Geosynthetic QAC shall be pre-qualified by the Owner. The Geosynthetic QAC shall be experienced in quality assurance of geosynthetics with emphasis on polyethylene geomembranes. The Geosynthetic QAC shall be experienced in the preparation of quality assurance documentation including quality assurance forms, reports, certifications, and manuals.

The Geosynthetic Quality Assurance Certifying Engineer shall hold a B.S., M.S. or Ph.D degree in civil engineering or related fields and be licensed as a Professional Engineer. If the duties of the Geosynthetic QAE are shared by two parties, only the Certifying Engineer shall be required to be licensed as a Professional Engineer. The Geosynthetic Quality Assurance Resident Engineer shall be specifically experienced in the installation of geosynthetics and shall be trained and certified by the Geosynthetic QAC in the duties of a Geosynthetic QAE. The Geosynthetic QAC shall be approved by the Project Manager.

Geosynthetic Quality Assurance Monitors shall be quality assurance personnel who have been specifically trained in the quality assurance of geosynthetics. The Monitors shall be approved by the Project Manager.

1.2.7.4 *Submittals*

<u>Pre-qualification:</u> At a minimum, the Geosynthetic QAC shall provide the following information in writing to the Project Manager to be considered for pre-qualification:

1. Corporate background and information.
   a. General company information
   b. Proof of insurance

(1) Professional liability
(2) "Umbrella" coverage
(3) Other coverages as required by statute and/or proposed contractual agreement

2. Quality assurance capabilities:
   a. A summary of the firm's experience with geosynthetics.
   b. A summary of the firm's experience in quality assurance, including installation quality assurance of geosynthetics.
   c. A summary of quality assurance documentation and methods used by the firm, including sample quality assurance forms, reports, certifications, and manuals prepared by the firm.
   d. Resumes of key personnel.

Additional information may need to be submitted if required by the Project Manager.

Pre-installation: Prior to beginning work on a project, the Geosynthetic QAC must provide the Project Manager with the following information:

1. Resumes of personnel to be involved in the project including Geosynthetic QAE and Geosynthetic Quality Assurance Monitors.
2. Proof of professional engineering registration in the appropriate state for the engineer to be designated as the Geosynthetic QAE, as well as proof of B.S., M.S., or Ph.D in civil engineering or related field degree.
3. Proof of the required quality assurance experience of all of the quality assurance personnel with emphasis on polyethylene geomembranes.
4. Examples of forms to be used in documentation of the project.

1.2.8 Soil Quality Assurance Laboratory

1.2.8.1 *Definitions*

The Soil Quality Assurance Laboratory (Soil QAL) is the firm which conducts tests on soil samples taken from the site. The Soil QAL and Geosynthetic QAL may be the same party.

1.2.8.2 *Responsibilities*

The Soil QAL is responsible for conducting the appropriate laboratory tests as directed by the Soil QAE. The test procedures shall be done in accordance with the test methods outlined in this QAM and/or the project QAP. The Soil QAL shall be responsible for providing tests results as outlined in Section 1.2.0.4.

1.2.8.3 *Qualifications*

The Soil QAL shall be pre-qualified by the Owner and approved by the Project Manager. The Soil QAL shall have properly maintained and periodically calibrated appropriate testing equipment. The Soil QAL shall also ensure that laboratory soil testing is performed by personnel with experience and/or training in soil testing fundamentals. The laboratory personnel shall be familiar with American Society for Testing and Materials (ASTM), American Association of State Highway and Transportation Officials (AASHTO), Federal Test Method Standard (FTMS) and other applicable test standards. The Soil QAL shall be capable of providing test results within project deadlines throughout the soil prequalification and installation phase of the soil components.

The Soil QAL shall submit sample data and analysis to be used during the lab tests to the Project Manager.

1.2.8.4 *Submittals*

The Soil QAL shall submit all written test results within project deadlines to the Soil QAE. Soil test results shall be provided to the Soil QAE as soon as possible after test completion. Written test results shall be in an easily readable format and include references to the standard test methods used.

1.2.9 Geosynthetic Quality Assurance Laboratory

1.2.9.1 *Definitions*

The Geosynthetic Quality Assurance Laboratory (Geosynthetic QAL) is the firm which conducts tests on samples of geosynthetics taken from the site. The Geosynthetic QAL and the Soil QAL may be the same party.

1.2.9.2 *Responsibilities*

The Geosynthetic QAL is responsible for conducting the appropriate laboratory tests as directed by the Geosynthetic QAE. The test procedures shall be done in accordance with the test methods outlined in this QAM and/or the project QAP. The Geosynthetic QAL shall be responsible for providing test results as outlined in Section 1.2.9.4.

1.2.9.3 *Qualifications*

The Geosynthetic QAL shall be pre-qualified by the Owner and approved by the Project Manager. The Geosynthetic QAL shall have properly maintained and periodically calibrated appropriate testing equipment. The Geosynthetic QAL shall also ensure the laboratory testing is performed by personnel with experience and/or training in geosynthetic testing fundamentals.

The Geosynthetic QAL shall be familiar with ASTM, FTMS, National Sanitation Foundation (NSF), and other applicable test standards. The Geosynthetic QAL shall be capable of providing results of destructive seam tests within 24 hours of receipt of test samples and shall maintain that standard throughout the installation. On-site laboratory facilities may be used by the Geosynthetic QAL, provided they are appropriately equipped and approved by the Geosynthetic QAC and Project Manager.

1.2.9.4 *Submittals*

The Geosynthetic QAL shall submit all destructive seam test results to the Geosynthetic QAE in written form within 48 hours of receipt of test samples unless otherwise specified by the Project Manager. Geomembrane destructive test results shall typically be provided to the Geosynthetic QAE within 24 hours of receipt of test samples. Written test results shall be in an easily readable format and include references to the standard test methods used.

1.3 COMMUNICATION

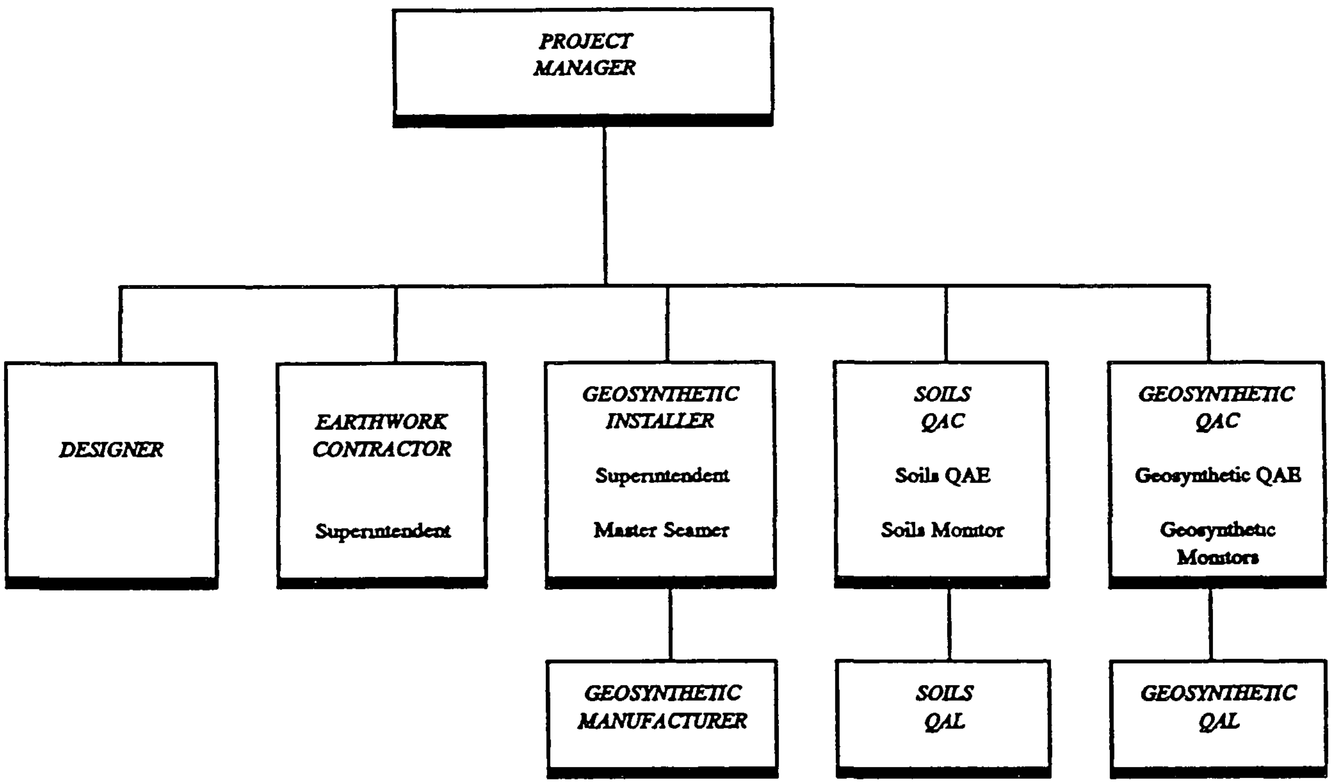
To help ensure a high degree of quality during installation and assure a final product that meets all project specifications, clear, open channels of communication are essential between all parties. This section discusses appropriate lines of communication and describes all meetings that will be necessary to achieve project goals.

1.3.1 Lines of Communication

The typical lines of communication necessary during a project are illustrated in Exhibit 1-1. The Soil QAE and Geosynthetic QAE shall be capable of direct communication with the Project Manager at all times.

Exhibit 1-1

LINES OF COMMUNICATION



1.3.2 Resolution Meeting

Following permit approval and the completion of the project plans and specifications, a resolution meeting may be held. If a Project Manager determines a resolution meeting is necessary, it shall be held prior to bidding the construction work and include all parties involved, typically including the Project Manager, Designer, Soil/Geosynthetic QAE and the Owner's technical representative. If appropriate, this meeting may be held in conjunction with the pre-bid meeting.

The purpose of the resolution meeting is to establish lines of communication, review project plans and specifications for completeness and clarity, begin planning for coordination of tasks, anticipate any problems which might cause difficulties and delays in construction, and complete the QAP. The design shall be discussed during this meeting so that clarification and/or design changes may be made before the construction work is bid. In addition, the guidelines regarding quality assurance testing and problem resolution must be known and accepted by all.

A recommended agenda for the resolution meeting is presented in Exhibit 1-2. The meeting shall be documented by a person designated at the beginning of the meeting, and minutes shall be transmitted to all parties.

1.3.3 Pre-Construction Meeting

A pre-construction meeting shall be held at the site prior to beginning of lining system installation. Typically, the meeting shall be attended by the Project Manager, Designer, Earthwork Contractor, Geosynthetic Installer, Soil/Geosynthetic QAE and the Owner's technical representative.

Specific topics considered for this pre-construction meeting include review of the project QAP for any problems or additions. The responsibilities of each party should also be reviewed and understood clearly. A recommended agenda with specific topics for the pre-construction meeting is presented in Exhibit 1-3. The meeting shall be documented by a person designated at the beginning of the meeting, and minutes shall be transmitted to all parties.

1.3.4 Progress Meetings

A weekly progress meeting shall be held between the Soil/Geosynthetic QAE, Earthwork Contractor's/Installer's Superintendent, Project Manager and any other concerned parties. This meeting shall discuss current progress, planned activities for the next week, issues requiring resolution, and any new business or revisions to the work. The Soil/Geosynthetic QAE shall log any problems, decisions, or questions arising at this meeting in his weekly report. If any matter remains unresolved at the end of this meeting, the Project Manager shall be responsible for the resolution of the matter and the communication of the decision to the appropriate parties. The Project Manager may require daily progress meetings at his discretion.

Exhibit 1-2
RESOLUTION MEETING AGENDA
EXAMPLE

1. Introductions

    A. Assign Minute Taker
    B. Identify Parties
        1. Project Manager
        2. Designer
        3. Soil/Geosynthetic Quality Assurance Consultant
        4. Owner technical representative
        5. Others

2. Tour Project Site

3. Review Documents

    A. Project Plans
    B. Project Specifications
    C. Construction Quality Assurance Manuals
    D. Permit Documents

4. Complete Quality Assurance Plan

    A. Project-specific Addendum to Quality Assurance Manual(s)
    B. Project-specific Addendum to project specifications

5. Discuss Contract Administration and Construction Issues

6. Define Lines of Communication

7. Define Project Deliverables

8. Determine Schedule

Exhibit 1-3
PRE-CONSTRUCTION MEETING AGENDA
EXAMPLE

1. Introductions

    A. Assign Minute Taker
    B. Identify Parties
        1. Project Manager
        2. Designer
        3. Surveyor
        4. Earthwork Contractor
        5. Geosynthetic Installer
        6. Soil/Geosynthetic Quality Assurance Consultant
        7. Soil/Geosynthetic Quality Assurance Laboratory
        8. Owner technical representative
        9. Others

2. Tour Project Site

3. Review Documents

    A. Project Plans
    B. Project Specifications
    C. Geosynthetic Panel Layout
    D. Project Quality Assurance Plan
    E. Health and Safety Plan

4. Define Lines of Communication

    A. Lines of Communication
    B. Reporting Methods
    C. Distribution Methods
    D. Progress Meetings
    E. Procedures for Approving Design Clarifications and Changes During Installation

5. Review Site Requirements

    A. Safety Rules
    B. Site Rules
    C. Work Schedule
    D. Storage of Materials
    E. Available Facilities

Exhibit 1-3 (Continued)
PRE-CONSTRUCTION MEETING AGENDA

6. Discuss Construction Issues

   A. Scope of Work
   B. Review Design
      1. Construction Drawings
      2. Specifications
      3. Geosynthetic Panel Layout
   C. Construction Procedures
      1. Proposed Construction Sequencing
      2. Location of Soil Stockpile Areas
      3. Location of Geosynthetic Storage Area
      4. Equipment
   D. Construction Schedule
   E. Procedures for Preparing and Approving Change Orders

7. Complete Construction Quality Assurance Plan

   A. Soils
   B. Geosynthetics
   C. Structural Systems (e.g., risers, piping, etc.)

8. Establish Project Deliverables

   A. Responsibilities
      1. Designer
      2. Installer
      3. Earthwork Contractor
      4. Soil/Geosynthetic Quality Assurance Consultant
      5. Soil/Geosynthetic Quality Assurance Laboratory
      6. Project Manager
   B. Distribution of Deliverables
   C. Approval Procedures

2.0 DOCUMENTATION

An effective QAP depends largely on identification of those construction activities that require monitoring, and on assigning responsibilities for the monitoring of each activity. This is most effectively verified by the thorough documentation of quality assurance activities. The Soil/Geosynthetic QAC shall document that all requirements in the lining portions of the project QAP have been addressed and satisfied.

The Soil/Geosynthetic QAC shall provide the Project Manager with signed descriptive remarks, data sheets, and checklists to verify that required monitoring activities have been carried out. The Soil/Geosynthetic QAC shall also maintain at the job site a complete file of all documents which comprise the QAP, including plans and specifications, this QAM, checklists, test procedures, daily logs, and other pertinent documents.

2.1 DAILY REPORTS

2.1.1 Soils Reports

Each Soil Quality Assurance Monitor shall complete a daily report and/or logs on prescribed forms outlining all monitoring activities for that day. The report at a minimum shall consist of field notes, observations, test data sheets, construction problems and solution data sheets. A summary of all supporting data sheets along with final testing results and Soils QAE's approval of the work shall be required upon completion of construction.

The Project Manager shall immediately be made aware of any nonconformance with the project specifications. In particular, the Project Manager shall be informed before the work in question is covered by overlying system layers. The Project Manager shall then determine its cause and recommend direct appropriate changes or recommend the appropriate changes. When this type of evaluation is made, the results shall be documented, and any revision to procedures or project specifications shall be approved in writing by the Owner and Designer.

2.1.2 Geosynthetic Reports

Each Geosynthetic Quality Assurance Monitor shall complete a daily report and/or logs on prescribed forms outlining all monitoring activities for that day. The precise areas worked on, panel numbers, seams completed and approved, measures taken to protect unfinished areas overnight and other appropriate data and information shall be identified. Failed seams, other panel areas, or other geosynthetics requiring remedial action shall be identified with regard to nature of action, required repair, and precise location. Repairs completed must also be identified. Any problems or concerns with regard to operations on site should be noted. The report should also include information regarding the weather conditions. This report must be completed at the end of each monitor's shift, prior to leaving the site, and submitted to the Geosynthetic QAC.

The Geosynthetic QAE shall review the daily reports submitted by the Quality Assurance Monitors, and incorporate a summary of their reports into the QAE's daily report. Any matters requiring action by the Project Manager shall be identified. The report shall include a summary of the quantities of all material installed that day. This report must be completed daily, summarizing the previous day's activities, and a copy submitted to the Project Manager at the beginning of the work day following the report date.

2.2 TEST REPORTS

2.2.1 Soils Testing Reports

Records of field and laboratory testing performed on the soil components of the liner shall be collated by the Soil QAC. A summary list of test results shall be prepared by the Soil QAC on an ongoing basis, and submitted with the weekly progress reports.

2.2.2 Geosynthetic Testing Reports

The destructive test reports from all sources shall be collated by the Geosynthetic QAC. This includes field tests, Installer's laboratory tests (if performed), and Geosynthetic QAL tests. A summary list of test samples pass/fail results shall be prepared by the Geosynthetic QAC on an ongoing basis, and submitted with the weekly progress reports. The report shall also contain resolution on failed tests clearly documenting complete quality assurance conformance with established procedures.

2.3 PROGRESS REPORTS

Progress reports shall be prepared by the Soil and Geosynthetic QAEs and submitted to the Project Manager. These reports shall be submitted every week, starting the first Friday of soil placement or geosynthetics deployment on site or other day as approved by the Project Manager. This report shall include an overview of progress to date and an outline of any deviation from the project plans or specifications. The report shall also include any problems or deficiencies in installation at the site, an outline of any action taken to remedy the situation, a summary of weather conditions and a brief description of activities anticipated for the next reporting period. All daily reports for the period should be appended to each progress report.

2.4 RECORD DRAWINGS

2.4.1 Soils Drawings

Record drawings shall be prepared by the Soil QAC. The record drawings shall include, at a minimum, the following information for soil components:

1. Surveyed grade of the prepared subgrade.
2. Surveyed grade of the clay layer and other soil components.
3. Measured dimensions of any excavation within the subgrade and also within the soil layers.
4. Locations of all field tests and samples obtained for laboratory testing.
5. Locations of all repairs performed on soil components.
6. Locations of grade changes relative to site survey grid.

If necessary, for the purpose of clarity in the drawings, separate sheets shall be used to illustrate the locations of test sampling points. The drawings shall be shown in both plan and in cross section views as applicable. All surveying shall be performed by a licensed land surveyor.

2.4.2 Geosynthetic Drawings

Record drawings shall be prepared by the Geosynthetic QAC. The record drawings shall include, at a minimum, the following information for geomembranes:

1. Dimensions of all geomembrane field panels.
2. Location, as accurately as possible, of each panel relative to the site survey grid furnished by the Project Manager.
3. Identification of all seams and panels with appropriate numbers or identification codes.
4. Location of all patches and repairs.
5. Location of all destructive testing samples.

The record drawings shall illustrate each layer of geomembrane, and if necessary, other drawings shall identify problems or unusual conditions of the geotextile or geonet layers. In addition, applicable cross sections shall show layouts of geonets, geotextiles or geogrids in sump areas or any other areas which are unusual or differ from the design drawings. All surveying for as-built information shall be performed by a licensed land surveyor.

2.5 FINAL QUALITY ASSURANCE REPORT

Upon completion of the work, the Soil/Geosynthetic QAC shall submit a final Quality Assurance Report to the Project Manager. This report shall summarize the activities of the project, and document all aspects of the quality assurance program performed.

The final Quality Assurance Report shall include, at a minimum, the following information:

1. Parties and personnel involved with the project.
2. Scope of work.
3. Outline of project.
4. Quality assurance methods.
5. Test results (conformance, destructive and non-destructive, including laboratory tests).
6. Signature page, sealed and signed by a licensed Professional Engineer.
7. Record drawings, sealed and signed by a licensed Professional Engineer.

The Soils/Geosynthetic QAC shall state in the report that the installation has proceeded in accordance with the project QAP except as noted to the Project Manager. A recommended outline for the final Quality Assurance Report is given in Exhibit 2-1. The items shown in Exhibit 2-1 shall be considered the minimum content. The Soils/Geosynthetic QAC may expand the content as required.

Exhibit 2-1
FINAL CONSTRUCTION QUALITY ASSURANCE REPORT
GENERAL OUTLINE

1. Introduction

   A. Purpose
   B. Scope
   C. Unit Description
   D. Project Parties

2. Project QAP

   A. Scope
   B. Design Changes
   C. Project-Specific Addenda
   D. Permit Conditions
   E. Regulations

3. Work Performed

   A. Weather Constraints
   B. Pre-construction Testing
   C. Conformance Testing
   D. Visual Monitoring
   E. Photo Documentation
   F. Construction Testing
   G. Repairs

4. Summary and Conclusions

5. Project Certification

6. Appendices

   A. Geosynthetic and/or Soils QAC Personnel
   B. Contractor Personnel
   C. Quality Assurance Plan (QAP) with Project-Specific Addenda
   D. Design Change Forms
   E. Earthwork Testing Records (if required)
   F. Conformance Testing Records
   G. Manufacturer Quality Control Records

Exhibit 2-1 (Continued)
FINAL CONSTRUCTION QUALITY ASSURANCE REPORT
GENERAL OUTLINE

H. Quality Assurance Reports
I. Subgrade Acceptance Certificates
J. Panel Placement and Seaming Records
K. Trial Weld Records
L. Non-Destructive Seam Testing Records
M. Destructive Seam Testing Records
N. Repairs
O. Record Drawings

3.0 LINING SYSTEM ACCEPTANCE

3.1 SOIL COMPONENTS ACCEPTANCE

Upon written recommendation by the Soil QAC, the Project Manager shall consider accepting the soil components of the lining system. The Earthwork Contractor will retain all ownership and responsibility for the soil lining components until acceptance by the Project Manager. At the Project Manager's discretion, the lining system may be accepted in sections or at points of substantial completion.

The soil components of the lining system will be accepted by the Project Manager when:

1. The installation of the soil components is finished.
2. Verification of the adequacy of the constructed components, including repairs, if any, is completed in accordance with the project-specific QAP.
3. All documentation of installation is completed.
4. The Soil QAC is able to recommend acceptance.

The Soil QAC shall certify that installation of the soil components has proceeded in accordance with the soil portions of the project-specific QAP except as noted to the Project Manager. This certification shall be provided in the final Quality Assurance Report as outlined in Section 2.5.

3.2 GEOSYNTHETIC COMPONENTS ACCEPTANCE

Upon written recommendation by the Geosynthetic QAC, the Project Manager shall consider accepting the geosynthetic components of the lining system. The Installer will retain all ownership and responsibility for the geosynthetics in the lining system until acceptance by the Project Manager. At the Project Manager's discretion, the lining system may be accepted in sections or at points of substantial completion.

The geosynthetic components of the lining system will be accepted by the Project Manager when:

1. The installation of the geosynthetic components is finished.
2. Verification of the adequacy of all seams including associated testing and repairs, if any, is completed in accordance with the project-specific QAP.
3. All documentation of installation is completed.
4. The Geosynthetic QAC is able to recommend acceptance.

The Geosynthetic QAC shall certify that installation has proceeded in accordance with the geosynthetic portions of the project-specific QAP except as noted to the Project Manager. This certification shall be provided in the final Quality Assurance Report as outlined in Section 2.5.

4.0 SOIL LINER MATERIAL

4.1 DESCRIPTION AND APPLICABILITY

Soil liner material generally consists of cohesive soils with low hydraulic conductivity used as barriers in lining systems. Soils used in soil liners shall consist of clean, select material free of debris, excessive coarse particles or other deleterious matter. Soils with a visibly identifiable organic content, or soils classified according to the Unified Soil Classification System as organic silt or organic clay (OL, OH) shall not be used. This Section does not address quality assurance procedures for bentonite admixtures.

4.2 QUALITY CONTROL DOCUMENTATION

Prior to the construction of a soil liner, soil evaluation tests shall be performed to confirm the adequacy of soil liner materials procured from each on-site or off-site source area. All tests shall be performed in a geotechnical laboratory, which may be the Soil QAL or another laboratory approved by the Project Manager. The Earthwork Contractor shall submit the results of source evaluation tests to the Project Manager. Previous testing and evaluations of the soil sources may also be used to evaluate the soil material. The material shall be accepted or rejected by the Project Manager according to these results.

At a minimum, the following tests shall be conducted:

1. Moisture content (ASTM D2216)
2. Particle size (ASTM D1140, D422)
3. Atterberg limits (ASTM D4318)
4. Laboratory compaction (ASTM D1557 for Modified or ASTM D698 for Standard)
5. Laboratory hydraulic conductivity at a specified compaction (ASTM D5084)

Unless otherwise specified in the project specifications, these tests shall be performed at a frequency of one per 20,000 yd^3 (15,000 m^3) of liner soil, or upon visual observation of changes in the material type. Previous soil testing and evaluations may be used in determining testing frequencies.

If identification of additional soil liner material sources becomes necessary during construction, the same material qualification and testing procedures shall be applied to each new source. Additional testing may be required by the project specifications. Project specifications may modify testing frequencies if the soil liner material has been previously evaluated or used.

4.3 CONFORMANCE TESTING

Conformance testing of the soil liner materials shall be performed to ensure the consistency of the properties of the soil obtained from on or off-site borrow sources. These tests shall be performed on or off-site prior to placement, compaction and any necessary conditioning of the soil liner.

At a minimum, the following tests shall be conducted:

1. Moisture content (ASTM D2216)
2. Particle size (ASTM D1140, D422)
3. Atterberg limits (ASTM D4318)
4. Laboratory compaction (ASTM D1557 for Modified or ASTM D698 for Standard)
5. Laboratory hydraulic conductivity at a specified compaction (ASTM D5084)

Unless otherwise specified in the project specifications, particle size tests shall be performed at a frequency of one per 1,000 yd^3 (750 m^3) of liner soil, or upon visually observable changes in the material type. The other tests shall be performed at a frequency of one per 5,000 yd^3 (3,500 m^3) of liner soil, or upon visually observable changes in the material type.

The Soil QAE shall examine all test results and report any nonconformance to the Project Manager. The Project Manager shall accept or reject the soil based on this review and the requirements of the project specifications prior to construction.

4.4 SUBGRADE PREPARATION

The Earthwork Contractor shall be responsible for preparing the subgrade soil for placement of overlying materials. Upon completion of the subgrade preparation work, the Soil QAC shall examine the subgrade and prepare a certificate of acceptance to be submitted to the Project Manager. In this certificate of acceptance, the Soil QAC shall verify, at a minimum, that:

1. A licensed land surveyor has verified all lines and grades.
2. A qualified engineer has verified that the subgrade soil meets the criteria in the project specifications.

At any time during construction of the soil liner, the Soil QAC shall indicate to the Project Manager any locations which are not adequate for placement of the soil liner. Such defects in the subgrade soil shall be repaired by the Earthwork Contractor, at the direction of the Project Manager, such that the properties of the repaired areas meet the project specifications.

4.5 CONSTRUCTION OBSERVATION

Observation of the soil liner construction shall be coordinated with construction testing. Acceptance criteria for construction work shall be as identified in the project specifications. At a minimum, the Soil QAC shall observe and record the following during the construction of soil liners:

1. Moisture content and consistency of the soil during processing, placement, and compaction.
2. Type and level of compactive effort
   a. Roller type
   b. Roller weight
   c. Number of coverages

3. Action of compaction equipment on the soil surface (sheepsfoot penetration, pumping, cracking, etc.)
4. Maximum clod size
5. Loose and compacted lift thickness
6. Method of bonding lifts together
7. Dimensions of the compacted embankment
8. Stones which may damage overlying geosynthetic components
9. Areas where damage due to excess moisture, insufficient moisture, or freezing may have occurred.

4.6 CONSTRUCTION TESTING

All construction quality assurance testing shall be conducted in accordance with the project specifications, or as directed by the Project Manager, and as documented in the site-specific addenda to this QAM. All field and laboratory tests shall be conducted on samples taken from the soil liner materials during the course of the construction work. Testing and sampling procedures shall be observed and documented by the Soil QAC. Documentation and reporting of test results shall be in accordance with the requirements identified in this QAM.

4.6.1 Field Testing

The Soil QAC shall perform the following field tests on each lift of the compacted soil:

1. Field moisture content (ASTM D2216 or D3017)
2. Field density (ASTM D2922, D1556, or D2167)
3. In-situ shear strength with pocket penetrometer

Unless otherwise specified in the project specifications, these tests shall be performed at a frequency of one per 10,000 ft^2 (1,000 m^2) area or less of each compacted lift. Sampling locations shall be selected by the Soil QAC.

Nuclear density tests (ASTM D2922) shall be preferred for density (dry unit weight) testing for most projects. The location of routine in-place density tests can be determined using a non-biased sampling plan based on random selection of testing locations. Questions concerning the accuracy of any single test shall be addressed by retesting in the same general location. Periodic checks using the Sand-Cone Method (ASTM D1556) or Rubber Balloon Method (ASTM D2167) or other standard techniques required in the project specifications may be performed to verify the nuclear density test results.

Unless otherwise noted in the project specifications, or as directed by the Project Manager, all perforations of the soil liner shall be backfilled. Perforations that must be backfilled shall include, but not limited to, the following:

- Nuclear density test probe locations
- Sand-cone test locations
- Rubber balloon test locations

- Hydraulic conductivity sampling locations

All perforations shall be backfilled with bentonite, a mixture of bentonite and soil or compacted soil liner material as specified in the project specifications. Compaction shall be performed with a tamping rod, Modified or Standard Proctor hammer, or a hand tamper as specified in the project specifications. At a minimum, the Soil QAC shall perform observations and routine tests on the backfilled areas to ensure a proper seal.

Based on recommendations from the Soil QAC and at the discretion of the Project Manager, an increased frequency of testing may be required if one or more of the following conditions develop during construction:

1. Rollers slip during operation
2. Lift thickness is greater than specified
3. Soil is at improper and/or variable moisture content
4. Fewer than the specified number of roller coverages are made
5. Clogged rollers are used to compact the material
6. Soils fail to meet the project specifications
7. Soil liner materials differ substantially from those specified
8. Degree of compaction and remolding of the material is suspect

Additional testing may also be considered when:

1. Weather conditions are adverse
2. Rollers have not used optimum ballast
3. Equipment breaks down frequently
4. Grading is being started or finished

4.6.2 Laboratory Testing

Hydraulic conductivity tests (ASTM D5084) shall be performed to confirm the soil in the compacted lining system meets the project specifications. Unless specified in the project specifications, hydraulic conductivity of the compacted soil shall be determined on undisturbed samples obtained from the constructed soil liner at the frequency of one test per lift per acre. Acceptability criteria shall be as identified in the project specifications.

Laboratory hydraulic conductivity samples shall be taken such that the sample tube is inserted into the liner perpendicular to the plane of the constructed surface. The tube shall be inserted into the lift being tested by applying a gradually increasing pressure.

4.7 DEFECTS AND REPAIRS

4.7.1 Identification

Acceptability criteria for testing shall be as identified in the project specifications. Recommended maximum percentage of failing material tests and maximum allowable variations may be specified in the project specifications. At locations where the testing indicates the requirements of the project specifications are not met, the Soil QAC shall determine the extent and the nature of the defect and recommend corrective actions to the Project Manager.

The Soil QAC shall confirm that no stones are present which may damage overlying geosynthetic components. If the compacted soil liner has been subject to adverse weather conditions, the Soil QAC shall reexamine the soil for possible damage.

4.7.2 Notification

After determining the extent and nature of any defect, the Soil QAC shall promptly notify the Earthwork Contractor and the Project Manager. A work deficiency meeting shall be held as needed between the Earthwork Contractor, Soil QAC, Designer, Project Manager and other appropriate parties to assess the problem, review alternative solutions, and implement an action plan.

4.7.3 Repairs and Retesting

The Earthwork Contractor shall correct all deficiencies to meet the project specifications. If a project specification criteria cannot be met, or unusual weather conditions hinder work, the Soil QAC and Designer shall develop and present to the Project Manager suggested solutions for his approval.

The Soil QAC shall schedule appropriate retests when the work defect has been corrected. All retests by the Soil QAC shall verify that the defect has been corrected before any additional work is performed by the Earthwork Contractor in the area of the deficiency.

The Soil QAC shall observe any repair and report any noncompliance with the above requirements in writing to the Project Manager.

5.0 GRANULAR DRAINAGE MEDIA

5.1 DESCRIPTION AND APPLICABILITY

Granular drainage materials consist of highly permeable materials used in leachate collection, final cover drainage and gas venting systems. The materials may consist of clean sands and/or gravels or other permeable material generally classified according to the Unified Soil Classification System as SW, SP, GW or GP. Variation to these material classifications may be required by project specifications.

5.2 QUALITY CONTROL DOCUMENTATION

Prior to the construction of a granular drainage layer, source evaluation tests shall be performed to confirm the adequacy of the granular drainage materials procured from each on or off-site source area. All material evaluation tests are to be performed in a geotechnical laboratory, which may be the Soil QAL or another laboratory approved by the Project Manager. The Earthwork Contractor shall submit the results of source evaluation tests to the Project Manager. The material shall be accepted or rejected by the Project Manager according to these results.

At a minimum, the following tests shall be conducted:

1. Particle Size (ASTM D1140, D422)
2. Laboratory Hydraulic Conductivity at a specified density (ASTM D2434)

Unless otherwise specified in the project specifications, one series of these tests shall be performed per source, or upon visually observable changes in the material type. If identification of additional drainage material sources becomes necessary during construction, the same material qualification and consistency checking procedures shall be applied to each such source.

For granular drainage materials used in the leachate collection systems, the amount of soluble carbonates shall be determined as required by the project specifications. For granular drainage materials used in leachate collection trenches and sumps, laboratory hydraulic conductivity tests may not be required. Additional testing may be specified by the project specifications.

5.3 CONFORMANCE TESTING

Conformance testing of the granular drainage materials shall be performed to ensure the consistency of the drainage layer material properties obtained from the borrow source.

At a minimum, the following tests shall be conducted:

1. Particle size (ASTM D1140, D422)
2. Laboratory hydraulic conductivity at a specified density (ASTM D2434)

Unless otherwise specified in the project specifications, particle size tests shall be performed at a frequency of one per 3,000 yd^3 (2,500 m^2) of drainage layer material, or upon visually observable changes in the material type. The laboratory hydraulic conductivity tests shall be performed upon visually observable changes in the material type or, as required in the project specifications.

The Soil QAE shall examine all test results and report any nonconformance to the Project Manager. The Project Manager shall accept or reject the material based on this review and the requirements of the project specifications prior to construction.

5.4 CONSTRUCTION OBSERVATION

The Soil QAC shall observe the procedures used by the Earthwork Contractor during placement of the drainage material to ensure that the materials meet the project specifications. The thickness of the drainage layer shall be verified by a licensed land surveyor following completion of the drainage layer placement. The Soil QAC shall prepare a certificate of acceptance for the drainage layer to be submitted to the Project Manager.

If placement on a geomembrane, the Soil QAC or Geosynthetic QAC, as determined by Project Manager, shall verify:

1. Placement of materials on the geomembrane shall not proceed at an ambient temperature below 32°F (0°C) nor above 104°F (40°C) unless otherwise specified.
2. Placement of materials on the geomembrane should be done during the coolest part of the day to minimize the development of wrinkles in the geomembrane.
3. Equipment used for placing materials shall not be driven directly on the geomembrane.
4. A minimum thickness of 1 ft (0.3 m) of materials is specified between a light dozer, ground pressure of 5 psi (35 kPa) or lighter, and the geomembrane.
5. In any areas traversed by any vehicles other than low ground pressure vehicles approved by the Project Manager, the soil layer shall have a minimum thickness of 3 ft (0.9 m). This requirement may be waived if provisions are made to protect the geomembrane through an engineered design. Drivers shall proceed with caution when on the overlying soil and prevent spinning of tires or sharp turns.

When placing overlying material on the geomembrane, every effort must be made to minimize wrinkle development. Small wrinkles should be isolated and covered as quickly as possible to prevent their growth. The placement of cover materials shall be observed by the Geosynthetic QAC to ensure that wrinkle formation is minimized and that, in all cases, the geomembrane is not folded over on itself.

5.5 DEFECTS AND REPAIRS

5.5.1 Identification

If a defect is identified in the drainage layer, the Soil QAC shall determine the extent and the nature of the defect. If the defect is indicated by an unsatisfactory test result, the Soil QAC shall determine the extent of the deficient area by additional tests, observations, a review of records, or other means that the Soil QAC deems appropriate.

5.5.2 Notification

After determining the extent and nature of the defect, the Soil QAC shall promptly notify the Earthwork Contractor and the Project Manager. A work deficiency meeting shall be held as required between the Earthwork Contractor, Soil QAC, Designer, Project Manager and other appropriate parties to assess the problem, review alternative solutions, and implement an action plan.

5.5.3 Repairs and Retesting

The Earthwork Contractor shall correct all deficiencies to meet the project specifications. If project specification criteria cannot be met, or unusual weather conditions hinder work, the Soil QAC and Designer shall develop and suggest solutions to the Project Manager for his approval.

The Soil QAC shall schedule appropriate retests when the work defect has been corrected. All retests by the Soil QAC shall verify that the defect has been corrected before any additional work is performed by the Earthwork Contractor in the area of the deficiency.

The Soil QAC shall observe any repair and report any noncompliance with the above requirements in writing to the Project Manager.

6.0 PROTECTIVE SOIL COVER

6.1 DESCRIPTION AND APPLICABILITY

Protective soil covers consist of soils used to protect the components of the lining systems. This material prevents direct contact between the lining system and the refuse or between the leachate collection system and the refuse. Particles of the protective soil cover shall not be of a size or shape which may damage an underlying geosynthetic component.

6.2 QUALITY CONTROL DOCUMENTATION

Prior to construction of the protective soil cover, source evaluation tests shall be performed to confirm the adequacy of protective soil cover materials procured from each on or off-site source area. The Soil QAC shall verify that the grain-size distribution of the protective layer material is as specified in the project specifications. All required testing shall be performed by the Soil QAL or another laboratory approved by the Project Manager. The Earthwork Contractor shall submit the results of source evaluation tests to the Project Manager. The material shall be accepted or rejected by the Project Manager according to these results.

The particle size distribution tests (ASTM D1140, D422) shall be performed at a frequency of one per 20,000 yd^3 (15,000 m^3) or upon visual observation of changes in the protective layer soil. If identification of additional soil sources becomes necessary during construction, the same material qualification and testing procedures shall be applied to each new source.

If the project specifications require the use of cohesive protective layer materials, the Soil QAC shall obtain the moisture content of the material at the source as specified in the project specifications to evaluate its workability. Additional testing may be performed if required by the project specifications.

6.3 CONFORMANCE TESTING

Conformance testing of the protective soil cover shall be performed to ensure the consistency of the properties of the soil obtained. The Soil QAC shall conduct particle size tests at the frequency of one per 5,000 yd^3 (3,500 m^3) of protective layer soil before placement. If cohesive soil is used to construct the protective layer on the sideslopes, the Soil QAC shall obtain the moisture content of the protective layer soil at the time of placement at a frequency specified in the project specifications.

The Soil QAC shall examine all test results and report any nonconformance to the Project Manager. The Project Manager shall accept or reject the material based on this review and the requirements of the project specifications prior to construction.

6.4 CONSTRUCTION OBSERVATION

The Soil QAC shall verify the protective layer thickness by spot checks and direct measurements after placement. The Soil QAC shall also observe the placement of any geosynthetic placed in direct contact with the protective soil.

If placing on a geomembrane, the Soil QAC or Geosynthetic QAC as determined by Project Manager shall verify:

1. Placement of soils on the geomembrane shall not proceed at an ambient temperature below 32°F (0°C) nor above 104°F (40°C) unless otherwise specified.
2. Placement of soil on the geomembrane should be done during the coolest part of the day to minimize the development of wrinkles in the geomembrane.
3. Equipment used for placing soil shall not be driven directly on the geomembrane.
4. A minimum thickness of 1 ft (0.3 m) of soil is specified between a light dozer, ground pressure of 5 psi (35 kPa) or lighter, and the geomembrane.
5. In any areas traversed by any vehicles other than low ground pressure vehicles approved by the Project Manager, the soil layer shall have a minimum thickness of 3 ft (0.9 m). This requirement may be waived if provisions are made to protect the geomembrane through an engineered design. Drivers shall proceed with caution when on the overlying soil and prevent spinning of tires or sharp turns.

When placing overlying material on the geomembrane, every effort must be made to minimize wrinkle development. Small wrinkles should be isolated and covered as quickly as possible to prevent their growth. The placement of cover materials shall be observed by the Geosynthetic QAC to ensure that wrinkle formation is minimized and, in all cases, that the geomembrane is not folded over on itself.

6.5 DEFECTS AND REPAIRS

6.5.1 Identification

If a defect is identified in the protective soil cover layer, the Soil QAC shall determine the extent and the nature of the defect. If the defect is indicated by an unsatisfactory test result, the Soil QAC shall determine the extent of the deficient area by additional tests, observations, a review of records, or other means that the Soil QAC deems appropriate.

6.5.2 Notification

After determining the extent and nature of the defect, the Soil QAC shall promptly notify the Earthwork Contractor and the Project Manager. A work deficiency meeting shall be held as needed between the Earthwork Contractor, the Soil QAC, Designer, Project Manager and other appropriate parties to assess the problem, review alternative solutions, and implement an action plan.

6.5.3 Repairs and Retesting

The Earthwork Contractor shall correct all deficiencies to meet the project specifications. If a project specification criteria cannot be met, or unusual weather conditions hinder work, the Soil QAC and Designer shall develop and present to the Project Manager suggested solutions for his approval.

The Soil QAC shall schedule appropriate retests when the work defect has been corrected. All retests by the Soil QAC must verify that the defect has been corrected before any additional work is performed by the Earthwork Contractor in the area of the deficiency.

The Soil QAC shall observe any repair and report any noncompliance with the above requirements in writing to the Project Manager.

7.0 VEGETATIVE SOIL COVER

7.1 DESCRIPTION AND APPLICABILITY

Vegetative soil cover material generally consists of medium-textured soils capable of supporting vegetative growth. Establishment of vegetation reduces cover erosion due to water and wind, and protects the soil and/or geosynthetic cover against damage. The vegetation also enhances the aesthetic appearance of the landfill.

Site-specific criteria for the vegetative layer shall be specified in the project specifications. Alternative cover designs in certain climatic regions may not require a vegetative soil cover. In such cases, the site-specific project specifications are to be used instead of this Section as a guide for construction quality assurance purposes.

7.2 QUALITY CONTROL DOCUMENTATION

Prior to the construction of a vegetative layer, any required tests shall be conducted to verify that proposed sources meet the project specifications. Testing shall be performed by the Soil QAL or other laboratory approved by the Project Manager.

The Earthwork Contractor shall submit the results of these tests to the Project Manager. The Project Manager shall accept or reject the material based on these test results.

7.3 CONSTRUCTION OBSERVATION

The vegetative cover layer shall be compacted to the specified thickness. The firmness of the compacted vegetative cover varies with the type of vegetation specified for the cover, and should be indicated in the project specifications.

The Soil QAC shall:

1. Verify the actual thickness of the vegetative soil cover after compaction by direct measurements. The thickness of the soil layer shall not be less than the thickness required by the project specifications. Thickness measurements shall be taken at spaced points as required by project specifications. The vegetative soil cover layer final grades shall be verified by a licensed land surveyor.

2. Ensure that care is taken in the vicinity of riser pipe and other protrusions to prevent physical damage by the construction equipment.

3. Observe the quantity and the uniformity of any soil amendment incorporated within the tilled depth before seeding.

4. Ensure that the seeding application equipment is appropriate for the job. The rate of seed and mulch application, amount and uniformity of coverage, and watering instructions as provided in the project specifications shall be closely observed.

5. Examine the perimeter areas to ensure that no unseeded area remain.

The Soil QAC shall report any nonconformance to the Project Manager.

7.4 DEFECTS AND REPAIRS

7.4.1 Identification

If a defect is identified in the vegetative soil layer, the Soil QAC shall determine the extent and the nature of the defect. If the defect is indicated by an unsatisfactory test result, the Soil QAC shall determine the extent of the deficient area by additional tests, observations, a review of records, or other means that the Soil QAC deems appropriate. If the vegetative layer has been subject to adverse weather conditions during construction, the Soil QAC shall reexamine the vegetative layer for possible damage in overly wet, desiccated or windblown areas.

7.4.2 Notification

After determining the extent and nature of the defect, the Soil QAC shall promptly notify the Earthwork Contractor and the Project Manager. If necessary, a work deficiency meeting may be held as needed between the Earthwork Contractor, Soil QAC, Designer, Project Manager and other necessary parties to assess the problem, review alternative solutions, and implement an action plan.

7.4.3 Repairs and Retesting

The Earthwork Contractor shall correct all deficiencies to meet the project specifications. If project specification criteria cannot be met, or unusual weather conditions hinder work, the Soil QAC and Designer shall develop and present to the Project Manager suggested solutions for his approval.

The Soil QAC shall schedule appropriate retests when the work defect has been corrected. All retests by the Soil QAC must verify that the defect has been corrected before additional work is performed by the Earthwork Contractor in the area of the deficiency.

The Soil QAC shall observe any repair and report any noncompliance with the above requirements in writing to the Project Manager.

8.0 GENERAL EARTHFILL

8.1 DESCRIPTION AND APPLICABILITY

General earthfill consists of random, granular or cohesive material taken from on-site, approved off-site excavations or stockpiles and used for non-critical applications. General earthfill material consists of a broad range of soils relatively free of organics, debris, or other deleterious matter which can be used for the purpose of earthfill construction. Specific tests to determine the suitability of earth materials for use in general earthfill shall be specified in the project specifications.

8.2 QUALITY CONTROL DOCUMENTATION

Prior to construction of the general earthfill, any required tests shall be performed to determine conformance with the project specifications. Testing shall be performed by the Soil QAL or other laboratory approved by the Project Manager.

If required, the general fill material shall be processed such that it does not contain particles exceeding the maximum size established in the project specifications. The Earthwork Contractor shall submit the results of these tests to the Project Manager. The Project Manager shall accept or reject the material based on these tests.

8.3 CONSTRUCTION OBSERVATION

The Soil QAC shall verify that the requirements of the project specifications are met. The Soil QAC shall report any nonconformance to the Project Manager.

8.4 DEFECTS AND REPAIRS

8.4.1 Identification

If a defect is identified in the finished general earthwork, the Soil QAC shall determine the extent and the nature of the defect. If the defect is indicated by an unsatisfactory test result, the Soil QAC shall determine the extent of the deficient area by additional tests, observations, a review of records, or other means that the Soil QAC deems appropriate.

8.4.2 Notification

After determining the extent and nature of the defect, the Soil QAC shall promptly notify the Earthwork Contractor and the Project Manager. A work deficiency meeting shall be held as needed between the Earthwork Contractor, Soil QAC, Designer, Project Manager and other necessary parties to assess the problem, review alternative solutions, and implement an action plan.

8.4.3 Repairs and Retesting

The Earthwork Contractor shall correct all deficiencies to meet the project specifications. If a project specification criteria cannot be met, or unusual weather conditions hinder work, the Soil QAC shall develop and present to the Project Manager suggested solutions for his approval.

The Soil QAC shall schedule appropriate retests, if any required, when the work defect has been corrected. All retests by the Soil QAC must verify that the defect has been corrected before any additional work is performed by the Earthwork Contractor in the area of the deficiency.

The Soil QAC shall observe any repair and report any noncompliance with the above requirements in writing to the Project Manager.

9.0 GEOMEMBRANES

9.1 DESCRIPTION AND APPLICABILITY

Geomembranes are low permeability geosynthetic barriers used in lining systems. This Section is applicable to smooth and textured high density polyethylene (HDPE) geomembranes. This Section may need to be modified when using other geomembranes.

9.2 MANUFACTURING PLANT INSPECTION

The Owner or other appropriate representative will conduct an annual inspection of the Manufacturer's plant. In addition, the Project Manager, or his designated representative, may visit the manufacturing plant for a project-specific inspection if deemed necessary. If possible, the project-specific inspection shall be prior to or during the manufacturing of the geomembrane rolls for that particular project. The purpose of the plant inspection is to review the manufacturing process and quality control procedures.

The manufacturing plant inspection shall include:

1. Verification that properties guaranteed by the Manufacturer are met and meet all the project specifications.
2. Verification that the measurement of properties by the Manufacturer is properly documented and test methods used are acceptable.
3. Spot inspection of the rolls and verification that they are free of imperfections or any sign of contamination by foreign matter.
4. Review of handling, storage, and transportation procedures, and verification that these procedures will not damage the geomembrane.
5. Verification that roll packages have a label indicating the name of the manufacturer, type of geomembrane, thickness, roll number, and roll dimensions.
6. Verification that extrusion rods and/or beads are produced from the same base resin type as the geomembrane.

A report describing the inspection shall be retained by the Owner for annual inspections and by the Project Manager for project-specific inspections.

9.3 QUALITY CONTROL DOCUMENTATION

Prior to the installation of any geomembrane, the Manufacturer or Installer shall provide the Project Manager with the following information:

1. The origin (supplier's name and production plant) and identification (brand name and number) of the resin used to manufacture the geomembrane.
2. Copies of dated quality control certificates issued by the resin supplier.
3. Results of tests conducted by the Manufacturer to verify that the resin used to manufacture the geomembrane meets the project specifications.

4. A statement indicating that the amount of reclaimed polymer added to the resin during manufacturing was done with appropriate cleanliness.
5. A list of the materials which comprise the geomembrane, expressed in the following categories as percent by weight: polyethylene, carbon black, other additives.
6. A specification for the geomembrane which includes all properties contained in the project specifications measured using the appropriate test methods.
7. Written certification that minimum values given in the specification are guaranteed by the Manufacturer.
8. Quality control certificates, signed by a responsible party employed by the Manufacturer. Each quality control certificate shall include roll identification numbers, testing procedures, and results of quality control tests. At a minimum, results shall be given for:

    a. Density (ASTM D1505)
    b. Carbon black content (ASTM D1603)
    c. Carbon black dispersion (ASTM D3015)
    d. Thickness (ASTM D751)
    e. Tensile properties (ASTM D638)
    f. Puncture resistance (ASTM D4833)
    g. Index friction for textured only (GRI GS-7)

    These quality control tests shall be performed in accordance with the test methods for every 50,000 ft^2 (5,000 m^2).

9. Results of environmental stress crack resistance tests (GRI GM-5b). At a minimum, tests shall be performed once every resin lot.

The Manufacturer shall identify all rolls of geomembranes with the following:

1. Manufacturer's name
2. Product identification
3. Thickness
4. Roll number
5. Roll dimensions

The Geosynthetic QAE shall review these documents and shall report any discrepancies with the above requirements to the Project Manager. The Geosynthetic QAE shall verify that:

1. Property values certified by the Manufacturer meet all of its guaranteed specifications.
2. Measurements of properties by the Manufacturer are properly documented and that the test methods used are acceptable.
3. Quality control certificates have been provided at the specified frequency for all rolls, and that each certificate identifies the rolls related to it.
4. Rolls are appropriately labeled.
5. Certified minimum properties meet the project specifications.
6. Project specifications and a copy of the QAP are provided by the Project Manager to the Installer.

9.4 CONFORMANCE TESTING

9.4.1 Sampling Procedures

Upon delivery of the rolls of the geomembrane, the Geosynthetic QAC shall ensure that conformance test samples are obtained for the geomembrane. The geomembrane rolls to be sampled shall be selected by the Geosynthetic QAC. Samples shall be taken across the entire width of the roll judged by the Geosynthetic QAC not to be damaged. Unless otherwise specified, samples shall be 3 ft (1 m) long by the roll width. The Geosynthetic QAC shall mark the machine direction on the samples with an arrow.

A lot shall be defined as a group of consecutively numbered rolls from the same manufacturing line. Alternatively, a lot may be designated by the Geosynthetic QAC based on a review of all roll information including quality control documentation and manufacturing records.

If the Project Manager desires, the Geosynthetic QAC can perform the conformance test sampling at the manufacturing plant. This may be advantageous in expediting the installation process for very large projects.

Unless otherwise specified in the project specifications, samples shall be taken at a rate of one per lot and not less than one per 100,000 ft^2 (10,000 m^2) of geomembrane. These samples shall be forwarded to the Geosynthetic QAL for testing.

9.4.2 Conformance Tests

The following conformance tests shall be conducted:

1. Density (ASTM D1505)
2. Carbon black content (ASTM D1603)
3. Carbon black dispersion (ASTM D3015)
4. Thickness (ASTM D751)
5. Tensile properties (ASTM D638)

Other conformance tests may be required by the project specifications.

9.4.3 Test Results

All conformance test results shall be reviewed and accepted or rejected by the Geosynthetic QAE prior to the deployment of the geomembrane. The Geosynthetic QAE shall examine all results from laboratory conformance testing and shall report any nonconformance to the Project Manager. The Geosynthetic QAE shall be responsible for checking that all test results meet or exceed the property values listed in the project specifications.

If the Manufacturer has reason to believe that failing tests may be the result of the Geosynthetic QAL incorrectly conducting the tests, the Manufacturer may request that the sample in question be retested by the Geosynthetic QAL with a technical representative of the Manufacturer present during the testing. Alternatively, the Manufacturer may have the sample retested at two different Owner-approved Geosynthetic QALs. If both laboratories produce passing results, the material shall be accepted. If both laboratories do not produce passing results, then the original Geosynthetic QAL's test results shall be accepted. The use of these procedures for dealing with failed test results is subject to the approval of the Project Manager.

If a test result is in nonconformance, all material from the lot represented by the failing test should be considered out-of-specification and rejected. Alternatively, at the option of the Project Manager, additional conformance test samples may be taken to "bracket" the portion of the lot not meeting the project specification. This procedure is valid only when all rolls in the lot are consecutively produced and numbered from one manufacturing line. To isolate the out-of-specification material, additional samples must be taken from rolls that have roll numbers immediately adjacent to the roll that was sampled and failed. If both additional tests pass, the roll that represents the initial failed test and the roll manufactured immediately after that roll (next larger roll number) shall be rejected. If one or both of the additional tests fail, then the entire lot shall be rejected or the procedure repeated with two additional tests that bracket a greater number of rolls within the lot.

9.5 SUBGRADE PREPARATION

9.5.1 Surface Preparation

The Earthwork Contractor shall be responsible for preparing the underlying soil prior to geomembrane placement. The Project Manager shall coordinate the work of the Earthwork Contractor and the Installer so that the requirements of the project-specific QAP are met.

Before the geomembrane installation begins, the Geosynthetic QAC shall verify that:

1. A licensed land surveyor has verified all lines and grades.
2. A qualified and licensed Professional Engineer has verified that the underlying soil meets the criteria specified in the project specifications.
3. The underlying soil surface to be lined has been rolled, compacted, or hand-worked so as to be free of irregularities, protrusions, loose soil, and abrupt changes in grade.
4. The surface of the underlying soil does not contain stones which may be damaging to the geomembrane.
5. There is no area excessively softened by high water content.
6. There is no area where the underlying soil surface contains desiccation cracks which may damage the geomembrane.

The Installer shall certify in writing that the surface on which the geomembrane will be installed is acceptable. A certificate of acceptance shall be given by the Installer to the Geosynthetic QAC prior to commencement of geomembrane deployment in the area under consideration. The Project Manager shall be given a copy of this certificate by the Geosynthetic QAC.

After the underlying soil has been accepted by the Installer, it is the Installer's responsibility to indicate to the Project Manager any change in the underlying soil condition that may require repair work. The Project Manager may consult with the Geosynthetic QAC regarding the need for repairs. If the Geosynthetic QAC concurs with the Installer, the Project Manager shall ensure that the underlying soil is repaired.

At any time before or during the geomembrane installation, the Geosynthetic QAC shall indicate to the Project Manager any locations which may not be adequately prepared for the geomembrane.

9.5.2 Anchor Trench

The Geosynthetic QAC shall verify:

1. The anchor trench has been constructed according to the project plans and specifications.
2. If the anchor trench is excavated in a clay material susceptible to desiccation, the amount of trench open at any time is minimized. The Geosynthetic QAC shall inform the Project Manager of any signs of significant desiccation associated with the anchor trench construction.
3. Rounded corners are provided in the trench so as to avoid sharp bends in the geomembrane.
4. Excessive amounts of loose soil are not allowed to underlie the geomembrane in the anchor trench.
5. The anchor trench is adequately drained to prevent ponding or softening of the adjacent soils while the trench is open.
6. The anchor trench is backfilled and compacted as outlined in the project specifications.

Care shall be taken when backfilling the trenches to prevent any damage to the geosynthetic components. The Geosynthetic QAC shall observe the backfilling operation and advise the Project Manager of any problems. Any problems shall be documented by the Geosynthetic QAC in his daily report.

9.6 GEOMEMBRANE DEPLOYMENT

9.6.1 Panel Nomenclature

A field panel is defined as a unit of geomembrane which is to be seamed in the field. A field panel is a roll or a portion of a roll cut in the field. The Geosynthetic QAC shall be responsible to ensure that each field panel is given an identification code (number or letter-number) consistent with the layout plan. This identification code shall be as simple and logical as possible and shall be agreed upon by the Project Manager, Installer and Geosynthetic QAC.

In general, it is not appropriate to identify panels using roll numbers since roll numbers established in the manufacturing plant are usually cumbersome and are not related to location in the field. The Geosynthetic QAC shall establish a table or chart showing correspondence between roll numbers and field panel identification codes. The field panel identification code shall be used for all quality assurance records.

9.6.2 Panel Deployment Procedure

The Geosynthetic QAC shall review the panel deployment progress of the Installer and advise the Project Manager on its compliance with the approved panel layout drawing. The Geosynthetic QAC shall also review the panel deployment for suitability to actual field condition such as issues relating to wind, rain, soil liner desiccation and other site-specific conditions. Once approved, only the Project Manager can authorize changes to the panel deployment procedure. The Geosynthetic QAC shall verify that the condition of the underlying soil does not change detrimentally during installation.

The Geosynthetic QAC shall verify that field panels are installed at the locations indicated on the Installer's layout plan, as approved by the Project Manager. The Geosynthetic QAC shall record the identification code, location, and date of installation of each field panel.

9.6.3 Deployment Weather Conditions

Geomembrane deployment shall not be undertaken if weather conditions will preclude material seaming following deployment.

The normal required weather conditions for seaming are as follows:

1. Ambient temperature between 32°F (0°C) and 104°F (40°C).
2. Dry conditions (no precipitation or other excessive moisture)
3. No excessive winds.

The Geosynthetic QAC shall verify that these weather conditions are fulfilled and notify the Project Manager in writing if they are not. Ambient temperature shall be measured by the Geosynthetic QAC in the area in which the panels are to be placed.

The Geosynthetic QAC shall inform the Project Manager of any weather-related problems which may not allow geomembrane placement to proceed. The Project Manager will determine if the installation is to be stopped or special procedures are to be used.

9.6.4 Method of Deployment

Before the geomembrane is handled on site, the Geosynthetic QAC shall verify that handling equipment to be used on the site is adequate and does not pose risk of damage to the geomembrane. During handling, the Geosynthetic QAC shall observe and verify that the Installer's personnel handle the geomembrane with care.

The Geosynthetic QAC shall verify the following:

1. Equipment used does not damage the geomembrane by handling.
2. The prepared surface underlying the geomembrane is acceptable immediately prior to geomembrane placement.
3. Geosynthetic elements immediately underlying the geomembrane are clean and free of debris.
4. Personnel do not smoke or wear damaging shoes while working on the geomembrane, or engage in other activities which could damage the geomembrane.
5. The method used to unroll the panels does not cause excessive scratches or crimps in the geomembrane and does not damage the supporting soil.
6. The method used to place the panels minimizes wrinkles especially differential wrinkles between adjacent panels.
7. Adequate temporary loading and/or anchoring (such as sand bags or tires), not likely to damage the geomembrane, are placed to prevent uplift by wind. In case of high winds, continuous loading is recommended along edges of panels to minimize risk of wind flow under the panels.
8. Direct contact with the geomembrane is minimized, and the geomembrane is protected by geotextiles, extra geomembrane, or other suitable materials, in areas where excessive traffic may be expected. See Section 9.11 for geomembrane protection.

The Geosynthetic QAC shall inform the Project Manager if the above conditions are not fulfilled.

9.6.5 Damage and Defects

Upon delivery to the site, the Geosynthetic QAC shall conduct a surface observation of all rolls for defects and for damage. This examination shall be conducted without unrolling rolls unless defects or damages are found or suspected. The Geosynthetic QAC shall advise the Project Manager, in writing, of any rolls or portions of rolls which should be rejected and removed from the site because they have severe flaws, and/or minor repairable flaws.

The Geosynthetic QAC shall examine each panel, after placement and prior to seaming, for damage and/or defects. The Geosynthetic QAC shall advise the Project Manager which panels, or portions of panels, should be rejected, repaired, or accepted. Damaged panels, or portions of damaged panels, which have been rejected shall be marked and their removal from the work area recorded by the Geosynthetic QAC. Repairs shall be made using procedures described in Section 9.10.

9.6.6 Writing on the Liner

To avoid confusion, the Installer and the Geosynthetic QAC shall each use different colored markers that are readily visible for writing on the geomembrane. The markers used must be semi-permanent and compatible with the geomembrane. The Installer shall use a white marker to write on the geomembrane while the Geosynthetic QAC shall use a yellow marker.

9.7 FIELD SEAMING

9.7.1 Seam Layout

Before installation begins, the Installer shall provide the Project Manager and the Geosynthetic QAC with a panel layout drawing. This drawing shall present all the proposed seams of the lining system at the facility. The Geosynthetic QAE shall review the panel layout drawing and verify that it is consistent with accepted state-of-practice. No panels may be seamed until written approval of the panel layout drawing has been provided by the Project Manager. In addition, panels not specifically shown on the panel layout drawing may not be used without the Project Manager's prior approval.

In general, seams should be oriented parallel to the line of maximum slope, thus, oriented along, not across, the slope. In corners and odd-shaped geometric locations, the number of seams should be minimized. No horizontal seam should be less than 5 ft (1.5 m) from the toe or crest of the slope, or areas of potential stress concentrations, unless otherwise authorized by the Project Manager.

A seam numbering system compatible with the panel numbering system shall be used by the Geosynthetic QAC.

9.7.2 Accepted Seaming Methods

Approved processes for field seaming are fusion welding and extrusion welding. Proposed alternate processes shall be documented and submitted by the Installer to the Project Manager for approval. Only apparatus which have been specifically approved by make and model shall be used. The Project Manager shall submit all documentation regarding seaming methods to be used to the Geosynthetic QAC for review.

9.7.2.1 *Fusion Process*

The Geosynthetic QAC shall log ambient, seaming apparatus, and geomembrane surface temperatures at appropriate intervals and report any noncompliances to the Project Manager.

The Geosynthetic QAC shall also verify that:

1. The Installer maintains on-site the number of spare operable seaming apparatus agreed upon at the pre-construction meeting.
2. Equipment used for seaming is not likely to damage the geomembrane.
3. The electric generator is placed on a smooth base such that no damage occurs to the geomembrane.
4. A smooth insulating plate or fabric is placed beneath the hot welding apparatus after usage such that no damage occurs to the geomembrane.
5. A movable protective layer is used as required by the Installer directly below each overlap of geomembrane that is to be seamed to prevent buildup of moisture between the sheets and to prevent debris from collecting around the pressure rollers.

6. In general, the geomembrane panels are aligned to have an overlap of 4 to 6 in (100 mm to 150 mm) for fusion welding. In any event, the final overlap shall be sufficient to allow peel tests to be performed on the seam.
7. No solvent or adhesive is used.
8. The geomembrane is protected from damage in heavy traffic areas.

9.7.2.2 *Extrusion Process*

The Geosynthetic QAC shall log ambient, seaming apparatus, and geomembrane surface temperatures at appropriate intervals and report any noncompliances to the Project Manager.

The Geosynthetic QAC shall verify that:

1. The Installer maintains on-site the number of spare operable seaming apparatus agreed upon at the pre-construction meeting.
2. Equipment used for seaming is not likely to damage the geomembrane.
3. Prior to beginning a seam, the extruder is purged until all heat-degraded extrudate has been removed from the barrel.
4. Clean and dry welding rods or extrudate pellets are used.
5. The electric generator is placed on a smooth base such that no damage occurs to the geomembrane.
6. Grinding is completed no more than one hour prior to seaming.
7. A smooth insulating plate or fabric is placed beneath the hot welding apparatus after usage such that no damage occurs.
8. The geomembrane is protected from damage in heavy traffic areas.
9. Exposed grinding marks adjacent to an extrusion weld shall be minimized. In no instance shall exposed grinding marks extend more than ¼ in (6 mm) from the finished seamed area.
10. In general, the geomembrane panels are aligned to have a nominal overlap of 3 in (75 mm) for extrusion welding. In any event, the final overlap shall be sufficient to allow peel tests to be performed on the seam.
11. No solvent or adhesive is used.
12. The procedure used to temporarily bond adjacent panels together does not damage the geomembrane; in particular, the temperature of hot air at the nozzle of any temporary welding apparatus is controlled such that the geomembrane is not damaged.

9.7.3 Seam Preparation

The Geosynthetic QAC shall verify that prior to seaming, the seam area is clean and free of moisture, dust, dirt, debris or foreign material of any kind. If seam overlap grinding is required, the Geosynthetic QAC must ensure that the process is completed according to the Manufacturer's instructions within one hour of the seaming operation, and in a way that does not damage the geomembrane. The Geosynthetic QAC shall also verify that seams are aligned with the fewest possible number of wrinkles and "fishmouths".

9.7.4 Trial Seams

Trial seams shall be made on fragment pieces of geomembrane liner to verify that conditions are adequate for production seaming. Such trial seams shall be made at the beginning of each seaming period, and at least once each five hours, for each production seaming apparatus used that day. Trial seams shall be made under the same conditions as production seams.

The trial seam sample shall be at least 5 ft (1.6 m) long by 1 ft (0.3 m) wide (after seaming) with the seam centered lengthwise. Seam overlap shall be as indicated in Section 9.7.2. Two specimens shall be cut from the sample with a 1 in (25 mm) wide die. The specimens shall be cut by the Installer at locations selected randomly along the trial seam sample by the Geosynthetic QAC.

The specimens shall be tested in peel using a field tensiometer. The tensiometer shall be capable of maintaining a constant jaw separation rate of two inches per minute. They should not fail in the seam as described in Section 9.9.5. If a specimen fails, the entire trial seam operation shall be repeated. If the additional specimen fails, the seaming apparatus and seamer shall not be accepted and shall not be used for seaming until the deficiencies are corrected and two consecutive successful trial seams are achieved. The Geosynthetic QAC shall observe all trial seam procedures.

The remainder of the successful trial seam sample shall be retained in the Project Manager's archives for possible laboratory testing. Each sample shall be assigned a number and marked accordingly by the Geosynthetic QAC, who shall also log the date, hour, ambient temperature, number of seaming unit, name of seamer, and pass or fail description.

If agreed upon between the Project Manager and the Geosynthetic QAE, and documented by the Geosynthetic QAE in his daily report, the remaining portion of the trial seam sample can be subjected to destructive testing as indicated in Section 9.9.6. If a trial seam sample fails a test conducted by the Geosynthetic QAL, then a destructive seam test sample shall be taken from each of the seams completed by the seamer during the shift related to the subject trial seam. These samples shall be forwarded to the Geosynthetic QAL and, if they fail the tests, the procedure indicated in Section 9.9.7 shall apply. The conditions of this paragraph shall be considered satisfied for a given seam if a destructive seam test sample has already been taken.

9.7.5 General Seaming Procedures

During general seaming, the Geosynthetic QAC shall ensure the following:

1. Fishmouths or wrinkles at the seam overlaps shall be cut along the ridge of the wrinkle in order to achieve a flat overlap. The cut fishmouths or wrinkles shall be seamed and any portion where the overlap is inadequate shall then be patched with an oval or round patch of the same geomembrane extending a minimum of 6 in (150 mm) beyond the cut in all directions.
2. If seaming operations are carried out at night, adequate illumination shall be provided.
3. Seaming shall extend to the outside edge of panels placed in the anchor trench.

4. All cross seam tees should be extrusion welded to a minimum distance of 4 in (100 mm) on each side of the tee.
5. No field seaming shall take place without the Master Seamer being present.
6. A firm substrate may be required to be provided by using a flat board, a conveyor belt, or similar hard surface directly under the seam overlap to achieve proper support.

The Geosynthetic QAC shall verify that the above seaming procedures or any other procedures agreed upon and indicated in the project QAP are followed, and shall inform the Project Manager of any nonconformance.

9.7.6 Seaming Weather Conditions

9.7.6.1 *Cold Weather Conditions*

To ensure a quality installation, if seaming is conducted when the ambient temperature is below 32°F (0°C), the following conditions shall be met:

1. Geomembrane surface temperatures shall be determined by the Geosynthetic QAC at intervals of at least once per 100 feet (30 m) of seam length to determine if preheating is required. For extrusion welding, preheating is required if the surface temperature of the geomembrane is below 32°F (0°C).
2. For fusion welding, preheating may be waived by the Project Manager based on a recommendation from the Geosynthetic QAE, if the Installer demonstrates to the Geosynthetic QAE's satisfaction that welds of equivalent quality may be obtained without preheating at the expected temperature of installation.
3. If preheating is required, the Geosynthetic QAC shall observe all areas of geomembrane that have been preheated by a hot air device prior to seaming, to ensure that they have not been overheated.
4. Care shall be taken to confirm that the surface temperatures are not lowered below the minimum surface temperatures specified for welding due to winds or other adverse conditions. It may be necessary to provide wind protection for the seam area.
5. All preheating devices shall be approved prior to use by the Project Manager.
6. Additional destructive tests (as described in Section 9.9) shall be taken at an interval between 250 feet and 500 feet (75 to 150 m) of seam length, at the discretion of the Geosynthetic QAE.
7. Sheet grinding may be performed before preheating, if applicable.
8. Trial seaming, as described in Section 9.7.4, shall be conducted under the same ambient temperature and preheating conditions as the production seams. Under cold weather conditions, new trial seams shall be conducted if the ambient temperature drops by more than 10°F from the initial trial seam test conditions. Such new seams shall be conducted upon completion of seams in progress during temperature drop.

9.7.6.2 *Warm Weather Conditions*

At ambient temperatures above 104°F, no seaming of the geomembrane shall be permitted unless the Installer can demonstrate to the satisfaction of the Project Manager that geomembrane seam quality is not compromised. Trial seaming, as described in Section 9.7.4, shall be conducted under the same ambient temperature conditions as the production seams. At the option of the Geosynthetic QAC, additional destructive tests may be required for any suspect areas.

9.8 NONDESTRUCTIVE SEAM TESTING

9.8.1 Concept

The Installer shall nondestructively test all field seams over their full length using an air pressure test (for double fusion seams only), a vacuum test or other approved method. Air pressure testing and vacuum testing are described in Sections 9.8.2 and 9.8.3 respectively. The purpose of nondestructive tests is to check the continuity of seams. It does not provide quantitative information on seam strength. Nondestructive testing shall be carried out as the seaming work progresses, not at the completion of all field seaming.

For all seams, the Geosynthetic QAC shall:

1. Observe nondestructive testing procedures.
2. Record location, data, test unit number, name of tester, and outcome of all testing.
3. Inform the Installer and Project Manager of any required repairs.

Any seams that cannot be nondestructively tested shall be cap-stripped with the same geomembrane. The cap-stripping operations shall be observed by the Geosynthetic QAC and Installer for uniformity and completeness.

9.8.2 Air Pressure Testing

Air pressure testing is applicable to double fusion welding which produces a double seam with an enclosed space.

1. The equipment for air pressure testing shall consist of the following:

    a. An air pump (manual or motor driven), equipped with pressure gauge and capable of generating and sustaining a pressure between 25 and 30 psi (160 and 200 kPa) and mounted on a cushion to protect the geomembrane.
    b. A rubber hose with fittings and connections.
    c. A sharp hollow needle, or other pressure feed device, approved by Project Manager.

2. The following procedures shall be followed:

    a. Seal both ends of the seam to be tested.
    b. Insert needle or other approved pressure feed device into the air channel created by the fusion weld.
    c. Insert a protective cushion between the air pump and the geomembrane.

d. Pressurize the air channel to a pressure of approximately 30 psi (200K Pa). Close valve, allow 2 minutes for pressure to stabilize, and sustain pressure for at least 5 minutes.
e. If loss of pressure exceeds the maximum permissible pressure differential as outlined in the project specifications or does not stabilize, locate faulty area and repair in accordance with Section 9.10.3.
f. Cut opposite end of tested seam area once testing is completed to verify continuity of the air channel. If air does not escape, locate blockage and retest unpressurized area. Seam the cut end of the air channel.
g. Remove needle or other approved pressure feed device and seal the hole in the geomembrane.

9.8.3 Vacuum Testing

Vacuum testing is applicable to extrusion welding.

1. The equipment shall consist of the following:

   a. A vacuum box assembly consisting of a rigid housing, a transparent viewing window, a soft neoprene gasket attached to the bottom, a porthole or valve assembly, and a vacuum gauge.
   b. A pump assembly equipped with a pressure controller and pipe connections.
   c. A rubber pressure/vacuum hose with fittings and connections.
   d. A soapy solution. (Geosynthetic QAC shall ensure solution makes bubbles when air is passed through.)
   e. A bucket and wide paint brush, or other means of applying the soapy solution.

2. The following procedures shall be followed:

   a. Wet a strip of geomembrane approximately 12 in x 48 in (0.3 m x 1.2 m) with the soapy solution.
   b. Place the box over the wetted area.
   c. Close the bleed valve and open the vacuum valve.
   d. Ensure that a leak-tight seal is created.
   e. Energize the vacuum pump and reduce the applied pressure to approximately 5 psi (10 in of Hg/35 kPa) gauge.
   f. For a minimum of 10 seconds, apply vacuum with the box placed and maintaining a seal, examine the geomembrane through the viewing window for the presence of soap bubbles.
   g. If no bubble appears after 10 seconds, close the vacuum valve and open the bleed valve, move the box over the next adjoining area with a minimum 3 in (75 mm) overlap, and repeat the process.
   h. All areas where soap bubbles appear shall be marked and repaired in accordance with Section 9.10.3.

9.8.4 Test Failure Procedures

The Installer shall complete any required repairs in accordance with Section 9.10. For repairs, the Geosynthetic QAC shall:

1. Observe the repair and testing of the repair.
2. Mark on the geomembrane that the repair has been made.
3. Document the repair procedures and test results.

9.9 DESTRUCTIVE SEAM TESTING

9.9.1 Concept

The purpose of destructive tests is to evaluate seam strength. Destructive seam tests shall be performed at selected locations. Seam strength testing shall be done as the seaming work progresses, not at the completion of all field seaming.

9.9.2 Location and Frequency

The Geosynthetic QAC shall select where seam samples will be cut out for laboratory testing. The frequency and locations shall be established as follows:

1. A minimum frequency of one test location per 500 ft (150 m) of seam length performed by each welding machine. This frequency is to be determined as an average taken throughout the entire facility.
2. Test locations shall be determined during seaming at the Geosynthetic QAC's discretion. Special consideration shall be given to locations where the potential for imperfect welding, such as overheating, contamination, offset welds exists.

The Installer shall not be informed in advance of the locations where the seam samples will be taken.

9.9.3 Sampling Procedures

Samples shall be cut by the Installer at locations chosen by the Geosynthetic QAC as the seaming progresses so that laboratory test results are available before the geomembrane is covered by another material. The Geosynthetic QAC shall:

1. Observe sample cutting.
2. Assign a number to each sample, and mark it accordingly.
3. Record sample location on layout drawing.
4. Record reason for taking the sample at this location (e.g., statistical routine, suspicious feature of the geomembrane).

All holes in the geomembrane resulting from destructive seam sampling shall be repaired in accordance with repair procedures described in Section 9.10.3 immediately following receipt of successful test results. The continuity of the new seams in the repaired area shall be tested according to Section 9.8.3.

9.9.4 Sample Dimensions

At each sampling location, two types of samples shall be taken by the Installer. First, two specimens for field testing should be taken. Each of these samples shall be cut with a 1 in (25 mm) wide die, with the seam centered parallel to the width. The distance between these two samples shall be 42 in (1.1 m). If both samples pass the field test described in Section 9.9.5, a sample for laboratory testing shall be taken.

The sample for laboratory testing shall be located between the samples for field testing. The sample for laboratory testing shall be 12 in (0.3 m) wide by 42 in (1.1 m) long with the seam centered lengthwise. The sample shall be cut into three parts and distributed as follows:

1. One 12 in wide x 18 in long (0.3 m x 0.5 m) portion for Geosynthetic QAL testing
2. One 12 in wide x 12 in long (0.3 m x 0.3 m) portion to the Installer for optional laboratory testing
3. One 12 in wide x 12 in long (0.3 m x 0.3 m) portion to the Project Manager for archive storage

Final determination of the sample sizes shall be made at the pre-construction meeting.

9.9.5 Field Testing

The two 1 in (25 mm) wide specimens mentioned in Section 9.7.4 and Section 9.9.4 shall be tested in the field using a tensiometer for peel adhesion and shall not fail according to the criteria in the project specifications. The tensiometer shall be capable of maintaining a constant jaw separation rate of two inches per minute. If the test passes in accordance with this section, the sample qualifies for testing in the laboratory. If it fails, the seam should be repaired in accordance with Section 9.9.7. Final judgement regarding seam acceptability, based on the failure criteria provided in the project specifications, rests with the Geosynthetic QAE.

The Geosynthetic QAC shall witness all field tests and mark all samples and portions with their number. The Geosynthetic QAC shall also log the date and time, ambient temperature, number of seaming unit, name of seamer, welding apparatus temperatures and pressures, and pass or fail description, and attach a copy to each sample portion.

9.9.6 Laboratory Testing

Destructive test samples shall be packaged and shipped, if necessary, under the responsibility of the Geosynthetic QAC in a manner which will not damage the test sample. The sample shall be shipped as soon as possible to expedite laboratory testing. The Project Manager will be responsible for storing the archive samples. Test samples shall be tested by the Geosynthetic QAL.

Testing shall include seam strength and peel adhesion (ASTM D4437). The minimum acceptable values to be obtained in these tests shall be provided in the project specifications. At least 5 specimens shall be tested, each in both shear and peel. Specimens shall be selected alternately by test from the samples (i.e., peel, shear, peel, shear). A passing test shall meet the minimum acceptable values in at least 4 of the 5 specimens tested for each method.

The Geosynthetic QAL shall provide test results within 24 hours of receiving the samples. The Geosynthetic QAE shall review laboratory test results as soon as they become available, and make appropriate recommendations to the Project Manager.

9.9.7 Destructive Test Failure

When a sample fails a destructive test, whether that test is conducted by the Geosynthetic QAL or by field tensiometer, the Installer has two options:

1. The Installer can repair the seam between any two passing destructive test locations.
2. The Installer can trace the welding path to an intermediate location 10 ft (3 m) minimum from the point of the failed test in each direction and take a sample with a 1 in (25 mm) wide die for an additional field test at each location. If these additional samples pass the test, then full laboratory samples are taken. If these laboratory samples pass the tests, then the seam is repaired between these locations. If either sample fails, then the process is repeated to establish the zone in which the seam should be repaired.

All acceptable repaired seams shall be bound by two locations from which samples passing laboratory destructive tests have been taken. Passing laboratory destructive tests of trial seam samples taken as indicated in Section 9.7.4 may be used as a boundary for the failing seam. In cases exceeding 150 ft (50 m) of repaired seam, a sample taken from the zone in which the seam has been repaired must pass destructive testing. Repairs shall be made in accordance with Section 9.10.

The Geosynthetic QAC shall document all actions taken in conjunction with destructive test failures.

9.10 DEFECTS AND REPAIRS

9.10.1 Identification

All seams and non-seam areas of the geomembrane shall be examined by the Geosynthetic QAC for identification of defects, holes, blisters, undispersed raw materials, large wrinkles and any sign of contamination by foreign matter. The geomembrane surface shall be cleaned by the Installer prior to examination if the Geosynthetic QAC determines that the amount of dust or mud inhibits examination.

9.10.2 Evaluation

Each suspect location both in seam and non-seam areas shall be nondestructively tested using the methods described in Section 9.8. Each location which fails the nondestructive testing shall be marked by the Geosynthetic QAC and repaired by the Installer. Work shall not proceed with any materials which will cover locations which have been repaired until successful nondestructive and/or laboratory tests are obtained.

When seaming of the geomembrane is completed, and prior to placing overlying materials, the Geosynthetic QAC shall indicate to the Project Manager any large wrinkles which should be cut and reseamed by the Installer. The number of wrinkles to be repaired should be kept to an absolute minimum. Therefore, wrinkles should be located during the coldest part of the installation period, while keeping in mind the forecasted weather to which the uncovered geomembrane may be exposed. Wrinkles are considered to be large when the geomembrane can be folded over on to itself which is generally a wrinkle that extends 12 in (0.3 m) from the subgrade. Seams produced while repairing wrinkles shall be nondestructively tested.

When placing overlying material on the geomembrane, every effort must be made to minimize wrinkle development. If possible, cover should be placed during the coolest weather. In addition, small wrinkles should be isolated and covered as quickly as possible to prevent their growth. The placement of cover materials shall be observed by the Geosynthetic QAC to ensure that wrinkle formation is minimized and that, in all cases, the geomembrane is not folded over on itself.

9.10.3 Repair Procedures

Any portion of the geomembrane exhibiting a flaw, or failing a destructive or nondestructive test, shall be repaired. Several procedures exist for the repair of these areas. The final decision as to the appropriate repair procedure shall be agreed upon between the Project Manager, Installer, Designer, and Geosynthetic QAC.

1. The repair procedures available include:

    a. Patching, used to repair holes, tears, undispersed raw materials, and contamination by foreign matter.
    b. Spot welding used to repair pinholes, or other minor, localized flaws.
    c. Capping, used to repair large lengths of failed seams.
    d. Extrusion welding the flap, used to repair areas of inadequate fusion seams which have an exposed edge. Repairs of this type shall be approved by the Geosynthetic QAC and shall not exceed 100 ft (30 m) in total length.
    e. Removing bad seam and replacing with a strip of new material welded into place.

2. For any repair method, the following provisions shall be satisfied:

   a. Surfaces of the geomembrane which are to be repaired using extrusion methods shall be ground no more than one hour prior to the repair.
   b. All surfaces shall be clean and dry at the time of the repair.
   c. All seaming equipment used in repairing procedures shall meet the requirements of the project QAP.
   d. Patches or caps shall extend at least 6 in (150 mm) beyond the edge of the defect, and all corners of patches shall be rounded with a radius of approximately 3 in (75 mm).

9.10.4 Repair Verification

The Geosynthetic QAC shall observe all nondestructive testing of repairs and shall record the number of each repair, date and test outcome. Each repair shall be nondestructively tested using the methods described in Section 9.8 as appropriate. Repairs which pass the nondestructive test shall be taken as an indication of an adequate repair. Repairs more than 150 ft (50 m) long require destructive test sampling. Failed tests require that the repair shall be redone and retested until a passing test results.

When placing overlying material on the geomembrane, every effort must be made to minimize wrinkle development. If possible, cover should be placed during the coolest weather available. In addition, small wrinkles should be isolated and covered as quickly as possible to prevent their growth. The placement of cover materials shall be observed by the Geosynthetic QAC to ensure that wrinkle formation is minimized and that, in all cases, the geomembrane is not folded over on itself.

9.11 GEOMEMBRANE PROTECTION

The quality assurance procedures indicated in this Section are intended only to assure that the installation of adjacent materials does not damage the geomembrane. The quality assurance of the adjacent materials themselves are covered in separate Sections of this manual.

9.11.1 Soils

A copy of the project specifications prepared by the Designer for placement of soils shall be given to the Geosynthetic QAE by the Project Manager. The Geosynthetic QAE shall verify that these project specifications are consistent with geosynthetic state-of-practice such as:

1. Placement of soils on the geomembrane shall not proceed at an ambient temperature below 32°F (0°C) nor above 104°F (40°C) unless otherwise specified.
2. Placement of soil on the geomembrane should be done during the coolest part of the day to minimize the development of wrinkles in the geomembrane.
3. Equipment used for placing soil shall not be driven directly on the geomembrane.
4. A minimum thickness of 1 ft (0.3 m) of soil is specified between a light dozer, ground pressure of 5 psi (35 kPa) or lighter, and the geomembrane.

5. In any areas traversed by heavy construction, any vehicles other than low ground pressure vehicles approved by the Project Manager, the soil layer shall have a minimum thickness of 3 ft (0.9 m). This requirement may be waived if provisions are made to protect the geomembrane through an engineered design. Drivers shall proceed with caution when on the overlying soil and prevent spinning of tires or sharp turns.

The Geosynthetic QAC shall measure soil thickness and verify that the required thickness is present. The Geosynthetic QAC must also verify that final thickness is consistent with the design and verify that placement of the soil is done in such a manner that geomembrane damage is unlikely. The Geosynthetic QAE shall inform the Project Manager if the above conditions are not fulfilled.

9.11.2 Sumps and Appurtenances

A copy of the plans and project specifications prepared by the Designer for sumps and appurtenances shall be given by the Project Manager to the Geosynthetic QAC. The Geosynthetic QAC shall review these plans and verify that:

1. Installation of the geomembrane in sump and appurtenant areas, and connection of geomembrane to sumps and appurtenances have been made according to project specifications.
2. Extreme care is taken while welding around appurtenances since neither non-destructive nor destructive testing may be feasible in these areas.
3. The geomembrane has not been visibly damaged while making connections to sumps and appurtenances.
4. A representative of the Geosynthetic QAC shall be present at all times when the Installer is welding geomembrane to appurtenant structures.

The Geosynthetic QAC shall inform the Project Manager in writing if the above conditions are not fulfilled.

9.11.3 Concrete

A copy of the project specifications prepared by the Designer for placement of concrete shall be given by the Project Manager to the Geosynthetic QAC. The Geosynthetic QAC shall verify that these specifications are consistent with the state-of-practice, including the use of geosynthetic layers between concrete and geomembrane. The Geosynthetic QAC shall verify that geosynthetic layers are placed between the concrete and the geomembrane according to design specifications. The Geosynthetic QAC will also verify that construction methods used are not likely to damage the geomembrane.

10.0 GEOTEXTILES

10.1 DEFINITION AND APPLICABILITY

Geotextiles are used in protection and filtering applications in lining systems. This Section does not describe procedures for other applications such as erosion control or reinforcement. This Section is applicable to nonwoven geotextiles made of polyester or polypropylene and not applicable to nonwoven geotextiles made of other materials or woven geotextiles.

10.2 MANUFACTURING PLANT INSPECTION

The Owner or an appropriate representative will conduct a periodic inspection of the Manufacturer's plant. In addition, the Project Manager, or his designated representative, may visit the manufacturing plant for a project-specific inspection if deemed necessary. If possible, the project-specific inspection shall be prior to or during the manufacturing of the geotextile rolls for that particular project. The purpose of the plant inspection is to review the manufacturing process and quality control procedures.

The manufacturing plant inspection shall include:

1. Verification that properties of the geotextile guaranteed by the Manufacturer are met and meet the project specifications.
2. Verification that the measurement of properties by the Manufacturer is properly documented and test methods used are acceptable.
3. Spot inspection of the rolls and verification that they are free of imperfections or any sign of contamination by foreign matter.
4. Review of packaging, handling, storage, and transportation procedures and verification that these procedures will not damage the geotextile.
5. Verification that roll packages have a label indicating the name of the manufacturer, type of geotextile, roll number and roll dimensions.
6. Verification that the geotextiles are inspected continuously for the presence of needles using a metal detector.

A report describing the inspection will be retained by the Owner for periodic inspections and by the Project Manager for project-specific inspections.

10.3 QUALITY CONTROL DOCUMENTATION

Prior to the installation of any geotextile, the Manufacturer or Installer shall provide the Project Manager with the following information:

1. The origin (resin supplier's name and resin production plant) and identification (brand name and number) of the resin used to manufacture the geotextile.
2. Copies of dated quality control certificates issued by the resin supplier.
3. Reports on tests conducted by the Manufacturer to verify that resin used to manufacture the geotextile meets the Manufacturer's resin specifications.

4. Reports on quality control tests conducted by the Manufacturer to verify that the geotextile manufactured for the project meets the project specifications.
5. A statement indicating that the reclaimed polymer added to the resin during manufacturing was done with appropriate cleanliness.
6. A list of the materials which comprise the geotextile, expressed in the following categories as percent by weight: base polymer, carbon black, other additives.
7. A specification for the geotextile which includes all properties published by the Manufacturer, measured using the appropriate test methods.
8. Written certification that minimum values given in the specification are guaranteed by the Manufacturer.
9. Written certification that the Manufacturer has continuously inspected the geotextile for the presence of needles and found the geotextile to be needle-free.
10. Quality control certificates, signed by a responsible party employed by the Manufacturer. The quality control certificates shall include roll identification numbers, testing procedures and results of quality control tests. At a minimum, results shall be given for:

    a. Mass per unit area (ASTM D3776)
    b. Grab strength (ASTM D4632)
    c. Trapezoidal tear strength (ASTM D4533)
    d. Burst strength (ASTM D3786)
    e. Puncture strength (ASTM D4833)

    These quality control tests shall be performed in accordance with the test methods for at least every 100,000 ft^2 (10,000 m^2) of geotextile produced.

The Manufacturer shall identify all rolls of geotextiles with the following:

1. Manufacturer's name
2. Product identification
3. Roll number
4. Roll dimensions

The Geosynthetic QAE shall review these documents and shall report any discrepancies with the above requirements to the Project Manager. The Geosynthetic QAE shall verify that:

1. Property values certified by the Manufacturer meet all of its guaranteed specifications.
2. Measurements of properties by the Manufacturer are properly documented and that the test methods used are acceptable.
3. Quality control certificates have been provided at the specified frequency for all rolls, and that each certificate identifies the rolls related to it.
4. Roll packages are appropriately labeled.
5. Certified minimum roll properties meet the project specifications.
6. Project specifications and a copy of the QAP were submitted by the Project Manager to the Installer.

10.4 CONFORMANCE TESTING

10.4.1 Sampling Procedures

Upon delivery of the rolls of geotextiles, the Geosynthetic QAC shall ensure that conformance test samples are obtained for the geotextile. The rolls to be sampled shall be selected by the Geosynthetic QAC. Samples shall be taken from any portion of a roll which has not been damaged. Unless otherwise specified, samples shall be 3 ft (1 m) long by the roll width. The Geosynthetic QAC shall mark the machine direction on the samples with an arrow. All lots of material and the particular test sample that represents each lot should be defined before the samples are taken.

A lot shall be defined as a group of consecutively numbered rolls from the same manufacturing line. Alternatively, a lot may be designated by the Geosynthetic QAC based on a review of all roll information including quality control documentation and manufacturing records.

Unless otherwise specified in the project specifications, samples shall be taken at a rate of one per lot, not to be less than one per 100,000 ft^2 (10,000 m^2) of geotextile. These samples shall then be forwarded to the Geosynthetic QAL for testing to ensure conformance with the project specifications.

10.4.2 Conformance Tests

At a minimum, the following conformance tests shall be performed on geotextiles:

1. Mass per unit area (ASTM D3776)
2. Grab strength (ASTM D4632)
3. Trapezoidal tear strength (ASTM D4533)
4. Burst strength (ASTM D3786)
5. Puncture strength (ASTM D4833)

Other conformance tests may be required by the project specifications.

10.4.3 Test Results

All conformance test results shall be reviewed and accepted or rejected by the Geosynthetic QAC prior to the deployment of the geotextile. The Geosynthetic QAC shall examine all results from laboratory conformance testing and shall report any nonconformance to the Project Manager. The Geosynthetic QAC shall be responsible for checking that all test results meet or exceed the property values listed in the project specifications.

If the Manufacturer has reason to believe that failing tests may be the result of the Geosynthetic QAL incorrectly conducting the tests, the Manufacturer may request that the sample in question be retested by the Geosynthetic QAL with a technical representative of the Manufacturer present during the testing. Alternatively, the Manufacturer may have the sample retested at two different Owner-approved Geosynthetic QALs at the expense of the Manufacturer. If both laboratories produce passing results, the material shall be accepted. If both laboratories do not produce passing results, then the original Geosynthetic QAL's test results shall be accepted. The use of these procedures for dealing with failed test results is subject to the approval of the Project Manager.

If a test result is in nonconformance, all material from the lot represented by the failing test should be considered out-of-specification and rejected. Alternatively, at the option of the Project Manager, additional conformance test samples may be taken to "bracket" the portion of the lot not meeting project specifications (note that this procedure is valid only when all rolls in the lot are consecutively produced and numbered from one manufacturing line). To isolate the out-of-specification material, additional samples must be taken from rolls that have roll numbers immediately adjacent to the roll that was sampled and failed. If both additional tests pass, the roll that represents the initial failed test and the roll manufactured immediately after that roll (next larger roll number) shall be rejected. If one or both of the additional tests fail, then the entire lot shall be rejected or the procedure repeated with two additional tests that bracket a greater number of rolls within the lot.

10.5 GEOTEXTILE DEPLOYMENT

During shipment and storage, the geotextile shall be protected from ultraviolet light exposure, moisture, mud, dirt, dust, puncture, cutting, or any other damaging or deleterious conditions. Geotextile rolls shall be shipped and stored in relatively opaque and watertight wrappings. Wrappings shall not be removed until shortly before deployment.

The Geosynthetic QAC shall observe rolls upon delivery at the site. Any apparently damaged or improperly wrapped rolls shall be reported to the Project Manager.

The Installer shall ensure that geotextiles are not damaged during handling. The geotextile shall be deployed as described below:

1. On slopes, the geotextiles shall be securely anchored and then rolled down the slope in such a manner as to continually keep the geotextile sheet in tension.

2. In the presence of wind, all geotextiles shall be weighted with sandbags or the equivalent. Such sand bags shall be installed during deployment and shall remain until replaced with cover material.

3. Geotextiles shall be cut using a geotextile cutter (hook blade) only. If in place, special care shall be taken to protect other materials from damage which could be caused by the cutting of the geotextiles.

4. The Installer shall take any necessary precautions to prevent damage to underlying layers during placement of the geotextile.

5. During placement of geotextiles, care shall be taken not to entrap, in or beneath the geotextile, stones, excessive dust, or moisture that could damage the geomembrane, cause clogging of drains or filters, or hamper subsequent seaming.

6. A visual examination of the geotextile shall be carried out over the entire surface, after installation, to ensure that no potentially harmful foreign objects, such as needles, are present.

The Geosynthetic QAC shall note any noncompliance and report it to the Project Manager.

10.6 SEAMING PROCEDURES

Geotextiles shall be overlapped a minimum of 3 in (75 mm) prior to seaming. In general, no horizontal seams shall be allowed on sideslopes (seams along, not across, the slope) except as part of a patch. When horizontal seams are necessary, adjacent seams shall be staggered horizontally.

On slopes steeper than 10:1 (horizontal:vertical), all geotextiles shall be continuously sewn. Spot sewing is not allowed. On bottoms and slopes shallower than 10:1, geotextiles shall be continually sewn or thermally bonded with the written approval of the Project Manager.

Any sewing shall be done using polymeric thread with chemical and ultraviolet light resistance properties equal to or exceeding those of the geotextile. The color of the sewing thread shall contrast the background color of the geotextile. Sewing shall be done using machinery and stitch types specified in the project specifications or as approved in writing by the Project Manager and the Geosynthetic QAE.

10.7 DEFECTS AND REPAIRS

10.7.1 Identification

If a defect is identified in the geotextile, the Geosynthetic QAC shall determine the extent and nature of the defect. If the defect is indicated by unsatisfactory test result, the Geosynthetic QAC shall determine the extent of the deficient area by additional tests, observations, a review of records and other means that the Geosynthetic QAC deems appropriate.

10.7.2 Notification

After determining the extent and nature of the defect, the Geosynthetic QAC shall promptly notify the Installer and Project Manager. A work deficiency meeting shall be held as required between the Installer, Geosynthetic QAC, Designer, Project Manager and any other necessary parties to assess the problem, review alternative solutions, and implement an action plan.

10.7.3 Repair Procedures

The final decision as to the appropriate repair shall be agreed upon between the Project Manager, Installer, Designer, and Geosynthetic QAE.

Any holes or tears in the geotextile shall be repaired using the following two procedures.

On sideslopes, a patch made from the same geotextile shall be thermally bonded or sewn into place in accordance with the project specifications. Should any tear exceed 10% of the width of the roll, that roll shall be removed from the slope and replaced.

On non-sideslope areas, a patch made from the same geotextile shall be thermally bonded or sewn into place with a minimum of 12-inch overlap in all directions. Care shall be taken to remove any soil or other material which may have penetrated the torn geotextile.

The Geosynthetic QAC shall observe any repair and report any noncompliance with the above requirements in writing to the Project Manager.

10.8 GEOTEXTILE PROTECTION

All soil materials located on top of a geotextile shall be deployed in such a manner as to ensure:

1. The geotextile and underlying lining materials are not damaged.
2. Minimal slippage of the geotextile on underlying layers occurs.
3. No excess tensile stresses occur in the geotextile.

Any noncompliance with these guidelines or the project specifications shall be noted by the Geosynthetic QAC and reported to the Project Manager.

11.0 GEONETS

11.1 DEFINITION AND APPLICABILITY

Geonets are geosynthetic nets used as a drainage medium in lining systems. This Section is applicable to geonets made of high density polyethylene (HDPE), including "foamed" HDPE products but is not applicable to geonets made of other polymers.

11.2 MANUFACTURING PLANT INSPECTION

The Owner or appropriate representative will conduct a periodic inspection of the Manufacturer's plant. In addition, the Project Manager, or his designated representative may visit the manufacturing plant for a project-specific inspection if deemed necessary. If possible, the project-specific inspection shall be prior to or during the manufacturing of the geonet rolls for that particular project. The purpose of the inspection is to review the manufacturing process and quality control procedures.

The manufacturing plant inspection shall include:

1. Verification that properties guaranteed by the Manufacturer are met and meet all project specifications.
2. Verification that the measurement of properties by the Manufacturer is properly documented and test methods used are acceptable.
3. Spot inspection of the rolls and verification that they are free of imperfections or any sign of contamination by foreign matter.
4. Review of packaging, handling, storage, and transportation procedures and verification that these procedures will not damage the geonet.
5. Verification that roll packages have a label indicating the name of the manufacturer, type of geonet, roll number and roll dimensions.

A report describing the inspection will be retained by the Owner for periodic inspections and by the Project Manager for project-specific inspections.

11.3 QUALITY CONTROL DOCUMENTATION

Prior to the installation of any geonet, the Manufacturer or Installer shall provide the Project Manager with the following information:

1. The origin (supplier's name and production plant) and identification (brand name and number) of the resin.
2. Copies of dated quality control certificates issued by the resin supplier.
3. Results of tests conducted by the Manufacturer to verify that the resin used to manufacture the geonet meets the project specifications.
4. A statement indicating that the amount of reclaimed polymer added to the resin during manufacturing was done with appropriate cleanliness and for geonet used for leachate collection applications.

5. A list of the materials which comprise the geonet, expressed in the following categories as percent by weight: polyethylene, carbon black, other additives.
6. A specification for the geonet which includes all properties contained in the project specifications measured using the appropriate test methods.
7. Written certification that minimum values given in the specification are guaranteed by the Manufacturer.
8. Quality control certificates, signed by a responsible party employed by the Manufacturer. The quality control certificates shall include roll identification numbers, sampling procedures and results of quality control tests. At a minimum, results shall be given for:

    a. Density (ASTM D1505)
    b. Mass per unit area (ASTM D3776)
    c. Thickness (ASTM D751)
    d. Carbon black content (ASTM D1603)

    Quality control tests shall be performed in accordance with the test methods for every 40,000 ft^2 (4,000 m^2) of geonet produced.

The Manufacturer shall identify all rolls of geonets with the following:

1. Manufacturer's name
2. Product identification
3. Roll number
4. Roll dimensions

The Geosynthetic QAE shall review these documents and shall report any discrepancies with the above requirements to the Project Manager. The Geosynthetic QAE shall verify that:

1. Property values certified by the Manufacturer meet all of its guaranteed specifications.
2. Measurements of properties by the Manufacturer are properly documented and that the test methods used are acceptable.
3. Quality control certificates have been provided at the specified frequency for all rolls, and that each certificate identifies the rolls related to it.
4. Roll packages are appropriately labeled.
5. Certified minimum properties meet the project specifications.
6. Project specifications and a copy of the QAP were submitted by Project Manager to the Installer.

11.4 CONFORMANCE TESTING

11.4.1 Sampling Procedures

Upon delivery of the rolls of geonet, the Geosynthetic QAC shall ensure that conformance test samples are obtained for the geonet. The rolls to be sampled shall be selected by the Geosynthetic QAC. Samples shall be taken from any portion of a roll which has not been damaged. Unless otherwise specified, samples shall be 3 ft (1 m) long by the roll width. The Geosynthetic QAC shall mark the machine direction on the samples with an arrow.

A lot shall be defined as a group of consecutively numbered rolls from the same manufacturing line. Alternatively, a lot may be designated by the Geosynthetic QAC based on a review of all roll information including quality control documentation and manufacturing records.

Unless otherwise specified in the project specifications, samples shall be taken at a rate of one per lot, not to be less than one per 100,000 ft^2 (10,000 m^2) of geonet. These samples shall then be forwarded to the Geosynthetic QAL for testing to ensure conformance to the project specifications.

11.4.2 Conformance Tests

At a minimum, the following tests shall be performed:

1. Density (ASTM D1505)
2. Mass per unit area (ASTM D3776)
3. Thickness (ASTM D751)

Other conformance tests may be required by the project specifications.

11.4.3 Test Results

All conformance test results shall be reviewed and accepted or rejected by the Geosynthetic QAE prior to the deployment of the geonet. The Geosynthetic QAE shall examine all results from laboratory conformance testing and shall report any nonconformance to the Project Manager. The Geosynthetic QAE shall be responsible for checking that all test results meet or exceed the property values listed in the project specifications.

If the Manufacturer has reason to believe that failing tests may be the result of the Geosynthetic QAL incorrectly conducting the tests, the Manufacturer may request that the sample in question be retested by the Geosynthetic QAL with a technical representative of the Manufacturer present during the testing. Alternatively, the Manufacturer may have the sample retested at two different Owner-approved Geosynthetic QALs at the expense of the Manufacturer. If both laboratories produce passing results, the material shall be accepted. If both laboratories do not produce passing results, then the original Geosynthetic QAL's test results shall be accepted. The use of these procedures for dealing with failed test results is subject to the approval of the Project Manager.

If a test result is in nonconformance, all material from the lot represented by the failing test should be considered out of specification and rejected. Alternatively, at the option of the Project Manager, additional conformance test samples may be taken to "bracket" the portion of the lot not meeting specification (note that this procedure is valid only when all rolls in the lot are consecutively produced and numbered from one manufacturing line). To isolate the out-of-specification material, additional samples must be taken from rolls that have roll numbers immediately adjacent to the roll that was sampled and failed. If both additional tests pass, the roll that represents the initial failed test and the roll manufactured immediately after that roll (next larger roll number) shall be rejected. If one or both of the additional tests fail, then the entire lot shall be rejected or the procedure repeated with two additional tests that bracket a greater number of rolls within the lot.

11.5 GEONET DEPLOYMENT

The Geosynthetic QAC shall examine rolls upon delivery and any deviation from the above requirements shall be reported to the Project Manager.

The geonet rolls should be protected against dust and dirt during shipment and storage since geonet cleanliness is essential to its performance. The geonet rolls shall be delivered wrapped in plastic to protect the geonet from contamination. The Geosynthetic QAC shall verify that the geonet is free of dirt and dust prior to installation. The Geosynthetic QAC shall report any rolls judged dirty to the Project Manager. If the geonet is judged dirty, the Installer shall clean geonet prior to installation. Cleaning operations shall be observed by the Geosynthetic QAC and improper cleaning operations shall be reported to the Project Manager.

The Installer shall handle all geonet in such a manner as to ensure that it is not damaged in any way, and the following shall be complied with:

1. On slopes, the geonet shall be secured and rolled down the slope in such a manner as to continually keep the geonet sheet in tension. If necessary, the geonet shall be positioned by hand after being unrolled to minimize wrinkles.

2. In the presence of wind, all geonet shall be weighted with sandbags or the equivalent. Such sandbags shall be installed during deployment and shall remain until replaced with cover material.

3. Unless otherwise specified, geonet shall not be welded to geomembrane.

4. Geonet shall only be cut using scissors or other cutting tools approved by the Project Manager that will not damage the underlying geosynthetics. Care shall be taken not to leave tools in the geonet.

5. The Installer shall take any necessary precautions to prevent damage to underlying layers during placement of the geonet.

6. During placement of geonet, care shall be taken not to entrap dirt, excessive dust, or fugitive bentonite clay in the geonet that could cause clogging of the drainage system, and/or stones that could damage the adjacent geomembrane. If dirt or excessive dust is entrapped in the geonet, it should be cleaned prior to placement of the next material on top of it. In this regard, care shall be taken with the handling of sandbags, to prevent puncturing the sand bag.

The Geosynthetic QAC shall note any noncompliance and report it to the Project Manager.

11.6 SEAMS AND OVERLAPS

At a minimum, the following requirements for joining the adjacent geonet shall be met:

1. Adjacent rolls shall be overlapped by at least 4 in (100 mm).
2. The geonet overlaps shall be tied with plastic fasteners. Tying devices shall be white or yellow for easy inspection. Metallic devices are not allowed.
3. Tying shall be every 5 ft (1.5 m) along the length at the adjacent rolls, every 6 in (0.15 m) in the anchor trench and every 6 in (0.15 m) along end-to-end seams.
4. In general, no horizontal seams shall be allowed on sideslopes.
5. In the corners of the sideslopes of rectangular landfills, where overlaps between perpendicular geonet strips are required, an extra layer of geonet shall be unrolled along the slope, on top of the previously installed geonet, from top to bottom of the slope.
6. When more than one layer of geonet is installed, joints shall be staggered.
7. When several layers of geonet are stacked, rolls shall be deployed in the same direction to prevent strands of one layer from penetrating the channels of the adjacent layer.

The Geosynthetic QAC shall note any noncompliance and report it to the Project Manager.

11.7 DEFECTS AND REPAIRS

11.7.1 Identification

If a defect is identified in the geonet, the Geosynthetic QAC shall determine the extent and nature of the defect. If the defect is indicated by unsatisfactory test result, the Geosynthetic QAC shall determine the extent of the deficient area by additional tests, observations, a review of records and other means that the Geosynthetic QAC deems appropriate.

11.7.2 Notification

After determining the extent and nature of the defect, the Geosynthetic QAC shall promptly notify the Installer and Project Manager. A work deficiency meeting shall be held as required between the Installer, Geosynthetic QAC, Designer, Project Manager and any other necessary parties to assess the problem, review alternative solutions, and implement an action plan.

11.7.3 Repair Procedures

The final decision as to the appropriate repair shall be agreed upon between the Project Manager, Installer, Designer, and Geosynthetic QAE.

If the hole or tear width is less than 50% of the width of the roll, the damaged area shall be repaired as follows:

1. A patch shall be placed extending 1 ft (0.3 m) beyond the edges of the hole or tear.

2. The patch shall be secured to the original geonet by tying every 6 in (0.15 m). Tying devices shall be as indicated in Section 11.6.

If the hole or tear width across the roll is equal to or more than 50% of the width of the roll, the damaged area shall be repaired as follows:

1. On the base of the landfill, the damaged area shall be cut out and the two portions of the geonet shall be joined as indicated in Section 11.6.
2. On sideslopes, the damaged geonet roll shall be removed and replaced.

The Geosynthetic QAC shall observe any repair and report any noncompliance with the above requirements in writing to the Project Manager.

11.8 GEONET PROTECTION

Soil should never be placed in direct contact with geonet. Soil materials near the geonet shall be placed in such a manner as to ensure:

1. The geonet and underlying lining materials are not damaged.
2. Minimal slippage of the geonet on underlying layers occurs.
3. No excess tensile stresses occur in the geonet.

Any noncompliance with these guidelines or the project specifications shall be noted by the Geosynthetic QAC and reported in writing to the Project Manager.

12.0 GEOTEXTILE/GEONET COMPOSITE

12.1 DEFINITION AND APPLICABILITY

Geotextile/geonet composites are geocomposites used as a filter and drainage media in lining systems. This Section is applicable to drainage geocomposites made of polyester or polypropylene nonwoven geotextiles and high density polyethylene (HDPE) geonet. The geotextiles may be bonded to one side or both sides of the geonet. This Section is not applicable to geocomposites made with other material or components. The specific type of geocomposite shall be specified in the project specifications.

12.2 MANUFACTURING PLANT INSPECTION

The Owner or appropriate representative will conduct a periodic inspection of the geocomposite Manufacturer's plant. In addition, the Project Manager, or his designated representative, may visit the manufacturing plant for a project-specific inspection if deemed necessary. If possible, the project-specific inspection shall be prior to or during the manufacturing of the geotextile/geonet composite rolls for that particular project. The purpose of the plant inspection is to review the manufacturing process and quality control procedures.

The manufacturing plant inspection shall include:

1. Verification that the proper quality control documentation has been received by the Manufacturer from the component manufacturers.
2. Verification that properties guaranteed by the Manufacturer are met and meet all project specifications.
3. Verification that the measurement of properties by the Manufacturer is properly documented and test methods used are acceptable.
4. Spot inspection of the rolls and verification that they are free of imperfections or contamination by foreign matter.
5. Review of packaging, handling, storage, and transportation procedures and verification that these procedures will not damage the geocomposite.
6. Verification that roll packages have a label indicating the name of the manufacturer, type of geocomposite, roll number, and roll dimensions.

A report describing the inspection will be retained by the Owner for periodic inspections and by the Project Manager for project-specific inspections.

12.3 QUALITY CONTROL DOCUMENTATION

Prior to the installation of any geocomposite, the geocomposite Manufacturer or Installer shall provide the Project Manager with the following information:

1. The origin (supplier's name and production plant) and identification (brand name and number) of the geotextile and geonet used to fabricate the geocomposite.

2. Copies of dated quality control certificates issued by the geotextile and geonet supplier. These certificates shall contain the results of the quality control tests performed on the geocomposite components outlined in Section 10 and 11 of this QAM.
3. A specification for the geocomposite which includes all properties published by the Manufacturer measured using the appropriate test methods.
4. Written certification that minimum values given in the specification are guaranteed by the Manufacturer.
5. Quality control certificates for the geocomposite, signed by a responsible party employed by the Manufacturer. The quality control certificates shall include roll identification numbers, testing procedures and results of quality control tests. At a minimum, results shall be given for:

   a. Mass per unit area (ASTM D3776)
   b. Thickness (ASTM D1777)
   c. Geotextile-geonet adhesion (ASTM D413)

   Quality control tests shall be performed in accordance with the test methods for at least every 40,000 ft^2 (4,000 m^2) of geocomposite produced.

The Manufacturer shall identify all rolls of geocomposite with the following:

1. Manufacturer's name
2. Product identification
3. Roll number
4. Roll dimensions

The Geosynthetic QAE shall review these documents and shall report any discrepancies with the above requirements to the Project Manager. The Geosynthetic QAE shall verify that:

1. Property values certified by the Manufacturer meet all of its guaranteed specifications.
2. Measurements of properties by the Manufacturer are properly documented and that the test methods used are acceptable.
3. Quality control certificates have been provided at the specified frequency for all rolls, and that each certificate identifies the rolls related to it.
4. Roll packages are appropriately labeled.
5. Certified minimum roll properties meet the project specifications.
6. Project specifications and the QAP were submitted by the Project Manager to the Installer.

12.4 CONFORMANCE TESTING

12.4.1 Sampling Procedures

Upon delivery of the rolls of geocomposite, the Geosynthetic QAC shall ensure that conformance test samples are obtained for the geocomposite.

The rolls to be sampled shall be selected by the Geosynthetic QAC. Samples shall not be taken from any portion of a roll which has been damaged. Unless otherwise specified, samples shall be 3 ft (1 m) long by the roll width. The Geosynthetic QAC shall mark the machine direction on the samples with an arrow. All lots of material and the particular test sample that represents each lot should be defined before the samples are taken.

A lot shall be defined as a group of consecutively numbered rolls from the same manufacturing line. Alternatively, a lot may be designated by the Geosynthetic QAC based on a review of all roll information including quality control documentation and manufacturing records.

Unless otherwise specified, samples shall be taken at a rate of one per lot, not to be less than one per 100,000 ft^2 (10,000 m^2) of geocomposite. These samples shall then be forwarded to the Geosynthetic QAL for testing to ensure conformance with the project specifications.

12.4.2 Conformance Tests

At a minimum, the following conformance tests shall be performed on the geocomposite as a unit:

1. Mass per unit area (ASTM D3776)
2. Geotextile-geonet adhesion (ASTM D413)

Additional conformance tests may be required by the project specifications.

12.4.3 Test Results

All conformance test results shall be reviewed and accepted or rejected by the Geosynthetic QAE prior to the deployment of the geocomposite. The Geosynthetic QAE shall examine all results from laboratory conformance testing and shall report any nonconformance to the Project Manager. The Geosynthetic QAE shall be responsible for checking that all test results meet or exceed the property values listed in the project specifications.

If the Manufacturer has reason to believe that failing tests may be the result of the Geosynthetic QAL incorrectly conducting the tests, the Manufacturer may request that the sample in question be retested by the Geosynthetic QAL with a technical representative of the Manufacturer present during the testing. Alternatively, the Manufacturer may have the sample retested at two different Owner-approved Geosynthetic QALs at the expense of the Manufacturer. If both laboratories produce passing results, the material shall be accepted. If both laboratories do not produce passing results, then the original Geosynthetic QAL's test results shall be accepted. The use of these procedures for dealing with failed test results is subject to the approval of the Project Manager.

If a test result is in nonconformance, all material from the lot represented by the failing test should be considered out-of-specification and rejected. Alternatively, at the option of the Project Manager, additional conformance test samples may be taken to "bracket" the portion of the lot not meeting specification (note that this procedure is valid only when all rolls in the lot are consecutively produced and numbered from one manufacturing line). To isolate the out-of-specification material, additional samples must be taken from rolls that have roll numbers immediately adjacent to the roll that was sampled and failed. If both additional tests pass, the roll that represents the initial failed test and the roll manufactured immediately after that roll (next larger roll number) shall be rejected. If one or both of the additional tests fail, then the entire lot shall be rejected or the procedure repeated with two additional tests that bracket a greater number of rolls within the lot.

12.5 GEOCOMPOSITE DEPLOYMENT

During shipment and storage, the geocomposite shall be protected from ultraviolet light exposure, moisture, mud, dirt, dust, puncture, cutting, or any other damaging conditions. Geocomposite rolls shall be shipped and stored in relatively opaque and watertight wrappings. The roll wrappings shall be removed shortly before deployment.

For one-sided geocomposite, the Geosynthetic QAC shall verify that the geonet is free of dirt and dust prior to installation. The Geosynthetic QAC shall identify any dirty rolls and report them to the Project Manager. If the geonet is judged to be dirty or dusty by the Geosynthetic QAE, it shall be cleaned by the Installer prior to installation. Washing operation shall be observed by the Geosynthetic QAC and improper washing operations shall be reported to the Project Manager.

The Geosynthetic QAC shall observe rolls upon delivery at the site and any deviation from the above requirements shall be reported to the Project Manager.

The Installer shall handle all geocomposite in such a manner as to ensure they are not damaged, and the following shall be complied with:

1. On slopes, the geocomposite shall be securely anchored and then rolled down the slope in such a manner as to continually keep the geocomposite sheet in tension. If necessary, the geocomposite shall be positioned by hand after being unrolled to minimize wrinkles.
2. In the presence of wind, all geocomposites shall be weighted with sandbags or the equivalent. Sandbags shall be installed during deployment and shall remain until replaced with cover material.
3. Unless otherwise specified, single-sided geocomposite shall not be welded to the geomembrane.
4. Geocomposites shall be cut using a hook blade or other tool approved by the Project Manager. If in place, special care shall be taken to protect underlying geosynthetics from damage which could be caused by the cutting of the geocomposite. Care shall be taken not to leave the tools in the geocomposite.
5. The Installer shall take any necessary precautions to prevent damage to underlying layers during placement of the geocomposite.
6. During placement of geocomposite, care shall be taken not to entrap in or beneath the geocomposite, stones, or dirt that could damage the geomembrane, cause clogging of drains or filters, or hamper subsequent seaming. If dirt or excess dust is entrapped in the geonet of single-sided geocomposite, it should be washed clean prior to placement of the next

material on top of it. In this regard, care shall be taken with the handling of sandbags, to prevent puncturing the sandbag.

7. A visual examination of the geotextile component of the geocomposite shall be carried out over the entire surface, after installation, to ensure that no potentially harmful foreign objects are present.

The Geosynthetic QAC shall note any noncompliance and report it to the Project Manager.

12.6 SEAMING PROCEDURES

In general, no horizontal seams shall be allowed on sideslopes thus seams shall be along, not across, the slope, except as part of a patch. If horizontal seams are required, offset adjacent horizontal seams.

At a minimum, the following requirements shall be met:

1. Adjacent geocomposite shall be overlapped so that the geonet overlaps by at least 4 in (100 mm) and geotextile overlap by at least 3 in (75 mm).
2. If two sided geocomposite or the geotextile is on bottom, seam geotextile together.
3. The geonet overlaps shall be tied with plastic fasteners. Tying devices shall be white or yellow for easy inspection. Metallic devices are not allowed.
4. Tying shall be every 5 ft (1.5 m) along the slope, every 6 in (150 mm) in the anchor trench, and every 6 in (150 mm) along end-to-end seams on the base of the landfill.
5. In the corners of the sideslopes where overlaps between perpendicular strips are required, an extra layer shall be unrolled along the slope, on top of the previously installed geocomposite, from top to bottom of the slope.
6. When more than one layer of geocomposite is installed, joints shall be staggered.
7. Once geonet is tied, the geotextile of the geocomposite shall be seamed. On slopes steeper than 10:1 (horizontal:vertical), all geotextiles shall be continuously sewn. Spot sewing is not allowed. On bottoms and slopes shallower than 10:1, geotextiles shall be sewn (preferred), or thermally bonded with the written approval of the Project Manager. The Installer shall pay particular attention to seams to ensure that no earth cover material could be inadvertently inserted beneath the geotextile if applicable.
8. Any sewing shall be done using polymeric thread with chemical and ultraviolet light resistance properties equal to or exceeding those of the geotextile. Sewing shall be done using machinery and stitch types specified in the project specifications or as approved in writing by the Project Manager and the Geosynthetic QAE.

The Geosynthetic QAC shall note any noncompliance and report it to the Project Manager.

12.7 DEFECTS AND REPAIRS

12.7.1 Identification

If a defect is identified in the geotextile/geonet composite, the Geosynthetic QAC shall determine the extent and nature of the defect. If the defect is indicated by unsatisfactory test result, the

Geosynthetic QAC shall determine the extent of the deficient area by additional tests, observations, a review of records and other means that the Geosynthetic QAC deems appropriate.

12.7.2 Notification

After determining the extent and nature of the defect, the Geosynthetic QAC shall promptly notify the Installer and Project Manager. A work deficiency meeting shall be held as required between the Installer, Geosynthetic QAC, Designer, Project Manager and any other necessary parties to assess the problem, review alternative solutions, and implement an action plan.

12.7.3 Repair Procedures

The final decision as to the appropriate repair shall be agreed upon between the Project Manager, Installer, Designer, and Geosynthetic QAE. Prior to acceptance of the geocomposite, the Installer shall locate and repair all damaged areas as directed by the Geosynthetic QAC. Care shall be taken to remove any soil or other material which may have penetrated the torn geotextile. The Geosynthetic QAC shall observe any repair and report any noncompliance with the following requirements in writing to the Project Manager.

If in the Geosynthetic QAC's judgement, the defect is determined to be small, typically smaller than 3 by 3 feet (1 m by 1 m), the geocomposite shall be repaired as follows:

1. If the geonet is judged to be undamaged but the geotextile is damaged, a patch of geotextile shall be placed. The geotextile patch shall be thermally bonded in place with a minimum of 12 inch (0.3 m) overlap in all directions.
2. If the geonet is judged to be damaged, the damaged geonet shall be removed. A section of geonet shall be cut to replace the removed section. The geonet shall be tied to the existing geonet using white plastic fasteners placed at least every 6 inches (150 mm) overlap. A geotextile patch shall be placed over the repaired geonet section. The geotextile patch shall be thermally bonded in place with a minimum of 12 inch (0.3 m) overlap in all directions.

If in the Geosynthetic QAC's judgement, the defect is determined to be large, typically larger than 3 by 3 feet (1 m by 1 m), the geocomposite shall be replaced.

The Geosynthetic QAC shall observe any repair and report any noncompliance with the above requirements in writing to the Project Manager.

12.8 GEOCOMPOSITE PROTECTION

For single-sided geocomposites, soils should never be placed in direct contact with geonet. All soil materials located on top of the geocomposite shall be deployed in such a manner as to ensure:

1. The geocomposite and underlying lining materials are not damaged.
2. Minimal slippage of the geocomposite on underlying layers occurs.

3. No excess tensile stresses occur in the geocomposite.

Any noncompliance with these guidelines or the project specifications shall be noted by the Geosynthetic QAC and reported to the Project Manager.

13.0 GEOSYNTHETIC CLAY LINERS

13.1 DEFINITIONS AND APPLICABILITY

Geosynthetic Clay Liners (GCLs) are geocomposite materials that consist of a low hydraulic conductivity montmorillonite-rich expansive clay (bentonite) core which is bonded to a geotextile backing. GCLs are used as barriers in lining systems.

13.2 MANUFACTURING PLANT INSPECTION

The Owner or appropriate representative will conduct a periodic inspection of the Manufacturer's plant. In addition, the Project Manager, or his designated representative, may visit the manufacturing plant for a project-specific inspection if deemed necessary. If possible, the project-specific inspection shall be prior to or during the manufacturing of the GCL rolls for that particular project. The purpose of the plant inspection is to review the manufacturing process and quality control procedures.

The manufacturing plant inspection shall include:

1. Verification that properties guaranteed by the Manufacturer are met and meet all project specifications.
2. Verification that the measurement of properties by the Manufacturer is properly documented and test methods used are acceptable.
3. Spot inspection of the rolls and verification that they are free of imperfections or contamination by foreign matter.
4. Review of handling, storage, and transportation procedures, and verification that these procedures will not damage the GCL.
5. Verification that roll packages have a label indicating the name of the manufacturer, roll number, and roll dimensions.
6. Verification that overlap lines are printed on the rolls.

A report describing the inspection shall be retained by the Owner for periodic inspections and by the Project Manager for project-specific inspections.

13.3 QUALITY CONTROL DOCUMENTATION

Prior to the installation of any GCL, the Manufacturer or Installer shall provide the Project Manager with the following information:

1. The origin (supplier's name and location of material source) and identification of the bentonite used for production of the GCL.
2. Copies of dated quality control information issued by the bentonite supplier.
3. Results of quality control tests conducted by the GCL Manufacturer to verify that the bentonite supplied met the GCL Manufacturer's specifications.
4. Copies of dated quality control information provided by the geotextile Manufacturer.

5. A specification for the GCL which includes all properties contained in the project specifications for GCLs.
6. Written certification that the minimum values given in the project specifications are guaranteed by the Manufacturer.
7. Quality control certificates, signed by a responsible party employed by the Manufacturer. Each quality control certificate shall include roll identification numbers, testing procedures, and results of quality control tests. At a minimum, results shall be given for:

   a. Moisture content (ASTM D4643)
   b. Hydraulic conductivity (GRI GCL-2)
   c. Swell index (GRI GCL-1)
   d. Mass per unit area (ASTM D3776)

   These quality control tests shall be performed in accordance with the test methods for at least every 10,000 ft^2 (1,000 m^2) for moisture content, swell index and mass per unit area. Hydraulic conductivity tests shall be performed in accordance with the test methods for at least every 100,000 ft^2 (10,000 m^2) of GCL produced.

The Manufacturer shall identify all rolls of GCL with the following:

1. Manufacturer's name
2. Product identification
3. Roll number
4. Roll dimensions

The Geosynthetic QAE shall review these documents and shall report any discrepancies with the above requirements to the Project Manager. The Geosynthetic QAE shall verify that:

1. Property values certified by the Manufacturer meet all of its guaranteed specifications.
2. Measurements of properties by the Manufacturer are properly documented and that the test methods used are acceptable.
3. Quality control certificates have been provided at the specified frequency for all rolls, and that each certificate identifies the rolls related to it.
4. Rolls are appropriately labeled.
5. Certified minimum properties meet the project specifications.
6. Project specifications and the QAP were submitted by Project Manager to the Installer.
7. Manufacturer confirms a field drying shrinkage potential to allow proper seam overlap in the field.

13.4 CONFORMANCE TESTING

13.4.1 Sampling Procedures

Upon delivery of the rolls of GCL, the Geosynthetic QAC shall ensure that conformance test samples are obtained. The rolls to be sampled shall be selected by the Geosynthetic QAC. Samples shall not be taken from any portion of a roll which has been damaged. Unless otherwise specified, samples shall be 1 ft (0.3 m) long by the roll width. The Geosynthetic QAC shall mark the machine direction on the samples with an arrow.

A lot shall be defined as a group of consecutively numbered rolls from the same manufacturing line. Alternatively, a lot may be designated by the Geosynthetic QAC based on a review of all roll information including quality control documentation and manufacturing records. If the Project Manager desires, the Geosynthetic QAC can perform the conformance test sampling at the manufacturing plant. This may expedite the installation process for certain projects.

Unless otherwise specified in the project specifications, samples shall be taken at a rate of one per lot, not to be less than one per 100,000 ft^2 (10,000 m^2) of GCL. Samples for hydraulic conductivity conformance tests shall be taken at least every 250,000 ft^2 (25,000 m^2). These samples shall then be forwarded to the Geosynthetic QAL for testing to ensure conformance to the project specifications.

13.4.2 Conformance Tests

At a minimum, the following conformance tests shall be conducted on the GCL as a unit:

1. Moisture content (ASTM D4643)
2. Hydraulic conductivity (GRI GCL-2)
3. Mass per unit area (ASTM D3776)

Additional conformance tests may be required by the project specifications.

13.4.3 Test Results

All conformance test results shall be reviewed and accepted or rejected by the Geosynthetic QAE prior to the deployment of the GCL. The Geosynthetic QAE shall examine all results from laboratory conformance testing and shall report any nonconformance to the Project Manager. The Geosynthetic QAE shall be responsible for checking that all test results meet or exceed the property values listed in the project specifications.

If the Manufacturer has reason to believe that failing tests may be the result of the Geosynthetic QAL incorrectly conducting the tests, the Manufacturer may request that the sample in question be retested by the Geosynthetic QAL with a technical representative of the manufacturer present during the testing. Alternatively, the Manufacturer may have the sample retested at two different Owner-approved Geosynthetic QALs. If both laboratories produce passing results, the material shall be accepted. If both laboratories do not produce passing results, then the original Geosynthetic QAL's test results shall be accepted. The use of these procedures for dealing with failed test results is subject to the approval of the Project Manager.

If a test result is in nonconformance, all material from the lot represented by the failing test should be considered out-of-specification and rejected. Alternatively, at the option of the Project Manager, additional conformance test samples may be taken to "bracket" the portion of the lot not meeting specification (note that this procedure is valid only when all rolls in the lot are consecutively produced and numbered from one manufacturing line). To isolate the out-of-specification material, additional samples must be taken from rolls that have roll numbers immediately adjacent to the roll that was sampled and failed. If both additional tests pass, the roll that represents the initial failed test and the roll manufactured immediately after that roll (next larger roll number) shall be rejected. If one or both of the additional tests fail, then the entire lot shall be rejected or the procedure repeated with two additional tests that bracket a greater number of rolls within the lot.

13.5 GCL DEPLOYMENT

During shipment and storage, the GCL shall be protected from ultraviolet light exposure, moisture, excessive humidity, puncture, cutting, or any other damaging conditions. GCL rolls shall be shipped and stored in relatively opaque and watertight wrappings. GCL rolls shall be stored away from wet ground and be covered with a watertight tarp or under a roof to protect the stored rolls from hydration. The roll wrappings shall be removed shortly before deployment.

The Geosynthetic QAC shall observe rolls upon delivery and prior to deployment at the site and report and deviations from the above requirements to the Project Manager.

The Geosynthetic QAC shall review the GCL panel deployment progress and advise the Project Manager on its conformance with the actual field conditions. The Geosynthetic QAC shall verify that the Installer handles the GCL material in such a manner as to ensure that it is not damaged, and the following are complied with:

1. On slopes, the GCL rolls shall be securely anchored and the GCL material then deployed down the slope in such a manner as to keep the GCL panel in tension.
2. The GCL should be installed with the proper side of the material facing upward. The proper orientation of the material should be as specified by the project specifications.
3. If the GCL is cut in place, special care shall be taken to protect underlying geosynthetic materials from damage which could be caused by cutting of the GCL.
4. The Installer shall take any necessary precautions to prevent damage to underlying layers during placement of the GCL.
5. During placement of the GCL, care shall be taken not to entrap beneath the GCL any stones, excessive dust or moisture that could damage the GCL or any underlying geosynthetics.
6. After installation, a visual examination of the GCL shall be carried out over the entire surface to ensure that no potentially harmful foreign objects, contaminated soil or damaged areas are present.
7. Excess loss of bentonite on edges during deployment should be minimized.

The Geosynthetic QAC shall verify that no more GCL material is deployed during one working day than can be covered by the end of that day. Exceptions to this requirement may be given by the Project Manager if dry weather is forecast for several consecutive days. GCL deployment shall not be undertaken during precipitation or when there is an immediate threat of precipitation.

The Geosynthetic QAC shall note any noncompliance and report it to the Project Manager.

13.6 SEAMING PROCEDURES

13.6.1 Seam Overlap

Adjacent GCL panels shall be joined according to project plans and specifications. At a minimum, the Geosynthetic QAC shall verify the Installer complies with the following requirements:

1. Edge seam overlaps shall be a minimum of 6 in (150 mm).
2. Roll end seam overlaps shall be a minimum 12 in (.3 m).
3. The addition of powdered bentonite to seam locations shall be in accordance with the project specifications.
4. End to end seams on slopes shall be minimized. If they are required, the Geosynthetic QAC shall contact Designer to verify the method used to attach the GCLs has adequate tensile strength.

Prior to approval of the GCL by the Geosynthetic QAC, the following requirements should be visually verified by the QAC:

1. The required overlaps are provided. The overlap shall be continuously monitored since the panels may be subjected to shrinkage.
2. The amount of the powdered bentonite is placed on the seam required by the project specifications.

The Geosynthetic QAC shall note any noncompliance and report it to the Project Manager.

13.7 DEFECTS AND REPAIRS

Any portion of the GCL exhibiting flaws shall be repaired. Prior to acceptance of the installed GCL, the Installer shall locate and repair all damaged areas of the liner as directed by the Geosynthetic QAC. Defects or damage can be identified by either rips, tears, premature hydration of the GCL or delamination of the geotextiles.

Rips or tears in the GCL shall be covered by another piece of material meeting the project specifications. The material shall extend over the entire damaged area with a minimum six inch overlap in all directions. Addition of bentonite to patches shall be in accordance with the project specifications.

Where the GCL has been exposed to moisture and has prematurely hydrated prior to placement of overlying material, the material shall be removed and replaced with material meeting the project specifications. All defects and repairs shall be reported to the Project Manager.

13.8 GCL PROTECTION

All soil materials located on top of the GCL shall be deployed in such a manner as to ensure:

1. The GCL and underlying liner materials are not damaged.
2. Minimal slippage of the GCL on underlying layers occurs.
3. No excess tensile stress occur in the GCL.

Any noncompliance with these guidelines or the project specifications shall be noted by the Geosynthetic QAC and reported to the Project Manager.

PROJECT - SPECIFIC ADDENDA

TRAIL RIDGE LANDFILL
PROJECT-SPECIFIC ADDENDA
TO QUALITY ASSURANCE MANUAL

This plan specifically addresses the quality assurance and quality control (QA/QC) for Trail Ridge Landfill This program delineates the quality procedures and standards for the construction.

In the context of this plan, quality assurance, quality control and the plan participants are defined as follows·

> Quality Assurance - A planned and systematic pattern of all means and actions designed to provide adequate confidence that items or services meet contractual and regulatory requirements and will perform satisfactorily in service
>
> Quality Control - Those actions which provide a means to measure and regulate the characteristics of an item or service to contract and regulatory requirements
>
> Permittee - Trail Ridge Landfill, Inc
>
> Owner - The City of Jacksonville
>
> Design Engineer - England, Thims & Miller, Inc

The QA/QC Program for this project includes General QA/QC, Soils QA/QC, and Synthetic Liner System QA/QC These QA/QC activities (including monitoring, sampling and testing) shall be directed and conducted by the third parties whom are independent of the Contractor

The General QA/QC includes full-time services to periodically observe the contractor's work to verify substantial compliance with permits, plans, specifications and design concepts

General Quality Control Monitor - shall monitor the construction for compliance with the permits, plans, specifications and design including construction to proper lines and grades, maintain daily logs and weekly progress reports of the construction (including observation data sheets, problem identification and correction logs), make note of construction deviations, coordinate qualifying and testing of materials, and monitor filling. This individual shall be experienced in civil site construction and solid waste regulations

General Quality Assurance Engineer - shall supervise the construction monitoring to verify compliance with permits, plans, specification and design concepts This individual shall be experienced in civil site construction and solid waste regulations and shall be a registered Professional Engineer

The General QA/QC Program includes monitoring the following activities

1 General Earthwork
2 Drainage Installation
3 Leachate Pump System Installation
4 Leachate Forcemain Installation
5. Overall Liner System Installation
6. General Construction Quality Control

The Soils QA/QC for this project includes soil material qualifying, sampling and testing to verify substantial compliance with the material standards

Soils Quality Control Monitor - shall pre-qualify soil materials, monitor the installation of soil materials, determine where in-place soil materials shall be tested, and test the in-place soil materials This individual shall be responsible for assuring that all soil materials have been pre-qualified and have a chain-of-custody from the pre-qualified source to the project site, prior to installation This individual shall be experienced in civil site construction and soil testing standards and procedures

Soils Quality Assurance Engineer - shall supervise the soil material pre-qualifying and testing of in-place soil materials to assure compliance with the test standards and testing frequency requirements, and verify compliance with the plans, specification and design. This individual shall be experienced in civil site construction and soil testing procedures and shall be a registered Professional Engineer

The QA/QC Plan shall include monitoring and testing of the following

A SUBGRADE

Prior to construction of the liner system including the clay subbase, a subgrade shall be prepared. The subgrade shall be placed and compacted in 12" lifts

1 Subgrade

a. Location - The Soils Quality Control Monitor shall visually inspect the fill material and test the material in-place.

b. Standard - Soil shall be free of brush, weeds, and other litter, and free of roots 3/8" diameter or greater, stumps, stones 1" diameter or greater and any other extraneous or toxic matter

The soil shall be cohesionless soil with a fines content of 15% or less

Compacted to 96%* of Modified Proctor maximum dry density (ASTM D 1557) and a firm unyielding surface Testing by Drive Cylinder (ASTM D2937), Nuclear (ASTM D2922) or Sand Cone (ASTM D1556) Methods

* If the required densities are achieved at a moisture content exceeding 2% of optimum moisture content, the soil will be proof rolled and visually inspected by the Soils Quality Control Monitor to determine if it is unyielding and not pumping Clay subbase shall not be placed on a yielding subgrade

c. Frequency - Density tests shall be conducted at the frequency of four tests per acre of finished subgrade including the same frequency for each 12-inch lift of fill

B CLAY SUBBASE

Prior to placement of the synthetic liner system, a clay subbase shall be prepared The subbase shall be a minimum of 6" in thickness.

1 Clay Subbase

a Borrow Source - Prior to clay subbase installation, an appropriate borrow source shall be located Suitability of the subbase construction materials from that source shall be determined in accordance with the following

(1) If demonstrated field experience is available from at least three prior successful projects of five or more acres each to document that a given borrow source can meet the requirements of the project specifications, then extensive laboratory testing of the borrow source will not be required However, the source of material shall be geologically similar to and the methods of excavating and stockpiling the material shall be consistent with

those used on the prior projects. Furthermore, a minimum of three representative samples from the appropriate thickness of the in-situ stratum or from stockpiles of the borrow material proposed for subbase construction shall be submitted to the Soils Quality Assurance Engineer to document through index testing that the proposed material is consistent with the material used on prior successful projects At a minimum, index testing shall consist of percent fines, Atterberg limits and moisture content determinations.

(2) If demonstrated field experience as defined above is not available or cannot be documented, then the following requirements shall be met.

(a) A field exploration and laboratory testing program shall be conducted by the Soils Quality Assurance Engineer to document the horizontal and vertical extent and the homogeneity of the soil strata proposed for use as subbase material A sufficient number of index tests from each potential borrow stratum shall be performed to quantify the variability of the borrow materials and to document that the proposed borrow material complies with specifications At a minimum, the index tests shall consist of percent fines (ASTM D1140), Atterberg limits (ASTM D4318) and moisture content (ASTM D2216) determinations

(b) Sufficient laboratory hydraulic conductivity tests shall be conducted on samples representative of the range invariability of the proposed borrow source (ASTM D5084) At a minimum, the tests shall be taken once per 20,000 cubic yards of soil For each such sample, test specimens shall be prepared and tested to cover the range of molding conditions (moisture content and dry density) required by project specifications The hydraulic conductivity tests shall be conducted in triaxial type permeameters The test specimens shall be consolidated under an isotropic consolidation stress no greater than 10 pounds per square inch and permeated with water under an adequate backpressure to achieve saturation of the test specimens The inflow to and outflow from the specimens shall be monitored with time and the hydraulic conductivity calculated for each recorded flow increment. The test shall continue until steady state flow is achieved and relatively constant values of hydraulic conductivity are measured (ASTM D5084) The borrow source will only be considered suitable if the hydraulic conductivity of the material, as documented on laboratory test specimens, can be shown to meet the requirements of the project specifications at the 98 percent confidence level.

(3) The Soils Quality Assurance Engineer shall review the pre-qualification data and shall approve or reject the material for use.

b. Test Strip - Prior to full-scale clay subbase installation, a field test section or test strip shall be constructed at the site above a prepared subgrade. The test strip shall be considered acceptable if the measured hydraulic conductivities of undisturbed samples from the test strip meet the requirements of the project specifications at the 98 percent confidence level. If the test section fails to achieve the desired results, additional test sections shall be constructed in accordance with the following requirements·

(1) The test section shall be of sufficient size (20' x 50' minimum) such that full-scale clay subbase installation procedures can be duplicated within the test section,

(2) The test section shall be constructed using the same equipment for spreading, kneading and compaction and the same construction procedures (e g , number of passes, moisture addition and homogenization, if needed) that are anticipated for use during full-scale clay subbase installation,

(3) At a minimum, the clay subbase test section shall be subject to the following field and laboratory testing requirements by the Soils Quality Control Monitor.

(a) A minimum of five random samples of the clay subbase construction material delivered to the site during test section installation shall be tested for moisture content (ASTM D2216), percent fines (ASTM D1140) and Atterberg limits (ASTM D4318),

(b) At least five field density and moisture determinations shall be performed on the compacted clay subbase test section;

(c) Upon completion of the test section, the thickness of the section shall be measured at a minimum of five random locations to check for thickness adequacy, and

(d) A minimum of five Shelby tube or drive cylinder (ASTM D2937) samples shall be obtained from each test section for laboratory hydraulic conductivity testing Laboratory hydraulic conductivity testing shall be conducted in triaxial type permeameters (ASTM D5084) The test specimens shall be consolidated under an isotropic consolidation stress no greater than 10 pounds per square inch and permeated with water under an adequate backpressure to achieve saturation of the test specimens The inflow to and outflow from the specimens shall be monitored with time and the hydraulic conductivity calculated for each recorded flow increment The test shall continue until steady state flow is achieved and relatively constant values of hydraulic conductivity are measured (ASTM D5084)

(e) The test strip shall meet or exceed the standards established below except the field density which shall be established by the Soils Quality Assurance Engineer based upon the test strip results If the test strip fails to meet these standards, the construction methods and/or material will be rejected and the test strip shall be performed again

c. Clay Subbase Installation - Full scale clay subbase installation may begin only after completion of a successful test section During clay subbase construction, quality control testing shall be provided to document that the installed clay subbase conforms to project specifications The testing frequency for quality control testing are specified below <u>However, during construction of the first five acres of the clay subbase, the frequencies shall be doubled</u> The clay subbase shall be installed in one 6" lift

(1) Location - The clay subbase shall be tested in-place at random locations These locations of tests shall be determined by the Soils Quality Control Monitor If there are indications of a change in product quality or construction procedures during clay subbase construction, additional tests shall be performed to determine compliance.

(2) Standard

(a) Subgrade - Compacted to 96% of Modified Proctor maximum dry density (ASTM D1557) (See Subgrade)

(b) Field Density - The field density shall be established by the Soils Quality Assurance Engineer based upon the test strip results and shall be determined by Standard Proctor Density (ASTM D698) In no case shall the field density be less than 80% of Standard Proctor Density (ASTM D698).

(c) Thickness - The clay subbase shall have a minimum in-place thickness of 6"

(d) Hydraulic Conductivity - The compacted clay subbase shall have an in-place hydraulic conductivity no greater than 1.0×10^{-5} cm/sec (ASTM D5084)

(3) Field Testing Frequency

(a) Prior to the laying of the clay subbase materials, the subgrade shall be compacted to the specified density Density tests shall be conducted at a minimum rate of four tests per acre of finished subgrade

(b) A minimum of two moisture content and field density determinations shall be conducted per acre of compacted clay subbase The degree of compaction shall be checked using the one-point field Proctor test or other appropriate test procedures, and

(c) A minimum of four thickness measures shall be conducted per acre of the compacted clay subbase

(4) Laboratory Testing Frequency

(a) Percent fines (ASTM D1140) of the subbase construction material shall be determined at a minimum frequency of two tests per acre of installed clay subbase,

(b) Atterberg limits determinations shall be performed on one sample per acre of installed clay subbase; and

(c) Hydraulic conductivity testing of Shelby tube or drive cylinder (ASTM D-2937) samples of the compacted clay subbase shall be performed at a minimum frequency of one test per acre Laboratory hydraulic conductivity tests shall be conducted in triaxial type permeameters (ASTM D-5084) The test specimens shall be consolidated under an isotropic consolidation stress no greater than 10 pounds per square inch and permeated with water under an adequate backpressure to achieve saturation of the test specimens. The inflow to and outflow from the specimens shall be monitored with time and the hydraulic conductivity calculated for each recorded flow increment The test shall continue until steady state flow is achieved and relatively constant values of hydraulic conductivity are measured

(5) Deficiency - If the test data from a clay subbase section does not meet the requirements of the project specifications, additional random samples shall be tested from that clay subbase section If such additional testing demonstrates that the thickness and hydraulic conductivity meet the requirements of the project specifications at the 95 percent confidence level, that clay subbase section will be considered acceptable If not, that clay subbase section shall be reworked or reconstructed so that it does meet these requirements.

C BENTONITE MAT (Geosynthetic Clay Liner)

A bentonite mat shall be installed as part of the synthetic liner system In addition to the requirements of the "Quality Assurance Manual For the Installation of Lining Systems", the bentonite mat shall be monitored and tested as follows

1 Bentonite Mat

a. Location - Upon delivery of the bentonite mat rolls to the site (prior to installation) samples shall be obtained

b. Standard

(1) Hydraulic Conductivity - The hydraulic conductivity (GRI GCL-2) shall be no greater than 1 0 x 10^{-9} cm/sec at a confining stress of 30 psi.

(2) Moisture Content - The moisture content (ASTM D4643) shall be no greater than 10 percent

(3) Mass - The mass per unit area (ASTM D3776) of the sodium bentonite component of the bentonite mat shall be a minimum of 1.0 lb/ft^2 (4900 g/m^2)

c Frequency - The bentonite mat shall be tested for moisture content, hydraulic conductivity and mass per unit area at least once per 40,000 square feet or once per lot, whichever is more frequent

D PROTECTIVE SAND BLANKET

After the synthetic liner system has been installed, it shall be covered with a protective sand blanket The protective sand blanket shall be a minimum of 24" in thickness

1. Protective Sand Blanket

a. Location - Material shall be pre-qualified by hydraulic conductivity, particle size, and calcium carbonate content testing at the borrow location

Truck tickets shall be utilized for chain of custody to site.

Thickness shall be verified by as-built survey

b Standard - Sand shall be reasonably free of brush, weeds, and other litter, and relatively free of roots, stumps, stones and any other extraneous or toxic matter The Soils Quality Control Monitor shall visually inspect the sand during placement.

Hydraulic Conductivity shall be greater than or equal to 1.0 x 10^{-3} cm/sec at a density of 96 percent Modified Proctor maximum dry density (ASTM D1557). Hydraulic Conductivity testing by Constant Head Method (ASTM D2434).

Thickness shall be no less than 24 inches at each location.

The sand shall be non-calcareous (ASTM D3042)

Compatibility of protective sand cover grain size with geotextile to be determined, prior to initial placement.

c. Frequency - Hydraulic Conductivity testing shall be on-going as necessary to support fill borrow operations with minimum of one test per 500 cubic yards

Prior to placement, the sand shall be tested for particle size and calcium carbonate content The test shall be taken at least once per 5,000 cubic yards and for each change in material source

d Miscellaneous - The material shall be placed loose and spread on top of the liner system to a minimum depth of 24 inches No equipment shall come in direct contact with liner. Low ground pressure equipment shall be used for the placement and spreading of the sand cover Temporary haul roads and access roads over the liner for the delivery of material shall include a minimum of 36 inches of sand cover depth. These temporary facilities shall be removed during the finish grading of the protective sand blanket.

The leading edge of sand placement over the synthetic liner system shall be by vertical placement versus pushing sand horizontally

E. CLAY ANCHOR BERM

A clay anchor berm shall be constructed in accordance with the Contract Drawings.

1. Clay Anchor Berm

a.	Location -	The clay anchor berm shall be sampled in place Hydraulic conductivity testing shall be conducted in the laboratory.
b.	Standard -	Hydraulic conductivity shall be less than 1 0 x 10^{-7} cm/sec. Hydraulic conductivity testing by Falling Head Method (ASTM D5084)
c	Frequency -	One testing location per 100 linear feet of anchor trench.

F LEACHATE COLLECTION TRENCH AND SUMP AGGREGATE

Aggregate shall be placed in leachate collection trenches and sumps

1. Aggregate

a	Location -	The aggregate shall be sampled on site, prior to placement.
b.	Standard -	Gradient shall meet AASHTO No 3 coarse aggregate (ASTM D448). Testing by Sieve Analysis (ASTM C136). The aggregate shall be non-calcareous (ASTM D3042)
c.	Frequency -	Prior to placement, one gradation test per sump plus one testing location per trench with a minimum of one test per 500 cubic yards of aggregate Prior to placement, the aggregate shall be tested for calcium carbonate content The test shall be taken once for 2,600 LF of trench or once per change in material source

APPENDIX G
PIPE STRENGTH CALCULATIONS

DRISCOPIPE

PHILLIPS 66

To : Juanitta Clem August 29,1996

From : Harvey Svetlik Harvey Svetlik

Re : Trail-Ridge Landfill

Based on the information that you sent us, the attached calculations apply. Please note that for AASHTO #3 course aggreate , as the landfill deepens by lifts, the soil pressure also increases. When examining the strength of soils as the pressure increases, some consolidation occurs and the modulus of passive soil resistance rises. In deep landfills, #3 aggregate can increase in strength to 6000 to 9000 psi. As the compacted back-fill super consolidates , the increasing strength resists ring-deflection. I would recommend you analize the soil strength under confined soil pressures approximating the depth of burial. My experience suggests it will exceed 4000 psi passive modulus of soil resistance. Based on its use in our very conservative prism soil load model, the DR 11 calculates to be adequate for the project subject to your confirmation for yourself of the variation (increase) in strength of soils with increasing depth.

Obviously the soils do increase in strength with depths over 75 ft, or they would not be able to support the increased pressure of the overburden with increasing depth. This is why sand turns to sandstone. And sandstone is stronger than sand.

DRISCOPIPE

DRISCOPIPE DIRECT BURIAL - 08-30-1996

PROJECT: England*Thims*Mller , Inc
REMARKS: Trail Ridge LF * Proj # 96-46
Calculated By ______________________

DRISCOPIPE 1000 Product Series

Dimension Ratio (DR)	=	11.00
Burial Depth	=	216 Feet
Soil Density	=	65 Pounds/Cu Ft
Water Table	=	0 Feet Above Pipe
Other Loads	=	0 Pounds/Sq Ft
Soil Modulus	=	4000 psi
Pipe Modulus	=	35000 psi
S(A) (Stress in Pipe Wall)	=	487.5 psi
P(T) (Pressure @ Pipe Crown)	=	97.5 psi
P(CB)(Critical Buckling Pressure)	=	395.2 psi
Maximum Ring Deflection	=	2.75 %
CRUSHING SAFETY FACTOR	=	3.1 to 1
WALL BUCKLING SAFETY FACTOR	=	4.1 to 1
CALCULATED RING DEFLECTION	=	2.44 %

CALCULATED RING DEFLECTION IS ACCEPTABLE.

WARNING!
THE USE OF THIS PROGRAM TO DESIGN POLYETHYLENE PIPING SYSTEMS USING PRODUCTS NOT MANUFACTURED BY PHILLIPS DRISCOPIPE MAY RESULT IN SERIOUS DESIGN ERRORS.

These programs provide accurate and reliable information to the best of Phillips Driscopipe's knowledge, but our suggestions and recommendations cannot be guaranteed because the conditions of use are beyond our control. Each project has it's own set of variables and conditions. Interpretation of these variables is important. The user must apply proper engineering judgement when selecting values for input into these programs. Phillips Petroleum Company and Phllips Driscopipe assume no responsibility for the information presented herein and hereby expressly disclaim all liability relating to the use of this information.

For Additional Information on DRISCOPIPE Products Contact:
PHILLIPS DRISCOPIPE - 800/527-0062

LAW

ENGINEERING AND ENVIRONMENTAL SERVICES, INC

3901 Carmichael Avenue
Jacksonville, Florida 32207
Phone 904-396-5173
Fax 904-396-5703

MEMORANDUM

TO Ms Juanitta B Clem, P E

FROM Sandeep Laroia, P E / James A Horton, P E

DATE October 1, 1996

SUBJECT **Trail Ridge Landfill Vertical Expansion**

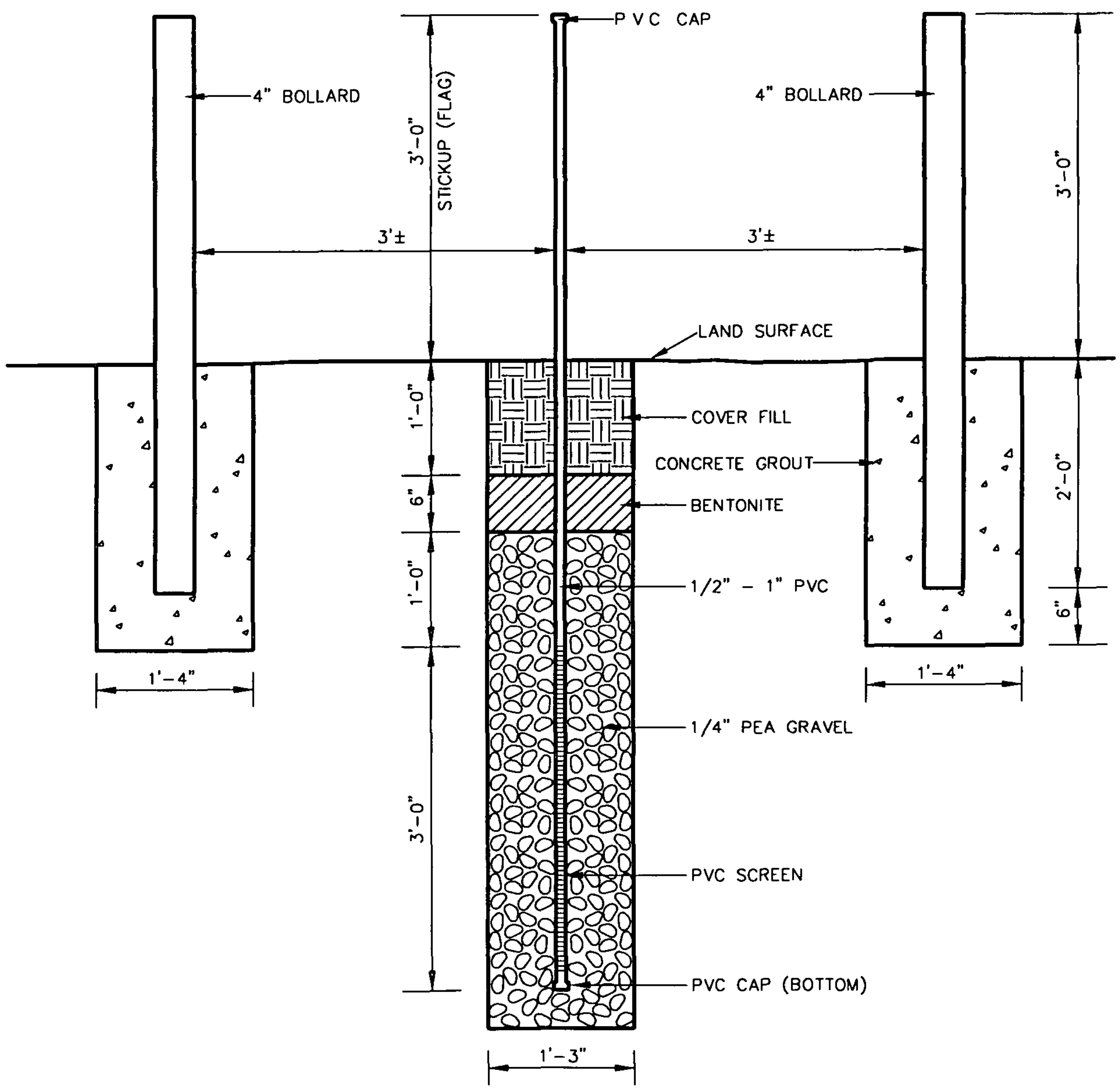
We are in receipt of your transmittal dated September 20, 1996, which included the following

- A memorandum from Driscopipe dated August 29, 1996
- Your calculations for determining the deflection of leachate collection pipes, dated August 27, 1996

We understand that the leachate collection system pipes will be bedded on AASHTO No 3 coarse aggregate Although the gradation characteristics and the thickness of this bedding layer is not known to us, we understand that a composite compression modulus of (at least) 4000 psi (or 576 ksf) has been utilized in the deflection analysis of the leachate collection system pipes Our experience indicates that compacted soils usually exhibit compression modulus values in the range of 500 to 1,500 ksf (or 3,500 to 10,500 psi) It is our opinion, therefore, that a bedding layer consisting of compacted coarse aggregate over compacted soil should be able to achieve a composite compression modulus of at least 4000 psi

In regards to our landfill settlement evaluation (documented in our previous memorandum dated August 29, 1996), we estimate that the "local" landfill construction related settlements will range from 6 inches (at the landfill edges) to about 21 inches (at the center) From a landfill stability viewpoint, such settlements are considered to be acceptable The differential settlements should be relatively uniform from the center to the edges or corners of the landfill Accordingly, in our opinion, the liner integrity will not be compromised by this magnitude of settlement We understand that the impact of such settlements on the leachate collection system integrity and operation will be evaluated by others

APPENDIX H
GAS MONITORING PLAN



PERMIT DOCUMENT

PERMANENT GAS PROBE DETAIL

TRAIL RIDGE LANDFILL
FOR
TRAIL RIDGE LANDFILL, INC

ETM NO.	E 96 - 49
DRAWN BY:	S.J.L.
DESIGNED BY:	J.B.C.
CHECKED BY:	J.B.C.
DATE:	OCTOBER 28, 1996

REVISIONS:

England-Thims & Miller, Inc.
Consulting & Design Engineers
3131 ST. JOHNS BLUFF ROAD SOUTH
JACKSONVILLE, FLORIDA 32246
PHONE NUMBER (904) 642-8990 FAX NUMBER (904) 646-9485

DRAWING NO. 2

APPENDIX I
SLOPE STABILITY ANALYSIS

LAW

ENGINEERING AND ENVIRONMENTAL SERVICES INC

October 8, 1996

Ms Juanitta B Clem, P E
Vice President
England Thims and Miller, Inc
3131 St Johns Bluff South
Jacksonville, Florida 32246

Subject **Report of Geotechnical Engineering Evaluation**
Trail Ridge Class A Landfill Vertical Expansion
Duval County, Florida
LAW Project No 40522-6-7211

Dear Ms Clem

Law Engineering and Environmental Services, Inc (LAW) has performed a geotechnical study for the subject project in general accordance with our Work Authorization Sheet No 96-4393S dated August 19, 1996 Authorization for our services was provided by you on September 17, 1996

In summary, based on the available subsurface information, the planned Class A landfill configuration appears to be satisfactory from global slope stability and landfill cover sliding stability standpoints

Project Information and Structural Conditions

Project information was provided by Ms Juanitta Clem of England Thims and Miller, Inc (ET&M) during the period of August 15 to September 17, 1996 We have been furnished with the following undated drawings prepared by ET&M (marked "Preliminary")

- Class A Landfill Plan View (actual drawing title not visible)
- Section A-A
- Section B-B
- Final Cover - Top Slope
- Intermediate Berm Detail

We understand that the planned Class A landfill will be constructed over an area with plan dimensions of about 2600 feet by 2600 feet at the existing Trail Ridge Landfill facility in southwestern Duval county, Florida The landfill will have side slopes of 3H 1V, from an existing ground elevation ranging from about +120 to +150 feet up to an elevation of +330 feet The area above an elevation of +330 feet has been designated as the "top slope" and will have plan dimensions of about 1100 feet by 1100 feet The top of the landfill will be crowned with a 4 percent grade and will have a maximum elevation of +349 3 feet at the center of the landfill

A three-foot high perimeter earth berm will be constructed at the outer edges of the top slope Additional 2½-foot high intermediate berms will be constructed along the 3H 1V landfill side slopes at a typical horizontal spacing of 75 feet These berms will be utilized to intercept surface water flow, which will be directed to collection pipes

3901 CARMICHAEL AVENUE • JACKSONVILLE FL 32207
(904) 396 5173 • FAX (904) 396 5703 OR 399 3176

The final cover in the top slope area will consist of the following components from top to bottom

- 12-inch thick topsoil layer
- 12-inch thick sand layer (permeability greater than $1x10^{-3}$ cm/s)
- 40 mil textured geomembrane liner (NSC "Friction Seal" HDPE geomembrane)
- 12-inch thick compacted intermediate soil cover

The final cover over the steeper 3H 1V side slope areas will consist of the following components from top to bottom

- 24-inch thick topsoil layer
- 12-inch thick compacted clay layer (permeability less than $1x10^{-7}$ cm/s)
- 12-inch thick compacted intermediate soil cover

Below the final cover compacted municipal waste separated by layers of 6-inch thick daily soil cover will exist We understand that the average unit weight of the landfill material will be about 70 pcf

We understand that the following evaluations are desired (based on existing subsurface information) as part of this project

- Global slope stability of the planned landfill configuration
- Sliding stability of the final cover in top slope and side slope areas

LAW has previously performed a revised settlement evaluation for the planned landfill configuration which was documented in our Memorandum dated August 29, 1996

Subsurface Conditions

Field exploration activities were not performed by LAW as a part of this project Instead, for our evaluation, subsurface conditions encountered by borings previously drilled by Ellis and Associates, Inc and Golder Associates, Inc were utilized The subsurface conditions utilized in our global slope stability evaluation are summarized in the table below

Elevation Range (Feet)	Material Description
Existing Ground Surface* to +102 50	VERY LOOSE to FIRM fine SAND
+102 5 to +93 0	FIRM to DENSE clayey fine SAND
+93 0 to +87	LOOSE fine SAND
+87 to 0	LOOSE to VERY DENSE (generally VERY FIRM to DENSE) fine SAND

*Ranges from about +125 feet to +150 feet

For our evaluation, we have assumed that the groundwater level will approximate the profile of the natural ground surface Fluctuation in the groundwater levels should be anticipated due to seasonal climatic changes, rainfall variations construction activity and other site specific factors

Evaluation

The following evaluations of global slope stability and landfill final cover sliding stability are based on the project information previously presented along with the assumed subsurface conditions If the project information is incorrect, please contact us so that our evaluation can be reviewed The discovery of any subsurface condition during construction which deviates from the assumed subsurface conditions should also be reported to us for our re-evaluation The assessment of site environmental conditions or the presence of pollutants in the soil rock or groundwater of the site is beyond the proposed scope of this project

Global Slope Stability - A global stability analysis was performed for the planned landfill configuration in order to determine the potential for a global shear failure The computer program PCSTABL6 was utilized for the analysis of slope stability by limit equilibrium methods

The following material properties were utilized in our global slope stability analysis

Material No	Material Description	Cohesion (psf)	Internal Friction Angle (Degrees)	Total Unit Weight (pcf)
1	Compacted Municipal Waste	0	Variable*	70
2	VERY LOOSE to FIRM fine SAND (Above Elev +102 5 feet)	0	30	115
3	FIRM to DENSE clayey fine SAND (Between Elev +93 and +102 5 feet)	1000	28	120
4	LOOSE fine SAND (Between Elev +87 and +93 feet)	0	29	112
5	LOOSE to VERY DENSE fine SAND (Between Elev 0 and 87 feet)	0	34	120

*Several different internal friction angle values ranging from 22 degrees to 27 degrees were utilized to determine the impact on safety factor

For our evaluation, we conservatively assumed that the groundwater will exist at the existing ground surface (fully saturated natural soils) Three separate executions of computer program PCSTABL6 were made by varying the internal friction angle of the compacted municipal waste from 22 to 27 degrees For each execution 4000 random trial circular failure surfaces were generated by the program and a safety factor was calculated for each surface using the Modified Janbu Method The following table summarizes the <u>minimum</u> safety factor obtained for each program execution

Program Execution No	Assumed Landfill Material Internal Friction Angle (Degrees)	Minimum Safety Factor*
1	27	1 9
2	25	1 8
3	22	1 6

*Based on 4000 circular failure surface analyzed

Most engineered slopes are typically designed with a long term safety factor of 1 5 against a circular arc failure Based on our experience, landfill deposits (alternating layers of compacted municipal waste and daily soil cover) should possess an average internal friction angle of at least 22 degrees It therefore appears that the planned landfill configuration will be stable with an acceptable safety factor

<u>Landfill Final Cover Sliding Stability</u> - The following landfill final cover sliding stability evaluations were performed

Final Cover Location	Slope (H V)	Slope Angle (Degrees)	Sliding Mechanism
Top Slope	100 4	2 3	Sand on textured geomembrane
Side Slope	3 1	18 4	Topsoil (internal sliding)
Side Slope	3 1	18 4	Topsoil on clay

For our top slope final cover sliding stability analysis, completely saturated soil conditions were conservatively assumed because of the relatively flat slope Our analysis indicates that a <u>minimum</u> interface friction angle (between the textured geomembrane liner and the cover sand layer) of 9 degrees will be necessary to achieve a safety factor of at least 1 5 against a block sliding failure Based on laboratory test results furnished by National Seal Company (NSC), an interface friction angle (between sand and textured geomembrane) significantly higher than 9 degrees should be available The planned top slope configuration is therefore considered to be acceptable

Our side slope final cover stability analyses indicate safety factors ranging from 1 5 (internal sliding of topsoil layer) to 4 0 (topsoil layer sliding on compacted clay) It is noted that these safety factors will improve once a vegetative cover is established on the landfill slopes

We have enjoyed assisting you and look forward to continue serving as your geotechnical consultant on the remainder of this project and on future projects If you have any questions concerning this report, please contact us

Sincerely

LAW ENGINEERING AND ENVIRONMENTAL SERVICES, INC.

Sandeep Laroia

Sandeep Laroia P E
Senior Geotechnical Engineer
Registered Florida 48938

Thomas E. Selfridge

Thomas E Selfridge, P E
Principal Geotechnical Engineer
Registered, Florida 41199

SL/TES ag

Distribution England, Thims & Miller, Inc (3)
File (1)

APPENDIX J
WASTE TIRE PROCESSING

Draft of 01/13/94

Florida Department of Environmental Regulation

Twin Towers Office Bldg 2600 Blair Stone Road Tallahassee, Florida 32399-2400

DER Form # 17-711.900(6)
Form Title Waste Tire Processing Facility Permit Application
Effective Date
DER Application No
(Filled in by DER)

Waste Tire Processing Facility Permit Application

Permit No SC16-184444 Renewal ☒ Modification ☐ Existing unpermitted facility ☐ Proposed new facility ☐
Mod. Mo. 219482

Part I-General Information

Applicant Name Trail Ridge Landfill, Inc.

Applicant Street Address 5110 U.S. Hwy. 301

City Baldwin County Duval Zip 32234

Applicant Mailing Address 5110 U.S. Hwy. 301

City Baldwin County Duval Zip 32234

Contact person Greg Mathes Phone(904) 289-9100

Have any enforcement actions taken by the Department against the applicant relating to the operation of any solid waste management facility in this state? This includes any Complaint, Notice of Violation, or revocation of a permit or registration, as well as any Consent Order in which a violation of Department rules is admitted It does not include a Warning Letter, Warning Notice, Notice of Noncompliance, or other similar document which does not constitute agency action Yes____ No X
If yes, attach a history and description of the enforcement actions

Facility Name Trail Ridge Landfill, Inc.

Facility Street Address (Main Entrance) 5110 US Hwy 301

City Baldwin County Duval Zip 32234

Facility Mailing Address 5110 U.S. Hwy. 301

City Baldwin State FL Zip 32234

Contact Person Greg Mathes Phone(904) 289-9100

Facility Location Coordinates

Section 18, 19, 20, 21 Township 3S Range 23E

Latitude 30° 14'00" Longitude 82° 02'30"

Anticipated date for starting construction * and for completion of construction *

Anticipated date for receipt of tires * and for start of processing *

This facility was constructed in 1992 and has been in operation under Permit No. SC16-184444

Draft of 01/13/94

Land owner information (if different from applicant):

Owner's name: City of Jacksonville c/o Solid Waste Disposal Division

Land owner's mailing address: 515 N. Laura St., JEA Plaza Bldg., 6th floor

City: Jacksonville State: FL Zip: 32202

Authorized Agent: Chris Pearson Agent's phone: (904) 632-8050

Current lease expires: N/A

Facility operator information (if different from applicant).

Operator's name: Same as applicant

Operator's mailing address: ____

City: ____ State: ____ Zip: ____

Contact person: ____ Phone( ) ____

Preparer of application

Name of person preparing application: Juanitta Bader Clem, P.E.

Mailing address: England, Thims & Miller, Inc., 3131 St. Johns Bluff Rd. S.

City: Jacksonville State: FL Zip: 32246

Phone: (904) 642-8990

Affiliation with facility: Consulting Engineer

Part II-Operations
Facility type (check appropriate box):

☐ Waste tire processing facility

☐ Waste tire processing facility with on-site disposal of processed tires or processing residuals See Attachment ___

☐ Waste tire processing facility with on-site consumption of waste tires or processing residuals See attachment F

☒ Permitted solid waste management facility ~~modification to allow~~ including waste tire site and processing

Type of processing facility (check as many as apply).
☒ Shredder ☐ Cutter ☐ Chopper ☐ Incinerator only ☐ Incinerator with energy recovery ☐ Pyrolysis

☐ Supplemental fuel user ☐ Other, explain ____

Indicate the maximum quantities of whole waste tires, processed waste tires, and processing residuals, expressed in tons, to be stored at the facility, in accordance with Rule 17-711 530(2), F A C

	Outdoor Storage (tons)	Outdoor Storage (sq ft)	Indoor Storage (tons)	Indoor Storage (Sq ft)	Total Storage (tons)
Whole waste tires	3,900				3,900
Processed tires	0				0
Processing residuals	0				0
TOTALS	3,900				3,900

For reporting quantity of tires in tons, tires will be weighed on site ☒ weighed off site ☐ weights will be calculated ☐

Facilities that will not be disposing of processed tires or processing residual on the facility site must indicate the permitted solid waste management facility where processed tires or residuals will be disposed

Name of facility N/A Disposal is provided on site

Street address

City County Zip

Facilities that will be delivering processed tires to consuming facilities must describe the existing or proposed markets for those processed tires

N/A Disposal is provided on site.
If recycling becomes available, the tires will be recycled.

Part III-Attachments

A. Facility design The Facility Design is included in the Solid Waste Application.

NOTE All maps, plan sheets, drawings, isometrics, cross sections, or aerial photographs shall be legible, be signed and sealed by a registered professional engineer responsible for their preparation, be of appropriate scale to show clearly all required details; be numbered, referenced to narrative, titled, have a legend of symbols used, contain horizontal and vertical scales (where applicable), and specify drafting or origination dates, and use uniform scales as much as possible, contain a north arrow and use NGVD for all elevations

1) A topographic or section map of the facility, including the surrounding area for one mile, no more than one year old, showing land use and zoning within one mile of the facility
2) A plot plan of the facility on a scale of not less than one inch equals 200 feet At a minimum, the plot plan shall include
   a) The facility design, including the location and size of all storage and processing areas for used tires, unprocessed waste tires, processed waste tires, and waste tire processing residuals,
   b) All wetlands and water bodies within the facility or within 200 feet of any storage area,
   c) Stormwater control measures, including ditches, dikes, and other structures,
   d) Boundaries of the facility, legal boundaries of the land containing the facility, and any easements or rights of way that are within the facility or within 200 feet of any storage area,
   e) Location, size, and depth of all wells within the facility or within 200 feet of any storage area,
   f) All structures and buildings that are, or will be, constructed at the facility, include those used in storage and processing operations,
   g) All areas used for loading and unloading,
   h) All access roads and internal roads, including fire lanes;
   i) Location of all fences, gates, and other access control measures, and
   j) Location of all disposal areas within the facility

B Facility operation

1) A description of the facility's operation, process and products including how waste tires will be received and stored
2) A description of the equipment used for processing tires This description shall include the make, model and hourly capacity of each piece of equipment
3) Description of the waste from the process, the amount of waste expected and how and where this waste will be disposed of.
4) Statement of the maximum daily throughput and the planned daily and annual throughput
5) A description of how the operator will maintain compliance with each of the storage requirements of Rule 17-711 540 F.A C.
6) A copy of the emergency preparedness manual for the facility with a statement of the on site and off site locations where that manual will be maintained
7) A copy of the fire safety survey
8) A description of how 75% of the annual accumulation of waste tires will be removed for disposal or recycling

C Completed closing plan for the facility as required by Rule 17-711 700(2) and (3), F.A C.
D Attach proof of financial responsibility as requirement by Rule 17-711.510(2) OR a calculation showing that financial assurance documents, currently on file with the Department, are sufficient to assure closing of the waste tire site as well as any other solid waste management facility at that location
E A letter from the land owner (if different from applicant) authorizing use of the land as a waste tire processing facility
F If waste tires will be consumed at the facility, attach a description of the other environmental permits that the applicant has for this use, including, permit number, date of issue, and name of issuing agency.
G The permit fee as required in Rule 17-4, F A C

Part IV-Certification

A Applicant

The undersigned applicant or authorized representative of Trail Ridge Landfill, Inc. is aware that statements made in this form and attached information are an application for a Waste Tire Processing Permit from the Florida Department of Environmental Regulation and certifies that the information in this application is true, correct and complete to the best of his knowledge and belief Further, the undersigned agrees to comply with the provisions of Chapter 403, Florida Statutes, and all rules and regulations of the Department It is understood that the Department will be notified prior to the sale or legal transfer of the facility

JVGessel — Signature of Applicant or Authorized Agent

John Van Gessel, Vice President and General Counsel — Name and Title

Oct 24, 1996 — Date

B Professional Engineer registered in Florida

This is to certify that the engineering features of this waste tire processing facility have been designed/examined by me and found to conform to engineering principals applicable to such facilities In my professional judgment, this facility, when properly maintained and operated will comply with all applicable statues of the State of Florida and rules of the Department It is agreed that the undersigned will provide the applicant with a set of instructions for proper maintenance and operation of the facility

Juanitta Bader Clem — Signature	3131 St. Johns Bluff Rd. S. — Mailing Address
Juanitta Bader Clem, P.E. — Name and Title	Jacksonville, FL 32246 — City, State, Zip
#43245 — Florida Registration Number	(904) 642-8990 — Telephone number

(please affix seal)

Oct. 26, 1996 — Date

Mail completed form to appropriate district office

TRAIL RIDGE LANDFILL
WASTE TIRE PROCESSING FACILITY

1. Introduction

Trail Ridge Landfill, Inc. intends to continue operation of a waste tire processing facility in accordance with the requirements of Rule 62-711.530, F A C within the property boundaries of the Solid Waste Management Facility.

2. Design

The waste tire processing facility is located on a parcel of land south of the non-contract drop off area and east of the operations building. A site plan for this area is provided in Exhibit A. In compliance with Rule 17-711.540(2) (a), F A.C , the facility is designed with a stormwater management system (since it is located within 200 feet of wetlands). The stormwater control methods meet the stormwater requirements of Rule 62-25, F A C and help maintain water quality standards specified in Chapters 62-302 and 62-520, F A C The stormwater management system for the waste tire processing facility is incorporated into the stormwater management facility for the ancillary facility

The facility is paved with asphalt and graded away from the wetlands towards a ditch, which drains to the ancillary facility stormwater pond A twelve-inch concrete header curb was constructed at the southeast corner to prevent discharge to the adjacent wetlands This curb also prevents liquid runoff from a potential fire from entering the wetlands

3. Operations and Maintenance

The waste tires brought into the landfill site will be either homogenous loads or incidental to the solid waste loads Those loads containing strictly waste tires will be directed to the waste tire processing facility and unloaded. Those tires discovered during unloading at the landfill active face will be picked out and taken to the waste tire storage area

The tires will be stored in accordance with Rule 62-711 540, F A C The storage will be limited to 60 times the daily through-put of the processing equipment At least 75 percent of both the waste tires and processed tires that are delivered to or are contained on the site at the beginning of each calendar year will be processed and disposed of on site or transported off-site to a permitted facility for recycling/disposal.

The waste tire storage facility shall be operated and maintained in accordance with Rule 62-711.540, F A C The site was constructed and shall be operated and maintained to divert stormwater or floodwaters around and away from the storage piles.

Each storage pile will be no wider than 50 feet with an area no greater than 10,000 square feet and a height no greater than 15 feet. A 50-foot wide fire lane shall be maintained around the perimeters of each waste tire pile Access to the fire lane for emergency vehicles shall be unobstructed at all times. Mosquitos and rodent shall be controlled in a manner to protect the public health and welfare

An attendant shall be present at the waste tire site during the unloading of waste tires to ensure mixed loads are not deposited The processed tires shall be disposed or recycled at the Class I permitted landfill The processed tires shall meet the size requirements specified under Rule 62-711 400(3) (b), F A C , (the tire will be cut into at least eight substantially equal pieces for purposes of disposal)

A mobile tire shredder shall be utilized to process the tires at Trail Ridge Landfill on a quarterly basis or the tires shall be transported off-site to a permitted facility for recycling/disposal.

4. **Access, Signs and Security**

The waste tire processing facility is accessed off the main access road to the landfill. The access is beyond the scale house through the citizen drop-off area. The access road shall be kept passable for any type of motor vehicle at all times.

Signs are posted at the entrance to the solid waste management facility stating operating hours, costs of disposal, and site rules

The property boundaries of the solid waste management facility which encompasses the waste tire processing facility are fully fenced with a locking gate at the entrance and exit to prevent unauthorized access to the site

5. **Record Keeping**

Records will be maintained of the quantity of waste tires and processed tires received at the site, stored at the site, and shipped from the site Records shall also be maintained of the name and waste tire collector registration number of all waste tire collectors who deliver waste tires to the facility, and the quantity of waste tires received from that collector; and if more than five waste tires are delivered by a person who is not a waste tire collector, the number of tires delivered and the person's name, address and telephone number

Quarterly reports shall be submitted to the Department by the 20th of the month following the close of each calendar quarter on Form 17-711.900(4). The information required by Rules 17-711 530(4) (b) and (5), F.A.C. shall be included in the report

6. **Fire Protection**

The tire site shall be kept free of grass, underbrush, and other potentially flammable vegetation. Fire protection for the site shall be assured through notification to local fire protection authorities. A fire safety survey shall be conducted at least annually and the survey report shall be made a part of the next quarterly report.

Communication equipment shall be maintained at the waste tire site to assure the site personnel can contact local fire protection authorities in case of fire. Fire extinguishers shall be conveniently assessable to the tire pile. No operation utilizing an open flame will be conducted within 25 feet of the waste tire site.

7. **Emergency Preparedness Manual**

An Emergency Preparedness Manual is attached as Exhibit B A copy of the manual shall be maintained at a designated off-site location. This manual shall be updated at least once a year and upon changes in operation of the facility

8. **Closure**

Closure of the waste tire processing facility shall be in accordance with Rule 62-711.700, F.A.C.

9. **Financial Assurance**

Financial responsibility for closure of the solid waste management facility includes closure costs associated with the waste tire site Therefore, no new documentation is submitted

10. **Permit Fee**

No permit fee is required, as specified in Rule 17-711 300(4), F A C

EXHIBIT B
EMERGENCY PREPAREDNESS MANUAL

TRAIL RIDGE LANDFILL
WASTE TIRE PROCESSING FACILITY

1 In event of a fire or other emergency, the following persons/agencies will be contacted:

Trail Ridge Landfill personnel to be contacted

Mr. Greg Mathes	(904) 269-3986
Mr. Jimmy Purvis	(904) 879-1282
Mr Billy Purvis	(904) 879-1859

Fire Department
Phone: 911

Department of Environmental Protection
7825 Baymeadows Way, Suite 200B
Jacksonville, Florida 32256
(904) 448-4320, Ext 353

2 The tire storage processing facility is located at a Class I sanitary landfill, Trail Ridge Landfill, which is fully equipped with bulldozers, front end loaders, scrapers, and other such equipment available at all times for any emergency There is an ample stockpile of soil on site for use in smothering a fire, if one occurs

3 In the event of a fire, the following procedures will be immediately implemented:

A Notify the persons/agencies listed in Part 1

B. Reinforce the area with soil to contain any runoff and use to extinguish fire, if necessary

C Extinguish the fire with on-site equipment and stockpile dirt Only personnel trained in fire safety procedures will be utilized to fight fires

D. A special and/or hazardous waste contractor will be contacted for cleanup and disposal of any residue generated by the fire

4 Within two weeks of the emergency, a written report describing the event will be sent to the Department of Environmental Protection The report shall include the emergency, the actions taken to remedy the situation, the results of the action that was taken, and an analysis of the success or failure of the actions

APPENDIX K
ENVIRONMENTAL MEDIA MONITORING PLAN

Golder Associates Inc
8933 Western Way, Suite 12
Jacksonville, FL USA 32256
Telephone (904) 363-3430
Fax (904) 363-3445

Golder Associates

October 24, 1996 963-3989

England, Thims & Miller, Inc
3131 St Johns Bluff Road, South
Jacksonville, Florida 32246

Attn Ms Juanitta Bader Clem, P E

RE EVALUATION OF HISTORICAL DATA AND RECOMMENDATIONS FOR GROUNDWATER, SURFACE WATER AND LEACHATE MONITORING TRAIL RIDGE LANDFILL JACKSONVILLE, FLORIDA

Dear Ms Clem

In accordance with our proposal to England, Thims & Miller, Inc (ETM) dated February 2, 1996, Golder Associates Inc (Golder Associates) has prepared this letter report to document our review of the historical groundwater, surface water, and leachate data and present our recommendations regarding adequacy of the existing monitoring program for the Trail Ridge Landfill site located in Jacksonville, Florida In brief, it is our recommendation that the following modifications be made to the monitoring program

1 Remove wells MWB-16S, MWB-18S, MWB-28S, and MWB-30S from the sampling program[1] These wells are not typically hydraulically down-gradient of the landfill based on the groundwater flow data for the site and there is available redundancy with the nearby existing wells

2 Reduce the frequency of groundwater sampling from semi-annual to annual for all metals except antimony, copper, chromium, iron, lead, mercury, and selenium This is based on the infrequency of detection of the Appendix I and 62-701 metals except those listed

3 Reduce the frequency of groundwater sampling from semi-annual to annual for all volatile organic compounds (VOCs) This is based on the infrequency of detection, or non-detection experienced to date at the site

4 Remove surface water monitoring point SW-3 from the sampling program because (1) it does not monitor the Class I landfill, and (2) the Class III landfill that it was originally intended to monitor was not constructed and is not being re-permitted

[1] It is noted that MWB-28S and MWB-30S are not presently part of the existing sampling program and are not scheduled to be brought on line until Phase V is built

5 Reduce the frequency of surface water sampling from quarterly to semi-annual based on the consistency of analytical results observed to date.

6 Discontinue collecting individual leachate samples from the five primary sump storage tanks and in their place collect a single composite sample Continue sampling the secondary sump storage tank individually

7 Reduce the frequency of leachate sampling from semi-annual to annual for the following metals based on the infrequency of detection, or non-detection experienced to date at the site arsenic, barium, beryllium, copper, selenium, silver and vanadium

BACKGROUND

In preparing this report we have reviewed the following information which was provided either by ETM, Waste Management, Inc. (WMI), or Environmental Monitoring Laboratories, Inc (EML)[2]

- Site permit and associated permit modifications;
- Groundwater and Surface Water Data from 1992 through 1995,
- Leachate Data for 1995 and 1996, and
- Groundwater potentiometric maps and water level data from 1992 through 1995.

EXISTING MONITORING PROGRAM

<u>Groundwater</u>

There are a total of 43 monitoring wells located on site (see Figure 1) The monitoring wells are installed around the perimeter of the landfill and are screened in three zones within the Surficial Aquifer (designated Shallow, Intermediate, and Deep zones) By zone, there are 22 Shallow wells, 12 Intermediate wells, and 9 Deep wells Table 1 presents the well construction details for the monitoring wells on site

Groundwater flow is eastward in all three zones of the Surficial Aquifer and monitoring wells (or monitoring well clusters) are spaced approximately every 500 feet on the north and south sides of the landfill (relative side-gradient position), approximately every 250 feet on the east side of the landfill (relative down-gradient position), and there are three monitoring well locations (one single deep well and two shallow/ intermediate well pairs) on the west side of the landfill (relative up-gradient position)

[2] The analytical data was provided on diskette in ASCII format by EML

Following the start of landfill operations in 1992, the existing monitoring wells have been sequentially added to the site's sampling program as the various phases of the landfill have been constructed. Figure 1 illustrates the locations of the monitoring wells relative to the approximate boundaries of the various landfill phases

Surface Water

Surface water flow at the site mimics the topography, with runoff in a predominantly eastward direction and drainage features trending east-west There are a total of three surface water monitoring locations on site (designated SW-1, SW-2, and SW-3). Monitoring location SW-1 is located in a wetland, approximately 200 feet east of the landfill's stormwater retention pond (just east of the spillway structure) Monitoring location SW-2 is located in an east-west trending drainage feature, approximately 500 feet north of the landfill (north-northeast of monitoring well cluster MWB-17) Monitoring location SW-3 is located in a wetland, approximately 2,000 feet northeast of the landfill (north-northeast of monitoring well cluster MWB-7) SW-3 is located adjacent to the east end of what was originally planned as the Class III landfill stormwater retention pond which, along with the Class III landfill itself, was never actually built Both SW-2 and SW-3 should be considered "background" sampling locations since they do not receive run-off directly from the landfill area

Leachate

Leachate collection pipes that lie on top of the primary liner terminate at the leachate collection sumps. These sumps also collect any leachate flowing along the secondary leak detection system The sump is designed so that the leachate from the primary and secondary systems is separated Therefore, it is necessary to have two pumps in each sump, one for the primary leachate collection system and one for the secondary leachate collection system

The leachate is pumped from the sumps through primary and secondary force mains to six 20,000-gallon storage tanks Tanks 1 through 5 (which are interconnected) receive the leachate collected from all of the primary leachate collection sumps via one force main Tank 6 receives leachate that is pumped through a separate force main from the secondary leachate collection sumps.

EVALUATION OF HISTORICAL DATA

Groundwater

The groundwater monitoring system for the site was evaluated using two different approaches, hydraulically (i e , the position of the wells relative to groundwater flow) and analytically (i e., evaluating sampling results in comparison to Florida standards and/or background concentrations)

Hydraulic Evaluation

For the evaluation of hydraulics, Golder Associates reviewed the groundwater contour maps dating between 1992 to 1995, which have been provided to the FDEP in quarterly and/or semi-annual reports for the site (Attachment A) The contour maps reviewed included separate maps for the shallow, intermediate and deep hydrogeologic zones. This review process included calculating the average gradient across the site (see Table 2), and on a well-by-well basis, determining groundwater flow direction at each of the 16 wells located on the north and south sides of the landfill (see Table 3)

The calculation of the average horizontal gradients across the site indicates the gradients in the three zones are very similar, with the deep zone, on average, having a slightly flatter gradient than the intermediate and shallow zones It is noted that this observation may at least partially be a result of having fewer data points for the deep zone, resulting in larger interpolations between data points than in the shallow zone Also, it is noted that there were some periods when the gradients in the deep zone were steeper than in the intermediate zone, and periods when the intermediate zone were steeper than the shallow zone There were not any obvious seasonal trends in gradient fluctuations noted

As noted previously, groundwater flow direction in all three zones monitored is predominantly towards the east To determine the effectiveness of the wells located on the north (MWB-16S, MWB-17S/I/D, MWB-18S, and MWB-19S/I/D) and south (MWB-26S, MWB-27S/I/D, MWB-28S, MWB-29S/I/D, and MWB-30S) sides of the landfill, groundwater flow azimuths were measured from the existing groundwater flow direction maps produced for the site between 1992 to 1995 These well locations are generally considered side-gradient to the landfill The purpose of this evaluation was to determine if any of the wells regularly monitor groundwater which does not pass beneath the footprint of the landfill

Groundwater flow directions, measured as an azimuth from north (according to the site plan map), were measured for the shallow, intermediate and deep zones based on the groundwater contour maps for the site (Attachment B) Table 3 presents the measured azimuths for groundwater flow at each of the wells by event (North = 0°, East = 90°, South = 180°), along with the range and average for all the events Additionally, the minimum azimuth at each well on the north side and maximum azimuth on the south side of the landfill were measured to determine the most eastward vector that groundwater could flow and still pass beneath the footprint of the landfill (see Figure 2)

Based on a comparison of the minimum/maximum angles with the average azimuth for each well, all the wells on the north and south sides evaluated do not appear to monitor groundwater that normally flows from beneath the footprint of the landfill (see Table 3)

Analytical Results Comparison

Table 4 summarizes the number of wells that have had exceedances of primary or secondary drinking water standards at the site (a complete printout of the groundwater analytical data received from EML is included as Attachment B) As shown on Table 4, the most common exceedances of drinking water standards in the monitoring wells sampled at the site are for iron (>300 µg/L in 32 of 35 wells that have been sampled at the site) and pH (<6 5 S U in 28 of 35 wells that have been sampled at the site) These constituents are present in both up-gradient and down-gradient wells, screened in the deep, intermediate, and shallow zones One exception to this generalization are the deep wells, which had pH's > 6 5 in 5 of the 8 wells screened in that interval. This difference can likely be explained by the different lithology in the deep zone (carbonate material) which likely provides a buffering effect to the groundwater which passes through it

Other metals in addition to iron have been sporadically detected at the site Of these, only lead has been detected above its established standard more than one time at more than one location Of the seven wells that have had more than one lead exceedance, all either occurred only in the initial (baseline) sampling back in 1992 (before landfill operations began), or have corresponding results for dissolved lead that are within the established limits. It is noted that the soils in northeast Florida have a number of metals that are naturally occurring (including lead) This is particularly true on the Trail Ridge geomorphic feature, where mining for "heavy sands" is well documented The groundwater data for the site indicates there is a correlation between the presence of lead (and other metals) and high turbidity results.

The other exceedance which was detected in 6 of the 35 wells sampled on site has been for color. The groundwater in the shallow and intermediate wells is commonly tinted brown This condition is most likely the result of tannic acid in the soil which is produced by the natural degradation of the overlying humic material

The only detections of VOCs have been for trichlorofluoromethane, dichlorofluoromethane, and toluene, typically in the 1 to 3 µg/L range (not above any established standard). The trichlorofluoromethane and dichlorofluoromethane are often associated with chlorinated municipal water and toluene is sometimes found as a laboratory or sampling equipment contaminant Of the detections, trichlorofluoromethane was the most common (21 detections total in 19 different wells 15 detections in the 3rd Quarter 1993 event, 5 detections in the 4th Quarter 1993, and 1 detection in the 1st Quarter 1994), dichlorofluoromethane was detected 3 times total in 3 different wells (all in the 4th Quarter 1993), and toluene was detected 7 times total in 4 different wells (2 detections in the 3rd Quarter 1992 event, 2 detections in the 4th Quarter 1992 event, 2 detections in the 1st Quarter 1993 event, and 2 detections in the 1st Quarter 1994 event) Since the 1st Quarter 1994, there have not been any detections of VOCs

<u>Surface Water</u>

The surface water data do not appear to vary significantly between the three locations currently sampled (see Table 5 - Summary of Surface Water Sample Detections). A complete printout of the surface water analytical data received from EML is included as Attachment C Of the parameters analyzed, only pH and iron exceed the Florida standards for Class I surface water bodies on a regular basis Iron values in SW-1 and SW-3 are similar (average 824-869 µg/L) with SW-2 being, on average, lower (average 268 µg/L) pH values for SW-1 and SW-2 are similar (average 3 93 to 4 93) with SW-3 typically being higher (average 5.17 to 5 93) As noted in the existing monitoring program section of this letter, SW-2 and SW-3 are likely outside any influence of the landfill and therefore represent "background" level concentrations This would indicate that background iron and pH vary within the range detected at the "down-gradient" sampling location SW-1

Leachate

Leachate data for 1995 and 1996 was reviewed as part of this study (see Attachment D). Our review of the data noted significant differences in the concentrations of constituents between the five primary sump storage tanks (Tank 1 through Tank 5) and the single secondary storage tank (Tank 6) In general, the concentrations of the constituents detected in the primary storage tank samples were similar to each other and greater than those detected in the secondary storage tank sample by a factor of approximately 2 to 100 (see Table 6 - Summary of Leachate Sample Detections) Comparison of the composite sample data to that of the five individual primary sump tanks was not practical due to the higher detection limits in the composite samples (designated Tankco - see Attachment B)

CONCLUSIONS AND RECOMMENDATIONS

Groundwater

The groundwater flow directions and gradients have been consistent during the first five years of operation Flow directions in all three zones of the surficial aquifer that are monitored (shallow, intermediate, and deep) are predominantly eastward. It is likely that some of the wells along the north and south sides of the landfill do not monitor groundwater that passes from beneath the footprint of the waste disposal areas (active or future) The wells along the west (up-gradient) side appear to provide adequate background data and the wells along the east (down-gradient) side of the landfill provide very adequate coverage, considering the well spacing is considerably closer than the 500-foot requirement.

The groundwater quality data for the site has been consistent during the first five years of monitoring With the exception of iron, pH, and color, the groundwater quality at the site meets the state drinking water standards As noted in the previous section, these constituents are not considered a result of any impact from the operation of the landfill, rather are related to the natural groundwater quality conditions of the area. With the exception of the widespread (upgradient/downgradient), low level detections of trichlorofluoromethane, dichlorofluoromethane, and toluene in 1992 to 1994, there have been no detections of VOCs.

Based on the hydraulic data reviewed, it is recommended that some shallow well locations on the north and south sides of the landfill be removed from the existing or future sampling schedule (MWB-16S, MWB-18S, MWB-28S, and MWB-30S. This recommendation is based on, (1) the fact that the groundwater flow direction is predominantly eastward and these wells are not likely sampling groundwater that passes beneath the footprint of the landfill, (2) the groundwater analytical data for these wells is not significantly different from that obtained in the two 3-well clusters that are on their respective sides of the landfill, and (3) the average groundwater flow directions provide redundancy in the system (i e , on the north side MWB-17S,I,D and MWB-19S,I,D are relatively down-gradient of MWB-16S and MWB-18S, respectively and on the south side MWB-27S,I,D and MWB-29S,I,D are relatively down-gradient of MWB-28S and MWB-30S, respectively) Flow lines drawn using the worse-case azimuth values from shallow wells shown on Table 3 indicate that even without the shallow wells proposed to be eliminated on the north and south sides, the effective well spacing between the shallow wells remaining is approximately 300 feet (see Figure 3)

Based on the analytical data reviewed, it is recommended that the frequency of groundwater sampling for metals (except antimony, copper, chromium, iron, lead, mercury, and selenium) be reduced from semi-annual to annual This is due to the infrequency of detection of the other Appendix I and 62-701 metals.

Also based on the analytical data reviewed, it is recommended that the frequency of groundwater sampling for VOCs be reduced from semi-annual to annual This is due to the infrequency of detection or non-detection of VOCs experienced to date at the site.

Surface Water

The surface water quality data reviewed supports the conclusion that there have not been any significant impacts to surface water quality as a result of the landfill's presence. Because the Class III landfill was not built, which SW-3 was sited for, and the fact that both it and SW-2 appear to be able to provide consistent data on background surface water quality outside the drainage area of the landfill, it is recommended that one of the background surface water monitoring points be eliminated from the sampling program Because SW-2 is closer to the landfill and is in what is considered more of an up-gradient position, it is recommended that the SW-3 surface water sampling location be eliminated

Also, because of the consistency in the analytical results to date, it is recommended that the sampling frequency for the surface water be reduced from quarterly to semi-annual (as the groundwater sampling is now)

Leachate

The only significant differences that were noticed in our review of the leachate data were between the concentrations of constituents in the five primary sump storage tanks (Tanks 1 through 5) and the one secondary storage tank (Tank 6) Both the leachate quality data reviewed and the method of operation for the leachate collection system (see description in first section) appear to indicate that there are no significant differences between the leachate tank samples collected from the five primary storage tanks Also, the values of leachate for the composite samples collected compared favorably to the results for the five primary sump storage tanks (see Table 6 - Summary of Leachate Sample Detections).

Because the tanks do not contain leachate from a discrete area and the similarity in composition observed to date, it is recommended that collection of five samples from each individual primary leachate tank be discontinued in favor of a single composite sample from either the force main or by collecting representative proportions form each primary tank and compositing them into a single sample The secondary sump tank sample (Tank 6) should remain separate because it is distinct in both its origin and the concentrations of the constituents detected

Also, for the data reviewed, arsenic, barium, beryllium, copper, selenium, silver and vanadium have not been detected in any of the samples It is recommended that the sampling frequency for these constituents be changed from semi-annual to annual

If you have any questions or comments regarding this letter, please call

Very truly yours,

GOLDER ASSOCIATES INC

Kenneth B. Karably

Kenneth B Karably, ~~P G~~ (FL # 1454)
Senior Project Manager/Associate

FOR

Donald J Miller, P Eng
Jacksonville Office Manager/Principal

Attachment A - Groundwater Contour Maps (from Quarterly or Semi-Annual Reports)
Attachment B - Groundwater Analytical Data (from EML Data Download)
Attachment C - Surface Water Analytical Data (from EML Data Download)
Attachment D - Leachate Analytical Data (from EML Data Download)

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Table 1

Well Construction Summary

Traıl Ridge Landfill
Jacksonvılle, Florida

Well I D	Ground Surface Elevatıon (Ft MSL)	Top of Rıser Elevatıon (Ft MSL)	Bottom of Hole (Ft BGS)	Stıck-Up (Ft)	Screened Interval (Ft BGS)	Top of Fılter Pack (Ft. BGS)	Top of Bentonıte Pellets (Ft BGS)
B-2S	144 1	146 64	17 5	2 54	2 5-17 5	2 0	0 0
B-2I	143 8	145 69	59 8	1 89	54 3-59 8	52 3	47 5
B-3S	151 5	153 48	18 0	1 98	3 0-18 0	2 5	0 0
B-3I	151 0	151 86	60 0	0 86	54 7-60 0	53 3	51 0
B-7S	120 6	123 29	16 5	2 69	1 5-16 5	1 0	0 0
B-7I	119 7	121 52	63 3	1 82	58 0-63 3	56 8	51 8
B-7D	119 7	121 63	114 7	1 93	109 7-114 7	108 2	105 0
B-11S	118 5	120 81	18 0	2 31	3 0-18 0	1 0	0 0
B-11I	118 4	120 39	60 0	1 99	54 5-60 0	53 5	48 5
B-12S	122 9	124 63	25 0	1 73	10 0-25 0	8 0	5 0
B-12I	122 9	124 72	69 6	1 82	64 1-69 6	61 0	57 5
B-12D	122 9	124 78	112 8	1 88	107 4-112 8	105 0	102 5
B-13S	124 1	126 06	24 6	1 96	9 6-24 6	8 0	5 5
B-13I	124 1	125 98	58 6	1 88	53 6-58 6	51 0	48 0
B-14S	123 4	126 05	16 5	2 65	1 5-16 5	1 0	0 0
B-14I	123 4	125 92	60 0	2 52	55 0-60 0	53 0	50 0
B-14D	123 4	125 87	106 0	2 47	101 0-106 0	99 0	96 0
B-16S	141 7	144 01	17 5	2 31	2 5-17 5	2 0	0 5
B-17S	136 1	138 31	16 1	2 21	1 1-16 1	0 5	0 0
B-17I	136 2	138 43	57 9	2 23	52 9-57 9	51 0	48 0
B-17D	136 0	138 52	124 8	2 52	119 8-124 8	118 0	115 0
B-18S	131 1	134 09	16 5	2 99	1 5-16 5	1 0	0 0
B-19S	125 7	127 38	18 0	1 68	3 0-18 0	1 5	0 0
B-19I	125 5	127 94	56 5	2 44	51 5-56 5	50 0	47 0
B-19D	125 5	128 23	109 0	2 73	104 0-109 0	102 0	99 0
B-20S	118 9	121 01	18 0	2 11	3 0-18 0	2 5	0 0
B-21S	121 0	122 84	18 0	1 84	3 0-18 0	2 5	0 0
B-22S	124 5	126 97	25 0	2 47	10 0-25 0	8 0	5 0
B-23S	122 5	125 34	25 0	2 84	10 0-25 0	8 0	0 0
B-24S	122 2	126 04	16 5	3 84	1 5-16 5	1 0	0 0
B-25S	122 1	125 22	17 2	3 12	2 2-17 2	2 2	0 0
B-25I	122 1	124 03	58 3	1 93	53 3-58 3	51 0	48 0
B-25D	122 1	124 64	106 0	2 54	101 0-106 0	99 0	96 0
B-26S	124 4	126 55	16 5	2 15	1 5-16 5	1 0	0 0
B-27S	126 4	128 42	16 3	2 02	1 3-16 3	1 0	0 0
B-27I	126 5	128 63	60 1	2 13	55 1-60 1	53 0	50 0
B-27D	126 1	128 88	107 0	2 78	102 0-107 0	100 0	97 0
B-28S	131 4	133 73	17 0	2 33	2 0-17 0	1 5	0 0
B-29S	135 5	138 02	16 5	2 52	1 5-16 5	1 0	0 0
B-29I	135 4	138 08	60 0	2 68	55 0-60 0	53 0	50 0
B-29D	135 4	138 18	109 0	2 78	104 0-109 0	102 0	99 0
B-30S	140 2	142 52	16 5	2 32	1 5-16 5	1 0	0 0
B-31D	154 0	156 15	129 5	2 15	124 5-129 5	122 5	119 5

Table 2

Summary of Average Horizontal Groundwater Gradients (1992 - 1995)

Trail Ridge Landfill
Jacksonville, Florida

Date	Shallow	Intermediate	Deep
Aug-95	8 90E-03	8 00E-03	7 80E-03
9-Oct-92	9 80E-03	1 06E-02	8 00E-03
16-Oct-92	1 00E-02	9 50E-03	7 80E-03
23-Oct-92	1 00E-02	1 04E-02	8 10E-03
28-Oct-92	1 00E-02	1 06E-02	8 00E-03
5-Nov-92	1 00E-02	1 02E-02	8 00E-03
12-Nov-92	1 00E-02	1 06E-02	7 40E-03
20-Nov-92	9 80E-03	1 07E-02	7 40E-03
27-Nov-92	1 00E-02	1 07E-02	8 10E-03
4-Dec-92	1 00E-02	1 06E-02	8 00E-03
11-Dec-92	1 00E-02	1 11E-02	8 00E-03
18-Dec-92	9 80E-03	1 11E-02	8 00E-03
23-Dec-92	9 80E-03	1 13E-02	8 30E-03
30-Dec-92	9 80E-03	1 11E-02	8 90E-03
7-Jan-93	1 00E-02	1 02E-02	8 90E-03
1st Quarter 1993	9 30E-03	8 70E-03	8 10E-03
2nd Quarter 1993	9 30E-03	8 70E-03	8 00E-03
3rd Quarter 1993	8 90E-03	8 80E-03	7 90E-03
4th Quarter 1993	9 30E-03	7 80E-03	7 40E-03
1st Quarter 1994	1 11E-02	8 40E-03	8.50E-03
2nd Quarter 1994	9 60E-03	8 30E-03	8 10E-03
3rd Quarter 1994	9 60E-03	8 80E-03	7 90E-03
4th Quarter 1994	9 10E-03	9 10E-03	8 00E-03
1st Quarter 1995	1 00E-02	8 70E-03	8 10E-03
3rd Quarter 1995	1 15E-02	8 70E-03	8 20E-03
Minimum Gradient	8 90E-03	7 80E-03	7 40E-03
Maximum Gradient	1 15E-02	1 13E-02	8 90E-03
Average Gradient	9 82E-03	9 71E-03	8 04E-03

Notes

1 Data from water levels measured 1992 - 1995 and potentiometric maps produced by Golder Associates (1992) and Rust Environment & Infrastructure (1993 - 1995)

2 Average horizontal gradients calculated from potentiometric maps for the site produced by Golder Associates, Rust E&I, and WMI personnel

Table 3

Groundwater Flow Directions - Side Gradient Monitoring Wells

Trail Ridge Landfill
Jacksonville, Florida

WELL	Aug-92	4Q-92	1Q-93	2Q-93	3Q-93	4Q-93	1Q-94	2Q-94	3Q-94	4Q-94	1Q-95	3Q-95	AVERAGE	min/max	Is Well Downgradient of Landfill on Average? (Yes/No)
B-16S	100	95	94	88	95	91	82	94	95	93	94	76	91 4	76	No
B-17S	92	92	91	88	84	96	77	90	87	87	88	76	87 3		No
B-17I	90	94	92	93	102	96	96	102	100	90	102	99	96 3	83	No
B-17D	91	96	93	95	96	81	89	91	90	100	93	94	92 4		No
B-18S	92	94	90	92	97	97	87	85	83	84	85	79	88 8	86	No
B-19S	87	94	89	98	107	91	83	82	80	80	82	85	88 2		No
B-19I	99	94	94	92	90	95	90	94	87	85	92	87	91 6	87	No
B-19D	99	96	86	96	89	93	97	92	88	85	93	92	92 2		No
B-27S	73	82	81	64	64	60	88	83	83	82	84	104	79 0		No
B-27I	85	80	78	80	70	76	89	85	86	84	92	88	82 8	93	No
B-27D	79	83	71	71	67	76	99	90	88	85	110	101	85 0		No
B-28S	82	90	88	85	78	80	88	87	85	84	85	103	86 3	95	No
B-29S	88	93	91	89	87	91	89	91	88	88	89	107	90 9		No
B-29I	90	82	90	93	81	84	92	97	97	91	100	98	91 3	98	No
B-29D	87	87	78	101	100	92	99	91	91	97	94	94	92 6		No
B-30S	104	96	92	90	82	94	88	90	91	91	93	109	93 3	111	No

Notes Approximate Azimuths are measured in degrees, referenced to due North (i e , North = 0°, East = 90°, South = 180°) as shown on the Groundwater Flow Maps included with Quarterly and Semi-Annual Monitoring Reports for the site (see Attachment A to this letter)

"Min/Max" is the most eastward angle which a straight groundwater flow line (e g , perpendicular to groundwater contours) can be drawn to pass beneath the landfill and through the well location

Table 4

Number of Wells with Past Exceedences of Primary or Secondary Drinking Water Standards

Trail Ridge Landfill
Jacksonville, Florida

	MCL/SMCL		West Wells			East Wells			North Wells			South Wells			# of Wells
Constituent	Value	Units	Deep	Intermediate	Shallow	Deep	Intermediate	Shallow	Deep	Intermediate	Shallow	Deep	Intermediate	Shallow	with Exceedences
Antimony	6	µg/L						1*							1*
Beryllium	4	µg/L													
Bis-(2 ethylhexyl) phthalate	6	µg/L													
Cadmium	5	µg/L													
Chromium	100	µg/L								1*					1*
Color	15	C U			1		1	2	1		1				6
Copper	1000	µg/L													
Iron	300	µg/L	1	2	2	4	6	7	2	1	4	1	1	1	32
Lead	15	µg/L					2*	3*		1				1*	7*
Mercury	2	µg/L													
pH	6 5 - 8 5	S U		2	2	1	6	8	1	1	4	1	1	1	28
Selenium	50	µg/L													
Total # of Wells in Area			1	2	2	4	6	9	2	2	4	1	1	1	35

Notes Wells were counted which had more than one exceedence of a given primary or secondary standard
Other constituents listed, but with no corresponding numbers (e g , Beryllium) were not detected more than once above its MCL/SMCL in the history of sampling for a particular well

West Wells = 2I, 2S, 3I, 3S, and 31D [UP-GRADIENT]
East Wells = 7D, 7I, 7S, 20S, 11I, 11S, 21S, 12D, 12I, 12S, 22S, 13I, 13S, 14D, 14I, 14S, 25D, 25I, 25S [DOWN-GRADIENT]
North Wells = 16S, 17D, 17I, 17S, 18S, 19D, 19I, and 19S [SIDE-GRADIENT]
South Wells = 27D, 27I, and 27S [SIDE-GRADIENT]

Some wells on East Side (23S, 24S, and 26S) and South Side (28S, 29D, 29I, 29S, and 30S) have not been brought on line for sampling and therefore, there is no data available for them

"*" indicates detection occurred in first sampling events (in 1992, before operations began) or that a filtered metal sample for that constituent did not exceed the MCL/SMCL

Table 5

Summary of Surface Water Sample Detections

Trail Ridge Landfill
Jacksonville, Florida

SW01

ANALYTE	UNITS	3/12/92	4/3/92	5/18/92	8/18/92	11/2/92	2/11/93	4/29/93	8/2/93	9/29/93	10/27/93	2/3/94	5/6/94	8/5/94	11/3/94	2/6/95	4/26/95	7/27/95	10/27/95	1/12/96	MAX	MIN	AVG
BIOCHEMICAL OXYGEN DEMAND	MG/L	2		1	1	1	1	3.6	1		1	0.5	2.5				1	2.2	4.8	2.3	4.8	0.5	1.78
COLIFORM, FECAL	COL /100ML															276	145	100	316	110	316	100	189.40
HARDNESS TOTAL AS CACO3	MGCACO3/L	2.5		5.9	69.6	37.6	9.2	6.1		5.7	6.5	23	20	56	9.87	50	80	96.0	5		96	2.5	30.19
IRON	UG/L	687		306	974	6410	344	776	498		512	311	414	1600	329	141	345	390	546	189	6410	141	868.94
NITROGEN AMMONIA	MG/L	0.078		0.01	0.01	0.01	0.01	0.01	0.01		0.01	0.025	0.025	0.025	0.025						0.078	0.01	0.02
PH	PH UNITS	4.18		4.52	3.86	3.84	4.3	4.35	4.12		4.16										3.84	3.84	4.17
PH FIELD	PH UNITS		4.28	4.62	3.9	3.84	4.8	4.45	3.95	4.97	4.52	7	4.25	4.12	5.16	6.31	5.34	5.01	5.01	7.39	3.84	3.84	4.94
SODIUM	UG/L	4470		3780	12700	4080	4750	3840	5610		5060	4850	4610	3640	2990						12700	2990	5031.67
SOLIDS TOTAL SUSPENDED	MG/L	< 5		2.5	2.5	13	2.5	78	2.5		7.5	2	0.5	13	0.5	0.5	2	0.5	0.5	0.5	78	0.5	8.03
SPECIFIC CONDUCTANCE	UMHOS/CM	55.7		39.6	302	207	65.6	59	81		71.9	92		60	40						302	39.6	97.62
SPECIFIC CONDUCTANCE FIELD	UMHOS/CM		59	45	297	199	67	61	79	51	56					85	49	58.0	517	53	517	45	119.71
SULFATE	MG/L	1.6		1.2	119	60	6.5	5.3	10.7		3.8	0.5	7.79	0.5	0.5						119	0.5	18.12
TURBIDITY	NTU		NA	NA		4.31	NONE	NONE	NA		NONE	3.7	3	1.2	1.4	4.1	1	1.4	2.6	3.5	4.31	1	2.62
ZINC	UG/L											54	25	25	25	25	25	25	25	25	54	25	28.22

SW02

ANALYTE	UNITS	3/12/92	4/3/92	5/18/92	8/17/92	11/2/92	2/11/93	4/29/93	8/2/93	9/29/93	10/27/93	2/3/94	5/5/94	8/5/94	11/3/94	2/6/95	4/26/95	7/27/95	10/27/95	1/12/96	MAX	MIN	AVG
BIOCHEMICAL OXYGEN DEMAND	MG/L	1		1	1	1	1	1	1		1	1.5	1.6	6.4			1	1	2.2	1	6.4	1	1.51
CHLORIDE	MG/L	6.4		7.1	5	5.9	7.6	6.6	6.8		8.6	6.86	9.93	10.8	10.6						10.8	5	7.68
COLIFORM FECAL	COL /100ML															220		100	284	300	300	100	226.00
HARDNESS TOTAL AS CACO3	MGCACO3/L	2.5		2.5	2.5	2.5	2.5	2.5		5.1	2.5	12	12	40	4.83	58	158	60			158	2.5	24.50
IRON	UG/L	197		215	470	332	202	223	208		179	237	147	249	308	139	398	255	461	342	470	139	268.35
NITROGEN AMMONIA	MG/L	0.01		0.03	0.048	0.01	0.01	0.01	0.01		0.01	0.025	0.025	0.025	0.025						0.048	0.01	0.02
PH	PH UNITS	3.9		3.94	3.93	4.05	3.98	4.09	3.76		3.79										3.76	3.76	3.93
PH FIELD	PH UNITS		3.88	3.95	4.1	4.06	4.68	4.62	3.57	3.7	3.8	6.81	4.01	4.53	4.05	4.09	4.32	4.09	4.5	5.61	3.57	3.57	4.35
SODIUM	UG/L	3940		3510	2760	2500	3820	3530	4960		4560	3250	3930	3770	3050						4960	2500	3631.67
SOLIDS TOTAL SUSPENDED	MG/L	2.5		7	2.5	2.5	2.5	9	2.5		10	0.5	0.5	0.5	0.5	4.8	8	11	10	0.5	11	0.5	4.40
SPECIFIC CONDUCTANCE	UMHOS/CM	69.3		63.6	67.2	54.9	71.6	57.3	106		109	51		60	55						109	51	69.54
SPECIFIC CONDUCTANCE FIELD	UMHOS/CM		72	70	70	49	71	55	95	75	100					70	63	59	620	47	620	47	108.29
SULFATE	MG/L	3.1		3	1.6	1.5	4.9	3.7	11.6		8.1	0.5	8.91	0.5	0.5						11.6	0.5	3.99
TURBIDITY	NTU		NA	NA	2.28	14.34			NA		NA	2.4	4.8	2	5.7	4.6	2.8	10	6.2	2.8	14.34	2	5.27
ZINC	UG/L											25	25	25	25	25	25	25	25	25	25	25	25.00

SW03

ANALYTE	UNITS	3/12/92	4/3/92	5/18/92	8/17/92	11/2/92	2/11/93	4/29/93	8/2/93	9/29/93	10/27/93	2/3/94	5/5/94	8/5/94	11/3/94	2/6/95	4/26/95	7/27/95	10/27/95	1/12/96	MAX	MIN	AVG
BIOCHEMICAL OXYGEN DEMAND	MG/L	1		1	1	1	1	1	1		1	1.9	4.3	3.3	3.1		2.7	2	2.5	2.4	4.3	1	1.89
CHLORIDE	MG/L	7.8		9.8	6.6	8	7.1	7.4	6.5		8.1	8.19	14.5	11.2	10.6						14.5	6.5	8.82
COLIFORM FECAL	COL /100ML															106	156			296	296	106	186.00
HARDNESS TOTAL AS CACO3	MGCACO3/L	2.5		7.6	6.7	2.5	43.9	34.2		81.5	54.3	36	26	31	93	44	24.6	104	65.9	92.3	104	2.5	44.12
IRON	UG/L	359		1140	1020	5080	389	573	274		386	318	917	419	170	198	910	291	1250	322	5080	170	824.47
NITROGEN AMMONIA	MG/L	0.044		0.01	0.01	0.01	0.01	0.066	0.01		0.01	< 0.05	< 0.05	< 0.05	< 0.05						0.066	0.01	0.02
PH	PH UNITS	4.17		4.21	4.16	4.2	4.7	5.95	7.09		6.91										4.16	4.16	5.17
PH FIELD	PH UNITS		4.25	4.23	4.22	4.23	5.06	6.49	6.61	6.07	6.36	8.72	4.63	6.69	6.97	6.59	6.47	6	6.43	6.65	4.22	4.22	5.93
SODIUM	UG/L	4050		3890	2650	2730	4610	4360	4230		4780	3760	5370	4010	5070						5370	2650	4125.83
SOLIDS TOTAL SUSPENDED	MG/L	2.5		11	5.7	21	2.5	10	2.5		12	1	1	1	1	4	47	5.5	12	5.5	47	1	8.54
SPECIFIC CONDUCTANCE	UMHOS/CM	50.1		51.5	50.9	50.8	168	118	177		129	59.9		65	180						180	50.1	100.02
SPECIFIC CONDUCTANCE FIELD	UMHOS/CM		55	70	50	52	92	102	141	128	121					95	68	78	192	158	192	50	100.14
SULFATE	MG/L	2.3		0.5	0.59	0.97	53.2	31.6	32.4		13	1.1	10	0.5	0.5						53.2	0.5	12.22
TURBIDITY	NTU		NA	NA	2.96	5.87	NONE	NONE	NA		NONE	24	2.6	3.6	7.7	2.8	5.7	9.6	6.1	10	24	2.6	7.36
ZINC	UG/L											25	25	25	25	25	25	25	25	25	25	25	25.00

Note Shaded cells indicate result is below the method detection limit (MDL) and is shown on table as one half the MDL for calculating averages

Table 6

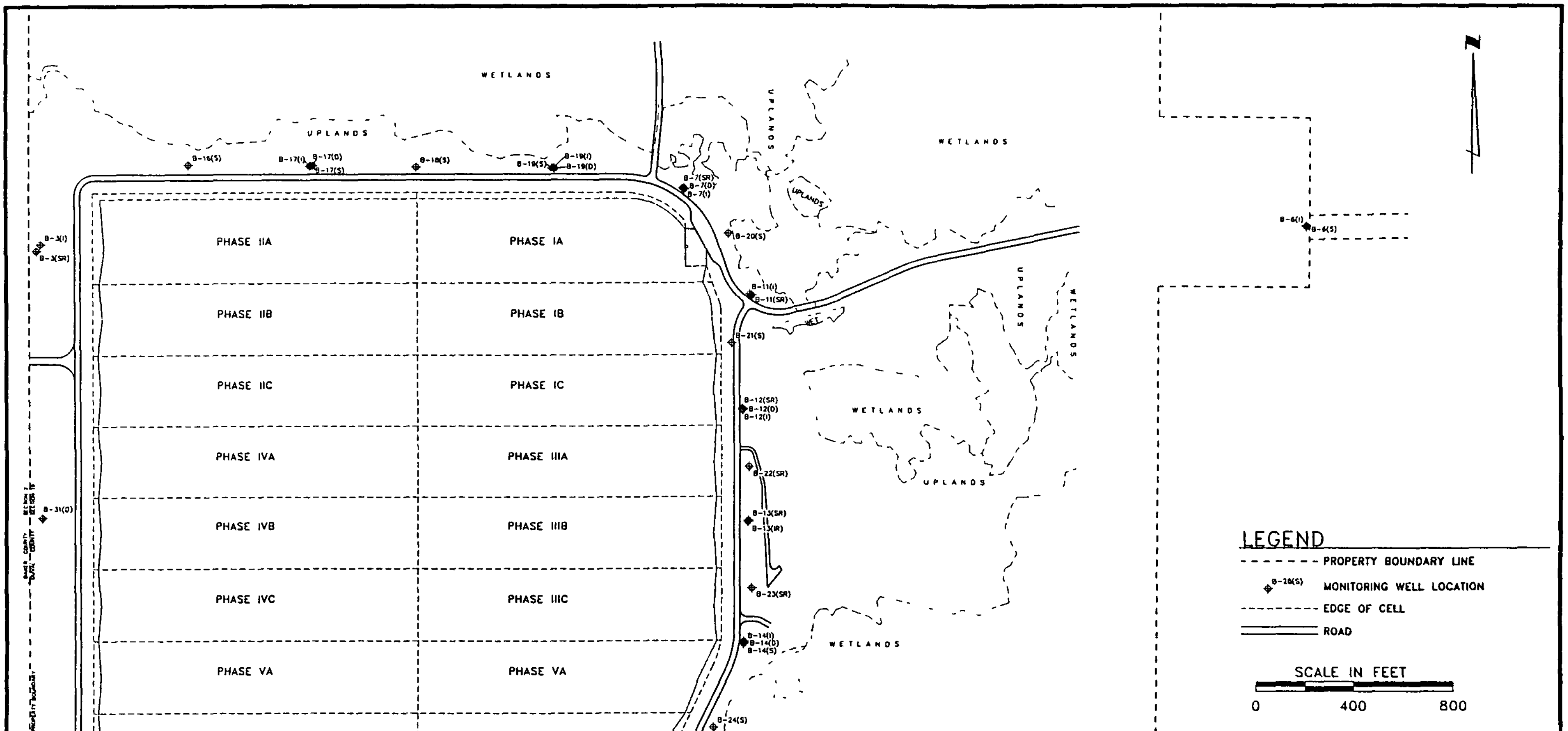
Summary of Leachate Sample Detections

Trail Ridge Landfill
Jacksonville, Florida

WELL NAME	ANALYTE	UNITS	2/6/95	7/24/95	10/26/95	1/11/96	7/18/96	MAX
LCS01	1,1,1-TRICHLOROETHANE	UG/L	< 5 0	< 1 0		1 9	2 3	2 3
LCS02	1,1,1-TRICHLOROETHANE	UG/L	< 5 0	< 1 0		1 4	2 3	2 3
LCS03	1,1,1-TRICHLOROETHANE	UG/L	< 1	< 1		< 1	2 6	2 6
LCS04	1,1,1-TRICHLOROETHANE	UG/L	< 5 0	2 6		2 6	3 4	3 4
LCS05	1,1,1-TRICHLOROETHANE	UG/L	< 5 0	< 1 0		1 6	8 3	8 3
LCS01	1,1-DICHLOROETHANE	UG/L	14 6	< 5 0		6 9	29 6	29 6
LCS02	1,1-DICHLOROETHANE	UG/L	14 6	2 7		4 6	34 7	34 7
LCS03	1,1-DICHLOROETHANE	UG/L	12	2 6		4 6	48 7	48 7
LCS04	1,1-DICHLOROETHANE	UG/L	11 8	2 0		7 4	62 2	62 2
LCS05	1 1-DICHLOROETHANE	UG/L	10 8	< 1 0		6 5	56 6	56 6
LCS06	1,1-DICHLOROETHANE	UG/L	19 1	6 5		< 1	< 1	19 1
LCS01	1,2-DICHLOROETHANE	UG/L	< 1	< 1		< 1	3 4	3 4
LCS02	1,2-DICHLOROETHANE	UG/L	< 1	< 1		< 1	3 3	3 3
LCS03	1,2-DICHLOROETHANE	UG/L	< 1	< 1		< 1	2 6	2 6
LCS04	1,2-DICHLOROETHANE	UG/L	< 1	< 1		< 1	3 6	3 6
LCS05	1,2-DICHLOROETHANE	UG/L	< 1	< 1		< 1	4 0	4
LCS02	1,2-DICHLOROPROPANE	UG/L	< 1	4 1		< 1	< 1	4 1
LCS01	1,4-DICHLOROBENZENE	UG/L	< 5 0	4 5		11 4	4 9	11 4
LCS02	1,4-DICHLOROBENZENE	UG/L	8 4	4 1		8 2	2 9	8 4
LCS03	1,4-DICHLOROBENZENE	UG/L	9 5	5 4		9	6 4	9 5
LCS04	1,4-DICHLOROBENZENE	UG/L	6 4	4 5		7 6	5 6	7 6
LCS05	1,4-DICHLOROBENZENE	UG/L	< 5 0	3 2		7 1	3 4	7 1
LCS01	2-BUTANONE	UG/L	< 5 0	< 1 0		79	684	684
LCS02	2-BUTANONE	UG/L	< 5 0	< 1 0		62 8	1250	1250
LCS03	2-BUTANONE	UG/L	< 5 0	< 1 0		48 7	1020	1020
LCS04	2-BUTANONE	UG/L	< 5 0	106		106	1150	1150
LCS05	2-BUTANONE	UG/L	< 5 0	< 1 0		71 6	2200	2200
LCS06	2-BUTANONE	UG/L	< 1	< 1		< 1	10 1	10 1
LCS01	2-HEXANONE	UG/L	26 4	15 9		110	36 1	110
LCS02	2-HEXANONE	UG/L	46 2	31 9		91 9	26 5	91 9
LCS03	2-HEXANONE	UG/L	38 1	39 5		104	50 9	104
LCS04	2-HEXANONE	UG/L	35 4	34 8		83 7	43 5	83 7
LCS05	2-HEXANONE	UG/L	< 5 0	45 4		92 9	29 5	92 9
LCS06	2-HEXANONE	UG/L	< 5 0	26 2		8 6	< 1 0	26 2
LCS01	4-METHYL-2-PENTANONE	UG/L	< 5 0	< 1 0		4 4	18 6	18 6
LCS02	4-METHYL-2-PENTANONE	UG/L	< 5 0	< 1 0		3 2	20 9	20 9
LCS03	4-METHYL-2-PENTANONE	UG/L	< 5 0	< 1 0		2 7	13 8	13 8
LCS04	4-METHYL-2-PENTANONE	UG/L	< 5 0	2 4		2 4	20 3	20 3
LCS05	4-METHYL-2-PENTANONE	UG/L	< 5 0	< 1 0		5 1	25 7	25 7
LCS01	ACETONE	UG/L	< 5 0	< 1 0		102	638	638
LCS02	ACETONE	UG/L	< 5 0	< 1 0		69 6	1150	1150
LCS03	ACETONE	UG/L	< 5 0	< 1 0		56 2	598	598
LCS04	ACETONE	UG/L	< 5 0	< 1 0		114	887	887
LCS05	ACETONE	UG/L	< 5 0	< 1 0		96 9	3590	3590
LCS06	ACETONE	UG/L	< 5 0	< 1 0		5 6	6 3	6 3
LCS01	ALKALINITY, BICARBONATE (AS CACO3)	MG/L	1137	4640		2380	1100	4640
LCS02	ALKALINITY, BICARBONATE (AS CACO3)	MG/L	4240	1570		2490	727	4240
LCS03	ALKALINITY, BICARBONATE (AS CACO3)	MG/L	3190	3360		2080	1040	3360
LCS04	ALKALINITY, BICARBONATE (AS CACO3)	MG/L	2130	2220		1270	978	2220
LCS05	ALKALINITY, BICARBONATE (AS CACO3)	MG/L	1410	3460		1890	918	3460
LCS06	ALKALINITY BICARBONATE (AS CACO3)	MG/L	302	457		866	1260	1260
LCS05	ANTIMONY-DISSOLVED	UG/L	< 3	3		< 3	< 3	3
LCS01	BENZENE	UG/L	< 5 0	1 7		3 5	5 0	5
LCS02	BENZENE	UG/L	6 8	3 1		2 2	5 3	6 8
LCS03	BENZENE	UG/L	5 8	2 5		2 6	8 3	8 3
LCS04	BENZENE	UG/L	< 5 0	2 2		3	5 4	5 4
LCS05	BENZENE	UG/L	5 9	1 5		3 3	5 1	5 9
LCS06	BENZENE	UG/L	< 1	4 7		< 1	< 1	4 7
TANKCO	BIOCHEMICAL OXYGEN DEMAND	MG/L		43 9		43 9	283	283
LCS01	CADMIUM-DISSOLVED	UG/L	5	< 3		< 3	4	5
LCS03	CADMIUM-DISSOLVED	UG/L	30	3		< 3	3	30
LCS04	CADMIUM-DISSOLVED	UG/L	4	4		< 3	3	4
LCS05	CADMIUM-DISSOLVED	UG/L	5	< 3		< 3	4	5
LCS06	CADMIUM-DISSOLVED	UG/L	3	< 3		< 3	< 3	3
TANKCO	CADMIUM-DISSOLVED	UG/L		< 3		< 3	3	3

WELL NAME	ANALYTE	UNITS	2/6/95	7/24/95	10/26/95	1/11/96	7/18/96	MAX
LCS01	1,1,1-TRICHLOROETHANE	UG/L	< 5 0	< 1 0		1 9	2 3	2 3
TANKCO	CHEMICAL OXYGEN DEMAND	MG/L		560	298	560	344	560
LCS01	CHLORIDE	MG/L	373	1140		1120	420	1140
LCS02	CHLORIDE	MG/L	1140	815		917	294	1140
LCS03	CHLORIDE	MG/L	1010	1230		834	478	1230
LCS04	CHLORIDE	MG/L	563	839		533	386	839
LCS05	CHLORIDE	MG/L	377	1590		1010	342	1590
LCS06	CHLORIDE	MG/L	30200	79 6		268	189	30200
LCS01	CIS-1,2-DICHLOROETHENE	UG/L	5 6	< 1 0		1 5	15 3	15 3
LCS02	CIS-1,2-DICHLOROETHENE	UG/L	< 5 0	< 1 0		1	19 8	19 8
LCS03	CIS-1 2-DICHLOROETHENE	UG/L	< 5 0	< 1 0		1	15 1	15 1
LCS04	CIS-1 2-DICHLOROETHENE	UG/L	< 50	< 1 0		1 1	27 0	27
LCS05	CIS-1,2-DICHLOROETHENE	UG/L	< 1	< 1		< 1	31 3	31 3
LCS06	CIS-1,3-DICHLOROPROPENE	UG/L	5	< 1		< 1	< 1	5
LCS01	COBALT-TOTAL	UG/L	50	< 0 025		117	100	117
LCS02	COBALT-TOTAL	UG/L	50	< 0 025		109	100	109
LCS03	COBALT-TOTAL	UG/L	50	< 0 025		129	100	129
LCS04	COBALT-TOTAL	UG/L	0 05	< 0 025		151	100	151
LCS05	COBALT-TOTAL	UG/L	50	< 0 025		118	100	118
LCS06	COBALT-TOTAL	UG/L	50	< 0 025		94	100	100
LCS01	ETHYLBENZENE	UG/L	75 3	28 4		84 4	90 0	90
LCS02	ETHYLBENZENE	UG/L	99 7	49 3		70 2	83 7	99 7
LCS03	ETHYLBENZENE	UG/L	88	52 9		73	129	129
LCS04	ETHYLBENZENE	UG/L	29 7	45 8		75 2	119	119
LCS05	ETHYLBENZENE	UG/L	60 9	31 5		12 4	103	103
LCS06	ETHYLBENZENE	UG/L	< 1	18 7		< 1	< 1	18 7
LCS01	IRON-TOTAL	UG/L	38100	51500		47700	64100	64100
LCS02	IRON-TOTAL	UG/L	55500	37500		39200	62400	62400
LCS03	IRON-TOTAL	UG/L	34600	34200		50200	71000	71000
LCS04	IRON-TOTAL	UG/L	40700	38300		51900	65800	65800
LCS05	IRON-TOTAL	UG/L	34300	38000		41400	63800	63800
LCS06	IRON-TOTAL	UG/L	14200	19300		31700	13100	31700
LCS01	LEAD-DISSOLVED	UG/L	60	< 0 005		11	< 5	60
LCS02	LEAD-DISSOLVED	UG/L	9	< 0 005		10	< 5	10
LCS03	LEAD-DISSOLVED	UG/L	6	< 0 005		8	< 5	8
LCS04	LEAD-DISSOLVED	UG/L	6	< 0 005		11	< 5	11
LCS05	LEAD-DISSOLVED	UG/L	6	< 005		8	< 5	8
LCS06	LEAD-DISSOLVED	UG/L	6	< 0 005		12	< 5	12
TANKCO	LEAD-DISSOLVED	UG/L		10		10	< 5	10
LCS01	METHYLENE CHLORIDE	UG/L	7 7	< 1 0		25 8	< 1 0	25 8
LCS02	METHYLENE CHLORIDE	UG/L	6 7	< 1 0		15 8	2 5	15 8
LCS03	METHYLENE CHLORIDE	UG/L	< 5 0	< 1 0		13	5 1	13
LCS04	METHYLENE CHLORIDE	UG/L	8 2	< 1 0		35 4	5 1	35 4
LCS05	METHYLENE CHLORIDE	UG/L	11 8	< 1 0		22 1	15 7	22 1
LCS01	NICKEL-DISSOLVED	UG/L	35	56		59	< 50	59
LCS02	NICKEL-DISSOLVED	UG/L	117	< 0 05		64	< 50	117
LCS04	NICKEL-DISSOLVED	UG/L	53	< 50		< 50	< 50	53
LCS05	NICKEL-DISSOLVED	UG/L	33	< 50		< 50	< 50	33
LCS01	NITROGEN, AMMONIA	MG/L	194	620		340	169	620
LCS02	NITROGEN, AMMONIA	MG/L	596	293		400	139	596
LCS03	NITROGEN, AMMONIA	MG/L	373	400		313	297	400
LCS04	NITROGEN, AMMONIA	MG/L	194	328		198	205	328
LCS05	NITROGEN, AMMONIA	MG/L	253	532		298	125	532
LCS06	NITROGEN, AMMONIA	MG/L	1 82	23 1		179	74 1	179
LCS01	NITROGEN, NITRATE	MG/L	< 0 05	0 25		< 0 05	0 055	0 25
LCS02	NITROGEN, NITRATE	MG/L	0 06	0 054		< 0 05	0 085	0 085
LCS03	NITROGEN, NITRATE	MG/L	0 055	< 0 05		< 0 05	0 105	0 105
LCS04	NITROGEN, NITRATE	MG/L	< 0 05	< 0 05		< 0 05	70	70
LCS05	NITROGEN, NITRATE	MG/L	< 0 05	< 0 05		< 0 05	0 08	0 08
LCS06	NITROGEN, NITRATE	MG/L	0 065	< 0 05		< 0 05	0 13	0 13
TANKCO	NITROGEN, TOTAL KJELDAHL	MG/L		220	151	220	187	220
LCS01	ODOR	TON				4	4	4
LCS02	ODOR	TON				4	4	4
LCS03	ODOR	TON				8	8	8
LCS04	ODOR	TON				8	8	8
LCS05	ODOR	TON				4	8	8
LCS06	ODOR	TON				8	4	8
LCS01	PH FIELD	PH UNITS	6 8	7 3		7 1	6 65	7 3
LCS02	PH FIELD	PH UNITS	7 15	7 12		7 11	6 57	7 15
LCS03	PH FIELD	PH UNITS	7 17	7 19		7 04	6 84	7 19
LCS04	PH FIELD	PH UNITS	6 97	7 12		6 75	6 57	7 12
LCS05	PH FIELD	PH UNITS	6 97	7 51		7 19	6 56	7 51
LCS06	PH FIELD	PH UNITS	6 48	5 96		7 14	7 34	7 34
TANKCO	PH FIELD	PH UNITS		7 27	7 34	7 27	6 87	7 34
TANKCO	PHOSPHOROUS TOTAL	MG/L		0 179	0 096	0 179	0 212	0 212

WELL NAME	ANALYTE	UNITS	2/6/95	7/24/95	10/26/95	1/11/96	7/18/96	MAX
LCS01	1,1,1-TRICHLOROETHANE	UG/L	< 5 0	< 1 0		1 9	2 3	2 3
LCS01	SODIUM-DISSOLVED	UG/L	305000	894000		538000	274000	894000
LCS02	SODIUM-DISSOLVED	UG/L	897000	433000		681000	227	897000
LCS03	SODIUM-DISSOLVED	UG/L	580000	602000		553000	34000	602000
LCS04	SODIUM-DISSOLVED	UG/L	398000	414000		403000	431000	431000
LCS05	SODIUM-DISSOLVED	UG/L	336000	660000		509000	229000	660000
LCS06	SODIUM-DISSOLVED	UG/L	22100	48 8		192000	316000	316000
TANKCO	SOLIDS, TOTAL SUSPENDED	MG/L		95	61	95	106 0	106
LCS01	SPECIFIC CONDUCTANCE FIELD	UMHOS/CM	3050	7440		6010	2820	7440
LCS02	SPECIFIC CONDUCTANCE FIELD	UMHOS/CM	7870	4270		6680	2470	7870
LCS03	SPECIFIC CONDUCTANCE FIELD	UMHOS/CM	655	5560		4930	4690	5560
LCS04	SPECIFIC CONDUCTANCE FIELD	UMHOS/CM	4310	4480		3570	3110	4480
LCS05	SPECIFIC CONDUCTANCE FIELD	UMHOS/CM	3000	6500		4970	1960	6500
LCS06	SPECIFIC CONDUCTANCE FIELD	UMHOS/CM	632	48 8		2230	2140	2230
LCS01	STYRENE	UG/L	< 5 0	< 1 0		2 2	1 3	2 2
LCS02	STYRENE	UG/L	< 5 0	< 1 0		1 3	1 3	1 3
LCS03	STYRENE	UG/L	< 1	< 1		< 1	1 6	1 6
LCS04	STYRENE	UG/L	< 1	< 1		< 1	1 9	1 9
LCS05	STYRENE	UG/L	< 1	< 1		< 1	1 3	1 3
LCS01	THALLIUM-DISSOLVED	UG/L	< 1	1		< 1	< 1	1
LCS02	THALLIUM-DISSOLVED	UG/L	2	< 1		< 1	< 1	2
LCS04	THALLIUM-DISSOLVED	UG/L	2	< 1		< 1	< 1	2
LCS01	TOLUENE	UG/L	166	13 7		33 4	150	166
LCS02	TOLUENE	UG/L	45 5	24 0		28 3	164	164
LCS03	TOLUENE	UG/L	116	25 0		28 7	191	191
LCS04	TOLUENE	UG/L	28 1	21 7		25 4	214	214
LCS05	TOLUENE	UG/L	101	3 6		16 8	212	212
LCS06	TOLUENE	UG/L	< 1	23 7		< 1	< 1	23 7
LCS02	TRICHLOROETHENE	UG/L	< 1	< 1		< 1	1 9	1 9
LCS03	TRICHLOROETHENE	UG/L	< 1	< 1		< 1	1 6	1 6
LCS04	TRICHLOROETHENE	UG/L	< 1	< 1		< 1	2 4	2 4
LCS05	TRICHLOROETHENE	UG/L	< 1	< 1		< 1	2 6	2 6
LCS01	VINYL CHLORIDE	UG/L	6 5	1 3		< 1	< 1	6 5
LCS02	VINYL CHLORIDE	UG/L	< 1	2 3		< 1	< 1	2 3
LCS03	VINYL CHLORIDE	UG/L	5 3	1 8		< 1		5 3
LCS04	VINYL CHLORIDE	UG/L	5 4	< 1		< 1	< 1	5 4
LCS05	VINYL CHLORIDE	UG/L	5 8	< 1		< 1	< 1	5 8
LCS06	VINYL CHLORIDE	UG/L	< 1	1 5		< 1	< 1	1 5
LCS01	XYLENE(TOTAL)	UG/L	182	8 6		208	293	293
LCS02	XYLENE(TOTAL)	UG/L	280	138		206	250	280
LCS03	XYLENE(TOTAL)	UG/L	259	153		229		259
LCS04	XYLENE(TOTAL)	UG/L	197	133		169	357	357
LCS05	XYLENE(TOTAL)	UG/L	187	88 0		140	305	305
LCS06	XYLENE(TOTAL)	UG/L	< 5 0	57 0		24	2 1	57
LCS01	ZINC-DISSOLVED	UG/L	< 50	148		< 50	< 50	148
LCS03	ZINC-DISSOLVED	UG/L	< 50	56		< 50		56
LCS04	ZINC-DISSOLVED	UG/L	< 50	54		< 50	79	79
TANKCO	ZINC-DISSOLVED	UG/L		61		61	< 50	61



Golder Associates

JACKSONVILLE, FLORIDA

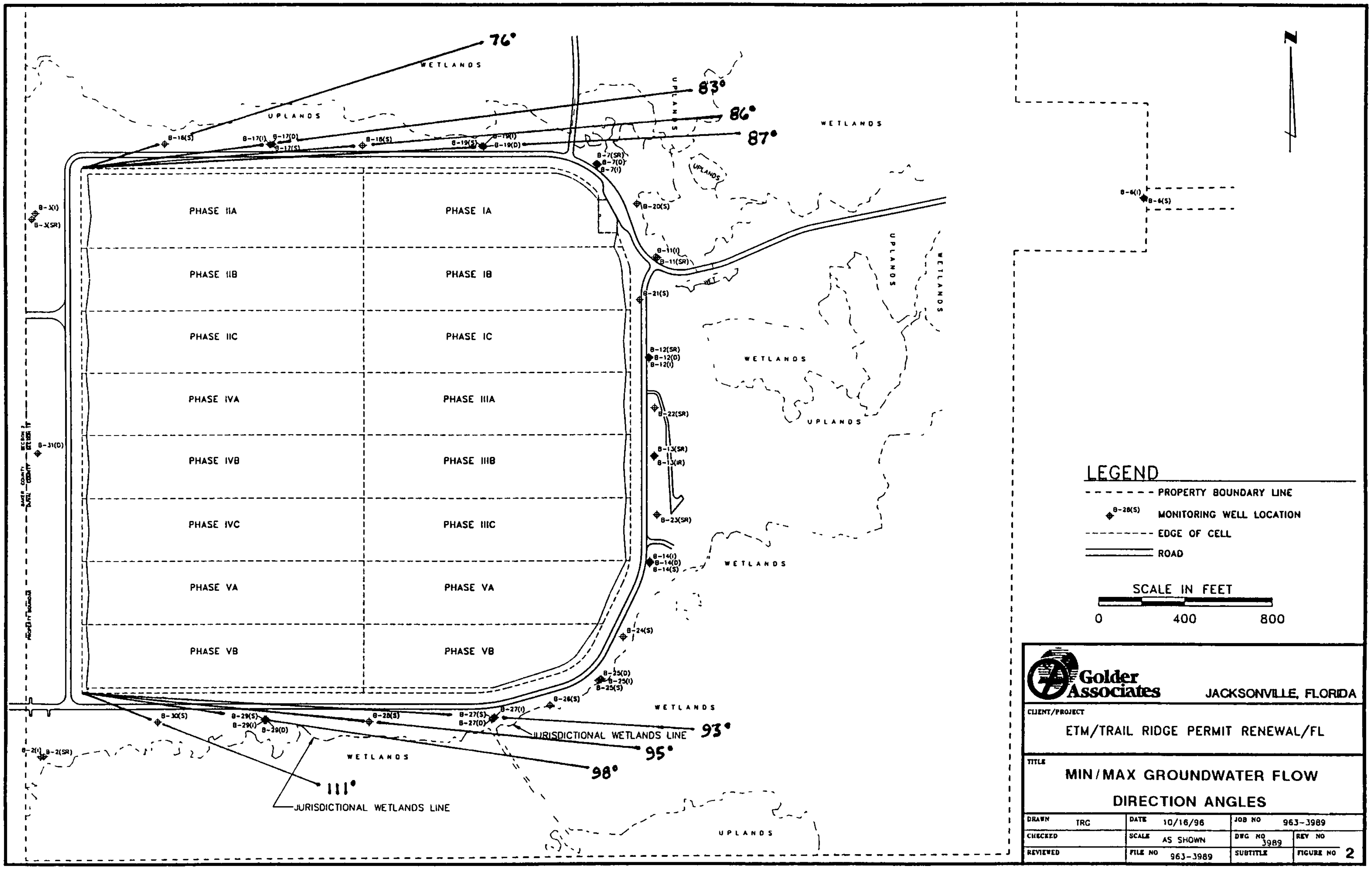
CLIENT/PROJECT

ETM/TRAIL RIDGE PERMIT RENEWAL/FL

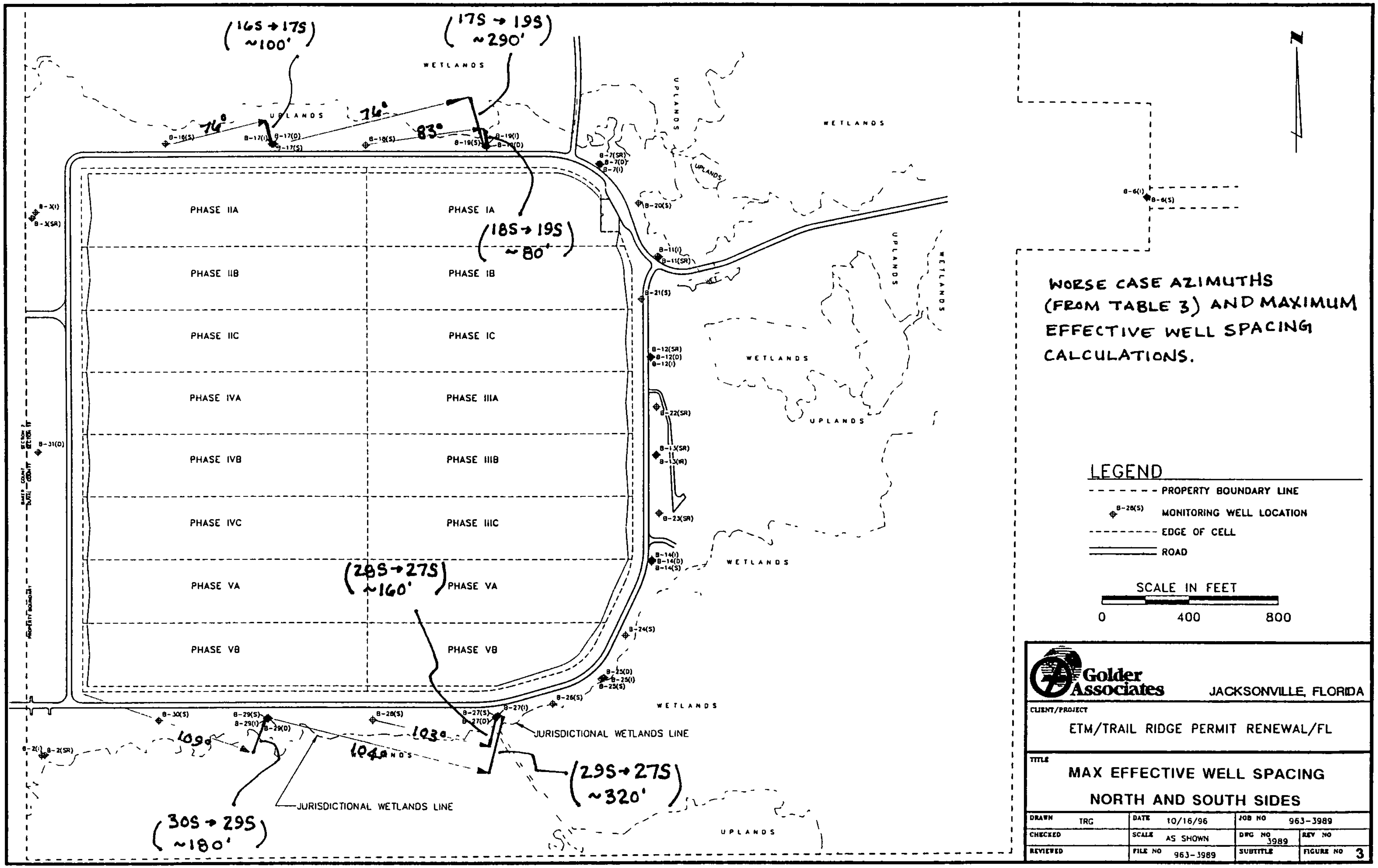
TITLE

MONITORING WELL LOCATIONS

DRAWN	TRC	DATE	10/16/96	JOB NO	963-3989		
CHECKED		SCALE	AS SHOWN	DWG NO	3989	REV NO	
REVIEWED		FILE NO	963-3989	SUBTITLE		FIGURE NO	1



76°
83°
86°
87°
93°
95°
98°
111°
WETLANDS
UPLANDS
PHASE IIA
PHASE IA
PHASE IIB
PHASE IB
PHASE IIC
PHASE IC
PHASE IVA
PHASE IIIA
PHASE IVB
PHASE IIIB
PHASE IVC
PHASE IIIC
PHASE VA
PHASE VA
PHASE VB
PHASE VB
JURISDICTIONAL WETLANDS LINE
JURISDICTIONAL WETLANDS LINE
B-16(S)
B-17(I)
B-17(D)
B-17(S)
B-18(S)
B-19(S)
B-19(I)
B-19(D)
B-7(SR)
B-7(D)
B-7(I)
B-20(S)
B-11(I)
B-11(SR)
B-21(S)
B-12(SR)
B-12(D)
B-12(I)
B-22(SR)
B-13(SR)
B-13(IR)
B-23(SR)
B-14(I)
B-14(D)
B-14(S)
B-24(S)
B-25(D)
B-25(I)
B-25(S)
B-26(S)
B-27(I)
B-27(S)
B-27(D)
B-28(S)
B-29(S)
B-29(I)
B-29(D)
B-30(S)
B-2(I)
B-2(SR)
B-3(I)
B-3(SR)
B-31(D)
B-6(I)
B-6(S)
N
LEGEND
PROPERTY BOUNDARY LINE
B-28(S) MONITORING WELL LOCATION
EDGE OF CELL
ROAD
SCALE IN FEET
0
400
800
Golder Associates
JACKSONVILLE, FLORIDA
CLIENT/PROJECT
ETM/TRAIL RIDGE PERMIT RENEWAL/FL
TITLE
MIN/MAX GROUNDWATER FLOW
DIRECTION ANGLES
DRAWN TRG
DATE 10/16/96
JOB NO 963-3989
CHECKED
SCALE AS SHOWN
DWG NO 3989
REV NO
REVIEWED
FILE NO 963-3989
SUBTITLE
FIGURE NO 2



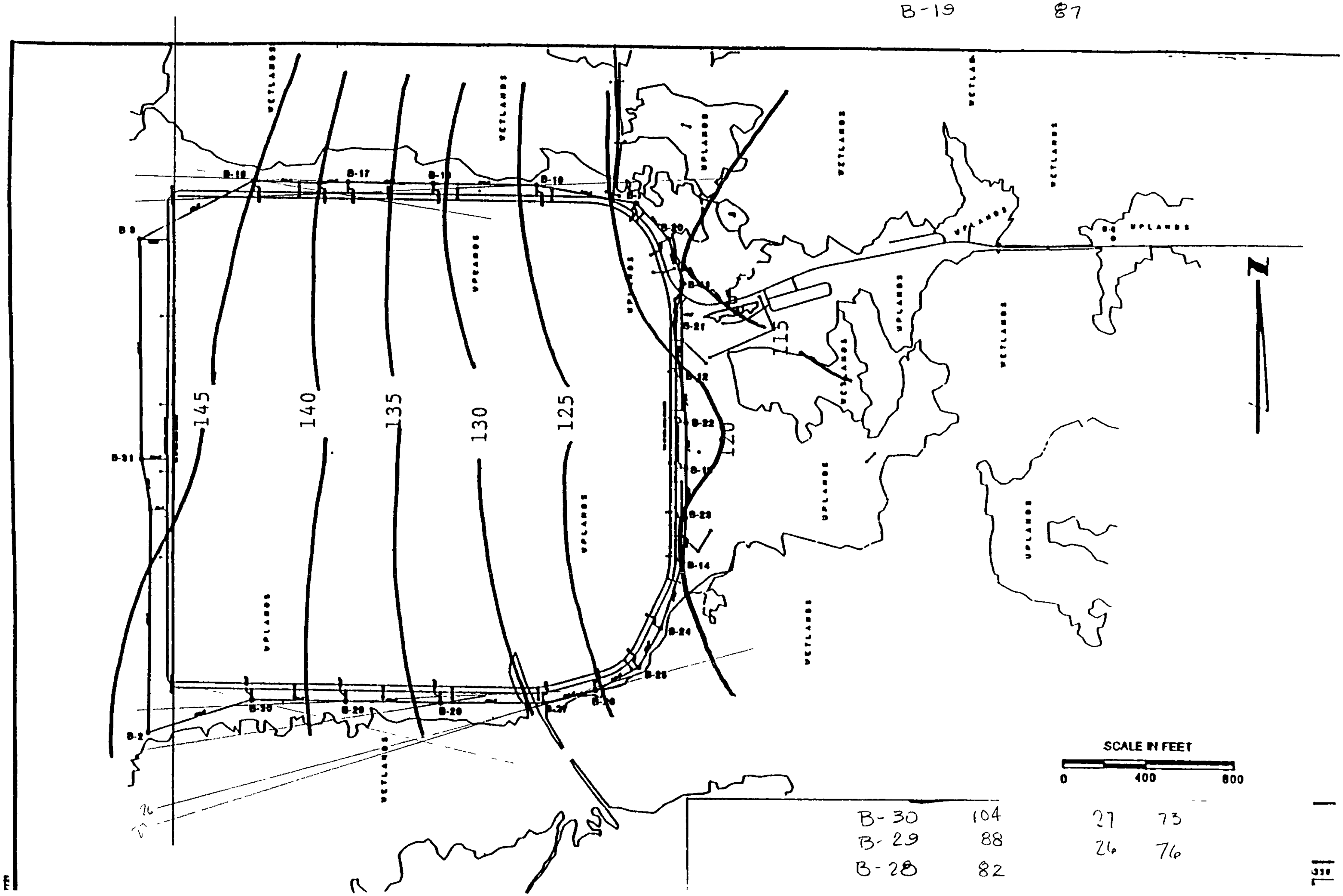
WETLANDS
UPLANDS
PHASE IA
PHASE IB
PHASE IC
PHASE IIIA
PHASE IIIB
PHASE IIIC
PHASE VA
PHASE VB
PHASE IIA
PHASE IIB
PHASE IIC
PHASE IVA
PHASE IVB
PHASE IVC
JURISDICTIONAL WETLANDS LINE
(16S → 17S ~100')
(17S → 19S ~290')
(18S → 19S ~80')
(28S → 27S ~160')
(29S → 27S ~320')
(30S → 29S ~180')
76°
76°
83°
103°
104°
109°
WORSE CASE AZIMUTHS (FROM TABLE 3) AND MAXIMUM EFFECTIVE WELL SPACING CALCULATIONS.
LEGEND
PROPERTY BOUNDARY LINE
MONITORING WELL LOCATION
EDGE OF CELL
ROAD
SCALE IN FEET
0 400 800
Golder Associates
JACKSONVILLE, FLORIDA
CLIENT/PROJECT
ETM/TRAIL RIDGE PERMIT RENEWAL/FL
TITLE
MAX EFFECTIVE WELL SPACING
NORTH AND SOUTH SIDES
DRAWN TRG
DATE 10/16/96
JOB NO 963-3989
CHECKED
SCALE AS SHOWN
DWG NO 3989
REV NO
REVIEWED
FILE NO 963-3989
SUBTITLE
FIGURE NO 3

Attachment A

Groundwater Contour Maps
(from Quarterly or Semi-Annual Reports)

Trail Ridge Landfill
Shallow Wells
August, 1992

B-16	100
B-17	92
B-18	92
B-19	87

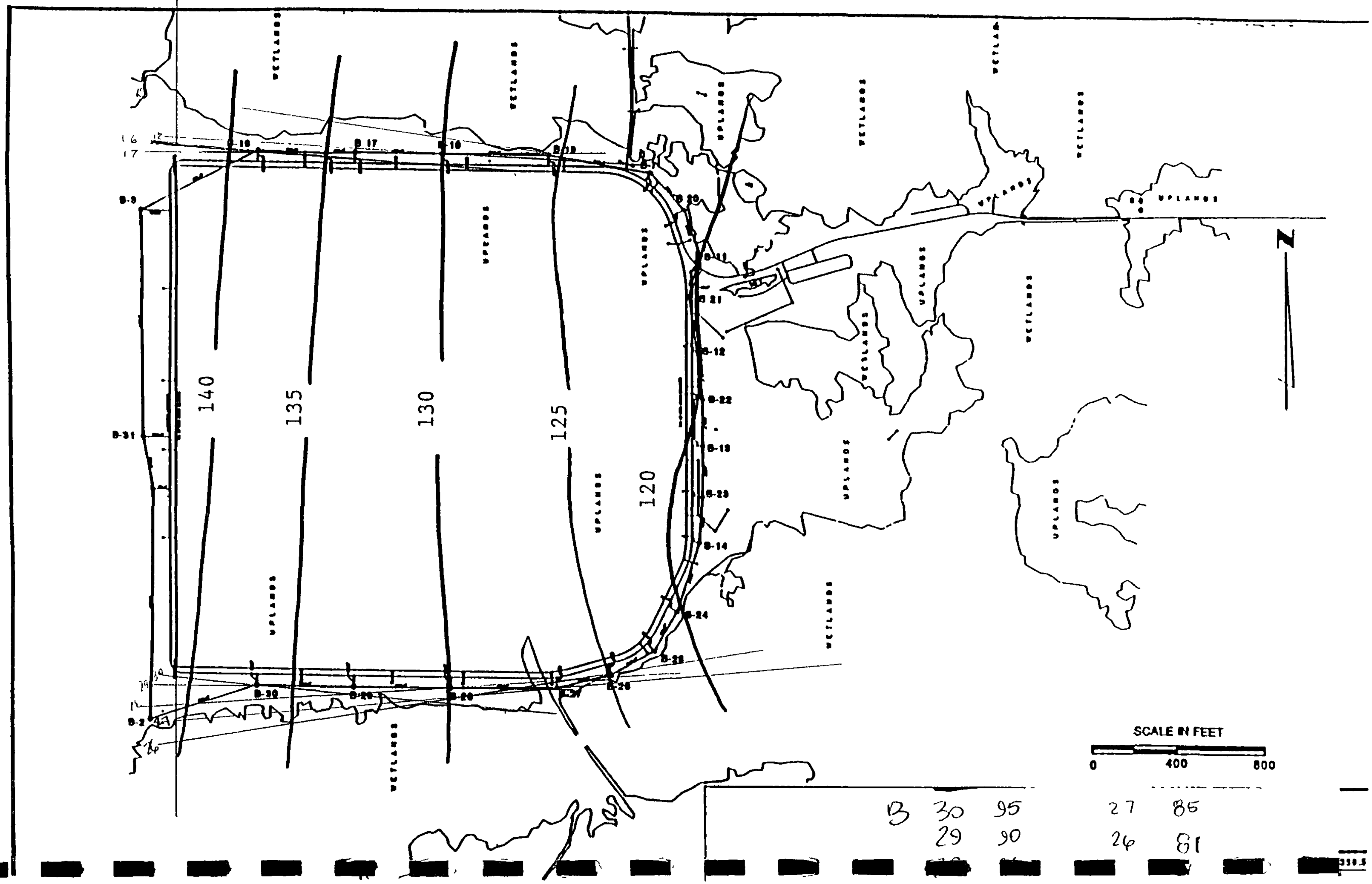


B-30	104
B-29	88
B-28	82

27	73
26	76

Trail Ridge Landfill
Intermediate Wells
August, 1992

B 16 95
17 90
18 94
19 99

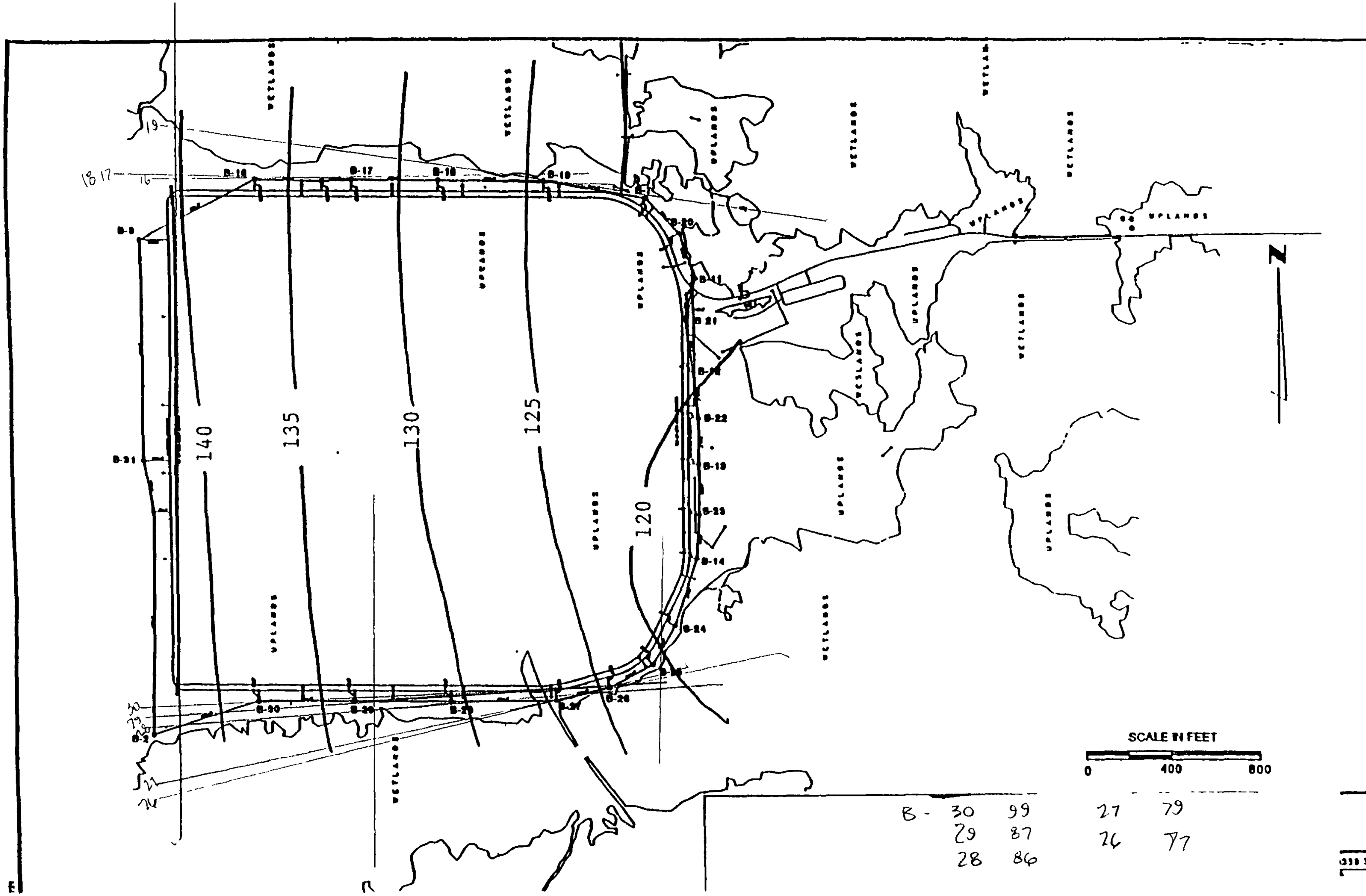


B 30 95
29 90

27 85
26 81

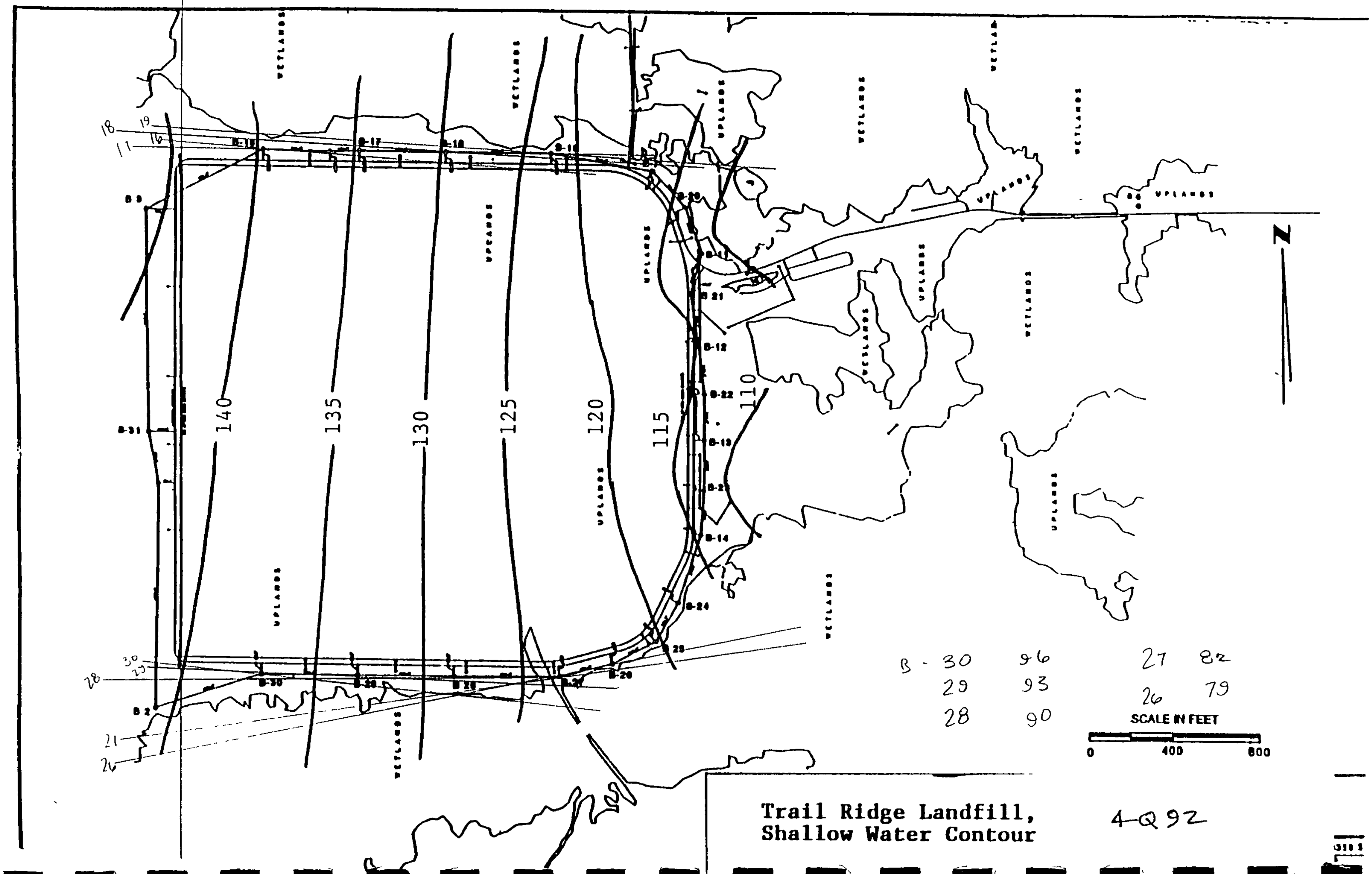
Trail Ridge Landfill
Deep Wells
August, 1992

B-16	90
17	91
18	91
10	99



B-30	99		27	79
29	87		26	77
28	86			

B 16 95
17 92
18 94
19 94



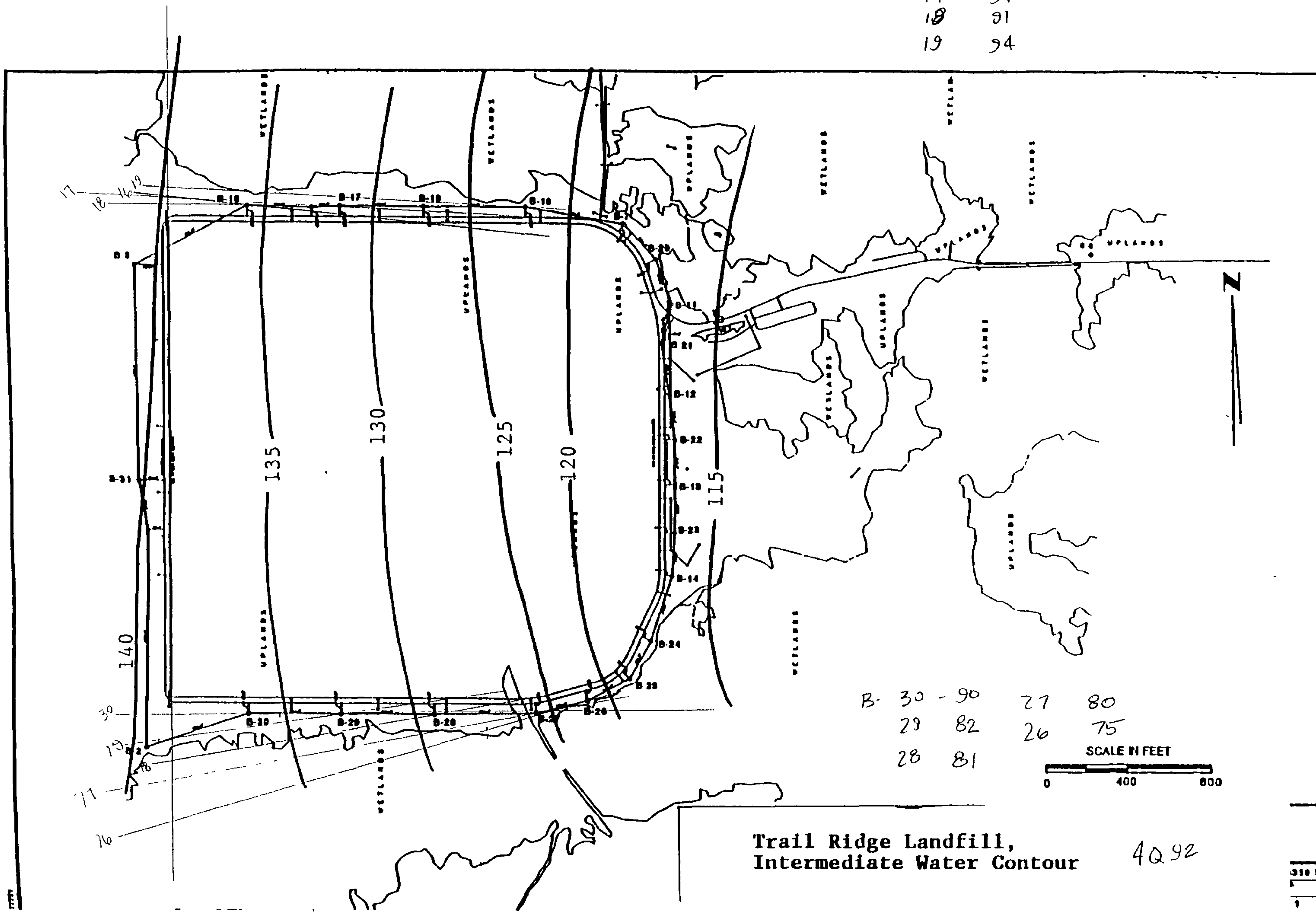
B - 30 96
29 93
28 90

27 82
26 79

Trail Ridge Landfill,
Shallow Water Contour

4-Q92

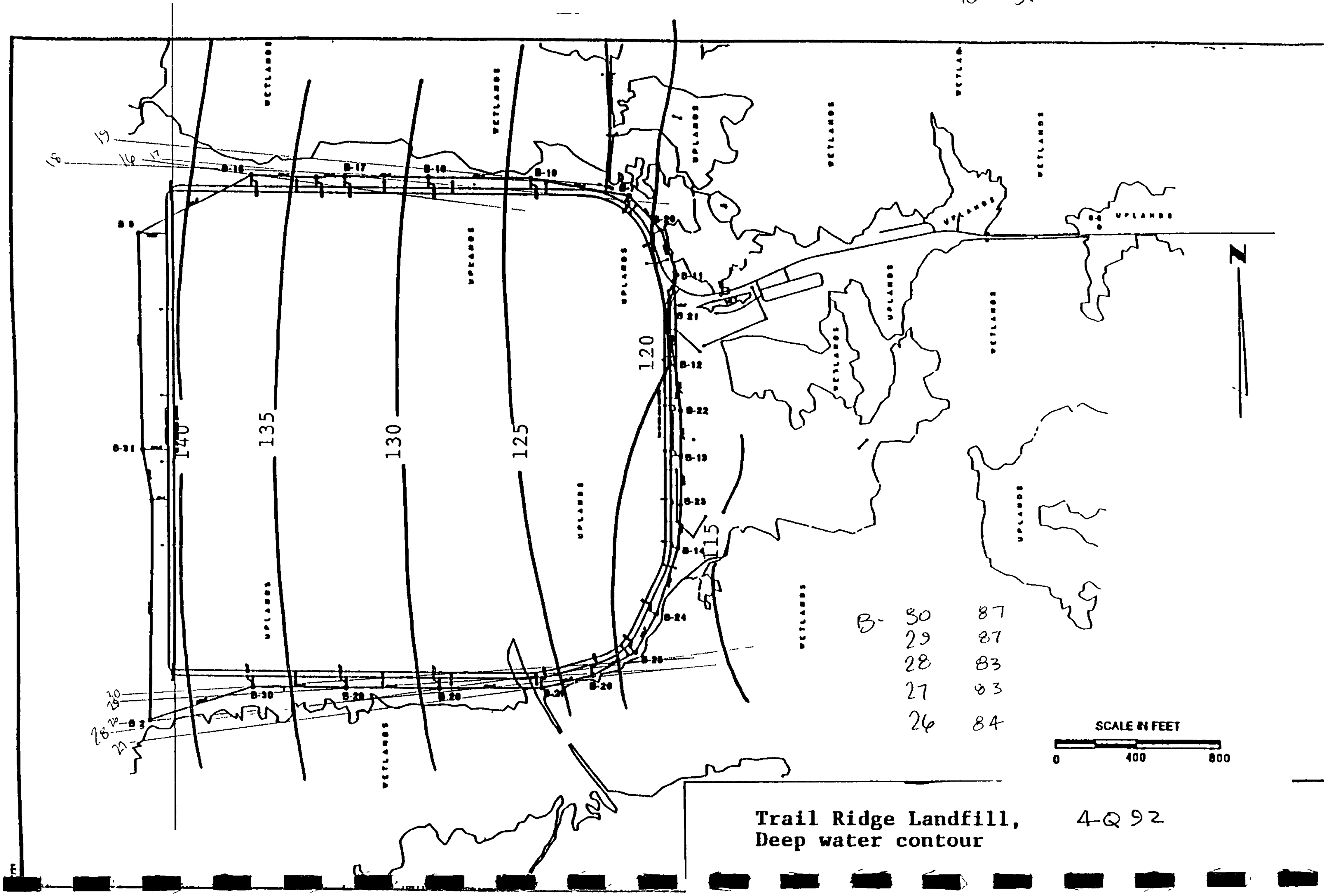
B-16 96
17 94
18 91
19 94



Trail Ridge Landfill,
Intermediate Water Contour

4Q92

B- 16	99
17	96
18	93
19	96

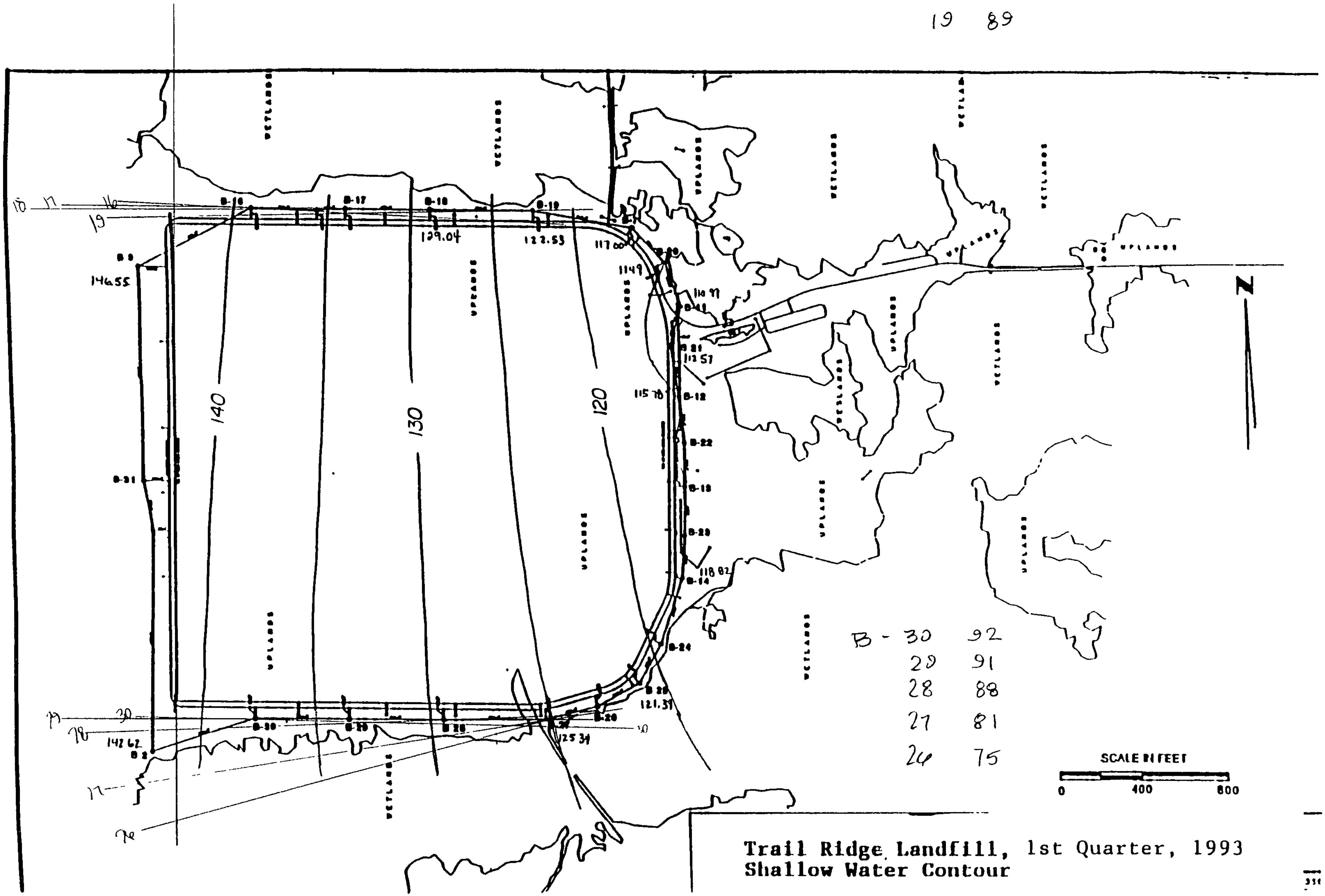


B- 30	87
29	87
28	83
27	83
26	84

Trail Ridge Landfill,
Deep water contour

4-Q92

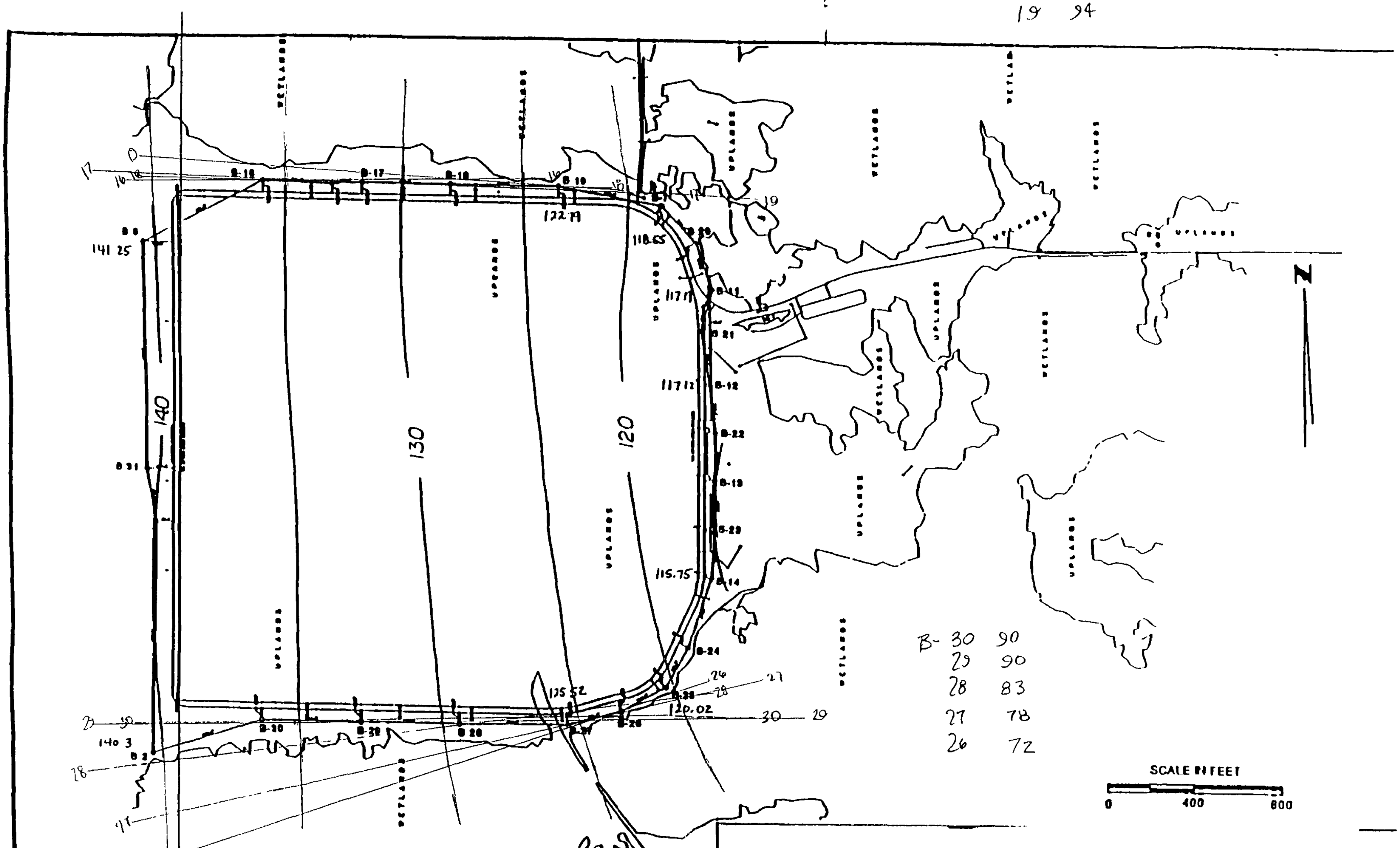
B-16	94
17	91
18	90
19	89



B-30	92
29	91
28	88
27	81
26	75

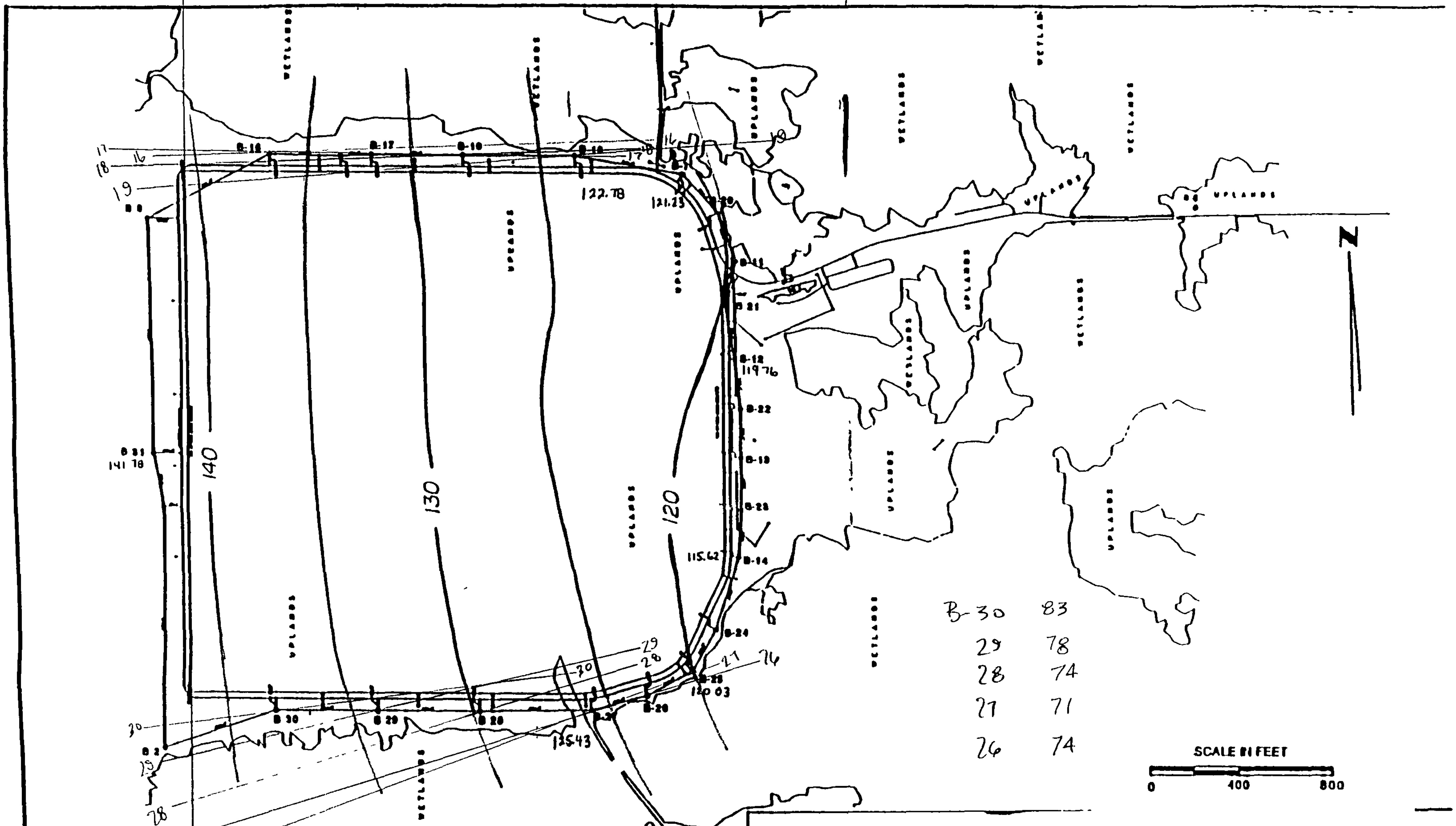
Trail Ridge Landfill, 1st Quarter, 1993
Shallow Water Contour

B- 16 90
17 92
18 92
19 94

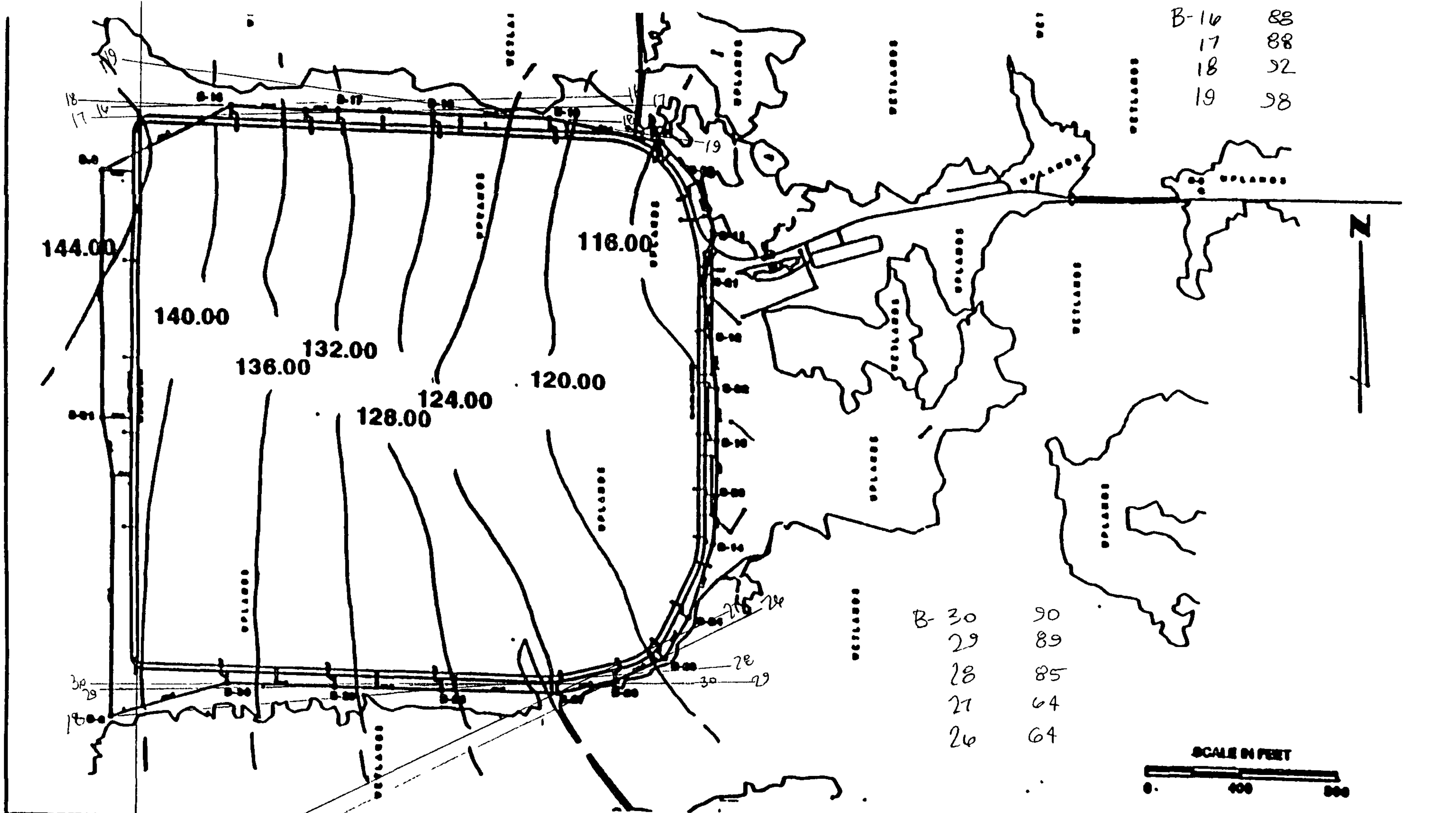


Trail Ridge Landfill, 1st Quarter, 1993
Intermediate Water Contour

B- 16	90
17	93
18	89
19	86



Trail Ridge Landfill, 1st Quarter, 1993
Deep water contour

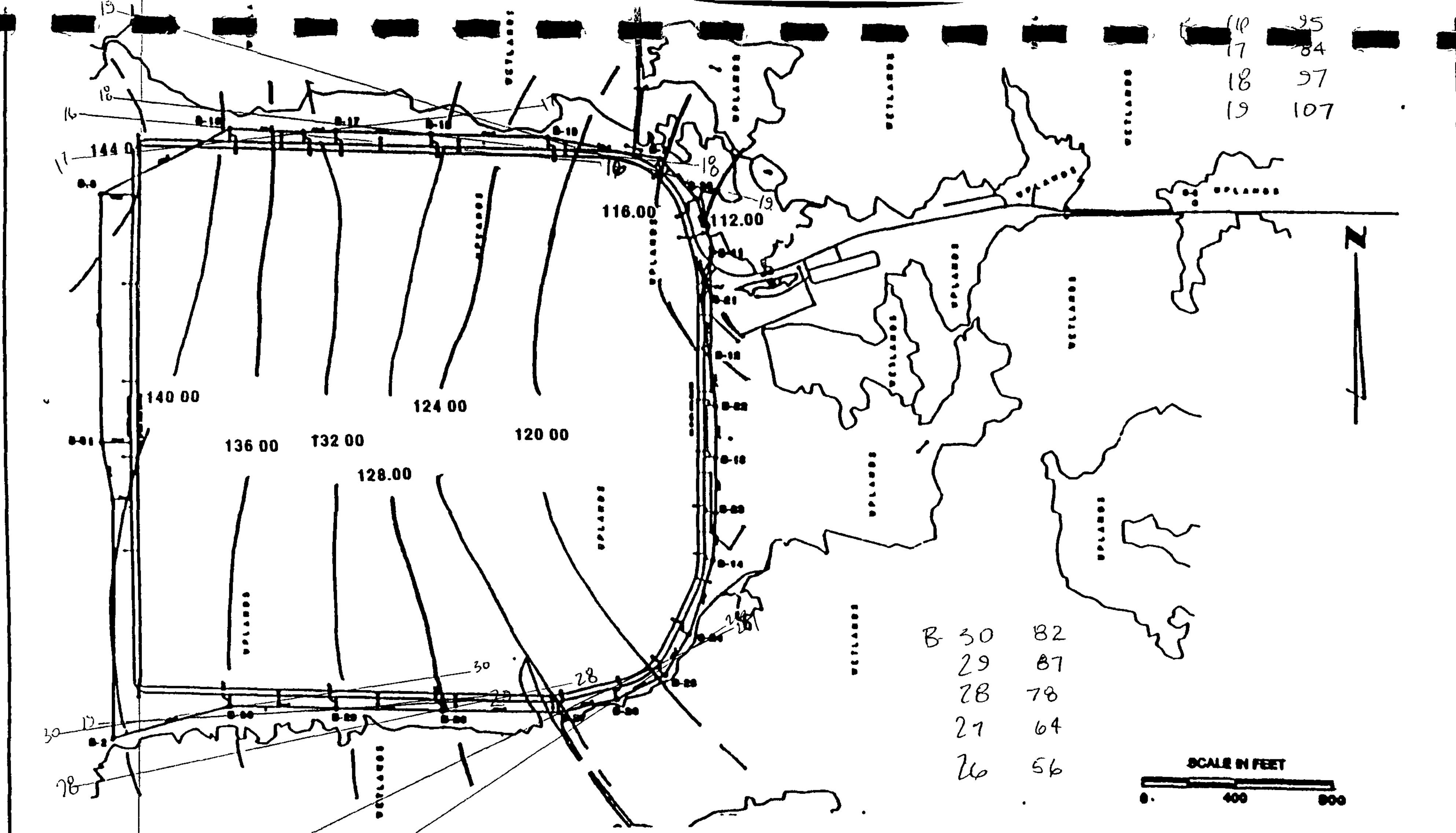


RUST ENVIRONMENT & INFRASTRUCTURE

TRAIL RIDGE LANDFILL
Jacksonville, Florida

Shallow Water Contours

2nd Quarter, 1993



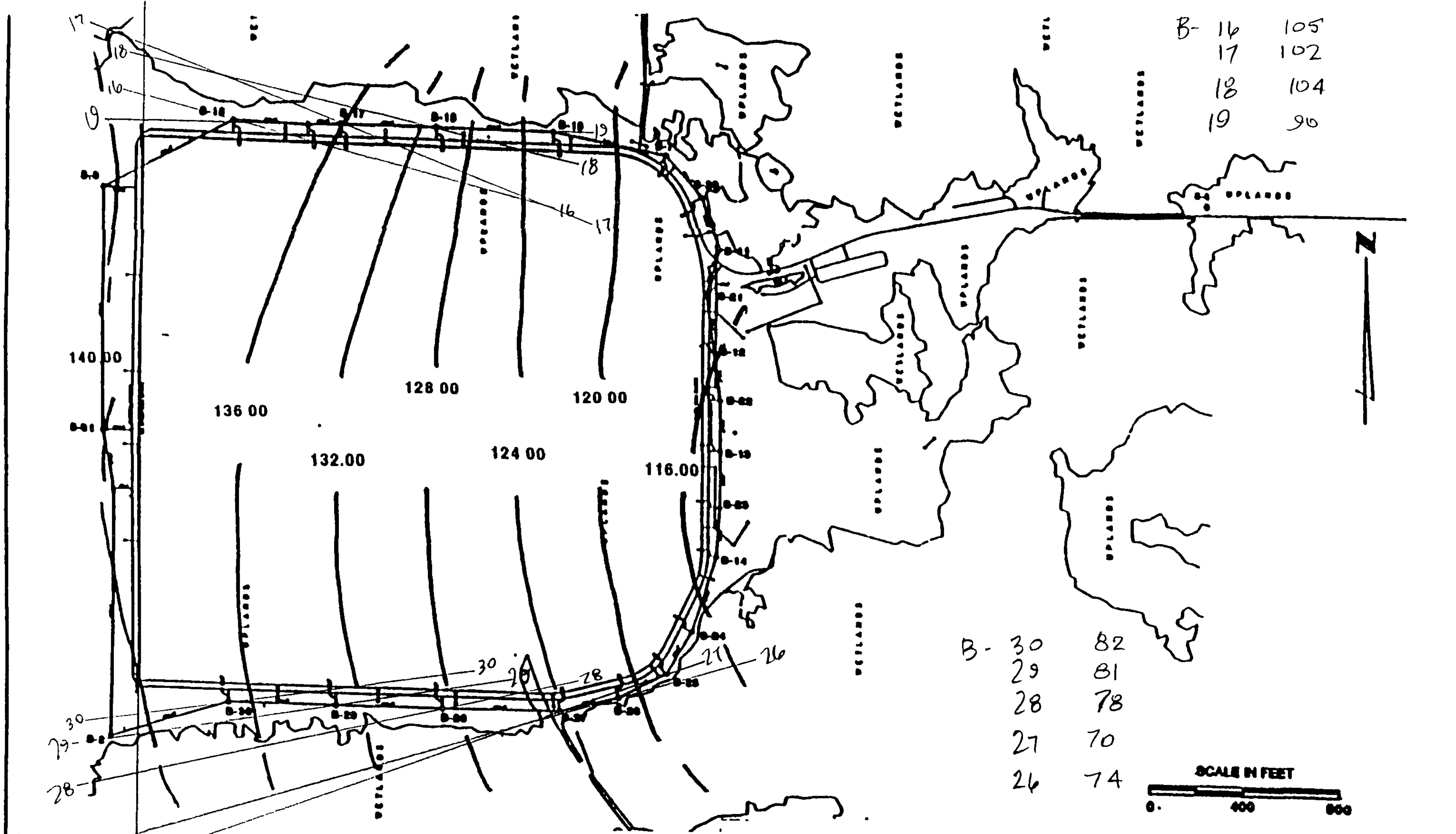
RUST ENVIRONMENT & INFRASTRUCTURE

TRAIL RIDGE LANDFILL

Jacksonville, Florida

SHALLOW WATER CONTOURS

3rd Quarter, 1993

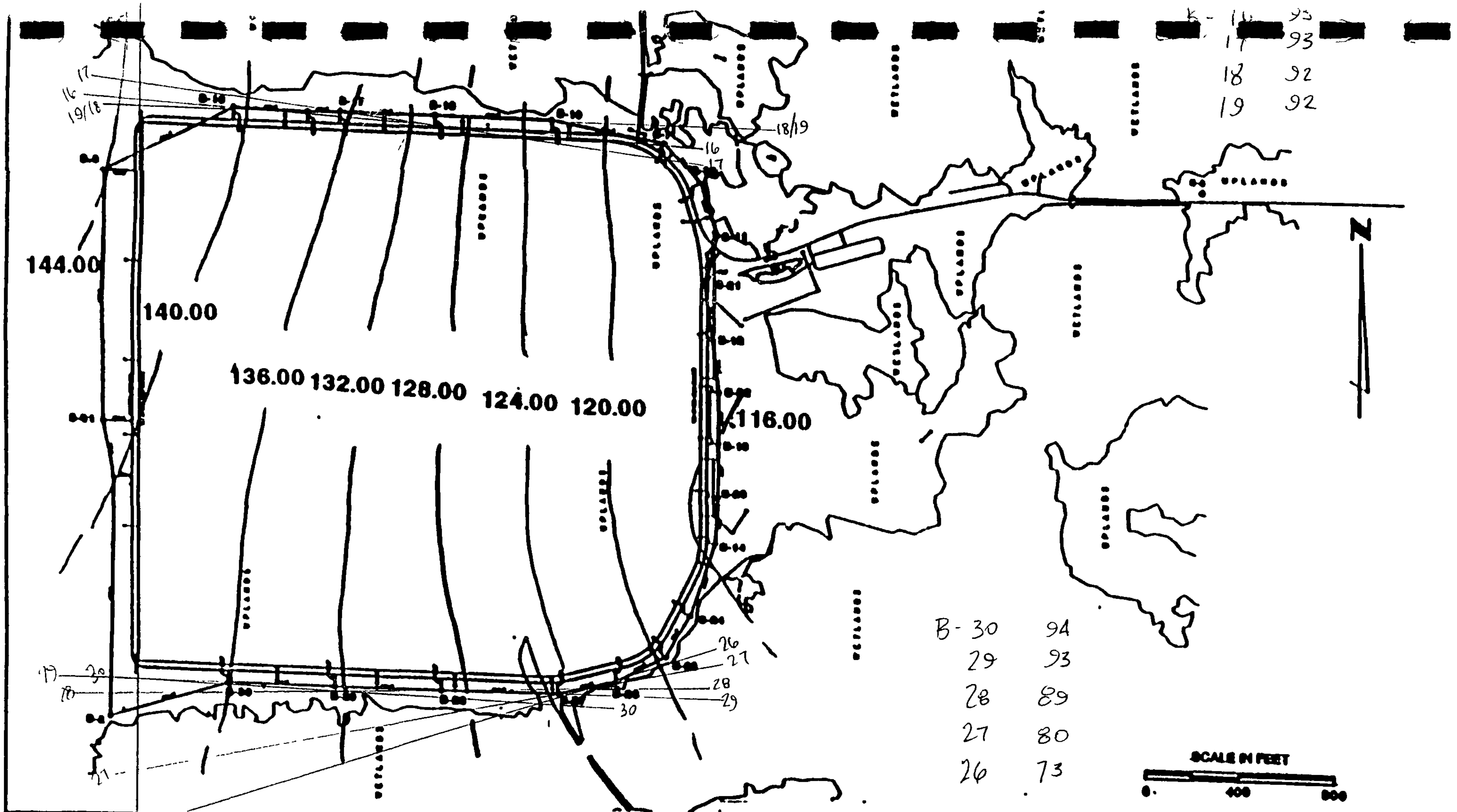


RUST ENVIRONMENT & INFRASTRUCTURE

TRAIL RIDGE LANDFILL
Jacksonville, Florida

INTERMEDIATE WATER CONTOURS

3rd Quarter, 1993

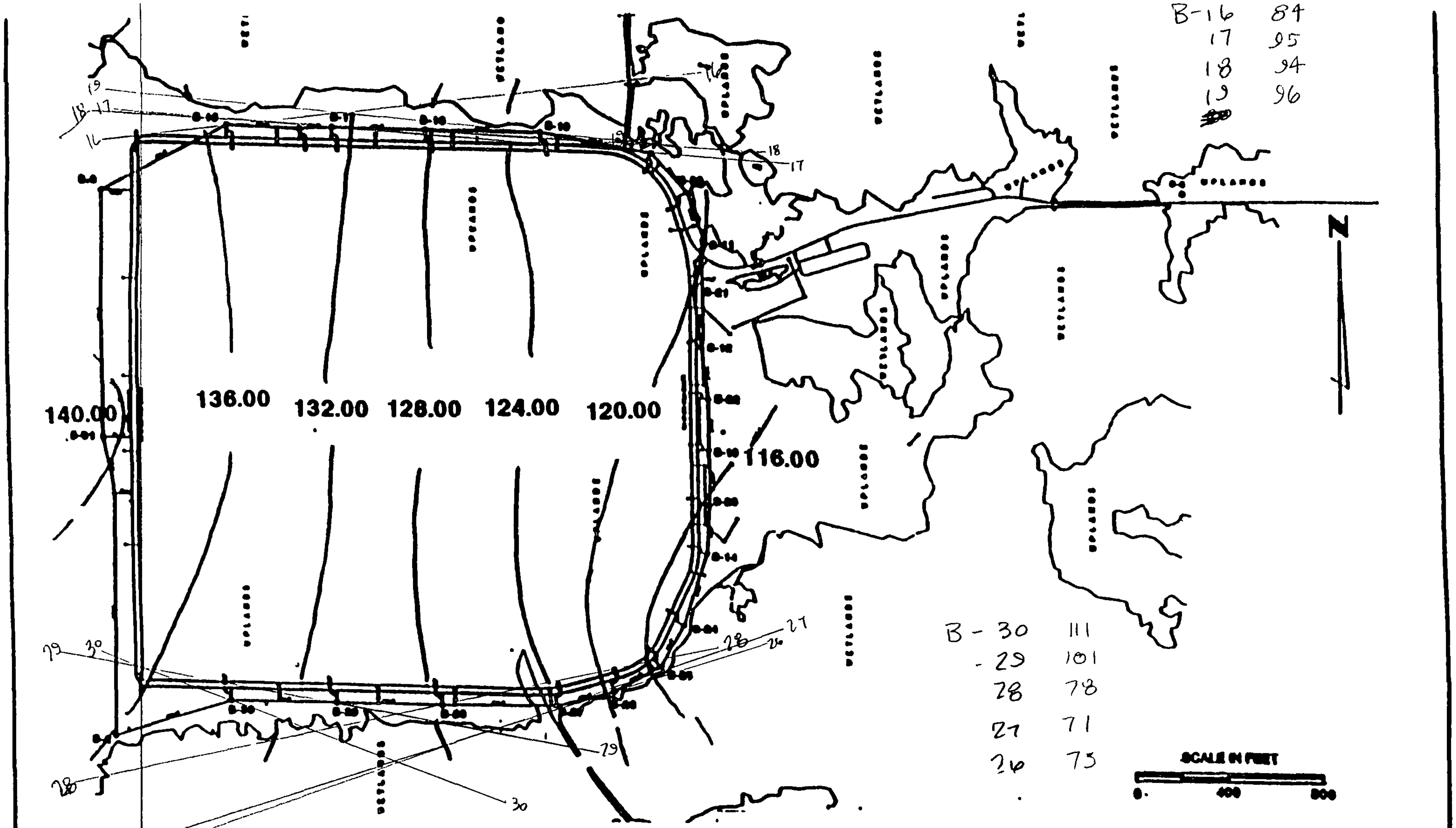


RUST ENVIRONMENT & INFRASTRUCTURE

TRAIL RIDGE LANDFILL
Jacksonville, Florida

Intermediate Water Contours

2nd Quarter, 1993

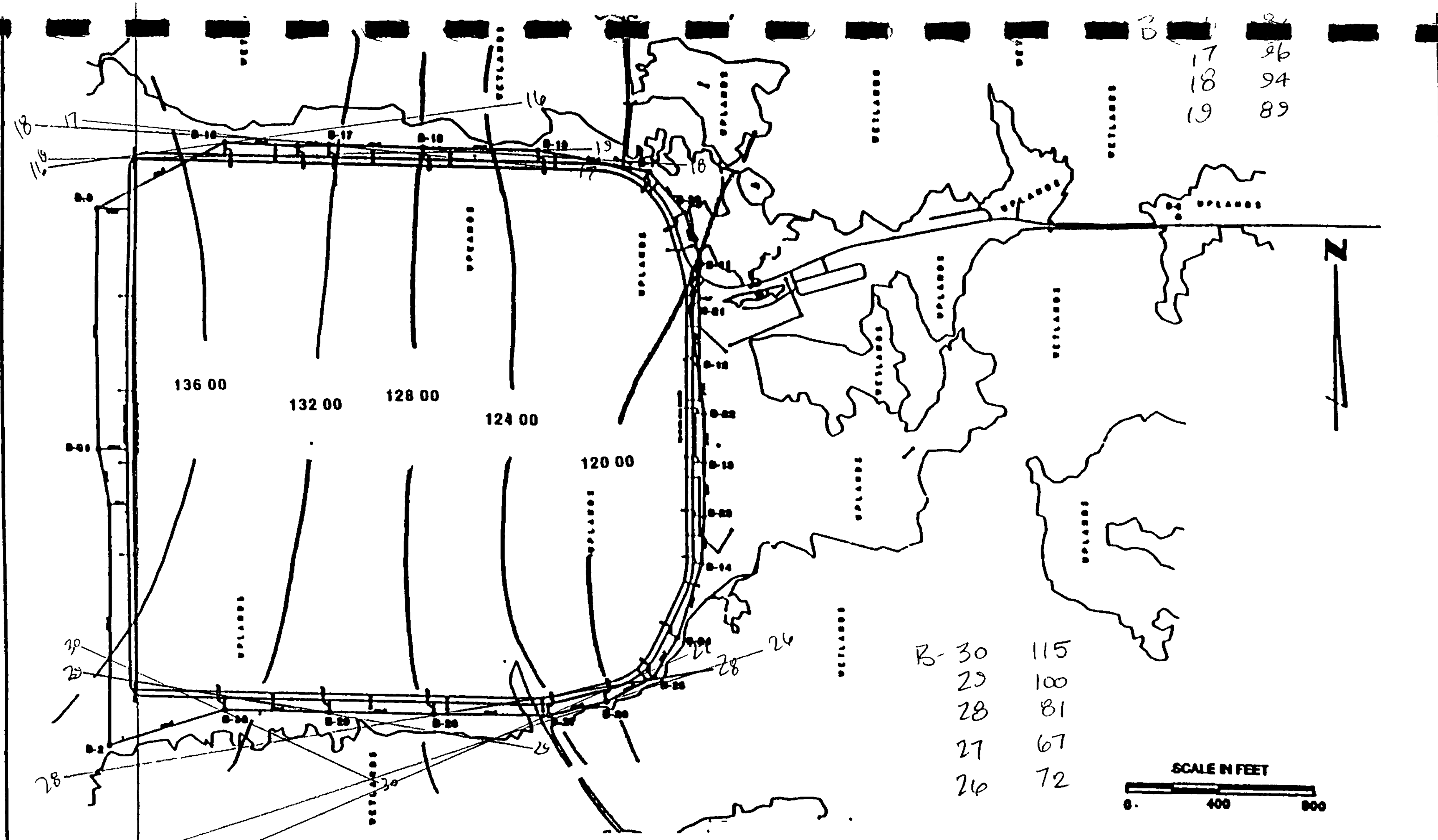


RUST ENVIRONMENT & INFRASTRUCTURE

TRAIL RIDGE LANDFILL
Jacksonville, Florida

Deep Water Contours

2nd Quarter, 1993



ENVIRONMENT & INFRASTRUCTURE

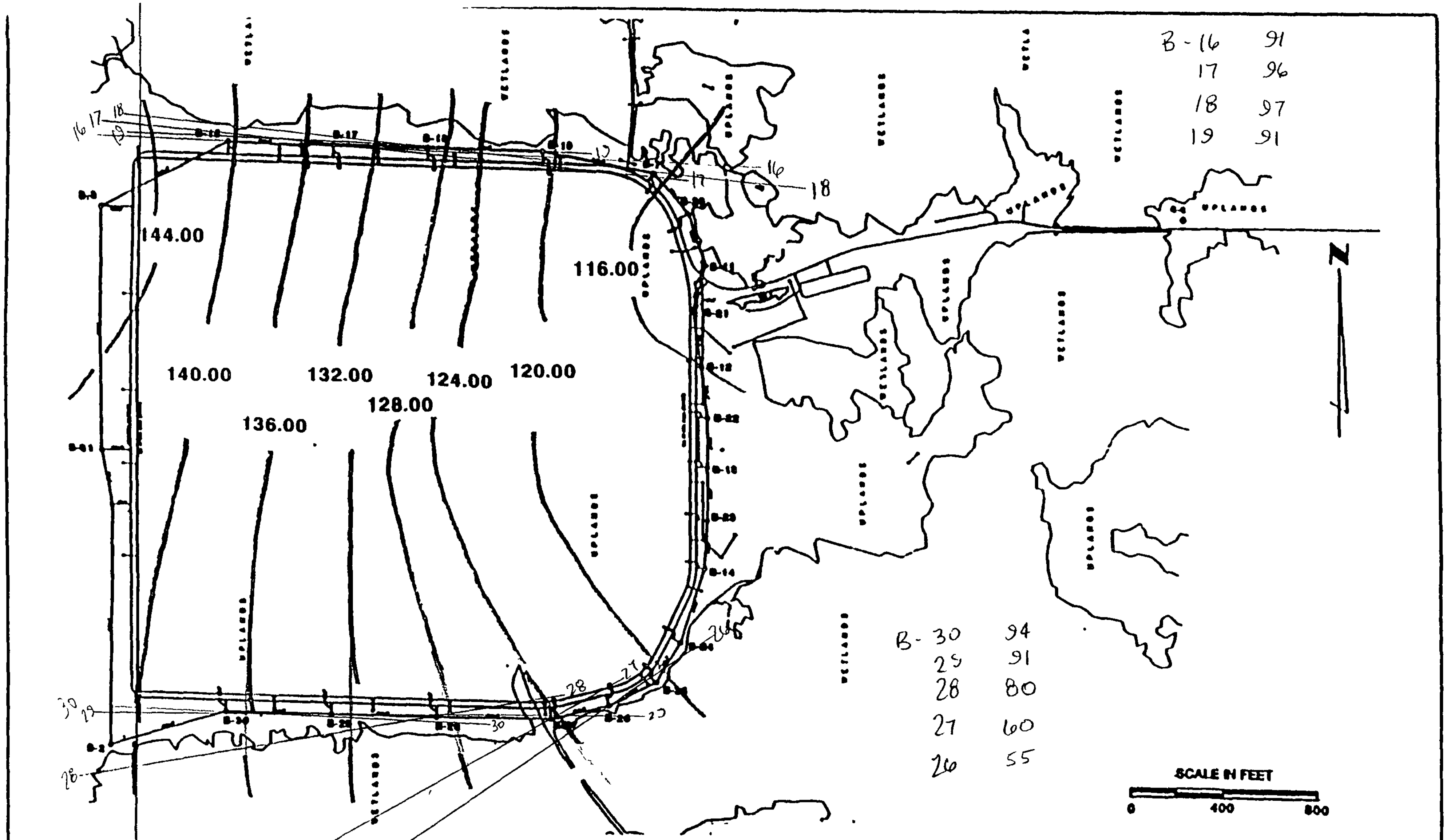
RUST

TRAIL RIDGE LANDFILL

Jacksonville, Florida

DEEP WATER CONTOURS

3rd Quarter, 1993

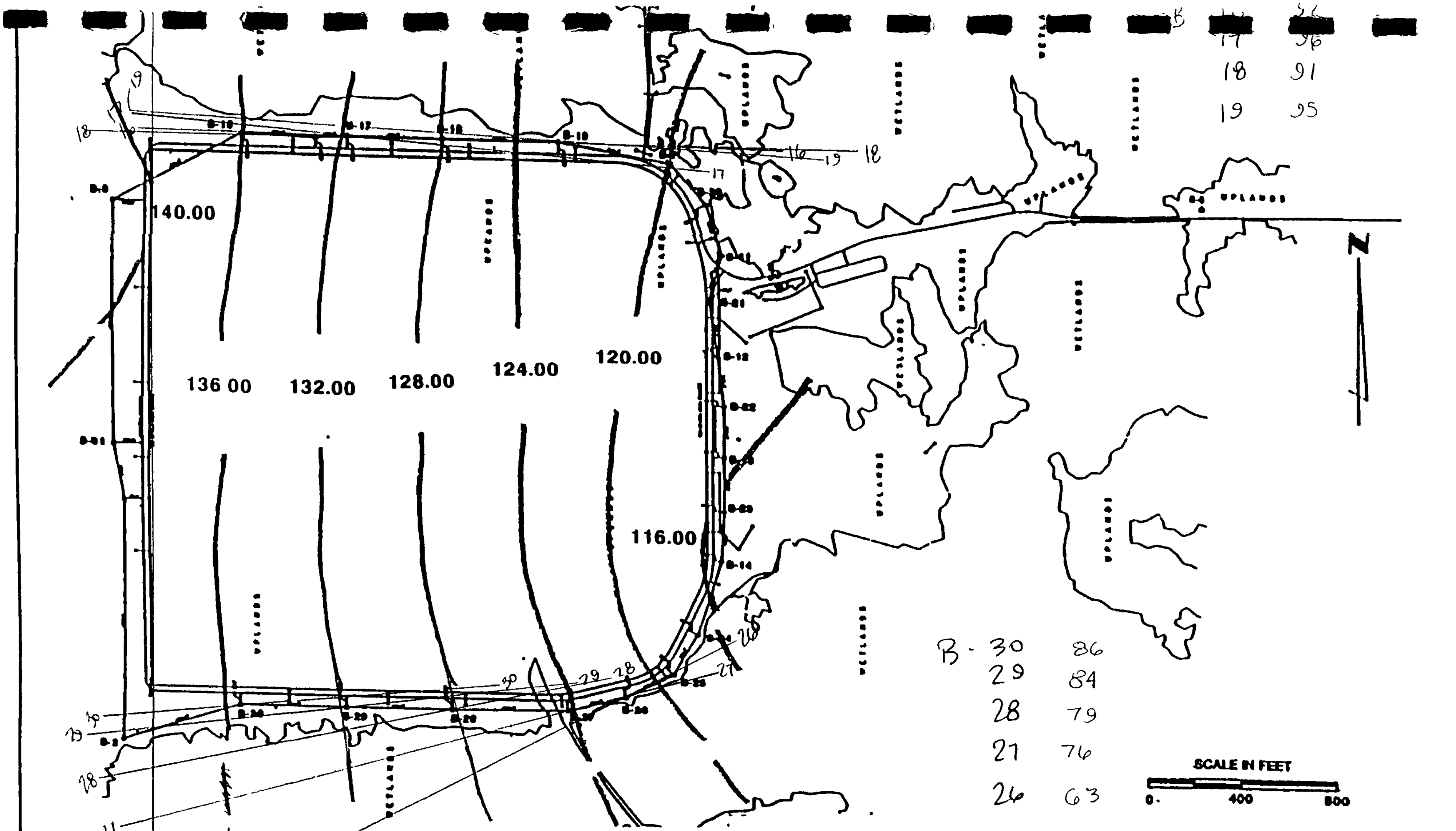


RUST ENVIRONMENT & INFRASTRUCTURE

TRAIL RIDGE LANDFILL
Jacksonville, Florida

Shallow Groundwater Contour

4th Quarter, 1993

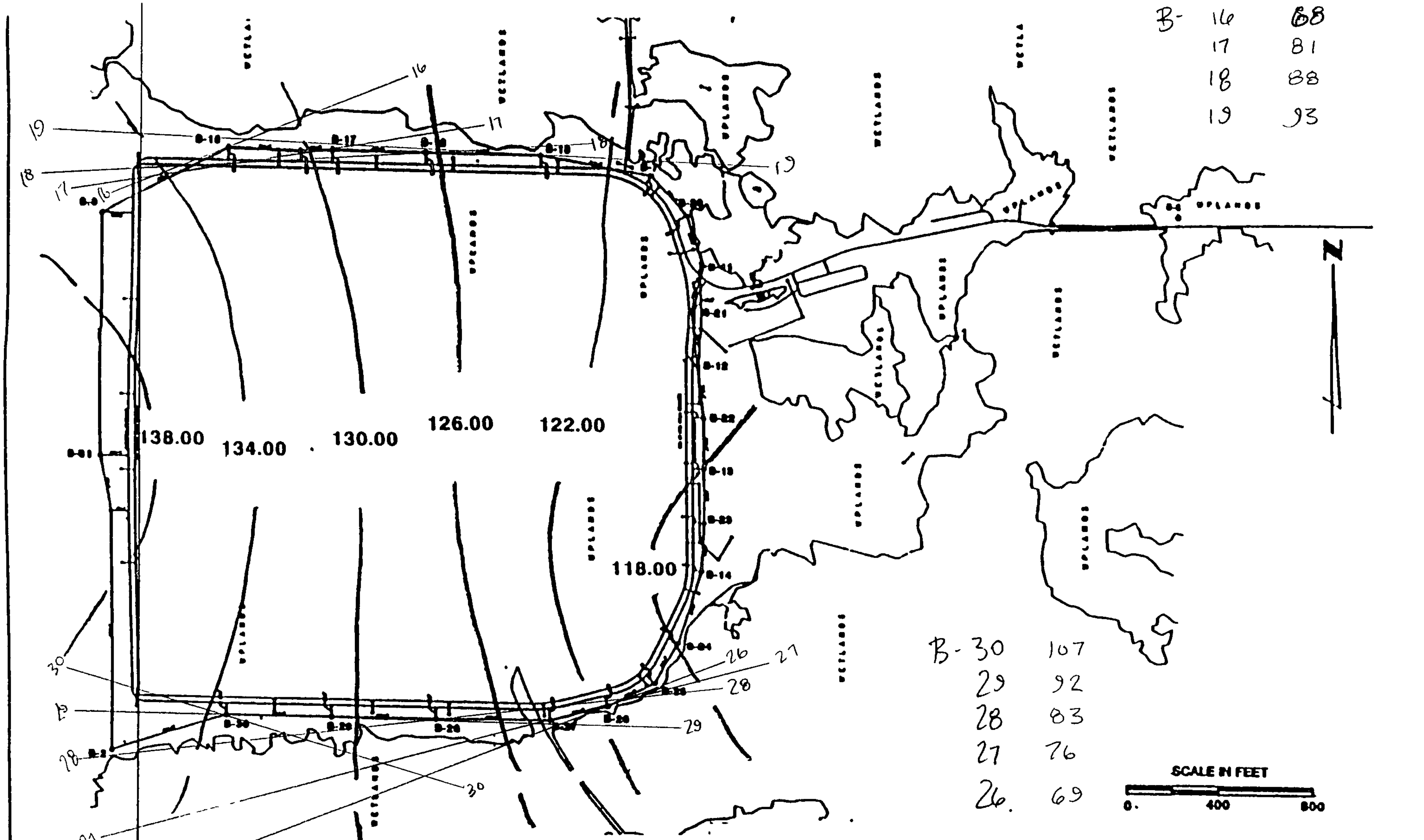


RUST ENVIRONMENT & INFRASTRUCTURE

TRAIL RIDGE LANDFILL
Jacksonville, Florida

Intermediate Groundwater Contour

4th Quarter, 1993

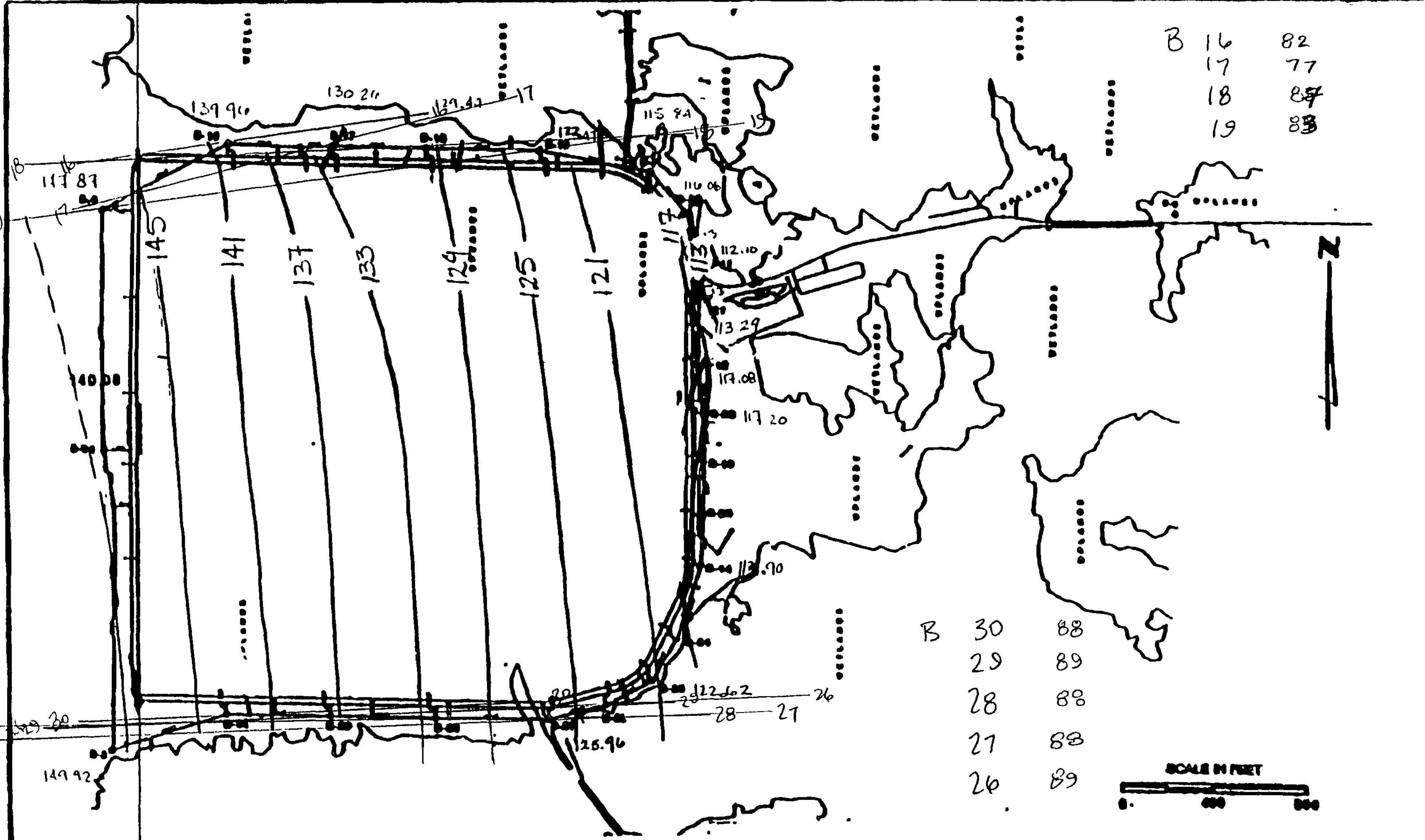


ENVIRONMENT & INFRASTRUCTURE

TRAIL RIDGE LANDFILL
Jacksonville, Florida

Deep Groundwater Contour

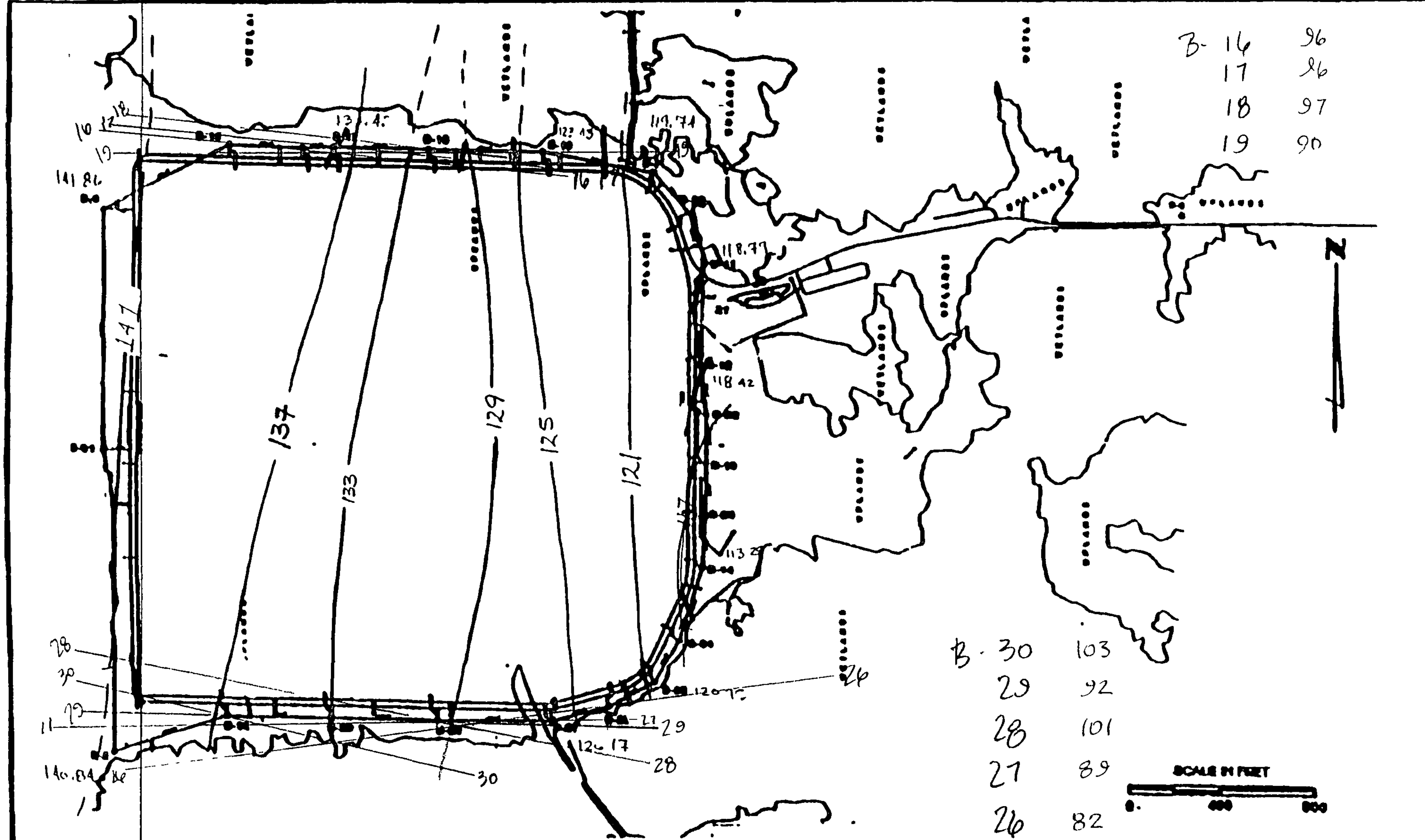
4th Quarter, 1993



RUST ENVIRONMENT & INFRASTRUCTURE

TRAIL RIDGE LANDFILL
Jacksonville, Florida

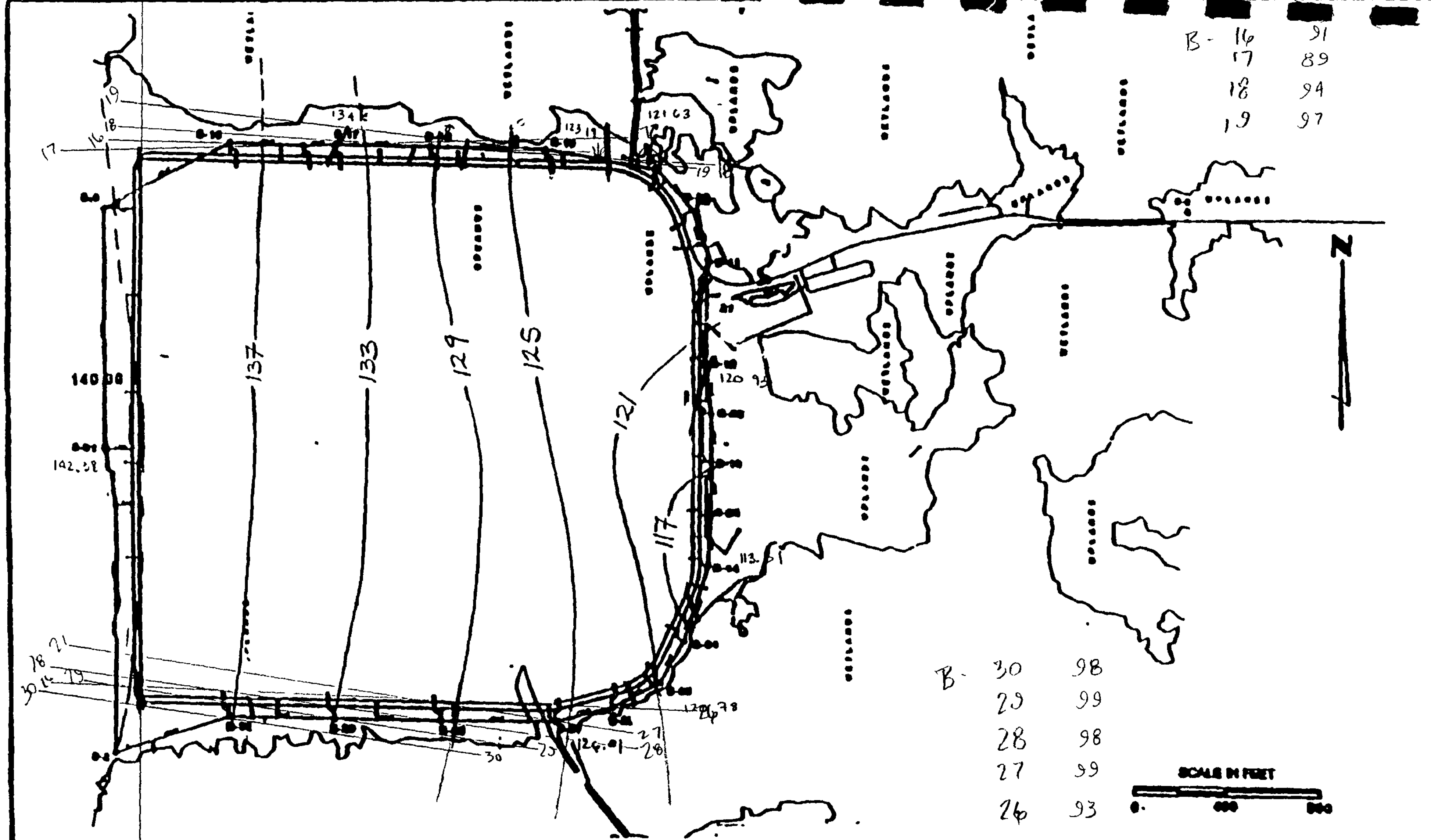
Shallow **WATER CONTOURS**
First Quarter, 1994



RUST ENVIRONMENT & INFRASTRUCTURE

TRAIL RIDGE LANDFILL
Jacksonville, Florida

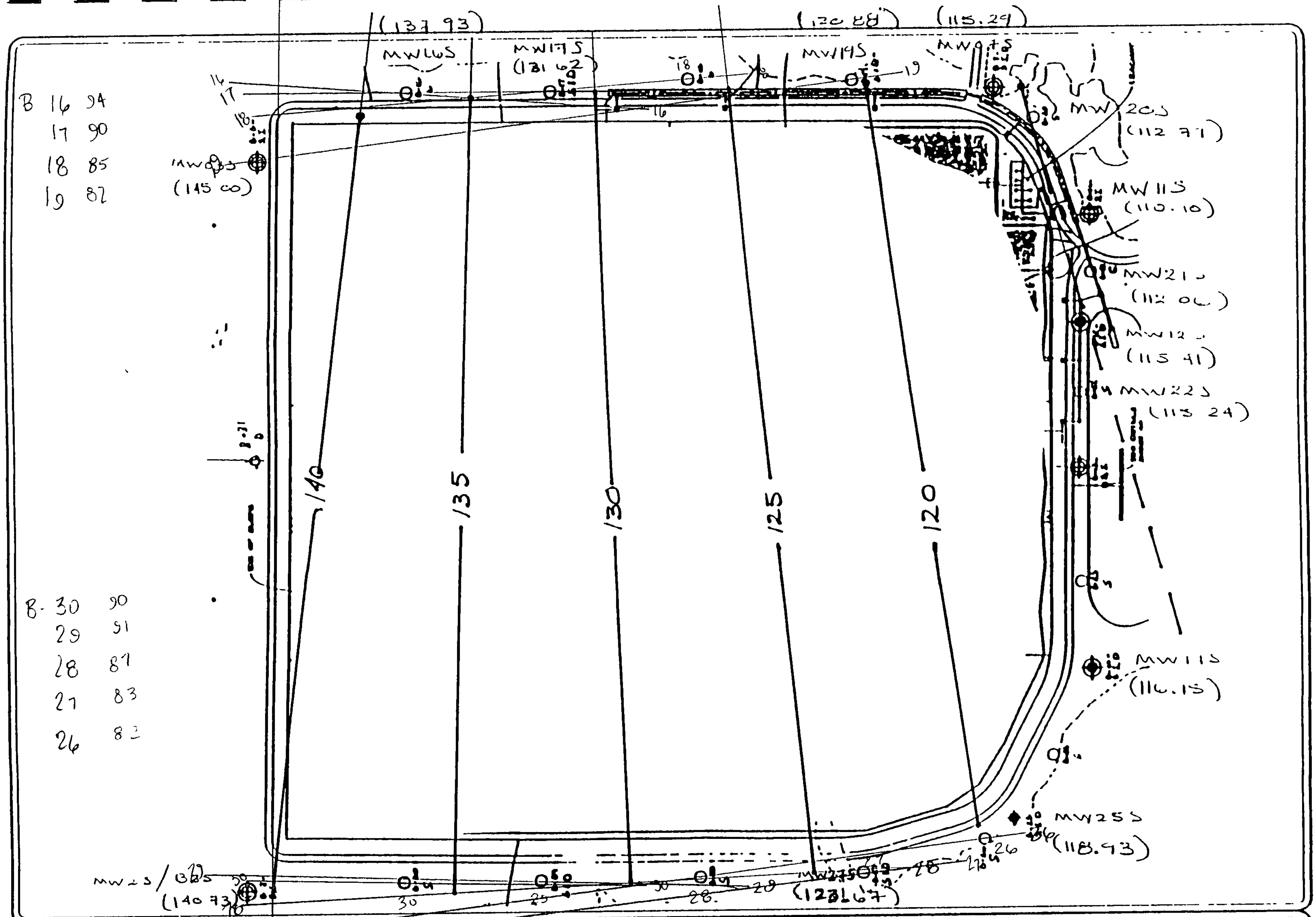
Intermed. **WATER CONTOURS**
First Quarter, 1994



RUST ENVIRONMENT & INFRASTRUCTURE

TRAIL RIDGE LANDFILL
Jacksonville, Florida

Deep WATER CONTOURS
First Quarter, 1994

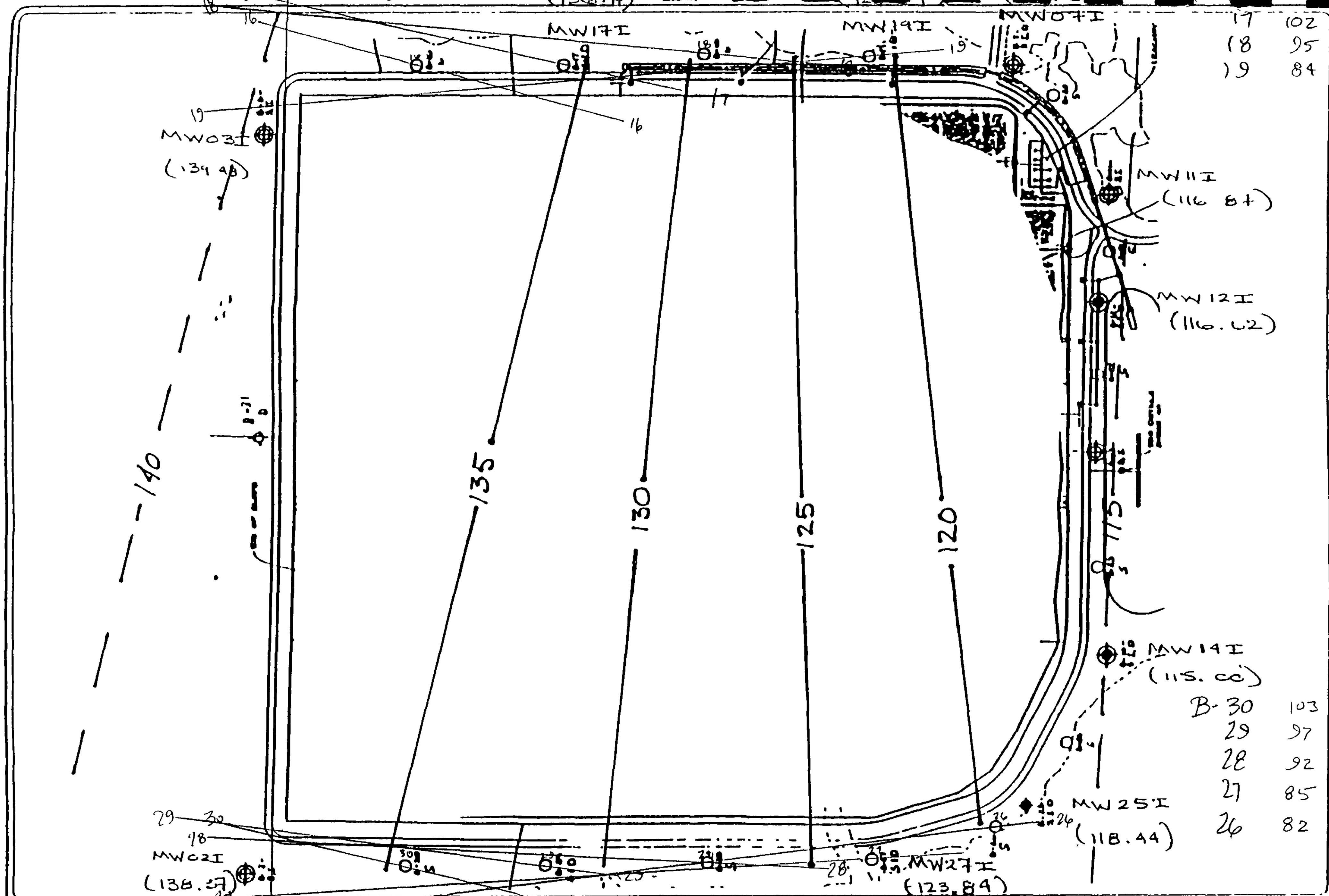


RUST ENVIRONMENT & INFRASTRUCTURE

PROJECT NO	09781.001
FDEP NO	SC16-184444
DATE	05/03/91
DRAWN BY	JLM
CHECKED BY	JR
REVISION	

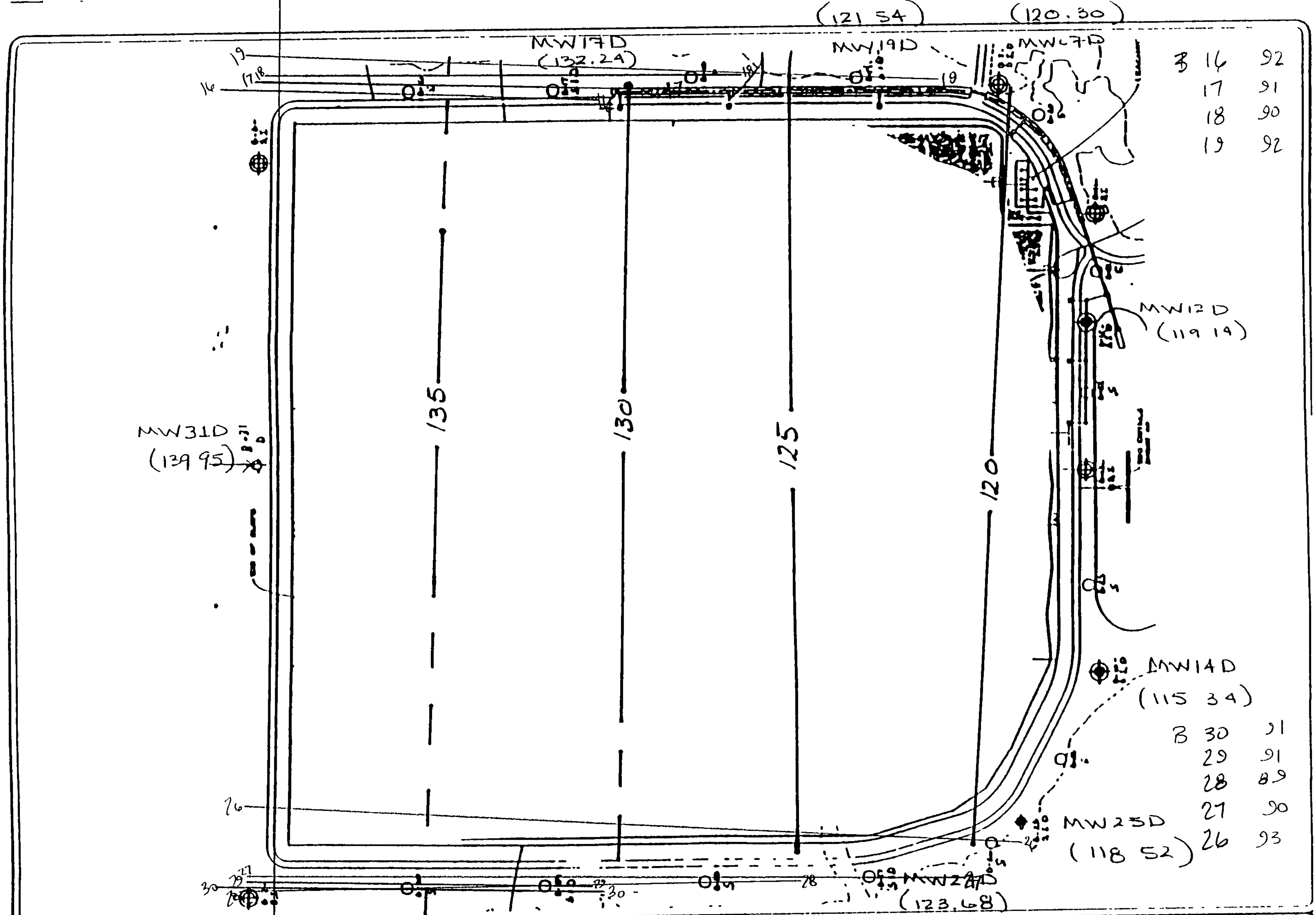
Trail Ridge Landfill
Shallow Groundwater Map

SAMPLING PERIOD "091



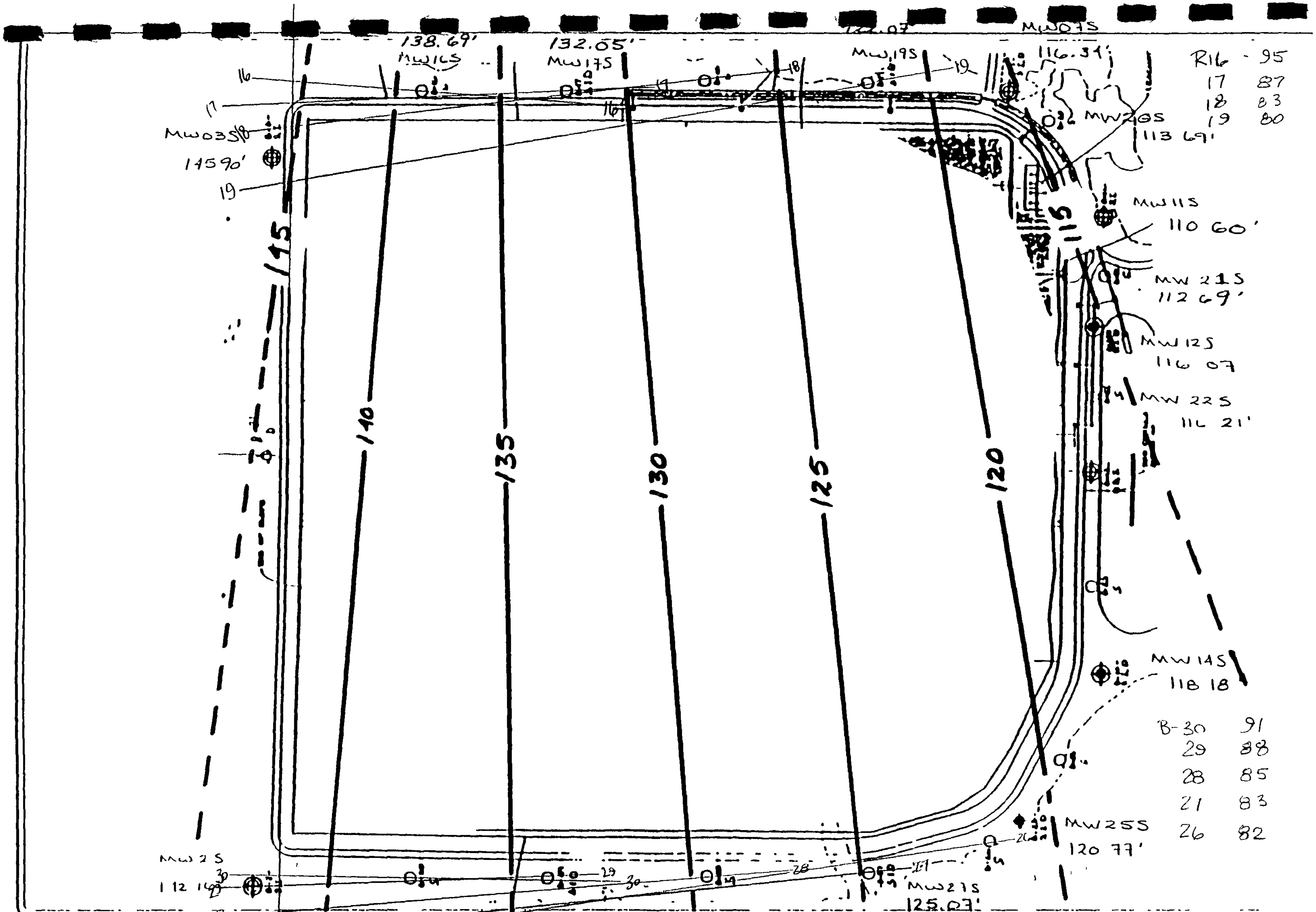
RUST ENVIRONMENT & INFRASTRUCTURE	PROJECT NO 89781.001 FDEP NO SC16-184444 DATE: 05/03/94	DRAWN BY JLM CHECKED BY: JR REVISION:	Trail Ridge Landfill Intermediate Groundwater Map

SAMPLING PERIOD 2Q94

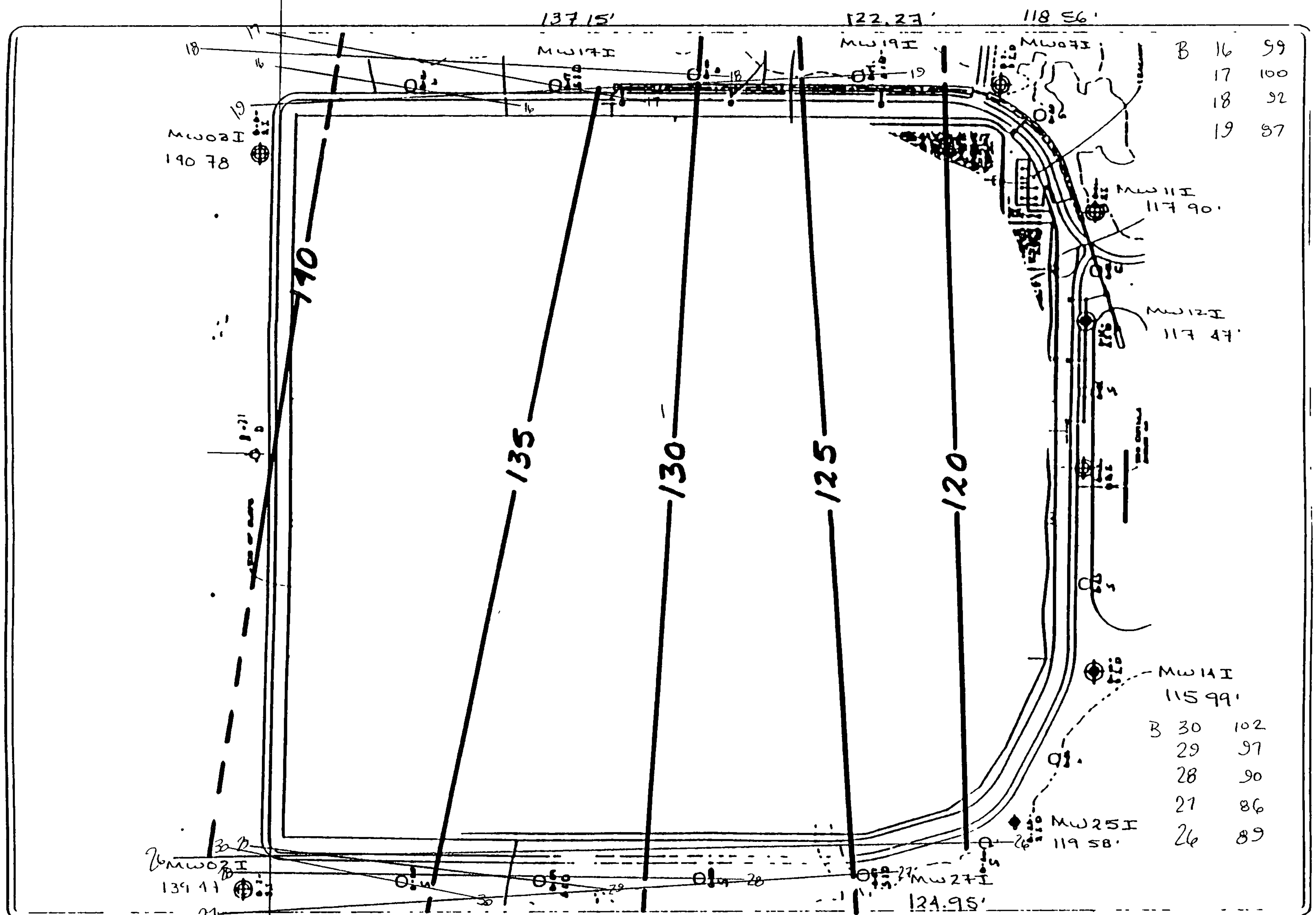


RUST ENVIRONMENT & INFRASTRUCTURE	PROJECT NO 89781.001 FDEP NO SC16-184444 DATE: 05/03/94	DRAWN BY JLM CHECKED BY: JR REVISION:	Trail Ridge Landfill Deep Groundwater Contour Map

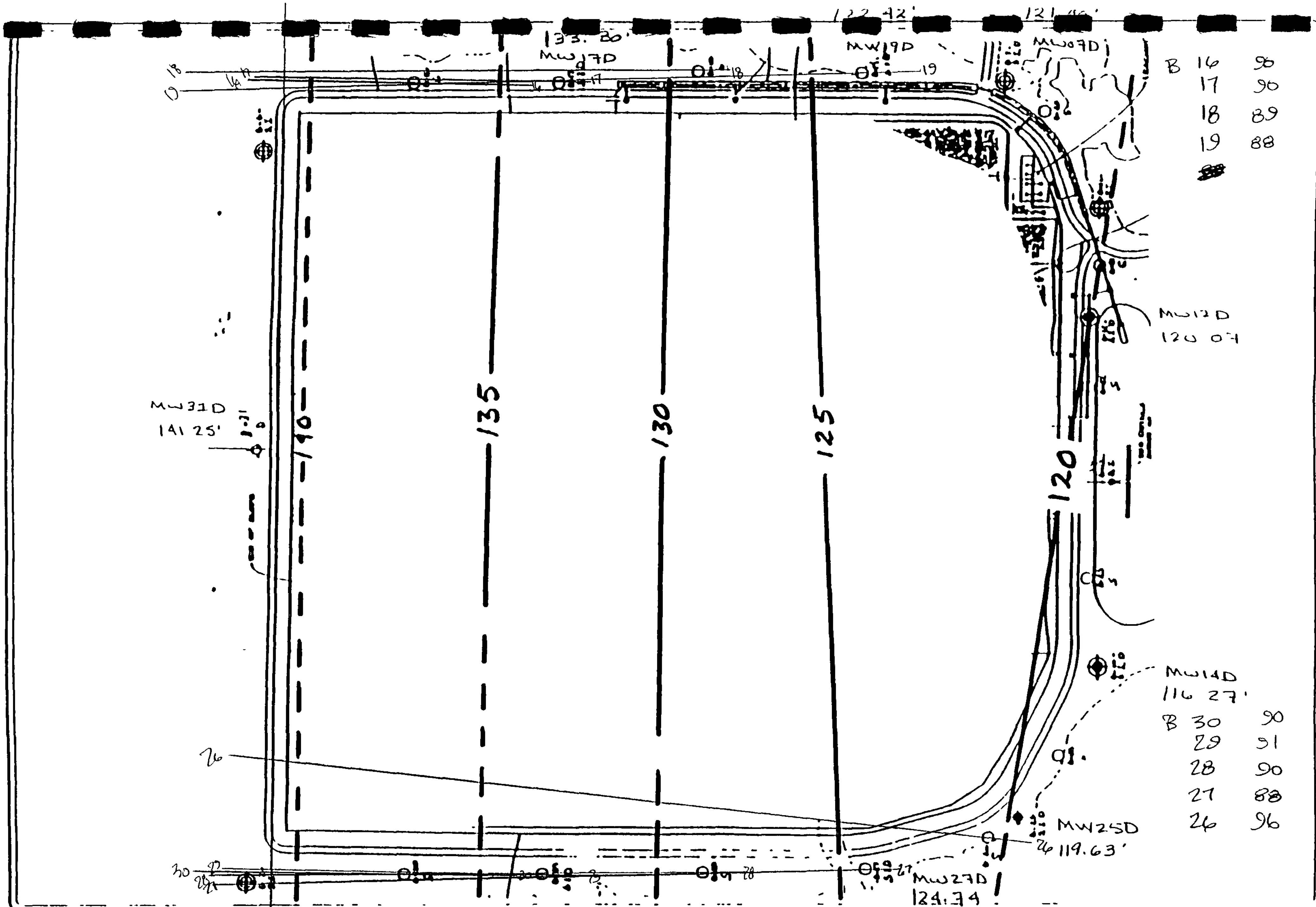
SAMPLING PERIOD 2Q94



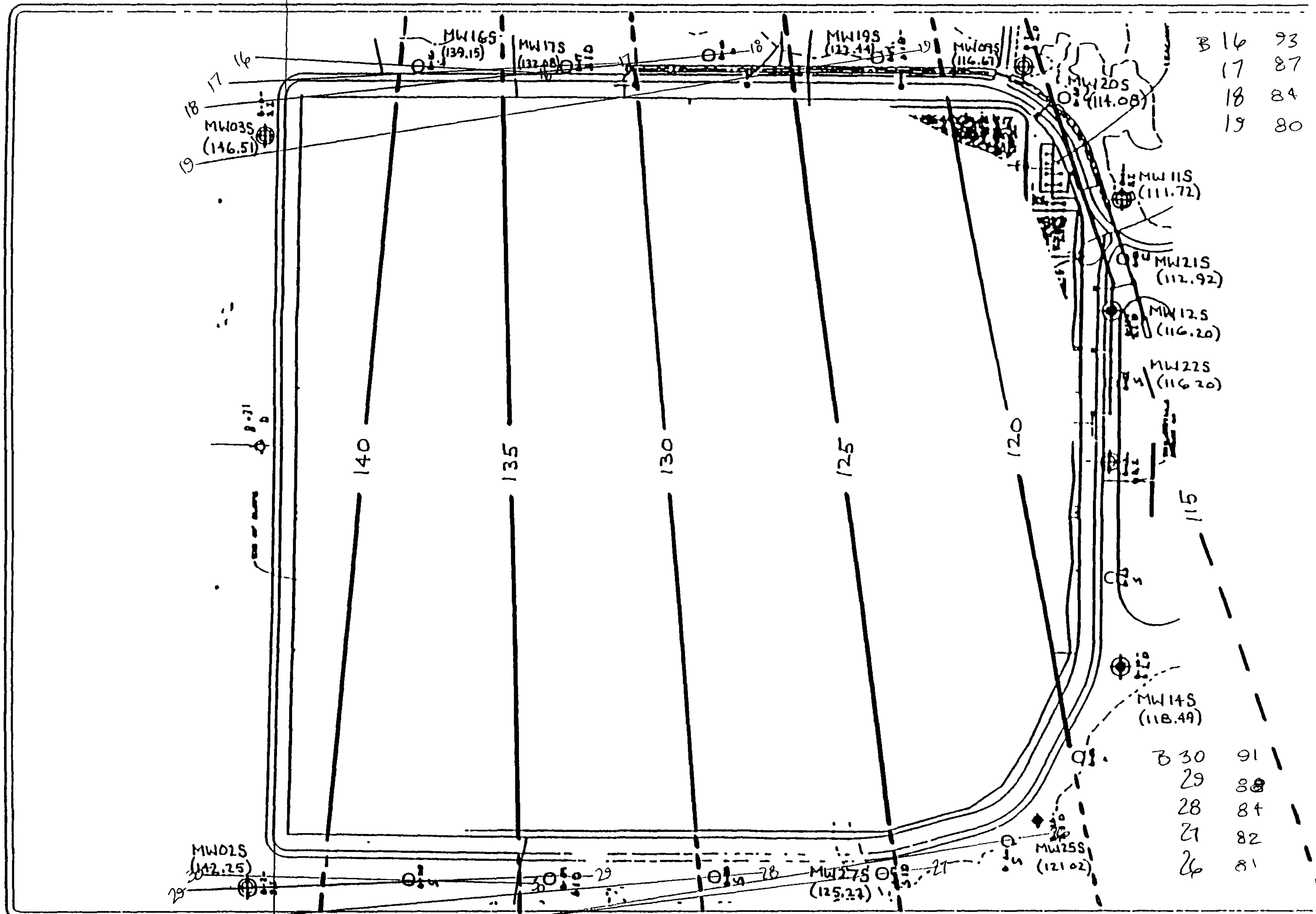
RUST ENVIRONMENT & INFRASTRUCTURE	PROJECT NO FDEP NO SC16-184444 DATE 08-03-94	DRAWN BY JLM CHECKED BY: JR REVISION	Trail Ridge Landfill Shallow Groundwater Map
			SAMPLING PERIOD 3Q94



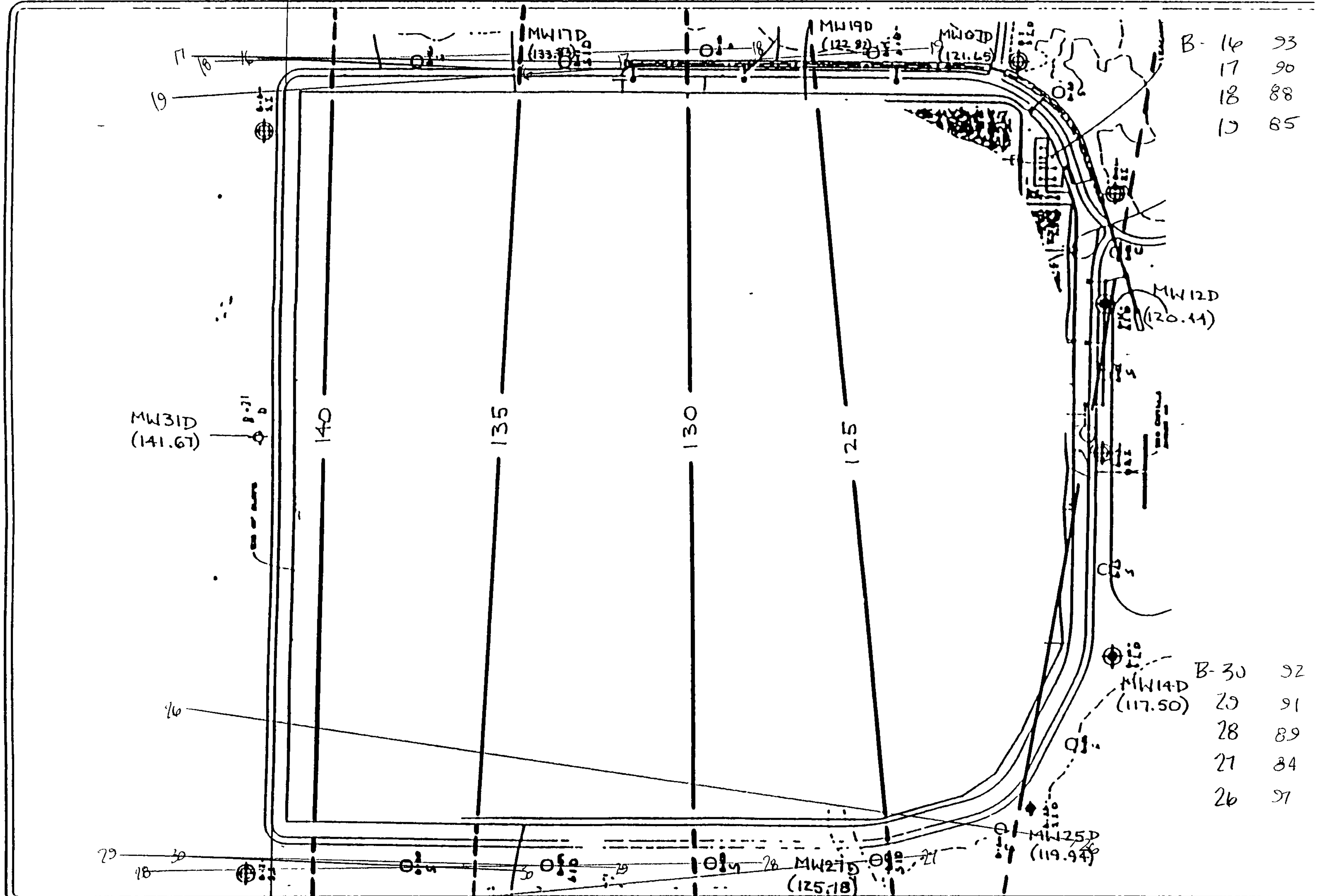
RUST ENVIRONMENT & INFRASTRUCTURE	PROJECT NO FDEP NO SC16-184444 DATE: 08-03-94	DRAWN BY JLM CHECKED BY: JR REVISION:	Trail Ridge Landfill Intermediate Groundwater Map
SAMPLING PERIOD	3Q94		



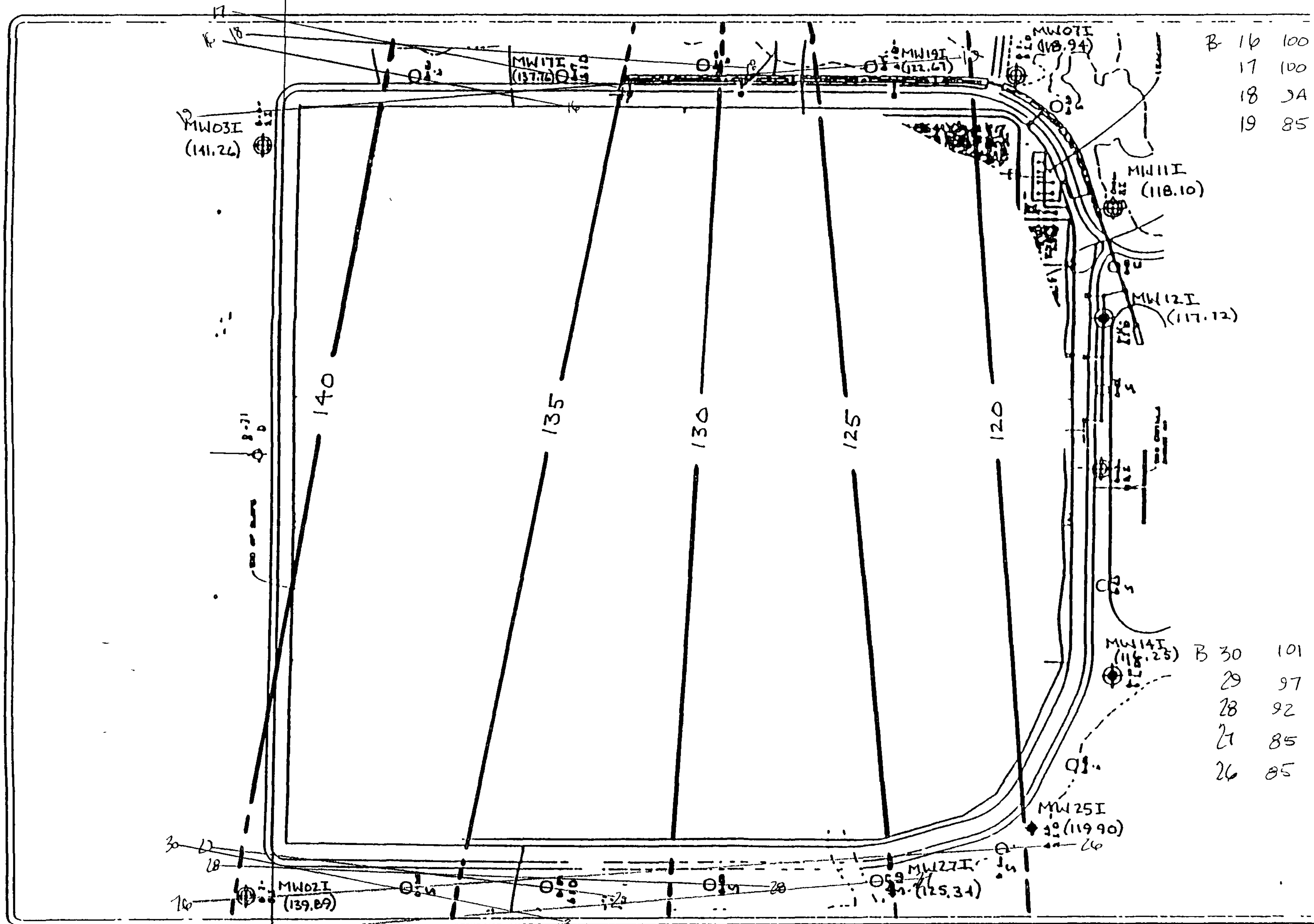
RUST ENVIRONMENT & INFRASTRUCTURE	PROJECT NO FDEP NO SC16-184444 DATE: 08-03-94	DRAWN BY JLM CHECKED BY: JR REVISION:	Trail Ridge Landfill Deep Groundwater Contour Map
			SAMPLING PERIOD 3Q94



RUST ENVIRONMENT & INFRASTRUCTURE	PROJECT NO FDEP NO SC16-184444 DATE: 11-01-94	DRAWN BY: JLM CHECKED BY: JR REVISION:	Trail Ridge Landfill Shallow Groundwater Map	SAMPLING PERIOD 4Q94

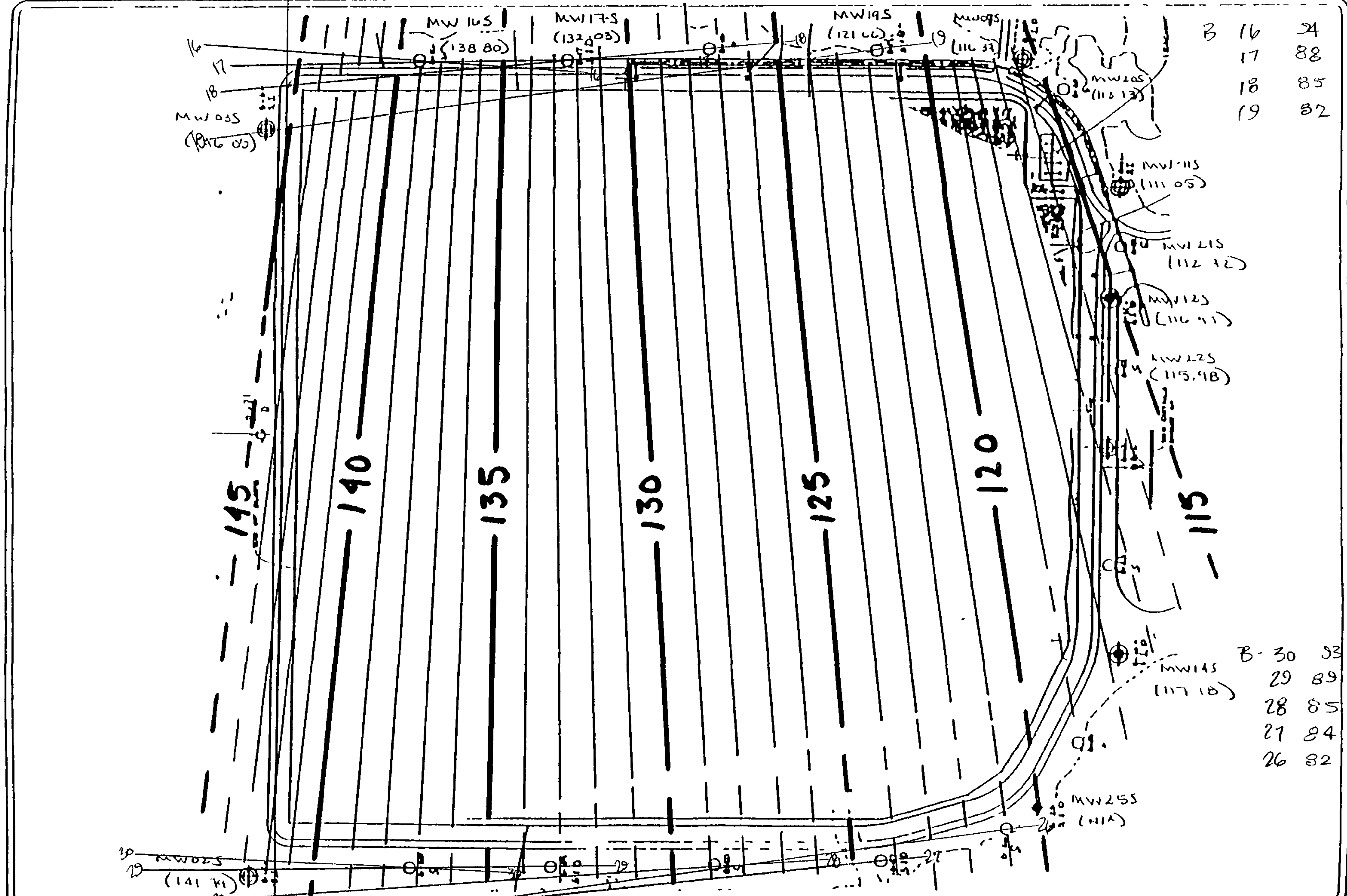


RUST ENVIRONMENT & INFRASTRUCTURE	PROJECT NO	DRAWN BY: JLM	Trail Ridge Landfill	SAMPLING PERIOD
	FDEP NO SC16-184444	CHECKED BY: JR	Intermediate Groundwater Map	4Q94
	DATE: 11-01-94	REVISION:		

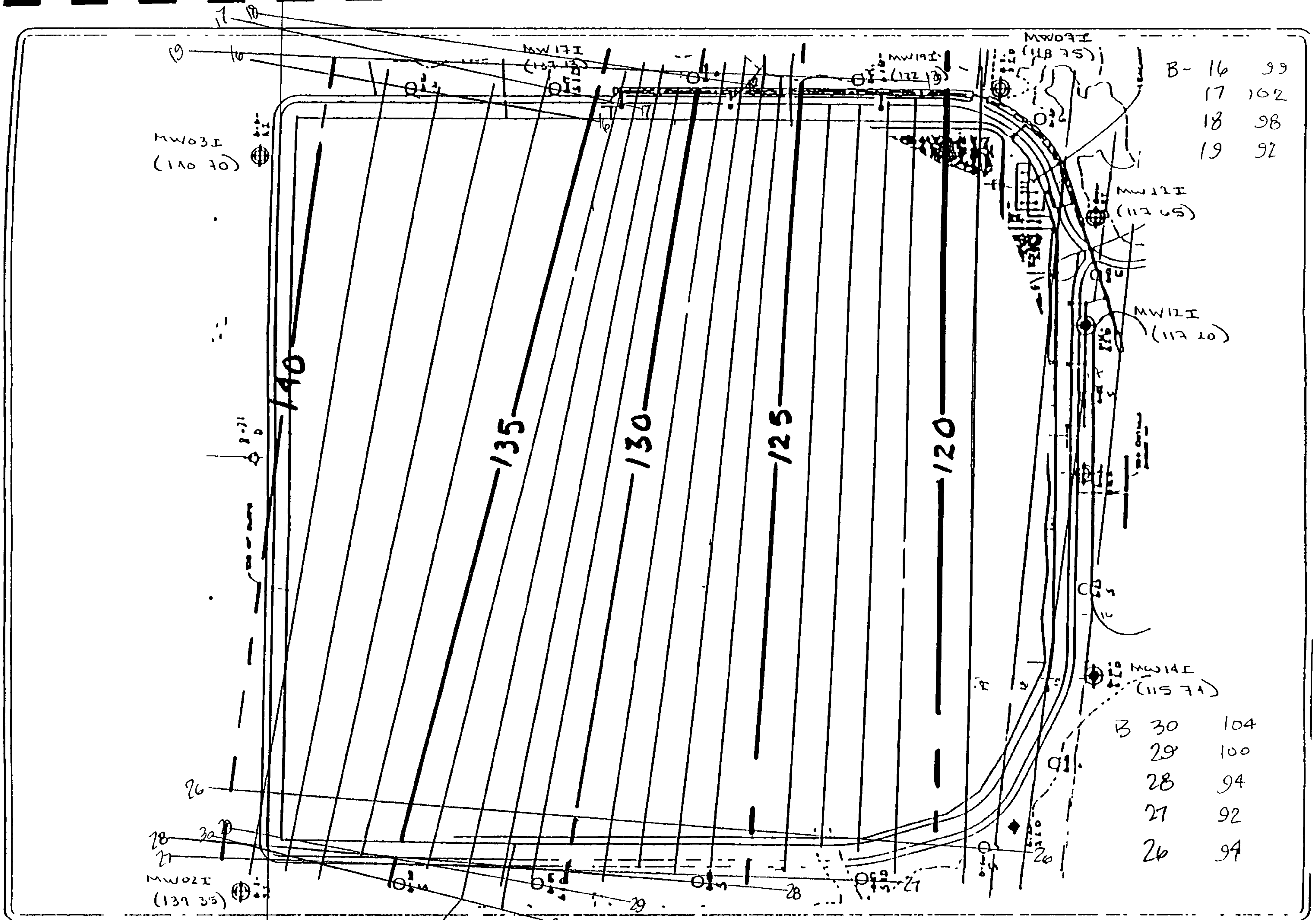


RUST ENVIRONMENT & INFRASTRUCTURE

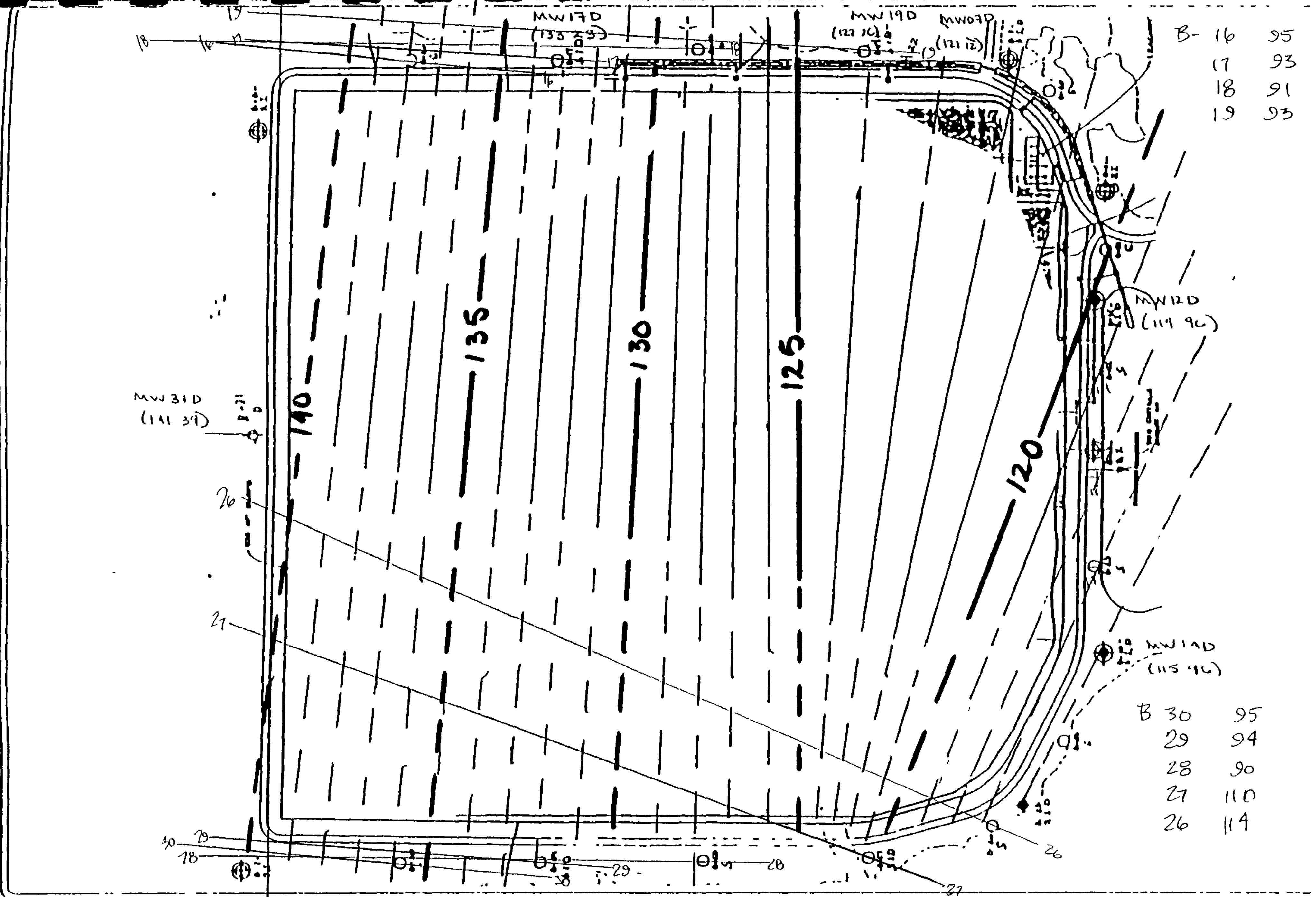
PROJECT NO	DRAWN BY: JLM	Trail Ridge Landfill	SAMPLING PERIOD
FDEP NO SC16-184444	CHECKED BY: JR	Deep Groundwater Contour Map	4Q94
DATE: 11-01-94	REVISION:		



RUST ENVIRONMENT & INFRASTRUCTURE	PROJECT NO	DRAWN BY: JLM	Trail Ridge Landfill	SAMPLING PERIOD
	FDEP NO SC16-184444	CHECKED BY: JR	Shallow Groundwater Map	1Q95
	DATE: 02/02/95	REVISION:		

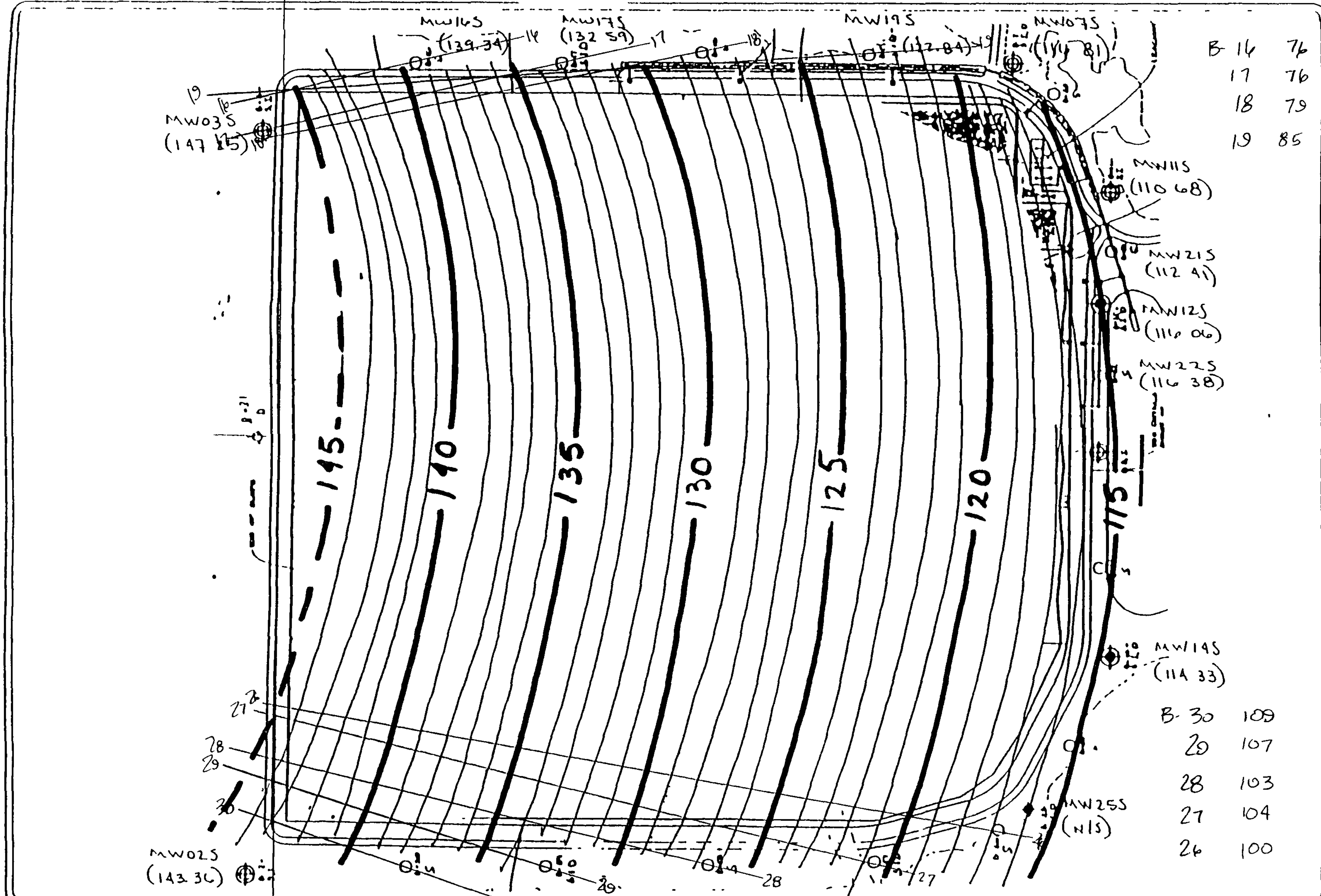


RUST ENVIRONMENT & INFRASTRUCTURE	PROJECT NO FDEP NO SC16-184444 DATE: 2/3/95	DRAWN BY: JLM CHECKED BY: JR REVISION:	Trail Ridge Landfill Intermediate Groundwater Map	SAMPLING PERIOD 1995



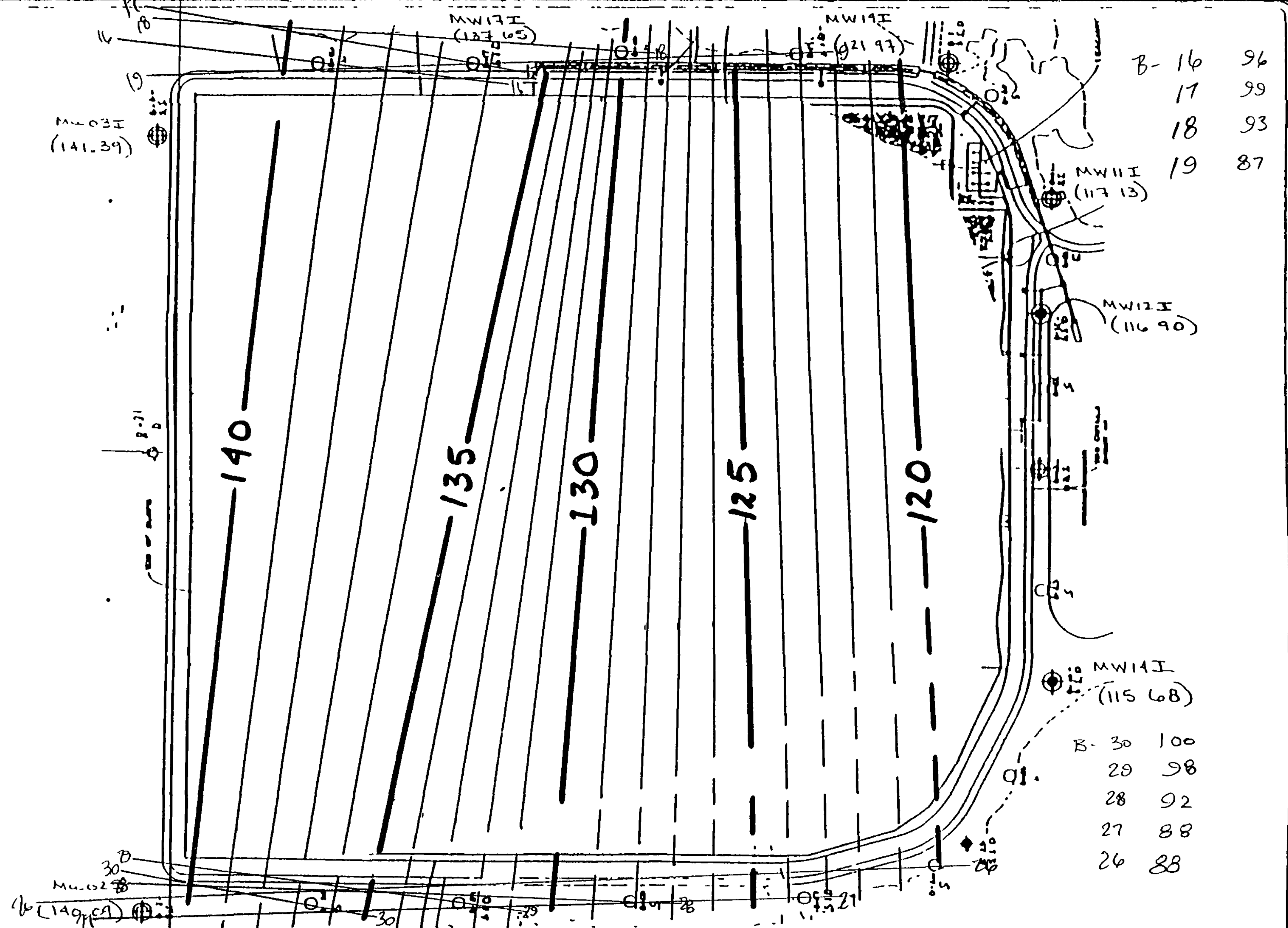
RUST ENVIRONMENT & INFRASTRUCTURE	PROJECT NO FDEP NO SC16=184444 DATE: 2-2-95	DRAWN BY: JLM CHECKED BY: JR REVISION:	Trail Ridge Landfill Deep Groundwater Contour Map

SAMPLING PERIOD
LQ95

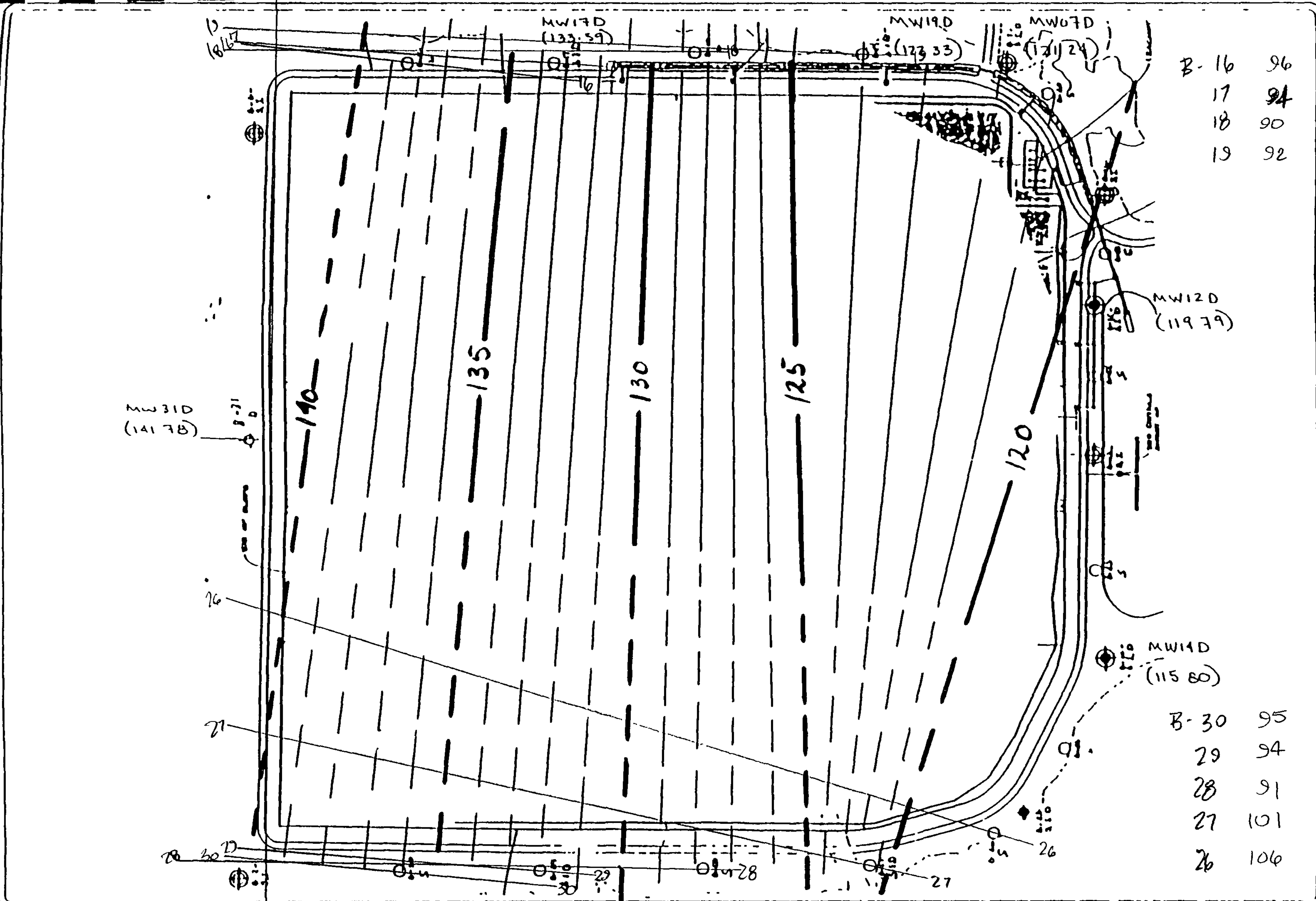


RUST ENVIRONMENT & INFRASTRUCTURE	PROJECT NO 34003 002 FDEP NO SC16=184444 DATE: 24 July 1995	DRAWN BY JLM CHECKED BY: JR REVISION:	Trail Ridge Landfill Shallow Groundwater Map

SAMPLING PERIOD 3Q95



RUST ENVIRONMENT & INFRASTRUCTURE	PROJECT NO 34003.002 FDEP NO SC16-184444 DATE: 24 July 1995	DRAWN BY JLM CHECKED BY: JR REVISION:	Trail Ridge Landfill Intermediate Groundwater Map	SAMPLING PERIOD 3Q95



RUST ENVIRONMENT & INFRASTRUCTURE	PROJECT NO 34003.002	DRAWN BY JLM	Trail Ridge Landfill
	FDEP NO SC16-184444	CHECKED BY: JR	Deep Groundwater Contour Map
	DATE: 24 July 1995	REVISION:	SAMPLING PERIOD 3Q95

Attachment B

Groundwater Analytical Data
(from EML Data Download)

ANALYTE	UNITS	3/9/92	5/11/92	8/13/92	11/4/92	2/11/93	4/29/93	7/29/93	10/27/93	2/2/94	5/4/94	8/3/94	11/2/94	2/3/95	7/25/95	1/10/96
1 1 1 2 TETRACHLOROETHANE	UG/L														< 1	< 1
1 1 1 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 2 TETRACHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 3 TRICHLOROPROPANE	UG/L														< 1	< 1
1 2 4-TRICHLOROBENZENE	UG/L	< 10														
1 2 DIBROMO 3 CHLOROPROPANE	UG/L													< 1	< 0 2	< 0 2
1 2 DIBROMOETHANE	UG/L													< 1	< 0 02	< 0 02
1 2 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROPROPANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DIPHENYLHYDRAZINE	UG/L	< 10														
1 3 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
1 4 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2 4 6 TRICHLOROPHENOL	UG/L	< 10														
2 4 DICHLOROPHENOL	UG/L	< 10														
2 4 DIMETHYLPHENOL	UG/L	< 10														
2 4 DINITROPHENOL	UG/L	< 10														
2 4 DINITROTOLUENE	UG/L	< 10														
2 6-DINITROTOLUENE	UG/L	< 10														
2 BUTANONE	UG/L													< 1		< 1
2 CHLOROETHYLVINYL ETHER	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
2 CHLORONAPHTHALENE	UG/L	< 10														
2 CHLOROPHENOL	UG/L	< 10														
2 HEXANONE	UG/L														< 1	< 1
2 NITROPHENOL	UG/L	< 10														
3 3 DICHLOROBENZIDINE	UG/L	< 10														
4 4 DDD	UG/L	< 0 1														
4 4 DDE	UG/L	< 0 1														
4 4 DDT	UG/L	< 0 1														
4 6 DINITRO-2 METHYLPHENOL	UG/L	< 10														
4 BROMOPHENYL PHENYL ETHER	UG/L	< 10														
4 CHLORO 3 METHYLPHENOL	UG/L	< 10														
4 CHLOROPHENYL PHENYL ETHER	UG/L	< 10														
4 METHYL 2 PENTANONE	UG/L														< 1	< 1
4 NITROPHENOL	UG/L	< 10														
ACENAPHTHENE	UG/L	< 10														
ACENAPHTHYLENE	UG/L	< 10														
ACETONE	UG/L														< 1	< 1
ACRYLONITRILE	UG/L													< 1	< 1	< 1
ACTUAL VOLUME PURGED	GALLONS												25			
ALDRIN	UG/L	< 0 1														
ALKALINITY BICARBONATE (AS CACO3)	MG/L		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 15	< 15	< 15			
ALPHA BHC	UG/L	< 0 1														
AMMONIUM	MG/L									< 0 05	< 0 05	< 0 05				
AMMONIUM NH4	MG/L		< 0 02	< 0 02	< 0 02	< 0 02	< 0 02	0 058	< 0 02							
ANTHRACENE	UG/L	< 10														
ANTIMONY DISSOLVED	UG/L										< 3	< 3	< 3	< 3	< 3	< 3
ANTIMONY TOTAL	UG/L	< 50	< 50										< 6			
AROCLOR 1016	UG/L	< 1														
AROCLOR 1221	UG/L	< 1														
AROCLOR 1232	UG/L	< 1														
AROCLOR 1242	UG/L	< 1														
AROCLOR 1248	UG/L	< 1														
AROCLOR 1254	UG/L	< 1														
AROCLOR 1260	UG/L	< 1														
ARSENIC DISSOLVED	UG/L										< 25	< 25	< 25	< 25	< 25	< 25
ARSENIC TOTAL	UG/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5				< 5			
BARIUM DISSOLVED	UG/L													< 100	< 100	< 100
BARIUM TOTAL	UG/L												< 200			
BENZ[A]ANTHRACENE	UG/L	< 10														
BENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BENZIDINE	UG/L	< 10														
BENZO[A]PYRENE	UG/L	< 10														
BENZO[B]FLUORANTHENE	UG/L	< 10														
BENZO[G H I]PERYLENE	UG/L	< 10														

ANALYTE	UNITS	3/9/92	5/11/92	8/13/92	11/4/92	2/11/93	4/29/93	7/29/93	10/27/93	2/2/94	5/4/94	8/3/94	11/2/94	2/3/95	7/25/95	1/10/96
BENZO[K]FLUORANTHENE	UG/L	< 10														
BERYLLIUM DISSOLVED	UG/L										< 4	< 4	< 4	< 4	< 4	< 4
BERYLLIUM-TOTAL	UG/L	< 5	< 5										< 4			
BETA BHC	UG/L	< 0 1														
BIS(2 CHLOROETHOXY)METHANE	UG/L	< 10														
BIS(2 CHLOROETHYL)ETHER	UG/L	< 10														
BIS(2 CHLOROISOPROPYL)ETHER	UG/L	< 10														
BIS(2 ETHYLHEXYL)PHTHALATE	UG/L	< 10														
BROMOCHLOROMETHANE	UG/L														< 1	< 1
BROMODICHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BUTYLBENZYLPHTHALATE	UG/L	< 10														
CADMIUM DISSOLVED	UG/L										< 5	< 5	< 3	< 3	< 3	< 3
CADMIUM TOTAL	UG/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5				< 5			
CARBON DISULFIDE	UG/L														< 1	< 1
CARBON TETRACHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLORDANE	UG/L	< 1														
CHLORIDE	MG/L													11 3	17 0	10 9
CHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHROMIUM DISSOLVED	UG/L										< 25	< 25	< 50	< 50	< 50	< 50
CHROMIUM-TOTAL	UG/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10				< 10			
CHRYSENE	UG/L	< 10														
CIS-1 2 DICHLOROETHENE	UG/L														< 1	< 1
CIS-1 3-DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
COBALT-TOTAL	UG/L													< 25	< 25	< 25
COLOR													NONE	< 5	150	< 5
COPPER DISSOLVED	UG/L													< 50	< 50	< 50
COPPER TOTAL	UG/L	< 25											< 10			
CYANIDE TOTAL	MG/L	< 0 02														
DELTA BHC	UG/L	< 0 05														
DEPTH TO WATER FROM TOP OF CASING	FT												5 84			
DI-N BUTYLPHTHALATE	UG/L	< 10														
DI N-OCTYLPHTHALATE	UG/L	< 10														
DIBENZ[A H]ANTHRACENE	UG/L	< 10														
DIBROMOCHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
DIBROMOMETHANE	UG/L														< 1	< 1
DICHLORODIFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
DIELDRIN	UG/L	< 0 1														
DIETHYLPHTHALATE	UG/L	< 10														
DIMETHYLPHTHALATE	UG/L	< 10														
ELAPSED HOURS	HRS												0 3			
ENDOSULFAN I	UG/L	< 0 05														
ENDOSULFAN II	UG/L	< 0 1														
ENDOSULFAN SULFATE	UG/L	< 0 5														
ENDRIN	UG/L	< 0 1														
ENDRIN ALDEHYDE	UG/L	< 0 1														
ETHYLBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
FLUORANTHENE	UG/L	< 10														
FLUORENE	UG/L	< 10														
GROUNDWATER ELEV	FT MSL		NA	140 79	139 77	140 3	139 21	141 9	139 23	140 84			139 89			
HEPTACHLOR	UG/L	< 0 05														
HEPTACHLOR EPOXIDE	UG/L	< 0 5														
HEXACHLOROBENZENE	UG/L	< 10														
HEXACHLOROBUTADIENE	UG/L	< 10														
HEXACHLOROCYCLOPENTADIENE	UG/L	< 40														
HEXACHLOROETHANE	UG/L	< 10														
INDENO[1 2 3-CD]PYRENE	UG/L	< 10														
IODOMETHANE	UG/L														< 1	< 1
IRON-TOTAL	UG/L		661	651	427	500	538	472	477		426	450	424	426	933	340
ISOPHORONE	UG/L	< 10														
LEAD-DISSOLVED	UG/L										< 5	< 5	< 5	< 5	< 5	9
LEAD-TOTAL	UG/L	13 2	< 5	< 5	< 5	< 5	< 5	< 5	< 5				< 5			
LINDANE (GAMMA BHC)	UG/L	< 0 1														
MERCURY DISSOLVED	UG/L												< 1	< 1	< 1	< 1

MWB02I

ANALYTE	UNITS	3/9/92	5/11/92	8/13/92	11/4/92	2/11/93	4/29/93	7/29/93	10/27/93	2/2/94	5/4/94	8/3/94	11/2/94	2/3/95	7/25/95	1/10/96
MERCURY-TOTAL	UG/L	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2							
METHYL TERT BUTYL ETHER	UG/L									< 10	< 10	< 10	< 10			
METHYLENE CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
N NITROSODI N PROPYLAMINE	UG/L	< 10														
N NITROSODIMETHYLAMINE	UG/L	< 10														
N NITROSODIPHENYLAMINE	UG/L	< 10														
NAPHTHALENE	UG/L	< 10														
NICKEL DISSOLVED	UG/L													< 10	< 50	< 50
NICKEL TOTAL	UG/L	< 40											< 40			
NITROBENZENE	UG/L	< 10														
NITROGEN AMMONIA	MG/L		< 0 02	< 0 02	< 0 02	< 0 02	< 0 02	0 058	< 0 02					< 0 1	0 449	0 471
NITROGEN NITRATE	MG/L		< 0 05	< 0 05	< 0 05	0 053	< 0 05	< 0 05	< 0 05					< 0 05	< 5	0 052
ODOR													SLIGHT			2
PENTACHLOROPHENOL	UG/L	< 10														
PH FIELD	PH UNITS	4 88	4 72	4 9	5 28	5 34	5 42	4 45	4 63	4 78	4 73	4 7	4 83	4 7	4 5	4 79
PHENANTHRENE	UG/L	< 10														
PHENOL	UG/L	< 10														
PLUS ANALYTES FOUND		N														
PURGE DATE (YY/MM/DD)	YY/MM/DD												94-11 02			
PURGING DEVICE													C			
PURGING EQUIPMENT DEDICATED													Y			
PURGING MATERIAL													A			
PYRENE	UG/L	< 10														
SAMPLING DEVICE													C			
SAMPLING EQUIPMENT DEDICATED													Y			
SAMPLING MATERIAL													A			
SELENIUM DISSOLVED	UG/L										< 5	< 25	< 25	< 25	< 25	< 25
SELENIUM TOTAL	UG/L	< 5	< 5										< 5			
SILVER DISSOLVED	UG/L													< 25	< 25	< 25
SILVER TOTAL	UG/L	< 10											< 25			
SODIUM DISSOLVED	UG/L										4850	4110	4170	4510	5550	4850
SODIUM TOTAL	UG/L		4210	4460	4290	4790	4680	4280	4670							
SPECIFIC CONDUCTANCE	MHOS/CM									46 3						
SPECIFIC CONDUCTANCE FIELD	MHOS/CM	39	24	40	42	46	43	38	34				NA	38	47	41
STYRENE	UG/L													< 1	< 1	< 1
TETRACHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
THALLIUM DISSOLVED	UG/L													< 1	< 1	< 1
THALLIUM TOTAL	UG/L	< 10											< 2			
TOLUENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TOTAL ORGANIC CARBON	MG/L		2 8	2 7	2 2	2 3	2 2	2 1	2 2	37	39	32	2			
TOXAPHENE	UG/L	< 1														
TRANS 1 2 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1 3-DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS 1 4 DICHLORO 2 BUTENE	UG/L														< 1	< 1
TRICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TUBING PURGING													G			
TUBING SAMPLING													G			
TURBIDITY	NTU		37	60	15	22	23	16	12	8	5 5	6 5	4 2	6 4	16	46
VANADIUM DISSOLVED	UG/L													< 25	< 25	< 25
VANADIUM TOTAL	UG/L												< 50			
VINYL ACETATE	UG/L													< 1	< 1	< 1
VINYL CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
WELL DEPTH TOTAL	FT		59 3	261 5	61 5	61 5	61 5	61 5	61 5				61 5			
XYLENE(TOTAL)	UG/L									< 5	< 5	< 5	< 5	< 1	< 1	< 1
ZINC-DISSOLVED	UG/L													< 50	< 50	< 50
ZINC-TOTAL	UG/L												< 20			

ANALYTE	UNITS	3/9/92	5/11/92	8/13/92	11/4/92	2/11/93	4/29/93	7/29/93	10/27/93	2/2/94	5/4/94	8/3/94	11/2/94	2/3/95	7/25/95	1/10/96
1 1 1 2 TETRACHLOROETHANE	UG/L														< 1	< 1
1 1 1 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 2 TETRACHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 3-TRICHLOROPROPANE	UG/L														< 1	< 1
1 2 4 TRICHLOROBENZENE	UG/L	< 10														
1 2 DIBROMO-3 CHLOROPROPANE	UG/L													< 1	< 0 2	< 0 2
1 2 DIBROMOETHANE	UG/L													< 1	< 0 02	< 0 02
1 2 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROPROPANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DIPHENYLHYDRAZINE	UG/L	< 10														
1 3-DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
1 4 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2 4 6-TRICHLOROPHENOL	UG/L	< 10														
2 4 DICHLOROPHENOL	UG/L	< 10														
2 4 DIMETHYLPHENOL	UG/L	< 10														
2 4 DINITROPHENOL	UG/L	< 10														
2 4 DINITROTOLUENE	UG/L	< 10														
2 6-DINITROTOLUENE	UG/L	< 10														
2 BUTANONE	UG/L													< 1		< 1
2-CHLOROETHYLVINYL ETHER	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
2-CHLORONAPHTHALENE	UG/L	< 10														
2 CHLOROPHENOL	UG/L	< 10														
2 HEXANONE	UG/L														< 1	< 1
2 NITROPHENOL	UG/L	< 10														
3 3 DICHLOROBENZIDINE	UG/L	< 10														
4 4 DDD	UG/L	< 0 1														
4 4 DDE	UG/L	< 0 1														
4 4 DDT	UG/L	< 0 1														
4 6-DINITRO-2 METHYLPHENOL	UG/L	< 10														
4 BROMOPHENYL-PHENYL ETHER	UG/L	< 10														
4 CHLORO-3 METHYLPHENOL	UG/L	< 10														
4-CHLOROPHENYL PHENYL ETHER	UG/L	< 10														
4-METHYL-2 PENTANONE	UG/L														< 1	< 1
4-NITROPHENOL	UG/L	< 10														
ACENAPHTHENE	UG/L	< 10														
ACENAPHTHYLENE	UG/L	< 10														
ACETONE	UG/L														< 1	< 1
ACRYLONITRILE	UG/L													< 1	< 1	< 1
ACTUAL VOLUME PURGED	GALLONS												16 1			
ALDRIN	UG/L	< 0 1														
ALKALINITY BICARBONATE (AS CACO3)	MG/L		< 10	< 10	< 10	< 10	< 10	< 10	< 10	21 2	< 15	< 15	17			
ALPHA BHC	UG/L	< 0 1														
AMMONIUM	MG/L									< 0 05	< 0 05	< 0 05				
AMMONIUM NH4	MG/L		< 0 02	< 0 02	< 0 02	0 052	< 0 02	< 0 02	< 0 02							
ANTHRACENE	UG/L	< 10														
ANTIMONY DISSOLVED	UG/L										< 3	< 3	< 3	< 3	< 3	< 3
ANTIMONY TOTAL	UG/L	< 50	< 50										< 6			
AROCLOR 1016	UG/L	< 1														
AROCLOR 1221	UG/L	< 1														
AROCLOR 1232	UG/L	< 1														
AROCLOR 1242	UG/L	< 1														
AROCLOR 1248	UG/L	< 1														
AROCLOR 1254	UG/L	< 1														
AROCLOR 1260	UG/L	< 1														
ARSENIC-DISSOLVED	UG/L										< 25	< 25	< 25	< 25	< 25	< 25
ARSENIC-TOTAL	UG/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5				< 5			
BARIUM DISSOLVED	UG/L													< 100	< 100	< 100
BARIUM TOTAL	UG/L												< 200			
BENZ[A]ANTHRACENE	UG/L	< 10														
BENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BENZIDINE	UG/L	< 10														
BENZO[A]PYRENE	UG/L	< 10														
BENZO[B]FLUORANTHENE	UG/L	< 10														
BENZO[G H I]PERYLENE	UG/L	< 10														

ANALYTE	UNITS	3/9/92	5/11/92	8/13/92	11/4/92	2/11/93	4/29/93	7/29/93	10/27/93	2/2/94	5/4/94	8/3/94	11/2/94	2/3/95	7/25/95	1/10/96
BENZO[K]FLUORANTHENE	UG/L	< 10														
BERYLLIUM DISSOLVED	UG/L										< 4	< 4	< 4	< 4	< 4	< 4
BERYLLIUM TOTAL	UG/L	< 5	< 5										< 4			
BETA-BHC	UG/L	< 0 1														
BIS(2 CHLOROETHOXY)METHANE	UG/L	< 10														
BIS(2 CHLOROETHYL)ETHER	UG/L	< 10														
BIS(2 CHLOROISOPROPYL)ETHER	UG/L	< 10														
BIS(2 ETHYLHEXYL)PHTHALATE	UG/L	< 10														
BROMOCHLOROMETHANE	UG/L														< 1	< 1
BROMODICHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BUTYLBENZYLPHTHALATE	UG/L	< 10														
CADMIUM DISSOLVED	UG/L										< 5	< 5	< 3	< 3	< 3	< 3
CADMIUM TOTAL	UG/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5				< 5			
CARBON DISULFIDE	UG/L														< 1	< 1
CARBON TETRACHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLORDANE	UG/L	< 1														
CHLORIDE	MG/L													7 74	17 0	7 5
CHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHROMIUM DISSOLVED	UG/L										< 25	< 25	< 50	< 50	< 50	< 50
CHROMIUM TOTAL	UG/L	15 1	< 10	< 10	< 10	< 10	< 10	< 10	< 10				< 10			
CHRYSENE	UG/L	< 10														
CIS-1 2 DICHLOROETHENE	UG/L														< 1	< 1
CIS 1 3-DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
COBALT TOTAL	UG/L													< 25	< 25	< 25
COLOR													LT BRN TN	30	150	< 5
COPPER DISSOLVED	UG/L													< 50	< 50	< 50
COPPER TOTAL	UG/L	< 25											12 3			
CYANIDE TOTAL	MG/L	< 0 02														
DELTA BHC	UG/L	< 0 05														
DEPTH TO WATER FROM TOP OF CASING	FT												4 39			
DI N-BUTYLPHTHALATE	UG/L	< 10														
DI N OCTYLPHTHALATE	UG/L	< 10														
DIBENZ[A H]ANTHRACENE	UG/L	< 10														
DIBROMOCHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
DIBROMOMETHANE	UG/L														< 1	< 1
DICHLORODIFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
DIELDRIN	UG/L	< 0 1														
DIETHYLPHTHALATE	UG/L	< 10														
DIMETHYLPHTHALATE	UG/L	< 10														
ELAPSED HOURS	HRS												0 2			
ENDOSULFAN I	UG/L	< 0 05														
ENDOSULFAN II	UG/L	< 0 1														
ENDOSULFAN SULFATE	UG/L	< 0 5														
ENDRIN	UG/L	< 0 1														
ENDRIN ALDEHYDE	UG/L	< 0 1														
ETHYLBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
FLUORANTHENE	UG/L	< 10														
FLUORENE	UG/L	< 10														
GROUNDWATER ELEV	FT/MSL		NA	143 01	141 69	142 62	141 24	140 44	141 04	149 92			142 25			
HEPTACHLOR	UG/L	< 0 05														
HEPTACHLOR EPOXIDE	UG/L	< 0 5														
HEXACHLOROBENZENE	UG/L	< 10														
HEXACHLOROBUTADIENE	UG/L	< 10														
HEXACHLOROCYCLOPENTADIENE	UG/L	< 40														
HEXACHLOROETHANE	UG/L	< 10														
INDENO[1 2 3-CD]PYRENE	UG/L	< 10														
IODOMETHANE	UG/L														< 1	< 1
IRON TOTAL	UG/L		2180	2010	1730	1450	1230	934	1260		1200	968	586	596	933	428
ISOPHORONE	UG/L	< 10														
LEAD-DISSOLVED	UG/L										< 5	7	< 5	< 5	< 5	< 5
LEAD-TOTAL	UG/L	5 3	5 2	< 5	< 5	< 5	< 5	< 5	< 5				< 5			
LINDANE (GAMMA BHC)	UG/L	< 0 1														
MERCURY-DISSOLVED	UG/L												< 1	< 1	< 1	< 1

ANALYTE	UNITS	3/9/92	5/11/92	8/13/92	11/4/92	2/11/93	4/29/93	7/29/93	10/27/93	2/2/94	5/4/94	8/3/94	11/2/94	2/3/95	7/25/95	1/10/96
MERCURY-TOTAL	UG/L	< 0 2	0 24	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2							
METHYL TERT-BUTYL ETHER	UG/L									< 10	< 10	< 10	< 10			
METHYLENE CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
N NITROSODI N PROPYLAMINE	UG/L	< 10														
N NITROSODIMETHYLAMINE	UG/L	< 10														
N-NITROSODIPHENYLAMINE	UG/L	< 10														
NAPHTHALENE	UG/L	< 10														
NICKEL-DISSOLVED	UG/L													< 10	< 50	< 50
NICKEL TOTAL	UG/L	< 40											< 40			
NITROBENZENE	UG/L	< 10														
NITROGEN AMMONIA	MG/L		< 0 02	< 0 02	< 0 02	0 052	< 0 02	< 0 02	< 0 02					< 0 1	0 449	0 407
NITROGEN NITRATE	MG/L		< 0 05	< 0 05	< 0 05	< 0 05	< 0 05	< 0 05	< 0 05					< 0 05	< 0 05	< 0 05
ODOR													NONE			2
PENTACHLOROPHENOL	UG/L	< 10														
PH FIELD	PH UNITS	4 63	4 78	4 83	5 16	5 78	4 45	4 13	4 63	5 08	4 57	4 6	4 64	4 52	4 5	4 54
PHENANTHRENE	UG/L	< 10														
PHENOL	UG/L	< 10														
PLUS ANALYTES FOUND		N														
PURGE DATE (YY/MM/DD)	Y/MM/DD												94-11-02			
PURGING DEVICE													G			
PURGING EQUIPMENT DEDICATED													G			
PURGING MATERIAL													G			
PYRENE	UG/L	< 10														
SAMPLING DEVICE													G			
SAMPLING EQUIPMENT DEDICATED													G			
SAMPLING MATERIAL													G			
SELENIUM DISSOLVED	UG/L										< 5	< 25	< 25	< 25	< 25	< 25
SELENIUM TOTAL	UG/L	< 5	< 5										< 5			
SILVER DISSOLVED	UG/L													< 25	< 25	< 25
SILVER TOTAL	UG/L	< 10											< 25			
SODIUM DISSOLVED	UG/L										4980	5380	4020	3750	5550	2680
SODIUM TOTAL	UG/L		7400	6540	5620	4560	3360	4830	5910							
SPECIFIC CONDUCTANCE	MHOS/CM									57 2						
SPECIFIC CONDUCTANCE FIELD	MHOS/C	43	25	58	52	48	48	45	34				NA	42	47 0	46
STYRENE	UG/L													< 1	< 1	< 1
TETRACHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
THALLIUM DISSOLVED	UG/L													< 1	< 1	< 1
THALLIUM TOTAL	UG/L	< 10											< 2			
TOLUENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TOTAL ORGANIC CARBON	MG/L		15 3	10 1	14 3	11 4	4 6	4 4	9 3	41	48	41	14			
TOXAPHENE	UG/L	< 1														
TRANS-1 2 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1 3 DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1 4 DICHLORO-2 BUTENE	UG/L														< 1	< 1
TRICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TUBING PURGING													G			
TUBING-SAMPLING													G			
TURBIDITY	NTU		370	39	20	33	13	7 1	60	48	20	19	8	9	16 0	3 7
VANADIUM DISSOLVED	UG/L													< 25	< 25	< 25
VANADIUM TOTAL	UG/L												< 50			
VINYL ACETATE	UG/L													< 1	< 1	< 1
VINYL CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
WELL DEPTH TOTAL	FT		17 4	20	20	20	20	20	20				20			
XYLENE(TOTAL)	UG/L									< 5	< 5	< 5	< 5	< 1	< 1	< 1
ZINC DISSOLVED	UG/L													< 50	< 50	< 50
ZINC-TOTAL	UG/L												< 20			

ANALYTE	UNITS	3/10/92	5/14/92	8/18/92	11/4/92	2/11/93	4/29/93	8/3/93	11/3/93	2/2/94	5/4/94	8/3/94	11/2/94	2/2/95	7/25/95	1/8/96
1 1 1 2 TETRACHLOROETHANE	UG/L														< 1	< 1
1 1 1 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 2 TETRACHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
1 1-DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
1 1-DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
1 2 3-TRICHLOROPROPANE	UG/L														< 1	< 1
1 2 4 TRICHLOROBENZENE	UG/L	< 10														
1 2 DIBROMO-3-CHLOROPROPANE	UG/L													< 1	< 0 2	< 0 2
1 2 DIBROMOETHANE	UG/L													< 1	< 0 02	< 0 02
1 2 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROPROPANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
1 2 DIPHENYLHYDRAZINE	UG/L	< 10														
1 3-DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1			
1 4 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
2 4 6-TRICHLOROPHENOL	UG/L	< 10														
2 4-DICHLOROPHENOL	UG/L	< 10														
2 4-DIMETHYLPHENOL	UG/L	< 10														
2 4-DINITROPHENOL	UG/L	< 10														
2 4 DINITROTOLUENE	UG/L	< 10														
2 6-DINITROTOLUENE	UG/L	< 10														
2 BUTANONE	UG/L													< 1		< 1
2 CHLOROETHYLVINYL ETHER	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1			
2 CHLORONAPHTHALENE	UG/L	< 10														
2 CHLOROPHENOL	UG/L	< 10														
2 HEXANONE	UG/L														< 1	< 1
2 NITROPHENOL	UG/L	< 10														
3 3 DICHLOROBENZIDINE	UG/L	< 10														
4 4 DDD	UG/L	< 0 1														
4 4 DDE	UG/L	< 0 1														
4 4 DDT	UG/L	< 0 1														
4 6-DINITRO 2 METHYLPHENOL	UG/L	< 10														
4 BROMOPHENYL PHENYL ETHER	UG/L	< 10														
4-CHLORO-3-METHYLPHENOL	UG/L	< 10														
4-CHLOROPHENYL PHENYL ETHER	UG/L	< 10														
4 METHYL 2 PENTANONE	UG/L														< 1	< 1
4 NITROPHENOL	UG/L	< 10														
ACENAPHTHENE	UG/L	< 10														
ACENAPHTHYLENE	UG/L	< 10														
ACETONE	UG/L														< 1	< 1
ACRYLONITRILE	UG/L													< 1	< 1	< 1
ACTUAL VOLUME PURGED	GALLONS												23			
ALDRIN	UG/L	< 0 1														
ALKALINITY BICARBONATE (AS CAC	MG/L		< 10	16	< 10	< 10	< 10	< 10	< 10	12 7	16	< 15	17			
ALPHA BHC	UG/L	< 0 1														
AMMONIUM	MG/L									< 0 05	< 0 05	< 0 05				
AMMONIUM NH4	MG/L		< 0 02	< 0 02	< 0 02	< 0 02	< 0 02	< 0 02	< 0 02							
ANTHRACENE	UG/L	< 10														
ANTIMONY-DISSOLVED	UG/L		< 100								< 3	< 3	< 3	< 3	< 3	< 3
ANTIMONY-TOTAL	UG/L	< 50	< 50										< 6			
AROCLOR 1016	UG/L	< 1														
AROCLOR 1221	UG/L	< 1														
AROCLOR 1232	UG/L	< 1														
AROCLOR 1242	UG/L	< 1														
AROCLOR 1248	UG/L	< 1														
AROCLOR 1254	UG/L	< 1														
AROCLOR 1260	UG/L	< 1														
ARSENIC DISSOLVED	UG/L										< 25	< 25	< 25	< 25	< 25	< 25
ARSENIC TOTAL	UG/L	8 1	< 5	< 5	< 5	< 5	< 5	< 5	< 5				< 5			
BARIUM DISSOLVED	UG/L													< 100	< 100	< 100
BARIUM TOTAL	UG/L												< 200			
BENZ[A]ANTHRACENE	UG/L	< 10														
BENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
BENZIDINE	UG/L	< 10														
BENZO[A]PYRENE	UG/L	< 10														

ANALYTE	UNITS	3/10/92	5/14/92	8/18/92	11/4/92	2/11/93	4/29/93	8/3/93	11/3/93	2/2/94	5/4/94	8/3/94	11/2/94	2/2/95	7/25/95	1/8/96
BENZO[B]FLUORANTHENE	UG/L	< 10														
BENZO[G H I]PERYLENE	UG/L	< 10														
BENZO[K]FLUORANTHENE	UG/L	< 10														
BERYLLIUM DISSOLVED	UG/L		< 5								< 4	< 4	< 4	< 4	< 4	< 4
BERYLLIUM TOTAL	UG/L	< 5	< 5										< 4			
BETA BHC	UG/L	< 0 1														
BIS(2 CHLOROETHOXY)METHANE	UG/L	< 10														
BIS(2 CHLOROETHYL)ETHER	UG/L	< 10														
BIS(2 CHLOROISOPROPYL)ETHER	UG/L	< 10														
BIS(2 ETHYLHEXYL)PHTHALATE	UG/L	< 10														
BROMOCHLOROMETHANE	UG/L														< 1	< 1
BROMODICHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
BUTYLBENZYLPHTHALATE	UG/L	< 10														
CADMIUM DISSOLVED	UG/L										< 5	< 5	< 3	< 3	< 3	< 3
CADMIUM TOTAL	UG/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5				< 5			
CARBON DISULFIDE	UG/L														< 1	< 1
CARBON TETRACHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
CHLORDANE	UG/L	< 1														
CHLORIDE	MG/L													5 26	3 58	5 61
CHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
CHROMIUM DISSOLVED	UG/L		< 10								< 25	< 25	< 50	< 50	< 50	< 50
CHROMIUM TOTAL	UG/L	41 4	< 10	< 10	< 10	< 10	< 10	< 10	< 10				< 10			
CHRYSENE	UG/L	< 10														
CIS-1 2 DICHLOROETHENE	UG/L														< 1	< 1
CIS-1 3-DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
COBALT TOTAL	UG/L													< 25	< 25	< 25
COLOR													NONE	< 5	< 5	< 5
COPPER DISSOLVED	UG/L													< 50	< 50	< 50
COPPER TOTAL	UG/L	< 25											< 10			
CYANIDE TOTAL	MG/L	< 0 02														
DELTA BHC	UG/L	< 0 05														
DEPTH TO WATER FROM TOP OF CA	FT												10 6			
DI N BUTYLPHTHALATE	UG/L	< 10														
DI N OCTYLPHTHALATE	UG/L	< 10														
DIBENZ[A H]ANTHRACENE	UG/L	< 10														
DIBROMOCHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1		< 1	< 1
DIBROMOMETHANE	UG/L														< 1	< 1
DICHLORODIFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1			
DIELDRIN	UG/L	< 0 1														
DIETHYLPHTHALATE	UG/L	< 10														
DIMETHYLPHTHALATE	UG/L	< 10														
ELAPSED HOURS	HRS												0 3			
ENDOSULFAN I	UG/L	< 0 05														
ENDOSULFAN II	UG/L	< 0 1														
ENDOSULFAN SULFATE	UG/L	< 0 5														
ENDRIN	UG/L	< 0 1														
ENDRIN ALDEHYDE	UG/L	< 0 1														
ETHYLBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
FLUORANTHENE	UG/L	< 10														
FLUORENE	UG/L	< 10														
GROUNDWATER ELEV	FT MSL		NA	142 24	141 1	141 25	144 22	140 18	141 46	141 86			141 26			
HEPTACHLOR	UG/L	< 0 05														
HEPTACHLOR EPOXIDE	UG/L	< 0 5														
HEXACHLOROBENZENE	UG/L	< 10														
HEXACHLOROBUTADIENE	UG/L	< 10														
HEXACHLOROCYCLOPENTADIENE	UG/L	< 40														
HEXACHLOROETHANE	UG/L	< 10														
INDENO[1 2 3 CD]PYRENE	UG/L	< 10														
IODOMETHANE	UG/L														< 1	< 1
IRON TOTAL	UG/L		1050	964	900	991	1010	902	858		803	740	746	777	613	636
ISOPHORONE	UG/L	< 10														

ANALYTE	UNITS	3/10/92	5/14/92	8/18/92	11/4/92	2/11/93	4/29/93	8/3/93	11/3/93	2/2/94	5/4/94	8/3/94	11/2/94	2/2/95	7/25/95	1/8/96
LEAD-DISSOLVED	UG/L		< 5								< 5	6	< 5	< 5	< 0 005	8
LEAD-TOTAL	UG/L	107	< 5	< 5	< 5	< 5	< 5	< 5	< 5				< 5			
LINDANE (GAMMA BHC)	UG/L	< 0 1														
MERCURY DISSOLVED	UG/L		< 0 2										< 1	< 1	< 1	< 1
MERCURY TOTAL	UG/L	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2							
METHYL TERT BUTYL ETHER	UG/L										< 10	< 10	< 10			
METHYLENE CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1		< 1	< 1
N NITROSODI N-PROPYLAMINE	UG/L	< 10														
N NITROSODIMETHYLAMINE	UG/L	< 10														
N NITROSODIPHENYLAMINE	UG/L	< 10														
NAPHTHALENE	UG/L	< 10														
NICKEL DISSOLVED	UG/L													< 10	< 50	< 50
NICKEL TOTAL	UG/L	< 40											< 40			
NITROBENZENE	UG/L	< 10														
NITROGEN AMMONIA	MG/L		< 0 02	< 0 02	< 0 02	< 0 02	< 0 02	< 0 02	< 0 02					< 0 1	< 0 05	< 0 05
NITROGEN NITRATE	MG/L		< 0 05	0 1	< 0 05	< 0 05	< 0 05	0 058	< 0 05					< 0 05	< 0 05	0 091
ODOR													NONE			< 1
PENTACHLOROPHENOL	UG/L	< 10														
PH FIELD	PH UNITS	5 77	5 54	4 97	5 36	4 93	5 74	4 95	5 07	4 72	5 11	4 54	5 07	5 05	4 93	4 82
PHENANTHRENE	UG/L	< 10														
PHENOL	UG/L	< 10														
PLUS ANALYTES FOUND		N														
PURGE DATE (YY/MM/DD)	Y/MM/DD												94-11-02			
PURGING DEVICE													C			
PURGING EQUIPMENT DEDICATED													Y			
PURGING MATERIAL													A			
PYRENE	UG/L	< 10														
SAMPLING DEVICE													C			
SAMPLING EQUIPMENT DEDICATED													Y			
SAMPLING MATERIAL													A			
SELENIUM DISSOLVED	UG/L		< 5								< 5	< 25	< 25	< 25	< 25	< 25
SELENIUM TOTAL	UG/L	69 4	< 5				< 5						< 5			
SILVER-DISSOLVED	UG/L													< 25	< 25	< 25
SILVER TOTAL	UG/L	< 10											< 25			
SODIUM DISSOLVED	UG/L										2880	2500	2500	2760	2990	2890
SODIUM TOTAL	UG/L		4380	3470	3200	3380	3120	3060	2820							
SPECIFIC CONDUCTANCE	MHOS/CM									34 2						
SPECIFIC CONDUCTANCE FIELD	MHOS/C	35	36	35	37	37	34	26	35				NA	26	38 0	36
STYRENE	UG/L													< 1	< 1	< 1
TETRACHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
THALLIUM DISSOLVED	UG/L													< 1	< 1	< 1
THALLIUM TOTAL	UG/L	< 10											< 2			
TOLUENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
TOTAL ORGANIC CARBON	MG/L		1 3	1 5	1	1	1	1 1	1 1	35	37	31	2			
TOXAPHENE	UG/L	< 1														
TRANS-1 2 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1 3-DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1 4 DICHLORO-2 BUTENE	UG/L														< 1	< 1
TRICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	3	< 1		< 1	< 1	< 1	< 1	< 1	< 1
TUBING PURGING													G			
TUBING SAMPLING													G			
TURBIDITY	NTU		12	45	6 5	21	27	3 6	5 1	3 5	1	2 2	6	0 9	0 53	0 74
VANADIUM DISSOLVED	UG/L													< 25	< 25	< 25
VANADIUM TOTAL	UG/L												< 50			
VINYL ACETATE	UG/L													< 1	< 1	< 1
VINYL CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
WELL DEPTH TOTAL	FT		61 86	62	62	62	62	62	62				62			
XYLENE(TOTAL)	UG/L										< 5	< 5	< 5	< 1	< 1	< 1
ZINC DISSOLVED	UG/L													< 50	< 50	< 50
ZINC-TOTAL	UG/L												< 20			

ANALYTE	UNITS	3/16/92	5/14/92	8/18/92	11/4/92	2/11/93	4/29/93	7/30/93	11/3/93	2/2/94	5/4/94	8/3/94	11/2/94	2/2/95	7/25/95	1/8/96
1 1 1 2 TETRACHLOROETHANE	UG/L														< 1	< 1
1 1 1 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 2 TETRACHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 3 TRICHLOROPROPANE	UG/L														< 1	< 1
1 2 4 TRICHLOROBENZENE	UG/L	< 10														
1 2 DIBROMO-3 CHLOROPROPANE	UG/L													< 1	< 0 2	< 0 2
1 2 DIBROMOETHANE	UG/L													< 1	< 0 02	< 0 02
1 2 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROPROPANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DIPHENYLHYDRAZINE	UG/L	< 10														
1 3 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
1 4 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2 4 6 TRICHLOROPHENOL	UG/L	< 10														
2 4 DICHLOROPHENOL	UG/L	< 10														
2 4 DIMETHYLPHENOL	UG/L	< 10														
2 4 DINITROPHENOL	UG/L	< 10														
2 4 DINITROTOLUENE	UG/L	< 10														
2 6-DINITROTOLUENE	UG/L	< 10														
2 BUTANONE	UG/L													< 1		< 1
2 CHLOROETHYLVINYL ETHER	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
2 CHLORONAPHTHALENE	UG/L	< 10														
2 CHLOROPHENOL	UG/L	< 10														
2 HEXANONE	UG/L														< 1	< 1
2 NITROPHENOL	UG/L	< 10														
3 3 DICHLOROBENZIDINE	UG/L	< 10														
4 4 DDD	UG/L	< 0 1														
4 4 DDE	UG/L	< 0 1														
4 4 DDT	UG/L	< 0 1														
4 6 DINITRO-2 METHYLPHENOL	UG/L	< 10														
4 BROMOPHENYL PHENYL ETHER	UG/L	< 10														
4 CHLORO-3-METHYLPHENOL	UG/L	< 10														
4 CHLOROPHENYL PHENYL ETHER	UG/L	< 10														
4 METHYL 2 PENTANONE	UG/L														< 1	< 1
4 NITROPHENOL	UG/L	< 10														
ACENAPHTHENE	UG/L	< 10														
ACENAPHTHYLENE	UG/L	< 10														
ACETONE	UG/L														< 1	< 1
ACRYLONITRILE	UG/L													< 1	< 1	< 1
ACTUAL VOLUME PURGED	GALLONS												14			
ALDRIN	UG/L	< 0 1														
ALKALINITY BICARBONATE (AS CACO3)	MG/L		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 1	18 3	< 15	19			
ALPHA BHC	UG/L	< 0 1														
AMMONIUM	MG/L									< 0 05	< 0 05	< 0 05				
AMMONIUM NH4	MG/L		0 02	< 0 02	< 0 02	< 0 02	0 022	< 0 02	< 0 02							
ANTHRACENE	UG/L	< 10														
ANTIMONY DISSOLVED	UG/L										< 3	< 3	< 3	< 3	< 3	< 3
ANTIMONY TOTAL	UG/L	< 50	< 250										< 6			
AROCLOR 1016	UG/L	< 1														
AROCLOR 1221	UG/L	< 1														
AROCLOR 1232	UG/L	< 1														
AROCLOR 1242	UG/L	< 1														
AROCLOR 1248	UG/L	< 1														
AROCLOR 1254	UG/L	< 1														
AROCLOR 1260	UG/L	< 1														
ARSENIC DISSOLVED	UG/L										< 25	< 25	< 25	< 25	< 25	< 25
ARSENIC TOTAL	UG/L	< 5	5 4	< 5	< 5	< 5	< 5	< 5	< 5				< 5			
BARIUM DISSOLVED	UG/L													< 100	< 100	< 100
BARIUM TOTAL	UG/L												< 200			
BENZ[A]ANTHRACENE	UG/L	< 10														
BENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BENZIDINE	UG/L	< 10														
BENZO[A]PYRENE	UG/L	< 10														
BENZO[B]FLUORANTHENE	UG/L	< 10														

ANALYTE	UNITS	3/16/92	5/14/92	8/18/92	11/4/92	2/11/93	4/29/93	7/30/93	11/3/93	2/2/94	5/4/94	8/3/94	11/2/94	2/2/95	7/25/95	1/8/96
BENZO[G H I]PERYLENE	UG/L	< 10														
BENZO[K]FLUORANTHENE	UG/L	< 10														
BERYLLIUM DISSOLVED	UG/L										< 4	< 4	< 4	< 4	< 4	< 4
BERYLLIUM TOTAL	UG/L	< 5	< 25										< 4			
BETA BHC	UG/L	< 0 1														
BIS(2 CHLOROETHOXY)METHANE	UG/L	< 10														
BIS(2 CHLOROETHYL)ETHER	UG/L	< 10														
BIS(2 CHLOROISOPROPYL)ETHER	UG/L	< 10														
BIS(2 ETHYLHEXYL)PHTHALATE	UG/L	< 10														
BROMOCHLOROMETHANE	UG/L														< 1	< 1
BROMODICHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BUTYLBENZYLPHTHALATE	UG/L	< 10														
CADMIUM DISSOLVED	UG/L										< 5	< 5	< 3	< 3	< 3	< 3
CADMIUM TOTAL	UG/L	< 5	< 25	< 5	< 5	< 5	< 5	< 5	< 5				< 5			
CARBON DISULFIDE	UG/L														< 1	< 1
CARBON TETRACHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLORDANE	UG/L	< 1														
CHLORIDE	MG/L													6 22	8 35	11
CHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHROMIUM DISSOLVED	UG/L										< 25	< 25	< 50	< 50	< 50	< 50
CHROMIUM TOTAL	UG/L	10 1	94 3	< 10	< 10	< 10	< 10	< 10	< 10				< 10			
CHRYSENE	UG/L	< 10														
CIS 1 2 DICHLOROETHENE	UG/L														< 1	< 1
CIS-1 3-DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
COBALT TOTAL	UG/L													< 25	< 25	< 25
COLOR													NONE	< 5	< 5	< 5
COPPER DISSOLVED	UG/L													< 50	< 50	< 50
COPPER TOTAL	UG/L	< 25											< 10			
CYANIDE TOTAL	MG/L	< 0 02														
DELTA BHC	UG/L	< 0 05														
DEPTH TO WATER FROM TOP OF CASING	FT												6 97			
DI N BUTYLPHTHALATE	UG/L	< 10														
DI N OCTYLPHTHALATE	UG/L	< 10														
DIBENZ[A H]ANTHRACENE	UG/L	< 10														
DIBROMOCHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
DIBROMOMETHANE	UG/L														< 1	< 1
DICHLORODIFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
DIELDRIN	UG/L	< 0 1														
DIETHYLPHTHALATE	UG/L	< 10														
DIMETHYLPHTHALATE	UG/L	< 10														
ELAPSED HOURS	HRS												0 2			
ENDOSULFAN I	UG/L	< 0 05														
ENDOSULFAN II	UG/L	< 0 1														
ENDOSULFAN SULFATE	UG/L	< 0 5														
ENDRIN	UG/L	< 0 1														
ENDRIN ALDEHYDE	UG/L	< 0 1														
ETHYLBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
FLUORANTHENE	UG/L	< 10														
FLUORENE	UG/L	< 10														
GROUNDWATER ELEV	FT MSL		NA	148 24	147 68	146 55	145 98	145 5	147 48	147 87			146 51			
HEPTACHLOR	UG/L	< 0 05														
HEPTACHLOR EPOXIDE	UG/L	< 0 5														
HEXACHLOROBENZENE	UG/L	< 10														
HEXACHLOROBUTADIENE	UG/L	< 10														
HEXACHLOROCYCLOPENTADIENE	UG/L	< 40														
HEXACHLOROETHANE	UG/L	< 10														
INDENO[1 2 3-CD]PYRENE	UG/L	< 10														
IODOMETHANE	UG/L														< 1	< 1
IRON TOTAL	UG/L		8290	774	946	803	1040	766	721		696	693	430	597	354	507
ISOPHORONE	UG/L	< 10														
LEAD-DISSOLVED	UG/L										< 5	< 5	< 5	< 5	< 5	8
LEAD-TOTAL	UG/L	18 5	86	< 5	< 5	< 5	8 2	< 5	< 5				< 5			

ANALYTE	UNITS	3/16/92	6/14/92	8/18/92	11/4/92	2/11/93	4/29/93	7/30/93	11/3/93	2/2/94	5/4/94	8/3/94	11/2/94	2/2/95	7/25/95	1/8/96
LINDANE (GAMMA BHC)	UG/L	< 0 1														
MERCURY DISSOLVED	UG/L												< 1	< 1	< 1	< 1
MERCURY-TOTAL	UG/L	< 0 2	1 7	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2							
METHYL TERT BUTYL ETHER	UG/L									< 10	< 10	< 10	< 10			
METHYLENE CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
N NITROSODI N PROPYLAMINE	UG/L	< 10														
N NITROSODIMETHYLAMINE	UG/L	< 10														
N NITROSODIPHENYLAMINE	UG/L	< 10														
NAPHTHALENE	UG/L	< 10														
NICKEL DISSOLVED	UG/L													< 10	< 50	< 50
NICKEL TOTAL	UG/L	< 40											< 40			
NITROBENZENE	UG/L	< 10														
NITROGEN AMMONIA	MG/L		0 02	< 0 02	< 0 02	< 0 02	0 022	< 0 02	< 0 02					< 0 1	< 0 05	< 0 05
NITROGEN NITRATE	MG/L		< 0 05	0 075	< 0 05	< 0 05	< 0 05	< 0 05	< 0 05					< 0 05	< 0 05	< 0 05
ODOR													NONE			< 1
PENTACHLOROPHENOL	UG/L	< 10														
PH FIELD	PH UNITS	5 36	5 38	4 43	4 83	4 51	5 49	4 78	4 98	5	4 88	4 69	4 76	4 77	4 63	4 1
PHENANTHRENE	UG/L	< 10														
PHENOL	UG/L	< 10														
PLUS ANALYTES FOUND		Y														
PURGE DATE (YY/MM/DD)	Y/MM/DD												94 11-02			
PURGING DEVICE													C			
PURGING EQUIPMENT DEDICATED													Y			
PURGING MATERIAL													A			
PYRENE	UG/L	< 10														
SAMPLING DEVICE													C			
SAMPLING EQUIPMENT DEDICATED													Y			
SAMPLING MATERIAL													A			
SELENIUM DISSOLVED	UG/L										< 5	< 25	< 25	< 25	< 25	< 25
SELENIUM TOTAL	UG/L	< 5	8 5										< 5			
SILVER DISSOLVED	UG/L													< 25	< 25	< 25
SILVER TOTAL	UG/L	< 10											< 25			
SODIUM DISSOLVED	UG/L										3320	2840	2730	2590	4150	4140
SODIUM TOTAL	UG/L		< 2500	2110	2060	2640	2180	3250	3120							
SPECIFIC CONDUCTANCE	MHOS/CM									40 7						
SPECIFIC CONDUCTANCE FIELD	MHOS/C	38	32	39	42	40	32	34	45				NA	31	51	60
STYRENE	UG/L													< 1	< 1	< 1
TETRACHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
THALLIUM DISSOLVED	UG/L													< 1	< 1	< 1
THALLIUM TOTAL	UG/L	< 10											< 2			
TOLUENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TOTAL ORGANIC CARBON	MG/L		14 1	1	1	< 1	< 1	< 1	< 1	25	30	17	2			
TOXAPHENE	UG/L	< 1														
TRANS-1 2 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS 1 3 DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS 1 4 DICHLORO 2 BUTENE	UG/L														< 1	< 1
TRICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TUBING PURGING													G			
TUBING SAMPLING													G			
TURBIDITY	NTU		3800	31	50	20	50	1 6	14	48	1 3	2 2	2 1	3 6	1 1	4 6
VANADIUM DISSOLVED	UG/L													< 25	< 25	< 25
VANADIUM TOTAL	UG/L												< 50			
VINYL ACETATE	UG/L													< 1	< 1	< 1
VINYL CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
WELL DEPTH TOTAL	FT		20 8	20	20	20 1	20 1	20 1	20 1				20			
XYLENE(TOTAL)	UG/L									< 5	< 5	< 5	< 5	< 1	< 1	< 1
ZINC DISSOLVED	UG/L													< 50	< 50	< 50
ZINC-TOTAL	UG/L												< 20			

ANALYTE	UNITS	3/10/92	5/11/92	8/13/92	11/3/92	2/10/93	4/28/93	8/2/93	11/2/93	1/31/94	5/3/94	8/4/94	11/1/94	2/6/95	7/27/95	1/10/96
1 1 1 2 TETRACHLOROETHANE	UG/L														< 1	< 1
1 1 1 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 2 TETRACHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 3-TRICHLOROPROPANE	UG/L														< 1	< 1
1 2 4-TRICHLOROBENZENE	UG/L	< 10														
1 2 DIBROMO-3-CHLOROPROPANE	UG/L													< 1	< 0 2	< 0 2
1 2 DIBROMOETHANE	UG/L													< 1	< 0 02	< 0 02
1 2 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROPROPANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DIPHENYLHYDRAZINE	UG/L	< 10														
1 3 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
1 4 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2 4 6-TRICHLOROPHENOL	UG/L	< 10														
2 4 DICHLOROPHENOL	UG/L	< 10														
2 4 DIMETHYLPHENOL	UG/L	< 10														
2 4 DINITROPHENOL	UG/L	< 10														
2 4 DINITROTOLUENE	UG/L	< 10														
2 6-DINITROTOLUENE	UG/L	< 10														
2 BUTANONE	UG/L													< 1		< 1
2 CHLOROETHYLVINYL ETHER	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
2 CHLORONAPHTHALENE	UG/L	< 10														
2 CHLOROPHENOL	UG/L	< 10														
2 HEXANONE	UG/L														< 1	< 1
2 NITROPHENOL	UG/L	< 10														
3 3 DICHLOROBENZIDINE	UG/L	< 10														
4 4 DDD	UG/L	< 0 1														
4 4 DDE	UG/L	< 0 1														
4 4 DDT	UG/L	< 0 1														
4 6 DINITRO-2 METHYLPHENOL	UG/L	< 10														
4-BROMOPHENYL PHENYL ETHER	UG/L	< 10														
4 CHLORO-3-METHYLPHENOL	UG/L	< 10														
4 CHLOROPHENYL PHENYL ETHER	UG/L	< 10														
4 METHYL-2 PENTANONE	UG/L														< 1	< 1
4 NITROPHENOL	UG/L	< 10														
ACENAPHTHENE	UG/L	< 10														
ACENAPHTHYLENE	UG/L	< 10														
ACETONE	UG/L														< 1	< 1
ACRYLONITRILE	UG/L													< 1	< 1	< 1
ACTUAL VOLUME PURGED	UG/L												15			
ALDRIN	UG/L	< 0 1														
ALKALINITY BICARBONATE (AS CACO3)	UG/L		166	162	164	156	197	168	168	161	163	155	159			
ALPHA BHC	UG/L	< 0 1														
AMMONIUM	MG/L									< 0 05	< 0 05	< 0 05				
AMMONIUM NH4	UG/L		0 096	0 087	0 12	0 054	0 082	0 11	0 1							
ANTHRACENE	UG/L	< 10														
ANTIMONY DISSOLVED	UG/L										< 3	< 3	< 3	< 3	< 3	< 3
ANTIMONY-TOTAL	UG/L	< 50	< 50										< 6			
AROCLOR 1016	UG/L	< 1														
AROCLOR 1221	UG/L	< 1														
AROCLOR 1232	UG/L	< 1														
AROCLOR 1242	UG/L	< 1														
AROCLOR 1248	UG/L	< 1														
AROCLOR 1254	UG/L	< 1														
AROCLOR 1260	UG/L	< 1														
ARSENIC DISSOLVED	UG/L									< 25	< 25	< 25	< 25	< 25	< 25	< 25
ARSENIC TOTAL	UG/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5				< 5			
BARIUM DISSOLVED	UG/L													< 100	< 100	< 100
BARIUM TOTAL	UG/L												< 200			
BENZ[A]ANTHRACENE	UG/L	< 10														
BENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BENZIDINE	UG/L	< 10														
BENZO[A]PYRENE	UG/L	< 10														
BENZO[B]FLUORANTHENE	UG/L	< 10														
BENZO[G H I]PERYLENE	UG/L	< 10														

ANALYTE	UNITS	3/10/92	5/11/92	8/13/92	11/3/92	2/10/93	4/28/93	8/2/93	11/2/93	1/31/94	5/3/94	8/4/94	11/1/94	2/6/95	7/27/95	1/10/96
BENZO[K]FLUORANTHENE	UG/L	< 10														
BERYLLIUM DISSOLVED	UG/L									< 25	< 4	< 4	< 4	< 4	< 4	< 4
BERYLLIUM TOTAL	MG/L	< 5	< 5										< 4			
BETA BHC	UG/L	< 0 1														
BIS(2 CHLOROETHOXY)METHANE	UG/L	< 10														
BIS(2 CHLOROETHYL)ETHER	UG/L	< 10														
BIS(2 CHLOROISOPROPYL)ETHER	UG/L	< 10														
BIS(2 ETHYLHEXYL)PHTHALATE	UG/L	< 10														
BROMOCHLOROMETHANE	UG/L														< 1	< 1
BROMODICHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	MG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BUTYLBENZYLPHTHALATE	UG/L	< 10														
CADMIUM DISSOLVED	UG/L									< 5	< 5	< 5	< 3	< 3	< 3	< 3
CADMIUM TOTAL	UG/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5				< 5			
CARBON DISULFIDE	UG/L														< 1	< 1
CARBON TETRACHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLORDANE	UG/L	< 1														
CHLORIDE	UG/L													5 29	16 7	5 92
CHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHROMIUM DISSOLVED	UG/L									< 25	< 25	< 25	< 50	< 50	< 50	< 50
CHROMIUM TOTAL	UG/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10				< 10			
CHRYSENE	UG/L	< 10														
CIS-1 2 DICHLOROETHENE	UG/L														< 1	< 1
CIS-1 3-DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
COBALT TOTAL	UG/L													< 25	< 25	< 25
COLOR	MG/L												NONE	< 5	< 5	< 5
COPPER DISSOLVED	UG/L													< 50	< 50	< 50
COPPER TOTAL	UG/L	< 25											< 10			
CYANIDE TOTAL	UG/L	< 0 02														
DELTA BHC	UG/L	< 0 05														
DEPTH TO WATER FROM TOP OF CASING	UG/L												0			
DI N-BUTYLPHTHALATE	UG/L	< 10														
DI N OCTYLPHTHALATE	UG/L	< 10														
DIBENZ[A H]ANTHRACENE	UG/L	< 10														
DIBROMOCHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
DIBROMOMETHANE	UG/L														< 1	< 1
DICHLORODIFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
DIELDRIN	UG/L	< 0 1														
DIETHYLPHTHALATE	UG/L	< 10														
DIMETHYLPHTHALATE	UG/L	< 10														
ELAPSED HOURS	UG/L												0 3			
ENDOSULFAN I	UG/L	< 0 05														
ENDOSULFAN II	UG/L	< 0 1														
ENDOSULFAN SULFATE	UG/L	< 0 5														
ENDRIN	UG/L	< 0 1														
ENDRIN ALDEHYDE	UG/L	< 0 1														
ETHYLBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
FLUORANTHENE	UG/L	< 10														
FLUORENE	UG/L	< 10														
GROUNDWATER ELEV	UG/L		NA	NA	121 33	121 23	120 79	121 21	121 65	121 63			121 65			
HEPTACHLOR	UG/L	< 0 05														
HEPTACHLOR EPOXIDE	UG/L	< 0 5														
HEXACHLOROBENZENE	UG/L	< 10														
HEXACHLOROBUTADIENE	UG/L	< 10														
HEXACHLOROCYCLOPENTADIENE	UG/L	< 40														
HEXACHLOROETHANE	UG/L	< 10														
INDENO[1 2 3-CD]PYRENE	UG/L	< 10														
IODOMETHANE	UG/L														< 1	< 1
IRON TOTAL	UG/L		254	252	242	343	295	308	286	266	194	252	242	207	240	237
ISOPHORONE	UG/L	< 10														
LEAD-DISSOLVED	UG/L									< 25	< 5	< 5	< 5	< 5	5	8
LEAD-TOTAL	UG/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5				< 5			
LINDANE (GAMMA BHC)	UG/L	< 0 1														
MERCURY DISSOLVED	UG/L									< 1			< 1	< 1	< 1	< 1

ANALYTE	UNITS	3/10/92	5/11/92	8/13/92	11/3/92	2/10/93	4/28/93	8/2/93	11/2/93	1/31/94	5/3/94	8/4/94	11/1/94	2/6/95	7/27/95	1/10/96
MERCURY-TOTAL	UG/L	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2							
METHYL TERT BUTYL ETHER	FT									< 10	< 10	< 10	< 10			
METHYLENE CHLORIDE	MHOS/C	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
N NITROSODI N PROPYLAMINE	UG/L	< 10														
N NITROSODIMETHYLAMINE	UG/L	< 10														
N NITROSODIPHENYLAMINE	MG/L	< 10														
NAPHTHALENE	MG/L	< 10														
NICKEL DISSOLVED	FT													< 10	< 50	< 50
NICKEL TOTAL	MG/L	< 40											< 40			
NITROBENZENE	PH UNITS	< 10														
NITROGEN AMMONIA	MG/L		0 096	0 087	0 12	0 054	0 082	0 11	0 1					< 0 1	< 0 05	0 541
NITROGEN NITRATE	MG/L		< 0 05	< 0 05	< 0 05	< 0 05	< 0 05	< 0 05	< 0 05					< 0 05	< 0 05	0 064
ODOR	MG/L												NONE			< 1
PENTACHLOROPHENOL	UG/L	< 10														
PH FIELD	UG/L	7 55	7 66	7 51	7 31	7 52	7 03	7 19	7 15	5 9	6 87	7 38	7 77	7 34	7 37	7 41
PHENANTHRENE	FT MSL	< 10														
PHENOL	UG/L	< 10														
PLUS ANALYTES FOUND	UG/L	N														
PURGE DATE (YY/MM/DD)	UG/L												94-11-01			
PURGING DEVICE	MG/L												C			
PURGING EQUIPMENT DEDICATED	MG/L												Y			
PURGING MATERIAL	FT												A			
PYRENE	NTU	< 10														
SAMPLING DEVICE	MG/L												C			
SAMPLING EQUIPMENT DEDICATED	MG/L												Y			
SAMPLING MATERIAL	MHOS/CM												A			
SELENIUM DISSOLVED	UG/L									< 5	< 5	< 25	< 25	< 25	< 25	< 25
SELENIUM-TOTAL	UG/L	< 5	< 5										< 5			
SILVER DISSOLVED	MG/L													< 25	< 25	< 25
SILVER TOTAL	FT	< 10											< 25			
SODIUM DISSOLVED	MHOS/CM									3820	4380	5250	4290	4840	4980	5060
SODIUM-TOTAL	UG/L		3790	4390	4310	4830	5470	4720	4610							
SPECIFIC CONDUCTANCE	MG/L									501						
SPECIFIC CONDUCTANCE FIELD	FT	320	200	325	333	382	341	282	505				NA	306	311	324
STYRENE	MG/L													< 1	< 1	< 1
TETRACHLOROETHENE	NTU	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
THALLIUM DISSOLVED	MG/L													< 1	< 1	< 1
THALLIUM TOTAL	NTU	< 10											< 2			
TOLUENE	PH UNITS	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TOTAL ORGANIC CARBON	PH UNITS		1 3	1 2	1 1	< 1	1 1	1 2	1	59	51	41	4			
TOXAPHENE	UG/L	< 1														
TRANS-1 2 DICHLOROETHENE	FT MSL	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS 1 3-DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS 1 4-DICHLORO-2 BUTENE	NTU														< 1	< 1
TRICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TUBING-PURGING	UG/L												G			
TUBING SAMPLING	PH UNITS												G			
TURBIDITY	UG/L		< 1	< 1	< 1	< 1	< 1	< 1	< 1	0 6	0 54	0 48	0 44	0 41	0 44	0 61
VANADIUM DISSOLVED	UG/L													< 25	< 25	< 25
VANADIUM-TOTAL	UG/L												< 50			
VINYL ACETATE	UG/L													< 1	< 1	< 1
VINYL CHLORIDE	FT MSL	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
WELL DEPTH TOTAL	UG/L		116 63	117	117	117	117	117	117				117			
XYLENE(TOTAL)	UG/L									< 5	< 5	< 5	< 5	< 1	< 1	< 1
ZINC-DISSOLVED	UG/L													< 50	< 50	< 50
ZINC-TOTAL	UG/L												< 20			

ANALYTE	UNITS	3/10/92	5/11/92	8/13/92	11/3/92	2/10/93	4/28/93	8/2/93	11/2/93	1/31/94	5/3/94	8/4/94	11/1/94	2/6/95	7/27/95	1/10/96
1 1 1 2 TETRACHLOROETHANE	UG/L														< 1	< 1
1 1 1-TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 2 TETRACHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 3-TRICHLOROPROPANE	UG/L														< 1	< 1
1 2 4-TRICHLOROBENZENE	UG/L	< 10														
1 2-DIBROMO-3 CHLOROPROPANE	UG/L													< 1	< 0 2	< 0 2
1 2 DIBROMOETHANE	UG/L													< 1	< 0 02	< 0 02
1 2 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2-DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROPROPANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DIPHENYLHYDRAZINE	UG/L	< 10														
1 3-DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
1 4 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2 4 6-TRICHLOROPHENOL	UG/L	< 10														
2 4 DICHLOROPHENOL	UG/L	< 10														
2 4 DIMETHYLPHENOL	UG/L	< 10														
2 4-DINITROPHENOL	UG/L	< 10														
2 4 DINITROTOLUENE	UG/L	< 10														
2 6-DINITROTOLUENE	UG/L	< 10														
2 BUTANONE	UG/L													< 1		< 1
2 CHLOROETHYLVINYL ETHER	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
2 CHLORONAPHTHALENE	UG/L	< 10														
2-CHLOROPHENOL	UG/L	< 10														
2 HEXANONE	UG/L														< 1	< 1
2 NITROPHENOL	UG/L	< 10														
3 3-DICHLOROBENZIDINE	UG/L	< 10														
4 4 DDD	UG/L	< 0 1														
4 4-DDE	UG/L	< 0 1														
4 4-DDT	UG/L	< 0 1														
4 6-DINITRO-2 METHYLPHENOL	UG/L	< 10														
4-BROMOPHENYL PHENYL ETHER	UG/L	< 10														
4-CHLORO-3-METHYLPHENOL	UG/L	< 10														
4-CHLOROPHENYL PHENYL ETHER	UG/L	< 10														
4-METHYL-2 PENTANONE	UG/L														< 1	< 1
4-NITROPHENOL	UG/L	< 10														
ACENAPHTHENE	UG/L	< 10														
ACENAPHTHYLENE	UG/L	< 10														
ACETONE	UG/L														< 1	< 1
ACRYLONITRILE	UG/L													< 1	< 1	< 1
ACTUAL VOLUME PURGED	GALLONS												25 4			
ALDRIN	UG/L	< 0 1														
ALKALINITY BICARBONATE (AS CACO3)	MG/L		11	11	11	< 10	< 10	10	10	4 67	18 5	< 15	23			
ALPHA BHC	UG/L	< 0 1														
AMMONIUM	MG/L									< 0 05	< 0 05	< 0 05				
AMMONIUM NH4	MG/L		0 021	< 0 02	< 0 02	< 0 02	< 0 02	< 0 02	< 0 02							
ANTHRACENE	UG/L	< 10														
ANTIMONY DISSOLVED	UG/L										< 3	< 3	< 3	< 3	< 3	< 3
ANTIMONY TOTAL	UG/L	< 50	< 50										< 6			
AROCLOR 1016	UG/L	< 1														
AROCLOR 1221	UG/L	< 1														
AROCLOR 1232	UG/L	< 1														
AROCLOR 1242	UG/L	< 1														
AROCLOR 1248	UG/L	< 1														
AROCLOR 1254	UG/L	< 1														
AROCLOR 1260	UG/L	< 1														
ARSENIC-DISSOLVED	UG/L					< 10	< 10	< 10		< 25	< 25	< 25	< 25	< 25	< 25	< 25
ARSENIC-TOTAL	UG/L	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 5				< 5			
BARIUM DISSOLVED	UG/L													< 100	< 100	< 100
BARIUM TOTAL	UG/L												< 200			
BENZ[A]ANTHRACENE	UG/L	< 10														
BENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BENZIDINE	UG/L	< 10														
BENZO[A]PYRENE	UG/L	< 10														
BENZO[B]FLUORANTHENE	UG/L	< 10														
BENZO[G H I]PERYLENE	UG/L	< 10														

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ANALYTE	UNITS	3/10/92	5/11/92	8/13/92	11/3/92	2/10/93	4/28/93	8/2/93	11/2/93	1/31/94	5/3/94	8/4/94	11/1/94	2/6/95	7/27/95	1/10/96
BENZO[K]FLUORANTHENE	UG/L	< 10														
BERYLLIUM DISSOLVED	UG/L									< 25	< 4	< 4	< 4	< 4	< 4	< 4
BERYLLIUM TOTAL	UG/L	< 5	< 5										< 4			
BETA BHC	UG/L	< 0 1														
BIS(2 CHLOROETHOXY)METHANE	UG/L	< 10														
BIS(2 CHLOROETHYL)ETHER	UG/L	< 10														
BIS(2 CHLOROISOPROPYL)ETHER	UG/L	< 10														
BIS(2 ETHYLHEXYL)PHTHALATE	UG/L	< 10														
BROMOCHLOROMETHANE	UG/L														< 1	< 1
BROMODICHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BUTYLBENZYLPHTHALATE	UG/L	< 10														
CADMIUM DISSOLVED	UG/L					< 5	< 5	< 5		< 5	< 5	< 5	< 3	< 3	< 3	< 3
CADMIUM TOTAL	UG/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5				< 5			
CARBON DISULFIDE	UG/L														< 1	< 1
CARBON TETRACHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLORDANE	UG/L	< 1														
CHLORIDE	MG/L													7 6	8 43	8 13
CHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHROMIUM DISSOLVED	UG/L					< 10	< 10	< 10		< 25	< 25	< 25	< 50	< 50	< 50	< 50
CHROMIUM TOTAL	UG/L	< 10	< 10	27 2	22 3	< 10	13 2	< 10	< 10				< 10			
CHRYSENE	UG/L	< 10														
CIS 1 2 DICHLOROETHENE	UG/L														< 1	< 1
CIS 1 3 DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
COBALT TOTAL	UG/L													< 25	< 25	< 25
COLOR													NONE	< 5	< 5	< 5
COPPER DISSOLVED	UG/L													< 50	< 50	< 50
COPPER TOTAL	UG/L	< 25											33 9			
CYANIDE TOTAL	MG/L	< 0 02														
DELTA BHC	UG/L	< 0 05														
DEPTH TO WATER FROM TOP OF CASING	FT												2 59			
DI N BUTYLPHTHALATE	UG/L	< 10														
DI N OCTYLPHTHALATE	UG/L	< 10														
DIBENZ[A H]ANTHRACENE	UG/L	< 10														
DIBROMOCHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
DIBROMOMETHANE	UG/L														< 1	< 1
DICHLORODIFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
DIELDRIN	UG/L	< 0 1														
DIETHYLPHTHALATE	UG/L	< 10														
DIMETHYLPHTHALATE	UG/L	< 10														
ELAPSED HOURS	HRS												0 3			
ENDOSULFAN I	UG/L	< 0 05														
ENDOSULFAN II	UG/L	< 0 1														
ENDOSULFAN SULFATE	UG/L	< 0 5														
ENDRIN	UG/L	< 0 1														
ENDRIN ALDEHYDE	UG/L	< 0 1														
ETHYLBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
FLUORANTHENE	UG/L	< 10														
FLUORENE	UG/L	< 10														
GROUNDWATER ELEV	FT MSL		NA	120 6	118 57	118 55	117 94	118 32	120 61	119 74			118 94			
HEPTACHLOR	UG/L	< 0 05														
HEPTACHLOR EPOXIDE	UG/L	< 0 5														
HEXACHLOROBENZENE	UG/L	< 10														
HEXACHLOROBUTADIENE	UG/L	< 10														
HEXACHLOROCYCLOPENTADIENE	UG/L	< 40														
HEXACHLOROETHANE	UG/L	< 10														
INDENO[1 2 3-CD]PYRENE	UG/L	< 10														
IODOMETHANE	UG/L														< 1	< 1
IRON DISSOLVED	UG/L					371	399	399								
IRON TOTAL	UG/L		1260	2670	2000	984	2390	996	621	453	366	411	417	423	299	347
ISOPHORONE	UG/L	< 10														
LEAD-DISSOLVED	UG/L					< 5	< 5	< 5		< 25	< 5	< 5	< 5	< 5	< 0 005	9
LEAD-TOTAL	UG/L	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 5				5 6			
LINDANE (GAMMA-BHC)	UG/L	< 0 1														

ANALYTE	UNITS	3/10/92	5/11/92	8/13/92	11/3/92	2/10/93	4/28/93	8/2/93	11/2/93	1/31/94	5/3/94	8/4/94	11/1/94	2/6/95	7/27/95	1/10/96
MERCURY DISSOLVED	UG/L					< 0 2	< 0 2	< 0 2		< 1			< 1	< 1	< 1	< 1
MERCURY TOTAL	UG/L	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2							
METHYL TERT-BUTYL ETHER	UG/L									< 10	< 10	< 10	< 10			
METHYLENE CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
N NITROSODI N PROPYLAMINE	UG/L	< 10														
N NITROSODIMETHYLAMINE	UG/L	< 10														
N-NITROSODIPHENYLAMINE	UG/L	< 10														
NAPHTHALENE	UG/L	< 10														
NICKEL-DISSOLVED	UG/L													< 10	< 50	< 50
NICKEL-TOTAL	UG/L	< 40											< 40			
NITROBENZENE	UG/L	< 10														
NITROGEN AMMONIA	MG/L		0 021	< 0 02	< 0 02	< 0 02	< 0 02	< 0 02	< 0 02					< 0 1	< 0 05	0 441
NITROGEN NITRATE	MG/L		< 0 05	< 0 05	< 0 05	< 0 05	< 0 05	< 0 05	< 0 05					< 0 05	< 0 05	< 0 05
ODOR													NONE			< 1
PENTACHLOROPHENOL	UG/L	< 10														
PH FIELD	PH UNITS	5 52	5 43	5 55	5 37	5 49	5 46	5 63	5 57	5 66	5 63	5 73	5 7	5 48	5 37	5 41
PHENANTHRENE	UG/L	< 10														
PHENOL	UG/L	< 10														
PLUS ANALYTES FOUND		Y														
PURGE DATE (YY/MM/DD)	Y/MM/DD												94-11-01			
PURGING DEVICE													C			
PURGING EQUIPMENT DEDICATED													Y			
PURGING MATERIAL													A			
PYRENE	UG/L	< 10														
SAMPLING DEVICE													C			
SAMPLING EQUIPMENT DEDICATED													Y			
SAMPLING MATERIAL													A			
SELENIUM DISSOLVED	UG/L									< 5	< 5	< 25	< 25	< 25	< 25	< 25
SELENIUM-TOTAL	UG/L	< 5	< 5										< 5			
SILVER DISSOLVED	UG/L													< 25	< 25	< 25
SILVER TOTAL	UG/L	< 10											< 25			
SODIUM DISSOLVED	UG/L					< 5000	< 5000	< 5000		2590	2780	3620	3030	3020	3410	3410
SODIUM TOTAL	UG/L		3600	3260	3540	3650	3730	3380	3170							
SPECIFIC CONDUCTANCE	MHOS/CM									35 4						
SPECIFIC CONDUCTANCE FIELD	MHOS/C	50	650	48	47	49	49	40	489				NA	42	50 0	45
STYRENE	UG/L													< 1	< 1	< 1
TETRACHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
THALLIUM DISSOLVED	UG/L													< 1	< 1	< 1
THALLIUM TOTAL	UG/L	< 10											< 2			
TOLUENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TOTAL ORGANIC CARBON	MG/L		1 7	1 6	1 4	1 2	1 5	1 4	1 3	44	37	32	4			
TOXAPHENE	UG/L	< 1														
TRANS-1 2-DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1 3-DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1 4-DICHLORO-2-BUTENE	UG/L														< 1	< 1
TRICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	2	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TUBING PURGING													G			
TUBING-SAMPLING													G			
TURBIDITY	NTU		65	410	240	280	270	120	80	64	58	35	16	64	19 0	9 8
VANADIUM DISSOLVED	UG/L													< 25	< 25	< 25
VANADIUM TOTAL	UG/L												< 50			
VINYL ACETATE	UG/L													< 1	< 1	< 1
VINYL CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
WELL DEPTH TOTAL	FT		65 12	65	65	65	65	65	65				65			
XYLENE(TOTAL)	UG/L									< 5	< 5	< 5	< 5	< 1	< 1	< 1
ZINC-DISSOLVED	UG/L													< 50	< 50	< 50
ZINC-TOTAL	UG/L												< 20			

ANALYTE	UNITS	3/10/92	5/14/92	8/13/92	11/3/92	2/10/93	4/28/93	4/29/93	8/2/93	11/2/93	1/31/94	5/3/94	8/4/94	11/1/94	2/6/95	7/27/95	1/10/96
1 1 1 2 TETRACHLOROETHANE	UG/L															< 1	< 1
1 1 1 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 2 TETRACHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 3-TRICHLOROPROPANE	UG/L															< 1	< 1
1 2 4 TRICHLOROBENZENE	UG/L	< 10															
1 2 DIBROMO-3-CHLOROPROPANE	UG/L														< 1	< 0.2	< 0.2
1 2 DIBROMOETHANE	UG/L														< 1	< 0.02	< 0.02
1 2 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROPROPANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DIPHENYLHYDRAZINE	UG/L	< 10															
1 3 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1			
1 4 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2 4 6-TRICHLOROPHENOL	UG/L	< 10															
2 4 DICHLOROPHENOL	UG/L	< 10															
2 4 DIMETHYLPHENOL	UG/L	< 10															
2 4 DINITROPHENOL	UG/L	< 10															
2 4 DINITROTOLUENE	UG/L	< 10															
2 6 DINITROTOLUENE	UG/L	< 10															
2 BUTANONE	UG/L														< 1	< 1	< 1
2 CHLOROETHYLVINYL ETHER	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1			
2 CHLORONAPHTHALENE	UG/L	< 10															
2 CHLOROPHENOL	UG/L	< 10															
2 HEXANONE	UG/L															< 1	< 1
2 NITROPHENOL	UG/L	< 10															
3 3 DICHLOROBENZIDINE	UG/L	< 10															
4 4 DDD	UG/L	< 0.1															
4 4 DDE	UG/L	< 0.1															
4 4 DDT	UG/L	< 0.1															
4 6 DINITRO-2 METHYLPHENOL	UG/L	< 10															
4 BROMOPHENYL PHENYL ETHER	UG/L	< 10															
4 CHLORO 3-METHYLPHENOL	UG/L	< 10															
4 CHLOROPHENYL PHENYL ETHER	UG/L	< 10															
4 METHYL 2 PENTANONE	UG/L															< 1	< 1
4 NITROPHENOL	UG/L	< 10															
ACENAPHTHENE	UG/L	< 10															
ACENAPHTHYLENE	UG/L	< 10															
ACETONE	UG/L															< 1	< 1
ACRYLONITRILE	UG/L														< 1	< 1	< 1
ACTUAL VOLUME PURGED	GALLONS													28.4			
ALDRIN	UG/L	< 0.1															
ALKALINITY BICARBONATE (AS CACO3)	MG/L		< 10	< 10	< 10	< 10	< 10		< 10	< 10	< 1	17	< 15	38			
ALPHA BHC	UG/L	< 0.1															
AMMONIUM	MG/L										< 0.05	< 0.05	< 0.05				
AMMONIUM NH4	MG/L		0.028	0.13	< 0.02	< 0.02	0.033		0.07	0.076							
ANTHRACENE	UG/L	< 10															
ANTIMONY DISSOLVED	UG/L		< 100									< 3	< 3	< 3	< 3	< 3	< 3
ANTIMONY TOTAL	UG/L	< 50	< 250											< 6			
AROCLOR 1016	UG/L	< 1															
AROCLOR 1221	UG/L	< 1															
AROCLOR 1232	UG/L	< 1															
AROCLOR 1242	UG/L	< 1															
AROCLOR 1248	UG/L	< 1															
AROCLOR 1254	UG/L	< 1															
AROCLOR 1260	UG/L	< 1															
ARSENIC DISSOLVED	UG/L										< 25	< 25	< 25	< 25	< 25	< 25	< 25
ARSENIC-TOTAL	UG/L	< 25	< 5	< 5	< 5	< 5	< 5		< 5	< 5				< 5			
BARIUM DISSOLVED	UG/L														< 100	< 100	< 100
BARIUM TOTAL	UG/L													< 200			
BENZ[A]ANTHRACENE	UG/L	< 10															
BENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BENZIDINE	UG/L	< 10															
BENZO[A]PYRENE	UG/L	< 10															
BENZO[B]FLUORANTHENE	UG/L	< 10															
BENZO[G H I]PERYLENE	UG/L	< 10															
BENZO[K]FLUORANTHENE	UG/L	< 10															
BERYLLIUM DISSOLVED	UG/L		< 5								< 25	< 4	< 4	< 4	< 4	< 4	< 4
BERYLLIUM TOTAL	UG/L	6.8	< 25					< 5						< 4			
BETA BHC	UG/L	< 0.1															

ANALYTE	UNITS	3/10/92	5/14/92	8/13/92	11/3/92	2/10/93	4/28/93	4/29/93	8/2/93	11/2/93	1/31/94	5/3/94	8/4/94	11/1/94	2/6/95	7/27/95	1/10/96
BIS(2 CHLOROETHOXY)METHANE	UG/L	< 10															
BIS(2 CHLOROETHYL)ETHER	UG/L	< 10															
BIS(2 CHLOROISOPROPYL)ETHER	UG/L	< 10															
BIS(2 ETHYLHEXYL)PHTHALATE	UG/L	41															
BROMOCHLOROMETHANE	UG/L															< 1	< 1
BROMODICHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BUTYLBENZYLPHTHALATE	UG/L	< 10															
CADMIUM DISSOLVED	UG/L										< 5	< 5	< 5	< 3	< 3	< 3	< 3
CADMIUM TOTAL	UG/L	< 5	< 25	< 5	< 5	< 5	< 5		< 5	< 5				< 5			
CARBON DISULFIDE	UG/L															< 1	< 1
CARBON TETRACHLORIDE	*UG/L*	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLORDANE	UG/L	< 1															
CHLORIDE	MG/L														22 2	15 1	17 4
CHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHROMIUM DISSOLVED	UG/L		< 10								< 25	< 25	< 25	< 50	< 50	< 50	< 50
CHROMIUM-TOTAL	UG/L	238	95	< 10	< 10	< 10	< 10		< 10	< 10				< 10			
CHRYSENE	UG/L	< 10															
CIS 1 2 DICHLOROETHENE	UG/L															< 1	< 1
CIS 1 3-DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
COBALT TOTAL	UG/L														< 25	< 25	< 25
COLOR														LT BRN	100	100	75
COPPER DISSOLVED	UG/L														< 50	< 50	< 50
COPPER TOTAL	UG/L	196												< 10			
CYANIDE TOTAL	MG/L	< 0 02															
DELTA BHC	UG/L	< 0 05															
DEPTH TO WATER FROM TOP OF CASING	FT													6 62			
DI N BUTYLPHTHALATE	UG/L	< 10															
DI N OCTYLPHTHALATE	UG/L	< 10															
DIBENZ[A H]ANTHRACENE	UG/L	< 10															
DIBROMOCHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
DIBROMOMETHANE	UG/L															< 1	< 1
DICHLORODIFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1			
DIELDRIN	UG/L	< 0 1															
DIETHYLPHTHALATE	UG/L	< 10															
DIMETHYLPHTHALATE	UG/L	< 10															
ELAPSED HOURS	HRS													0 3			
ENDOSULFAN I	UG/L	< 0 05															
ENDOSULFAN II	UG/L	< 0 1															
ENDOSULFAN SULFATE	UG/L	< 0 5															
ENDRIN	UG/L	< 0 1															
ENDRIN ALDEHYDE	UG/L	< 0 1															
ETHYLBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
FLUORANTHENE	UG/L	< 10															
FLUORENE	UG/L	< 10															
GROUNDWATER ELEV	FT MSL		NA	117 52	116 74	117	115 85		116 51	117 24	115 84			116 67			
HEPTACHLOR	UG/L	< 0 05															
HEPTACHLOR EPOXIDE	UG/L	< 0 5															
HEXACHLOROBENZENE	UG/L	< 10															
HEXACHLOROBUTADIENE	UG/L	< 10															
HEXACHLOROCYCLOPENTADIENE	UG/L	< 40															
HEXACHLOROETHANE	UG/L	< 10															
INDENO[1 2 3-CD]PYRENE	UG/L	< 10															
IODOMETHANE	UG/L															< 1	< 1
IRON TOTAL	UG/L		1240	501	608	575	835		610	241	316	656	657	177	610	280	291
ISOPHORONE	UG/L	< 10															
LEAD-DISSOLVED	UG/L		< 5								< 25	< 5	< 5	< 5	< 5	< 5	11
LEAD-TOTAL	UG/L	114	30 8	< 5	< 5	< 5	< 5		< 5	< 5				< 5			
LINDANE (GAMMA BHC)	UG/L	< 0 1															
MERCURY DISSOLVED	UG/L		< 0 2								< 1			< 1	< 1	< 1	< 1
MERCURY TOTAL	UG/L	4 4	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2		< 0 2	< 0 2							
METHYL TERT BUTYL ETHER	UG/L										< 10	< 10	< 10	< 10			
METHYLENE CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
N NITROSODI N PROPYLAMINE	UG/L	< 10															
N NITROSODIMETHYLAMINE	UG/L	< 10															
N NITROSODIPHENYLAMINE	UG/L	< 10															
NAPHTHALENE	UG/L	< 10															
NICKEL DISSOLVED	UG/L														< 10	< 50	< 50

ANALYTE	UNITS	3/10/92	5/14/92	8/13/92	11/3/92	2/10/93	4/28/93	4/29/93	8/2/93	11/2/93	1/31/94	5/3/94	8/4/94	11/1/94	2/6/95	7/27/95	1/10/96
NICKEL TOTAL	UG/L	< 40												< 40			
NITROBENZENE	UG/L	< 10															
NITROGEN AMMONIA	MG/L		0 026	0 13	< 0 02	< 0 02	0 033		0 07	0 078					0 218	0 809	1 12
NITROGEN NITRATE	MG/L		< 0 05	< 0 05	< 0 05	0 075	< 0 05		< 0 05	0 67					< 0 05	< 0 05	0 168
ODOR														STRONG			2
PENTACHLOROPHENOL	UG/L	< 10															
PH FIELD	PH UNITS	4 65	4 67	5 05	4 54	4 79	5 49		4 48	4 99	6 22	4 77	4 72	5 85	4 72	5 05	4 82
PHENANTHRENE	UG/L	< 10															
PHENOL	UG/L	< 10															
PLUS ANALYTES FOUND		Y															
PURGE DATE (YY/MM/DD)	Y/MM/DD													94 11 01			
PURGING DEVICE														C			
PURGING EQUIPMENT DEDICATED														Y			
PURGING MATERIAL														A			
PYRENE	UG/L	< 10															
SAMPLING DEVICE														C			
SAMPLING EQUIPMENT DEDICATED														Y			
SAMPLING MATERIAL														A			
SELENIUM-DISSOLVED	UG/L		< 5								< 5	< 5	< 25	< 25	< 25	< 25	< 25
SELENIUM TOTAL	UG/L	40	13 7				< 5							< 5			
SILVER DISSOLVED	UG/L														< 25	< 25	< 25
SILVER TOTAL	UG/L	< 10												< 25			
SODIUM DISSOLVED	UG/L										8510	7970	8430	8030	8420	8370	7510
SODIUM TOTAL	UG/L		3280	6980	3500	3710	6010		4700	9970							
SPECIFIC CONDUCTANCE	MHOS/CM										49 6						
SPECIFIC CONDUCTANCE FIELD	MHOS/C	60	49	68	52	54	66		53	505				NA	86	112	87
STYRENE	UG/L														< 1	< 1	< 1
TETRACHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
THALLIUM DISSOLVED	UG/L														< 1	< 1	< 1
THALLIUM TOTAL	UG/L	< 40												< 2			
TOLUENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TOTAL ORGANIC CARBON	MG/L		7 4	10 5	3 1	2 9	2 9		3 3	12 9		86	78	8			
TOXAPHENE	UG/L	< 1															
TRANS 1 2 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS 1 3 DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1 4 DICHLORO-2 BUTENE	UG/L															< 1	< 1
TRICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TUBING PURGING														G			
TUBING SAMPLING														G			
TURBIDITY	NTU		5800	36	16	45	11		12	110	50	0 21	32	23	8 3	15	13
VANADIUM DISSOLVED	UG/L														< 25	< 25	< 25
VANADIUM TOTAL	UG/L													< 50			
VINYL ACETATE	UG/L														< 1	< 1	< 1
VINYL CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
WELL DEPTH TOTAL	FT		19	20	20	20	20		20	20				20			
XYLENE(TOTAL)	UG/L										< 5	< 5	< 5	< 5	< 1	< 1	< 1
ZINC DISSOLVED	UG/L														< 50	118	< 50
ZINC TOTAL	UG/L													< 20			

ANALYTE	UNITS	3/11/92	4/2/92	5/14/92	8/18/92	11/3/92	2/10/93	4/28/93	6/28/93	7/30/93	11/2/93	1/31/94	5/3/94	8/5/94	11/2/94	2/3/95	7/27/95	1/8/96
1 1 1 2 TETRACHLOROETHANE	UG/L																< 1	< 1
1 1 1 TRICHLOROETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 2 TETRACHLOROETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 TRICHLOROETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1-DICHLOROETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 3-TRICHLOROPROPANE	UG/L																< 1	< 1
1 2 4-TRICHLOROBENZENE	UG/L	NA	< 10															
1 2-DIBROMO-3-CHLOROPROPANE	UG/L															< 1	< 0 2	< 0 2
1 2 DIBROMOETHANE	UG/L															< 1	< 0 02	< 0 02
1 2 DICHLOROBENZENE	UG/L	< 1	< 10	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROPROPANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DIPHENYLHYDRAZINE	UG/L	NA	< 10															
1 3 DICHLOROBENZENE	UG/L	< 1	< 10	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
1 4 DICHLOROBENZENE	UG/L	< 1	< 10	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2 4 6-TRICHLOROPHENOL	UG/L	NA	< 10															
2 4 DICHLOROPHENOL	UG/L	NA	< 10															
2 4 DIMETHYLPHENOL	UG/L	NA	< 10															
2 4-DINITROPHENOL	UG/L	NA	< 10															
2 4 DINITROTOLUENE	UG/L	NA	< 10															
2 6-DINITROTOLUENE	UG/L	NA	< 10															
2 BUTANONE	UG/L															< 1		< 1
2-CHLOROETHYLVINYL ETHER	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
2 CHLORONAPHTHALENE	UG/L	NA	< 10															
2 CHLOROPHENOL	UG/L	NA	< 10															
2 HEXANONE	UG/L																< 1	< 1
2 NITROPHENOL	UG/L	NA	< 10															
3 3 -DICHLOROBENZIDINE	UG/L	NA	< 10															
4 4 DDD	UG/L	< 0 1																
4 4 DDE	UG/L	< 0 1																
4 4 DDT	UG/L	< 0 1																
4 6-DINITRO-2 METHYLPHENOL	UG/L	NA	< 10															
4 BROMOPHENYL PHENYL ETHER	UG/L	NA	< 10															
4 CHLORO-3 METHYLPHENOL	UG/L	NA	< 10															
4 CHLOROPHENYL PHENYL ETHER	UG/L	NA	< 10															
4 METHYL 2 PENTANONE	UG/L																< 1	< 1
4 NITROPHENOL	UG/L	NA	< 10															
ACENAPHTHENE	UG/L	NA	< 10															
ACENAPHTHYLENE	UG/L	NA	< 10															
ACETONE	UG/L																< 1	< 1
ACRYLONITRILE	UG/L															< 1	< 1	< 1
ACTUAL VOLUME PURGED	GALLONS														31 5			
ALDRIN	UG/L	< 0 1																
ALKALINITY BICARBONATE (AS CACO3)	MG/L			< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 15	< 15	19			
ALPHA BHC	UG/L	< 0 1																
AMMONIUM	MG/L											< 0 05	< 0 05	< 0 05				
AMMONIUM NH4	MG/L			0 027	0 036	0 034	0 04	< 0 02	0 062	0 04	< 0 02							
ANTHRACENE	UG/L	NA	< 10															
ANTIMONY DISSOLVED	UG/L			< 100									< 3	< 3	< 3	< 3	< 3	< 3
ANTIMONY TOTAL	UG/L	52 7		< 50				< 60							< 6			
AROCLOR 1016	UG/L	< 1																
AROCLOR 1221	UG/L	< 1																
AROCLOR 1232	UG/L	< 1																
AROCLOR 1242	UG/L	< 1																
AROCLOR 1248	UG/L	< 1																
AROCLOR 1254	UG/L	< 1																
AROCLOR 1260	UG/L	< 1																
ARSENIC-DISSOLVED	UG/L						< 10	< 10	< 10	< 10		< 25	< 25	< 25	< 25	< 25	< 25	< 25
ARSENIC TOTAL	UG/L	< 5		< 10	< 10	< 25	< 5	5 8	< 5	< 5	< 14				< 14			
BARIUM DISSOLVED	UG/L															197	478	348
BARIUM TOTAL	UG/L														232			
BENZ[A]ANTHRACENE	UG/L	NA	< 10															
BENZENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BENZIDINE	UG/L	NA	< 10															
BENZO[A]PYRENE	UG/L	NA	< 10															
BENZO[B]FLUORANTHENE	UG/L	NA	< 10															
BENZO[G H I]PERYLENE	UG/L	NA	< 10															
BENZO[K]FLUORANTHENE	UG/L	NA	< 10															
BERYLLIUM DISSOLVED	UG/L			< 5								< 25	< 4	< 4	< 4	< 4	< 0 004	4
BERYLLIUM TOTAL	UG/L	< 5		< 5											< 4			
BETA BHC	UG/L	< 0 1																
BIS(2-CHLOROETHOXY)METHANE	UG/L	NA	< 10															
BIS(2 CHLOROETHYL)ETHER	UG/L	NA	< 10															
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	NA	< 10															
BIS(2 ETHYLHEXYL)PHTHALATE	UG/L	NA	< 10															

ANALYTE	UNITS	3/11/92	4/2/92	6/14/92	8/18/92	11/3/92	2/10/93	4/28/93	6/28/93	7/30/93	11/2/93	1/31/94	5/3/94	8/5/94	11/2/94	2/3/95	7/27/95	1/8/96
BROMOCHLOROMETHANE	UG/L																< 1	< 1
BROMODICHLOROMETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BUTYLBENZYLPHTHALATE	UG/L	NA	< 10															
CADMIUM DISSOLVED	UG/L						< 5	< 5	< 5	< 5		< 5	< 5	< 5	< 3	< 3	< 3	< 3
CADMIUM TOTAL	UG/L	< 5		< 25	< 5	< 5	< 5	< 5	< 25	< 5	< 5				< 5			
CARBON DISULFIDE	UG/L																< 1	< 1
CARBON TETRACHLORIDE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLORDANE	UG/L	< 1																
CHLORIDE	MG/L															13	9 53	8 28
CHLOROBENZENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHROMIUM DISSOLVED	UG/L			< 10			< 10	< 10	< 10	< 10		< 25	< 25	< 25	< 50	< 50	0 121	< 50
CHROMIUM TOTAL	UG/L	14 2		11	74 2	58 7	63 4	85 7	203	93 6	15 6				38 9			
CHRYSENE	UG/L	NA	< 10															
CIS 1 2 DICHLOROETHENE	UG/L																< 1	< 1
CIS-1 3 DICHLOROPROPENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
COBALT TOTAL	UG/L															< 25	< 25	< 25
COLOR															NONE	95	500	
COPPER DISSOLVED	UG/L															< 50	< 50	< 50
COPPER TOTAL	UG/L	< 25													19 3			
CYANIDE TOTAL	MG/L	< 0 02																
DELTA BHC	UG/L	< 0 05																
DEPTH TO WATER FROM TOP OF CASING	FT														2 33			
DI N BUTYLPHTHALATE	UG/L	NA	< 10															
DI N-OCTYLPHTHALATE	UG/L	NA	< 10															
DIBENZ(A H)ANTHRACENE	UG/L	NA	< 10															
DIBROMOCHLOROMETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
DIBROMOMETHANE	UG/L																< 1	< 1
DICHLORODIFLUOROMETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
DIELDRIN	UG/L	< 0 1																
DIETHYLPHTHALATE	UG/L	NA	< 10															
DIMETHYLPHTHALATE	UG/L	NA	< 10															
ELAPSED HOURS	HRS														0 4			
ENDOSULFAN I	UG/L	< 0 05																
ENDOSULFAN II	UG/L	< 0 1																
ENDOSULFAN SULFATE	UG/L	< 0 5																
ENDRIN	UG/L	< 0 1																
ENDRIN ALDEHYDE	UG/L	< 0 1																
ETHYLBENZENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
FLUORANTHENE	UG/L	NA	< 10															
FLUORENE	UG/L	NA	< 10															
GROUNDWATER ELEV	FT MSL			NA	119 82	117 22	117 19	117 05	115 89	117 21	118 73	118 79			118 1			
HEPTACHLOR	UG/L	< 0 05																
HEPTACHLOR EPOXIDE	UG/L	< 0 5																
HEXACHLOROBENZENE	UG/L	NA	< 10															
HEXACHLOROBUTADIENE	UG/L	NA	< 10															
HEXACHLOROCYCLOPENTADIENE	UG/L	NA	< 40															
HEXACHLOROETHANE	UG/L	NA	< 10															
INDENO(1 2 3-CD)PYRENE	UG/L	NA	< 10															
IODOMETHANE	UG/L																< 1	< 1
IRON DISSOLVED	UG/L						413	413	413	375								
IRON TOTAL	UG/L			954	4110	2220	3550	4260	6270	3800	1530	857	764	607	705	1080	1100	1190
ISOPHORONE	UG/L	NA	< 10															
LEAD DISSOLVED	UG/L			< 5			< 5	< 5	< 5	< 5		< 25	< 5	7	11	6	5	12
LEAD TOTAL	UG/L	9		< 5	101	< 50	51 5	89 8	97	16 7	41				23			
LINDANE (GAMMA BHC)	UG/L	< 0 1																
MERCURY DISSOLVED	UG/L			< 0 2			< 0 2	< 0 2	< 0 2	< 0 2		< 1			< 1	< 1	< 1	< 1
MERCURY TOTAL	UG/L	< 0 2		< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2							
METHYL TERT BUTYL ETHER	UG/L											< 10	< 10	< 10	< 10			
METHYLENE CHLORIDE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
N NITROSODI N PROPYLAMINE	UG/L	NA	< 10															
N NITROSODIMETHYLAMINE	UG/L	NA	< 10															
N NITROSODIPHENYLAMINE	UG/L	NA	< 10															
NAPHTHALENE	UG/L	NA	< 10															
NICKEL DISSOLVED	UG/L															< 10	< 50	< 50
NICKEL TOTAL	UG/L	< 40													< 40			
NITROBENZENE	UG/L	NA	< 10															
NITROGEN AMMONIA	MG/L			0 027	0 036	0 034	0 04	< 0 02	0 062	0 04	< 0 02					0 218	< 0 05	0 061
NITROGEN NITRATE	MG/L			< 0 05	< 0 05	< 0 05	< 0 05	< 0 05	< 0 05	< 0 05	< 0 05					< 0 05	< 0 05	0 094
ODOR															NONE			< 1
PENTACHLOROPHENOL	UG/L	NA	< 10															
PH FIELD	PH UNITS	5 68	5 67	5 75	5 48	5 06	5 26	5 15	5 46	5 11	6 1	5 42	5 21	5 17	5 28	5 28	5 28	5 24

ANALYTE	UNITS	3/11/92	4/2/92	5/14/92	8/18/92	11/3/92	2/10/93	4/28/93	6/28/93	7/30/93	11/2/93	1/31/94	5/3/94	8/5/94	11/2/94	2/3/95	7/27/95	1/8/96
PHENANTHRENE	UG/L	NA	< 10															
PHENOL	UG/L	NA	< 10															
PLUS ANALYTES FOUND			N															
PURGE DATE (YY/MM/DD)	YY/MM/DD														94 11-02			
PURGING DEVICE															C			
PURGING EQUIPMENT DEDICATED															Y			
PURGING MATERIAL															A			
PYRENE	UG/L	NA	< 10															
SAMPLING DEVICE															C			
SAMPLING EQUIPMENT DEDICATED															Y			
SAMPLING MATERIAL															A			
SELENIUM DISSOLVED	UG/L			< 5								< 5	< 5	< 25	< 25	< 25	< 25	< 25
SELENIUM TOTAL	UG/L	< 5		< 5											< 5			
SILVER DISSOLVED	UG/L															< 25	< 25	< 25
SILVER TOTAL	UG/L	< 10													< 25			
SODIUM DISSOLVED	UG/L						< 5000	< 5000	< 5000	6430		2750	3370	3270	2950	3390	10600	3240
SODIUM TOTAL	UG/L			3790	3370	2780	3690	3670	13400	6710	3630							
SPECIFIC CONDUCTANCE	UMHOS/CM											39 9						
SPECIFIC CONDUCTANCE FIELD	UMHOS/C	44	44	38	38	44	43	38	33	37	415				NA	36	41 0	41
STYRENE	UG/L															< 1	< 1	< 1
TETRACHLOROETHENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
THALLIUM DISSOLVED	UG/L															< 1	K 0 002	< 1
THALLIUM TOTAL	UG/L	< 10													< 2			
TOLUENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TOTAL ORGANIC CARBON	MG/L			3 3	3 6	2 5	3	2 3	3 5	3 9	3 4	44	37	31	3			
TOXAPHENE	UG/L	< 1																
TRANS 1 2 DICHLOROETHENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1 3 DICHLOROPROPENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1 4 DICHLORO 2 BUTENE	UG/L																< 1	< 1
TRICHLOROETHENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	2	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TUBING PURGING																		
TUBING SAMPLING																		
TURBIDITY	NTU			250	2100	1800	2100	1900	1400	1900	1300	2000	230	38	800	1300	4800	4640
VANADIUM DISSOLVED	UG/L															< 25	0 119	40
VANADIUM TOTAL	UG/L														< 50			
VINYL ACETATE	UG/L															< 1	< 1	< 1
VINYL CHLORIDE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
WELL DEPTH TOTAL	FT			61 99	62 5	62 5	62 5	62 5	62 5	62 5	62 5				62 5			
XYLENE(TOTAL)	UG/L											< 5	< 5	< 5	< 5	< 1	< 1	< 1
ZINC-DISSOLVED	UG/L															< 50	< 50	< 50
ZINC TOTAL	UG/L														< 20			

ANALYTE	UNITS	3/11/92	4/2/92	5/14/92	8/18/92	11/3/92	2/10/93	4/28/93	7/30/93	11/2/93	1/31/94	5/3/94	8/5/94	11/2/94	2/3/95	7/27/95	1/8/96
1 1 1 2 TETRACHLOROETHANE	UG/L															< 1	< 1
1 1 1 TRICHLOROETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 2 TETRACHLOROETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 TRICHLOROETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 3-TRICHLOROPROPANE	UG/L															< 1	< 1
1 2 4 TRICHLOROBENZENE	UG/L	NA	< 10														
1 2 DIBROMO 3 CHLOROPROPANE	UG/L														< 1	< 0 2	< 0 2
1 2 DIBROMOETHANE	UG/L														< 1	< 0 02	< 0 02
1 2 DICHLOROBENZENE	UG/L	< 1	< 10	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROPROPANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DIPHENYLHYDRAZINE	UG/L	NA	< 10														
1 3 DICHLOROBENZENE	UG/L	< 1	< 10	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
1 4 DICHLOROBENZENE	UG/L	< 1	< 10	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2 4 6 TRICHLOROPHENOL	UG/L	NA	< 10														
2 4 DICHLOROPHENOL	UG/L	NA	< 10														
2 4 DIMETHYLPHENOL	UG/L	NA	< 10														
2 4 DINITROPHENOL	UG/L	NA	< 10														
2 4 DINITROTOLUENE	UG/L	NA	< 10														
2 6 DINITROTOLUENE	UG/L	NA	< 10														
2 BUTANONE	UG/L														< 1	< 1	< 1
2 CHLOROETHYLVINYL ETHER	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
2 CHLORONAPHTHALENE	UG/L	NA	< 10														
2 CHLOROPHENOL	UG/L	NA	< 10														
2 HEXANONE	UG/L															< 1	< 1
2 NITROPHENOL	UG/L	NA	< 10														
3 3 DICHLOROBENZIDINE	UG/L	NA	< 10														
4 4 DDD	UG/L	< 0 1															
4 4 DDE	UG/L	< 0 1															
4 4 DDT	UG/L	< 0 1															
4 6 DINITRO 2 METHYLPHENOL	UG/L	NA	< 10														
4 BROMOPHENYL PHENYL ETHER	UG/L	NA	< 10														
4 CHLORO 3 METHYLPHENOL	UG/L	NA	< 10														
4 CHLOROPHENYL PHENYL ETHER	UG/L	NA	< 10														
4 METHYL 2 PENTANONE	UG/L															< 1	< 1
4 NITROPHENOL	UG/L	NA	< 10														
ACENAPHTHENE	UG/L	NA	< 10														
ACENAPHTHYLENE	UG/L	NA	< 10														
ACETONE	UG/L															< 1	< 1
ACRYLONITRILE	UG/L														< 1	< 1	< 1
ACTUAL VOLUME PURGED	GALLONS													13			
ALDRIN	UG/L	< 0 1															
ALKALINITY BICARBONATE (AS CACO3)	MG/L			< 10	< 10	< 10	< 10	< 10	< 10	< 10	15 2	20 5	< 15	< 15			
ALPHA BHC	UG/L	< 0 1															
AMMONIUM	MG/L										< 0 05	< 0 05	< 0 05				
AMMONIUM NH4	MG/L			0 02	< 0 02	< 0 02	< 0 02	< 0 02	< 0 02	< 0 02							
ANTHRACENE	UG/L	NA	< 10														
ANTIMONY DISSOLVED	UG/L			< 100								< 3	< 3	< 3	< 3	< 3	< 3
ANTIMONY TOTAL	UG/L	94 3		92				< 60						< 6			
AROCLOR 1016	UG/L	< 1															
AROCLOR 1221	UG/L	< 1															
AROCLOR 1232	UG/L	< 1															
AROCLOR 1242	UG/L	< 1															
AROCLOR 1248	UG/L	< 1															
AROCLOR 1254	UG/L	< 1															
AROCLOR 1260	UG/L	< 1															
ARSENIC DISSOLVED	UG/L										< 25	< 25	< 25	< 25	< 25	< 25	< 25
ARSENIC TOTAL	UG/L	< 5		< 5	< 5	< 5	< 5	< 5	< 5	< 5				< 5			
BARIUM DISSOLVED	UG/L														< 100	< 100	< 100
BARIUM TOTAL	UG/L													< 200			
BENZ[A]ANTHRACENE	UG/L	NA	< 10														
BENZENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BENZIDINE	UG/L	NA	< 10														
BENZO[A]PYRENE	UG/L	NA	< 10														
BENZO[B]FLUORANTHENE	UG/L	NA	< 10														
BENZO[G H I]PERYLENE	UG/L	NA	< 10														
BENZO[K]FLUORANTHENE	UG/L	NA	< 10														
BERYLLIUM DISSOLVED	UG/L			< 5							< 25	< 4	< 4	< 4	< 4	< 4	< 4
BERYLLIUM TOTAL	UG/L	< 5		< 5										< 4			

ANALYTE	UNITS	3/11/92	4/2/92	5/14/92	8/18/92	11/3/92	2/10/93	4/28/93	7/30/93	11/2/93	1/31/94	5/3/94	8/5/94	11/2/94	2/3/95	7/27/95	1/8/96
BETA BHC	UG/L	< 0 1															
BIS(2 CHLOROETHOXY)METHANE	UG/L	NA	< 10														
BIS(2-CHLOROETHYL)ETHER	UG/L	NA	< 10														
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	NA	< 10														
BIS(2 ETHYLHEXYL)PHTHALATE	UG/L	NA	< 10														
BROMOCHLOROMETHANE	UG/L															< 1	< 1
BROMODICHLOROMETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BUTYLBENZYLPHTHALATE	UG/L	NA	< 10														
CADMIUM DISSOLVED	UG/L										< 5	< 5	< 5	< 3	< 3	< 3	< 3
CADMIUM TOTAL	UG/L	< 5		< 5	< 5	< 5	< 5	< 5	< 5	< 5				< 5			
CARBON DISULFIDE	UG/L															< 1	< 1
CARBON TETRACHLORIDE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLORDANE	UG/L	< 1															
CHLORIDE	MG/L														12 3	12 0	10 2
CHLOROBENZENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHROMIUM DISSOLVED	UG/L			< 10							< 25	< 25	< 25	< 50	< 50	< 50	< 50
CHROMIUM TOTAL	UG/L	34 4		< 10	< 10	< 10	< 10	< 10	< 10	< 10				< 10			
CHRYSENE	UG/L	NA	< 10														
CIS 1 2 DICHLOROETHENE	UG/L															< 1	< 1
CIS 1 3 DICHLOROPROPENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
COBALT TOTAL	UG/L														< 25	< 25	< 25
COLOR														NONE	< 5	< 5	< 5
COPPER DISSOLVED	UG/L														< 50	81	< 50
COPPER TOTAL	UG/L	< 25												< 10			
CYANIDE TOTAL	MG/L	< 0 02															
DELTA BHC	UG/L	< 0 05															
DEPTH TO WATER FROM TOP OF CASING	FT													9 09			
DI N BUTYLPHTHALATE	UG/L	NA	< 10														
DI N OCTYLPHTHALATE	UG/L	NA	< 10														
DIBENZ[A H]ANTHRACENE	UG/L	NA	< 10														
DIBROMOCHLOROMETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
DIBROMOMETHANE	UG/L															< 1	< 1
DICHLORODIFLUOROMETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	2	< 1	< 1	< 1	< 1			
DIELDRIN	UG/L	< 0 1															
DIETHYLPHTHALATE	UG/L	NA	< 10														
DIMETHYLPHTHALATE	UG/L	NA	< 10														
ELAPSED HOURS	HRS													0 2			
ENDOSULFAN I	UG/L	< 0 05															
ENDOSULFAN II	UG/L	< 0 1															
ENDOSULFAN SULFATE	UG/L	< 0 5															
ENDRIN	UG/L	< 0 1															
ENDRIN ALDEHYDE	UG/L	< 0 1															
ETHYLBENZENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
FLUORANTHENE	UG/L	NA	< 10														
FLUORENE	UG/L	NA	< 10														
GROUNDWATER ELEV	FT MSL			NA	114 29	111 86	110 99	110 69	110 56	111 76	112 1			111 72			
HEPTACHLOR	UG/L	< 0 05															
HEPTACHLOR EPOXIDE	UG/L	< 0 5															
HEXACHLOROBENZENE	UG/L	NA	< 10														
HEXACHLOROBUTADIENE	UG/L	NA	< 10														
HEXACHLOROCYCLOPENTADIENE	UG/L	NA	< 40														
HEXACHLOROETHANE	UG/L	NA	< 10														
INDENO[1 2 3 CD]PYRENE	UG/L	NA	< 10														
IODOMETHANE	UG/L															< 1	< 1
IRON TOTAL	UG/L			793	769	666	590	1050	658	493	700	909	885	709	371	446	1190
ISOPHORONE	UG/L	NA	< 10														
LEAD DISSOLVED	UG/L			< 5							< 25	< 5	< 5	< 5	< 5	< 5	5
LEAD TOTAL	UG/L	15 3		< 5	< 5	< 5	< 5	< 5	< 5	< 5				< 5			
LINDANE (GAMMA BHC)	UG/L	< 0 1															
MERCURY DISSOLVED	UG/L			< 0 2							< 1			< 1	< 1	< 1	< 1
MERCURY TOTAL	UG/L	1		< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2							
METHYL TERT BUTYL ETHER	UG/L										< 10	< 10	< 10	< 10			
METHYLENE CHLORIDE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
N NITROSODI N PROPYLAMINE	UG/L	NA	< 10														
N NITROSODIMETHYLAMINE	UG/L	NA	< 10														
N NITROSODIPHENYLAMINE	UG/L	NA	< 10														

ANALYTE	UNITS	3/11/92	4/2/92	5/14/92	8/18/92	11/3/92	2/10/93	4/28/93	7/30/93	11/2/93	1/31/94	5/3/94	8/5/94	11/2/94	2/3/95	7/27/95	1/8/96
NAPHTHALENE	UG/L	NA	< 10														
NICKEL DISSOLVED	UG/L														< 10	< 50	< 50
NICKEL TOTAL	UG/L	< 40												< 40			
NITROBENZENE	UG/L	NA	< 10														
NITROGEN AMMONIA	MG/L			0 02	< 0 02	< 0 02	< 0 02	< 0 02	< 0 02	< 0 02					< 0 1	< 0 05	< 0 05
NITROGEN NITRATE	MG/L			< 0 05	< 0 05	< 0 05	< 0 05	< 0 05	< 0 05	0 06					< 0 05	< 0 05	< 0 05
ODOR														VERY SLGHT		< 1	< 1
PENTACHLOROPHENOL	UG/L	NA	< 10														
PH FIELD	PH UNITS	4 58	4 63	4 29	4 94	4 55	4 46	4 73	4 58	4 45	4 5	4 45	4 4	4 32	4 31	4 43	4 3
PHENANTHRENE	UG/L	NA	< 10														
PHENOL	UG/L	NA	< 10														
PLUS ANALYTES FOUND			N														
PURGE DATE (YY/MM/DD)	YY/MM/DD													94 11 02			
PURGING DEVICE														C			
PURGING EQUIPMENT DEDICATED														Y			
PURGING MATERIAL														A			
PYRENE	UG/L	NA	< 10														
SAMPLING DEVICE														C			
SAMPLING EQUIPMENT DEDICATED														Y			
SAMPLING MATERIAL														A			
SELENIUM DISSOLVED	UG/L			< 5							< 5	< 5	< 25	< 25	< 25	< 25	< 25
SELENIUM TOTAL	UG/L	8 6		< 5				< 5						< 5			
SILVER DISSOLVED	UG/L														< 25	< 25	< 25
SILVER TOTAL	UG/L	< 10												< 25			
SODIUM DISSOLVED	UG/L										3570	3370	3890	4160	5040	4810	4300
SODIUM TOTAL	UG/L			4210	6010	4360	6650	3720	7740	4750							
SPECIFIC CONDUCTANCE	UMHOS/CM										70 2						
SPECIFIC CONDUCTANCE FIELD	UMHOS/CM	54	56	49	60	59	78	60	56	395				NA	80	70	75
STYRENE	UG/L														< 1	< 1	< 1
TETRACHLOROETHENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
THALLIUM DISSOLVED	UG/L														< 1	< 1	< 1
THALLIUM TOTAL	UG/L	< 10												< 2			
TOLUENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TOTAL ORGANIC CARBON	MG/L			5 9	3 9	3 1	3 3	2 9	3 8	3 6	41	37	34	2			
TOXAPHENE	UG/L	< 1															
TRANS-1 2 DICHLOROETHENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS 1 3 DICHLOROPROPENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1 4 DICHLORO 2 BUTENE	UG/L															< 1	< 1
TRICHLOROETHENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	2	2	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TUBING PURGING														G			
TUBING SAMPLING														G			
TURBIDITY	NTU			270	55	6 7	< 1	1 1	6 1	3 1	1 7	0 5	0 4	0 35	0 42	0 15	3 8
VANADIUM DISSOLVED	UG/L														< 25	< 25	< 25
VANADIUM TOTAL	UG/L													< 50			
VINYL ACETATE	UG/L														< 1	< 1	< 1
VINYL CHLORIDE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
WELL DEPTH TOTAL	FT			20 2	19 5	19 5	19 5	19 5	19 5	19 5				19 5			
XYLENE(TOTAL)	UG/L										< 5	< 5	< 5	< 5	< 1	< 1	< 1
ZINC DISSOLVED	UG/L														< 50	< 50	< 50
ZINC TOTAL	UG/L													< 20			

ANALYTE	UNITS	3/11/92	5/12/92	8/13/92	11/4/92	2/8/93	5/3/93	7/28/93	11/2/93	1/31/94	5/5/94	8/5/94	11/1/94	2/2/95	7/26/95	1/10/96
1 1 1 2 TETRACHLOROETHANE	UG/L														< 1	< 1
1 1 1-TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 2 TETRACHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 3 TRICHLOROPROPANE	UG/L														< 1	< 1
1 2 4 TRICHLOROBENZENE	UG/L	< 10														
1 2 DIBROMO 3 CHLOROPROPANE	UG/L													< 1	< 0 2	< 0 2
1 2 DIBROMOETHANE	UG/L													< 1	< 0 02	< 0 02
1 2 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROPROPANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DIPHENYLHYDRAZINE	UG/L	< 10														
1 3 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
1 4 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2 4 6-TRICHLOROPHENOL	UG/L	< 10														
2 4 DICHLOROPHENOL	UG/L	< 10														
2 4 DIMETHYLPHENOL	UG/L	< 10														
2 4 DINITROPHENOL	UG/L	< 10														
2 4 DINITROTOLUENE	UG/L	< 10														
2 6 DINITROTOLUENE	UG/L	< 10														
2 BUTANONE	UG/L													< 1		< 1
2 CHLOROETHYLVINYL ETHER	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
2 CHLORONAPHTHALENE	UG/L	< 10														
2 CHLOROPHENOL	UG/L	< 10														
2 HEXANONE	UG/L														< 1	< 1
2 NITROPHENOL	UG/L	< 10														
3 3 DICHLOROBENZIDINE	UG/L	< 10														
4 4 DDD	UG/L	< 0 1														
4 4 DDE	UG/L	< 0 1														
4 4 DDT	UG/L	< 0 1														
4 6 DINITRO 2 METHYLPHENOL	UG/L	< 10														
4 BROMOPHENYL PHENYL ETHER	UG/L	< 10														
4 CHLORO-3 METHYLPHENOL	UG/L	< 10														
4 CHLOROPHENYL PHENYL ETHER	UG/L	< 10														
4 METHYL 2 PENTANONE	UG/L														< 1	< 1
4 NITROPHENOL	UG/L	< 10														
ACENAPHTHENE	UG/L	< 10														
ACENAPHTHYLENE	UG/L	< 10														
ACETONE	UG/L														< 1	< 1
ACRYLONITRILE	UG/L													< 1	< 1	< 1
ACTUAL VOLUME PURGED	GALLONS												23 7			
ALDRIN	UG/L	< 0 1														
ALKALINITY BICARBONATE (AS CACO3)	MG/L		196	200	201	189	201	200	201	191	190	185	189			
ALPHA BHC	UG/L	< 0 1														
AMMONIUM	MG/L										< 0 05	< 0 05	< 0 05			
AMMONIUM NH4	MG/L		0 13	0 13	0 14	0 079	0 19	0 16	0 14							
ANTHRACENE	UG/L	< 10														
ANTIMONY DISSOLVED	UG/L										< 3	< 3	< 3	< 3	< 3	< 3
ANTIMONY TOTAL	UG/L	< 50	< 50										< 6			
AROCLOR 1016	UG/L	< 1														
AROCLOR 1221	UG/L	< 1														
AROCLOR 1232	UG/L	< 1														
AROCLOR 1242	UG/L	< 1														
AROCLOR 1248	UG/L	< 1														
AROCLOR 1254	UG/L	< 1														
AROCLOR 1260	UG/L	< 1														
ARSENIC DISSOLVED	UG/L										< 25	< 25	< 25	< 25	< 25	< 25
ARSENIC TOTAL	UG/L	< 5	< 5	< 10	< 5	< 5	< 5	< 5	< 5				< 5			
BARIUM DISSOLVED	UG/L													143	< 0 1	110
BARIUM TOTAL	UG/L												< 200			
BENZ[A]ANTHRACENE	UG/L	< 10														
BENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BENZIDINE	UG/L	< 10														
BENZO[A]PYRENE	UG/L	< 10														
BENZO[B]FLUORANTHENE	UG/L	< 10														
BENZO[G H I]PERYLENE	UG/L	< 10														
BENZO[K]FLUORANTHENE	UG/L	< 10														
BERYLLIUM DISSOLVED	UG/L										< 4	< 4	< 4	< 4	< 4	< 4
BERYLLIUM TOTAL	UG/L	< 5	< 5										< 4			

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ANALYTE	UNITS	3/11/92	5/12/92	8/13/92	11/4/92	2/8/93	5/3/93	7/28/93	11/2/93	1/31/94	5/5/94	8/5/94	11/1/94	2/2/95	7/26/95	1/10/96
BETA BHC	UG/L	< 0 1														
BIS(2 CHLOROETHOXY)METHANE	UG/L	< 10														
BIS(2 CHLOROETHYL)ETHER	UG/L	< 10														
BIS(2 CHLOROISOPROPYL)ETHER	UG/L	< 10														
BIS(2 ETHYLHEXYL)PHTHALATE	UG/L	< 10														
BROMOCHLOROMETHANE	UG/L														< 1	< 1
BROMODICHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BUTYLBENZYLPHTHALATE	UG/L	< 10														
CADMIUM DISSOLVED	UG/L										< 5	< 5	< 3	< 3	< 3	< 3
CADMIUM TOTAL	UG/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5				< 5			
CARBON DISULFIDE	UG/L														< 1	< 1
CARBON TETRACHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLORDANE	UG/L	< 1														
CHLORIDE	MG/L													6 28	5 44	6 19
CHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHROMIUM DISSOLVED	UG/L										< 25	< 25	< 50	< 50	< 50	< 50
CHROMIUM TOTAL	UG/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10				< 10			
CHRYSENE	UG/L	< 10														
CIS 1 2 DICHLOROETHENE	UG/L														< 1	< 1
CIS-1 3 DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
COBALT TOTAL	UG/L													< 25	< 25	< 25
COLOR													NONE	< 5	< 5	< 5
COPPER DISSOLVED	UG/L													< 50	< 50	< 50
COPPER TOTAL	UG/L	< 25											< 10			
CYANIDE TOTAL	MG/L	< 0 02														
DELTA BHC	UG/L	< 0 05														
DEPTH TO WATER FROM TOP OF CASING	FT												4 12			
DI N BUTYLPHTHALATE	UG/L	< 10														
DI N OCTYLPHTHALATE	UG/L	< 10														
DIBENZ[A H]ANTHRACENE	UG/L	< 10														
DIBROMOCHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
DIBROMOMETHANE	UG/L														< 1	< 1
DICHLORODIFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	4	< 1	< 1	< 1	< 1			
DIELDRIN	UG/L	< 0 1														
DIETHYLPHTHALATE	UG/L	< 10														
DIMETHYLPHTHALATE	UG/L	< 10														
ELAPSED HOURS	HRS												0 4			
ENDOSULFAN I	UG/L	< 0 05														
ENDOSULFAN II	UG/L	< 0 1														
ENDOSULFAN SULFATE	UG/L	< 0 5														
ENDRIN	UG/L	< 0 1														
ENDRIN ALDEHYDE	UG/L	< 0 1														
ETHYLBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
FLUORANTHENE	UG/L	< 10														
FLUORENE	UG/L	< 10														
GROUNDWATER ELEV	FT MSL		NA	121 85	120 29	119 76	119 58	119 65	120 63	120 92			120 44			
HEPTACHLOR	UG/L	< 0 05														
HEPTACHLOR EPOXIDE	UG/L	< 0 5														
HEXACHLOROBENZENE	UG/L	< 10														
HEXACHLOROBUTADIENE	UG/L	< 10														
HEXACHLOROCYCLOPENTADIENE	UG/L	< 40														
HEXACHLOROETHANE	UG/L	< 10														
INDENO[1 2 3 CD]PYRENE	UG/L	< 10														
IODOMETHANE	UG/L														< 1	< 1
IRON TOTAL	UG/L		1080	7030	2700	963	2300	2920	2840		1230	2910	1430	2380	1820	1390
ISOPHORONE	UG/L	< 10														
LEAD-DISSOLVED	UG/L										< 5	< 5	< 5	< 5	< 0 005	7
LEAD-TOTAL	UG/L	< 5	< 5	10 5	< 5	< 5	< 5	5 1	6 9				22 5			
LINDANE (GAMMA BHC)	UG/L	< 0 1														
MERCURY DISSOLVED	UG/L												< 1	< 1	< 1	< 1
MERCURY TOTAL	UG/L	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2							
METHYL TERT BUTYL ETHER	UG/L									< 10	< 10	< 10	< 10			
METHYLENE CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
N NITROSODI N PROPYLAMINE	UG/L	< 10														
N NITROSODIMETHYLAMINE	UG/L	< 10														
N NITROSODIPHENYLAMINE	UG/L	< 10														

ANALYTE	UNITS	3/11/92	5/12/92	8/13/92	11/4/92	2/8/93	5/3/93	7/28/93	11/2/93	1/31/94	5/5/94	8/5/94	11/1/94	2/2/95	7/26/95	1/10/96
NAPHTHALENE	UG/L	< 10														
NICKEL DISSOLVED	UG/L													< 10	< 50	< 50
NICKEL TOTAL	UG/L	< 40											< 40			
NITROBENZENE	UG/L	< 10														
NITROGEN AMMONIA	MG/L		0 13	0 13	0 14	0 079	0 19	0 16	0 14					< 0 1	< 0 05	0 671
NITROGEN NITRATE	MG/L		< 0 05	< 0 05	< 0 05	< 0 05	< 0 05	0 063	< 0 05					< 0 05	< 0 05	< 0 05
ODOR													NONE			< 1
PENTACHLOROPHENOL	UG/L	< 10														
PH FIELD	PH UNITS	7 44	8 06	6 9	7 04	7 21	6 45	7 07	6 31	7 1	7 24	7 3	7 25	7 2	7 17	7 08
PHENANTHRENE	UG/L	< 10														
PHENOL	UG/L	< 10														
PLUS ANALYTES FOUND		Y														
PURGE DATE (YY/MM/DD)	Y/MM/DD												94-11-01			
PURGING DEVICE													C			
PURGING EQUIPMENT DEDICATED													Y			
PURGING MATERIAL													A			
PYRENE	UG/L	< 10														
SAMPLING DEVICE													C			
SAMPLING EQUIPMENT DEDICATED													Y			
SAMPLING MATERIAL													A			
SELENIUM DISSOLVED	UG/L										< 5	< 25	< 25	< 25	< 25	< 25
SELENIUM TOTAL	UG/L	< 5	< 5										< 5			
SILVER DISSOLVED	UG/L													< 25	< 25	< 25
SILVER TOTAL	UG/L	< 10											< 25			
SODIUM DISSOLVED	UG/L										6330	5910	5660	6110	6740	6450
SODIUM-TOTAL	UG/L		6220	6450	6290	6430	5780	6240	8080							
SPECIFIC CONDUCTANCE	MHOS/CM									388						
SPECIFIC CONDUCTANCE FIELD	MHOS/C	400	250	378	416	411	327	299	355				NA	32	400	372
STYRENE	UG/L													< 1	< 1	< 1
TETRACHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
THALLIUM DISSOLVED	UG/L													< 1	1	< 1
THALLIUM TOTAL	UG/L	< 10											< 2			
TOLUENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TOTAL ORGANIC CARBON	MG/L		2 6	1 8	1 8	1 9	1 7	2	1 7	87	60	63	3			
TOXAPHENE	UG/L	< 1														
TRANS-1 2 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1 3-DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1 4 DICHLORO-2 BUTENE	UG/L														< 1	< 1
TRICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TUBING PURGING													G			
TUBING SAMPLING													G			
TURBIDITY	NTU		8 6	17	40	7 8	28	70	120	144	72	64	85	56	36 0	27
VANADIUM DISSOLVED	UG/L													< 25	< 25	< 25
VANADIUM-TOTAL	UG/L												< 50			
VINYL ACETATE	UG/L													< 1	< 1	< 1
VINYL CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
WELL DEPTH TOTAL	FT		114 68	112	112	112 8	112	112	112				112			
XYLENE(TOTAL)	UG/L									< 5	< 5	< 5	< 5	< 1	< 1	< 1
ZINC-DISSOLVED	UG/L													< 50	< 50	< 50
ZINC-TOTAL	UG/L												< 20			

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ANALYTE	UNITS	3/11/92	5/12/92	8/13/92	11/4/92	2/8/93	2/9/93	4/28/93	7/28/93	8/2/93	11/2/93	1/31/94	5/5/94	8/5/94	11/1/94	2/2/95	7/26/95	1/10/96
1 1 1 2 TETRACHLOROETHANE	UG/L																< 1	< 1
1 1 1 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 2 TETRACHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 3-TRICHLOROPROPANE	UG/L																< 1	< 1
1 2 4 TRICHLOROBENZENE	UG/L	< 10																
1 2 DIBROMO-3 CHLOROPROPANE	UG/L															< 1	< 0 2	< 0 2
1 2 DIBROMOETHANE	UG/L															< 1	< 0 02	< 0 02
1 2 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROPROPANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DIPHENYLHYDRAZINE	UG/L	< 10																
1 3 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1			
1 4 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2 4 6 TRICHLOROPHENOL	UG/L	< 10																
2 4 DICHLOROPHENOL	UG/L	< 10																
2 4 DIMETHYLPHENOL	UG/L	< 10																
2 4 DINITROPHENOL	UG/L	< 10																
2 4 DINITROTOLUENE	UG/L	< 10																
2 6 DINITROTOLUENE	UG/L	< 10																
2 BUTANONE	UG/L															< 1		< 1
2-CHLOROETHYLVINYL ETHER	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1			
2 CHLORONAPHTHALENE	UG/L	< 10																
2 CHLOROPHENOL	UG/L	< 10																
2 HEXANONE	UG/L																< 1	< 1
2 NITROPHENOL	UG/L	< 10																
3 3 DICHLOROBENZIDINE	UG/L	< 10																
4 4 DDD	UG/L	< 0 1																
4 4 DDE	UG/L	< 0 1																
4 4 DDT	UG/L	< 0 1																
4 6 DINITRO-2 METHYLPHENOL	UG/L	< 10																
4 BROMOPHENYL PHENYL ETHER	UG/L	< 10																
4-CHLORO 3 METHYLPHENOL	UG/L	< 10																
4 CHLOROPHENYL PHENYL ETHER	UG/L	< 10																
4 METHYL 2 PENTANONE	UG/L																< 1	< 1
4 NITROPHENOL	UG/L	< 10																
ACENAPHTHENE	UG/L	< 10																
ACENAPHTHYLENE	UG/L	< 10																
ACETONE	UG/L																< 1	< 1
ACRYLONITRILE	UG/L															< 1	< 1	< 1
ACTUAL VOLUME PURGED	GALLONS														43 8			
ALDRIN	UG/L	< 0 1																
ALKALINITY BICARBONATE (AS CACO3)	MG/L		< 10	< 10	< 10	< 10		< 10	< 10		< 10	< 1	< 15	< 15	16			
ALPHA BHC	UG/L	< 0 1																
AMMONIUM	MG/L											< 0 05	< 0 05	< 0 05	< 0 05			
AMMONIUM NH4	MG/L		0 033	< 0 02	0 023	< 0 02		< 0 02	< 0 02		< 0 02							
ANTHRACENE	UG/L	< 10																
ANTIMONY DISSOLVED	UG/L												< 3	< 3	< 3	< 3	< 3	< 3
ANTIMONY TOTAL	UG/L	< 50	< 50												< 6			
AROCLOR 1016	UG/L	< 1																
AROCLOR 1221	UG/L	< 1																
AROCLOR 1232	UG/L	< 1																
AROCLOR 1242	UG/L	< 1																
AROCLOR 1248	UG/L	< 1																
AROCLOR 1254	UG/L	< 1																
AROCLOR 1260	UG/L	< 1																
ARSENIC DISSOLVED	UG/L						< 10	< 10		< 10		< 25	< 25	< 25	< 25	< 25	< 25	< 25
ARSENIC TOTAL	UG/L	< 5	< 10	< 20	< 5	< 25		< 5	< 5		< 5				< 5			
BARIUM DISSOLVED	UG/L															< 100	104	< 100
BARIUM TOTAL	UG/L														< 200			
BENZ[A]ANTHRACENE	UG/L	< 10																
BENZENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BENZIDINE	UG/L	< 10																
BENZO[A]PYRENE	UG/L	< 10																
BENZO[B]FLUORANTHENE	UG/L	< 10																
BENZO[G H I]PERYLENE	UG/L	< 10																
BENZO[K]FLUORANTHENE	UG/L	< 10																
BERYLLIUM DISSOLVED	UG/L											< 25	< 4	< 4	< 4	< 4	< 4	< 4
BERYLLIUM TOTAL	UG/L	< 5	< 5												< 4			
BETA BHC	UG/L	< 0 1																
BIS(2-CHLOROETHOXY)METHANE	UG/L	< 10																
BIS(2 CHLOROETHYL)ETHER	UG/L	< 10																
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	< 10																
BIS(2 ETHYLHEXYL)PHTHALATE	UG/L	< 10																

ANALYTE	UNITS	3/11/92	8/12/92	8/13/92	11/4/92	2/8/93	2/9/93	4/28/93	7/28/93	8/2/93	11/2/93	1/31/94	5/5/94	8/5/94	11/1/94	2/2/95	7/26/95	1/10/96
BROMOCHLOROMETHANE	UG/L																< 1	< 1
BROMODICHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BUTYLBENZYLPHTHALATE	UG/L	< 10																
CADMIUM DISSOLVED	UG/L						< 5	< 5		< 5		< 5	< 5	< 5	< 3	< 3	< 3	< 3
CADMIUM TOTAL	UG/L	< 5	< 5	< 5	< 5	< 5		< 5	< 5		< 5				< 5			
CARBON DISULFIDE	UG/L																< 1	< 1
CARBON TETRACHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLORDANE	UG/L	< 1																
CHLORIDE	MG/L															8 29	7 45	7 32
CHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHROMIUM DISSOLVED	UG/L						< 10	< 10		< 10		< 25	< 25	< 25	< 50	< 50	< 50	< 50
CHROMIUM TOTAL	UG/L	10 2	18 1	30 8	14 2	< 10		11 7	< 10		< 10				< 10			
CHRYSENE	UG/L	< 10																
CIS-1 2 DICHLOROETHENE	UG/L																< 1	< 1
CIS 1 3 DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
COBALT TOTAL	UG/L															< 25	< 25	< 25
COLOR															NONE	< 5	< 5	< 5
COPPER DISSOLVED	UG/L															< 50	< 50	< 50
COPPER TOTAL	UG/L	< 25													< 10			
CYANIDE TOTAL	MG/L	< 0 02																
DELTA BHC	UG/L	< 0 05																
DEPTH TO WATER FROM TOP OF CASING	FT														6 9			
DI N BUTYLPHTHALATE	UG/L	< 10																
DI N-OCTYLPHTHALATE	UG/L	< 10																
DIBENZ(A H)ANTHRACENE	UG/L	< 10																
DIBROMOCHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1		< 1	< 1
DIBROMOMETHANE	UG/L																< 1	< 1
DICHLORODIFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		5	< 1	< 1	< 1	< 1			
DIELDRIN	UG/L	< 0 1																
DIETHYLPHTHALATE	UG/L	< 10																
DIMETHYLPHTHALATE	UG/L	< 10																
ELAPSED HOURS	HRS														0 5			
ENDOSULFAN I	UG/L	< 0 05																
ENDOSULFAN II	UG/L	< 0 1																
ENDOSULFAN SULFATE	UG/L	< 0 5																
ENDRIN	UG/L	< 0 1																
ENDRIN ALDEHYDE	UG/L	< 0 1																
ETHYLBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
FLUORANTHENE	UG/L	< 10																
FLUORENE	UG/L	< 10																
GROUNDWATER ELEV	FT MSL		NA	120 03	117 64	117 12		116 8	116 9		118 37	118 42			117 72			
HEPTACHLOR	UG/L	< 0 05																
HEPTACHLOR EPOXIDE	UG/L	< 0 5																
HEXACHLOROBENZENE	UG/L	< 10																
HEXACHLOROBUTADIENE	UG/L	< 10																
HEXACHLOROCYCLOPENTADIENE	UG/L	< 40																
HEXACHLOROETHANE	UG/L	< 10																
INDENO(1 2 3-CD)PYRENE	UG/L	< 10																
IODOMETHANE	UG/L																< 1	< 1
IRON DISSOLVED	UG/L						392	398		396								
IRON TOTAL	UG/L		1070	1410	929	698		673	474		494	423	346	386	376	490	312	325
ISOPHORONE	UG/L	< 10																
LEAD-DISSOLVED	UG/L						< 5	< 5		< 5		< 25	< 5	< 5	< 5	< 5	5	6
LEAD-TOTAL	UG/L	8 7	9	20 3	16 9	< 10		< 6 4	< 5		< 5				< 5			
LINDANE (GAMMA BHC)	UG/L	< 0 1																
MERCURY DISSOLVED	UG/L						< 0 2	< 0 2		< 0 2		< 1			< 1	< 1	< 1	< 1
MERCURY TOTAL	UG/L	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2		< 0 2	< 0 2		< 0 2							
METHYL TERT BUTYL ETHER	UG/L											< 10	< 10	< 10	< 10			
METHYLENE CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1		< 1	< 1
N NITROSODI-N PROPYLAMINE	UG/L	< 10																
N NITROSODIMETHYLAMINE	UG/L	< 10																
N NITROSODIPHENYLAMINE	UG/L	< 10																
NAPHTHALENE	UG/L	< 10																
NICKEL DISSOLVED	UG/L															< 10	< 50	< 50
NICKEL TOTAL	UG/L	< 40													< 40			
NITROBENZENE	UG/L	< 10																
NITROGEN AMMONIA	MG/L		0 033	< 0 02	0 023	< 0 02		< 0 02	< 0 02		< 0 02					< 0 1	< 0 05	0 507
NITROGEN NITRATE	MG/L		< 0 05	< 0 05	< 0 05	< 0 05		< 0 05	< 0 05		< 0 05					< 0 05	< 0 05	0 063
ODOR															NONE			< 1
PENTACHLOROPHENOL	UG/L	< 10																
PH FIELD	PH UNITS	5 4	5 39	5 39	5 33	5 72		5 26	5 3	5 36	5 39	5 45	5 35	5 39	5 27	5 36	5 25	5 42

ANALYTE	UNITS	3/11/92	5/12/92	8/13/92	11/4/92	2/8/93	2/9/93	4/28/93	7/28/93	8/2/93	11/2/93	1/31/94	5/5/94	8/5/94	11/1/94	2/2/95	7/26/95	1/10/96
PHENANTHRENE	UG/L	< 10																
PHENOL	UG/L	< 10																
PLUS ANALYTES FOUND		Y																
PURGE DATE (YY/MM/DD)	YY/MM/DD														94 11-01			
PURGING DEVICE															C			
PURGING EQUIPMENT DEDICATED															Y			
PURGING MATERIAL															A			
PYRENE	UG/L	< 10																
SAMPLING DEVICE															C			
SAMPLING EQUIPMENT DEDICATED															Y			
SAMPLING MATERIAL															A			
SELENIUM DISSOLVED	UG/L												< 5	< 25	< 25	< 25	< 25	< 25
SELENIUM TOTAL	UG/L	5 4	< 25					< 5							< 5			
SILVER DISSOLVED	UG/L															< 25	< 25	< 25
SILVER TOTAL	UG/L	< 10													< 25			
SODIUM DISSOLVED	UG/L						< 5000	< 5000		< 5000		2980	3270	3210	3110	3220	3450	3450
SODIUM TOTAL	UG/L		3850	3490	3650	3840		3450	5300		3260							
SPECIFIC CONDUCTANCE	UMHOS/CM											42 1						
SPECIFIC CONDUCTANCE FIELD	UMHOS/C	49	25	42	45	45		39	30	35	278				NA	35	43 0	41
STYRENE	UG/L															< 1	< 1	< 1
TETRACHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
THALLIUM DISSOLVED	UG/L															< 1	< 1	< 1
THALLIUM TOTAL	UG/L	< 10													< 2			
TOLUENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TOTAL ORGANIC CARBON	MG/L		2 1	1 8	1 9	1 6		1 5	1 5		1 4		33	32	3			
TOXAPHENE	UG/L	< 1																
TRANS 1 2 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS 1 3 DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS 1 4 DICHLORO 2 BUTENE	UG/L																< 1	< 1
TRICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TUBING-PURGING															G			
TUBING SAMPLING															G			
TURBIDITY	NTU		310	500	400	210		140	140		65	70	33	28	10	13	7 9	7 6
VANADIUM DISSOLVED	UG/L															< 25	< 25	< 25
VANADIUM TOTAL	UG/L														< 50			
VINYL ACETATE	UG/L															< 1	< 1	< 1
VINYL CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
WELL DEPTH TOTAL	FT		61 99	71 5	71 5	71 5		71 5	71 5		71 5				71 5			
XYLENE(TOTAL)	UG/L											< 5	< 5	< 5	< 5	< 1	< 1	< 1
ZINC DISSOLVED	UG/L															< 50	< 50	< 50
ZINC TOTAL	UG/L														< 20			

ANALYTE	UNITS	3/16/92	5/12/92	8/13/92	11/4/92	2/8/93	5/3/93	7/28/93	11/2/93	1/31/94	5/5/94	8/5/94	11/1/94	2/2/95	7/26/95	1/10/96
1 1 1 2 TETRACHLOROETHANE	UG/L														< 1	< 1
1 1 1 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 2 TETRACHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1-DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 3-TRICHLOROPROPANE	UG/L														< 1	< 1
1 2 4 TRICHLOROBENZENE	UG/L	< 10														
1 2 DIBROMO 3-CHLOROPROPANE	UG/L													< 1	< 0 2	< 0 2
1 2 DIBROMOETHANE	UG/L													< 1	< 0 02	< 0 02
1 2 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROPROPANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DIPHENYLHYDRAZINE	UG/L	< 10														
1 3-DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
1 4 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2 4 6-TRICHLOROPHENOL	UG/L	< 10														
2 4 DICHLOROPHENOL	UG/L	< 10														
2 4 DIMETHYLPHENOL	UG/L	< 10														
2 4 DINITROPHENOL	UG/L	< 10														
2 4 DINITROTOLUENE	UG/L	< 10														
2 6-DINITROTOLUENE	UG/L	< 10														
2 BUTANONE	UG/L													< 1		< 1
2 CHLOROETHYLVINYL ETHER	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
2 CHLORONAPHTHALENE	UG/L	< 10														
2 CHLOROPHENOL	UG/L	< 10														
2 HEXANONE	UG/L														< 1	< 1
2 NITROPHENOL	UG/L	< 10														
3 3 DICHLOROBENZIDINE	UG/L	< 10														
4 4 DDD	UG/L	< 0 1														
4 4-DDE	UG/L	< 0 1														
4 4 DDT	UG/L	< 0 1														
4 6-DINITRO-2 METHYLPHENOL	UG/L	< 10														
4 BROMOPHENYL PHENYL ETHER	UG/L	< 10														
4 CHLORO-3-METHYLPHENOL	UG/L	< 10														
4-CHLOROPHENYL PHENYL ETHER	UG/L	< 10														
4 METHYL 2 PENTANONE	UG/L														< 1	< 1
4 NITROPHENOL	UG/L	< 10														
ACENAPHTHENE	UG/L	< 10														
ACENAPHTHYLENE	UG/L	< 10														
ACETONE	UG/L														< 1	< 1
ACRYLONITRILE	UG/L													< 1	< 1	< 1
ACTUAL VOLUME PURGED	GALLONS												13 6			
ALDRIN	UG/L	< 0 1														
ALKALINITY BICARBONATE (AS CACO3)	MG/L		< 10	< 10	< 10	< 10	< 10	< 10	< 10	8 86	16 6	< 15	< 15			
ALPHA BHC	UG/L	< 0 1														
AMMONIUM	MG/L									< 0 05	< 0 05	< 0 05	< 0 05			
AMMONIUM NH4	MG/L		< 0 02	< 0 02	< 0 02	< 0 02	< 0 02	< 0 02	< 0 02							
ANTHRACENE	UG/L	< 10														
ANTIMONY DISSOLVED	UG/L										< 3	< 3	< 3	< 3	< 3	< 3
ANTIMONY TOTAL	UG/L	< 50	< 50										< 6			
AROCLOR 1016	UG/L	< 1														
AROCLOR 1221	UG/L	< 1														
AROCLOR 1232	UG/L	< 1														
AROCLOR 1242	UG/L	< 1														
AROCLOR 1248	UG/L	< 1														
AROCLOR 1254	UG/L	< 1														
AROCLOR 1260	UG/L	< 1														
ARSENIC DISSOLVED	UG/L										< 25	< 25	< 25	< 25	< 25	< 25
ARSENIC-TOTAL	UG/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 70				< 28			
BARIUM DISSOLVED	UG/L													< 100	< 100	< 100
BARIUM TOTAL	UG/L												< 200			
BENZ[A]ANTHRACENE	UG/L	< 10														
BENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BENZIDINE	UG/L	< 10														
BENZO[A]PYRENE	UG/L	< 10														
BENZO[B]FLUORANTHENE	UG/L	< 10														
BENZO[G H I]PERYLENE	UG/L	< 10														
BENZO[K]FLUORANTHENE	UG/L	< 10														
BERYLLIUM DISSOLVED	UG/L										< 4	< 4	< 4	< 4	< 4	< 4
BERYLLIUM TOTAL	UG/L	< 5	< 5										< 4			

ANALYTE	UNITS	3/16/92	5/12/92	8/13/92	11/4/92	2/8/93	5/3/93	7/28/93	11/2/93	1/31/94	5/5/94	8/5/94	11/1/94	2/2/95	7/26/95	1/10/96
BETA-BHC	UG/L	< 0 1														
BIS(2 CHLOROETHOXY)METHANE	UG/L	< 10														
BIS(2 CHLOROETHYL)ETHER	UG/L	< 10														
BIS(2 CHLOROISOPROPYL)ETHER	UG/L	< 10														
BIS(2 ETHYLHEXYL)PHTHALATE	UG/L	< 10														
BROMOCHLOROMETHANE	UG/L														< 1	< 1
BROMODICHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BUTYLBENZYLPHTHALATE	UG/L	< 10														
CADMIUM DISSOLVED	UG/L										< 5	< 5	< 3	< 3	< 3	< 3
CADMIUM TOTAL	UG/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5				< 5			
CARBON DISULFIDE	UG/L														< 1	< 1
CARBON TETRACHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLORDANE	UG/L	< 1														
CHLORIDE	MG/L													12 9	13 5	13 8
CHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHROMIUM DISSOLVED	UG/L										< 25	< 25	< 50	< 50	< 50	< 50
CHROMIUM TOTAL	UG/L	16 2	21 7	< 10	< 10	< 10	< 10	< 10	< 10				< 10			
CHRYSENE	UG/L	< 10														
CIS-1 2 DICHLOROETHENE	UG/L														< 1	< 1
CIS 1 3 DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
COBALT TOTAL	UG/L													< 25	< 25	< 25
COLOR													NONE	< 5	< 5	< 5
COPPER DISSOLVED	UG/L													< 50	< 50	< 50
COPPER TOTAL	UG/L	< 25											< 10			
CYANIDE TOTAL	MG/L	< 0 02														
DELTA BHC	UG/L	< 0 05														
DEPTH TO WATER FROM TOP OF CASING	FT												8 43			
DI N BUTYLPHTHALATE	UG/L	< 10														
DI N OCTYLPHTHALATE	UG/L	< 10														
DIBENZ[A H]ANTHRACENE	UG/L	< 10														
DIBROMOCHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
DIBROMOMETHANE	UG/L														< 1	< 1
DICHLORODIFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
DIELDRIN	UG/L	< 0 1														
DIETHYLPHTHALATE	UG/L	< 10														
DIMETHYLPHTHALATE	UG/L	< 10														
ELAPSED HOURS	HRS												0 3			
ENDOSULFAN I	UG/L	< 0 05														
ENDOSULFAN II	UG/L	< 0 1														
ENDOSULFAN SULFATE	UG/L	< 0 5														
ENDRIN	UG/L	< 0 1														
ENDRIN ALDEHYDE	UG/L	< 0 1														
ETHYLBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
FLUORANTHENE	UG/L	< 10														
FLUORENE	UG/L	< 10														
GROUNDWATER ELEV	FT MSL		NA	118 25	116 72	115 78	115 75	116 35	117 03	117 27			116 2			
HEPTACHLOR	UG/L	< 0 05														
HEPTACHLOR EPOXIDE	UG/L	< 0 5														
HEXACHLOROBENZENE	UG/L	< 10														
HEXACHLOROBUTADIENE	UG/L	< 10														
HEXACHLOROCYCLOPENTADIENE	UG/L	< 40														
HEXACHLOROETHANE	UG/L	< 10														
INDENO[1 2 3-CD]PYRENE	UG/L	< 10														
IODOMETHANE	UG/L														< 1	< 1
IRON TOTAL	UG/L		891	383	953	980	954	991	1040		782	772	618	794	580	663
ISOPHORONE	UG/L	< 10														
LEAD DISSOLVED	UG/L										< 5	< 5	7	< 5	< 5	6
LEAD-TOTAL	UG/L	6 6	17 3	< 5	< 5	< 5	< 5	< 5	< 5				< 5			
LINDANE (GAMMA BHC)	UG/L	< 0 1														
MERCURY-DISSOLVED	UG/L												< 1	< 1	< 1	< 1
MERCURY TOTAL	UG/L	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2							
METHYL TERT-BUTYL ETHER	UG/L									< 10	< 10	< 10	< 10			
METHYLENE CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
N NITROSODI N PROPYLAMINE	UG/L	< 10														
N NITROSODIMETHYLAMINE	UG/L	< 10														
N NITROSODIPHENYLAMINE	UG/L	< 10														

ANALYTE	UNITS	3/16/92	5/12/92	8/13/92	11/4/92	2/8/93	5/3/93	7/28/93	11/2/93	1/31/94	5/5/94	8/5/94	11/1/94	2/2/95	7/26/95	1/10/96
NAPHTHALENE	UG/L	< 10														
NICKEL DISSOLVED	UG/L													< 10		
NICKEL-TOTAL	UG/L	< 40											< 40			
NITROBENZENE	UG/L	< 10														
NITROGEN AMMONIA	MG/L		< 0 02	< 0 02	< 0 02	< 0 02	< 0 02	< 0 02	< 0 02					0 19	< 0 05	1 23
NITROGEN NITRATE	MG/L		0 053	< 0 05	< 0 05	< 0 05	< 0 05	0 05	0 092					< 0 05	< 0 05	< 0 05
ODOR													MODERATE			2
PENTACHLOROPHENOL	UG/L	< 10														
PH FIELD	PH UNITS	4 43	5 02	4 3	4 34	4 37	4 78	4 08	4 16	4 51	4 5	4 41	4 4	4 47	4 30	4 43
PHENANTHRENE	UG/L	< 10														
PHENOL	UG/L	< 10														
PLUS ANALYTES FOUND		N														
PURGE DATE (YY/MM/DD)	Y/MM/DD												94-11-01			
PURGING DEVICE													C			
PURGING EQUIPMENT DEDICATED													Y			
PURGING MATERIAL													A			
PYRENE	UG/L	< 10														
SAMPLING DEVICE													C			
SAMPLING EQUIPMENT DEDICATED													Y			
SAMPLING MATERIAL													A			
SELENIUM DISSOLVED	UG/L										< 5	< 25	< 25	< 25	< 25	< 25
SELENIUM TOTAL	UG/L	< 5	< 5										< 5			
SILVER DISSOLVED	UG/L													< 25	< 25	< 25
SILVER-TOTAL	UG/L	< 10											< 25			
SODIUM DISSOLVED	UG/L										6180	6280	9370	5900	6910	6020
SODIUM TOTAL	UG/L		7630	5550	6330	4820	3900	4350	6720							
SPECIFIC CONDUCTANCE	MHOS/CM									80						
SPECIFIC CONDUCTANCE FIELD	MHOS/C	71	42	79	74	76	56	53	315				NA	81	108	88
STYRENE	UG/L													< 1	< 1	< 1
TETRACHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
THALLIUM DISSOLVED	UG/L													< 1	< 1	< 1
THALLIUM TOTAL	UG/L	< 10											< 2			
TOLUENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TOTAL ORGANIC CARBON	MG/L		5 8	3	3 5	2 9	2 5	2 8	2 5	96	96	89	4			
TOXAPHENE	UG/L	< 1														
TRANS-1 2 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1 3 DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1 4 DICHLORO-2 BUTENE	UG/L														< 1	< 1
TRICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TUBING PURGING													G			
TUBING SAMPLING													G			
TURBIDITY	NTU		340	13	24	19	6 9	9 9	20	9 4	9 5	32	8 3	2 6	0 56	1 1
VANADIUM DISSOLVED	UG/L													< 25	< 25	< 25
VANADIUM TOTAL	UG/L												< 50			
VINYL ACETATE	UG/L													< 1	< 1	< 1
VINYL CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
WELL DEPTH TOTAL	FT		27 4	24 5	24 5	25	25	25	25 6				24 5			
XYLENE(TOTAL)	UG/L									< 5	< 5	< 5	< 5	< 1	< 1	< 1
ZINC DISSOLVED	UG/L													< 50	< 50	< 50
ZINC-TOTAL	UG/L												< 20			

MWB13I

ANALYTE	UNITS	11/22/95	1/11/96
1 1 1 2 TETRACHLOROETHANE	UG/L	< 1	< 1
1 1 1 TRICHLOROETHANE	UG/L	< 1	< 1
1 1 2 2 TETRACHLOROETHANE	UG/L	< 1	< 1
1 1 2 TRICHLOROETHANE	UG/L	< 1	< 1
1 1 DICHLOROETHANE	UG/L	< 1	< 1
1 1 DICHLOROETHENE	UG/L	< 1	< 1
1 2 3-TRICHLOROPROPANE	UG/L	< 1	< 1
1 2 DIBROMO-3-CHLOROPROPANE	UG/L	< 0 2	< 0 2
1 2 DIBROMOETHANE	UG/L	< 0 02	< 0 02
1 2 DICHLOROBENZENE	UG/L	< 1	< 1
1 2 DICHLOROETHANE	UG/L	< 1	< 1
1 2 DICHLOROPROPANE	UG/L	< 1	< 1
1 4 DICHLOROBENZENE	UG/L	< 1	< 1
2 BUTANONE	UG/L	< 1	< 1
2 HEXANONE	UG/L	< 1	< 1
4 METHYL 2 PENTANONE	UG/L	< 1	< 1
ACETONE	UG/L	< 1	< 1
ACRYLONITRILE	UG/L	< 1	< 1
ANTIMONY DISSOLVED	UG/L	< 3	< 3
ARSENIC DISSOLVED	UG/L	< 25	< 25
BARIUM DISSOLVED	UG/L	< 100	118
BENZENE	UG/L	< 1	< 1
BERYLLIUM DISSOLVED	UG/L	< 4	< 4
BROMOCHLOROMETHANE	UG/L	< 1	< 1
BROMODICHLOROMETHANE	UG/L	< 1	< 1
BROMOFORM	UG/L	< 1	< 1
BROMOMETHANE	UG/L	< 1	< 1
CADMIUM DISSOLVED	UG/L	< 3	< 3
CARBON DISULFIDE	UG/L	< 1	< 1
CARBON TETRACHLORIDE	UG/L	< 1	< 1
CHLORIDE	MG/L	7 57	8 75
CHLOROBENZENE	UG/L	< 1	< 1
CHLOROETHANE	UG/L	< 1	< 1
CHLOROFORM	UG/L	< 1	< 1
CHLOROMETHANE	UG/L	< 1	< 1
CHROMIUM DISSOLVED	UG/L	< 50	< 50
CIS 1 2 DICHLOROETHENE	UG/L	< 1	< 1
CIS 1 3 DICHLOROPROPENE	UG/L	< 1	< 1
COBALT TOTAL	UG/L	< 25	< 25
COPPER DISSOLVED	UG/L	< 50	< 50
DIBROMOCHLOROMETHANE	UG/L	< 1	< 1
DIBROMOMETHANE	UG/L	< 1	< 1
ETHYLBENZENE	UG/L	< 1	< 1
IODOMETHANE	UG/L	< 1	< 1
IRON TOTAL	UG/L	5290	3080
LEAD-DISSOLVED	UG/L		19
MERCURY DISSOLVED	UG/L	< 1	< 1
METHYLENE CHLORIDE	UG/L	< 1	< 1
NICKEL DISSOLVED	UG/L	< 50	< 50
NITROGEN AMMONIA	MG/L	< 0 05	
NITROGEN NITRATE	MG/L	< 0 05	0 142
ODOR	TON	2	< 1
PH FIELD	PH UNITS	5 1	5 21
SELENIUM DISSOLVED	UG/L	< 25	< 25
SILVER DISSOLVED	UG/L	< 25	< 25
SODIUM DISSOLVED	UG/L	5230	4850
SPECIFIC CONDUCTANCE FIELD	MHOS/C	40	38
STYRENE	UG/L	< 1	< 1
TETRACHLOROETHENE	UG/L	< 1	< 1
THALLIUM DISSOLVED	UG/L	< 1	< 1
TOLUENE	UG/L	< 1	< 1
TRANS 1 2 DICHLOROETHENE	UG/L	< 1	< 1
TRANS 1 3-DICHLOROPROPENE	UG/L	< 1	< 1
TRANS-1 4 DICHLORO-2 BUTENE	UG/L	< 1	< 1
TRICHLOROETHENE	UG/L	< 1	< 1
TRICHLOROFLUOROMETHANE	UG/L	< 1	< 1
TURBIDITY	NTU	165	38
VANADIUM DISSOLVED	UG/L	< 25	48
VINYL ACETATE	UG/L	< 1	< 1
VINYL CHLORIDE	UG/L	< 1	< 1
XYLENE(TOTAL)	UG/L	< 1	< 1
ZINC DISSOLVED	UG/L	< 50	< 50

MWB13S

ANALYTE	UNITS	11/22/95	1/10/96
1 1 1 2 TETRACHLOROETHANE	UG/L	< 1	< 1
1 1 1 TRICHLOROETHANE	UG/L	< 1	< 1
1 1 2 2 TETRACHLOROETHANE	UG/L	< 1	< 1
1 1 2 TRICHLOROETHANE	UG/L	< 1	< 1
1 1 DICHLOROETHANE	UG/L	< 1	< 1
1 1 DICHLOROETHENE	UG/L	< 1	< 1
1 2 3-TRICHLOROPROPANE	UG/L	< 1	< 1
1 2 DIBROMO-3-CHLOROPROPANE	UG/L	< 0 2	< 0 2
1 2 DIBROMOETHANE	UG/L	< 0 02	< 0 02
1 2 DICHLOROBENZENE	UG/L	< 1	< 1
1 2-DICHLOROETHANE	UG/L	< 1	< 1
1 2 DICHLOROPROPANE	UG/L	< 1	< 1
1 4 DICHLOROBENZENE	UG/L	< 1	< 1
2 BUTANONE	UG/L	< 1	< 1
2-HEXANONE	UG/L	< 1	< 1
4 METHYL 2 PENTANONE	UG/L	< 1	< 1
ACETONE	UG/L	< 1	< 1
ACRYLONITRILE	UG/L	< 1	< 1
ANTIMONY DISSOLVED	UG/L	< 3	< 3
ARSENIC DISSOLVED	UG/L	< 25	< 25
BARIUM DISSOLVED	UG/L	< 100	< 100
BENZENE	UG/L	< 1	< 1
BERYLLIUM DISSOLVED	UG/L	< 4	< 4
BROMOCHLOROMETHANE	UG/L	< 1	< 1
BROMODICHLOROMETHANE	UG/L	< 1	< 1
BROMOFORM	UG/L	< 1	< 1
BROMOMETHANE	UG/L	< 1	< 1
CADMIUM DISSOLVED	UG/L	< 3	< 3
CARBON DISULFIDE	UG/L	< 1	< 1
CARBON TETRACHLORIDE	UG/L	< 1	< 1
CHLORIDE	MG/L	7 27	9 31
CHLOROBENZENE	UG/L	< 1	< 1
CHLOROETHANE	UG/L	< 1	< 1
CHLOROFORM	UG/L	< 1	< 1
CHLOROMETHANE	UG/L	< 1	< 1
CHROMIUM DISSOLVED	UG/L	< 50	< 50
CIS 1 2 DICHLOROETHENE	UG/L	< 1	< 1
CIS-1 3 DICHLOROPROPENE	UG/L	< 1	< 1
COBALT TOTAL	UG/L	< 25	< 25
COLOR	C U	100	< 5
COPPER DISSOLVED	UG/L	< 50	< 50
DIBROMOCHLOROMETHANE	UG/L	< 1	< 1
DIBROMOMETHANE	UG/L	< 1	< 1
ETHYLBENZENE	UG/L	< 1	< 1
IODOMETHANE	UG/L	< 1	< 1
IRON TOTAL	UG/L	265	299
LEAD-DISSOLVED	UG/L	< 5	7
MERCURY DISSOLVED	UG/L	< 1	< 1
METHYLENE CHLORIDE	UG/L	< 1	< 1
NICKEL DISSOLVED	UG/L	< 50	< 50
NITROGEN AMMONIA	MG/L	0 414	1 29
NITROGEN NITRATE	MG/L	< 0 05	7 8
ODOR	TON	< 1	2
PH FIELD	PH UNITS	4 8	5 12
SELENIUM DISSOLVED	UG/L	< 25	< 25
SILVER DISSOLVED	UG/L	< 25	< 25
SODIUM DISSOLVED	UG/L	2800	3510
SPECIFIC CONDUCTANCE FIELD	UMHOS/CM	55	60
STYRENE	UG/L	< 1	< 1
TETRACHLOROETHENE	UG/L	< 1	< 1
THALLIUM DISSOLVED	UG/L	< 1	< 1
TOLUENE	UG/L	< 1	< 1
TRANS-1,2-DICHLOROETHENE	UG/L	< 1	< 1
TRANS-1 3-DICHLOROPROPENE	UG/L	< 1	< 1
TRANS-1 4 DICHLORO-2 BUTENE	UG/L	< 1	< 1
TRICHLOROETHENE	UG/L	< 1	< 1
TRICHLOROFLUOROMETHANE	UG/L	< 1	< 1
TURBIDITY	NTU	32	18
VANADIUM DISSOLVED	UG/L	70	< 25
VINYL ACETATE	UG/L	< 1	< 1
VINYL CHLORIDE	UG/L	< 1	< 1
XYLENE(TOTAL)	UG/L	< 1	< 1
ZINC DISSOLVED	UG/L	< 50	< 50

ANALYTE	UNITS	3/13/92	5/13/92	8/19/92	11/5/92	2/9/93	4/29/93	7/28/93	8/20/93	10/27/93	2/3/94	5/2/94	8/4/94	11/2/94	2/3/95	7/26/95	1/9/96
1 1 1 2 TETRACHLOROETHANE	UG/L															< 1	< 1
1 1 1 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 2 TETRACHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 3 TRICHLOROPROPANE	UG/L															< 1	< 1
1 2 4 TRICHLOROBENZENE	UG/L	< 10															
1 2 DIBROMO-3-CHLOROPROPANE	UG/L														< 1	< 0 2	< 0 2
1 2 DIBROMOETHANE	UG/L														< 1	< 0 02	< 0 02
1 2 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROPROPANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DIPHENYLHYDRAZINE	UG/L	< 10															
1 3 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
1 4 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2 4 6 TRICHLOROPHENOL	UG/L	< 10															
2 4 DICHLOROPHENOL	UG/L	< 10															
2 4 DIMETHYLPHENOL	UG/L	< 10															
2 4 DINITROPHENOL	UG/L	< 10															
2 4 DINITROTOLUENE	UG/L	< 10															
2 6-DINITROTOLUENE	UG/L	< 10															
2 BUTANONE	UG/L														< 1		< 1
2 CHLOROETHYLVINYL ETHER	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1			
2 CHLORONAPHTHALENE	UG/L	< 10															
2 CHLOROPHENOL	UG/L	< 10															
2 HEXANONE	UG/L															< 1	< 1
2 NITROPHENOL	UG/L	< 10															
3 3 DICHLOROBENZIDINE	UG/L	< 10															
4 4 DDD	UG/L	< 0 1															
4 4 DDE	UG/L	< 0 1															
4 4 DDT	UG/L	< 0 1															
4 6 DINITRO-2 METHYLPHENOL	UG/L	< 10															
4 BROMOPHENYL PHENYL ETHER	UG/L	< 10															
4 CHLORO-3 METHYLPHENOL	UG/L	< 10															
4 CHLOROPHENYL PHENYL ETHER	UG/L	< 10															
4 METHYL 2 PENTANONE	UG/L															< 1	< 1
4 NITROPHENOL	UG/L	< 10															
ACENAPHTHENE	UG/L	< 10															
ACENAPHTHYLENE	UG/L	< 10															
ACETONE	UG/L															< 1	< 1
ACRYLONITRILE	UG/L														< 1	< 1	< 1
ACTUAL VOLUME PURGED	ALLONS													28			
ALDRIN	UG/L	< 0 1															
ALKALINITY BICARBONATE (AS CACO3)	MG/L		83	91	91	92	97	96		101	93 2	88 2	93 6	98			
ALPHA BHC	UG/L	< 0 1															
AMMONIUM	MG/L										< 0 05	< 0 05	< 0 05				
AMMONIUM NH4	MG/L		0 1	0 16	0 081	0 076	0 051	0 083		0 053							
ANTHRACENE	UG/L	< 10															
ANTIMONY DISSOLVED	UG/L											< 3	< 3	< 3	< 3	< 3	< 3
ANTIMONY TOTAL	UG/L	< 50	< 50											< 6			
AROCLOR 1016	UG/L	< 1															
AROCLOR 1221	UG/L	< 1															
AROCLOR 1232	UG/L	< 1															
AROCLOR 1242	UG/L	< 1															
AROCLOR 1248	UG/L	< 1															
AROCLOR 1254	UG/L	< 1															
AROCLOR 1260	UG/L	< 1															
ARSENIC DISSOLVED	UG/L										< 25	< 25	< 25	< 25	< 25	< 25	< 25
ARSENIC TOTAL	UG/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5		< 5				< 5			
BARIUM DISSOLVED	UG/L														119	< 100	< 100
BARIUM TOTAL	UG/L													< 200			
BENZ[A]ANTHRACENE	UG/L	< 10															
BENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BENZIDINE	UG/L	< 10															
BENZO[A]PYRENE	UG/L	< 10															
BENZO[B]FLUORANTHENE	UG/L	< 10															
BENZO[G H I]PERYLENE	UG/L	< 10															
BENZO[K]FLUORANTHENE	UG/L	< 10															
BERYLLIUM DISSOLVED	UG/L										< 25	< 4	< 4	< 4	< 4	< 4	< 4
BERYLLIUM TOTAL	UG/L	< 5	< 5											< 4			
BETA BHC	UG/L	< 0 1															
BIS(2 CHLOROETHOXY)METHANE	UG/L	< 10															
BIS(2 CHLOROETHYL)ETHER	UG/L	< 10															
BIS(2 CHLOROISOPROPYL)ETHER	UG/L	< 10															

ANALYTE	UNITS	3/13/92	5/13/92	8/19/92	11/5/92	2/9/93	4/29/93	7/28/93	8/20/93	10/27/93	2/3/94	5/2/94	8/4/94	11/2/94	2/3/95	7/26/95	1/9/96
BIS(2 ETHYLHEXYL)PHTHALATE	UG/L	< 10															
BROMOCHLOROMETHANE	UG/L															< 1	< 1
BROMODICHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BUTYLBENZYLPHTHALATE	UG/L	< 10															
CADMIUM DISSOLVED	UG/L										< 5	< 5	< 5	< 3	3	< 3	< 3
CADMIUM TOTAL	UG/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5		< 5				< 5			
CARBON DISULFIDE	UG/L															< 1	< 1
CARBON TETRACHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLORDANE	UG/L	< 1															
CHLORIDE	MG/L														8 02	7 91	6 78
CHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHROMIUM DISSOLVED	UG/L										< 25	< 25	< 25	< 50	< 50	< 50	< 50
CHROMIUM TOTAL	UG/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10		< 10				< 10			
CHRYSENE	UG/L	< 10															
CIS 1 2 DICHLOROETHENE	UG/L															< 1	< 1
CIS-1 3 DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
COBALT-TOTAL	UG/L														< 25	< 25	< 25
COLOR														NONE	< 5	< 5	< 5
COPPER DISSOLVED	UG/L														< 50	< 50	< 50
COPPER TOTAL	UG/L	< 25												< 10			
CYANIDE TOTAL	MG/L	< 0 02															
DELTA BHC	UG/L	< 0 05															
DEPTH TO WATER FROM TOP OF CASING	FT								10 92					8 42			
DI N BUTYLPHTHALATE	UG/L	< 10															
DI N OCTYLPHTHALATE	UG/L	< 10															
DIBENZ[A H]ANTHRACENE	UG/L	< 10															
DIBROMOCHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1		< 1	< 1
DIBROMOMETHANE	UG/L															< 1	< 1
DICHLORODIFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1			
DIELDRIN	UG/L	< 0 1															
DIETHYLPHTHALATE	UG/L	< 10															
DIMETHYLPHTHALATE	UG/L	< 10															
ELAPSED HOURS	HRS													0 5			
ENDOSULFAN I	UG/L	< 0 05															
ENDOSULFAN II	UG/L	< 0 1															
ENDOSULFAN SULFATE	UG/L	< 0 5															
ENDRIN	UG/L	< 0 1															
ENDRIN ALDEHYDE	UG/L	< 0 1															
ETHYLBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
FLUORANTHENE	UG/L	< 10															
FLUORENE	UG/L	< 10															
GROUNDWATER ELEV	FT MSL		NA	118 11	116 29	115 62	115 35	115 46	114 95	115 77	113 31			117 5			
HEPTACHLOR	UG/L	< 0 05															
HEPTACHLOR EPOXIDE	UG/L	< 0 5															
HEXACHLOROBENZENE	UG/L	< 10															
HEXACHLOROBUTADIENE	UG/L	< 10															
HEXACHLOROCYCLOPENTADIENE	UG/L	< 40															
HEXACHLOROETHANE	UG/L	< 10															
INDENO[1 2 3-CD]PYRENE	UG/L	< 10															
IODOMETHANE	UG/L															< 1	< 1
IRON TOTAL	UG/L		611	756	812	813	871	767		789	649	559	593	563	623	451	417
ISOPHORONE	UG/L	< 10															
LEAD-DISSOLVED	UG/L										< 25	< 5	< 5	< 5	< 5	< 0 005	5
LEAD-TOTAL	UG/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5		< 5				< 5			
LINDANE (GAMMA BHC)	UG/L	< 0 1															
MERCURY DISSOLVED	UG/L										< 1			< 1	< 1	< 1	< 1
MERCURY TOTAL	UG/L	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2		< 0 2							
METHYL TERT-BUTYL ETHER	UG/L										< 10	< 10	< 10	< 10			
METHYLENE CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1		< 1	< 1
N NITROSODI N PROPYLAMINE	UG/L	< 10															
N NITROSODIMETHYLAMINE	UG/L	< 10															
N NITROSODIPHENYLAMINE	UG/L	< 10															
NAPHTHALENE	UG/L	< 10															
NICKEL DISSOLVED	UG/L														18	< 50	< 50
NICKEL TOTAL	UG/L	< 40												< 40			
NITROBENZENE	UG/L	< 10															
NITROGEN AMMONIA	MG/L		0 1	0 16	0 081	0 076	0 051	0 083		0 053	< 0 05				< 0 1	< 0 05	0 231
NITROGEN NITRATE	MG/L		< 0 05	< 0 05	< 0 05	< 0 05	< 0 05	< 0 05		< 0 05					< 0 05	< 0 05	0 137
ODOR														NONE			< 1
PENTACHLOROPHENOL	UG/L	< 10															

MWB14D

ANALYTE	UNITS	3/13/92	5/13/92	8/19/92	11/5/92	2/9/93	4/29/93	7/28/93	8/20/93	10/27/93	2/3/94	5/2/94	8/4/94	11/2/94	2/3/95	7/26/95	1/9/96
PH FIELD	H UNITS	6 32	6 47	6 57	6 72	6 52	6 59	6 25	6 35	6 99	6 26	7 05	6 29	6 42	6 39	6 45	6 61
PHENANTHRENE	UG/L	< 10															
PHENOL	UG/L	< 10															
PLUS ANALYTES FOUND		N															
PURGE DATE (YY/MM/DD)	Y/MM/DD													94-11-02			
PURGING DEVICE														C			
PURGING EQUIPMENT DEDICATED														Y			
PURGING MATERIAL														A			
PYRENE	UG/L	< 10															
SAMPLING DEVICE														C			
SAMPLING EQUIPMENT DEDICATED														Y			
SAMPLING MATERIAL														A			
SELENIUM DISSOLVED	UG/L										< 5	< 5	< 25	< 25	< 25	< 25	< 25
SELENIUM TOTAL	UG/L	< 5	< 5											< 5			
SILVER DISSOLVED	UG/L														< 25	< 25	< 25
SILVER TOTAL	UG/L	< 10												< 25			
SODIUM DISSOLVED	UG/L										3920	4160	4850	4020	4380	4930	4320
SODIUM-TOTAL	UG/L		4580	4250	4440	4720	4640	4710		4580							
SPECIFIC CONDUCTANCE	MHOS/CM										188						
SPECIFIC CONDUCTANCE FIELD	MHOS/C	180	175	203	213	177	213	164	161	291				NA	191	223	207
STYRENE	UG/L														< 1	< 1	< 1
TETRACHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
THALLIUM DISSOLVED	UG/L														< 1	< 1	< 1
THALLIUM TOTAL	UG/L	< 10												< 2			
TOLUENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TOTAL ORGANIC CARBON	MG/L		3 1	2	2 2	1 9	2	2 1		2	47	52	45	3			
TOXAPHENE	UG/L	< 1															
TRANS 1 2 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1 3 DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1 4-DICHLORO 2 BUTENE	UG/L															< 1	< 1
TRICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TUBING PURGING														G			
TUBING SAMPLING														G			
TURBIDITY	NTU		4 6	1 4	< 1	< 1	6 5	< 1		6 8	0 47	0 73	0 31	0 28	0 7	0 22	0 23
VANADIUM DISSOLVED	UG/L														< 25	< 25	< 25
VANADIUM TOTAL	UG/L													< 50			
VINYL ACETATE	UG/L														< 1	< 1	< 1
VINYL CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
WELL DEPTH TOTAL	FT		108 5	112	112	112	112	112	112	112				112			
XYLENE(TOTAL)	UG/L										< 5	< 5	< 5	< 5	< 1	< 1	< 1
ZINC DISSOLVED	UG/L														< 50	< 50	< 50
ZINC TOTAL	UG/L													< 20			

ANALYTE	UNITS	3/13/92	5/13/92	8/19/92	11/5/92	2/9/93	4/29/93	7/28/93	10/27/93	2/3/94	5/2/94	8/4/94	11/2/94	2/3/95	7/26/95	1/9/96
1 1 1 2 TETRACHLOROETHANE	UG/L														< 1	< 1
1 1 1 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 2 TETRACHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 3 TRICHLOROPROPANE	UG/L														< 1	< 1
1 2 4 TRICHLOROBENZENE	UG/L	< 10														
1 2 DIBROMO 3 CHLOROPROPANE	UG/L													< 1	< 0 2	< 0 2
1 2 DIBROMOETHANE	UG/L													< 1	< 0 02	< 0 02
1 2 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROPROPANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DIPHENYLHYDRAZINE	UG/L	< 10														
1 3 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
1 4 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2 4 6-TRICHLOROPHENOL	UG/L	< 10														
2 4 DICHLOROPHENOL	UG/L	< 10														
2 4 DIMETHYLPHENOL	UG/L	< 10														
2 4 DINITROPHENOL	UG/L	< 10														
2 4 DINITROTOLUENE	UG/L	< 10														
2 6 DINITROTOLUENE	UG/L	< 10														
2 BUTANONE	UG/L													< 1		< 1
2 CHLOROETHYLVINYL ETHER	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
2 CHLORONAPHTHALENE	UG/L	< 10														
2 CHLOROPHENOL	UG/L	< 10														
2 HEXANONE	UG/L														< 1	< 1
2 NITROPHENOL	UG/L	< 10														
3 3 DICHLOROBENZIDINE	UG/L	< 10														
4 4 DDD	UG/L	< 0 1														
4 4 DDE	UG/L	< 0 1														
4 4 DDT	UG/L	< 0 1														
4 6-DINITRO-2 METHYLPHENOL	UG/L	< 10														
4 BROMOPHENYL-PHENYL ETHER	UG/L	< 10														
4 CHLORO-3 METHYLPHENOL	UG/L	< 10														
4 CHLOROPHENYL PHENYL ETHER	UG/L	< 10														
4 METHYL 2 PENTANONE	UG/L														< 1	< 1
4 NITROPHENOL	UG/L	< 10														
ACENAPHTHENE	UG/L	< 10														
ACENAPHTHYLENE	UG/L	< 10														
ACETONE	UG/L														< 1	< 1
ACRYLONITRILE	UG/L													< 1	< 1	< 1
ACTUAL VOLUME PURGED	ALLONS												25			
ALDRIN	UG/L	< 0 1														
ALKALINITY BICARBONATE (AS CACO3)	MG/L		< 10	10	< 10	< 10	11	11	12	19 3	16 3	17	< 15			
ALPHA BHC	UG/L	< 0 1														
AMMONIUM	MG/L									< 0 05	< 0 05	< 0 05				
AMMONIUM NH4	MG/L		0 027	< 0 02	< 0 02	0 023	0 05	< 0 02	< 0 02							
ANTHRACENE	UG/L	< 10														
ANTIMONY DISSOLVED	UG/L		< 100								< 3	< 3	< 3	< 3	< 3	< 3
ANTIMONY TOTAL	UG/L	< 50	< 50										< 6			
AROCLOR 1016	UG/L	< 1														
AROCLOR 1221	UG/L	< 1														
AROCLOR 1232	UG/L	< 1														
AROCLOR 1242	UG/L	< 1														
AROCLOR 1248	UG/L	< 1														
AROCLOR 1254	UG/L	< 1														
AROCLOR 1260	UG/L	< 1														
ARSENIC DISSOLVED	UG/L									< 25	< 25	< 25	< 25	< 25	< 25	< 25
ARSENIC TOTAL	UG/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5				< 5			
BARIUM-DISSOLVED	UG/L													< 100	< 100	< 100
BARIUM TOTAL	UG/L												< 200			
BENZ[A]ANTHRACENE	UG/L	< 10														
BENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BENZIDINE	UG/L	< 10														
BENZO[A]PYRENE	UG/L	< 10														
BENZO[B]FLUORANTHENE	UG/L	< 10														
BENZO[G H I]PERYLENE	UG/L	< 10														
BENZO[K]FLUORANTHENE	UG/L	< 10														
BERYLLIUM DISSOLVED	UG/L		< 5							< 25	< 4	< 4	< 4	< 4	< 4	< 4
BERYLLIUM TOTAL	UG/L	< 5	< 5										< 4			
BETA BHC	UG/L	< 0 1														

ANALYTE	UNITS	3/13/92	5/13/92	8/19/92	11/5/92	2/9/93	4/29/93	7/28/93	10/27/93	2/3/94	5/2/94	8/4/94	11/2/94	2/3/95	7/26/95	1/9/96
BIS(2 CHLOROETHOXY)METHANE	UG/L	< 10														
BIS(2 CHLOROETHYL)ETHER	UG/L	< 10														
BIS(2 CHLOROISOPROPYL)ETHER	UG/L	< 10														
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	< 10														
BROMOCHLOROMETHANE	UG/L														< 1	< 1
BROMODICHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BUTYLBENZYLPHTHALATE	UG/L	< 10														
CADMIUM DISSOLVED	UG/L									< 5	< 5	< 5	< 3	< 3	< 3	< 3
CADMIUM-TOTAL	UG/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5				< 5			
CARBON DISULFIDE	UG/L														< 1	< 1
CARBON TETRACHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLORDANE	UG/L	< 1														
CHLORIDE	MG/L													8 33	7 01	6 98
CHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHROMIUM DISSOLVED	UG/L		< 10							< 25	< 25	< 25	< 50	< 50	< 50	< 50
CHROMIUM TOTAL	UG/L	53 8	< 10	< 10	< 10	< 10	< 10	< 10	< 10				< 12			
CHRYSENE	UG/L	< 10														
CIS 1 2 DICHLOROETHENE	UG/L														< 1	< 1
CIS 1 3 DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
COBALT-TOTAL	UG/L													< 25	< 25	< 25
COLOR													NA	< 5	< 5	< 5
COPPER DISSOLVED	UG/L													< 50	< 50	< 50
COPPER TOTAL	UG/L	< 25											< 10			
CYANIDE TOTAL	MG/L	< 0 02														
DELTA BHC	UG/L	< 0 05														
DEPTH TO WATER FROM TOP OF CASING	FT												9 67			
DI N BUTYLPHTHALATE	UG/L	< 10														
DI N OCTYLPHTHALATE	UG/L	< 10														
DIBENZ[A H]ANTHRACENE	UG/L	< 10														
DIBROMOCHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
DIBROMOMETHANE	UG/L														< 1	< 1
DICHLORODIFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
DIELDRIN	UG/L	< 0 1														
DIETHYLPHTHALATE	UG/L	< 10														
DIMETHYLPHTHALATE	UG/L	< 10														
ELAPSED HOURS	HRS												0 3			
ENDOSULFAN I	UG/L	< 0 05														
ENDOSULFAN II	UG/L	< 0 1														
ENDOSULFAN SULFATE	UG/L	< 0 5														
ENDRIN	UG/L	< 0 1														
ENDRIN ALDEHYDE	UG/L	< 0 1														
ETHYLBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
FLUORANTHENE	UG/L	< 10														
FLUORENE	UG/L	< 10														
GROUNDWATER ELEV	FT MSL		NA	118 4	116 01	115 75	115 02	115 21	115 52	113 29			116 25			
HEPTACHLOR	UG/L	< 0 05														
HEPTACHLOR EPOXIDE	UG/L	< 0 5														
HEXACHLOROBENZENE	UG/L	< 10														
HEXACHLOROBUTADIENE	UG/L	< 10														
HEXACHLOROCYCLOPENTADIENE	UG/L	< 40														
HEXACHLOROETHANE	UG/L	< 10														
INDENO[1 2 3 CD]PYRENE	UG/L	< 10														
IODOMETHANE	UG/L														< 1	< 1
IRON TOTAL	UG/L		1460	584	527	535	688	998	623	493	471	499	420	634	453	357
ISOPHORONE	UG/L	< 10														
LEAD-DISSOLVED	UG/L		< 5							< 25	< 5	< 5	< 5	< 5	< 0 005	9
LEAD-TOTAL	UG/L	26 4	7 9	< 5	< 5	< 5	< 5	< 5	< 5				< 5			
LINDANE (GAMMA BHC)	UG/L	< 0 1														
MERCURY DISSOLVED	UG/L		< 0 2							< 1			< 1	< 1	< 1	< 1
MERCURY TOTAL	UG/L	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2							
METHYL TERT BUTYL ETHER	UG/L									< 10	< 10	< 10	< 10			
METHYLENE CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
N NITROSODI N PROPYLAMINE	UG/L	< 10														
N NITROSODIMETHYLAMINE	UG/L	< 10														
N NITROSODIPHENYLAMINE	UG/L	< 10														
NAPHTHALENE	UG/L	< 10														
NICKEL DISSOLVED	UG/L													< 10	< 50	< 50

ANALYTE	UNITS	3/13/92	5/13/92	8/19/92	11/5/92	2/9/93	4/29/93	7/28/93	10/27/93	2/3/94	5/2/94	8/4/94	11/2/94	2/3/95	7/26/95	1/9/96
NICKEL TOTAL	UG/L	< 40											< 40			
NITROBENZENE	UG/L	< 10														
NITROGEN AMMONIA	MG/L		0 027	< 0 02	< 0 02	0 023	0 05	< 0 02	< 0 02	< 0 05				< 0 1	< 0 05	0 203
NITROGEN NITRATE	MG/L		< 0 05	0 11	< 0 05	< 0 05	< 0 05	< 0 05	< 0 05					< 0 05	< 0 05	< 0 05
ODOR													SLIGHT			< 1
PENTACHLOROPHENOL	UG/L	< 10														
PH FIELD	H UNITS	5 3	5 3	5 51	5 53	5 64	5 36	5 35	5 96	4 76	6 05	5 54	5 54	5 49	5 47	5 56
PHENANTHRENE	UG/L	< 10														
PHENOL	UG/L	< 10														
PLUS ANALYTES FOUND		Y														
PURGE DATE (YY/MM/DD)	Y/MM/DD												94-11 02			
PURGING DEVICE													C			
PURGING EQUIPMENT DEDICATED													Y			
PURGING MATERIAL													A			
PYRENE	UG/L	< 10														
SAMPLING DEVICE													C			
SAMPLING EQUIPMENT DEDICATED													Y			
SAMPLING MATERIAL													A			
SELENIUM DISSOLVED	UG/L		< 5							< 5	< 5	< 25	< 25	< 25	< 25	< 25
SELENIUM TOTAL	UG/L	< 5	< 5										< 5			
SILVER DISSOLVED	UG/L													< 25	< 25	< 25
SILVER-TOTAL	UG/L	< 10											< 25			
SODIUM DISSOLVED	UG/L									3300	2940	3550	2740	3330	3600	3090
SODIUM TOTAL	UG/L		3510	3210	3420	3690	3530	6680	3610							
SPECIFIC CONDUCTANCE	MHOS/CM									47 7						
SPECIFIC CONDUCTANCE FIELD	MHOS/C	46	42	43	46	41	53	37	148				NA	44	52 0	46
STYRENE	UG/L													< 1	< 1	< 1
TETRACHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
THALLIUM DISSOLVED	UG/L													< 1	< 1	< 1
THALLIUM TOTAL	UG/L	< 10											< 2			
TOLUENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TOTAL ORGANIC CARBON	MG/L		3 5	1 7	1 4	1 4	1 5	1 6	1 7	36	38	34	2			
TOXAPHENE	UG/L	< 1														
TRANS-1 2 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS 1 3 DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1 4 DICHLORO-2 BUTENE	UG/L														< 1	< 1
TRICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	1	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TUBING PURGING													G			
TUBING-SAMPLING													G			
TURBIDITY	NTU		80	100	20	40	50	100	37	40	9	8 5	8	50	54 0	40
VANADIUM DISSOLVED	UG/L													< 25	< 25	< 25
VANADIUM-TOTAL	UG/L												< 50			
VINYL ACETATE	UG/L													< 1	< 1	< 1
VINYL CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
WELL DEPTH TOTAL	FT		62 5	62 5	62 5	62 5	62 5	62 5	62 5				62 5			
XYLENE(TOTAL)	UG/L									< 5	< 5	< 5	< 5	< 1	< 1	< 1
ZINC DISSOLVED	UG/L													< 50	< 50	< 50
ZINC TOTAL	UG/L												< 20			

ANALYTE	UNITS	3/13/92	5/13/92	8/19/92	11/5/92	2/9/93	4/29/93	7/28/93	10/27/93	2/3/94	5/2/94	8/4/94	11/2/94	2/3/95	7/26/95
1 1 1-TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 2 TETRACHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2-TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 4-TRICHLOROBENZENE	UG/L	< 10													
1 2 DIBROMO 3-CHLOROPROPANE	UG/L													< 1	< 1
1 2 DIBROMOETHANE	UG/L													< 1	< 1
1 2-DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2-DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROPROPANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DIPHENYLHYDRAZINE	UG/L	< 10													
1 3 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		
1 4 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2 4 6 TRICHLOROPHENOL	UG/L	< 10													
2 4 DICHLOROPHENOL	UG/L	< 10													
2 4 DIMETHYLPHENOL	UG/L	< 10													
2 4 DINITROPHENOL	UG/L	< 10													
2 4-DINITROTOLUENE	UG/L	< 10													
2 6-DINITROTOLUENE	UG/L	< 10													
2 BUTANONE	UG/L													< 1	< 1
2-CHLOROETHYLVINYL ETHER	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		
2 CHLORONAPHTHALENE	UG/L	< 10													
2 CHLOROPHENOL	UG/L	< 10													
2 NITROPHENOL	UG/L	< 10													
3 3 DICHLOROBENZIDINE	UG/L	< 10													
4 4 DDD	UG/L	< 0 1													
4 4-DDE	UG/L	< 0 1													
4 4-DDT	UG/L	< 0 1													
4 6 DINITRO-2 METHYLPHENOL	UG/L	< 10													
4 BROMOPHENYL-PHENYL ETHER	UG/L	< 10													
4 CHLORO 3 METHYLPHENOL	UG/L	< 10													
4 CHLOROPHENYL PHENYL ETHER	UG/L	< 10													
4 NITROPHENOL	UG/L	< 10													
ACENAPHTHENE	UG/L	< 10													
ACENAPHTHYLENE	UG/L	< 10													
ACRYLONITRILE	UG/L													< 1	< 1
ACTUAL VOLUME PURGED	ALLONS												18 3		
ALDRIN	UG/L	< 0 1													
ALKALINITY BICARBONATE (AS CACO3)	MG/L		< 10	< 10	< 10	< 10	< 10	< 10	< 10	4 46	< 15	< 15	< 15		
ALPHA-BHC	UG/L	< 0 1													
AMMONIUM	MG/L									< 0 05	< 0 05	< 0 05			
AMMONIUM NH4	MG/L		< 0 02	< 0 02	< 0 02	< 0 02	< 0 02	< 0 02	< 0 02						
ANTHRACENE	UG/L	< 10													
ANTIMONY-DISSOLVED	UG/L										< 3	< 3	< 3	< 3	< 3
ANTIMONY-TOTAL	UG/L	< 50	< 50										< 6		
AROCLOR 1016	UG/L	< 1													
AROCLOR 1221	UG/L	< 1													
AROCLOR 1232	UG/L	< 1													
AROCLOR 1242	UG/L	< 1													
AROCLOR 1248	UG/L	< 1													
AROCLOR 1254	UG/L	< 1													
AROCLOR 1260	UG/L	< 1													
ARSENIC DISSOLVED	UG/L									< 25	< 25	< 25	< 25	< 25	< 25
ARSENIC-TOTAL	UG/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5				< 5		
BARIUM DISSOLVED	UG/L													< 100	< 100
BARIUM-TOTAL	UG/L												< 200		
BENZ[A]ANTHRACENE	UG/L	< 10													
BENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BENZIDINE	UG/L	< 10													
BENZO[A]PYRENE	UG/L	< 10													
BENZO[B]FLUORANTHENE	UG/L	< 10													
BENZO[G H I]PERYLENE	UG/L	< 10													
BENZO[K]FLUORANTHENE	UG/L	< 10													
BERYLLIUM-DISSOLVED	UG/L									< 25	< 4	< 4	< 4	< 4	< 4
BERYLLIUM-TOTAL	UG/L	< 5	< 5										< 4		
BETA BHC	UG/L	< 0 1													
BIS(2-CHLOROETHOXY)METHANE	UG/L	< 10													
BIS(2 CHLOROETHYL)ETHER	UG/L	< 10													

ANALYTE	UNITS	3/13/92	5/13/92	8/19/92	11/5/92	2/9/93	4/29/93	7/28/93	10/27/93	2/3/94	5/2/94	8/4/94	11/2/94	2/3/95	7/26/95
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	< 10													
BIS(2 ETHYLHEXYL)PHTHALATE	UG/L	12													
BROMODICHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BUTYLBENZYLPHTHALATE	UG/L	< 10													
CADMIUM DISSOLVED	UG/L									< 5	< 5	< 5	< 3	< 3	< 3
CADMIUM-TOTAL	UG/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5				< 5		
CARBON TETRACHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLORDANE	UG/L	< 1													
CHLORIDE	MG/L													12 1	13 6
CHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHROMIUM DISSOLVED	UG/L									< 25	< 25	< 25	< 50	< 50	< 50
CHROMIUM-TOTAL	UG/L	21 4	< 10	< 10	< 10	< 10	< 10	< 10	< 10				< 10		
CHRYSENE	UG/L	< 10													
CIS 1 3 DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
COBALT-TOTAL	UG/L													< 25	< 25
COLOR													NONE	25	
COPPER DISSOLVED	UG/L													< 50	< 50
COPPER TOTAL	UG/L	< 25											13 9		
CYANIDE TOTAL	MG/L	< 0 02													
DELTA BHC	UG/L	< 0 05													
DEPTH TO WATER FROM TOP OF CASING	FT												7 56		
DI-N BUTYLPHTHALATE	UG/L	< 10													
DI-N-OCTYLPHTHALATE	UG/L	< 10													
DIBENZ[A H]ANTHRACENE	UG/L	< 10													
DIBROMOCHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		
DICHLORODIFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		
DIELDRIN	UG/L	< 0 1													
DIETHYLPHTHALATE	UG/L	< 10													
DIMETHYLPHTHALATE	UG/L	< 10													
ELAPSED HOURS	HRS												0 3		
ENDOSULFAN I	UG/L	< 0 05													
ENDOSULFAN II	UG/L	< 0 1													
ENDOSULFAN SULFATE	UG/L	< 0 5													
ENDRIN	UG/L	< 0 1													
ENDRIN ALDEHYDE	UG/L	< 0 1													
ETHYLBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
FLUORANTHENE	UG/L	< 10													
FLUORENE	UG/L	< 10													
GROUNDWATER ELEV	FT MSL		NA	119 78	114 41	118 82	117 41	115 34	117 35	113 9			118 49		
HEPTACHLOR	UG/L	< 0 05													
HEPTACHLOR EPOXIDE	UG/L	< 0 5													
HEXACHLOROBENZENE	UG/L	< 10													
HEXACHLOROBUTADIENE	UG/L	< 10													
HEXACHLOROCYCLOPENTADIENE	UG/L	< 40													
HEXACHLOROETHANE	UG/L	< 10													
INDENO[1 2 3-CD]PYRENE	UG/L	< 10													
IRON-TOTAL	UG/L		297	480	270	294	298	309	244	188	167	304	201	217	113
ISOPHORONE	UG/L	< 10													
LEAD-DISSOLVED	UG/L									< 25	< 5	< 5	< 5	< 5	< 5
LEAD-TOTAL	UG/L	7 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5				< 5		
LINDANE (GAMMA BHC)	UG/L	< 0 1													
MERCURY-DISSOLVED	UG/L									< 1			< 1	< 1	< 1
MERCURY-TOTAL	UG/L	0 34	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2						
METHYL TERT-BUTYL ETHER	UG/L									< 10	< 10	< 10	< 10		
METHYLENE CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		
N-NITROSODI N PROPYLAMINE	UG/L	< 10													
N-NITROSODIMETHYLAMINE	UG/L	< 10													
N NITROSODIPHENYLAMINE	UG/L	< 10													
NAPHTHALENE	UG/L	< 10													
NICKEL DISSOLVED	UG/L													< 10	< 10
NICKEL-TOTAL	UG/L	< 40											< 40		
NITROBENZENE	UG/L	< 10													
NITROGEN AMMONIA	MG/L		< 0 02	< 0 02	< 0 02	< 0 02	< 0 02	< 0 02	< 0 02	< 0 05				< 0 1	< 0 1
NITROGEN NITRATE	MG/L		0 051	< 0 05	< 0 05	< 0 05	< 0 05	0 058	< 0 05					< 0 05	< 0 05

ANALYTE	UNITS	3/13/92	5/13/92	8/19/92	11/5/92	2/9/93	4/29/93	7/28/93	10/27/93	2/3/94	5/2/94	8/4/94	11/2/94	2/3/95	7/26/95
ODOR													NONE		
PENTACHLOROPHENOL	UG/L	< 10													
PH FIELD	H UNITS	4 36	4 26	4 63	4 52	4 86	4 28	4 09	4 15	5 56	6 68	4 21	4 61	4 26	4 23
PHENANTHRENE	UG/L	< 10													
PHENOL	UG/L	< 10													
PLUS ANALYTES FOUND		Y													
PURGE DATE (YY/MM/DD)	Y/MM/DD												94-11-02		
PURGING DEVICE													C		
PURGING EQUIPMENT DEDICATED													Y		
PURGING MATERIAL													A		
PYRENE	UG/L	< 10													
SAMPLING DEVICE													C		
SAMPLING EQUIPMENT DEDICATED													Y		
SAMPLING MATERIAL													A		
SELENIUM DISSOLVED	UG/L									< 5	< 5	< 25	< 25	< 25	< 25
SELENIUM-TOTAL	UG/L	5 2	< 5				< 5						< 5		
SILVER DISSOLVED	UG/L													< 25	< 25
SILVER TOTAL	UG/L	< 10											< 25		
SODIUM DISSOLVED	UG/L									3990	3250	4150	3590	4380	6580
SODIUM TOTAL	UG/L		4020	5720	4260	4490	3370	5870	3480						
SPECIFIC CONDUCTANCE	MHOS/CM									57 5					
SPECIFIC CONDUCTANCE FIELD	MHOS/C	78	62	73	68	52	54	49	49				NA	63	97
STYRENE	UG/L													< 1	< 1
TETRACHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
THALLIUM-DISSOLVED	UG/L													< 1	< 1
THALLIUM-TOTAL	UG/L	< 10											< 2		
TOLUENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	3 4	< 1	< 1	< 1	< 1	< 1
TOTAL ORGANIC CARBON	MG/L		3 9	7 3	3 8	4 7	2 8	2 9	2 4	44	36	34	5		
TOXAPHENE	UG/L	< 1													
TRANS 1 2-DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS 1 3 DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TUBING-PURGING													G		
TUBING-SAMPLING													G		
TURBIDITY	NTU		120	38	1 4	18	5 5	7 4	1 1	24	0 91	23	8	16	0 32
VANADIUM-DISSOLVED	UG/L													< 25	< 25
VANADIUM-TOTAL	UG/L												< 50		
VINYL ACETATE	UG/L													< 1	< 1
VINYL CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
WELL DEPTH TOTAL	FT		19	18 5	18 5	18 5	18 5	18 5	18 5				18 5		
XYLENE(TOTAL)	UG/L									< 5	< 5	< 5	< 5	< 1	< 1
ZINC-DISSOLVED	UG/L													< 50	< 50
ZINC-TOTAL	UG/L												< 20		

ANALYTE	UNITS	12/21/92	5/3/93	6/28/93	8/2/93	1/10/94	2/1/94	5/4/94	8/4/94	11/1/94	2/2/95	7/25/95	1/8/96
1 1 1 2-TETRACHLOROETHANE	UG/L											< 1	< 1
1 1 1-TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 2-TETRACHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2-TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1-DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1-DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 3-TRICHLOROPROPANE	UG/L											< 1	< 1
1 2 4-TRICHLOROBENZENE	UG/L	< 10											
1 2-DIBROMO-3-CHLOROPROPANE	UG/L										< 1	< 0 2	< 0 2
1 2-DIBROMOETHANE	UG/L										< 1	< 0 02	< 0 02
1 2-DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2-DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2-DICHLOROPROPANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DIPHENYLHYDRAZINE	UG/L	< 10											
1 3-DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
1 4-DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2 4 6-TRICHLOROPHENOL	UG/L	< 10											
2 4 DICHLOROPHENOL	UG/L	< 10											
2 4 DIMETHYLPHENOL	UG/L	< 10											
2 4-DINITROPHENOL	UG/L	< 10											
2 4-DINITROTOLUENE	UG/L	< 10											
2 6 DINITROTOLUENE	UG/L	< 10											
2-BUTANONE	UG/L										< 1	< 1	< 1
2-CHLOROETHYLVINYL ETHER	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
2-CHLORONAPHTHALENE	UG/L	< 10											
2-CHLOROPHENOL	UG/L	< 10											
2-HEXANONE	UG/L											< 1	< 1
2-NITROPHENOL	UG/L	< 10											
3 3'-DICHLOROBENZIDINE	UG/L	< 10											
4 4 -DDD	UG/L	< 0 1											
4 4 -DDE	UG/L	< 0 1											
4 4 -DDT	UG/L	< 0 1											
4 6-DINITRO-2-METHYLPHENOL	UG/L	< 10											
4-BROMOPHENYL-PHENYL ETHER	UG/L	< 10											
4-CHLORO-3-METHYLPHENOL	UG/L	< 10											
4-CHLOROPHENYL PHENYL ETHER	UG/L	< 10											
4-METHYL-2-PENTANONE	UG/L											< 1	< 1
4-NITROPHENOL	UG/L	< 10											
ACENAPHTHENE	UG/L	< 10											
ACENAPHTHYLENE	UG/L	< 10											
ACETONE	UG/L											< 1	< 1
ACROLEIN	UG/L	< 10											
ACRYLONITRILE	UG/L	< 10									< 1	< 1	< 1
ACTUAL VOLUME PURGED	ALLONS									32 1			
ALDRIN	UG/L	< 0 1											
ALKALINITY BICARBONATE (AS CACO3)	MG/L		< 10	< 10	< 10	< 10	8	21 4	< 15	20			
ALPHA-BHC	UG/L	< 0 1											
AMMONIUM	MG/L						< 0 05	< 0 05	< 0 05				
AMMONIUM NH4	MG/L		0 025	< 0 02	< 0 02	< 0 02							
ANTHRACENE	UG/L	< 10											
ANTIMONY-DISSOLVED	UG/L							< 3	< 3	< 3	< 3	< 3	< 3
ANTIMONY-TOTAL	UG/L	< 50								< 6			
AROCLOR 1016	UG/L	< 1											
AROCLOR 1221	UG/L	< 1											
AROCLOR 1232	UG/L	< 1											
AROCLOR 1242	UG/L	< 1											
AROCLOR 1248	UG/L	< 1											
AROCLOR 1254	UG/L	< 1											
AROCLOR 1260	UG/L	< 1											
ARSENIC DISSOLVED	UG/L			< 10			< 25	< 25	< 25	< 25	< 25	< 25	< 25
ARSENIC-TOTAL	UG/L	< 5	< 5	< 5	< 5	< 5				< 5			
BARIUM-DISSOLVED	UG/L										< 100	< 100	< 100
BARIUM-TOTAL	UG/L									< 200			
BENZ[A]ANTHRACENE	UG/L	< 10											

ANALYTE	UNITS	12/21/92	5/3/93	6/28/93	8/2/93	1/10/94	2/1/94	5/4/94	8/4/94	11/1/94	2/2/95	7/25/95	1/8/96
BENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BENZIDINE	UG/L	< 10											
BENZO[A]PYRENE	UG/L	< 10											
BENZO[B]FLUORANTHENE	UG/L	< 10											
BENZO[G H I]PERYLENE	UG/L	< 10											
BENZO[K]FLUORANTHENE	UG/L	< 10											
BERYLLIUM-DISSOLVED	UG/L						< 25	< 4	< 4	< 4	< 4	< 4	< 4
BERYLLIUM-TOTAL	UG/L	< 5								< 4			
BETA-BHC	UG/L	< 0 1											
BIS(2 CHLOROETHOXY)METHANE	UG/L	< 10											
BIS(2 CHLOROETHYL)ETHER	UG/L	< 10											
BIS(2 CHLOROISOPROPYL)ETHER	UG/L	< 10											
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	< 10											
BROMOCHLOROMETHANE	UG/L											< 1	< 1
BROMODICHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BUTYLBENZYLPHTHALATE	UG/L	< 10											
CADMIUM-DISSOLVED	UG/L			< 5			< 5	< 5	< 5	< 3	< 3	< 3	< 3
CADMIUM-TOTAL	UG/L	< 5	< 25	< 5	< 5	< 5				< 5			
CARBON DISULFIDE	UG/L											< 1	< 1
CARBON TETRACHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLORDANE	UG/L	< 1											
CHLORIDE	MG/L										5 88	4 03	8 06
CHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHROMIUM-DISSOLVED	UG/L			< 10			< 25	< 25	< 25	< 50	< 50	< 50	< 50
CHROMIUM-TOTAL	UG/L	15 1	69 1	< 10	< 10	< 10				< 10			
CHRYSENE	UG/L	< 10											
CIS 1 2-DICHLOROETHENE	UG/L											< 1	< 1
CIS-1 3 DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
COBALT-TOTAL	UG/L										< 25	< 25	< 25
COLOR										NONE	< 5	< 5	< 5
COPPER-DISSOLVED	UG/L										< 50	< 50	< 50
COPPER-TOTAL	UG/L	< 25								< 10			
CYANIDE TOTAL	MG/L	< 0 02											
DELTA-BHC	UG/L	< 0 05											
DEPTH TO WATER FROM TOP OF CASING	FT									4 86			
DI-N-BUTYLPHTHALATE	UG/L	< 10											
DI-N-OCTYLPHTHALATE	UG/L	< 10											
DIBENZ[A H]ANTHRACENE	UG/L	< 10											
DIBROMOCHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
DIBROMOMETHANE	UG/L											< 1	< 1
DICHLORODIFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
DIELDRIN	UG/L	< 0 1											
DIETHYLPHTHALATE	UG/L	< 10											
DIMETHYLPHTHALATE	UG/L	< 10											
ELAPSED HOURS	HRS									0 3			
ENDOSULFAN I	UG/L	< 0 05											
ENDOSULFAN II	UG/L	< 0 1											
ENDOSULFAN SULFATE	UG/L	< 0 5											
ENDRIN	UG/L	< 0 1											
ENDRIN ALDEHYDE	UG/L	< 0 1											
ETHYLBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
FLUORANTHENE	UG/L	< 10											
FLUORENE	UG/L	< 10											
GROUNDWATER ELEV	FT MSL	138 88	138 29	137 49	138 63	139 14	139 96			139 15			
HEPTACHLOR	UG/L	< 0 05											
HEPTACHLOR EPOXIDE	UG/L	< 0 5											
HEXACHLOROBENZENE	UG/L	< 10											
HEXACHLOROBUTADIENE	UG/L	< 10											
HEXACHLOROCYCLOPENTADIENE	UG/L	< 40											

ANALYTE	UNITS	12/21/92	5/3/93	6/28/93	8/2/93	1/10/94	2/1/94	5/4/94	8/4/94	11/1/94	2/2/95	7/25/95	1/8/96
HEXACHLOROETHANE	UG/L	< 10											
INDENO[1 2 3-CD]PYRENE	UG/L	< 10											
IODOMETHANE	UG/L											< 1	< 1
IRON-DISSOLVED	UG/L			604									
IRON-TOTAL	UG/L	1380	4390	594	594	588	511	568	602	493	616	487	469
ISOPHORONE	UG/L	< 10											
LEAD-DISSOLVED	UG/L			< 5			< 25	< 5	< 5	< 5	< 5	< 5	10
LEAD-TOTAL	UG/L	20 7	91	< 5	< 5	< 5				< 5			
LINDANE (GAMMA-BHC)	UG/L	< 0 1											
MERCURY-DISSOLVED	UG/L			< 0 2			< 1			< 1	< 1	< 1	< 1
MERCURY-TOTAL	UG/L	< 0 2	0 95	< 0 2	< 0 2	< 0 2							
METHYL TERT-BUTYL ETHER	UG/L						< 10	< 10	< 10	< 10			
METHYLENE CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
N NITROSODI-N-PROPYLAMINE	UG/L	< 10											
N-NITROSODIMETHYLAMINE	UG/L	< 10											
N NITROSODIPHENYLAMINE	UG/L	< 10											
NAPHTHALENE	UG/L	< 10											
NICKEL-DISSOLVED	UG/L										< 10	< 50	< 50
NICKEL-TOTAL	UG/L	< 40								< 40			
NITROBENZENE	UG/L	< 10											
NITROGEN AMMONIA	MG/L		0 025	< 0 02	< 0 02	< 0 02					< 0 1	< 0 05	< 0 05
NITROGEN NITRATE	MG/L		< 0 05	0 083	< 0 05	< 0 05					< 0 05	< 0 05	< 0 05
ODOR										SLIGHT			2
PENTACHLOROPHENOL	UG/L	< 10											
PH FIELD	H UNITS	4 98	4 63	4 7	4 51	4 77	5 19	4 71	4 71	4 54	4 63	4 5	4 57
PHENANTHRENE	UG/L	< 10											
PHENOL	UG/L	< 10											
PLUS ANALYTES FOUND		N											
PURGE DATE (YY/MM/DD)	Y/MM/DD									94-11-01			
PURGING DEVICE										C			
PURGING EQUIPMENT DEDICATED										Y			
PURGING MATERIAL										A			
PYRENE	UG/L	< 10											
SAMPLING DEVICE										C			
SAMPLING EQUIPMENT DEDICATED										Y			
SAMPLING MATERIAL										A			
SELENIUM-DISSOLVED	UG/L						< 5	< 5	< 25	< 25	< 25	< 25	< 25
SELENIUM-TOTAL	UG/L	< 5								< 5			
SILVER-DISSOLVED	UG/L										< 25	< 25	< 25
SILVER-TOTAL	UG/L	< 10								< 25			
SODIUM-DISSOLVED	UG/L			< 5000			2070	2400	2770	2350	2430	2700	2530
SODIUM-TOTAL	UG/L	2800	4430	2430	2620	3170							
SPECIFIC CONDUCTANCE	MHOS/CM						33 3						
SPECIFIC CONDUCTANCE FIELD	MHOS/C	34	34	26	27	28				NA	29	41	36
STYRENE	UG/L										< 1	< 1	< 1
TETRACHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
THALLIUM-DISSOLVED	UG/L										< 1	< 1	< 1
THALLIUM-TOTAL	UG/L	< 10								< 2			
TOLUENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TOTAL ORGANIC CARBON	MG/L		20 7	1 1	1 1	1 2	42	35	30	2			
TOXAPHENE	UG/L	< 1											
TRANS-1 2-DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1 3 DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1 4-DICHLORO-2-BUTENE	UG/L											< 1	< 1
TRICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TUBING-PURGING										G			
TUBING-SAMPLING										G			
TURBIDITY	NTU		3300	6	4 8	14	1 4	0 53	0 37	0 32	1 4	0 18	0 22
VANADIUM DISSOLVED	UG/L										< 25	< 25	< 25
VANADIUM-TOTAL	UG/L									< 50			
VINYL ACETATE	UG/L										< 1	< 1	< 1
VINYL CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
WELL DEPTH TOTAL	FT	17 5	19 81	19 81	19 81	19 81				19 81			

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ANALYTE	UNITS	12/21/92	5/3/93	6/28/93	8/2/93	1/10/94	2/1/94	5/4/94	8/4/94	11/1/94	2/2/95	7/25/95	1/8/96
XYLENE(TOTAL)	UG/L						< 5	< 5	< 5	< 5	< 1	< 1	< 1
ZINC-DISSOLVED	UG/L										< 50	< 50	< 50
ZINC TOTAL	UG/L									< 20			

ANALYTE	UNITS	12/21/92	5/3/93	8/3/93	8/4/93	1/10/94	2/1/94	5/4/94	8/4/94	11/1/94	2/3/95	7/25/95	1/9/96
1 1 1 2-TETRACHLOROETHANE	UG/L											< 1	< 1
1 1 1-TRICHLOROETHANE	UG/L	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 2-TETRACHLOROETHANE	UG/L	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2-TRICHLOROETHANE	UG/L	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1-DICHLOROETHANE	UG/L	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1-DICHLOROETHENE	UG/L	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 3-TRICHLOROPROPANE	UG/L											< 1	< 1
1 2 4-TRICHLOROBENZENE	UG/L	< 10											
1 2 DIBROMO-3-CHLOROPROPANE	UG/L										< 1	< 0 2	< 0 2
1 2-DIBROMOETHANE	UG/L										< 1	< 0 02	< 0 02
1 2-DICHLOROBENZENE	UG/L	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROETHANE	UG/L	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2-DICHLOROPROPANE	UG/L	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2-DIPHENYLHYDRAZINE	UG/L	< 10											
1 3-DICHLOROBENZENE	UG/L	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1			
1 4-DICHLOROBENZENE	UG/L	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2 4 6-TRICHLOROPHENOL	UG/L	< 10											
2 4-DICHLOROPHENOL	UG/L	< 10											
2 4-DIMETHYLPHENOL	UG/L	< 10											
2 4-DINITROPHENOL	UG/L	< 10											
2 4-DINITROTOLUENE	UG/L	< 10											
2 6 DINITROTOLUENE	UG/L	< 10											
2 BUTANONE	UG/L										< 1		< 1
2-CHLOROETHYLVINYL ETHER	UG/L	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1			
2-CHLORONAPHTHALENE	UG/L	< 10											
2-CHLOROPHENOL	UG/L	< 10											
2-HEXANONE	UG/L											< 1	< 1
2-NITROPHENOL	UG/L	< 10											
3 3 DICHLOROBENZIDINE	UG/L	< 10											
4 4 -DDD	UG/L	< 0 1											
4 4 -DDE	UG/L	< 0 1											
4 4'-DDT	UG/L	< 0 1											
4 6-DINITRO-2-METHYLPHENOL	UG/L	< 10											
4-BROMOPHENYL-PHENYL ETHER	UG/L	< 10											
4-CHLORO-3-METHYLPHENOL	UG/L	< 10											
4-CHLOROPHENYL PHENYL ETHER	UG/L	< 10											
4-METHYL-2-PENTANONE	UG/L											< 1	< 1
4-NITROPHENOL	UG/L	< 10											
ACENAPHTHENE	UG/L	< 10											
ACENAPHTHYLENE	UG/L	< 10											
ACETONE	UG/L											< 1	< 1
ACROLEIN	UG/L	< 10											
ACRYLONITRILE	UG/L	< 10									< 1	< 1	< 1
ACTUAL VOLUME PURGED	ALLONS									68 7			
ALDRIN	UG/L	< 0 1											
ALKALINITY BICARBONATE (AS CACO3)	MG/L		46	44		43	13	37 7	31 4	35			
ALPHA-BHC	UG/L	< 0 1											
AMMONIUM	MG/L						< 0 05	< 0 05	< 0 05				
AMMONIUM NH4	MG/L		0 071	0 027		0 022							
ANTHRACENE	UG/L	< 10											
ANTIMONY-DISSOLVED	UG/L							< 3	< 3	< 3	< 3	< 3	< 3
ANTIMONY-TOTAL	UG/L	< 50								< 6			
AROCLOR 1016	UG/L	< 1											
AROCLOR 1221	UG/L	< 1											
AROCLOR 1232	UG/L	< 1											
AROCLOR 1242	UG/L	< 1											
AROCLOR 1248	UG/L	< 1											
AROCLOR 1254	UG/L	< 1											
AROCLOR 1260	UG/L	< 1											
ARSENIC-DISSOLVED	UG/L				< 10		< 25	< 25	< 25	< 25	< 25	< 25	< 25
ARSENIC-TOTAL	UG/L	< 5	< 5	< 5		< 5				< 5			
BARIUM-DISSOLVED	UG/L										< 100	< 100	< 100
BARIUM-TOTAL	UG/L									< 200			
BENZ[A]ANTHRACENE	UG/L	< 10											

ANALYTE	UNITS	12/21/92	5/3/93	8/3/93	8/4/93	1/10/94	2/1/94	5/4/94	8/4/94	11/1/94	2/3/95	7/25/95	1/9/96
HEXACHLOROETHANE	UG/L	< 10											
INDENO(1 2 3-CD)PYRENE	UG/L	< 10											
IODOMETHANE	UG/L											< 1	< 1
IRON-DISSOLVED	UG/L				367								
IRON-TOTAL	UG/L	882	2910	4250		3160	949	938	823	895	846	522	576
ISOPHORONE	UG/L	< 10											
LEAD-DISSOLVED	UG/L				< 5		< 25	11	5	< 5	6	< 0 005	10
LEAD-TOTAL	UG/L	< 5	10 8	12 6		7 9				15 1			
LINDANE (GAMMA-BHC)	UG/L	< 0 1											
MERCURY DISSOLVED	UG/L				< 0 2		< 1			< 1	< 1	< 1	< 1
MERCURY-TOTAL	UG/L	< 0 2	< 0 2	< 0 2		< 0 2							
METHYL TERT BUTYL ETHER	UG/L						< 10	< 10	< 10	< 10			
METHYLENE CHLORIDE	UG/L	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1		< 1	< 1
N-NITROSODI-N-PROPYLAMINE	UG/L	< 10											
N-NITROSODIMETHYLAMINE	UG/L	< 10											
N-NITROSODIPHENYLAMINE	UG/L	< 10											
NAPHTHALENE	UG/L	< 10											
NICKEL-DISSOLVED	UG/L										< 10	< 50	< 50
NICKEL-TOTAL	UG/L	< 40								< 40			
NITROBENZENE	UG/L	< 10											
NITROGEN AMMONIA	MG/L		0 071	0 027		0 022					< 0 1	< 0 05	< 0 05
NITROGEN NITRATE	MG/L		< 0 05	< 0 05		< 0 05					< 0 05	< 0 05	0 147
ODOR										NONE			< 1
PENTACHLOROPHENOL	UG/L	< 10											
PH FIELD	H UNITS	6 15	6 35	5 99	5 62	5 87	6 1	5 91	5 92	6 09	5 91	5 81	5 94
PHENANTHRENE	UG/L	< 10											
PHENOL	UG/L	< 10											
PLUS ANALYTES FOUND		Y											
PURGE DATE (YY/MM/DD)	Y/MM/DD									94-11-01			
PURGING DEVICE										C			
PURGING EQUIPMENT DEDICATED										Y			
PURGING MATERIAL										A			
PYRENE	UG/L	< 10											
SAMPLING DEVICE										C			
SAMPLING EQUIPMENT DEDICATED										Y			
SAMPLING MATERIAL										A			
SELENIUM-DISSOLVED	UG/L						< 5	< 5	< 25	< 25	< 25	< 25	< 25
SELENIUM-TOTAL	UG/L	< 5								< 5			
SILVER-DISSOLVED	UG/L										< 25	< 25	< 25
SILVER-TOTAL	UG/L	< 10								< 25			
SODIUM-DISSOLVED	UG/L				8980		6140	7420	6890	5870	5680	5340	4450
SODIUM-TOTAL	UG/L	24800	11900	12400		9710							
SPECIFIC CONDUCTANCE	MHOS/CM						87 8						
SPECIFIC CONDUCTANCE FIELD	MHOS/C	83	1143	90	87	85				NA	76	90 0	81
STYRENE	UG/L										< 1	< 1	< 1
TETRACHLOROETHENE	UG/L	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
THALLIUM-DISSOLVED	UG/L										< 1	< 1	< 1
THALLIUM-TOTAL	UG/L	< 10								< 2			
TOLUENE	UG/L	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TOTAL ORGANIC CARBON	MG/L		2 1	1 9		2 1	46	39	34	7			
TOXAPHENE	UG/L	< 1											
TRANS-1 2-DICHLOROETHENE	UG/L	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1 3-DICHLOROPROPENE	UG/L	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1 4-DICHLORO-2-BUTENE	UG/L											< 1	< 1
TRICHLOROETHENE	UG/L	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	UG/L	< 1	< 1	2		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TUBING-PURGING										G			
TUBING-SAMPLING										G			
TURBIDITY	NTU		220	200		190	68	50	44	39	54	24 0	27
VANADIUM-DISSOLVED	UG/L										< 25	< 25	< 25
VANADIUM-TOTAL	UG/L									< 50			
VINYL ACETATE	UG/L										< 1	< 1	< 1
VINYL CHLORIDE	UG/L	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
WELL DEPTH TOTAL	FT	124 8	127 32	127 32		127 32				127 32			

ANALYTE	UNITS	12/21/92	5/3/93	8/3/93	8/4/93	1/10/94	2/1/94	5/4/94	8/4/94	11/1/94	2/3/95	7/25/95	1/9/96
BENZENE	UG/L	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BENZIDINE	UG/L	< 10											
BENZO[A]PYRENE	UG/L	< 10											
BENZO[B]FLUORANTHENE	UG/L	< 10											
BENZO[G H I]PERYLENE	UG/L	< 10											
BENZO[K]FLUORANTHENE	UG/L	< 10											
BERYLLIUM-DISSOLVED	UG/L						< 25	< 4	< 4	< 4	< 4	< 4	< 4
BERYLLIUM-TOTAL	UG/L	< 5								< 4			
BETA-BHC	UG/L	< 0 1											
BIS(2 CHLOROETHOXY)METHANE	UG/L	< 10											
BIS(2-CHLOROETHYL)ETHER	UG/L	< 10											
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	< 10											
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	< 10											
BROMOCHLOROMETHANE	UG/L											< 1	< 1
BROMODICHLOROMETHANE	UG/L	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	UG/L	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	UG/L	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BUTYLBENZYLPHTHALATE	UG/L	< 10											
CADMIUM-DISSOLVED	UG/L				< 5		< 5	< 5	< 5	< 3	< 3	< 3	< 3
CADMIUM-TOTAL	UG/L	< 5	< 5	< 5		< 5				< 5			
CARBON DISULFIDE	UG/L											< 1	< 1
CARBON TETRACHLORIDE	UG/L	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLORDANE	UG/L	< 1											
CHLORIDE	MG/L										9 32	11 7	9 7
CHLOROBENZENE	UG/L	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	UG/L	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	UG/L	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	UG/L	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHROMIUM-DISSOLVED	UG/L				< 10		< 25	< 25	< 25	< 50	55	< 50	< 50
CHROMIUM-TOTAL	UG/L	< 10	< 10	10 3		< 10				< 10			
CHRYSENE	UG/L	< 10											
CIS-1 2-DICHLOROETHENE	UG/L											< 1	< 1
CIS-1 3-DICHLOROPROPENE	UG/L	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
COBALT-TOTAL	UG/L										< 25	< 25	< 25
COLOR										NONE	125	25	< 5
COPPER-DISSOLVED	UG/L										< 50	< 50	< 50
COPPER-TOTAL	UG/L	< 25								14 9			
CYANIDE TOTAL	MG/L	< 0 02											
DELTA BHC	UG/L	< 0 05											
DEPTH TO WATER FROM TOP OF CASING	FT									4 69			
DI-N BUTYLPHTHALATE	UG/L	< 10											
DI N-OCTYLPHTHALATE	UG/L	< 10											
DIBENZ[A H]ANTHRACENE	UG/L	< 10											
DIBROMOCHLOROMETHANE	UG/L	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1		< 1	< 1
DIBROMOMETHANE	UG/L											< 1	< 1
DICHLORODIFLUOROMETHANE	UG/L	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1			
DIELDRIN	UG/L	< 0 1											
DIETHYLPHTHALATE	UG/L	< 10											
DIMETHYLPHTHALATE	UG/L	< 10											
ELAPSED HOURS	HRS									1 7			
ENDOSULFAN I	UG/L	< 0 05											
ENDOSULFAN II	UG/L	< 0 1											
ENDOSULFAN SULFATE	UG/L	< 0 5											
ENDRIN	UG/L	< 0 1											
ENDRIN ALDEHYDE	UG/L	< 0 1											
ETHYLBENZENE	UG/L	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
FLUORANTHENE	UG/L	< 10											
FLUORENE	UG/L	< 10											
GROUNDWATER ELEV	FT MSL	133 05	132 7	132 98		133 71	134 5			133 83			
HEPTACHLOR	UG/L	< 0 05											
HEPTACHLOR EPOXIDE	UG/L	< 0 5											
HEXACHLOROBENZENE	UG/L	< 10											
HEXACHLOROBUTADIENE	UG/L	< 10											
HEXACHLOROCYCLOPENTADIENE	UG/L	< 40											

ANALYTE	UNITS	12/21/92	5/3/93	6/28/93	8/2/93	1/10/94	2/1/94	5/4/94	8/4/94	11/1/94	2/3/95	7/25/95	1/9/96
1 1 1 2-TETRACHLOROETHANE	UG/L											< 1	< 1
1 1 1-TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 2-TETRACHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2-TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1-DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1-DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 3-TRICHLOROPROPANE	UG/L											< 1	< 1
1 2 4-TRICHLOROBENZENE	UG/L	< 10											
1 2-DIBROMO-3-CHLOROPROPANE	UG/L										< 1	< 0 2	< 0 2
1 2-DIBROMOETHANE	UG/L										< 1	< 0 02	< 0 02
1 2-DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2-DICHLOROPROPANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2-DIPHENYLHYDRAZINE	UG/L	< 10											
1 3-DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
1 4-DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2 4 6-TRICHLOROPHENOL	UG/L	< 10											
2 4-DICHLOROPHENOL	UG/L	< 10											
2 4 DIMETHYLPHENOL	UG/L	< 10											
2 4-DINITROPHENOL	UG/L	< 10											
2 4 DINITROTOLUENE	UG/L	< 10											
2 6 DINITROTOLUENE	UG/L	< 10											
2 BUTANONE	UG/L										< 1		< 1
2-CHLOROETHYLVINYL ETHER	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
2 CHLORONAPHTHALENE	UG/L	< 10											
2-CHLOROPHENOL	UG/L	< 10											
2 HEXANONE	UG/L											< 1	< 1
2 NITROPHENOL	UG/L	< 10											
3 3 -DICHLOROBENZIDINE	UG/L	< 10											
4 4 -DDD	UG/L	< 0 1											
4 4 -DDE	UG/L	< 0 1											
4 4 -DDT	UG/L	< 0 1											
4 6-DINITRO-2-METHYLPHENOL	UG/L	< 10											
4 BROMOPHENYL-PHENYL ETHER	UG/L	< 10											
4-CHLORO-3-METHYLPHENOL	UG/L	< 10											
4-CHLOROPHENYL PHENYL ETHER	UG/L	< 10											
4-METHYL-2-PENTANONE	UG/L											< 1	< 1
4-NITROPHENOL	UG/L	< 10											
ACENAPHTHENE	UG/L	< 10											
ACENAPHTHYLENE	UG/L	< 10											
ACETONE	UG/L											< 1	< 1
ACROLEIN	UG/L	< 10											
ACRYLONITRILE	UG/L	< 10									< 1	< 1	< 1
ACTUAL VOLUME PURGED	ALLONS									41 6			
ALDRIN	UG/L	< 0 1											
ALKALINITY BICARBONATE (AS CACO3)	MG/L		< 10	< 10	< 10	< 10	3 81	24 4	< 15	16			
ALPHA BHC	UG/L	< 0 1											
AMMONIUM	MG/L						< 0 05	< 0 05	< U 05				
AMMONIUM NH4	MG/L		0 023	< 0 02	< 0 02	< 0 02							
ANTHRACENE	UG/L	< 10											
ANTIMONY-DISSOLVED	UG/L							< 3	< 3	< 3	< 3	< 3	< 3
ANTIMONY-TOTAL	UG/L	< 50								< 6			
AROCLOR 1016	UG/L	< 1											
AROCLOR 1221	UG/L	< 1											
AROCLOR 1232	UG/L	< 1											
AROCLOR 1242	UG/L	< 1											
AROCLOR 1248	UG/L	< 1											
AROCLOR 1254	UG/L	< 1											
AROCLOR 1260	UG/L	< 1											
ARSENIC-DISSOLVED	UG/L			< 10			< 25	< 25	< 25	< 25	< 25	< 25	< 25
ARSENIC-TOTAL	UG/L	< 5	14 6	< 5	< 5	< 5				< 5			
BARIUM-DISSOLVED	UG/L										< 100	< 100	< 100
BARIUM-TOTAL	UG/L									< 200			
BENZ(A)ANTHRACENE	UG/L	< 10											

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ANALYTE	UNITS	12/21/92	5/3/93	8/3/93	8/4/93	1/10/94	2/1/94	5/4/94	8/4/94	11/1/94	2/3/95	7/25/95	1/9/96
XYLENE(TOTAL)	UG/L						< 5	< 5	< 5	< 5	< 1	< 1	< 1
ZINC DISSOLVED	UG/L										< 50	< 50	< 50
ZINC-TOTAL	UG/L									23 4			

ANALYTE	UNITS	12/21/92	5/3/93	6/28/93	8/2/93	1/10/94	2/1/94	5/4/94	8/4/94	11/1/94	2/2/95	7/26/95	1/9/96
1 1 1 2-TETRACHLOROETHANE	UG/L											< 1	< 1
1 1 1-TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 2-TETRACHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2-TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1-DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1-DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 3-TRICHLOROPROPANE	UG/L											< 1	< 1
1 2 4-TRICHLOROBENZENE	UG/L	< 10											
1 2-DIBROMO-3-CHLOROPROPANE	UG/L										< 1	< 0 2	< 0 2
1 2-DIBROMOETHANE	UG/L										< 1	< 0 02	< 0 02
1 2-DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2-DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2-DICHLOROPROPANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2-DIPHENYLHYDRAZINE	UG/L	< 10											
1 3-DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
1 4-DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2 4 6-TRICHLOROPHENOL	UG/L	< 10											
2 4-DICHLOROPHENOL	UG/L	< 10											
2 4-DIMETHYLPHENOL	UG/L	< 10											
2 4-DINITROPHENOL	UG/L	< 10											
2 4-DINITROTOLUENE	UG/L	< 10											
2 6-DINITROTOLUENE	UG/L	< 10											
2-BUTANONE	UG/L										< 1	< 1	< 1
2-CHLOROETHYLVINYL ETHER	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
2-CHLORONAPHTHALENE	UG/L	< 10											
2-CHLOROPHENOL	UG/L	< 10											
2-HEXANONE	UG/L											< 1	< 1
2-NITROPHENOL	UG/L	< 10											
3 3'-DICHLOROBENZIDINE	UG/L	< 10											
4 4-DDD	UG/L	< 0 1											
4 4-DDE	UG/L	< 0 1											
4 4-DDT	UG/L	< 0 1											
4 6-DINITRO-2-METHYLPHENOL	UG/L	< 10											
4-BROMOPHENYL-PHENYL ETHER	UG/L	< 10											
4-CHLORO-3-METHYLPHENOL	UG/L	< 10											
4-CHLOROPHENYL PHENYL ETHER	UG/L	< 10											
4-METHYL-2-PENTANONE	UG/L											< 1	< 1
4 NITROPHENOL	UG/L	< 10											
ACENAPHTHENE	UG/L	< 10											
ACENAPHTHYLENE	UG/L	< 10											
ACETONE	UG/L											< 1	< 1
ACROLEIN	UG/L	< 10											
ACRYLONITRILE	UG/L	< 10									< 1	< 1	< 1
ACTUAL VOLUME PURGED	ALLONS									17			
ALDRIN	UG/L	< 0 1											
ALKALINITY, BICARBONATE (AS CACO3)	MG/L		< 10	< 10	< 10	< 10	< 1	< 15	< 15	15			
ALPHA-BHC	UG/L	< 0 1											
AMMONIUM	MG/L						< 0 05	< 0 05	< 0 05				
AMMONIUM NH4	MG/L		0 022	0 072	0 43	< 0 02							
ANTHRACENE	UG/L	< 10											
ANTIMONY-DISSOLVED	UG/L							< 3	< 3	< 3	< 3	< 3	< 3
ANTIMONY-TOTAL	UG/L	< 500								< 6			
AROCLOR 1016	UG/L	< 1											
AROCLOR 1221	UG/L	< 1											
AROCLOR 1232	UG/L	< 1											
AROCLOR 1242	UG/L	< 1											
AROCLOR 1248	UG/L	< 1											
AROCLOR 1254	UG/L	< 1											
AROCLOR 1260	UG/L	< 1											
ARSENIC-DISSOLVED	UG/L			< 10	< 10		< 25	< 25	< 25	< 25	< 25	< 25	< 25
ARSENIC-TOTAL	UG/L	< 5	< 5	< 5	< 5	< 5				< 5			
BARIUM-DISSOLVED	UG/L										< 100	< 100	< 100
BARIUM-TOTAL	UG/L									< 200			
BENZ[A]ANTHRACENE	UG/L	< 10											

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ANALYTE	UNITS	12/21/92	5/3/93	6/28/93	8/2/93	1/10/94	2/1/94	5/4/94	8/4/94	11/1/94	2/3/95	7/25/95	1/9/96
XYLENE(TOTAL)	UG/L						< 5	< 5	< 5	< 5	< 1	< 1	< 1
ZINC-DISSOLVED	UG/L										< 50	< 50	< 50
ZINC-TOTAL	UG/L									< 20			

ANALYTE	UNITS	12/21/92	5/3/93	6/28/93	8/2/93	1/10/94	2/1/94	5/4/94	8/4/94	11/1/94	2/3/95	7/25/95	1/9/96
HEXACHLOROETHANE	UG/L	< 10											
INDENO[1 2 3-CD]PYRENE	UG/L	< 10											
IODOMETHANE	UG/L											< 1	< 1
IRON-DISSOLVED	UG/L			345									
IRON-TOTAL	UG/L	696	11300	501	456	413	373	295	315	320	250	317	265
ISOPHORONE	UG/L	< 10											
LEAD-DISSOLVED	UG/L			< 5			< 25	< 5	< 5	< 5	< 5	5	10
LEAD-TOTAL	UG/L	< 5	23	< 5	< 5	< 5				< 5			
LINDANE (GAMMA-BHC)	UG/L	< 0 1											
MERCURY-DISSOLVED	UG/L			< 0 2			< 1			< 1	< 1	< 1	< 1
MERCURY-TOTAL	UG/L	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2							
METHYL TERT-BUTYL ETHER	UG/L						< 10	< 10	< 10	< 10			
METHYLENE CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
N-NITROSODI-N-PROPYLAMINE	UG/L	< 10											
N NITROSODIMETHYLAMINE	UG/L	< 10											
N NITROSODIPHENYLAMINE	UG/L	< 10											
NAPHTHALENE	UG/L	< 10											
NICKEL-DISSOLVED	UG/L										< 10	< 50	< 50
NICKEL-TOTAL	UG/L	< 40								< 40			
NITROBENZENE	UG/L	< 10											
NITROGEN AMMONIA	MG/L		0 023	< 0 02	< 0 02	< 0 02					< 0 1	< 0 05	< 0 05
NITROGEN NITRATE	MG/L		< 0 05	0 11	< 0 05	< 0 05					< 0 05	< 0 05	0 2
ODOR										NONE			< 1
PENTACHLOROPHENOL	UG/L	< 10											
PH FIELD	H UNITS	5 19	5 42	5 02	4 88	5 03	5 15	5	4 95	4 76	4 94	1 8	5 07
PHENANTHRENE	UG/L	< 10											
PHENOL	UG/L	< 10											
PLUS ANALYTES FOUND		Y											
PURGE DATE (YY/MM/DD)	Y/MM/DD									94-11-01			
PURGING DEVICE										C			
PURGING EQUIPMENT DEDICATED										Y			
PURGING MATERIAL										A			
PYRENE	UG/L	< 10											
SAMPLING DEVICE										C			
SAMPLING EQUIPMENT DEDICATED										Y			
SAMPLING MATERIAL										A			
SELENIUM-DISSOLVED	UG/L						< 5	< 5	< 25	< 25	< 25	< 25	< 25
SELENIUM-TOTAL	UG/L	< 5								< 5			
SILVER-DISSOLVED	UG/L										< 25	< 25	< 25
SILVER-TOTAL	UG/L	< 10								< 25			
SODIUM-DISSOLVED	UG/L			< 5000			2900	3270	3490	3070	3290	3290	3200
SODIUM-TOTAL	UG/L	3460	4250	3280	3490	3280							
SPECIFIC CONDUCTANCE	MHOS/CM						31 6						
SPECIFIC CONDUCTANCE FIELD	MHOS/C	30	31	24	26	27				NA	28	35 0	37
STYRENE	UG/L										< 1	< 1	< 1
TETRACHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
THALLIUM-DISSOLVED	UG/L										< 1	< 1	< 1
THALLIUM-TOTAL	UG/L	< 10								< 2			
TOLUENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TOTAL ORGANIC CARBON	MG/L		3 1	1 5	1 6	1 7	45	37	30	4			
TOXAPHENE	UG/L	< 1											
TRANS-1 2-DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1 3-DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1 4-DICHLORO-2-BUTENE	UG/L											< 1	< 1
TRICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TUBING-PURGING										G			
TUBING-SAMPLING										G			
TURBIDITY	NTU		1500	17	12	6 5	2 5	3	4	0 72	7 6	1 8	3
VANADIUM-DISSOLVED	UG/L										< 25	< 25	< 25
VANADIUM-TOTAL	UG/L									< 50			
VINYL ACETATE	UG/L										< 1	< 1	< 1
VINYL CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
WELL DEPTH TOTAL	FT	57 9	60 13	60 13	60 13	60 13				60 13			

ANALYTE	UNITS	12/21/92	5/3/93	6/28/93	8/2/93	1/10/94	2/1/94	5/4/94	8/4/94	11/1/94	2/3/95	7/25/95	1/9/96
BENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BENZIDINE	UG/L	< 10											
BENZO[A]PYRENE	UG/L	< 10											
BENZO[B]FLUORANTHENE	UG/L	< 10											
BENZO[G H I]PERYLENE	UG/L	< 10											
BENZO[K]FLUORANTHENE	UG/L	< 10											
BERYLLIUM-DISSOLVED	UG/L						< 25	< 4	< 4	< 4	< 4	< 4	< 4
BERYLLIUM-TOTAL	UG/L	< 5								< 4			
BETA-BHC	UG/L	< 0 1											
BIS(2-CHLOROETHOXY)METHANE	UG/L	< 10											
BIS(2-CHLOROETHYL)ETHER	UG/L	< 10											
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	< 10											
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	< 10											
BROMOCHLOROMETHANE	UG/L											< 1	< 1
BROMODICHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BUTYLBENZYLPHTHALATE	UG/L	< 10											
CADMIUM DISSOLVED	UG/L			< 5			< 5	< 5	< 5	< 3	< 3	< 3	< 3
CADMIUM-TOTAL	UG/L	< 5	< 25	< 5	< 5	< 5				< 5			
CARBON DISULFIDE	UG/L											< 1	< 1
CARBON TETRACHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLORDANE	UG/L	< 1											
CHLORIDE	MG/L										7 27	5 39	6 94
CHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHROMIUM DISSOLVED	UG/L			< 10			< 25	< 25	< 25	< 50	< 50	< 50	< 50
CHROMIUM-TOTAL	UG/L	< 10	< 50	< 10	< 10	< 10				< 10			
CHRYSENE	UG/L	< 10											
CIS-1 2-DICHLOROETHENE	UG/L											< 1	< 1
CIS-1 3-DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
COBALT-TOTAL	UG/L										< 25	< 25	< 25
COLOR										NONE	< 5	< 5	< 5
COPPER-DISSOLVED	UG/L										< 50	< 50	< 50
COPPER-TOTAL	UG/L	< 25								< 10			
CYANIDE, TOTAL	MG/L	< 0 02											
DELTA-BHC	UG/L	< 0 05											
DEPTH TO WATER FROM TOP OF CASING	FT									0 67			
DI N-BUTYLPHTHALATE	UG/L	< 10											
DI N-OCTYLPHTHALATE	UG/L	< 10											
DIBENZ[A H]ANTHRACENE	UG/L	< 10											
DIBROMOCHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
DIBROMOMETHANE	UG/L											< 1	< 1
DICHLORODIFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
DIELDRIN	UG/L	< 0 1											
DIETHYLPHTHALATE	UG/L	< 10											
DIMETHYLPHTHALATE	UG/L	< 10											
ELAPSED HOURS	HRS									0 8			
ENDOSULFAN I	UG/L	< 0 05											
ENDOSULFAN II	UG/L	< 0 1											
ENDOSULFAN SULFATE	UG/L	< 0 5											
ENDRIN	UG/L	< 0 1											
ENDRIN ALDEHYDE	UG/L	< 0 1											
ETHYLBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
FLUORANTHENE	UG/L	< 10											
FLUORENE	UG/L	< 10											
GROUNDWATER ELEV	FT MSL	137 01	136 61	135 29	136 93	137 57	138 43			137 76			
HEPTACHLOR	UG/L	< 0 05											
HEPTACHLOR EPOXIDE	UG/L	< 0 5											
HEXACHLOROBENZENE	UG/L	< 10											
HEXACHLOROBUTADIENE	UG/L	< 10											
HEXACHLOROCYCLOPENTADIENE	UG/L	< 40											

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ANALYTE	UNITS	12/21/92	5/3/93	6/28/93	8/2/93	1/10/94	2/1/94	5/4/94	8/4/94	11/1/94	2/2/95	7/26/95	1/9/96
BENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BENZIDINE	UG/L	< 10											
BENZO[A]PYRENE	UG/L	< 10											
BENZO[B]FLUORANTHENE	UG/L	< 10											
BENZO[G H I]PERYLENE	UG/L	< 10											
BENZO[K]FLUORANTHENE	UG/L	< 10											
BERYLLIUM-DISSOLVED	UG/L						< 25	< 4	< 4	< 4	< 4	< 4	< 4
BERYLLIUM-TOTAL	UG/L	< 50								< 4			
BETA BHC	UG/L	< 0 1											
BIS(2-CHLOROETHOXY)METHANE	UG/L	< 10											
BIS(2-CHLOROETHYL)ETHER	UG/L	< 10											
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	< 10											
BIS(2 ETHYLHEXYL)PHTHALATE	UG/L	15											
BROMOCHLOROMETHANE	UG/L											< 1	< 1
BROMODICHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BUTYLBENZYLPHTHALATE	UG/L	< 10											
CADMIUM-DISSOLVED	UG/L			< 5	< 5		< 5	< 5	< 5	< 3	< 3	< 3	< 3
CADMIUM-TOTAL	UG/L	< 50	< 50	< 25	< 25	< 5				< 5			
CARBON DISULFIDE	UG/L											< 1	< 1
CARBON TETRACHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLORDANE	UG/L	< 1											
CHLORIDE	MG/L										10 3	8 76	7 76
CHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHROMIUM-DISSOLVED	UG/L			< 10	< 10		< 25	< 25	< 25	< 50	< 50	< 50	< 50
CHROMIUM-TOTAL	UG/L	< 100	< 100	< 50	< 50	19 5				< 10			
CHRYSENE	UG/L	< 10											
CIS-1 2-DICHLOROETHENE	UG/L											< 1	< 1
CIS 1 3-DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
COBALT-TOTAL	UG/L										< 25	< 25	< 25
COLOR										BROWN TI	175	500	150
COPPER DISSOLVED	UG/L										< 50	< 50	< 50
COPPER-TOTAL	UG/L	< 250								< 10			
CYANIDE TOTAL	MG/L	< 0 02											
DELTA-BHC	UG/L	< 0 05											
DEPTH TO WATER FROM TOP OF CASING	FT									6 23			
DI N-BUTYLPHTHALATE	UG/L	< 10											
DI N OCTYLPHTHALATE	UG/L	< 10											
DIBENZ[A H]ANTHRACENE	UG/L	< 10											
DIBROMOCHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
DIBROMOMETHANE	UG/L											< 1	< 1
DICHLORODIFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
DIELDRIN	UG/L	< 0 1											
DIETHYLPHTHALATE	UG/L	< 10											
DIMETHYLPHTHALATE	UG/L	< 10											
ELAPSED HOURS	HRS									0 3			
ENDOSULFAN I	UG/L	< 0 05											
ENDOSULFAN II	UG/L	< 0 1											
ENDOSULFAN SULFATE	UG/L	< 0 5											
ENDRIN	UG/L	< 0 1											
ENDRIN ALDEHYDE	UG/L	< 0 1											
ETHYLBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
FLUORANTHENE	UG/L	< 10											
FLUORENE	UG/L	< 10											
GROUNDWATER ELEV	FT MSL	131 93	131 81	131 45	130 36	132 3	130 26			132 08			
HEPTACHLOR	UG/L	< 0 05											
HEPTACHLOR EPOXIDE	UG/L	< 0 5											
HEXACHLOROBENZENE	UG/L	< 10											
HEXACHLOROBUTADIENE	UG/L	< 10											
HEXACHLOROCYCLOPENTADIENE	UG/L	< 40											

ANALYTE	UNITS	12/21/92	5/3/93	6/28/93	8/2/93	1/10/94	2/1/94	5/4/94	8/4/94	11/1/94	2/2/95	7/26/95	1/9/96
HEXACHLOROETHANE	UG/L	< 10											
INDENO(1 2 3-CD)PYRENE	UG/L	< 10											
IODOMETHANE	UG/L											< 1	< 1
IRON-DISSOLVED	UG/L			1070	488								
IRON-TOTAL	UG/L	2050	4630	1420	4110	1190	994	1260	550	672	603	672	315
ISOPHORONE	UG/L	< 10											
LEAD DISSOLVED	UG/L			< 5	< 5		< 25	< 5	< 5	< 5	< 5	< 5	7
LEAD-TOTAL	UG/L	13 9	43 3	7 8	11 7	12				13 5			
LINDANE (GAMMA-BHC)	UG/L	< 0 1											
MERCURY-DISSOLVED	UG/L			< 0 2	< 0 2		< 1			< 1	< 1	< 1	< 1
MERCURY-TOTAL	UG/L	< 0 2	3 2	0 57	0 77	0 74							
METHYL TERT-BUTYL ETHER	UG/L						< 10	< 10	< 10	< 10			
METHYLENE CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
N-NITROSODI-N-PROPYLAMINE	UG/L	< 10											
N NITROSODIMETHYLAMINE	UG/L	< 10											
N-NITROSODIPHENYLAMINE	UG/L	< 10											
NAPHTHALENE	UG/L	< 10											
NICKEL-DISSOLVED	UG/L										< 10	< 50	< 50
NICKEL-TOTAL	UG/L	< 400								< 40			
NITROBENZENE	UG/L	< 10											
NITROGEN AMMONIA	MG/L		0 022	0 072	0 43	< 0 02					< 0 1	< 0 05	0 069
NITROGEN, NITRATE	MG/L		< 0 05	< 0 05	< 0 05	< 0 5					< 0 05	< 0 05	0 054
ODOR										SLIGHT			2
PENTACHLOROPHENOL	UG/L	< 10											
PH FIELD	H UNITS	5 18	5 52	4 93	4 89	5 11	5 31	4 99	4 77	4 49	4 9	4 80	4 91
PHENANTHRENE	UG/L	< 10											
PHENOL	UG/L	< 10											
PLUS ANALYTES FOUND		Y											
PURGE DATE (YY/MM/DD)	Y/MM/DD									94-11-01			
PURGING DEVICE										C			
PURGING EQUIPMENT DEDICATED										Y			
PURGING MATERIAL										A			
PYRENE	UG/L	< 10											
SAMPLING DEVICE										C			
SAMPLING EQUIPMENT DEDICATED										Y			
SAMPLING MATERIAL										A			
SELENIUM-DISSOLVED	UG/L						< 5	< 5	< 25	< 25	< 25	< 25	< 25
SELENIUM-TOTAL	UG/L	< 5								< 5			
SILVER-DISSOLVED	UG/L										< 25	< 25	< 25
SILVER-TOTAL	UG/L	< 100								< 25			
SODIUM-DISSOLVED	UG/L			< 5000	< 5000		3500	6020	3860	3120	3430	10000	3060
SODIUM-TOTAL	UG/L	< 5000	6210	3410	7560	5210							
SPECIFIC CONDUCTANCE	MHOS/CM						90 6						
SPECIFIC CONDUCTANCE FIELD	MHOS/C	35	40	39	30	30				NA	31	49	35
STYRENE	UG/L										< 1	< 1	< 1
TETRACHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
THALLIUM-DISSOLVED	UG/L										< 1	< 1	< 1
THALLIUM-TOTAL	UG/L	< 10								< 2			
TOLUENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TOTAL ORGANIC CARBON	MG/L		15 5	5 4	5 2	6 5	50	36	36	7			
TOXAPHENE	UG/L	< 1											
TRANS-1 2-DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1 3-DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1 4-DICHLORO-2-BUTENE	UG/L											< 1	< 1
TRICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TUBING-PURGING										G			
TUBING-SAMPLING										G			
TURBIDITY	NTU		6200	950	1400	1500	310	125	72	27	24	24	25
VANADIUM DISSOLVED	UG/L										< 25	< 25	< 25
VANADIUM-TOTAL	UG/L									< 50			
VINYL ACETATE	UG/L										< 1	< 1	< 1
VINYL CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
WELL DEPTH TOTAL	FT	16 1	18 31	18 31	18 31	18 31				18 31			

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ANALYTE	UNITS	12/21/92	5/3/93	6/28/93	8/2/93	1/10/94	2/1/94	5/4/94	8/4/94	11/1/94	2/2/95	7/26/95	1/9/96
XYLENE(TOTAL)	UG/L						< 5	< 5	< 5	< 5	< 1	< 1	< 1
ZINC-DISSOLVED	UG/L										< 50	< 50	< 50
ZINC TOTAL	UG/L									< 20			

ANALYTE	UNITS	3/10/92	5/15/92	8/18/92	11/4/92	2/10/93	4/29/93	8/2/93	11/3/93	2/1/94	5/4/94	8/4/94	11/1/94	2/2/95	7/25/95	1/8/96
1 1 1 2-TETRACHLOROETHANE	UG/L														< 1	< 1
1 1 1-TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 2-TETRACHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2-TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1-DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1-DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 3-TRICHLOROPROPANE	UG/L														< 1	< 1
1 2 4-TRICHLOROBENZENE	UG/L	< 10														
1 2-DIBROMO-3-CHLOROPROPANE	UG/L													< 1	< 0 2	< 0 2
1 2-DIBROMOETHANE	UG/L													< 1	< 0 02	< 0 02
1 2-DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2-DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2-DICHLOROPROPANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DIPHENYLHYDRAZINE	UG/L	< 10														
1 3-DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
1 4-DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2 4 6-TRICHLOROPHENOL	UG/L	< 10														
2 4-DICHLOROPHENOL	UG/L	< 10														
2 4-DIMETHYLPHENOL	UG/L	< 10														
2 4-DINITROPHENOL	UG/L	< 10														
2 4-DINITROTOLUENE	UG/L	< 10														
2 6-DINITROTOLUENE	UG/L	< 10														
2-BUTANONE	UG/L													< 1		< 1
2-CHLOROETHYLVINYL ETHER	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
2-CHLORONAPHTHALENE	UG/L	< 10														
2-CHLOROPHENOL	UG/L	< 10														
2-HEXANONE	UG/L														< 1	< 1
2-NITROPHENOL	UG/L	< 10														
3 3 -DICHLOROBENZIDINE	UG/L	< 10														
4 4 -DDD	UG/L	< 0 1														
4 4 -DDE	UG/L	< 0 1														
4 4 -DDT	UG/L	< 0 1														
4 6-DINITRO 2-METHYLPHENOL	UG/L	< 10														
4 BROMOPHENYL-PHENYL ETHER	UG/L	< 10														
4-CHLORO-3-METHYLPHENOL	UG/L	< 10														
4-CHLOROPHENYL PHENYL ETHER	UG/L	< 10														
4-METHYL-2-PENTANONE	UG/L														< 1	< 1
4-NITROPHENOL	UG/L	< 10														
ACENAPHTHENE	UG/L	< 10														
ACENAPHTHYLENE	UG/L	< 10														
ACETONE	UG/L														< 1	< 1
ACRYLONITRILE	UG/L													< 1	< 1	< 1
ACTUAL VOLUME PURGED	GALLONS												18 3			
ALDRIN	UG/L	< 0 1														
ALKALINITY BICARBONATE (AS CACO3)	MG/L		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 15	< 15	< 15			
ALPHA-BHC	UG/L	< 0 1														
AMMONIUM	MG/L									< 0 05	< 0 05	< 0 05				
AMMONIUM NH4	MG/L		< 0 02	< 0 02	0 13	< 0 02	0 096	0 11	0 037							
ANTHRACENE	UG/L	< 10														
ANTIMONY-DISSOLVED	UG/L										< 3	< 3	< 3	< 3	< 3	< 3
ANTIMONY-TOTAL	UG/L	< 50	< 250										< 6			
AROCLOR 1016	UG/L	< 1														
AROCLOR 1221	UG/L	< 1														
AROCLOR 1232	UG/L	< 1														
AROCLOR 1242	UG/L	< 1														
AROCLOR 1248	UG/L	< 1														
AROCLOR 1254	UG/L	< 1														
AROCLOR 1260	UG/L	< 1														
ARSENIC-DISSOLVED	UG/L									< 25	< 25	< 25	< 25	< 25	< 25	< 25
ARSENIC-TOTAL	UG/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5				< 5			
BARIUM-DISSOLVED	UG/L													< 100	< 100	< 100
BARIUM-TOTAL	UG/L												< 200			
BENZ[A]ANTHRACENE	UG/L	< 10														
BENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BENZIDINE	UG/L	< 10														
BENZO[A]PYRENE	UG/L	< 10														

ANALYTE	UNITS	3/10/92	5/15/92	8/18/92	11/4/92	2/10/93	4/29/93	8/2/93	11/3/93	2/1/94	5/4/94	8/4/94	11/1/94	2/2/95	7/25/95	1/8/96
BENZO[B]FLUORANTHENE	UG/L	< 10														
BENZO[G H I]PERYLENE	UG/L	< 10														
BENZO[K]FLUORANTHENE	UG/L	< 10														
BERYLLIUM-DISSOLVED	UG/L									< 25	< 4	< 4	< 4	< 4	< 4	< 4
BERYLLIUM-TOTAL	UG/L	< 5	< 25										< 4			
BETA BHC	UG/L	< 0 1														
BIS(2-CHLOROETHOXY)METHANE	UG/L	< 10														
BIS(2-CHLOROETHYL)ETHER	UG/L	< 10														
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	< 10														
BIS(2-ETHYLHEXYL)PHTHALATE	UG/L	12														
BROMOCHLOROMETHANE	UG/L														< 1	< 1
BROMODICHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BUTYLBENZYLPHTHALATE	UG/L	< 10														
CADMIUM DISSOLVED	UG/L									< 5	< 5	< 5	< 3	< 3	< 3	< 3
CADMIUM-TOTAL	UG/L	< 5	< 25	< 5	< 5	< 5	< 5	< 5	< 5				< 5			
CARBON DISULFIDE	UG/L														< 1	< 1
CARBON TETRACHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLORDANE	UG/L	< 1														
CHLORIDE	MG/L													8 18	10 9	8 04
CHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHROMIUM DISSOLVED	UG/L									< 25	< 25	< 25	< 50	< 50	< 50	< 50
CHROMIUM-TOTAL	UG/L	19 8	< 50	< 10	< 10	< 10	< 10	< 10	< 10				< 10			
CHRYSENE	UG/L	< 10														
CIS-1 2-DICHLOROETHENE	UG/L														< 1	< 1
CIS-1 3-DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
COBALT-TOTAL	UG/L													< 25	< 25	< 25
COLOR													NONE	< 5	500	< 5
COPPER-DISSOLVED	UG/L													< 50	< 50	< 50
COPPER-TOTAL	UG/L	< 25											11 7			
CYANIDE TOTAL	MG/L	< 0 02														
DELTA-BHC	UG/L	< 0 05														
DEPTH TO WATER FROM TOP OF CASING	FT												5 5			
DI N-BUTYLPHTHALATE	UG/L	< 10														
DI N OCTYLPHTHALATE	UG/L	< 10														
DIBENZ[A H]ANTHRACENE	UG/L	< 10														
DIBROMOCHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
DIBROMOMETHANE	UG/L														< 1	< 1
DICHLORODIFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
DIELDRIN	UG/L	< 0 1														
DIETHYLPHTHALATE	UG/L	< 10														
DIMETHYLPHTHALATE	UG/L	< 10														
ELAPSED HOURS	HRS												0 2			
ENDOSULFAN I	UG/L	< 0 05														
ENDOSULFAN II	UG/L	< 0 1														
ENDOSULFAN SULFATE	UG/L	< 0 5														
ENDRIN	UG/L	< 0 1														
ENDRIN ALDEHYDE	UG/L	< 0 1														
ETHYLBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
FLUORANTHENE	UG/L	< 10														
FLUORENE	UG/L	< 10														
GROUNDWATER ELEV	FT MSL		NA	129 76	128 95	129 04	127 99	128 45	129 24	129 44			128 59			
HEPTACHLOR	UG/L	< 0 05														
HEPTACHLOR EPOXIDE	UG/L	< 0 5														
HEXACHLOROBENZENE	UG/L	< 10														
HEXACHLOROBUTADIENE	UG/L	< 10														
HEXACHLOROCYCLOPENTADIENE	UG/L	< 40														
HEXACHLOROETHANE	UG/L	< 10														
INDENO[1 2 3-CD]PYRENE	UG/L	< 10														
IODOMETHANE	UG/L														< 1	< 1
IRON-TOTAL	UG/L		739	485	325	490	434	449	468	327	552	533	432	530	340	4870
ISOPHORONE	UG/L	< 10														

ANALYTE	UNITS	3/10/92	5/15/92	8/18/92	11/4/92	2/10/93	4/29/93	8/2/93	11/3/93	2/1/94	5/4/94	8/4/94	11/1/94	2/2/95	7/25/95	1/8/96
LEAD-DISSOLVED	UG/L									< 25	< 5	< 5	< 5	< 5	< 5	< 5
LEAD-TOTAL	UG/L	11	27 8	< 5	< 5	< 5	< 5	< 5	< 5				12 9			
LINDANE (GAMMA-BHC)	UG/L	< 0 1														
MERCURY-DISSOLVED	UG/L									< 1			< 1	< 1	< 1	< 1
MERCURY-TOTAL	UG/L	0 74	1 2	0 21	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2							
METHYL TERT-BUTYL ETHER	UG/L									< 10	< 10	< 10	< 10			
METHYLENE CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
N-NITROSODI-N-PROPYLAMINE	UG/L	< 10														
N-NITROSODIMETHYLAMINE	UG/L	< 10														
N-NITROSODIPHENYLAMINE	UG/L	< 10														
NAPHTHALENE	UG/L	< 10														
NICKEL-DISSOLVED	UG/L													< 10	< 50	< 50
NICKEL-TOTAL	UG/L	< 40											< 40			
NITROBENZENE	UG/L	< 10														
NITROGEN AMMONIA	MG/L		< 0 02	< 0 02	0 13	< 0 02	0 096	0 11	0 037					< 0 1	< 0 05	0 283
NITROGEN NITRATE	MG/L		< 0 05	0 39	< 0 05	< 0 05	< 0 05	0 11	< 0 05					< 0 05	< 0 05	< 0 05
ODOR													STRONG			2
PENTACHLOROPHENOL	UG/L	< 10														
PH FIELD	PH UNITS	4 51	4 27	4 19	4 4	5 3	4 32	4 38	4 49	4 69	4 46	4 32	4 58	4 56	4 76	4 39
PHENANTHRENE	UG/L	< 10														
PHENOL	UG/L	< 10														
PLUS ANALYTES FOUND		Y														
PURGE DATE (YY/MM/DD)	YY/MM/DD												94-11-01			
PURGING DEVICE													C			
PURGING EQUIPMENT DEDICATED													Y			
PURGING MATERIAL													A			
PYRENE	UG/L	< 10														
SAMPLING DEVICE													C			
SAMPLING EQUIPMENT DEDICATED													Y			
SAMPLING MATERIAL													A			
SELENIUM-DISSOLVED	UG/L									< 5	< 5	< 25	< 25	< 25	< 25	< 25
SELENIUM-TOTAL	UG/L	< 5	< 5										< 5			
SILVER-DISSOLVED	UG/L													< 25	< 25	< 25
SILVER-TOTAL	UG/L	< 10											< 25			
SODIUM-DISSOLVED	UG/L									4300	7630	6950	4140	3570	6980	4730
SODIUM-TOTAL	UG/L		2810	4180	3670	3590	3440	5550	5360							
SPECIFIC CONDUCTANCE	UMHOS/CM									67 6						
SPECIFIC CONDUCTANCE FIELD	UMHOS/CM	45	47	60	55	196	56	62	603				NA	47	69	63
STYRENE	UG/L													< 1	< 1	< 1
TETRACHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
THALLIUM DISSOLVED	UG/L													< 1	< 1	< 1
THALLIUM-TOTAL	UG/L	< 10											< 2			
TOLUENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TOTAL ORGANIC CARBON	MG/L		9 7	3 5	3 4	3	3 1	3 8	5	64	86	66	5			
TOXAPHENE	UG/L	< 1														
TRANS-1 2-DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1 3-DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1 4-DICHLORO-2-BUTENE	UG/L														< 1	< 1
TRICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TUBING-PURGING													G			
TUBING-SAMPLING													G			
TURBIDITY	NTU		2400	40	2 4	16	10	7 8	24	3 2	0 6	0 6	9 6	4	18	4 6
VANADIUM-DISSOLVED	UG/L													< 25	< 25	< 25
VANADIUM-TOTAL	UG/L												< 50			
VINYL ACETATE	UG/L													< 1	< 1	< 1
VINYL CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
WELL DEPTH TOTAL	FT		18 9	19	19	19	19	19	19				19			
XYLENE(TOTAL)	UG/L									< 5	< 5	< 5	< 5	< 1	< 1	< 1
ZINC-DISSOLVED	UG/L													< 50	< 50	< 50
ZINC-TOTAL	UG/L												< 20			

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ANALYTE	UNITS	3/16/92	5/15/92	8/18/92	11/3/92	2/10/93	4/28/93	4/29/93	7/29/93	11/2/93	2/1/94	5/4/94	8/4/94	11/1/94	2/3/95	7/26/95	1/9/96
1 1 1 2 TETRACHLOROETHANE	UG/L															< 1	< 1
1 1 1 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 2 TETRACHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1-DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 3-TRICHLOROPROPANE	UG/L															< 1	< 1
1 2 4 TRICHLOROBENZENE	UG/L	< 10															
1 2 DIBROMO-3-CHLOROPROPANE	UG/L														< 1	< 0 2	< 0 2
1 2 DIBROMOETHANE	UG/L														< 1	< 0 02	< 0 02
1 2 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROPROPANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DIPHENYLHYDRAZINE	UG/L	< 10															
1 3 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1			
1 4 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2 4 6 TRICHLOROPHENOL	UG/L	< 10															
2 4 DICHLOROPHENOL	UG/L	< 10															
2 4 DIMETHYLPHENOL	UG/L	< 10															
2 4 DINITROPHENOL	UG/L	< 10															
2 4-DINITROTOLUENE	UG/L	< 10															
2 6-DINITROTOLUENE	UG/L	< 10															
2 BUTANONE	UG/L														< 1		< 1
2 CHLOROETHYLVINYL ETHER	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1			
2 CHLORONAPHTHALENE	UG/L	< 10															
2 CHLOROPHENOL	UG/L	< 10															
2 HEXANONE	UG/L															< 1	< 1
2 NITROPHENOL	UG/L	< 10															
3 3 DICHLOROBENZIDINE	UG/L	< 10															
4 4 DDD	UG/L	< 0 1															
4 4 DDE	UG/L	< 0 1															
4 4 DDT	UG/L	< 0 1															
4 6 DINITRO-2 METHYLPHENOL	UG/L	< 10															
4 BROMOPHENYL-PHENYL ETHER	UG/L	< 10															
4-CHLORO-3-METHYLPHENOL	UG/L	< 10															
4 CHLOROPHENYL PHENYL ETHER	UG/L	< 10															
4 METHYL 2 PENTANONE	UG/L															< 1	< 1
4 NITROPHENOL	UG/L	< 10															
ACENAPHTHENE	UG/L	< 10															
ACENAPHTHYLENE	UG/L	< 10															
ACETONE	UG/L															< 1	< 1
ACRYLONITRILE	UG/L														< 1	< 1	< 1
ACTUAL VOLUME PURGED	ALLONS													67 5			
ALDRIN	UG/L	< 0 1															
ALKALINITY BICARBONATE (AS CACO3)	MG/L		136	123	140	148	164		165	152	104	152	136	136			
ALPHA BHC	UG/L	< 0 1															
AMMONIUM	MG/L										< 0 05	< 0 05	< 0 05				
AMMONIUM NH4	MG/L		0 11	0 087	0 08	0 087	< 0 02		0 13	0 064							
ANTHRACENE	UG/L	< 10															
ANTIMONY DISSOLVED	UG/L		< 100									< 3	< 3	< 3	< 3	< 3	< 3
ANTIMONY TOTAL	UG/L	< 50	< 50											< 6			
AROCLOR 1016	UG/L	< 1															
AROCLOR 1221	UG/L	< 1															
AROCLOR 1232	UG/L	< 1															
AROCLOR 1242	UG/L	< 1															
AROCLOR 1248	UG/L	< 1															
AROCLOR 1254	UG/L	< 1															
AROCLOR 1260	UG/L	< 1															
ARSENIC DISSOLVED	UG/L					< 10					< 25	< 25	< 25	< 25	< 25	< 25	< 25
ARSENIC TOTAL	UG/L	30	6 7	11 5	< 5	< 25	13 2		28 4	68				< 14			
BARIUM DISSOLVED	UG/L														101	100	104
BARIUM TOTAL	UG/L													< 200			
BENZ[A]ANTHRACENE	UG/L	< 10															
BENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BENZIDINE	UG/L	< 10															
BENZO[A]PYRENE	UG/L	< 10															
BENZO[B]FLUORANTHENE	UG/L	< 10															
BENZO[G H I]PERYLENE	UG/L	< 10															
BENZO[K]FLUORANTHENE	UG/L	< 10															
BERYLLIUM DISSOLVED	UG/L		< 5								< 25	< 4	< 4	< 4	< 4	< 4	< 4
BERYLLIUM-TOTAL	UG/L	9 3	< 5					< 5						< 4			
BETA BHC	UG/L	< 0 1															
BIS(2 CHLOROETHOXY)METHANE	UG/L	< 10															
BIS(2 CHLOROETHYL)ETHER	UG/L	< 10															
BIS(2 CHLOROISOPROPYL)ETHER	UG/L	< 10															

ANALYTE	UNITS	3/16/92	5/15/92	8/18/92	11/3/92	2/10/93	4/28/93	4/29/93	7/29/93	11/2/93	2/1/94	5/4/94	8/4/94	11/1/94	2/3/95	7/26/95	1/9/96
BIS(2 ETHYLHEXYL)PHTHALATE	UG/L	< 10															
BROMOCHLOROMETHANE	UG/L															< 1	< 1
BROMODICHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BUTYLBENZYLPHTHALATE	UG/L	< 10															
CADMIUM DISSOLVED	UG/L					< 5					< 5	< 5	< 5	< 3	< 3	< 3	< 3
CADMIUM TOTAL	UG/L	< 5	< 5	< 5	< 5	< 5	< 5		< 5	6 5				< 5			
CARBON DISULFIDE	UG/L															< 1	< 1
CARBON TETRACHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLORDANE	UG/L	< 1															
CHLORIDE	MG/L														7	5 68	5 88
CHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHROMIUM DISSOLVED	UG/L		< 10			< 10					< 25	< 25	< 25	< 50	< 50	< 50	< 50
CHROMIUM TOTAL	UG/L	61 2	39	24 1	< 10	< 10	12 1		55 5	99 3				< 10			
CHRYSENE	UG/L	< 10															
CIS-1 2 DICHLOROETHENE	UG/L															< 1	< 1
CIS 1 3 DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
COBALT TOTAL	UG/L														< 25	< 25	< 25
COLOR														NONE	< 5	< 5	< 5
COPPER DISSOLVED	UG/L														< 50	< 50	< 50
COPPER TOTAL	UG/L	< 25												< 10			
CYANIDE TOTAL	MG/L	< 0 02															
DELTA BHC	UG/L	< 0 05															
DEPTH TO WATER FROM TOP OF CASING	FT													5 41			
DI N BUTYLPHTHALATE	UG/L	< 10															
DI N OCTYLPHTHALATE	UG/L	< 10															
DIBENZ[A H]ANTHRACENE	UG/L	< 10															
DIBROMOCHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
DIBROMOMETHANE	UG/L															< 1	< 1
DICHLORODIFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1			
DIELDRIN	UG/L	< 0 1															
DIETHYLPHTHALATE	UG/L	< 10															
DIMETHYLPHTHALATE	UG/L	< 10															
ELAPSED HOURS	HRS													0 9			
ENDOSULFAN I	UG/L	< 0 05															
ENDOSULFAN II	UG/L	< 0 1															
ENDOSULFAN SULFATE	UG/L	< 0 5															
ENDRIN	UG/L	< 0 1															
ENDRIN ALDEHYDE	UG/L	< 0 1															
ETHYLBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
FLUORANTHENE	UG/L	< 10															
FLUORENE	UG/L	< 10															
GROUNDWATER ELEV	FT MSL		NA	124 06	122 49	122 78	121 89		121 91	123 05	123 19			122 82			
HEPTACHLOR	UG/L	< 0 05															
HEPTACHLOR EPOXIDE	UG/L	< 0 5															
HEXACHLOROBENZENE	UG/L	< 10															
HEXACHLOROBUTADIENE	UG/L	< 10															
HEXACHLOROCYCLOPENTADIENE	UG/L	< 40															
HEXACHLOROETHANE	UG/L	< 10															
INDENO[1 2 3 CD]PYRENE	UG/L	< 10															
IODOMETHANE	UG/L															< 1	< 1
IRON DISSOLVED	UG/L					177											
IRON TOTAL	UG/L		6270	11900	3320	3640	6410		23400	39900	3690	591	506	417	910	616	392
ISOPHORONE	UG/L	< 10															
LEAD DISSOLVED	UG/L		< 5			< 5					< 25	< 5	< 5	< 5	< 5	5	9
LEAD-TOTAL	UG/L	41 5	< 5	10 7	5 9	5 8	9 9		11 7	19 5				< 5			
LINDANE (GAMMA BHC)	UG/L	< 0 1															
MERCURY DISSOLVED	UG/L		< 0 2			0 2					< 1			< 1	< 1	< 1	< 1
MERCURY-TOTAL	UG/L	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2		< 0 2	< 0 2							
METHYL TERT BUTYL ETHER	UG/L										< 10	< 10	< 10	< 10			
METHYLENE CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
N NITROSODI N PROPYLAMINE	UG/L	< 10															
N NITROSODIMETHYLAMINE	UG/L	< 10															
N NITROSODIPHENYLAMINE	UG/L	< 10															
NAPHTHALENE	UG/L	< 10															
NICKEL DISSOLVED	UG/L														< 10	< 50	< 50
NICKEL-TOTAL	UG/L	< 40												< 40			
NITROBENZENE	UG/L	< 10															
NITROGEN AMMONIA	MG/L		0 11	0 087	0 08	0 087	< 0 02		0 13	0 064					< 0 1	< 0 05	0 113
NITROGEN NITRATE	MG/L		< 0 05	0 16	< 0 05	< 0 05	< 0 05		< 0 05	< 0 05					< 0 05	< 0 05	< 0 05
ODOR														NONE			< 1

ANALYTE	UNITS	3/16/92	5/15/92	8/18/92	11/3/92	2/10/93	4/28/93	4/29/93	7/29/93	11/2/93	2/1/94	5/4/94	8/4/94	11/1/94	2/3/95	7/26/95	1/9/96
PENTACHLOROPHENOL	UG/L	< 10															
PH FIELD	H UNITS	7 34	7 04	6 42	6 88	7 15	7 14		6 58	6 87	6 49	7	6 75	7 19	7 05	7 20	7 29
PHENANTHRENE	UG/L	< 10															
PHENOL	UG/L	< 10															
PLUS ANALYTES FOUND		Y															
PURGE DATE (YY/MM/DD)	Y/MM/DD													94-11 01			
PURGING DEVICE														C			
PURGING EQUIPMENT DEDICATED														Y			
PURGING MATERIAL														A			
PYRENE	UG/L	< 10															
SAMPLING DEVICE														C			
SAMPLING EQUIPMENT DEDICATED														Y			
SAMPLING MATERIAL														A			
SELENIUM DISSOLVED	UG/L		< 5								< 5	< 5	< 25	< 25	< 25	< 25	< 25
SELENIUM TOTAL	UG/L	< 25	< 5											< 5			
SILVER DISSOLVED	UG/L														< 25	< 25	< 25
SILVER TOTAL	UG/L	< 10												< 25			
SODIUM DISSOLVED	UG/L					17300					11100	14200	14000	11400	10100	8140	6320
SODIUM TOTAL	UG/L		14400	17600	14300	21100	15400		19700	16600							
SPECIFIC CONDUCTANCE	MHOS/CM										310						
SPECIFIC CONDUCTANCE FIELD	MHOS/C	320	290	262	290	453	346		230	485				NA	284	367	356
STYRENE	UG/L														< 1	< 1	< 1
TETRACHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
THALLIUM DISSOLVED	UG/L														< 1	< 1	< 1
THALLIUM TOTAL	UG/L	< 10												< 2			
TOLUENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TOTAL ORGANIC CARBON	MG/L		2 1	2 2	1 4	1 6	1 6		2 3	1 5	73	54	45	2			
TOXAPHENE	UG/L	< 1															
TRANS 1 2 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS 1 3-DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1 4 DICHLORO-2 BUTENE	UG/L															< 1	< 1
TRICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TUBING PURGING														G			
TUBING SAMPLING														G			
TURBIDITY	NTU		130	260	70	110	180		350	600	112	10	12	5 5	9 5	9 2	9 4
VANADIUM DISSOLVED	UG/L														< 25	< 25	< 25
VANADIUM TOTAL	UG/L													< 50			
VINYL ACETATE	UG/L														< 1	< 1	< 1
VINYL CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
WELL DEPTH TOTAL	FT		111 8	111 5	111 5	111 5	111 5		111 5	111 5				111 5			
XYLENE(TOTAL)	UG/L										< 5	< 5	< 5	< 5	< 1	< 1	< 1
ZINC DISSOLVED	UG/L														< 50	< 50	< 50
ZINC TOTAL	UG/L													< 20			

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1 1 1 2 TETRACHLOROETHANE	UG/L															< 1	< 1
1 1 1 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 2 TETRACHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 3 TRICHLOROPROPANE	UG/L															< 1	< 1
1 2 4 TRICHLOROBENZENE	UG/L	< 10															
1 2 DIBROMO-3 CHLOROPROPANE	UG/L														< 1	< 0 2	< 0 2
1 2 DIBROMOETHANE	UG/L														< 1	< 0 02	< 0 02
1 2 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROPROPANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DIPHENYLHYDRAZINE	UG/L	< 10															
1 3 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
1 4 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2 4 6 TRICHLOROPHENOL	UG/L	< 10															
2 4 DICHLOROPHENOL	UG/L	< 10															
2 4 DIMETHYLPHENOL	UG/L	< 10															
2 4-DINITROPHENOL	UG/L	< 10															
2 4 DINITROTOLUENE	UG/L	< 10															
2 6-DINITROTOLUENE	UG/L	< 10															
2 BUTANONE	UG/L														< 1		< 1
2 CHLOROETHYLVINYL ETHER	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
2 CHLORONAPHTHALENE	UG/L	< 10															
2 CHLOROPHENOL	UG/L	< 10															
2 HEXANONE	UG/L															< 1	< 1
2 NITROPHENOL	UG/L	< 10															
3 3 DICHLOROBENZIDINE	UG/L	< 10															
4 4 DDD	UG/L	< 0 1															
4 4 DDE	UG/L	< 0 1															
4 4 DDT	UG/L	< 0 1															
4 6-DINITRO 2 METHYLPHENOL	UG/L	< 10															
4 BROMOPHENYL PHENYL ETHER	UG/L	< 10															
4 CHLORO-3-METHYLPHENOL	UG/L	< 10															
4 CHLOROPHENYL PHENYL ETHER	UG/L	< 10															
4 METHYL 2 PENTANONE	UG/L															< 1	< 1
4 NITROPHENOL	UG/L	< 10															
ACENAPHTHENE	UG/L	< 10															
ACENAPHTHYLENE	UG/L	< 10															
ACETONE	UG/L															< 1	< 1
ACRYLONITRILE	UG/L														< 1	< 1	< 1
ACTUAL VOLUME PURGED	ALLONS													35 6			
ALDRIN	UG/L	< 0 1															
ALKALINITY BICARBONATE (AS CACO3)	MG/L		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 1	< 15	< 15	18			
ALPHA BHC	UG/L	< 0 1															
AMMONIUM	MG/L										< 0 05	< 0 05	< 0 05				
AMMONIUM NH4	MG/L		< 0 02	< 0 02	< 0 02	< 0 02	< 0 02	0 036	< 0 02	< 0 02							
ANTHRACENE	UG/L	< 10															
ANTIMONY DISSOLVED	UG/L		< 100									< 3	< 3	< 3	< 3	< 3	< 3
ANTIMONY TOTAL	UG/L	79	< 50				< 60							< 6			
AROCLOR 1016	UG/L	< 1															
AROCLOR 1221	UG/L	< 1															
AROCLOR 1232	UG/L	< 1															
AROCLOR 1242	UG/L	< 1															
AROCLOR 1248	UG/L	< 1															
AROCLOR 1254	UG/L	< 1															
AROCLOR 1260	UG/L	< 1															
ARSENIC DISSOLVED	UG/L					< 10	< 10	< 10	< 10		< 25	< 25	< 25	< 25	< 25	< 25	< 25
ARSENIC-TOTAL	UG/L	6 8	< 10	< 50	< 5	8 1	< 5	< 5	7 5	6 1				< 5			
BARIUM DISSOLVED	UG/L														< 100	136	157
BARIUM-TOTAL	UG/L													< 200			
BENZ[A]ANTHRACENE	UG/L	< 10															
BENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BENZIDINE	UG/L	< 10															
BENZO[A]PYRENE	UG/L	< 10															
BENZO[B]FLUORANTHENE	UG/L	< 10															
BENZO[G H I]PERYLENE	UG/L	< 10															
BENZO[K]FLUORANTHENE	UG/L	< 10															
BERYLLIUM DISSOLVED	UG/L		< 5								< 25	< 4	< 4	< 4	< 4	< 4	< 4
BERYLLIUM TOTAL	UG/L	< 5	< 5											< 4			
BETA BHC	UG/L	< 0 1															
BIS(2 CHLOROETHOXY)METHANE	UG/L	< 10															
BIS(2 CHLOROETHYL)ETHER	UG/L	< 10															
BIS(2 CHLOROISOPROPYL)ETHER	UG/L	< 10															

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BIS(2 ETHYLHEXYL)PHTHALATE	UG/L	< 10															
BROMOCHLOROMETHANE	UG/L															< 1	< 1
BROMODICHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BUTYLBENZYLPHTHALATE	UG/L	< 10															
CADMIUM DISSOLVED	UG/L					< 5	< 5	< 5	< 5		5	< 5	< 5	< 3	< 3	< 3	< 3
CADMIUM TOTAL	UG/L	7 4	5	16 4	< 5	9 3	< 5	6 1	10 3	5 3				< 5			
CARBON DISULFIDE	UG/L															< 1	< 1
CARBON TETRACHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLORDANE	UG/L	< 1															
CHLORIDE	MG/L														9 28	8 62	8 79
CHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHROMIUM DISSOLVED	UG/L		< 10			< 10	< 10	< 10	< 10		< 25	< 25	< 25	< 50	< 50	< 50	< 50
CHROMIUM TOTAL	UG/L	30 1	21	57 4	23 7	28 4	38 4	26 5	31 7	18 9				13 5			
CHRYSENE	UG/L	< 10															
CIS 1 2 DICHLOROETHENE	UG/L															< 1	< 1
CIS 1 3 DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
COBALT TOTAL	UG/L														< 25	< 25	< 25
COLOR														LT TAN	95	500	275
COPPER DISSOLVED	UG/L														< 50	< 50	< 50
COPPER TOTAL	UG/L	< 25												12 3			
CYANIDE TOTAL	MG/L	< 0 02															
DELTA BHC	UG/L	< 0 05															
DEPTH TO WATER FROM TOP OF CASING	FT													5 27			
DI N BUTYLPHTHALATE	UG/L	< 10															
DI N OCTYLPHTHALATE	UG/L	< 10															
DIBENZ[A H]ANTHRACENE	UG/L	< 10															
DIBROMOCHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
DIBROMOMETHANE	UG/L															< 1	< 1
DICHLORODIFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
DIELDRIN	UG/L	< 0 1															
DIETHYLPHTHALATE	UG/L	< 10															
DIMETHYLPHTHALATE	UG/L	< 10															
ELAPSED HOURS	HRS													0 5			
ENDOSULFAN I	UG/L	< 0 05															
ENDOSULFAN II	UG/L	< 0 1															
ENDOSULFAN SULFATE	UG/L	< 0 5															
ENDRIN	UG/L	< 0 1															
ENDRIN ALDEHYDE	UG/L	< 0 1															
ETHYLBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
FLUORANTHENE	UG/L	< 10															
FLUORENE	UG/L	< 10															
GROUNDWATER ELEV	FT MSL		NA	124 07	122 36	122 79	121 74	120 54	121 86	123 19	123 43			122 67			
HEPTACHLOR	UG/L	< 0 05															
HEPTACHLOR EPOXIDE	UG/L	< 0 5															
HEXACHLOROBENZENE	UG/L	< 10															
HEXACHLOROBUTADIENE	UG/L	< 10															
HEXACHLOROCYCLOPENTADIENE	UG/L	< 40															
HEXACHLOROETHANE	UG/L	< 10															
INDENO[1 2 3-CD]PYRENE	UG/L	< 10															
IODOMETHANE	UG/L															< 1	< 1
IRON DISSOLVED	UG/L					404	399	432	376								
IRON TOTAL	UG/L		3270	11500	4570	7060	6940	5170	5320	3990	2260	682	717	681	352	720	499
ISOPHORONE	UG/L	< 10															
LEAD-DISSOLVED	UG/L		< 5			< 5	< 5	< 5	< 5		< 25	< 5	5	< 5	< 5	< 5	< 5
LEAD-TOTAL	UG/L	18 7	10 1	< 50	10	< 25	19 2	11 4	19	7 9				8 5			
LINDANE (GAMMA BHC)	UG/L	< 0 1															
MERCURY DISSOLVED	UG/L		< 0 2			< 0 2	< 0 2	< 0 2	< 0 2		< 1			< 1	< 1	< 1	< 1
MERCURY TOTAL	UG/L	0 21	< 0 2	< 0 2	< 0 2	< 0 2	0 23	< 0 2	0 23	< 0 2							
METHYL TERT BUTYL ETHER	UG/L										< 10	< 10	< 10	< 10			
METHYLENE CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
N NITROSODI N PROPYLAMINE	UG/L	< 10															
N NITROSODIMETHYLAMINE	UG/L	< 10															
N NITROSODIPHENYLAMINE	UG/L	< 10															
NAPHTHALENE	UG/L	< 10															
NICKEL DISSOLVED	UG/L														< 10	< 50	< 50
NICKEL TOTAL	UG/L	40 8												< 40			
NITROBENZENE	UG/L	< 10															
NITROGEN AMMONIA	MG/L		< 0 02	< 0 02	< 0 02	< 0 02	< 0 02	0 036	< 0 02	< 0 02					< 0 1	< 0 05	0 091
NITROGEN NITRATE	MG/L		< 0 05	0 057	< 0 05	< 0 05	< 0 05	< 0 05	< 0 05	< 0 05					< 0 05	< 0 05	0 14
ODOR												-		NONE			2

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PENTACHLOROPHENOL	UG/L	< 10															
PH FIELD	H UNITS	5 35	5 32	5 04	4 93	5 34	4 89	5 19	5 08	4 8	5 09	5 07	4 97	5 34	4 97	4 97	5 18
PHENANTHRENE	UG/L	< 10															
PHENOL	UG/L	< 10															
PLUS ANALYTES FOUND		N															
PURGE DATE (YY/MM/DD)	Y/MM/DD													94-11 01			
PURGING DEVICE														C			
PURGING EQUIPMENT DEDICATED														Y			
PURGING MATERIAL														A			
PYRENE	UG/L	< 10															
SAMPLING DEVICE														C			
SAMPLING EQUIPMENT DEDICATED														Y			
SAMPLING MATERIAL														A			
SELENIUM DISSOLVED	UG/L		< 5								< 5	< 5	< 25	< 25	< 25	< 25	< 25
SELENIUM TOTAL	UG/L	< 5	< 5											< 5			
SILVER DISSOLVED	UG/L														< 25	< 25	< 25
SILVER TOTAL	UG/L	< 10												< 25			
SODIUM DISSOLVED	UG/L					< 5000	< 5000	< 5000	< 5000		2780	3330	3630	3080	3200	4050	3210
SODIUM TOTAL	UG/L		3430	2960	2440	3650	3360	3490	5970	3660							
SPECIFIC CONDUCTANCE	MHOS/CM										38 5						
SPECIFIC CONDUCTANCE FIELD	MHOS/C	44	33	35	35	178	34	28	31	405				NA	36	38 0	37
STYRENE	UG/L														< 1	< 1	< 1
TETRACHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
THALLIUM DISSOLVED	UG/L														< 1	< 1	< 1
THALLIUM-TOTAL	UG/L	< 10												< 2			
TOLUENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TOTAL ORGANIC CARBON	MG/L		2 4	3	2 2	3 4	2 4	2 2	< 1	2 2	44	39	35				
TOXAPHENE	UG/L	< 1															
TRANS-1 2 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1 3-DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS 1 4 DICHLORO-2 BUTENE	UG/L															< 1	< 1
TRICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TUBING PURGING														G			
TUBING SAMPLING														G			
TURBIDITY	NTU		420	550	330	600	550	270	850	500	320	200	330	216	73	200	300
VANADIUM DISSOLVED	UG/L														< 25	< 25	< 25
VANADIUM TOTAL	UG/L													< 50			
VINYL ACETATE	UG/L														< 1	< 1	< 1
VINYL CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
WELL DEPTH TOTAL	FT		59 25	59	59	59	59	59	59	59				59			
XYLENE(TOTAL)	UG/L										< 5	< 5	< 5	< 5	< 1	< 1	< 1
ZINC DISSOLVED	UG/L														< 50	71	82
ZINC TOTAL	UG/L													61 7			

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1 1 1 2 TETRACHLOROETHANE	UG/L																< 1	< 1
1 1 1 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 2 TETRACHLOROETHANE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 3 TRICHLOROPROPANE	UG/L																< 1	< 1
1 2 4 TRICHLOROBENZENE	UG/L	< 10																
1 2 DIBROMO-3 CHLOROPROPANE	UG/L															< 1	< 0 2	< 0 2
1 2 DIBROMOETHANE	UG/L															< 1	< 0 02	< 0 02
1 2 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROPROPANE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DIPHENYLHYDRAZINE	UG/L	< 10																
1 3 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
1 4 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2 4 6 TRICHLOROPHENOL	UG/L	< 10																
2 4 DICHLOROPHENOL	UG/L	< 10																
2 4 DIMETHYLPHENOL	UG/L	< 10																
2 4 DINITROPHENOL	UG/L	< 10																
2 4 DINITROTOLUENE	UG/L	< 10																
2 6 DINITROTOLUENE	UG/L	< 10																
2 BUTANONE	UG/L															< 1		< 1
2 CHLOROETHYLVINYL ETHER	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1			
2 CHLORONAPHTHALENE	UG/L	< 10																
2 CHLOROPHENOL	UG/L	< 10																
2 HEXANONE	UG/L																< 1	< 1
2 NITROPHENOL	UG/L	< 10																
3 3 DICHLOROBENZIDINE	UG/L	< 10																
4 4 DDD	UG/L	< 0 1																
4 4 DDE	UG/L	< 0 1																
4 4 DDT	UG/L	< 0 1																
4 6 DINITRO 2 METHYLPHENOL	UG/L	< 10																
4 BROMOPHENYL PHENYL ETHER	UG/L	< 10																
4 CHLORO-3 METHYLPHENOL	UG/L	< 10																
4 CHLOROPHENYL PHENYL ETHER	UG/L	< 10																
4 METHYL 2 PENTANONE	UG/L																< 1	< 1
4 NITROPHENOL	UG/L	< 10																
ACENAPHTHENE	UG/L	< 10																
ACENAPHTHYLENE	UG/L	< 10																
ACETONE	UG/L																< 1	< 1
ACRYLONITRILE	UG/L															< 1	< 1	< 1
ACTUAL VOLUME PURGED	ALLONS														21 3			
ALDRIN	UG/L	< 0 1																
ALKALINITY BICARBONATE (AS CACO3)	MG/L		< 10	< 10	< 10		< 10	< 10		< 10	< 10	< 1	< 15	< 15	< 15			
ALPHA BHC	UG/L	< 0 1																
AMMONIUM	MG/L											< 0 05	< 0 05	< 0 05				
AMMONIUM NH4	MG/L		< 0 02	0 064	0 032		0 046	0 063		0 2	0 065							
ANTHRACENE	UG/L	< 10																
ANTIMONY DISSOLVED	UG/L		< 100										< 3	< 3	< 3	< 3	< 3	< 3
ANTIMONY TOTAL	UG/L	< 50	< 50												< 6			
AROCLOR 1016	UG/L	< 1																
AROCLOR 1221	UG/L	< 1																
AROCLOR 1232	UG/L	< 1																
AROCLOR 1242	UG/L	< 1																
AROCLOR 1248	UG/L	< 1																
AROCLOR 1254	UG/L	< 1																
AROCLOR 1260	UG/L	< 1																
ARSENIC DISSOLVED	UG/L									< 10		< 25	< 25	< 25	< 25	< 25	< 25	< 25
ARSENIC TOTAL	UG/L	< 5	< 5	< 5	< 5		< 5	< 5		< 5	< 5				< 5			
BARIUM DISSOLVED	UG/L															< 100	< 100	< 100
BARIUM TOTAL	UG/L														< 200			
BENZ[A]ANTHRACENE	UG/L	< 10																
BENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BENZIDINE	UG/L	< 10																
BENZO[A]PYRENE	UG/L	< 10																
BENZO[B]FLUORANTHENE	UG/L	< 10																
BENZO[G H I]PERYLENE	UG/L	< 10																
BENZO[K]FLUORANTHENE	UG/L	< 10																
BERYLLIUM DISSOLVED	UG/L		< 5									< 25	< 4	< 4	< 4	< 4	< 4	< 4
BERYLLIUM TOTAL	UG/L	< 5	< 5												< 4			
BETA BHC	UG/L	< 0 1																
BIS(2 CHLOROETHOXY)METHANE	UG/L	< 10																
BIS(2 CHLOROETHYL)ETHER	UG/L	< 10																
BIS(2 CHLOROISOPROPYL)ETHER	UG/L	< 10																
BIS(2 ETHYLHEXYL)PHTHALATE	UG/L	< 10																
BROMOCHLOROMETHANE	UG/L																< 1	< 1

ANALYTE	UNITS	3/10/92	5/15/92	8/18/92	11/3/92	12/17/92	2/10/93	4/28/93	4/29/93	7/29/93	11/2/93	2/1/94	5/4/94	8/4/94	11/1/94	2/2/95	7/26/95	1/9/96
BROMODICHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BUTYLBENZYLPHTHALATE	UG/L	< 10																
CADMIUM DISSOLVED	UG/L									< 5		< 5	< 5	< 5	< 3	< 3	< 3	< 3
CADMIUM TOTAL	UG/L	< 5	< 5	< 5	< 5		< 5	< 5		< 5	< 5				< 5			
CARBON DISULFIDE	UG/L																< 1	< 1
CARBON TETRACHLORIDE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLORDANE	UG/L	< 1																
CHLORIDE	MG/L															8 36	6 82	8 74
CHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHROMIUM DISSOLVED	UG/L		< 10							< 10		< 25	< 25	< 25	< 50	< 50	< 50	< 50
CHROMIUM TOTAL	UG/L	32 8	24 3	< 10	< 10		< 10	< 10		< 10	< 10				< 10			
CHRYSENE	UG/L	< 10																
CIS-1 2 DICHLOROETHENE	UG/L																< 1	< 1
CIS 1 3 DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
COBALT TOTAL	UG/L															< 25	< 25	< 25
COLOR															LT BRN TI	100	< 5	< 5
COPPER DISSOLVED	UG/L															< 50	< 50	< 50
COPPER TOTAL	UG/L	28 6													11			
CYANIDE TOTAL	MG/L	< 0 02																
DELTA BHC	UG/L	< 0 05																
DEPTH TO WATER FROM TOP OF CASING	FT														4 94			
DI N BUTYLPHTHALATE	UG/L	< 10																
DI N OCTYLPHTHALATE	UG/L	< 10																
DIBENZ[A H]ANTHRACENE	UG/L	< 10																
DIBROMOCHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
DIBROMOMETHANE	UG/L																< 1	< 1
DICHLORODIFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1			
DIELDRIN	UG/L	< 0 1																
DIETHYLPHTHALATE	UG/L	< 10																
DIMETHYLPHTHALATE	UG/L	< 10																
ELAPSED HOURS	HRS														0 3			
ENDOSULFAN I	UG/L	< 0 05																
ENDOSULFAN II	UG/L	< 0 1																
ENDOSULFAN SULFATE	UG/L	< 0 5																
ENDRIN	UG/L	< 0 1																
ENDRIN ALDEHYDE	UG/L	< 0 1																
ETHYLBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
FLUORANTHENE	UG/L	< 10																
FLUORENE	UG/L	< 10																
GROUNDWATER ELEV	FT MSL		NA	121 02	122 57	122 29	122 53	121 56		121 8	120 04	122 47			122 44			
HEPTACHLOR	UG/L	< 0 05																
HEPTACHLOR EPOXIDE	UG/L	< 0 5																
HEXACHLOROBENZENE	UG/L	< 10																
HEXACHLOROBUTADIENE	UG/L	< 10																
HEXACHLOROCYCLOPENTADIENE	UG/L	< 40																
HEXACHLOROETHANE	UG/L	< 10																
INDENO[1 2 3 CD]PYRENE	UG/L	< 10																
IODOMETHANE	UG/L																< 1	< 1
IRON DISSOLVED	UG/L									450								
IRON-TOTAL	UG/L		955	382	392		436	439		465	169	301	440	444	308	464	229	326
ISOPHORONE	UG/L	< 10																
LEAD-DISSOLVED	UG/L		< 5							< 5		< 25	7	< 5	< 5	< 5	< 5	8
LEAD-TOTAL	UG/L	24 5	6 5	< 5	< 5		< 5	< 5		< 5	< 5				5			
LINDANE (GAMMA BHC)	UG/L	< 0 1																
MERCURY DISSOLVED	UG/L		< 0 2							< 0 2		< 1			< 1	< 1	< 1	< 1
MERCURY TOTAL	UG/L	1 3	< 0 2	< 0 2	< 0 2		< 0 2	< 0 2		0 21	< 0 2							
METHYL TERT BUTYL ETHER	UG/L											< 10	< 10	< 10	< 10			
METHYLENE CHLORIDE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
N NITROSODI N PROPYLAMINE	UG/L	< 10																
N NITROSODIMETHYLAMINE	UG/L	< 10																
N NITROSODIPHENYLAMINE	UG/L	< 10																
NAPHTHALENE	UG/L	< 10																
NICKEL DISSOLVED	UG/L															< 10	< 50	< 50
NICKEL TOTAL	UG/L	< 40													< 40			
NITROBENZENE	UG/L	< 10																
NITROGEN AMMONIA	MG/L		< 0 02	0 064	0 032		0 048	0 063		0 2	0 065					< 0 1	< 0 05	0 222
NITROGEN NITRATE	MG/L		< 0 05	0 21	< 0 05		0 31	< 0 05		0 051	0 068					< 0 05	< 0 05	< 0 05
ODOR															SLIGHT			2
PENTACHLOROPHENOL	UG/L	< 10																
PH FIELD	H UNITS	4 31	4 49	4 49	4 46	4 3	5 28	4 66		4 56	4 78	5 15	4 68	4 49	5 04	4 61	4 52	4 67
PHENANTHRENE	UG/L	< 10																
PHENOL	UG/L	< 10																

MWB19S

ANALYTE	UNITS	3/10/92	5/15/92	8/18/92	11/3/92	12/17/92	2/10/93	4/28/93	4/29/93	7/29/93	11/2/93	2/1/94	5/4/94	8/4/94	11/1/94	2/2/95	7/26/95	1/9/96
PLUS ANALYTES FOUND		N																
PURGE DATE (YY/MM/DD)	Y/MM/DD														94 11 01			
PURGING DEVICE															C			
PURGING EQUIPMENT DEDICATED															Y			
PURGING MATERIAL															A			
PYRENE	UG/L	< 10																
SAMPLING DEVICE															C			
SAMPLING EQUIPMENT DEDICATED															Y			
SAMPLING MATERIAL															A			
SELENIUM DISSOLVED	UG/L		< 5										< 5	< 25	< 25	< 25	< 25	< 25
SELENIUM TOTAL	UG/L	12 8	< 5					< 5							< 5			
SILVER DISSOLVED	UG/L															< 25	< 25	< 25
SILVER TOTAL	UG/L	< 10													< 25			
SODIUM DISSOLVED	UG/L									< 5000		2830	4090	4440	3830	3090	7590	3650
SODIUM TOTAL	UG/L		3600	3330	3860		4550	4040		7700	8110							
SPECIFIC CONDUCTANCE	MHOS/CM											42 6						
SPECIFIC CONDUCTANCE FIELD	MHOS/C	66	41	43	43	39	49	39		38	51				NA	34	66	48
STYRENE	UG/L															< 1	< 1	< 1
TETRACHLOROETHENE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
THALLIUM DISSOLVED	UG/L															< 1	< 1	< 1
THALLIUM TOTAL	UG/L	< 10													< 2			
TOLUENE	UG/L	< 1	< 1	2	15	13	16	21	< 1	2	< 1	8 8	< 1	1 8	< 1	< 1	< 1	< 1
TOTAL ORGANIC CARBON	MG/L		8	3	2 5		3 1	3 2		4	9 3	53	44	49				
TOXAPHENE	UG/L	< 1																
TRANS 1 2 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS 1 3 DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS 1 4 DICHLORO 2 BUTENE	UG/L																< 1	< 1
TRICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	2	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TUBING PURGING															G			
TUBING SAMPLING															G			
TURBIDITY	NTU		1400	65	17		37	19		120	50	28	19	40	16	17	23	5 7
VANADIUM DISSOLVED	UG/L															< 25	< 25	< 25
VANADIUM TOTAL	UG/L														< 50			
VINYL ACETATE	UG/L															< 1	< 1	< 1
VINYL CHLORIDE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
WELL DEPTH TOTAL	FT		20 2	20	20	20	20	20		20	20				20			
XYLENE(TOTAL)	UG/L											< 5	< 5	< 5	< 5	< 1	< 1	< 1
ZINC DISSOLVED	UG/L															< 50	< 50	< 50
ZINC TOTAL	UG/L														< 20			

ANALYTE	UNITS	3/16/92	5/14/92	8/13/92	11/3/92	2/10/93	4/29/93	8/2/93	11/2/93	1/31/94	5/3/94	8/4/94	11/2/94	2/6/95	7/27/95	1/10/96
1 1 1 2 TETRACHLOROETHANE	UG/L														< 1	< 1
1 1 1 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 2-TETRACHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 3-TRICHLOROPROPANE	UG/L														< 1	< 1
1 2 4 TRICHLOROBENZENE	UG/L	< 10														
1 2 DIBROMO-3 CHLOROPROPANE	UG/L													< 1	< 0 2	< 0 2
1 2 DIBROMOETHANE	UG/L													< 1		
1 2 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2-DICHLOROPROPANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DIPHENYLHYDRAZINE	UG/L	< 10														
1 3 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
1 4 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2 4 6-TRICHLOROPHENOL	UG/L	< 10														
2 4 DICHLOROPHENOL	UG/L	< 10														
2 4 DIMETHYLPHENOL	UG/L	< 10														
2 4 DINITROPHENOL	UG/L	< 10														
2 4 DINITROTOLUENE	UG/L	< 10														
2 6-DINITROTOLUENE	UG/L	< 10														
2 BUTANONE	UG/L													< 1		< 1
2 CHLOROETHYLVINYL ETHER	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
2 CHLORONAPHTHALENE	UG/L	< 10														
2 CHLOROPHENOL	UG/L	< 10														
2 HEXANONE	UG/L														< 1	< 1
2 NITROPHENOL	UG/L	< 10														
3 3 DICHLOROBENZIDINE	UG/L	< 10														
4 4 DDD	UG/L	< 0 1														
4 4 DDE	UG/L	< 0 1														
4 4 DDT	UG/L	< 0 1														
4 6 DINITRO 2 METHYLPHENOL	UG/L	< 10														
4 BROMOPHENYL-PHENYL ETHER	UG/L	< 10														
4 CHLORO 3 METHYLPHENOL	UG/L	< 10														
4 CHLOROPHENYL PHENYL ETHER	UG/L	< 10														
4 METHYL 2 PENTANONE	UG/L														< 1	< 1
4 NITROPHENOL	UG/L	< 10														
ACENAPHTHENE	UG/L	< 10														
ACENAPHTHYLENE	UG/L	< 10														
ACETONE	UG/L														< 1	< 1
ACRYLONITRILE	UG/L													< 1	< 1	< 1
ACTUAL VOLUME PURGED	ALLONS												18 3			
ALDRIN	UG/L	< 0 1														
ALKALINITY BICARBONATE (AS CACO3)	MG/L		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 1	21 4	< 15	< 15			
ALPHA BHC	UG/L	< 0 1														
AMMONIUM	MG/L									< 0 05	< 0 05	< 0 05				
AMMONIUM NH4	MG/L		0 055	< 0 02	0 028	0 025	0 058	< 0 02	0 02							
ANTHRACENE	UG/L	< 10														
ANTIMONY DISSOLVED	UG/L		< 100								< 3	< 3	< 3	< 3	< 3	< 3
ANTIMONY TOTAL	UG/L	< 50	< 250										< 6			
AROCLOR 1016	UG/L	< 1														
AROCLOR 1221	UG/L	< 1														
AROCLOR 1232	UG/L	< 1														
AROCLOR 1242	UG/L	< 1														
AROCLOR 1248	UG/L	< 1														
AROCLOR 1254	UG/L	< 1														
AROCLOR 1260	UG/L	< 1														
ARSENIC DISSOLVED	UG/L									< 25	< 25	< 25	< 25	< 25	< 25	< 25
ARSENIC-TOTAL	UG/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5				< 5			
BARIUM DISSOLVED	UG/L													< 100	< 100	< 100
BARIUM TOTAL	UG/L												< 200			
BENZ[A]ANTHRACENE	UG/L	< 10														
BENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BENZIDINE	UG/L	< 10														
BENZO[A]PYRENE	UG/L	< 10														
BENZO[B]FLUORANTHENE	UG/L	< 10														
BENZO[G H I]PERYLENE	UG/L	< 10														
BENZO[K]FLUORANTHENE	UG/L	< 10														
BERYLLIUM DISSOLVED	UG/L		< 5							< 25	< 4	< 4	< 4	< 4	< 4	< 4
BERYLLIUM TOTAL	UG/L	< 5	< 25										< 4			
BETA-BHC	UG/L	< 0 1														

ANALYTE	UNITS	3/16/92	5/14/92	8/13/92	11/3/92	2/10/93	4/29/93	8/2/93	11/2/93	1/31/94	5/3/94	8/4/94	11/2/94	2/6/95	7/27/95	1/10/96
BIS(2 CHLOROETHOXY)METHANE	UG/L	< 10														
BIS(2 CHLOROETHYL)ETHER	UG/L	< 10														
BIS(2 CHLOROISOPROPYL)ETHER	UG/L	< 10														
BIS(2 ETHYLHEXYL)PHTHALATE	UG/L	< 10														
BROMOCHLOROMETHANE	UG/L														< 1	< 1
BROMODICHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BUTYLBENZYLPHTHALATE	UG/L	< 10														
CADMIUM DISSOLVED	UG/L									< 5	< 5	< 5	< 3	< 3	< 3	< 3
CADMIUM TOTAL	UG/L	< 5	< 25	< 5	< 5	< 5	< 5	< 5	< 5				< 5			
CARBON DISULFIDE	UG/L														< 1	< 1
CARBON TETRACHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLORDANE	UG/L	< 1														
CHLORIDE	MG/L													8 67	21 0	10 6
CHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHROMIUM DISSOLVED	UG/L		< 10							< 25	< 25	< 25	< 50	< 50	< 50	< 50
CHROMIUM TOTAL	UG/L	53 1	134	< 10	< 10	< 10	< 10	< 10	< 10				< 10			
CHRYSENE	UG/L	< 10														
CIS-1 2 DICHLOROETHENE	UG/L														< 1	< 1
CIS-1 3 DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
COBALT TOTAL	UG/L													< 25	< 25	< 25
COLOR													NONE	< 5	5	< 5
COPPER DISSOLVED	UG/L													< 50	< 50	< 50
COPPER TOTAL	UG/L	48 4											< 10			
CYANIDE TOTAL	MG/L	< 0 02														
DELTA BHC	UG/L	< 0 05														
DEPTH TO WATER FROM TOP OF CASING	FT												6 93			
DI N BUTYLPHTHALATE	UG/L	< 10														
DI N OCTYLPHTHALATE	UG/L	< 10														
DIBENZ[A H]ANTHRACENE	UG/L	< 10														
DIBROMOCHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
DIBROMOMETHANE	UG/L														< 1	< 1
DICHLORODIFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
DIELDRIN	UG/L	< 0 1														
DIETHYLPHTHALATE	UG/L	< 10														
DIMETHYLPHTHALATE	UG/L	< 10														
ELAPSED HOURS	HRS												0 2			
ENDOSULFAN I	UG/L	< 0 05														
ENDOSULFAN II	UG/L	< 0 1														
ENDOSULFAN SULFATE	UG/L	< 0 5														
ENDRIN	UG/L	< 0 1														
ENDRIN ALDEHYDE	UG/L	< 0 1														
ETHYLBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
FLUORANTHENE	UG/L	< 10														
FLUORENE	UG/L	< 10														
GROUNDWATER ELEV	FT MSL		NA	115 72	114 5	114 9	112 29	113 93	115 31	116 06			114 08			
HEPTACHLOR	UG/L	< 0 05														
HEPTACHLOR EPOXIDE	UG/L	< 0 5														
HEXACHLOROBENZENE	UG/L	< 10														
HEXACHLOROBUTADIENE	UG/L	< 10														
HEXACHLOROCYCLOPENTADIENE	UG/L	< 40														
HEXACHLOROETHANE	UG/L	< 10														
INDENO[1 2 3 CD]PYRENE	UG/L	< 10														
IODOMETHANE	UG/L														< 1	< 1
IRON TOTAL	UG/L		5170	777	791	691	977	585	375	359	950	994	575	927	640	1000
ISOPHORONE	UG/L	< 10														
LEAD-DISSOLVED	UG/L		< 5							< 25	< 5	< 5	< 5	< 5	< 5	8
LEAD TOTAL	UG/L	25 5	29 7	< 5	< 5	< 5	< 5	< 5	< 5				< 5			
LINDANE (GAMMA BHC)	UG/L	< 0 1														
MERCURY DISSOLVED	UG/L		< 0 2							< 1			< 1	< 1	< 1	< 1
MERCURY-TOTAL	UG/L	0 93	0 7	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2							
METHYL TERT BUTYL ETHER	UG/L									< 10	< 10	< 10	< 10			
METHYLENE CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
N NITROSODI N PROPYLAMINE	UG/L	< 10														
N NITROSODIMETHYLAMINE	UG/L	< 10														
N NITROSODIPHENYLAMINE	UG/L	< 10														
NAPHTHALENE	UG/L	< 10														
NICKEL DISSOLVED	UG/L													< 10	< 50	< 50

ANALYTE	UNITS	3/16/92	5/14/92	8/13/92	11/3/92	2/10/93	4/29/93	8/2/93	11/2/93	1/31/94	5/3/94	8/4/94	11/2/94	2/6/95	7/27/95	1/10/96
NICKEL-TOTAL	UG/L	< 40											< 40			
NITROBENZENE	UG/L	< 10														
NITROGEN AMMONIA	MG/L		0 055	< 0 02	0 028	0 025	0 058	< 0 02	0 02					< 0 1	< 0 05	0 615
NITROGEN NITRATE	MG/L		< 0 05	< 0 05	< 0 05	0 052	< 0 05	0 081	0 4					< 0 05	< 0 05	0 09
ODOR													MED			< 1
PENTACHLOROPHENOL	UG/L	< 10														
PH FIELD	H UNITS	4 58	4 69	4 92	4 61	4 9	4 26	4 5	5 95	5 07	4 45	4 32	4 38	4 46	4 37	4 36
PHENANTHRENE	UG/L	< 10														
PHENOL	UG/L	< 10														
PLUS ANALYTES FOUND		N														
PURGE DATE (YY/MM/DD)	Y/MM/DD												94-11 02			
PURGING DEVICE													C			
PURGING EQUIPMENT DEDICATED													Y			
PURGING MATERIAL													A			
PYRENE	UG/L	< 10														
SAMPLING DEVICE													C			
SAMPLING EQUIPMENT DEDICATED													Y			
SAMPLING MATERIAL													A			
SELENIUM DISSOLVED	UG/L		< 5							< 5	< 5	< 25	< 25	< 25	< 25	< 25
SELENIUM TOTAL	UG/L	7	7 9				< 5						< 5			
SILVER DISSOLVED	UG/L													< 25	< 25	< 25
SILVER TOTAL	UG/L	< 10											< 25			
SODIUM DISSOLVED	UG/L									4960	5300	5770	4470	4560	5590	5330
SODIUM TOTAL	UG/L		3360	4880	5870	4890	4770	4600	7420							
SPECIFIC CONDUCTANCE	MHOS/CM									72 5						
SPECIFIC CONDUCTANCE FIELD	MHOS/C	52	46	57	66	111	70	49	420				NA	76	94 0	86
STYRENE	UG/L													< 1	< 1	< 1
TETRACHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
THALLIUM DISSOLVED	UG/L													< 1	< 1	< 1
THALLIUM TOTAL	UG/L	< 10											< 2			
TOLUENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TOTAL ORGANIC CARBON	MG/L		38	4	4 8	4 3	3 9	3 6	8 3	52	49	85	6			
TOXAPHENE	UG/L	< 1														
TRANS 1 2 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1 3 DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS 1 4 DICHLORO 2 BUTENE	UG/L														< 1	< 1
TRICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TUBING PURGING													G			
TUBING SAMPLING													G			
TURBIDITY	NTU		7700	11	14	11	8 5	2 3	31	12	0 27	6 4	4	2 9	1 2	0 67
VANADIUM DISSOLVED	UG/L													< 25	< 25	< 25
VANADIUM TOTAL	UG/L												< 50			
VINYL ACETATE	UG/L													< 1	< 1	< 1
VINYL CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
WELL DEPTH TOTAL	FT		20 2	20	20	20	20	20	20				20			
XYLENE(TOTAL)	UG/L									< 5	< 5	< 5	< 5	< 1	< 1	< 1
ZINC DISSOLVED	UG/L													< 50	< 50	< 50
ZINC TOTAL	UG/L												< 20			

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ANALYTE	UNITS	3/13/92	5/14/92	8/13/92	11/3/92	2/8/93	4/29/93	7/28/93	11/2/93	1/31/94	5/3/94	8/5/94	11/2/94	2/6/95	7/28/95	1/9/96
1 1 1 2 TETRACHLOROETHANE	UG/L														< 1	< 1
1 1 1 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 2 TETRACHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 3 TRICHLOROPROPANE	UG/L														< 1	< 1
1 2 4 TRICHLOROBENZENE	UG/L	< 10														
1 2 DIBROMO-3 CHLOROPROPANE	UG/L													< 1	< 0 2	< 0 2
1 2 DIBROMOETHANE	UG/L													< 1	< 0 02	< 0 02
1 2 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROPROPANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DIPHENYLHYDRAZINE	UG/L	< 10														
1 3 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
1 4 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2 4 6 TRICHLOROPHENOL	UG/L	< 10														
2 4 DICHLOROPHENOL	UG/L	< 10														
2 4 DIMETHYLPHENOL	UG/L	< 10														
2 4 DINITROPHENOL	UG/L	< 10														
2 4 DINITROTOLUENE	UG/L	< 10														
2 6 DINITROTOLUENE	UG/L	< 10														
2 BUTANONE	UG/L													< 1		< 1
2 CHLOROETHYLVINYL ETHER	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
2 CHLORONAPHTHALENE	UG/L	< 10														
2 CHLOROPHENOL	UG/L	< 10														
2 HEXANONE	UG/L														< 1	< 1
2 NITROPHENOL	UG/L	< 10														
3 3 DICHLOROBENZIDINE	UG/L	< 10														
4 4 DDD	UG/L	< 0 1														
4 4 DDE	UG/L	< 0 1														
4 4 DDT	UG/L	< 0 1														
4 6 DINITRO-2 METHYLPHENOL	UG/L	< 10														
4 BROMOPHENYL PHENYL ETHER	UG/L	< 10														
4 CHLORO-3 METHYLPHENOL	UG/L	< 10														
4 CHLOROPHENYL PHENYL ETHER	UG/L	< 10														
4 METHYL 2 PENTANONE	UG/L														< 1	< 1
4 NITROPHENOL	UG/L	< 10														
ACENAPHTHENE	UG/L	< 10														
ACENAPHTHYLENE	UG/L	< 10														
ACETONE	UG/L														< 1	< 1
ACRYLONITRILE	UG/L													< 1	< 1	< 1
ACTUAL VOLUME PURGED	ALLONS												21 9			
ALDRIN	UG/L	< 0 1														
ALKALINITY BICARBONATE (AS CACO3)	MG/L		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 1	17 5	< 15	23			
ALPHA BHC	UG/L	< 0 1														
AMMONIUM	MG/L									< 0 05	< 0 05	< 0 05				
AMMONIUM NH4	MG/L		< 0 02	0 067	< 0 02	0 02	0 039	< 0 02	0 033							
ANTHRACENE	UG/L	< 10														
ANTIMONY DISSOLVED	UG/L		< 100								< 3	< 3	< 3	< 3	< 3	< 3
ANTIMONY TOTAL	UG/L	< 50	< 50										< 6			
AROCLOR 1016	UG/L	< 1														
AROCLOR 1221	UG/L	< 1														
AROCLOR 1232	UG/L	< 1														
AROCLOR 1242	UG/L	< 1														
AROCLOR 1248	UG/L	< 1														
AROCLOR 1254	UG/L	< 1														
AROCLOR 1260	UG/L	< 1														
ARSENIC DISSOLVED	UG/L										< 25	< 25	< 25	< 25	< 25	< 25
ARSENIC-TOTAL	UG/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5				< 5			
BARIUM DISSOLVED	UG/L													< 100	< 100	< 100
BARIUM TOTAL	UG/L												< 200			
BENZ[A]ANTHRACENE	UG/L	< 10														
BENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BENZIDINE	UG/L	< 10														
BENZO[A]PYRENE	UG/L	< 10														
BENZO[B]FLUORANTHENE	UG/L	< 10														
BENZO[G H I]PERYLENE	UG/L	< 10														
BENZO[K]FLUORANTHENE	UG/L	< 10														
BERYLLIUM DISSOLVED	UG/L		< 5								< 4	< 4	< 4	< 4	< 4	< 4
BERYLLIUM TOTAL	UG/L	< 5	< 5										< 4			
BETA BHC	UG/L	< 0 1														

ANALYTE	UNITS	3/13/92	5/14/92	8/13/92	11/3/92	2/8/93	4/29/93	7/28/93	11/2/93	1/31/94	5/3/94	8/5/94	11/2/94	2/6/95	7/28/95	1/9/96
BIS(2 CHLOROETHOXY)METHANE	UG/L	< 10														
BIS(2 CHLOROETHYL)ETHER	UG/L	< 10														
BIS(2 CHLOROISOPROPYL)ETHER	UG/L	< 10														
BIS(2 ETHYLHEXYL)PHTHALATE	UG/L	< 10														
BROMOCHLOROMETHANE	UG/L														< 1	< 1
BROMODICHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BUTYLBENZYLPHTHALATE	UG/L	< 10														
CADMIUM DISSOLVED	UG/L										< 5	< 5	< 3	< 3	< 3	< 3
CADMIUM TOTAL	UG/L	< 5	< 5	< 5	< 25	< 5	< 5	< 5	< 5				< 5			
CARBON DISULFIDE	UG/L														< 1	< 1
CARBON TETRACHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLORDANE	UG/L	< 1														
CHLORIDE	MG/L													9	9 54	7 8
CHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHROMIUM DISSOLVED	UG/L		< 10								< 25	< 25	< 50	< 50	< 50	< 50
CHROMIUM TOTAL	UG/L	60 6	33 4	< 10	< 50	< 10	< 10	< 10	< 10				< 10			
CHRYSENE	UG/L	< 10														
CIS 1 2 DICHLOROETHENE	UG/L														< 1	< 1
CIS 1 3 DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
COBALT TOTAL	UG/L													< 25	< 25	< 25
COLOR													LT BRN TN	150	150	125
COPPER DISSOLVED	UG/L													< 50	< 50	< 50
COPPER-TOTAL	UG/L	58											13 5			
CYANIDE TOTAL	MG/L	< 0 02														
DELTA BHC	UG/L	< 0 05														
DEPTH TO WATER FROM TOP OF CASING	FT												9 92			
DI N BUTYLPHTHALATE	UG/L	< 10														
DI-N OCTYLPHTHALATE	UG/L	< 10														
DIBENZ[A H]ANTHRACENE	UG/L	< 10														
DIBROMOCHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
DIBROMOMETHANE	UG/L														< 1	< 1
DICHLORODIFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
DIELDRIN	UG/L	< 0 1														
DIETHYLPHTHALATE	UG/L	< 10														
DIMETHYLPHTHALATE	UG/L	< 10														
ELAPSED HOURS	HRS												0 3			
ENDOSULFAN I	UG/L	< 0 05														
ENDOSULFAN II	UG/L	< 0 1														
ENDOSULFAN SULFATE	UG/L	< 0 5														
ENDRIN	UG/L	< 0 1														
ENDRIN ALDEHYDE	UG/L	< 0 1														
ETHYLBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
FLUORANTHENE	UG/L	< 10														
FLUORENE	UG/L	< 10														
GROUNDWATER ELEV	FT MSL		NA	115 39	113 27	112 57	112 32	112 72	113 06	113 29			112 92			
HEPTACHLOR	UG/L	< 0 05														
HEPTACHLOR EPOXIDE	UG/L	< 0 5														
HEXACHLOROBENZENE	UG/L	< 10														
HEXACHLOROBUTADIENE	UG/L	< 10														
HEXACHLOROCYCLOPENTADIENE	UG/L	< 40														
HEXACHLOROETHANE	UG/L	< 10														
INDENO[1 2 3 CD]PYRENE	UG/L	< 10														
IODOMETHANE	UG/L														< 1	< 1
IRON TOTAL	UG/L		1270	771	562	592	649	487	953		585	634	615	593	596	568
ISOPHORONE	UG/L	< 10														
LEAD-DISSOLVED	UG/L		< 5								< 5	< 5	< 5	< 5	< 0 005	6
LEAD-TOTAL	UG/L	38 6	24 5	5 7	< 5	< 5	< 5	< 5	< 5				< 5			
LINDANE (GAMMA BHC)	UG/L	< 0 1														
MERCURY DISSOLVED	UG/L		< 0 2										< 1	< 1	< 1	< 1
MERCURY TOTAL	UG/L	2 8	< 0 2	0 62	< 0 2	0 32	< 0 2	< 0 2	< 0 2							
METHYL TERT-BUTYL ETHER	UG/L									< 10	< 10	< 10	< 10			
METHYLENE CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
N NITROSODI N PROPYLAMINE	UG/L	< 10														
N NITROSODIMETHYLAMINE	UG/L	< 10														
N NITROSODIPHENYLAMINE	UG/L	< 10														
NAPHTHALENE	UG/L	< 10														
NICKEL-DISSOLVED	UG/L													< 10	< 50	< 50

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ANALYTE	UNITS	3/13/92	5/14/92	8/13/92	11/3/92	2/8/93	4/29/93	7/28/93	11/2/93	1/31/94	5/3/94	8/5/94	11/2/94	2/6/95	7/28/95	1/9/96
NICKEL TOTAL	UG/L	< 40											< 40			
NITROBENZENE	UG/L	< 10														
NITROGEN AMMONIA	MG/L		< 0 02	0 087	< 0 02	0 02	0 039	< 0 02	0 033					< 0 1	< 0 05	0 108
NITROGEN NITRATE	MG/L		< 0 05	< 0 05	< 0 05	< 0 05	< 0 05	0 063	< 0 05					< 0 05	< 0 05	< 0 05
ODOR													MODERATE			< 1
PENTACHLOROPHENOL	UG/L	< 10														
PH FIELD	H UNITS	4 67	4 83	4 82	4 62	4 87	4 89	4 53	4 72	5 03	4 79	4 81	4 68	4 8	4 77	4 93
PHENANTHRENE	UG/L	< 10														
PHENOL	UG/L	< 10														
PLUS ANALYTES FOUND		N														
PURGE DATE (YY/MM/DD)	Y/MM/DD												94-11 02			
PURGING DEVICE													C			
PURGING EQUIPMENT DEDICATED													Y			
PURGING MATERIAL													A			
PYRENE	UG/L	< 10														
SAMPLING DEVICE													C			
SAMPLING EQUIPMENT DEDICATED													Y			
SAMPLING MATERIAL													A			
SELENIUM DISSOLVED	UG/L		< 5								< 5	< 25	< 25	< 25	< 25	< 25
SELENIUM TOTAL	UG/L	9 8	< 5				< 5						< 5			
SILVER DISSOLVED	UG/L													< 25	< 25	< 25
SILVER TOTAL	UG/L	< 10											< 25			
SODIUM DISSOLVED	UG/L										3820	3700	3700	3810	6090	3760
SODIUM TOTAL	UG/L		3710	3910	3000	4120	4420	7020	4490							
SPECIFIC CONDUCTANCE	MHOS/CM									54						
SPECIFIC CONDUCTANCE FIELD	MHOS/C	53	40	55	44	42	48	37	352				NA	45	59 0	51
STYRENE	UG/L													< 1	< 1	< 1
TETRACHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
THALLIUM DISSOLVED	UG/L													< 1	< 1	< 1
THALLIUM TOTAL	UG/L	< 10											< 2			
TOLUENE	UG/L	< 1	< 1	3	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TOTAL ORGANIC CARBON	MG/L		3 8	3	2 8	3 3	2 6	2 8	4 6	96	60	57	6			
TOXAPHENE	UG/L	< 1														
TRANS 1 2 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS 1 3 DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS 1 4 DICHLORO-2 BUTENE	UG/L														< 1	< 1
TRICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TUBING PURGING													G			
TUBING SAMPLING													G			
TURBIDITY	NTU		570	75	38	95	80	60	100	20	25	17	18	15	21 0	18
VANADIUM DISSOLVED	UG/L													< 25	< 25	< 25
VANADIUM TOTAL	UG/L												< 50			
VINYL ACETATE	UG/L													< 1	< 1	< 1
VINYL CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
WELL DEPTH TOTAL	FT		20	20	20	18	18	18	18				20			
XYLENE(TOTAL)	UG/L									< 5	< 5	< 5	< 5	< 1	< 1	< 1
ZINC DISSOLVED	UG/L													< 50	< 50	< 50
ZINC TOTAL	UG/L												< 20			

ANALYTE	UNITS	3/16/92	5/14/92	8/18/92	11/3/92	12/17/92	2/8/93	2/11/93	4/29/93	8/3/93	11/2/93	1/31/94	5/2/94	8/5/94	11/2/94	2/6/95	7/27/95	1/9/96
1 1 1 2 TETRACHLOROETHANE	UG/L																< 1	< 1
1 1 1 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 2 TETRACHLOROETHANE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 3 TRICHLOROPROPANE	UG/L																< 1	< 1
1 2 4 TRICHLOROBENZENE	UG/L	< 10																
1 2 DIBROMO-3 CHLOROPROPANE	UG/L															< 1	< 0 2	< 0 2
1 2 DIBROMOETHANE	UG/L															< 1	< 0 02	< 0 02
1 2 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROPROPANE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DIPHENYLHYDRAZINE	UG/L	< 10																
1 3 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1			
1 4 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2 4 6 TRICHLOROPHENOL	UG/L	< 10																
2 4 DICHLOROPHENOL	UG/L	< 10																
2 4 DIMETHYLPHENOL	UG/L	< 10																
2 4 DINITROPHENOL	UG/L	< 10																
2 4 DINITROTOLUENE	UG/L	< 10																
2 6-DINITROTOLUENE	UG/L	< 10																
2 BUTANONE	UG/L															< 1		< 1
2 CHLOROETHYLVINYL ETHER	UG/L	< 1	< 1	< 1	< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1			
2 CHLORONAPHTHALENE	UG/L	< 10																
2 CHLOROPHENOL	UG/L	< 10																
2 HEXANONE	UG/L																< 1	< 1
2 NITROPHENOL	UG/L	< 10																
3 3 DICHLOROBENZIDINE	UG/L	< 10																
4 4 DDD	UG/L	< 0 1																
4 4 DDE	UG/L	< 0 1																
4 4 DDT	UG/L	< 0 1																
4 6-DINITRO-2 METHYLPHENOL	UG/L	< 10																
4 BROMOPHENYL PHENYL ETHER	UG/L	< 10																
4 CHLORO-3 METHYLPHENOL	UG/L	< 10																
4 CHLOROPHENYL PHENYL ETHER	UG/L	< 10																
4 METHYL 2 PENTANONE	UG/L																< 1	< 1
4 NITROPHENOL	UG/L	< 10																
ACENAPHTHENE	UG/L	< 10																
ACENAPHTHYLENE	UG/L	< 10																
ACETONE	UG/L																< 1	< 1
ACRYLONITRILE	UG/L															< 1	< 1	< 1
ACTUAL VOLUME PURGED	ALLONS														33 3			
ALDRIN	UG/L	< 0 1																
ALKALINITY BICARBONATE (AS CACO3)	MG/L		< 10	< 10	< 10		< 10		< 10	< 10	< 10	18	18 5	< 15	15			
ALPHA BHC	UG/L	< 0 1																
AMMONIUM	MG/L											< 0 05	< 0 05	< 0 05				
AMMONIUM NH4	MG/L		< 0 02	0 02	0 52		0 44		0 62	0 5	1 09							
ANTHRACENE	UG/L	< 10																
ANTIMONY DISSOLVED	UG/L		< 100										< 3	< 3	< 3	< 3	< 3	< 3
ANTIMONY TOTAL	UG/L	< 250	< 50												< 6			
AROCLOR 1016	UG/L	< 1																
AROCLOR 1221	UG/L	< 1																
AROCLOR 1232	UG/L	< 1																
AROCLOR 1242	UG/L	< 1																
AROCLOR 1248	UG/L	< 1																
AROCLOR 1254	UG/L	< 1																
AROCLOR 1260	UG/L	< 1																
ARSENIC DISSOLVED	UG/L											< 25	< 25	< 25	< 25	< 25	< 25	< 25
ARSENIC TOTAL	UG/L	6 9	< 5	< 5	< 5		< 5		< 5	< 5	< 5				< 5			
BARIUM DISSOLVED	UG/L															< 100	< 100	< 100
BARIUM TOTAL	UG/L														< 200			
BENZ[A]ANTHRACENE	UG/L	< 10																
BENZENE	UG/L	< 1	< 1	< 1	2	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BENZIDINE	UG/L	< 10																
BENZO[A]PYRENE	UG/L	< 10																
BENZO[B]FLUORANTHENE	UG/L	< 10																
BENZO[G H I]PERYLENE	UG/L	< 10																
BENZO[K]FLUORANTHENE	UG/L	< 10																
BERYLLIUM DISSOLVED	UG/L		< 5									< 25	< 4	< 4	< 4	< 4	< 4	< 4
BERYLLIUM TOTAL	UG/L	< 25	< 5												< 4			
BETA BHC	UG/L	< 0 1																
BIS(2 CHLOROETHOXY)METHANE	UG/L	< 10																
BIS(2 CHLOROETHYL)ETHER	UG/L	< 10																
BIS(2 CHLOROISOPROPYL)ETHER	UG/L	< 10																
BIS(2 ETHYLHEXYL)PHTHALATE	UG/L	< 10																
BROMOCHLOROMETHANE	UG/L																< 1	< 1

ANALYTE	UNITS	3/16/92	5/14/92	8/18/92	11/3/92	12/17/92	2/8/93	2/11/93	4/29/93	8/3/93	11/2/93	1/31/94	5/2/94	8/5/94	11/2/94	2/6/95	7/27/95	1/9/96
BROMODICHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	UG/L	< 1	< 1	< 1	< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BUTYLBENZYLPHTHALATE	UG/L	< 10																
CADMIUM DISSOLVED	UG/L											< 5	< 5	< 5	< 3	< 3	< 3	< 3
CADMIUM TOTAL	UG/L	< 25	< 5	< 5	< 5		< 5		< 5	< 5	< 5				< 5			
CARBON DISULFIDE	UG/L																< 1	< 1
CARBON TETRACHLORIDE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLORDANE	UG/L	< 1																
CHLORIDE	MG/L															10 7	18 2	15 2
CHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	UG/L	< 1	< 1	< 1	< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHROMIUM DISSOLVED	UG/L		< 10									< 25	< 25	< 25	< 50	< 50	< 50	< 50
CHROMIUM TOTAL	UG/L	142	< 10	< 10	< 10		< 10		< 10	< 10	< 10				< 10			
CHRYSENE	UG/L	< 10																
CIS-1 2 DICHLOROETHENE	UG/L																< 1	< 1
CIS 1 3 DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
COBALT TOTAL	UG/L															< 25	< 25	< 25
COLOR															NONE	< 5	< 5	< 5
COPPER DISSOLVED	UG/L															< 50	< 50	< 50
COPPER TOTAL	UG/L	< 125													< 10			
CYANIDE TOTAL	MG/L	< 0 02																
DELTA BHC	UG/L	< 0 05																
DEPTH TO WATER FROM TOP OF CASING	FT														10 77			
DI N BUTYLPHTHALATE	UG/L	< 10																
DI N OCTYLPHTHALATE	UG/L	< 10																
DIBENZ[A H]ANTHRACENE	UG/L	< 10																
DIBROMOCHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
DIBROMOMETHANE	UG/L																< 1	< 1
DICHLORODIFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1	< 1	2	< 1	< 1	< 1	< 1			
DIELDRIN	UG/L	< 0 1																
DIETHYLPHTHALATE	UG/L	< 10																
DIMETHYLPHTHALATE	UG/L	< 10																
ELAPSED HOURS	HRS														0 3			
ENDOSULFAN I	UG/L	< 0 05																
ENDOSULFAN II	UG/L	< 0 1																
ENDOSULFAN SULFATE	UG/L	< 0 5																
ENDRIN	UG/L	< 0 1																
ENDRIN ALDEHYDE	UG/L	< 0 1																
ETHYLBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
FLUORANTHENE	UG/L	< 10																
FLUORENE	UG/L	< 10																
GROUNDWATER ELEV	FT MSL		NA	118 09	116 17	115 66	116 38		115 65	116 62	117 07	117 2			116 2			
HEPTACHLOR	UG/L	< 0 05																
HEPTACHLOR EPOXIDE	UG/L	< 0 5																
HEXACHLOROBENZENE	UG/L	< 10																
HEXACHLOROBUTADIENE	UG/L	< 10																
HEXACHLOROCYCLOPENTADIENE	UG/L	< 40																
HEXACHLOROETHANE	UG/L	< 10																
INDENO[1 2 3-CD]PYRENE	UG/L	< 10																
IODOMETHANE	UG/L																< 1	< 1
IRON TOTAL	UG/L		1270	773	1300		968		1700	883	468	433	455	386	494	406	420	420
ISOPHORONE	UG/L	< 10																
LEAD-DISSOLVED	UG/L		< 5									< 25	< 5	< 5	< 5	< 5	5	6
LEAD-TOTAL	UG/L	77 8	< 5	< 5	< 5		< 5		< 5	< 5	< 5				< 5			
LINDANE (GAMMA BHC)	UG/L	< 0 1																
MERCURY DISSOLVED	UG/L		< 0 2									< 1			< 1	< 1	< 1	< 1
MERCURY TOTAL	UG/L	2 4	< 0 2	< 0 2	< 0 2		< 0 2		< 0 2	< 0 2	< 0 2							
METHYL TERT BUTYL ETHER	UG/L											< 10	< 10	< 10	< 10			
METHYLENE CHLORIDE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1
N NITROSODI N PROPYLAMINE	UG/L	< 10																
N NITROSODIMETHYLAMINE	UG/L	< 10																
N NITROSODIPHENYLAMINE	UG/L	< 10																
NAPHTHALENE	UG/L	< 10																
NICKEL DISSOLVED	UG/L															< 10	< 50	< 50
NICKEL TOTAL	UG/L	< 200													< 40			
NITROBENZENE	UG/L	< 10																
NITROGEN AMMONIA	MG/L		< 0 02	0 02	0 52		0 44		0 62	0 5	1 09					0 642	0 287	1 3
NITROGEN NITRATE	MG/L		< 0 05	0 15	< 0 05		< 0 05		< 0 05	< 0 05	< 0 05					< 0 05	< 0 05	< 0 05
ODOR															STRONG			2
PENTACHLOROPHENOL	UG/L	< 10																
PH FIELD	H UNITS	4 52	4 63	4 2	4 08	4 01	4 41		4 3	4 27	4 15	4 57	4 5	4 62	4 58	4 74	4 64	4 7
PHENANTHRENE	UG/L	< 10																
PHENOL	UG/L	< 10																
PLUS ANALYTES FOUND		Y																

ANALYTE	UNITS	3/16/92	5/14/92	8/18/92	11/3/92	12/17/92	2/8/93	2/11/93	4/29/93	8/3/93	11/2/93	1/31/94	5/2/94	8/5/94	11/2/94	2/6/95	7/27/95	1/9/96
PURGE DATE (YY/MM/DD)	Y/MM/DD														94 11 02			
PURGING DEVICE															C			
PURGING EQUIPMENT DEDICATED															Y			
PURGING MATERIAL															A			
PYRENE	UG/L	< 10																
SAMPLING DEVICE															C			
SAMPLING EQUIPMENT DEDICATED															Y			
SAMPLING MATERIAL															A			
SELENIUM DISSOLVED	UG/L		< 5									< 5	< 5	< 25	< 25	< 25	< 25	< 25
SELENIUM TOTAL	UG/L	20 8	< 5						< 5						< 5			
SILVER DISSOLVED	UG/L															< 25	< 25	< 25
SILVER TOTAL	UG/L	< 50													< 25			
SODIUM DISSOLVED	UG/L											5570	6760	5730	5780	5530	5850	4800
SODIUM TOTAL	UG/L		4020	4680	6120		6330		5970	6130	5590							
SPECIFIC CONDUCTANCE	MHOS/CM											95 5						
SPECIFIC CONDUCTANCE FIELD	MHOS/C	63	60	69	260	221	162		184	101	340				NA	103	106	85
STYRENE	UG/L															< 1	< 1	< 1
TETRACHLOROETHENE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
THALLIUM DISSOLVED	UG/L															< 1	< 1	< 1
THALLIUM TOTAL	UG/L	< 10													< 2			
TOLUENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TOTAL ORGANIC CARBON	MG/L		4 8	2 5	3 1		3 4		4 1	4	4 5	102	81	59	6			
TOXAPHENE	UG/L	< 1																
TRANS-1 2 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS 1 3 DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS 1 4 DICHLORO-2 BUTENE	UG/L																< 1	< 1
TRICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TUBING PURGING															G			
TUBING SAMPLING															G			
TURBIDITY	NTU		140	< 1	< 1		1 7		70	4	2 9	4 5	0 57	2 8	1 2	1 7	0 64	1 6
VANADIUM DISSOLVED	UG/L															< 25	< 25	< 25
VANADIUM TOTAL	UG/L														< 50			
VINYL ACETATE	UG/L															< 1	< 1	< 1
VINYL CHLORIDE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
WELL DEPTH TOTAL	FT		26 55	26	26	26	26		26	26	26				26			
XYLENE(TOTAL)	UG/L											< 5	< 5	< 5	< 5	< 1	< 1	< 1
ZINC DISSOLVED	UG/L															< 50	< 50	< 50
ZINC TOTAL	UG/L														< 20			

ANALYTE	UNITS	3/13/92	5/13/92	8/19/92	11/5/92	2/9/93	5/3/93	7/28/93	10/27/93	2/2/94	5/2/94	8/4/94	11/2/94
1,1 1 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2 2 TETRACHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1 2 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2 4 TRICHLOROBENZENE	UG/L	< 10											
1,2 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-DICHLOROPROPANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2 DIPHENYLHYDRAZINE	UG/L	< 10											
1,3 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,4 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2 4 6 TRICHLOROPHENOL	UG/L	< 10											
2 4 DICHLOROPHENOL	UG/L	< 10											
2 4 DIMETHYLPHENOL	UG/L	< 10											
2 4 DINITROPHENOL	UG/L	< 10											
2,4 DINITROTOLUENE	UG/L	< 10											
2 6 DINITROTOLUENE	UG/L	< 10											
2 CHLOROETHYLVINYL ETHER	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2 CHLORONAPHTHALENE	UG/L	< 10											
2-CHLOROPHENOL	UG/L	< 10											
2 NITROPHENOL	UG/L	< 10											
3,3 DICHLOROBENZIDINE	UG/L	< 10											
4 4 DDD	UG/L	< 0 1											
4 4 DDE	UG/L	< 0 1											
4 4 DDT	UG/L	< 0 1											
4 6 DINITRO-2 METHYLPHENOL	UG/L	< 10											
4 BROMOPHENYL PHENYL ETHER	UG/L	< 10											
4 CHLORO 3 METHYLPHENOL	UG/L	< 10											
4 CHLOROPHENYL PHENYL ETHER	UG/L	< 10											
4 NITROPHENOL	UG/L	< 10											
ACENAPHTHENE	UG/L	< 10											
ACENAPHTHYLENE	UG/L	< 10											
ACTUAL VOLUME PURGED	ALLONS												22
ALDRIN	UG/L	< 0 1											
ALKALINITY, BICARBONATE (AS CACO3)	MG/L		150	200	219	209	208	217	225	178	202	200	196
ALPHA BHC	UG/L	< 0 1											
AMMONIUM	MG/L										< 0 05	< 0 05	
AMMONIUM NH4	MG/L		0 11	0 16	0 17	0 16	0 22	0 17	0 02				
ANTHRACENE	UG/L	< 10											
ANTIMONY-DISSOLVED	UG/L										< 3	< 3	< 3
ANTIMONY TOTAL	UG/L	< 50	< 50										< 6
AROCLOR 1016	UG/L	< 1											
AROCLOR 1221	UG/L	< 1											
AROCLOR 1232	UG/L	< 1											
AROCLOR 1242	UG/L	< 1											
AROCLOR 1248	UG/L	< 1											
AROCLOR 1254	UG/L	< 1											
AROCLOR 1260	UG/L	< 1											
ARSENIC DISSOLVED	UG/L										< 25	< 25	< 25
ARSENIC TOTAL	UG/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5				< 5
BARIUM TOTAL	UG/L												< 200
BENZ[A]ANTHRACENE	UG/L	< 10											
BENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BENZIDINE	UG/L	< 10											
BENZO[A]PYRENE	UG/L	< 10											
BENZO[B]FLUORANTHENE	UG/L	< 10											
BENZO[G H I]PERYLENE	UG/L	< 10											
BENZO[K]FLUORANTHENE	UG/L	< 10											
BERYLLIUM DISSOLVED	UG/L										< 4	< 4	< 4
BERYLLIUM TOTAL	UG/L	< 5	< 5										< 4
BETA BHC	UG/L	< 0 1											
BIS(2-CHLOROETHOXY)METHANE	UG/L	< 10											
BIS(2 CHLOROETHYL)ETHER	UG/L	< 10											
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	< 10											
BIS(2 ETHYLHEXYL)PHTHALATE	UG/L	10											
BROMODICHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BUTYLBENZYLPHTHALATE	UG/L	< 10											
CADMIUM DISSOLVED	UG/L										< 5	< 5	< 3
CADMIUM TOTAL	UG/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5				< 5
CARBON TETRACHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLORDANE	UG/L	< 1											
CHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHROMIUM-DISSOLVED	UG/L										< 25	< 25	< 50
CHROMIUM TOTAL	UG/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10				< 10
CHRYSENE	UG/L	< 10											
CIS-1,3-DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
COLOR													NONE
COPPER TOTAL	UG/L	< 25											< 10
CYANIDE, TOTAL	MG/L	< 0 02											

ANALYTE	UNITS	3/13/92	5/13/92	8/19/92	11/5/92	2/9/93	5/3/93	7/28/93	10/27/93	2/2/94	5/2/94	8/4/94	11/2/94
DELTA BHC	UG/L	< 0 05											
DEPTH TO WATER FROM TOP OF CASING	FT												4 7
DI N BUTYLPHTHALATE	UG/L	< 10											
DI N-OCTYLPHTHALATE	UG/L	< 10											
DIBENZ[A,H]ANTHRACENE	UG/L	< 10											
DIBROMOCHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
DICHLORODIFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
DIELDRIN	UG/L	< 0 1											
DIETHYLPHTHALATE	UG/L	< 10											
DIMETHYLPHTHALATE	UG/L	< 10											
ELAPSED HOURS	HRS												0 4
ENDOSULFAN I	UG/L	< 0 05											
ENDOSULFAN II	UG/L	< 0 1											
ENDOSULFAN SULFATE	UG/L	< 0 5											
ENDRIN	UG/L	< 0 1											
ENDRIN ALDEHYDE	UG/L	< 0 1											
ETHYLBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
FLUORANTHENE	UG/L	< 10											
FLUORENE	UG/L	< 10											
GROUNDWATER ELEV	FT MSL		NA	121 75	119 83	120 03	115 86	116 99	119 3	120 78			119 94
HEPTACHLOR	UG/L	< 0 05											
HEPTACHLOR EPOXIDE	UG/L	< 0 5											
HEXACHLOROBENZENE	UG/L	< 10											
HEXACHLOROBUTADIENE	UG/L	< 10											
HEXACHLOROCYCLOPENTADIENE	UG/L	< 40											
HEXACHLOROETHANE	UG/L	< 10											
INDENO[1 2 3-CD]PYRENE	UG/L	< 10											
IRON TOTAL	UG/L		379	789	941	633	784	802	844		471	568	539
ISOPHORONE	UG/L	< 10											
LEAD-DISSOLVED	UG/L										< 5	< 5	< 5
LEAD-TOTAL	UG/L	< 5	< 5	< 5	< 5	< 5	< 5	11 3	< 5				< 5
LINDANE (GAMMA BHC)	UG/L	< 0 1											
MERCURY DISSOLVED	UG/L												< 1
MERCURY TOTAL	UG/L	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2				
METHYL TERT-BUTYL ETHER	UG/L									< 10	< 10	< 10	< 10
METHYLENE CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
N NITROSODI N PROPYLAMINE	UG/L	< 10											
N NITROSODIMETHYLAMINE	UG/L	< 10											
N NITROSODIPHENYLAMINE	UG/L	< 10											
NAPHTHALENE	UG/L	< 10											
NICKEL TOTAL	UG/L	< 40											< 40
NITROBENZENE	UG/L	< 10											
NITROGEN, AMMONIA	MG/L		0 11	0 16	0 17	0 16	0 22	0 17	0 02				
NITROGEN, NITRATE	MG/L		< 0 05	0 12	< 0 05	< 0 05	< 0 05	< 0 05	< 0 05				
ODOR													NONE
PENTACHLOROPHENOL	UG/L	< 10											
PH FIELD	H UNITS	7 14	7 56	6 95	7 17	7 01	6 73	6 62	6 99	7 31	7 02	6 77	6 5
PHENANTHRENE	UG/L	< 10											
PHENOL	UG/L	< 10											
PLUS ANALYTES FOUND		Y											
PURGE DATE (YY/MM/DD)	Y/MM/DD												94 11-02
PURGING DEVICE													C
PURGING EQUIPMENT DEDICATED													Y
PURGING MATERIAL													A
PYRENE	UG/L	< 10											
SAMPLING DEVICE													C
SAMPLING EQUIPMENT DEDICATED													Y
SAMPLING MATERIAL													A
SELENIUM-DISSOLVED	UG/L										< 5	< 25	< 25
SELENIUM TOTAL	UG/L	< 5	< 5										< 5
SILVER TOTAL	UG/L	< 10											< 25
SODIUM-DISSOLVED	UG/L										6520	6140	6160
SODIUM TOTAL	UG/L		14300	9370	8860	7380	6650	6770	7450				
SPECIFIC CONDUCTANCE	MHOS/CM									394			
SPECIFIC CONDUCTANCE FIELD	MHOS/C	320	300	431	395	379	333	338	440				NA
TETRACHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
THALLIUM TOTAL	UG/L	< 10											< 2
TOLUENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TOTAL ORGANIC CARBON	MG/L		2 9	2 6	2 2	2 3	2 4	2 1	1 9	75	68	66	3
TOXAPHENE	UG/L	< 1											
TRANS 1,2 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS 1,3-DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	1	1	< 1	< 1	< 1	< 1
TUBING-PURGING													G
TUBING-SAMPLING													G
TURBIDITY	NTU		2 9	27	15	1 8	10	9 6	14	3 6	4 7	2	1 7
VANADIUM TOTAL	UG/L												< 50
VINYL CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
WELL DEPTH TOTAL	FT		108 3	108	108	108 54	108 54	108 54	108 54				108 54
XYLENE(TOTAL)	UG/L									< 5	< 5	< 5	< 5
ZINC TOTAL	UG/L												< 20

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ANALYTE	UNITS	3/13/92	5/13/92	8/19/92	11/5/92	2/9/93	5/3/93	7/28/93	7/29/93	10/27/93	2/2/94	5/2/94	8/4/94	11/2/94
1 1 1 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1
1,1 2 2 TETRACHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1
1 1,2 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1
1 2 4 TRICHLOROBENZENE	UG/L	< 10												
1 2 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROPROPANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1
1,2 DIPHENYLHYDRAZINE	UG/L	< 10												
1 3 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1
1 4 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1
2 4 6 TRICHLOROPHENOL	UG/L	< 10												
2,4 DICHLOROPHENOL	UG/L	< 10												
2 4 DIMETHYLPHENOL	UG/L	< 10												
2 4 DINITROPHENOL	UG/L	< 10												
2 4 DINITROTOLUENE	UG/L	< 10												
2 6 DINITROTOLUENE	UG/L	< 10												
2 CHLOROETHYLVINYL ETHER	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1
2 CHLORONAPHTHALENE	UG/L	< 10												
2 CHLOROPHENOL	UG/L	< 10												
2 NITROPHENOL	UG/L	< 10												
3 3 DICHLOROBENZIDINE	UG/L	< 10												
4 4 DDD	UG/L	< 0 1												
4 4 DDE	UG/L	< 0 1												
4 4 DDT	UG/L	< 0 1												
4 6 DINITRO 2 METHYLPHENOL	UG/L	< 10												
4 BROMOPHENYL PHENYL ETHER	UG/L	< 10												
4 CHLORO-3 METHYLPHENOL	UG/L	< 10												
4 CHLOROPHENYL PHENYL ETHER	UG/L	< 10												
4 NITROPHENOL	UG/L	< 10												
ACENAPHTHENE	UG/L	< 10												
ACENAPHTHYLENE	UG/L	< 10												
ACTUAL VOLUME PURGED	ALLONS													20 6
ALDRIN	UG/L	< 0 1												
ALKALINITY, BICARBONATE (AS CACO3)	MG/L		12	11	11	11	13	11		11	< 1	< 15	< 15	< 15
ALPHA BHC	UG/L	< 0 1												
AMMONIUM	MG/L											< 0 05	< 0 05	
AMMONIUM NH4	MG/L		< 0 02	< 0 02	< 0 02	< 0 02	< 0 02	< 0 02		< 0 02				
ANTHRACENE	UG/L	< 10												
ANTIMONY DISSOLVED	UG/L											< 3	< 3	< 3
ANTIMONY TOTAL	UG/L	< 50	< 50											< 8
AROCLOR 1016	UG/L	< 1												
AROCLOR 1221	UG/L	< 1												
AROCLOR 1232	UG/L	< 1												
AROCLOR 1242	UG/L	< 1												
AROCLOR 1248	UG/L	< 1												
AROCLOR 1254	UG/L	< 1												
AROCLOR 1260	UG/L	< 1												
ARSENIC DISSOLVED	UG/L					< 10	< 10		< 10			< 25	< 25	< 25
ARSENIC TOTAL	UG/L	< 5	< 5	< 5	< 50	< 5	< 5	< 5		< 5				< 5
BARIUM TOTAL	UG/L													< 200
BENZ(A)ANTHRACENE	UG/L	< 10												
BENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1
BENZIDINE	UG/L	< 10												
BENZO(A)PYRENE	UG/L	< 10												
BENZO(B)FLUORANTHENE	UG/L	< 10												
BENZO(G H I)PERYLENE	UG/L	< 10												
BENZO(K)FLUORANTHENE	UG/L	< 10												
BERYLLIUM DISSOLVED	UG/L											< 4	< 4	< 4
BERYLLIUM TOTAL	UG/L	< 5	< 5											< 4
BETA BHC	UG/L	< 0 1												
BIS(2 CHLOROETHOXY)METHANE	UG/L	< 10												
BIS(2 CHLOROETHYL)ETHER	UG/L	< 10												
BIS(2 CHLOROISOPROPYL)ETHER	UG/L	< 10												
BIS(2 ETHYLHEXYL)PHTHALATE	UG/L	< 10												
BROMODICHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1
BROMOFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1
BUTYLBENZYLPHTHALATE	UG/L	< 10												
CADMIUM DISSOLVED	UG/L					< 5	< 5		< 5			< 5	< 5	< 3
CADMIUM TOTAL	UG/L	< 5	< 5	< 5	< 5	< 5	< 5	< 5		< 5				< 5
CARBON TETRACHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1
CHLORDANE	UG/L	< 1												
CHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1
CHLOROFORM	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1
CHROMIUM DISSOLVED	UG/L					< 10	< 10		< 10			< 25	< 25	< 50
CHROMIUM TOTAL	UG/L	< 10	< 10	< 10	< 10	< 10	< 10	< 10		< 10				< 10
CHRYSENE	UG/L	< 10												
CIS-1,3 DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1
COLOR														NONE
COPPER TOTAL	UG/L	< 25												18
CYANIDE, TOTAL	MG/L	< 0 02												

ANALYTE	UNITS	3/13/92	5/13/92	8/19/92	11/5/92	2/9/93	5/3/93	7/28/93	7/29/93	10/27/93	2/2/94	5/2/94	8/4/94	11/2/94
DELTA BHC	UG/L	< 0 05												
DEPTH TO WATER FROM TOP OF CASING	FT													4 13
DI N BUTYLPHTHALATE	UG/L	< 10												
DI N OCTYLPHTHALATE	UG/L	< 10												
DIBENZ[A H]ANTHRACENE	UG/L	< 10												
DIBROMOCHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1
DICHLORODIFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1
DIELDRIN	UG/L	< 0 1												
DIETHYLPHTHALATE	UG/L	< 10												
DIMETHYLPHTHALATE	UG/L	< 10												
ELAPSED HOURS	HRS													0 3
ENDOSULFAN I	UG/L	< 0 05												
ENDOSULFAN II	UG/L	< 0 1												
ENDOSULFAN SULFATE	UG/L	< 0 5												
ENDRIN	UG/L	< 0 1												
ENDRIN ALDEHYDE	UG/L	< 0 1												
ETHYLBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1
FLUORANTHENE	UG/L	< 10												
FLUORENE	UG/L	< 10												
GROUNDWATER ELEV	FT MSL		NA	121 66	119 74	120 02	118 81	118 95		119 28	120 75			119 9
HEPTACHLOR	UG/L	< 0 05												
HEPTACHLOR EPOXIDE	UG/L	< 0 5												
HEXACHLOROBENZENE	UG/L	< 10												
HEXACHLOROBUTADIENE	UG/L	< 10												
HEXACHLOROCYCLOPENTADIENE	UG/L	< 40												
HEXACHLOROETHANE	UG/L	< 10												
INDENO[1 2 3-CD]PYRENE	UG/L	< 10												
IRON DISSOLVED	UG/L					382	390		344					
IRON TOTAL	UG/L		1010	876	777	1190	970	790		1340		413	474	337
ISOPHORONE	UG/L	< 10												
LEAD-DISSOLVED	UG/L					< 5	< 5		< 5			< 5	< 5	< 5
LEAD-TOTAL	UG/L	< 5	< 5	< 25	< 10	< 5	< 5	< 5		< 5				< 5
LINDANE (GAMMA BHC)	UG/L	< 0 1												
MERCURY-DISSOLVED	UG/L					< 0 2	< 0 2		< 0 2					< 1
MERCURY TOTAL	UG/L	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2		< 0 2				
METHYL TERT-BUTYL ETHER	UG/L										< 10	< 10	< 10	< 10
METHYLENE CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1
N NITROSODI-N-PROPYLAMINE	UG/L	< 10												
N NITROSODIMETHYLAMINE	UG/L	< 10												
N-NITROSODIPHENYLAMINE	UG/L	< 10												
NAPHTHALENE	UG/L	< 10												
NICKEL-TOTAL	UG/L	< 40												< 40
NITROBENZENE	UG/L	< 10												
NITROGEN AMMONIA	MG/L		< 0 02	< 0 02	< 0 02	< 0 02	< 0 02	< 0 02		< 0 02				
NITROGEN NITRATE	MG/L		< 0 05	< 0 05	< 0 05	< 0 05	< 0 05	< 0 05		< 0 05				
ODOR														SLIGHT
PENTACHLOROPHENOL	UG/L	< 10												
PH FIELD	H UNITS	5 46	5 56	5 61	5 68	5 76	6 02	5 46	5 3	5 58	5 89	5 56	5 63	5 76
PHENANTHRENE	UG/L	< 10												
PHENOL	UG/L	< 10												
PLUS ANALYTES FOUND		Y												
PURGE DATE (YY/MM/DD)	Y/MM/DD													94 11-02
PURGING DEVICE														C
PURGING EQUIPMENT DEDICATED														Y
PURGING MATERIAL														A
PYRENE	UG/L	< 10												
SAMPLING DEVICE														C
SAMPLING EQUIPMENT DEDICATED														Y
SAMPLING MATERIAL														A
SELENIUM-DISSOLVED	UG/L											< 5	< 25	< 25
SELENIUM TOTAL	UG/L	< 5	< 5											< 5
SILVER TOTAL	UG/L	< 10												< 25
SODIUM DISSOLVED	UG/L					< 5000	< 5000		11500			2790	1610	2320
SODIUM TOTAL	UG/L		3280	2910	3060	3270	2900	6300		3250				
SPECIFIC CONDUCTANCE	MHOS/CM										92 1			
SPECIFIC CONDUCTANCE FIELD	MHOS/C	51	42	48	46	42	36	38	34	100				NA
TETRACHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1
THALLIUM TOTAL	UG/L	< 10												< 2
TOLUENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1
TOTAL ORGANIC CARBON	MG/L		4 6	1 1	1 1	1 2	1 2	1 2		1 3	30	28	26	3
TOXAPHENE	UG/L	< 1												
TRANS 1,2 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1
TRANS-1,3-DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1
TRICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		2	< 1	< 1	< 1	< 1
TUBING-PURGING														G
TUBING SAMPLING														G
TURBIDITY	NTU		70	280	85	120	230	150		160	248	100	72	40
VANADIUM TOTAL	UG/L													< 50
VINYL CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1
WELL DEPTH TOTAL	FT		60 2	60	60	60	60	60		60				60
XYLENE(TOTAL)	UG/L										< 5	< 5	< 5	< 5
ZINC TOTAL	UG/L													< 20

ANALYTE	UNITS	3/13/92	5/13/92	8/19/92	11/5/92	12/17/92	2/9/93	4/28/93	4/29/93	7/29/93	10/27/93	2/2/94	5/2/94	8/4/94	11/2/94
1 1 1 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 2 TETRACHLOROETHANE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
1 2 4 TRICHLOROBENZENE	UG/L	< 10													
1 2 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROPROPANE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
1 2 DIPHENYLHYDRAZINE	UG/L	< 10													
1 3 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 4 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2 4 6-TRICHLOROPHENOL	UG/L	< 10													
2 4 DICHLOROPHENOL	UG/L	< 10													
2 4 DIMETHYLPHENOL	UG/L	< 10													
2 4 DINITROPHENOL	UG/L	< 10													
2 4 DINITROTOLUENE	UG/L	< 10													
2 6 DINITROTOLUENE	UG/L	< 10													
2 CHLOROETHYLVINYL ETHER	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
2 CHLORONAPHTHALENE	UG/L	< 10													
2 CHLOROPHENOL	UG/L	< 10													
2 NITROPHENOL	UG/L	< 10													
3,3 DICHLOROBENZIDINE	UG/L	< 10													
4 4 DDD	UG/L	< 0 1													
4 4 DDE	UG/L	< 0 1													
4 4 DDT	UG/L	< 0 1													
4 6 DINITRO 2 METHYLPHENOL	UG/L	< 10													
4 BROMOPHENYL PHENYL ETHER	UG/L	< 10													
4 CHLORO 3-METHYLPHENOL	UG/L	< 10													
4 CHLOROPHENYL PHENYL ETHER	UG/L	< 10													
4 NITROPHENOL	UG/L	< 10													
ACENAPHTHENE	UG/L	< 10													
ACENAPHTHYLENE	UG/L	< 10													
ACTUAL VOLUME PURGED	ALLONS														28 4
ALDRIN	UG/L	< 0 1													
ALKALINITY, BICARBONATE (AS CACO3)	MG/L		< 10	< 10	< 10		< 10	< 10		< 10	< 10	< 1	< 15	< 15	< 15
ALPHA BHC	UG/L	< 0 1													
AMMONIUM	MG/L											< 0 05	< 0 05	< 0 05	
AMMONIUM NH4	MG/L		< 0 02	0 06	0 07		0 023	0 056		0 16	0 33				
ANTHRACENE	UG/L	< 10													
ANTIMONY DISSOLVED	UG/L												< 3	< 3	< 3
ANTIMONY TOTAL	UG/L	< 50	< 250												< 6
AROCLOR 1016	UG/L	< 1													
AROCLOR 1221	UG/L	< 1													
AROCLOR 1232	UG/L	< 1													
AROCLOR 1242	UG/L	< 1													
AROCLOR 1248	UG/L	< 1													
AROCLOR 1254	UG/L	< 1													
AROCLOR 1260	UG/L	< 1													
ARSENIC DISSOLVED	UG/L												< 25	< 25	< 25
ARSENIC TOTAL	UG/L	< 5	< 5	< 5	< 5		< 5	< 5		< 5	< 5				< 5
BARIUM TOTAL	UG/L														< 200
BENZ[A]ANTHRACENE	UG/L	< 10													
BENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BENZIDINE	UG/L	< 10													
BENZO[A]PYRENE	UG/L	< 10													
BENZO[B]FLUORANTHENE	UG/L	< 10													
BENZO[G H I]PERYLENE	UG/L	< 10													
BENZO[K]FLUORANTHENE	UG/L	< 10													
BERYLLIUM DISSOLVED	UG/L												< 4	< 4	< 4
BERYLLIUM TOTAL	UG/L	< 5	< 25												< 4
BETA BHC	UG/L	< 0 1													
BIS(2-CHLOROETHOXY)METHANE	UG/L	< 10													
BIS(2 CHLOROETHYL)ETHER	UG/L	< 10													
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	< 10													
BIS(2 ETHYLHEXYL)PHTHALATE	UG/L	< 10													
BROMODICHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
BUTYLBENZYLPHTHALATE	UG/L	< 10													
CADMIUM DISSOLVED	UG/L												< 5	< 5	< 3
CADMIUM TOTAL	UG/L	< 5	< 25	< 5	< 5		< 5	< 5		< 5	< 5				< 5
CARBON TETRACHLORIDE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
CHLORDANE	UG/L	< 1													
CHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
CHROMIUM DISSOLVED	UG/L												< 25	< 25	< 50
CHROMIUM TOTAL	UG/L	15	< 50	< 10	< 10		< 10	< 10		< 10	< 10				< 10
CHRYSENE	UG/L	< 10													
CIS 1,3-DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
COLOR															LT TAN TNT
COPPER TOTAL	UG/L	< 25													< 10
CYANIDE, TOTAL	MG/L	< 0 02													

ANALYTE	UNITS	3/13/92	5/13/92	8/19/92	11/5/92	12/17/92	2/9/93	4/28/93	4/29/93	7/29/93	10/27/93	2/2/94	5/2/94	8/4/94	11/2/94
DELTA BHC	UG/L	< 0 05													
DEPTH TO WATER FROM TOP OF CASING	FT														4 2
DI-N BUTYLPHTHALATE	UG/L	< 10													
DI N OCTYLPHTHALATE	UG/L	< 10													
DIBENZ[A,H]ANTHRACENE	UG/L	< 10													
DIBROMOCHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
DICHLORODIFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
DIELDRIN	UG/L	< 0 1													
DIETHYLPHTHALATE	UG/L	< 10													
DIMETHYLPHTHALATE	UG/L	< 10													
ELAPSED HOURS	HRS														0 3
ENDOSULFAN I	UG/L	< 0 05													
ENDOSULFAN II	UG/L	< 0 1													
ENDOSULFAN SULFATE	UG/L	< 0 5													
ENDRIN	UG/L	< 0 1													
ENDRIN ALDEHYDE	UG/L	< 0 1													
ETHYLBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
FLUORANTHENE	UG/L	< 10													
FLUORENE	UG/L	< 10													
GROUNDWATER ELEV	FT MSL		NA	122 49	120 31	119 56	121 39	119 66		120 22	120 52	122 62			121 02
HEPTACHLOR	UG/L	< 0 05													
HEPTACHLOR EPOXIDE	UG/L	< 0 5													
HEXACHLOROBENZENE	UG/L	< 10													
HEXACHLOROBUTADIENE	UG/L	< 10													
HEXACHLOROCYCLOPENTADIENE	UG/L	< 40													
HEXACHLOROETHANE	UG/L	< 10													
INDENO(1 2 3-CD)PYRENE	UG/L	< 10													
IRON TOTAL	UG/L		926	980	946		767	860		640	615		474	684	639
ISOPHORONE	UG/L	< 10													
LEAD-DISSOLVED	UG/L												< 5	6	< 5
LEAD-TOTAL	UG/L	< 5	9 2	< 5	< 5		< 5	< 5		< 5	< 5				< 5
LINDANE (GAMMA BHC)	UG/L	< 0 1													
MERCURY DISSOLVED	UG/L														< 1
MERCURY TOTAL	UG/L	< 0 2	0 37	< 0 2	< 0 2		< 0 2	< 0 2		< 0 2	< 0 2				
METHYL TERT BUTYL ETHER	UG/L											< 10	< 10	< 10	< 10
METHYLENE CHLORIDE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
N NITROSODI-N-PROPYLAMINE	UG/L	< 10													
N NITROSODIMETHYLAMINE	UG/L	< 10													
N NITROSODIPHENYLAMINE	UG/L	< 10													
NAPHTHALENE	UG/L	< 10													
NICKEL TOTAL	UG/L	< 40													< 40
NITROBENZENE	UG/L	< 10													
NITROGEN, AMMONIA	MG/L		< 0 02	0 06	0 07		0 023	0 056		0 16	0 33				
NITROGEN, NITRATE	MG/L		< 0 05	0 11	< 0 05		< 0 05	< 0 05		< 0 05	< 0 05				
ODOR															SLIGHT
PENTACHLOROPHENOL	UG/L	< 10													
PH FIELD	H UNITS	4 35	4 42	4 45	4 77	4 24	4 71	4 44		4 81	5 29	4 99	4 36	4 35	4 13
PHENANTHRENE	UG/L	< 10													
PHENOL	UG/L	< 10													
PLUS ANALYTES FOUND		Y													
PURGE DATE (YY/MM/DD)	Y/MM/DD														94 11 02
PURGING DEVICE															C
PURGING EQUIPMENT DEDICATED															Y
PURGING MATERIAL															A
PYRENE	UG/L	< 10													
SAMPLING DEVICE															C
SAMPLING EQUIPMENT DEDICATED															Y
SAMPLING MATERIAL															A
SELENIUM DISSOLVED	UG/L												< 5	< 25	< 25
SELENIUM TOTAL	UG/L	< 5	5 1												< 5
SILVER TOTAL	UG/L	< 10													< 25
SODIUM DISSOLVED	UG/L												3510	2440	3100
SODIUM TOTAL	UG/L		4620	5030	4290		4810	3740		9190	6650				
SPECIFIC CONDUCTANCE	MHOS/CM											50 6			
SPECIFIC CONDUCTANCE FIELD	MHOS/C	69	62	70	54	44	46	37		50	140				NA
TETRACHLOROETHENE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
THALLIUM TOTAL	UG/L	< 10													< 2
TOLUENE	UG/L	< 1	< 1	3	2	3	2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TOTAL ORGANIC CARBON	MG/L		9 8	14 7	5 5		9 8	8		8 1	8 8	44	41	35	
TOXAPHENE	UG/L	< 1													
TRANS-1 2 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
TRANS 1,3 DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	1	< 1	< 1	< 1	< 1
TUBING-PURGING															G
TUBING-SAMPLING															G
TURBIDITY	NTU		1600	7 6	5 8		26	11		40	55	36	4 3	7 2	6
VANADIUM TOTAL	UG/L														< 50
VINYL CHLORIDE	UG/L	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
WELL DEPTH TOTAL	FT		20 2	18 5	18 5	18 5	18 5	18 5		18 5	18 5				18 5
XYLENE(TOTAL)	UG/L											< 5	< 5	< 5	< 5
ZINC-TOTAL	UG/L														< 20

MWB27D

ANALYTE	UNITS	3/16/92	5/12/92	8/19/92	11/5/92	2/9/93	2/10/93	5/3/93	7/28/93	7/29/93	10/27/93	2/2/94	5/2/94	8/3/94	11/2/94
1,1,1 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
1,1,2 2 TETRACHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
1,1 2 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
1,1 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
1,1 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
1,2,4 TRICHLOROBENZENE	UG/L	< 10													
1 2 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROPROPANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
1,2 DIPHENYLHYDRAZINE	UG/L	< 10													
1 3 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
1 4 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
2 4 6-TRICHLOROPHENOL	UG/L	< 10													
2 4 DICHLOROPHENOL	UG/L	< 10													
2 4 DIMETHYLPHENOL	UG/L	< 10													
2 4 DINITROPHENOL	UG/L	< 10													
2 4 DINITROTOLUENE	UG/L	< 10													
2 6 DINITROTOLUENE	UG/L	< 10													
2 CHLOROETHYLVINYL ETHER	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
2-CHLORONAPHTHALENE	UG/L	< 10													
2 CHLOROPHENOL	UG/L	< 10													
2 NITROPHENOL	UG/L	< 10													
3 3 DICHLOROBENZIDINE	UG/L	< 10													
4 4 DDD	UG/L	< 0 1													
4 4 DDE	UG/L	< 0 1													
4 4 DDT	UG/L	< 0 1													
4 6 DINITRO 2 METHYLPHENOL	UG/L	< 10													
4 BROMOPHENYL PHENYL ETHER	UG/L	< 10													
4-CHLORO-3-METHYLPHENOL	UG/L	< 10													
4-CHLOROPHENYL PHENYL ETHE	UG/L	< 10													
4 NITROPHENOL	UG/L	< 10													
ACENAPHTHENE	UG/L	< 10													
ACENAPHTHYLENE	UG/L	< 10													
ACTUAL VOLUME PURGED	ALLONS														15
ALDRIN	UG/L	< 0 1													
ALKALINITY, BICARBONATE (AS C	MG/L		65	85	81	88		95	93		83	35 2	68 2	65	40
ALPHA BHC	UG/L	< 0 1													
AMMONIUM	MG/L											< 0 05	< 0 05	< 0 05	
AMMONIUM NH4	MG/L		0 021	0 055	0 069	0 044		0 081	0 16		0 035				
ANTHRACENE	UG/L	< 10													
ANTIMONY DISSOLVED	UG/L												< 3	< 3	< 3
ANTIMONY TOTAL	UG/L	< 50	< 50												< 8
AROCLOR 1016	UG/L	< 1													
AROCLOR 1221	UG/L	< 1													
AROCLOR 1232	UG/L	< 1													
AROCLOR 1242	UG/L	< 1													
AROCLOR 1248	UG/L	< 1													
AROCLOR 1254	UG/L	< 1													
AROCLOR 1260	UG/L	< 1													
ARSENIC-DISSOLVED	UG/L						< 10	< 10		< 10			< 25	< 25	< 25
ARSENIC-TOTAL	UG/L	< 5	< 5	< 5	< 5	< 5		< 5	< 14		< 5				< 5
BARIUM TOTAL	UG/L														< 200
BENZ(A)ANTHRACENE	UG/L	< 10													
BENZENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
BENZIDINE	UG/L	< 10													
BENZO(A)PYRENE	UG/L	< 10													
BENZO[B]FLUORANTHENE	UG/L	< 10													
BENZO[G H I]PERYLENE	UG/L	< 10													
BENZO[K]FLUORANTHENE	UG/L	< 10													
BERYLLIUM DISSOLVED	UG/L												< 4	< 4	< 4
BERYLLIUM TOTAL	UG/L	< 5	< 5												< 4
BETA BHC	UG/L	< 0 1													
BIS(2-CHLOROETHOXY)METHANE	UG/L	< 10													
BIS(2-CHLOROETHYL)ETHER	UG/L	< 10													
BIS(2 CHLOROISOPROPYL)ETHER	UG/L	< 10													
BIS(2 ETHYLHEXYL)PHTHALATE	UG/L	< 10													
BROMODICHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
BROMOFORM	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
BUTYLBENZYLPHTHALATE	UG/L	< 10													
CADMIUM DISSOLVED	UG/L						< 5	< 5		< 5			< 5	< 5	< 3
CADMIUM TOTAL	UG/L	< 5	< 5	< 5	< 5	< 5		< 5	< 5		< 5				< 5
CARBON TETRACHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
CHLORDANE	UG/L	< 1													
CHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
CHLOROFORM	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
CHROMIUM DISSOLVED	UG/L						< 10	< 10		< 10			< 25	< 25	< 50
CHROMIUM TOTAL	UG/L	< 10	< 10	< 10	< 10	10		< 10	< 10		< 10				< 10
CHRYSENE	UG/L	< 10													
CIS-1,3-DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
COLOR															NONE
COPPER TOTAL	UG/L	< 25													21 3
CYANIDE, TOTAL	MG/L	< 0 02													

ANALYTE	UNITS	3/16/92	5/12/92	8/19/92	11/5/92	2/9/93	2/10/93	5/3/93	7/28/93	7/29/93	10/27/93	2/2/94	5/2/94	8/3/94	11/2/94
DELTA BHC	UG/L	< 0 05													
DEPTH TO WATER FROM TOP OF	FT														3 7
DI-N BUTYLPHTHALATE	UG/L	< 10													
DI N-OCTYLPHTHALATE	UG/L	< 10													
DIBENZ(A,H)ANTHRACENE	UG/L	< 10													
DIBROMOCHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
DICHLORODIFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
DIELDRIN	UG/L	< 0 1													
DIETHYLPHTHALATE	UG/L	< 10													
DIMETHYLPHTHALATE	UG/L	< 10													
ELAPSED HOURS	HRS														0 3
ENDOSULFAN I	UG/L	< 0 05													
ENDOSULFAN II	UG/L	< 0 1													
ENDOSULFAN SULFATE	UG/L	< 0 5													
ENDRIN	UG/L	< 0 1													
ENDRIN ALDEHYDE	UG/L	< 0 1													
ETHYLBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
FLUORANTHENE	UG/L	< 10													
FLUORENE	UG/L	< 10													
GROUNDWATER ELEV	FT MSL		NA	126 73	125 29	125 43		124 5	124 39		124 68	126 01			125 18
HEPTACHLOR	UG/L	< 0 05													
HEPTACHLOR EPOXIDE	UG/L	< 0 5													
HEXACHLOROBENZENE	UG/L	< 10													
HEXACHLOROBUTADIENE	UG/L	< 10													
HEXACHLOROCYCLOPENTADIENE	UG/L	< 40													
HEXACHLOROETHANE	UG/L	< 10													
INDENO(1 2,3-CD)PYRENE	UG/L	< 10													
IRON DISSOLVED	UG/L						105	194		220					
IRON TOTAL	UG/L		548	1990	1320	2160		2120	2600		2750		1020	920	717
ISOPHORONE	UG/L	< 10													
LEAD DISSOLVED	UG/L						< 5	< 5		< 5			< 5	< 5	< 5
LEAD-TOTAL	UG/L	< 5	< 5	5 7	< 5	6 6		5 3	8 1		< 5				< 5
LINDANE (GAMMA BHC)	UG/L	< 0 1													
MERCURY DISSOLVED	UG/L						< 0 2	< 0 2		< 0 2					< 1
MERCURY TOTAL	UG/L	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2		< 0 2	< 0 2		< 0 2				
METHYL TERT-BUTYL ETHER	UG/L											< 10	< 10	< 10	< 10
METHYLENE CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
N NITROSODI-N PROPYLAMINE	UG/L	< 10													
N NITROSODIMETHYLAMINE	UG/L	< 10													
N-NITROSODIPHENYLAMINE	UG/L	< 10													
NAPHTHALENE	UG/L	< 10													
NICKEL TOTAL	UG/L	< 40													< 40
NITROBENZENE	UG/L	< 10													
NITROGEN, AMMONIA	MG/L		0 021	0 055	0 069	0 044		0 081	0 16		0 035				
NITROGEN, NITRATE	MG/L		< 0 05	< 0 05	< 0 05	< 0 05		< 0 05	< 0 05		< 0 05				
ODOR															NONE
PENTACHLOROPHENOL	UG/L	< 10													
PH FIELD	H UNITS	6 55	6 58	6 35	6 53	6 59		6 56	6 4	6 18	6 64	6 85	6 39	6 46	6 1
PHENANTHRENE	UG/L	< 10													
PHENOL	UG/L	< 10													
PLUS ANALYTES FOUND		Y													
PURGE DATE (YY/MM/DD)	Y/MM/DD														94 11
PURGING DEVICE															C
PURGING EQUIPMENT DEDICATE															Y
PURGING MATERIAL															A
PYRENE	UG/L	< 10													
SAMPLING DEVICE															C
SAMPLING EQUIPMENT DEDICATE															Y
SAMPLING MATERIAL															A
SELENIUM-DISSOLVED	UG/L												< 5	< 25	< 25
SELENIUM TOTAL	UG/L	< 5	< 5												< 5
SILVER TOTAL	UG/L	< 10													< 25
SODIUM DISSOLVED	UG/L						38000	28500		26800			15900	14800	11700
SODIUM TOTAL	UG/L		13700	23200	22000	27000		27700	24200		25800				
SPECIFIC CONDUCTANCE	MHOS/CM											174			
SPECIFIC CONDUCTANCE FIELD	MHOS/C	195	110	211	197	183		177	162	142	180				NA
TETRACHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
THALLIUM TOTAL	UG/L	< 10													< 2
TOLUENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
TOTAL ORGANIC CARBON	MG/L		2 7	2 3	2	2 1		2 2	2		2 1	43	44	40	< 1
TOXAPHENE	UG/L	< 1													
TRANS 1,2 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
TRANS 1,3-DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
TRICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	2		< 1	< 1	< 1	< 1	< 1
TUBING-PURGING															G
TUBING-SAMPLING															G
TURBIDITY	NTU		27	120	80	75		130	200		85	84	100	50	16
VANADIUM TOTAL	UG/L														< 50
VINYL CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
WELL DEPTH TOTAL	FT		109 8	110	110	110		110	110		110				110
XYLENE(TOTAL)	UG/L											< 5	< 5	< 5	< 5
ZINC TOTAL	UG/L														< 20

ANALYTE	UNITS	3/17/92	5/12/92	8/19/92	11/5/92	2/9/93	2/10/93	5/3/93	7/28/93	7/29/93	10/27/93	2/2/94	5/2/94	8/3/94	11/2/94
1,1,1 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
1,1,2 2 TETRACHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
1,1,2 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
1,1 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
1,1 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
1 2 4 TRICHLOROBENZENE	UG/L	< 10													
1,2 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROPROPANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
1,2 DIPHENYLHYDRAZINE	UG/L	< 10													
1 3 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
1,4 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
2 4 6 TRICHLOROPHENOL	UG/L	< 10													
2,4 DICHLOROPHENOL	UG/L	< 10													
2,4 DIMETHYLPHENOL	UG/L	< 10													
2 4 DINITROPHENOL	UG/L	< 10													
2,4 DINITROTOLUENE	UG/L	< 10													
2 6 DINITROTOLUENE	UG/L	< 10													
2-CHLOROETHYLVINYL ETHER	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
2-CHLORONAPHTHALENE	UG/L	< 10													
2 CHLOROPHENOL	UG/L	< 10													
2 NITROPHENOL	UG/L	< 10													
3 3 DICHLOROBENZIDINE	UG/L	< 10													
4 4 DDD	UG/L	< 0 1													
4 4 DDE	UG/L	< 0 1													
4 4 DDT	UG/L	< 0 1													
4 6 DINITRO-2 METHYLPHENOL	UG/L	< 10													
4 BROMOPHENYL PHENYL ETHER	UG/L	< 10													
4 CHLORO-3 METHYLPHENOL	UG/L	< 10													
4 CHLOROPHENYL PHENYL ETHE	UG/L	< 10													
4 NITROPHENOL	UG/L	< 10													
ACENAPHTHENE	UG/L	< 10													
ACENAPHTHYLENE	UG/L	< 10													
ACTUAL VOLUME PURGED	ALLONS														19 2
ALDRIN	UG/L	< 0 1													
ALKALINITY, BICARBONATE (AS C	MG/L		16	16	16	16		17	21		15	< 1	< 15	< 15	< 15
ALPHA BHC	UG/L	< 0 1													
AMMONIUM	MG/L											< 0 05	< 0 05	< 0 05	
AMMONIUM NH4	MG/L		0 058	< 0 02	0 023	0 082		0 044	< 0 02		< 0 02				
ANTHRACENE	UG/L	< 10													
ANTIMONY DISSOLVED	UG/L												< 3	< 3	< 3
ANTIMONY TOTAL	UG/L	< 50	< 50												< 6
AROCLOR 1016	UG/L	< 1													
AROCLOR 1221	UG/L	< 1													
AROCLOR 1232	UG/L	< 1													
AROCLOR 1242	UG/L	< 1													
AROCLOR 1248	UG/L	< 1													
AROCLOR 1254	UG/L	< 1													
AROCLOR 1260	UG/L	< 1													
ARSENIC-DISSOLVED	UG/L						< 10	< 10		< 10			< 25	< 25	< 25
ARSENIC TOTAL	UG/L	< 5	< 5	< 5	< 5	< 5		< 5	< 5		< 5				< 5
BARIUM TOTAL	UG/L														< 200
BENZ(A)ANTHRACENE	UG/L	< 10													
BENZENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
BENZIDINE	UG/L	< 10													
BENZO(A)PYRENE	UG/L	< 10													
BENZO(B)FLUORANTHENE	UG/L	< 10													
BENZO(G,H I)PERYLENE	UG/L	< 10													
BENZO(K)FLUORANTHENE	UG/L	< 10													
BERYLLIUM-DISSOLVED	UG/L												< 4	< 4	< 4
BERYLLIUM TOTAL	UG/L	< 5	< 5												< 4
BETA BHC	UG/L	< 0 1													
BIS(2-CHLOROETHOXY)METHANE	UG/L	< 10													
BIS(2 CHLOROETHYL)ETHER	UG/L	< 10													
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	< 10													
BIS(2 ETHYLHEXYL)PHTHALATE	UG/L	< 10													
BROMODICHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
BROMOFORM	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
BUTYLBENZYLPHTHALATE	UG/L	< 10													
CADMIUM DISSOLVED	UG/L						< 5	< 5		< 5			< 5	< 5	< 3
CADMIUM TOTAL	UG/L	< 5	< 5	< 5	< 5	< 5		< 5	< 5		< 5				< 5
CARBON TETRACHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
CHLORDANE	UG/L	< 1													
CHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
CHLOROFORM	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
CHROMIUM DISSOLVED	UG/L						< 10	< 10		< 10			< 25	< 25	< 50
CHROMIUM TOTAL	UG/L	11 5	< 10	39 8	17 2	23 8		< 10	15		13				< 10
CHRYSENE	UG/L	< 10													
CIS-1,3 DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
COLOR `															NONE
COPPER TOTAL	UG/L	< 25													18 2
CYANIDE, TOTAL	MG/L	< 0 02													

ANALYTE	UNITS	3/17/92	5/12/92	8/19/92	11/5/92	2/9/93	2/10/93	5/3/93	7/28/93	7/29/93	10/27/93	2/2/94	5/2/94	8/3/94	11/2/94
DELTA BHC	UG/L	< 0 05													
DEPTH TO WATER FROM TOP OF	FT														3 29
DI N BUTYLPHTHALATE	UG/L	< 10													
DI-N-OCTYLPHTHALATE	UG/L	< 10													
DIBENZ(A,H)ANTHRACENE	UG/L	< 10													
DIBROMOCHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
DICHLORODIFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
DIELDRIN	UG/L	< 0 1													
DIETHYLPHTHALATE	UG/L	< 10													
DIMETHYLPHTHALATE	UG/L	< 10													
ELAPSED HOURS	HRS														0 2
ENDOSULFAN I	UG/L	< 0 05													
ENDOSULFAN II	UG/L	< 0 1													
ENDOSULFAN SULFATE	UG/L	< 0 5													
ENDRIN	UG/L	< 0 1													
ENDRIN ALDEHYDE	UG/L	< 0 1													
ETHYLBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
FLUORANTHENE	UG/L	< 10													
FLUORENE	UG/L	< 10													
GROUNDWATER ELEV	FT MSL		NA	126 85	125 32	125 52		124 65	124 55		124 83	126 17			125 34
HEPTACHLOR	UG/L	< 0 05													
HEPTACHLOR EPOXIDE	UG/L	< 0 5													
HEXACHLOROBENZENE	UG/L	< 10													
HEXACHLOROBUTADIENE	UG/L	< 10													
HEXACHLOROCYCLOPENTADIENE	UG/L	< 40													
HEXACHLOROETHANE	UG/L	< 10													
INDENO(1,2,3-CD)PYRENE	UG/L	< 10													
IRON-DISSOLVED	UG/L						478	539		433					
IRON TOTAL	UG/L		1370	4410	1890	1830		1050	1120		1360		428	385	444
ISOPHORONE	UG/L	< 10													
LEAD-DISSOLVED	UG/L						< 5	< 5		< 5			< 5	< 5	< 5
LEAD-TOTAL	UG/L	10 6	6 2	24	8 8	7 5		< 5	8 8		< 5				< 5
LINDANE (GAMMA BHC)	UG/L	< 0 1													
MERCURY-DISSOLVED	UG/L						< 0 2	< 0 2		< 0 2					< 1
MERCURY TOTAL	UG/L	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2		< 0 2	< 0 2		< 0 2				
METHYL TERT BUTYL ETHER	UG/L											< 10	< 10	< 10	< 10
METHYLENE CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
N NITROSODI N PROPYLAMINE	UG/L	< 10													
N NITROSODIMETHYLAMINE	UG/L	< 10													
N NITROSODIPHENYLAMINE	UG/L	< 10													
NAPHTHALENE	UG/L	< 10													
NICKEL TOTAL	UG/L	< 40													< 40
NITROBENZENE	UG/L	< 10													
NITROGEN, AMMONIA	MG/L		0 058	< 0 02	0 023	0 082		0 044	< 0 02		< 0 02				
NITROGEN, NITRATE	MG/L		< 0 05	0 1	< 0 05	< 0 05		< 0 05	< 0 05		< 0 05				
ODOR															NONE
PENTACHLOROPHENOL	UG/L	< 10													
PH FIELD	H UNITS	5 68	5 58	5 57	5 71	5 87		6 71	5 55	5 43	6 01	6 04	5 78	5 44	5 71
PHENANTHRENE	UG/L	< 10													
PHENOL	UG/L	< 10													
PLUS ANALYTES FOUND		Y													
PURGE DATE (YY/MM/DD)	Y/MM/DD														94 11-02
PURGING DEVICE															C
PURGING EQUIPMENT DEDICATE															Y
PURGING MATERIAL															A
PYRENE	UG/L	< 10													
SAMPLING DEVICE															C
SAMPLING EQUIPMENT DEDICATE															Y
SAMPLING MATERIAL															A
SELENIUM-DISSOLVED	UG/L												< 5	< 25	< 25
SELENIUM TOTAL	UG/L	< 5	< 5												< 5
SILVER TOTAL	UG/L	< 10													< 25
SODIUM-DISSOLVED	UG/L						< 5000	< 5000		< 5000			3240	3310	3100
SODIUM TOTAL	UG/L		4260	4250	4180	4540		3880	5930		4250				
SPECIFIC CONDUCTANCE	MHOS/CM											58 5			
SPECIFIC CONDUCTANCE FIELD	MHOS/C	68	38	64	63	52		48	43	42	53				NA
TETRACHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
THALLIUM TOTAL	UG/L	< 10													< 2
TOLUENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
TOTAL ORGANIC CARBON	MG/L		2 4	2 8	2 2	2		2	2 4		2	38	38	32	1
TOXAPHENE	UG/L	< 1													
TRANS 1,2 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
TRANS-1,3 DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
TRICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	1		< 1	< 1	< 1	< 1	< 1
TUBING PURGING															G
TUBING-SAMPLING															G
TURBIDITY	NTU		230	2500	1100	600		500	390		290	280	190	124	38
VANADIUM TOTAL	UG/L														< 50
VINYL CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1
WELL DEPTH TOTAL	FT		62 85	62 5	62 5	62 5		62 5	62 5		62 5				62 5
XYLENE(TOTAL)	UG/L											< 5	< 5	< 5	< 5
ZINC TOTAL	UG/L														< 20

ANALYTE	UNITS	3/17/92	5/12/92	8/19/92	11/4/92	12/17/92	2/9/93	2/10/93	4/28/93	4/29/93	7/29/93	10/27/93	2/2/94	5/2/94	8/3/94	11/2/94
1 1 1 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 2 TETRACHLOROETHANE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1
1 2 4 TRICHLOROBENZENE	UG/L	< 10														
1 2 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROPROPANE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1
1 2 DIPHENYLHYDRAZINE	UG/L	< 10														
1 3 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 4 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2 4 6 TRICHLOROPHENOL	UG/L	< 10														
2 4 DICHLOROPHENOL	UG/L	< 10														
2 4 DIMETHYLPHENOL	UG/L	< 10														
2 4 DINITROPHENOL	UG/L	< 10														
2 4 DINITROTOLUENE	UG/L	< 10														
2 6 DINITROTOLUENE	UG/L	< 10														
2 CHLOROETHYLVINYL ETHER	UG/L	< 1	< 1	< 1	< 1		< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1
2-CHLORONAPHTHALENE	UG/L	< 10														
2 CHLOROPHENOL	UG/L	< 10														
2 NITROPHENOL	UG/L	< 10														
3 3 DICHLOROBENZIDINE	UG/L	< 10														
4 4 DDD	UG/L	< 0 1														
4 4 DDE	UG/L	< 0 1														
4 4 DDT	UG/L	< 0 1														
4 6-DINITRO 2 METHYLPHENOL	UG/L	< 10														
4 BROMOPHENYL PHENYL ETHER	UG/L	< 10														
4 CHLORO 3-METHYLPHENOL	UG/L	< 10														
4 CHLOROPHENYL PHENYL ETHER	UG/L	< 10														
4 NITROPHENOL	UG/L	< 10														
ACENAPHTHENE	UG/L	< 10														
ACENAPHTHYLENE	UG/L	< 10														
ACTUAL VOLUME PURGED	ALLONS															17 2
ALDRIN	UG/L	< 0 1														
ALKALINITY BICARBONATE (AS CACO3)	MG/L		< 10	< 10	< 10		< 10		< 10		< 10	< 10	< 1	< 15	< 15	21
ALPHA BHC	UG/L	< 0 1														
AMMONIUM	MG/L												< 0 05	< 0 05	< 0 05	
AMMONIUM NH4	MG/L		< 0 02	< 0 02	0 033		0 064		< 0 02		< 0 02	< 0 02				
ANTHRACENE	UG/L	< 10														
ANTIMONY DISSOLVED	UG/L		< 100											< 3	< 3	< 3
ANTIMONY TOTAL	UG/L	< 250	< 250													< 6
AROCLOR 1016	UG/L	< 1														
AROCLOR 1221	UG/L	< 1														
AROCLOR 1232	UG/L	< 1														
AROCLOR 1242	UG/L	< 1														
AROCLOR 1248	UG/L	< 1														
AROCLOR 1254	UG/L	< 1														
AROCLOR 1260	UG/L	< 1														
ARSENIC DISSOLVED	UG/L							< 10						< 25	< 25	< 25
ARSENIC TOTAL	UG/L	< 25	< 5	< 5	< 5		< 5		< 5		< 5	< 5				< 5
BARIUM TOTAL	UG/L															< 200
BENZ[A]ANTHRACENE	UG/L	< 10														
BENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BENZIDINE	UG/L	< 10														
BENZO[A]PYRENE	UG/L	< 10														
BENZO[B]FLUORANTHENE	UG/L	< 10														
BENZO[G H I]PERYLENE	UG/L	< 10														
BENZO[K]FLUORANTHENE	UG/L	< 10														
BERYLLIUM DISSOLVED	UG/L		< 5											< 4	< 4	< 4
BERYLLIUM TOTAL	UG/L	< 25	< 25													< 4
BETA BHC	UG/L	< 0 1														
BIS(2 CHLOROETHOXY)METHANE	UG/L	< 10														
BIS(2 CHLOROETHYL)ETHER	UG/L	< 10														
BIS(2-CHLOROISOPROPYL)ETHER	UG/L	< 10														
BIS(2 ETHYLHEXYL)PHTHALATE	UG/L	< 10														
BROMODICHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	UG/L	< 1	< 1	< 1	< 1		< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1
BUTYLBENZYLPHTHALATE	UG/L	< 10														
CADMIUM DISSOLVED	UG/L							< 5						< 5	< 5	< 3
CADMIUM TOTAL	UG/L	< 25	< 25	< 5	< 25		< 5		< 5		< 5	< 25				< 5
CARBON TETRACHLORIDE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1
CHLORDANE	UG/L	< 1														
CHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1

ANALYTE	UNITS	3/17/92	5/12/92	8/19/92	11/4/92	12/17/92	2/9/93	2/10/93	4/28/93	4/29/93	7/29/93	10/27/93	2/2/94	5/2/94	8/3/94	11/2/94
CHLOROETHANE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	UG/L	< 1	< 1	< 1	< 1		< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1
CHROMIUM DISSOLVED	UG/L		< 10					< 10						< 25	< 25	< 50
CHROMIUM TOTAL	UG/L	209	138	< 10	< 50		< 10		< 10		16	< 50				< 10
CHRYSENE	UG/L	< 10														
CIS 1 3-DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1
COLOR																BROWN TNT
COPPER TOTAL	UG/L	176														14 4
CYANIDE TOTAL	MG/L	< 0 02														
DELTA BHC	UG/L	< 0 05														
DEPTH TO WATER FROM TOP OF CASING	FT															3 2
DI N BUTYLPHTHALATE	UG/L	< 10														
DI N OCTYLPHTHALATE	UG/L	< 10														
DIBENZ[A H]ANTHRACENE	UG/L	< 10														
DIBROMOCHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1
DICHLORODIFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1
DIELDRIN	UG/L	< 0 1														
DIETHYLPHTHALATE	UG/L	< 10														
DIMETHYLPHTHALATE	UG/L	< 10														
ELAPSED HOURS	HRS															0 3
ENDOSULFAN I	UG/L	< 0 05														
ENDOSULFAN II	UG/L	< 0 1														
ENDOSULFAN SULFATE	UG/L	< 0 5														
ENDRIN	UG/L	< 0 1														
ENDRIN ALDEHYDE	UG/L	< 0 1														
ETHYLBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
FLUORANTHENE	UG/L	< 10														
FLUORENE	UG/L	< 10														
GROUNDWATER ELEV	FT MSL		NA	126 16	124 84	124 62	125 34		124 44		124 27	124 72	125 96			125 22
HEPTACHLOR	UG/L	< 0 05														
HEPTACHLOR EPOXIDE	UG/L	< 0 5														
HEXACHLOROBENZENE	UG/L	< 10														
HEXACHLOROBUTADIENE	UG/L	< 10														
HEXACHLOROCYCLOPENTADIENE	UG/L	< 40														
HEXACHLOROETHANE	UG/L	< 10														
INDENO[1 2 3-CD]PYRENE	UG/L	< 10														
IRON DISSOLVED	UG/L							299								
IRON TOTAL	UG/L		4520	496	< 500		457		511		483	587		335	262	326
ISOPHORONE	UG/L	< 10														
LEAD DISSOLVED	UG/L		< 5					< 5						< 5	< 5	< 5
LEAD-TOTAL	UG/L	111	64 9	5 6	< 5		< 5		< 5		9	< 5				< 5
LINDANE (GAMMA BHC)	UG/L	< 0 1														
MERCURY DISSOLVED	UG/L		< 0 2					< 0 2								< 1
MERCURY TOTAL	UG/L	3 4	< 0 2	0 38	< 0 2		0 49		< 0 2		1 1	0 31				
METHYL TERT BUTYL ETHER	UG/L												< 10	< 10	< 10	< 10
METHYLENE CHLORIDE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1
N NITROSODI-N PROPYLAMINE	UG/L	< 10														
N NITROSODIMETHYLAMINE	UG/L	< 10														
N NITROSODIPHENYLAMINE	UG/L	< 10														
NAPHTHALENE	UG/L	< 10														
NICKEL-TOTAL	UG/L	< 200														< 40
NITROBENZENE	UG/L	< 10														
NITROGEN AMMONIA	MG/L		< 0 02	< 0 02	0 033		0 064		< 0 02		< 0 02	< 0 02				
NITROGEN NITRATE	MG/L		< 0 1	< 0 05	< 0 05		< 0 05		< 0 05		< 0 05	< 0 05				
ODOR																NONE
PENTACHLOROPHENOL	UG/L	< 10														
PH FIELD	H UNITS	4 86	4 94	5 03	5 01	4 75	5 19		4 87		4 87	5 16	5 64	5 27	5 01	5 05
PHENANTHRENE	UG/L	< 10														
PHENOL	UG/L	< 10														
PLUS ANALYTES FOUND		Y														
PURGE DATE (YY/MM/DD)	Y/MM/DD															94-11-02
PURGING DEVICE																C
PURGING EQUIPMENT DEDICATED																Y
PURGING MATERIAL																A
PYRENE	UG/L	< 10														
SAMPLING DEVICE																C
SAMPLING EQUIPMENT DEDICATED																Y
SAMPLING MATERIAL																A
SELENIUM DISSOLVED	UG/L		< 5											< 5	< 25	< 25
SELENIUM TOTAL	UG/L	55	22 6						< 5							< 5
SILVER TOTAL	UG/L	< 50														< 25
SODIUM DISSOLVED	UG/L							< 5000						3120	3180	3020
SODIUM TOTAL	UG/L		4230	3720	3670		3930		3840		7010	4190				
SPECIFIC CONDUCTANCE	MHOS/CM												35 1			

MWB27S

ANALYTE	UNITS	3/17/92	5/12/92	8/19/92	11/4/92	12/17/92	2/9/93	2/10/93	4/28/93	4/29/93	7/29/93	10/27/93	2/2/94	5/2/94	8/3/94	11/2/94
SPECIFIC CONDUCTANCE FIELD	MHOS/C	37	30	38	34	34	30		33		28	29				NA
TETRACHLOROETHENE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1
THALLIUM TOTAL	UG/L	< 10														< 2
TOLUENE	UG/L	< 1	< 1	< 1	2	2	4		1	< 1	1	< 1	< 1	< 1	< 1	< 1
TOTAL ORGANIC CARBON	MG/L		13 6	2 3	2 2		1 9		1 9		2 3	2	38	41	31	8
TOXAPHENE	UG/L	< 1														
TRANS-1 2-DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1 3-DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1
TUBING PURGING																G
TUBING SAMPLING																G
TURBIDITY	NTU		3700	160	50		70		70		120	160	32	28	7 2	13
VANADIUM TOTAL	UG/L															< 50
VINYL CHLORIDE	UG/L	< 1	< 1	< 1	< 1		< 1		< 1		< 1	< 1	< 1	< 1	< 1	< 1
WELL DEPTH TOTAL	FT		18 63	18	18	18	15 5		15 5		15 5	15 5				15 5
XYLENE(TOTAL)	UG/L												< 5	< 5	< 5	< 5
ZINC TOTAL	UG/L															< 20

ANALYTE	UNITS	3/9/92	5/15/92	8/18/92	11/4/92	2/10/93	4/28/93	5/3/93	7/30/93	8/2/93	10/27/93	2/2/94	5/4/94	8/3/94	11/2/94	2/6/95	1/10/96	1/10/96
1 1 1 2 TETRACHLOROETHANE	UG/L																< 1	< 1
1 1 1 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 2 TETRACHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 TRICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 3 TRICHLOROPROPANE	UG/L																< 1	< 1
1 2 4 TRICHLOROBENZENE	UG/L	< 10																
1 2 DIBROMO 3 CHLOROPROPANE	UG/L															< 1	< 0 2	< 0 2
1 2 DIBROMOETHANE	UG/L															< 1		
1 2 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROPROPANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DIPHENYLHYDRAZINE	UG/L	< 10																
1 3 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1			
1 4 DICHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2 4 6-TRICHLOROPHENOL	UG/L	< 10																
2 4 DICHLOROPHENOL	UG/L	< 10																
2 4 DIMETHYLPHENOL	UG/L	< 10																
2 4 DINITROPHENOL	UG/L	< 10																
2 4 DINITROTOLUENE	UG/L	< 10																
2 6-DINITROTOLUENE	UG/L	< 10																
2 BUTANONE	UG/L															< 1		< 1
2 CHLOROETHYLVINYL ETHER	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1			
2 CHLORONAPHTHALENE	UG/L	< 10																
2 CHLOROPHENOL	UG/L	< 10																
2 HEXANONE	UG/L																< 1	< 1
2 NITROPHENOL	UG/L	< 10																
3 3 DICHLOROBENZIDINE	UG/L	< 10																
4 4 DDD	UG/L	< 0 1																
4 4 DDE	UG/L	< 0 1																
4 4 DDT	UG/L	< 0 1																
4 6 DINITRO 2 METHYLPHENOL	UG/L	< 10																
4 BROMOPHENYL PHENYL ETHER	UG/L	< 10																
4 CHLORO 3 METHYLPHENOL	UG/L	< 10																
4 CHLOROPHENYL PHENYL ETHER	UG/L	< 10																
4 METHYL 2 PENTANONE	UG/L																< 1	< 1
4 NITROPHENOL	UG/L	< 10																
ACENAPHTHENE	UG/L	< 10																
ACENAPHTHYLENE	UG/L	< 10																
ACETONE	UG/L																< 1	< 1
ACRYLONITRILE	UG/L															< 1	< 1	< 1
ACTUAL VOLUME PURGED	ALLONS														15			
ALDRIN	UG/L	< 0 1																
ALKALINITY BICARBONATE (AS CACO3)	MG/L		187	170	189	180		185	190		188	171	177	176	177			
ALPHA BHC	UG/L	< 0 1																
AMMONIUM	MG/L											< 0 05	< 0 05	< 0 05				
AMMONIUM NH4	MG/L		0 37	0 13	0 087	0 11		0 15	< 0 02		0 062							
ANTHRACENE	UG/L	< 10																
ANTIMONY DISSOLVED	UG/L		< 100										< 3	< 3	< 3	< 3	< 3	< 3
ANTIMONY TOTAL	UG/L	53	< 50				< 60								< 6			
AROCLOR 1016	UG/L	< 1																
AROCLOR 1221	UG/L	< 1																
AROCLOR 1232	UG/L	< 1																
AROCLOR 1242	UG/L	< 1																
AROCLOR 1248	UG/L	< 1																
AROCLOR 1254	UG/L	< 1																
AROCLOR 1260	UG/L	< 1																
ARSENIC DISSOLVED	UG/L												< 25	< 25	< 25	< 25	< 25	< 25
ARSENIC TOTAL	UG/L	< 5	< 5	< 5	< 5	< 5		< 5	< 5		< 5				< 5			
BARIUM DISSOLVED	UG/L															113	< 100	< 100
BARIUM TOTAL	UG/L														< 200			
BENZ[A]ANTHRACENE	UG/L	< 10																
BENZENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BENZIDINE	UG/L	< 10																
BENZO[A]PYRENE	UG/L	< 10																
BENZO[B]FLUORANTHENE	UG/L	< 10																
BENZO[G H I]PERYLENE	UG/L	< 10																
BENZO[K]FLUORANTHENE	UG/L	< 10																
BERYLLIUM DISSOLVED	UG/L		< 5										< 4	< 4	< 4	< 4	< 4	< 4
BERYLLIUM TOTAL	UG/L	< 5	< 5												< 4			
BETA BHC	UG/L	< 0 1																
BIS(2 CHLOROETHOXY)METHANE	UG/L	< 10																
BIS(2 CHLOROETHYL)ETHER	UG/L	< 10																
BIS(2 CHLOROISOPROPYL)ETHER	UG/L	< 10																
BIS(2 ETHYLHEXYL)PHTHALATE	UG/L	< 10																
BROMOCHLOROMETHANE	UG/L																< 1	< 1

MWB31D

ANALYTE	UNITS	3/9/92	6/15/92	8/18/92	11/4/92	2/10/93	4/28/93	5/3/93	7/30/93	8/2/93	10/27/93	2/2/94	5/4/94	8/3/94	11/2/94	2/6/95	1/10/96	1/10/96
BROMODICHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BUTYLBENZYLPHTHALATE	UG/L	< 10																
CADMIUM DISSOLVED	UG/L												< 5	< 5	< 3	< 3	< 3	< 3
CADMIUM TOTAL	UG/L	< 5	< 5	< 5	< 5	< 5		< 5	< 5		< 5				< 5			
CARBON DISULFIDE	UG/L																< 1	< 1
CARBON TETRACHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLORDANE	UG/L	< 1																
CHLORIDE	MG/L															7 11	5 63	8 48
CHLOROBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHROMIUM DISSOLVED	UG/L		< 10										< 25	< 25	< 50	< 50	< 50	< 50
CHROMIUM TOTAL	UG/L	< 10	< 10	< 10	< 10	< 10		< 10	< 10		< 10				< 10			
CHRYSENE	UG/L	< 10																
CIS-1 2 DICHLOROETHENE	UG/L																< 1	< 1
CIS 1 3-DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
COBALT TOTAL	UG/L															< 25	< 25	< 25
COLOR															NONE	< 5	< 5	< 5
COPPER DISSOLVED	UG/L															< 50	< 50	< 50
COPPER TOTAL	UG/L	< 25													< 10			
CYANIDE TOTAL	MG/L	< 0 02																
DELTA BHC	UG/L	< 0 05																
DEPTH TO WATER FROM TOP OF CASING	FT														14 48			
DI N BUTYLPHTHALATE	UG/L	< 10																
DI N OCTYLPHTHALATE	UG/L	< 10																
DIBENZ[A H]ANTHRACENE	UG/L	< 10																
DIBROMOCHLOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1		< 1	< 1
DIBROMOMETHANE	UG/L																< 1	< 1
DICHLORODIFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1			
DIELDRIN	UG/L	< 0 1																
DIETHYLPHTHALATE	UG/L	< 10																
DIMETHYLPHTHALATE	UG/L	< 10																
ELAPSED HOURS	HRS														0 3			
ENDOSULFAN I	UG/L	< 0 05																
ENDOSULFAN II	UG/L	< 0 1																
ENDOSULFAN SULFATE	UG/L	< 0 5																
ENDRIN	UG/L	< 0 1																
ENDRIN ALDEHYDE	UG/L	< 0 1																
ETHYLBENZENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
FLUORANTHENE	UG/L	< 10																
FLUORENE	UG/L	< 10																
GROUNDWATER ELEV	FT MSL		NA	142 82	141 55	141 78		140 61	139 59		140 6	142 38			141 67			
HEPTACHLOR	UG/L	< 0 05																
HEPTACHLOR EPOXIDE	UG/L	< 0 5																
HEXACHLOROBENZENE	UG/L	< 10																
HEXACHLOROBUTADIENE	UG/L	< 10																
HEXACHLOROCYCLOPENTADIENE	UG/L	< 40																
HEXACHLOROETHANE	UG/L	< 10																
INDENO[1 2 3 CD]PYRENE	UG/L	< 10																
IODOMETHANE	UG/L																< 1	< 1
IRON TOTAL	UG/L		311	1550	780	408		761	454		404		386	270	219	169	199	196
ISOPHORONE	UG/L	< 10																
LEAD-DISSOLVED	UG/L		< 5										< 5	< 5	< 5	< 5	5	9
LEAD-TOTAL	UG/L	< 5	< 5	< 5	< 5	< 5		< 5	< 5		< 5				< 5			
LINDANE (GAMMA BHC)	UG/L	< 0 1																
MERCURY DISSOLVED	UG/L		< 0 2												< 1	< 1	< 1	< 1
MERCURY TOTAL	UG/L	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2		< 0 2	< 0 2		< 0 2							
METHYL TERT BUTYL ETHER	UG/L											< 10	< 10	< 10	< 10			
METHYLENE CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1		< 1	< 1
N NITROSODI N PROPYLAMINE	UG/L	< 10																
N NITROSODIMETHYLAMINE	UG/L	< 10																
N NITROSODIPHENYLAMINE	UG/L	< 10																
NAPHTHALENE	UG/L	< 10																
NICKEL DISSOLVED	UG/L															< 10	< 50	< 50
NICKEL TOTAL	UG/L	< 40													< 40			
NITROBENZENE	UG/L	< 10																
NITROGEN AMMONIA	MG/L		0 37	0 13	0 087	0 11		0 15	0 12		0 062					< 0 1	< 0 05	0 438
NITROGEN NITRATE	MG/L		< 0 05	< 0 05	< 0 05	< 0 05		< 0 05	< 0 05		< 0 05					< 0 05	< 0 05	0 073
ODOR															NONE			< 1
PENTACHLOROPHENOL	UG/L	< 10																
PH FIELD	H UNITS	7 57	8	7 06	7 07	7 24		6 22	6 7	NA	6 76	6 8	6 95	7 03	6 93	7 07	7 02	7 04
PHENANTHRENE	UG/L	< 10																
PHENOL	UG/L	< 10																
PLUS ANALYTES FOUND		Y																

ANALYTE	UNITS	3/9/92	5/15/92	8/18/92	11/4/92	2/10/93	4/28/93	5/3/93	7/30/93	8/2/93	10/27/93	2/2/94	5/4/94	8/3/94	11/2/94	2/6/95	1/10/96	1/10/96
PURGE DATE (YY/MM/DD)	Y/MM/DD														94 11 02			
PURGING DEVICE															C			
PURGING EQUIPMENT DEDICATED															Y			
PURGING MATERIAL															A			
PYRENE	UG/L	< 10																
SAMPLING DEVICE															C			
SAMPLING EQUIPMENT DEDICATED															Y			
SAMPLING MATERIAL															A			
SELENIUM DISSOLVED	UG/L		< 5										< 5	< 25	< 25	< 25	< 25	< 25
SELENIUM TOTAL	UG/L	< 5	< 5												< 5			
SILVER DISSOLVED	UG/L															< 25	< 25	< 25
SILVER TOTAL	UG/L	< 10													< 25			
SODIUM DISSOLVED	UG/L												7320	6340	6420	6930	7020	7020
SODIUM TOTAL	UG/L		17300	12800	10300	9740		7550	7790		8940							
SPECIFIC CONDUCTANCE	MHOS/CM											380						
SPECIFIC CONDUCTANCE FIELD	MHOS/C	360	360	362	404	513		314	342	NA	352				NA	333	384	356
STYRENE	UG/L															< 1	< 1	< 1
TETRACHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
THALLIUM DISSOLVED	UG/L															< 1	< 1	< 1
THALLIUM TOTAL	UG/L	< 10													< 2			
TOLUENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TOTAL ORGANIC CARBON	MG/L		3	2 1	2	2 1		2 1	1 9		2	65	65	57	3			
TOXAPHENE	UG/L	< 1																
TRANS 1 2 DICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS 1 3 DICHLOROPROPENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS 1 4 DICHLORO-2 BUTENE	UG/L																< 1	< 1
TRICHLOROETHENE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TUBING PURGING															G			
TUBING SAMPLING															G			
TURBIDITY	NTU		13	70	22	7 5		30	13		12	15	10	10	0 7	7 6	5 1	6 2
VANADIUM DISSOLVED	UG/L															< 25	< 25	< 25
VANADIUM TOTAL	UG/L														< 50			
VINYL ACETATE	UG/L															< 1	< 1	< 1
VINYL CHLORIDE	UG/L	< 1	< 1	< 1	< 1	< 1		< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
WELL DEPTH TOTAL	FT		132	129	129	129		129	129 6		129				129			
XYLENE(TOTAL)	UG/L											< 5	< 5	< 5	< 5	< 1	< 1	< 1
ZINC DISSOLVED	UG/L															< 50	< 50	< 50
ZINC TOTAL	UG/L														< 20			

Attachment C

Surface Water Analytical Data
(from EML Data Download)

SW01

ANALYTE	UNITS	3/12/92	3/30/92	4/3/92	5/18/92	8/18/92	11/2/92	2/11/93	4/29/93	8/2/93	9/29/93	10/27/93	2/3/94	5/5/94	5/6/94	8/5/94	11/3/94	2/8/95	4/26/95	10/27/95	1/12/96
1 1,1,2 TETRACHLOROETHANE	UG/L																			< 1	< 1
1 1 1 TRICHLOROETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
1,1 2 2 TETRACHLOROETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 TRICHLOROETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
1,1 DICHLOROETHENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
1,2,3 TRICHLOROPROPANE	UG/L																			< 1	< 1
1 2 DIBROMO-3 CHLOROPROPANE	UG/L																	< 1	< 1	< 0 2	< 0 2
1 2 DIBROMOETHANE	UG/L																	< 1	< 1	< 0 02	< 0 02
1 2 DICHLOROBENZENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROPROPANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
1 3 DICHLOROBENZENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1		< 1	< 1				
1 4 DICHLOROBENZENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
2 BUTANONE	UG/L																	< 1	< 1	< 1	< 1
2-CHLOROETHYLVINYL ETHER	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1		< 1	< 1				
2 HEXANONE	UG/L																			< 1	< 1
4 METHYL 2 PENTANONE	UG/L																			< 1	< 1
ACETONE	UG/L																			< 1	< 1
ACRYLONITRILE	UG/L																	< 1	< 1	< 1	< 1
ALKALINITY (AS CACO3)	MG/L	< 10		< 10	< 10	< 10	< 10	11	< 10	< 10		11	7 94		< 15	< 15	< 15				
ALKALINITY, BICARBONATE (AS CACO3)	MG/L	< 10		< 10	< 10	< 10	< 10	< 10	69	< 10		< 10	7 94		< 15	< 15	< 15				
AMMONIUM	MG/L												< 0 05		< 0 05	< 0 05	< 0 05	< 0 05	< 0 05		
AMMONIUM NH4	MG/L	0 078			< 0 02	< 0 02	< 0 02	< 0 02	< 0 02	< 0 02		< 0 02									
ANTIMONY DISSOLVED	UG/L																	< 3	< 3	< 3	< 3
ARSENIC DISSOLVED	UG/L												< 25		< 25	< 25	< 25	< 25	< 25	< 25	< 25
ARSENIC TOTAL	UG/L	< 5			< 5	< 5	< 5	< 5	< 5	< 5		< 5									
BARIUM DISSOLVED	UG/L																	< 100	< 100	< 100	< 100
BENZENE	UG/L																	< 1	< 1	< 1	< 1
BERYLLIUM DISSOLVED	UG/L																	< 4	< 4	< 4	< 4
BIOCHEMICAL OXYGEN DEMAND	MG/L	2			< 2	< 2	< 2	< 2	3 8	< 2		< 2	< 1		2 5				< 2	4 8	2 3
BROMOCHLOROMETHANE	UG/L																			< 1	< 1
BROMODICHLOROMETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
CADMIUM DISSOLVED	UG/L												< 5		< 5	< 5	< 3	< 3	< 3	< 3	< 3
CADMIUM TOTAL	UG/L	< 5			< 5	< 5	< 5	< 5	< 5	< 5		< 5									
CALCIUM DISSOLVED/HARD	MG/L	< 5			< 9	24 4	13 9	< 5	< 5		< 5	< 5									
CARBON DISULFIDE	UG/L																			< 1	< 1
CARBON TETRACHLORIDE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
CHEMICAL OXYGEN DEMAND	MG/L		65		32	25	24	41	37	49		48	53		61 2	47 3	76 2	41 4	44 4	41 4	28 9
CHLORIDE	MG/L	8 5			7 9	5 5	7 6	8 9	7 8	9		11	7 28		11 4	13 8	10 5				
CHLOROBENZENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
CHLOROPHYLL A	UG/L																	1 3	2 1	3 2	2 1
CHROMIUM DISSOLVED	UG/L												< 25		< 25	< 25	< 50	< 50	< 50	< 50	< 50
CHROMIUM TOTAL	UG/L	< 10			< 10	< 10	< 10	< 10	< 10	< 10		< 10									
CIS 1 2 DICHLOROETHENE	UG/L																			< 1	< 1
CIS-1,3-DICHLOROPROPENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
COBALT TOTAL	UG/L																	< 25	< 25	< 25	< 25
COLIFORM FECAL	OL /100ML																	278	145	318	110
COLOR			NA	NA	NA	CLEAR	CLEAR	ELLO/BR	ROWN/TI	T YELLOW		L TAN						15	125	150	125
COPPER DISSOLVED	UG/L												< 50		< 50	< 50	< 50		< 50	< 50	< 50
COPPER TOTAL	UG/L	< 25			< 25	< 25	< 25	< 25	< 25	< 25		< 25									
DIBROMOCHLOROMETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1		< 1	< 1			< 1	< 1
DIBROMOMETHANE	UG/L																			< 1	< 1
DICHLORODIFLUOROMETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1		< 1	< 1				
ESTIMATE FLOW RATE	ALLONS		NA	NA	NA	NA	NA	ODERAT	0 1	NA		1 43									
ETHYLBENZENE	UG/L																	< 1	< 1	< 1	< 1
FLUORIDE	MG/L	< 0 05			< 0 05	0 055	< 0 05	< 0 05	< 0 05		< 0 05	< 0 05	0 22		< 0 1	< 0 1	< 0 1				
GROUNDWATER ELEV	FT MSL		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA									
HARDNESS, TOTAL AS CACO3	GCACO3/	< 5			5 9	69 6	37 6	9 2	6 1		5 7	6 5	23		20	56	9 87	50	80	< 10	
IODOMETHANE	UG/L																			< 1	< 1
IRON TOTAL	UG/L	687			306	974	6410	344	776	498		512	311		414	1600	329	141	345	546	189
LEAD-DISSOLVED	UG/L												< 25		< 5	< 5	< 5	< 5	< 5	< 5	< 5
LEAD-TOTAL	UG/L	< 5			< 5	< 5	< 5	< 5	< 5	< 5		< 5									
MAGNESIUM DISSOLVED/HARD	MG/L	< 5			< 8 6	< 5	< 5	< 5	< 5		< 5	< 5									
MERCURY DISSOLVED	UG/L												< 1				< 1	< 1	< 1	< 1	< 1
MERCURY TOTAL	UG/L	< 0 2			< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2		< 0 2									
METHYLENE CHLORIDE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1		< 1	< 1			< 1	< 1
NICKEL-DISSOLVED	UG/L																	< 10	< 10	< 50	< 50
NITROGEN, AMMONIA	MG/L	0 078			< 0 02	< 0 02	< 0 02	< 0 02	< 0 02	< 0 02		< 0 02	< 0 05		< 0 05	< 0 05	< 0 05				
NITROGEN, NITRATE	MG/L	< 0 05			< 0 05	0 054	< 0 05	< 0 05	< 0 05	< 0 05		< 0 05						< 0 05	< 0 05	< 0 05	< 0 05
NITROGEN, NITRATE/NITRITE	MG/L												0 063		0 088	0 113	< 0 05				
NITROGEN, NITRITE	MG/L	< 0 05			< 0 05	< 0 05	< 0 05	< 0 05	< 0 05	< 0 05		< 0 05									
NITROGEN, TOTAL KJELDAHL	MG/L		0 8		0 4	0 3	0 6	0 4	< 0 2	0 9		0 6	0 466		0 307	< 0 05	0 329				
ODOR			NA	NA	NA	NONE	NONE	NONE	LT/ODOR	NA		NONE	< 1		2	< 1	< 1				
ORTHOPHOSPHATE	MG/L	< 0 05			< 0 05	< 0 05	< 0 05	< 0 05	< 0 05	< 0 05		< 0 05									
PH	H UNITS	4 18			4 52	3 86	3 84	4 3	4 35	4 12		4 16									
PH FIELD	H UNITS		4 16	4 28	4 62	3 9	3 84	4 8	4 45	3 95	4 97	4 52	7		4 25	4 12	5 16	6 31	5 34	5 01	7 39
PHOSPHATE, ORTHO AS PO4	MG/L												0 075	< 0 05		0 114	< 0 05				
PHOSPHOROUS, TOTAL	MG/L	< 0 2			< 0 2	< 0 2	< 0 2	< 0 2	< 0 2		< 0 2	< 0 2	< 0 2		< 0 2	0 227	< 0 2	< 0 2	< 0 2	0 398	< 0 05
SAMPLE DEPTH	FT		*0 5*	*NA*	*NA*	*NA*	*0 4*	*0 2*	*NA*	*NA*		NA									

SW01

ANALYTE	UNITS	3/12/92	3/30/92	4/3/92	5/18/92	8/18/92	11/2/92	2/11/93	4/29/93	8/2/93	9/29/93	10/27/93	2/3/94	5/5/94	5/6/94	8/5/94	11/3/94	2/6/95	4/26/95	10/27/95	1/12/96
SELENIUM DISSOLVED	UG/L																	< 25	< 25	< 25	< 25
SILVER DISSOLVED	UG/L																	< 25	< 25	< 25	< 25
SODIUM DISSOLVED	UG/L												4850		4610	3640	2990				
SODIUM TOTAL	UG/L	4470			3780	12700	4080	4750	3840	5610		5060									
SOLIDS, TOTAL SUSPENDED	MG/L	< 5			< 5	< 5	13	< 5	78	< 5		7 5	2		< 1	13	< 1	< 1	2	< 1	< 1
SOLIDS, TOTAL VOLATILE	MG/L	53			22	43	8	17	100	45		44									
SPECIFIC CONDUCTANCE	MHOS/C	55 7			39 8	302	207	65 8	59	81		71 9	92			60	40				
SPECIFIC CONDUCTANCE FIELD	MHOS/CM		56	59	45	297	199	67	61	79	51	56						85	49	517	53
STYRENE	UG/L																	< 1	< 1	< 1	< 1
SULFATE	MG/L	1 6			1 2	119	60	6 5	5 3	10 7		3 8	< 1		7 79	< 1	< 1				
TETRACHLOROETHENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
THALLIUM DISSOLVED	UG/L																	< 1	< 1	< 1	< 1
TOLUENE	UG/L																	< 1	< 1	< 1	< 1
TOTAL ORGANIC CARBON	MG/L	18			11 5	8	8 9	14 3	11 7	18 7		19 5	23			32	15	14	15	27	9
TOTAL VOLATILE SOLIDS	MG/L												1 5		1	< 1	< 1				
TRANS 1,2 DICHLOROETHENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
TRANS 1,3 DICHLOROPROPENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
TRANS 1,4 DICHLORO 2 BUTENE	UG/L																			< 1	< 1
TRICHLOROETHENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	1		< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
TURBIDITY			NA	NA	NA	ERY SLO	4 31	NONE	NONE	NA		NONE	3 7		3	1 2	1 4	4 1	1	2 6	3 5
VANADIUM DISSOLVED	UG/L																	< 25	< 25	< 25	< 25
VINYL ACETATE	UG/L																	< 1	< 1	< 1	< 1
VINYL CHLORIDE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1
WELL DEPTH TOTAL	FT		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA									
XYLENE(TOTAL)	UG/L																	< 1	< 1	< 1	< 1
ZINC DISSOLVED	UG/L												54		< 50	< 50	< 50	< 50	< 50	< 50	< 50
ZINC TOTAL	UG/L	< 20			< 20	< 20	< 20	< 20	< 20	< 20		< 20									

ANALYTE	UNITS	3/12/92	3/30/92	4/3/92	5/18/92	8/17/92	11/2/92	2/11/93	4/29/93	8/2/93	9/29/93	10/27/93	2/3/94	5/5/94	8/5/94	11/3/94	2/6/95	4/26/95	10/27/95	1/12/96
1 1 1 2 TETRACHLOROETHANE	UG/L																		< 1	< 1
1 1 1 TRICHLOROETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 2 TETRACHLOROETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 TRICHLOROETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 3 TRICHLOROPROPANE	UG/L																		< 1	< 1
1 2 DIBROMO 3 CHLOROPROPANE	UG/L																< 1	< 1	< 0 2	< 0 2
1 2 DIBROMOETHANE	UG/L																< 1	< 1	< 0 02	< 0 02
1 2 DICHLOROBENZENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROPROPANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 3 DICHLOROBENZENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1				
1 4 DICHLOROBENZENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2 BUTANONE	UG/L																< 1	< 1	< 1	< 1
2 CHLOROETHYLVINYL ETHER	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1				
2 HEXANONE	UG/L																		< 1	< 1
4 METHYL 2 PENTANONE	UG/L																		< 1	< 1
ACETONE	UG/L																		< 1	< 1
ACRYLONITRILE	UG/L																< 1	< 1	< 1	< 1
ALKALINITY (AS CACO3)	MG/L	< 10		< 10	< 10	< 10	< 10	< 10	11	< 10		< 10	< 1	< 15	< 15	< 15				
ALKALINITY BICARBONATE (AS CACO3)	MG/L	< 10		< 10	< 10	< 10	< 10	< 10	< 10	< 10		< 10	< 1	< 15	< 15	< 15				
AMMONIUM	MG/L												< 0 05	< 0 05	< 0 05	< 0 05	< 0 05	< 0 05		
AMMONIUM NH4	MG/L	< 0 02			0 03	0 048	< 0 02	< 0 02	< 0 02	< 0 02		< 0 02								
ANTIMONY DISSOLVED	UG/L																< 3	< 3	< 3	< 3
ARSENIC DISSOLVED	UG/L												< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25
ARSENIC TOTAL	UG/L	< 5			< 5	< 25	< 5	< 5	< 5	< 5		< 5								
BARIUM DISSOLVED	UG/L																< 100	< 100	< 100	< 100
BENZENE	UG/L																< 1	< 1	< 1	< 1
BERYLLIUM DISSOLVED	UG/L																< 4	< 4	< 4	< 4
BIOCHEMICAL OXYGEN DEMAND	MG/L	< 2			< 2	< 2	< 2	< 2	< 2	< 2		< 2	1 5	1 6	6 4			< 2	2 2	< 2
BROMOCHLOROMETHANE	UG/L																		< 1	< 1
BROMODICHLOROMETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CADMIUM DISSOLVED	UG/L												< 5	< 5	< 5	< 3	< 3	< 3	< 3	< 3
CADMIUM TOTAL	UG/L	< 5			< 5	< 5	< 5	< 5	< 5	< 5		< 5								
CALCIUM DISSOLVED/HARD	MG/L	< 5			< 9	< 5	< 5	< 5	< 5		< 5	< 5								
CARBON DISULFIDE	UG/L																		< 1	< 1
CARBON TETRACHLORIDE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHEMICAL OXYGEN DEMAND	MG/L	38			39	66	66	36	35	55		48	55 8	89 9	50 2	104	44 4	35 3	47 3	32 1
CHLORIDE	MG/L	6 4			7 1	5	5 9	7 6	6 6	6 8		8 6	6 86	9 93	10 8	10 6				
CHLOROBENZENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROPHYLL A	UG/L																2 1	2 1	3 2	1 1
CHROMIUM DISSOLVED	UG/L												< 25	< 25	< 25	< 50	< 50	< 50	< 50	< 50
CHROMIUM TOTAL	UG/L	< 10			< 10	< 10	< 10	< 10	< 10	< 10		< 10								
CIS 1 2 DICHLOROETHENE	UG/L																		< 1	< 1
CIS 1 3 DICHLOROPROPENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
COBALT TOTAL	UG/L																< 25	< 25	< 25	< 25
COLIFORM FECAL	OL /100ML																220		284	300
COLOR			NA	ROWN	NA	ELLOWIS	ERY/LT/B	OWN TI	H/BRN/TI	L TINT		L TAN					15	125	125	125
COPPER DISSOLVED	UG/L												< 50	< 50	< 50	< 50		< 50	< 50	< 50
COPPER TOTAL	UG/L	< 25			< 25	< 25	< 25	< 25	< 25	< 25		< 25								
DIBROMOCHLOROMETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1			< 1	< 1
DIBROMOMETHANE	UG/L																		< 1	< 1
DICHLORODIFLUOROMETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1				
ESTIMATE FLOW RATE	ALLONS		NA	NA	NA	3	NA	NA	0 5	NA		0 4167								
ETHYLBENZENE	UG/L																< 1	< 1	< 1	< 1
FLUORIDE	MG/L	< 0 05			< 0 05	< 0 05	< 0 05	< 0 05	< 0 05		< 0 05	< 0 05	0 25	< 0 1	< 0 1	< 0 1				
GROUNDWATER ELEV	FT MSL		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA								
HARDNESS, TOTAL AS CACO3	GCACO3/	< 5			< 5	< 5	< 5	< 5	< 5		5 1	< 5	12	12	40	4 83	58	158		
IODOMETHANE	UG/L																		< 1	< 1
IRON TOTAL	UG/L	197			215	470	332	202	223	208		179	237	147	249	308	139	398	461	342
LEAD DISSOLVED	UG/L												< 25	< 5	< 5	< 5	< 5	< 5	< 5	5
LEAD TOTAL	UG/L	< 5			< 5	< 5	< 5	< 5	< 5	< 5		< 5								
MAGNESIUM DISSOLVED/HARD	MG/L	< 5			< 8 6	< 5	< 5	< 5	< 5		< 5	< 5								
MERCURY DISSOLVED	UG/L												< 1			< 1	< 1	< 1	< 1	< 1
MERCURY TOTAL	UG/L	< 0 2			< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2		< 0 2								
METHYLENE CHLORIDE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1			< 1	< 1
NICKEL DISSOLVED	UG/L																< 10	< 10	< 50	< 50
NITROGEN AMMONIA	MG/L	< 0 02			0 03	0 048	< 0 02	< 0 02	< 0 02	< 0 02		< 0 02	< 0 05	< 0 05	< 0 05	< 0 05				
NITROGEN NITRATE	MG/L	< 0 05			< 0 05	< 0 05	< 0 05	< 0 05	< 0 05	< 0 05		< 0 05					0 064	< 0 05	< 0 05	< 0 05
NITROGEN NITRATE/NITRITE	MG/L												0 059	0 144	0 131	0 091				
NITROGEN, NITRITE	MG/L	< 0 05			< 0 05	< 0 05	< 0 05	< 0 05	< 0 05	< 0 05		< 0 05								
NITROGEN TOTAL KJELDAHL	MG/L	0 3			0 5	0 6	0 5	0 7	0 4	0 7		1 5	< 0 05	0 466	< 0 05	0 117				
ODOR			NA	NA	NA	NONE	NONE	NONE	NONE	NA		NONE	< 1	< 1	< 1	< 1				
ORTHOPHOSPHATE	MG/L	< 0 05			< 0 05	< 0 05	< 0 05	< 0 05	< 0 05	< 0 05		< 0 05								
PH	H UNITS	3 9			3 94	3 93	4 05	3 98	4 09	3 76		3 79								
PH FIELD	H UNITS		3 51	3 88	3 95	4 1	4 06	4 68	4 62	3 57	3 7	3 8	6 81	4 01	4 53	4 05	4 09	4 32	4 5	5 61
PHOSPHATE, ORTHO AS PO4	MG/L												0 065	< 0 05	0 083	< 0 05				
PHOSPHOROUS, TOTAL	MG/L	< 0 2			< 0 2	< 0 2	< 0 2	< 0 2	< 0 2		< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	0 331	< 0 05

SW02

ANALYTE	UNITS	3/12/92	3/30/92	4/3/92	6/18/92	8/17/92	11/2/92	2/11/93	4/29/93	8/2/93	9/29/93	10/27/93	2/3/94	5/5/94	8/5/94	11/3/94	2/6/95	4/26/95	10/27/95	1/12/96
SAMPLE DEPTH	FT		NA	NA	NA	NA	0 3	5	NA	NA		NA								
SELENIUM DISSOLVED	UG/L																< 25	< 25	< 25	< 25
SILVER DISSOLVED	UG/L																< 25	< 25	< 25	< 25
SODIUM DISSOLVED	UG/L												3250	3930	3770	3050				
SODIUM TOTAL	UG/L	3940			3510	2760	2500	3820	3530	4960		4560								
SOLIDS TOTAL SUSPENDED	MG/L	< 5			7	< 5	< 5	< 5	9	< 5		10	< 1	< 1	< 1	< 1	4 8	8	10	< 1
SOLIDS TOTAL VOLATILE	MG/L	46			31	36	19	9 5	12	56		47								
SPECIFIC CONDUCTANCE	MHOS/C	69 3			63 6	67 2	54 9	71 6	57 3	106		109	51		60	55				
SPECIFIC CONDUCTANCE FIELD	MHOS/CM		58	72	70	70	49	71	55	95	75	100					70	63	620	47
STYRENE	UG/L																< 1	< 1	< 1	< 1
SULFATE	MG/L	3 1			3	1 6	1 5	4 9	3 7	11 6		8 1	< 1	8 91	< 1	< 1				
TETRACHLOROETHENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
THALLIUM DISSOLVED	UG/L																< 1	< 1	< 1	< 1
TOLUENE	UG/L																< 1	< 1	< 1	< 1
TOTAL ORGANIC CARBON	MG/L	16			14 2	22 2	12 3	13 2	10 4	20 6		18 3	26		19	19	10	12	12	10
TOTAL VOLATILE SOLIDS	MG/L												< 1	1000	< 1	< 1				
TRANS 1 2 DICHLOROETHENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS 1,3 DICHLOROPROPENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS 1 4 DICHLORO 2 BUTENE	UG/L																		< 1	< 1
TRICHLOROETHENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TURBIDITY			NA	NA	NA	2 28	14 34	EY SH TR	RY/SH/T	NA		NA	2 4	4 8	2	5 7	4 6	2 8	6 2	2 8
VANADIUM DISSOLVED	UG/L																< 25	< 25	< 25	< 25
VINYL ACETATE	UG/L																< 1	< 1	< 1	< 1
VINYL CHLORIDE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
WELL DEPTH TOTAL	FT		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA								
XYLENE(TOTAL)	UG/L																< 1	< 1	< 1	< 1
ZINC DISSOLVED	UG/L												< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
ZINC TOTAL	UG/L	< 20			< 20	< 20	< 20	< 20	< 20	< 20		< 20								

ANALYTE	UNITS	3/12/92	3/30/92	4/3/92	6/18/92	8/17/92	11/2/92	2/11/93	4/29/93	8/2/93	9/29/93	10/27/93	2/3/94	5/5/94	8/5/94	11/3/94	2/6/95	4/26/95	10/27/95	1/12/96
1 1 1 2 TETRACHLOROETHANE	UG/L																		< 1	< 1
1 1,1 TRICHLOROETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 2 TETRACHLOROETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 2 TRICHLOROETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 1 DICHLOROETHENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 3 TRICHLOROPROPANE	UG/L																		< 1	< 1
1 2 DIBROMO-3 CHLOROPROPANE	UG/L																< 1	< 1	< 0 2	< 0 2
1 2 DIBROMOETHANE	UG/L																< 1	< 1	< 0 02	< 0 02
1 2 DICHLOROBENZENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 2 DICHLOROPROPANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1 3 DICHLOROBENZENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1				
1 4 DICHLOROBENZENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2 BUTANONE	UG/L																< 1	< 1	< 1	< 1
2 CHLOROETHYLVINYL ETHER	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1				
2 HEXANONE	UG/L																		< 1	< 1
4 METHYL 2 PENTANONE	UG/L																		< 1	< 1
ACETONE	UG/L																		< 1	< 1
ACRYLONITRILE	UG/L																< 1	< 1	< 1	< 1
ALKALINITY (AS CACO3)	MG/L	< 10		< 10	< 10	< 10	< 10	< 10	< 10	26		35	9 05	< 15	< 15	79				
ALKALINITY, BICARBONATE (AS CACO3)	MG/L	< 10		< 10	< 10	< 10	< 10	< 10	< 10	40		33	9 05	< 15	< 15	79				
AMMONIUM	MG/L												< 0 05	< 0 05	< 0 05	< 0 05	< 0 05	< 0 05		
AMMONIUM NH4	MG/L	0 044			< 0 02	< 0 02	< 0 02	< 0 02	0 066	< 0 02		< 0 02								
ANTIMONY DISSOLVED	UG/L																< 3	< 3	< 3	< 3
ARSENIC DISSOLVED	UG/L												< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25
ARSENIC TOTAL	UG/L	< 5			< 5	< 25	< 5	< 5	< 5	< 5		< 5								
BARIUM DISSOLVED	UG/L																< 100	< 100	< 100	< 100
BENZENE	UG/L																< 1	< 1	< 1	< 1
BERYLLIUM DISSOLVED	UG/L																< 4	< 4	< 4	< 4
BIOCHEMICAL OXYGEN DEMAND	MG/L	< 2			< 2	< 2	< 2	< 2	< 2	< 2		< 2	1 9	4 3	3 3	3 1		2 7	2 5	2 4
BROMOCHLOROMETHANE	UG/L																		< 1	< 1
BROMODICHLOROMETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CADMIUM DISSOLVED	UG/L												< 5	< 5	< 5	< 3	< 3	< 3	< 3	< 3
CADMIUM TOTAL	UG/L	< 5			< 5	< 5	< 5	< 5	< 5	< 5		< 5								
CALCIUM DISSOLVED/HARD	MG/L	< 5			< 9	< 5	< 5	15 6	11 9		30	19 6								
CARBON DISULFIDE	UG/L																		< 1	< 1
CARBON TETRACHLORIDE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHEMICAL OXYGEN DEMAND	MG/L	27			35	47	61	28	25	25		39	38 4	71 3	44 4	108	63 8	41 4	28 9	35 3
CHLORIDE	MG/L	7 8			9 8	6 6	8	7 1	7 4	6 5		8 1	8 19	14 5	11 2	10 6				
CHLOROBENZENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROFORM	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROPHYLL A	UG/L																< 1	1 1	7 5	12 8
CHROMIUM DISSOLVED	UG/L												< 25	< 25	< 25	< 50	< 50	< 50	< 50	< 50
CHROMIUM TOTAL	UG/L	18 2			< 10	< 10	< 10	< 10	< 10	32 7		< 10								
CIS-1 2 DICHLOROETHENE	UG/L																		< 1	< 1
CIS 1 3 DICHLOROPROPENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
COBALT TOTAL	UG/L																< 25	< 25	< 25	< 25
COLIFORM FECAL	OL/100ML																106	156		296
COLOR			NA	NA	NA	ELLOWIS	IGHT/BR	ELL0 TIN	T BRN/TI	T YELLOW		NONE					20	150	75	100
COPPER DISSOLVED	UG/L												< 50	< 50	< 50	< 50		< 50	< 50	< 50
COPPER TOTAL	UG/L	< 25			< 25	< 25	< 25	< 25	< 25	< 25		< 25								
DIBROMOCHLOROMETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1			< 1	< 1
DIBROMOMETHANE	UG/L																		< 1	< 1
DICHLORODIFLUOROMETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1				
ESTIMATE FLOW RATE	ALLONS		NA	NA	NA	3	NA	ODERAT	0 15	NA		3 5								
ETHYLBENZENE	UG/L																< 1	< 1	< 1	< 1
FLUORIDE	MG/L	< 0 05			< 0 05	< 0 05	< 0 05	< 0 05	< 0 05		< 0 05	< 0 05	0 23	< 0 1	< 0 1	< 0 1				
GROUNDWATER ELEV	FT MSL		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA								
HARDNESS TOTAL AS CACO3	GCACO3/	< 5			7 6	6 7	< 5	43 9	34 2		81 5	54 3	36	26	31	93	44	24 6	65 9	92 3
IODOMETHANE	UG/L																		< 1	< 1
IRON TOTAL	UG/L	359			1140	1020	5080	389	573	274		386	318	917	419	170	198	910	1250	322
LEAD DISSOLVED	UG/L												< 25	< 5	< 5	< 5	< 5	< 5	< 5	< 5
LEAD TOTAL	UG/L	< 5			< 5	< 5	< 5	< 5	< 5	< 5		< 5								
MAGNESIUM DISSOLVED/HARD	MG/L	< 5			< 8 6	< 5	< 5	< 5	< 5		< 5	< 5								
MERCURY DISSOLVED	UG/L												< 1			< 1	< 1	< 1	< 1	< 1
MERCURY TOTAL	UG/L	< 0 2			< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0.2		< 0 2								
METHYLENE CHLORIDE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1			< 1	< 1
NICKEL DISSOLVED	UG/L																< 10	< 10	< 50	< 50
NITROGEN AMMONIA	MG/L	0 044			< 0 02	< 0 02	< 0 02	< 0 02	0 066	< 0 02		< 0 02	< 0 05	< 0 05	< 0 05	< 0 05				
NITROGEN NITRATE	MG/L	< 0 05			< 0 05	< 0 05	< 0 05	0 065	< 0 05	< 0 05		< 0 05					< 0 05	< 0 05	< 0 05	< 0 05
NITROGEN NITRATE/NITRITE	MG/L												0 09	0 226	0 115	< 0 05				
NITROGEN NITRITE	MG/L	< 0 05			< 0 05	< 0 05	< 0 05	< 0 05	< 0 05	< 0 05		< 0 05								
NITROGEN, TOTAL KJELDAHL	MG/L	0 3			0 6	0 6	0 8	0 5	0 3	0 5		0 9	< 0 05	0 418	< 0 05	0 387				
ODOR			NA	NA	NA	NONE	NONE	NONE	LT/ODOR	NA		NONE	< 1	< 1	< 1	< 1				
ORTHOPHOSPHATE	MG/L	< 0 05			< 0 05	< 0 05	< 0 05	< 0 05	< 0 05	< 0 05		< 0 05								
PH	H UNITS	4 17			4 21	4 16	4 2	4 7	5 95	7 09		6 91								
PH FIELD	H UNITS		4 16	4 25	4 23	4 22	4 23	5 06	6 49	6 61	6 07	6 36	8 72	4 63	6 69	6 97	6 59	6 47	6 43	6 65
PHOSPHATE ORTHO AS PO4	MG/L												0 073	< 0 05	0 1	< 0 05				
PHOSPHOROUS TOTAL	MG/L	< 0 2			< 0 2	< 0 2	< 0.2	< 0 2	< 0 2		< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	< 0 2	0 062	< 0 05

SW03

ANALYTE	UNITS	3/12/92	3/30/92	4/3/92	5/18/92	8/17/92	11/2/92	2/11/93	4/29/93	8/2/93	9/29/93	10/27/93	2/3/94	5/5/94	8/5/94	11/3/94	2/6/95	4/26/95	10/27/95	1/12/96
SAMPLE DEPTH	FT		NA	NA	NA	NA	0 3	4	NA	NA		NA								
SELENIUM DISSOLVED	UG/L																< 25	< 25	< 25	< 25
SILVER DISSOLVED	UG/L																< 25	< 25	< 25	< 25
SODIUM DISSOLVED	UG/L												3760	5370	4010	5070				
SODIUM TOTAL	UG/L	4050			3890	2650	2730	4610	4360	4230		4780								
SOLIDS TOTAL SUSPENDED	MG/L	< 5			11	5 7	21	< 5	10	< 5		12	< 1	< 1	< 1	< 1	4	47	12	5 5
SOLIDS TOTAL VOLATILE	MG/L	45			28	17	40	< 5	36	38		42								
SPECIFIC CONDUCTANCE	MHOS/C	50 1			51 5	50 9	50 8	168	118	177		129	59 9		65	180				
SPECIFIC CONDUCTANCE FIELD	MHOS/CM		52	55	70	50	52	92	102	141	128	121					95	68	192	158
STYRENE	UG/L																< 1	< 1	< 1	< 1
SULFATE	MG/L	2 3			0 5	0 59	0 97	53 2	31 6	32 4		13	1 1	10	< 1	< 1				
TETRACHLOROETHENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
THALLIUM DISSOLVED	UG/L																< 1	< 1	< 1	< 1
TOLUENE	UG/L																< 1	< 1	< 1	< 1
TOTAL ORGANIC CARBON	MG/L	13 2			12 3	14 6	20 9	10 8	8 1	9 7		12 3	18		23	9	14	15	17	6
TOTAL VOLATILE SOLIDS	MG/L												< 1	1000	< 1	< 1				
TRANS 1 2 DICHLOROETHENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS 1 3-DICHLOROPROPENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1 4 DICHLORO 2 BUTENE	UG/L																		< 1	< 1
TRICHLOROETHENE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TURBIDITY			NA	NA	NA	2 96	5 87	NONE	NONE	NA		NONE	24	2 6	3 6	7 7	2 8	5 7	6 1	10
VANADIUM DISSOLVED	UG/L																< 25	< 25	< 25	< 25
VINYL ACETATE	UG/L																< 1	< 1	< 1	< 1
VINYL CHLORIDE	UG/L	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1		< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
WELL DEPTH TOTAL	FT		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA								
XYLENE(TOTAL)	UG/L																< 1	< 1	< 1	< 1
ZINC DISSOLVED	UG/L												< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
ZINC TOTAL	UG/L	< 20			< 20	< 20	< 20	< 20	< 20	< 20		< 20								

Attachment D

Leachate Analytical Data
(from EML Data Download)

WELL NAME	ANALYTE	UNITS	2/6/95	7/24/95	10/26/95	1/11/96	7/18/96	MAX
LCS01	1 1 1 2-TETRACHLOROETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS01	1,1,1 TRICHLOROETHANE	UG/L	< 5 0	< 1 0		1 9	2 3	2 3
LCS01	1 1 2 2 TETRACHLOROETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS01	1 1 2 TRICHLOROETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS01	1 1-DICHLOROETHANE	UG/L	14 6	< 5 0		6 9	29 6	29 6
LCS01	1 1-DICHLOROETHENE	UG/L	< 1	< 1		< 1	< 1	0
LCS01	1 2 3-TRICHLOROPROPANE	UG/L	< 1	< 1		< 1	< 1	0
LCS01	1 2 DIBROMO-3-CHLOROPROPANE	UG/L	< 0 2	< 0 2		< 0 2	< 0 2	0
LCS01	1 2 DIBROMOETHANE	UG/L	< 0 02	< 0 02		< 0 02	< 0 02	0
LCS01	1 2 DICHLOROBENZENE	UG/L	< 1	< 1		< 1	< 1	0
LCS01	1 2-DICHLOROETHANE	UG/L	< 1	< 1		< 1	3 4	3 4
LCS01	1 2-DICHLOROPROPANE	UG/L	< 1	< 1		< 1	< 1	0
LCS01	1 4-DICHLOROBENZENE	UG/L	< 5 0	4 5		11 4	4 9	11 4
LCS01	2 BUTANONE	UG/L	< 5 0	< 1 0		79	684	684
LCS01	2 HEXANONE	UG/L	26 4	15 9		110	36 1	110
LCS01	4-METHYL 2 PENTANONE	UG/L	< 5 0	< 1 0		4 4	18 6	18 6
LCS01	ACETONE	UG/L	< 5 0	< 1 0		102	638	638
LCS01	ACRYLONITRILE	UG/L	< 1	< 1		< 1	< 1	0
LCS01	ALKALINITY BICARBONATE (AS CACO3)	MG/L	1137	4640		2380	1100	4640
LCS01	ANTIMONY-DISSOLVED	UG/L	< 3	< 3		< 3	< 3	0
LCS01	ARSENIC-DISSOLVED	UG/L	< 25	< 25		< 25	< 25	0
LCS01	BARIUM-DISSOLVED	UG/L	< 100	< 100		< 100	< 100	0
LCS01	BENZENE	UG/L	< 5 0	1 7		3 5	5 0	5
LCS01	BERYLLIUM-DISSOLVED	UG/L	< 4	< 4		< 4	< 4	0
LCS01	BROMOCHLOROMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS01	BROMODICHLOROMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS01	BROMOFORM	UG/L	< 1	< 1		< 1	< 1	0
LCS01	BROMOMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS01	CADMIUM-DISSOLVED	UG/L	5	< 3		< 3	4	5
LCS01	CARBON DISULFIDE	UG/L	< 1	< 1		< 1	< 1	0
LCS01	CARBON TETRACHLORIDE	UG/L	< 1	< 1		< 1	< 1	0
LCS01	CHLORIDE	MG/L	373	1140		1120	420	1140
LCS01	CHLOROBENZENE	UG/L	< 1	< 1		< 1	< 1	0
LCS01	CHLOROETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS01	CHLOROFORM	UG/L	< 1	< 1		< 1	< 1	0
LCS01	CHLOROMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS01	CHROMIUM-DISSOLVED	UG/L	< 50	< 50		< 50	< 50	0
LCS01	CIS-1,2 DICHLOROETHENE	UG/L	5 6	< 1 0		1 5	15 3	15 3
LCS01	CIS-1 3-DICHLOROPROPENE	UG/L	< 1	< 1		< 1	< 1	0
LCS01	COBALT TOTAL	UG/L	50	< 0 025		117	100	117
LCS01	COPPER-DISSOLVED	UG/L	< 50	< 50		< 50	< 50	0
LCS01	DIBROMOCHLOROMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS01	DIBROMOMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS01	ETHYLBENZENE	UG/L	75 3	28 4		84 4	90 0	90
LCS01	IODOMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS01	IRON-TOTAL	UG/L	38100	51500		47700	64100	64100
LCS01	LEAD-DISSOLVED	UG/L	60	< 0 005		11	< 5	60
LCS01	MERCURY-DISSOLVED	UG/L	< 1	< 1		< 1	< 1	0
LCS01	METHYLENE CHLORIDE	UG/L	7 7	< 1 0		25 8	< 1 0	25 8
LCS01	NICKEL-DISSOLVED	UG/L	35	56		59	< 50	59
LCS01	NITROGEN AMMONIA	MG/L	194	620		340	169	620
LCS01	NITROGEN NITRATE	MG/L	< 0 05	0 25		< 0 05	0 055	0 25
LCS01	ODOR	TON				4	4	4
LCS01	PH FIELD	PH UNITS	6 8	7 3		7 1	6 65	7 3
LCS01	SELENIUM-DISSOLVED	UG/L	< 25	< 25		< 25	< 25	0
LCS01	SILVER-DISSOLVED	UG/L	< 25	< 25		< 25	< 25	0
LCS01	SODIUM-DISSOLVED	UG/L	305000	894000		538000	274000	894000
LCS01	SPECIFIC CONDUCTANCE FIELD	UMHOS/CM	3050	7440		6010	2820	7440
LCS01	STYRENE	UG/L	< 5 0	< 1 0		2 2	1 3	2.2
LCS01	TETRACHLOROETHENE	UG/L	< 1	< 1		< 1	< 1	0
LCS01	THALLIUM-DISSOLVED	UG/L	< 1	1		< 1	< 1	1
LCS01	TOLUENE	UG/L	166	13 7		33 4	150	166
LCS01	TRANS-1 2 DICHLOROETHENE	UG/L	< 1	< 1		< 1	< 1	0
LCS01	TRANS-1 3-DICHLOROPROPENE	UG/L	< 1	< 1		< 1	< 1	0
LCS01	TRANS-1 4-DICHLORO-2 BUTENE	UG/L	< 1	< 1		< 1	< 1	0
LCS01	TRICHLOROETHENE	UG/L	< 1	< 1		< 1	< 1	0
LCS01	TRICHLOROFLUOROMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS01	VANADIUM-DISSOLVED	UG/L	< 25	< 25		< 25	< 25	0
LCS01	VINYL ACETATE	UG/L	< 1	< 1		< 1	< 1	0
LCS01	VINYL CHLORIDE	UG/L	6 5	1 3		< 1	< 1	6 5
LCS01	XYLENE(TOTAL)	UG/L	182	8 6		208	293	293
LCS01	ZINC-DISSOLVED	UG/L	< 50	148		< 50	< 50	148
LCS02	1 1 1 2-TETRACHLOROETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS02	1 1 1-TRICHLOROETHANE	UG/L	< 5 0	< 1 0		1 4	2 3	2 3
LCS02	1 1 2 2-TETRACHLOROETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS02	1 1 2 TRICHLOROETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS02	1 1 DICHLOROETHANE	UG/L	14 6	2 7		4 6	34 7	34 7
LCS02	1 1 DICHLOROETHENE	UG/L	< 1	< 1		< 1	< 1	0
LCS02	1 2 3-TRICHLOROPROPANE	UG/L	< 1	< 1		< 1	< 1	0
LCS02	1 2 DIBROMO 3-CHLOROPROPANE	UG/L	< 0 2	< 0 2		< 0 2	< 0 2	0
LCS02	1 2 DIBROMOETHANE	UG/L	< 0 02	< 0 02		< 0 02	< 0 02	0
LCS02	1 2 DICHLOROBENZENE	UG/L	< 1	< 1		< 1	< 1	0
LCS02	1 2 DICHLOROETHANE	UG/L	< 1	< 1		< 1	3 3	3 3
LCS02	1 2 DICHLOROPROPANE	UG/L	< 1	4 1		< 1	< 1	4 1
LCS02	1 4-DICHLOROBENZENE	UG/L	8 4	4 1		8 2	2 9	8 4
LCS02	2 BUTANONE	UG/L	< 5 0	< 1 0		62 8	1250	1250
LCS02	2 HEXANONE	UG/L	46 2	31 9		91 9	28 5	91 9
LCS02	4-METHYL 2 PENTANONE	UG/L	< 5 0	< 1 0		3 2	20 9	20 9
LCS02	ACETONE	UG/L	< 5 0	< 1 0		69 6	1150	1150
LCS02	ACRYLONITRILE	UG/L	< 1	< 1		< 1	< 1	0
LCS02	ALKALINITY BICARBONATE (AS CACO3)	MG/L	4240	1570		2490	727	4240
LCS02	ANTIMONY DISSOLVED	UG/L	< 3	< 3		< 3	< 3	0
LCS02	ARSENIC-DISSOLVED	UG/L	< 25	< 25		< 25	< 25	0
LCS02	BARIUM-DISSOLVED	UG/L	< 100	< 100		< 100	< 100	0
LCS02	BENZENE	UG/L	6 8	3 1		2 2	5 3	6 8
LCS02	BERYLLIUM-DISSOLVED	UG/L	< 4	< 4		< 4	< 4	0
LCS02	BROMOCHLOROMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS02	BROMODICHLOROMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS02	BROMOFORM	UG/L	< 1	< 1		< 1	< 1	0
LCS02	BROMOMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS02	CADMIUM DISSOLVED	UG/L	9	5		< 3	4	9

WELL NAME	ANALYTE	UNITS	2/6/95	7/24/95	10/26/95	1/11/96	7/18/96	MAX
LCS02	CARBON DISULFIDE	UG/L	< 1	< 1		< 1	< 1	0
LCS02	CARBON TETRACHLORIDE	UG/L	< 1	< 1		< 1	< 1	0
LCS02	CHLORIDE	MG/L	1140	815		917	294	1140
LCS02	CHLOROBENZENE	UG/L	< 1	< 1		< 1	< 1	0
LCS02	CHLOROETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS02	CHLOROFORM	UG/L	< 1	< 1		< 1	< 1	0
LCS02	CHLOROMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS02	CHROMIUM-DISSOLVED	UG/L	< 50	< 50		< 50	< 50	0
LCS02	CIS-1 2 DICHLOROETHENE	UG/L	< 5 0	< 1 0		1	19 8	19 8
LCS02	CIS-1 3-DICHLOROPROPENE	UG/L	< 1	< 1		< 1	< 1	0
LCS02	COBALT TOTAL	UG/L	50	< 0 025		109	100	109
LCS02	COPPER-DISSOLVED	UG/L	< 50	< 50		< 50	< 50	0
LCS02	DIBROMOCHLOROMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS02	DIBROMOMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS02	ETHYLBENZENE	UG/L	99 7	49 3		70 2	83 7	99 7
LCS02	IODOMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS02	IRON-TOTAL	UG/L	55500	37500		39200	62400	62400
LCS02	LEAD-DISSOLVED	UG/L	9	< 0 005		10	< 5	10
LCS02	MERCURY-DISSOLVED	UG/L	< 1	< 1		< 1	< 1	0
LCS02	METHYLENE CHLORIDE	UG/L	6 7	< 1 0		15 8	2 5	15 8
LCS02	NICKEL-DISSOLVED	UG/L	117	< 0 05		64	< 50	117
LCS02	NITROGEN AMMONIA	MG/L	596	293		400	139	596
LCS02	NITROGEN NITRATE	MG/L	0 06	0 054		< 0 05	0 085	0 085
LCS02	ODOR	TON				4	4	4
LCS02	PH FIELD	PH UNITS	7 15	7 12		7 11	6 57	7 15
LCS02	SELENIUM-DISSOLVED	UG/L	< 25	< 25		< 25	< 25	0
LCS02	SILVER DISSOLVED	UG/L	< 25	< 25		< 25	< 25	0
LCS02	SODIUM-DISSOLVED	UG/L	897000	433000		681000	227	897000
LCS02	SPECIFIC CONDUCTANCE FIELD	UMHOS/CM	7870	4270		6680	2470	7870
LCS02	STYRENE	UG/L	< 5 0	< 1 0		1 3	1 3	1 3
LCS02	TETRACHLOROETHENE	UG/L	< 1	< 1		< 1	< 1	0
LCS02	THALLIUM-DISSOLVED	UG/L	2	< 1		< 1	< 1	2
LCS02	TOLUENE	UG/L	45 5	24 0		28 3	164	164
LCS02	TRANS-1 2 DICHLOROETHENE	UG/L	< 1	< 1		< 1	< 1	0
LCS02	TRANS-1 3-DICHLOROPROPENE	UG/L	< 1	< 1		< 1	< 1	0
LCS02	TRANS-1 4-DICHLORO-2 BUTENE	UG/L	< 1	< 1		< 1	< 1	0
LCS02	TRICHLOROETHENE	UG/L	< 1	< 1		< 1	1 9	1 9
LCS02	TRICHLOROFLUOROMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS02	VANADIUM-DISSOLVED	UG/L	< 25	< 25		< 25	< 25	0
LCS02	VINYL ACETATE	UG/L	< 1	< 1		< 1	< 1	0
LCS02	VINYL CHLORIDE	UG/L	< 1	2 3		< 1	< 1	2 3
LCS02	XYLENE(TOTAL)	UG/L	280	138		206	250	280
LCS02	ZINC-DISSOLVED	UG/L	< 50	< 50		< 50	< 50	0
LCS03	1 1 1 2 TETRACHLOROETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS03	1 1 1-TRICHLOROETHANE	UG/L	< 1	< 1		< 1	2 6	2 6
LCS03	1 1 2 2 TETRACHLOROETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS03	1 1 2-TRICHLOROETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS03	1 1-DICHLOROETHANE	UG/L	12	2 6		4 6	48 7	48 7
LCS03	1 1 DICHLOROETHENE	UG/L	< 1	< 1		< 1	< 1	0
LCS03	1 2 3-TRICHLOROPROPANE	UG/L	< 1	< 1		< 1	< 1	0
LCS03	1 2 DIBROMO-3-CHLOROPROPANE	UG/L	< 0.2	< 0 2		< 0 2	< 0 2	0
LCS03	1 2-DIBROMOETHANE	UG/L	< 0 02	< 0 02		< 0 02	< 0 02	0
LCS03	1,2 DICHLOROBENZENE	UG/L	< 1	< 1		< 1	< 1	0
LCS03	1 2-DICHLOROETHANE	UG/L	< 1	< 1		< 1	2 6	2 6
LCS03	1 2-DICHLOROPROPANE	UG/L	< 1	< 1		< 1	< 1	0
LCS03	1 4-DICHLOROBENZENE	UG/L	9 5	5 4		9	6 4	9 5
LCS03	2 BUTANONE	UG/L	< 5 0	< 1 0		48 7	1020	1020
LCS03	2 HEXANONE	UG/L	38 1	39 5		104	50 9	104
LCS03	4-METHYL-2 PENTANONE	UG/L	< 5 0	< 1 0		2 7	13 8	13 8
LCS03	ACETONE	UG/L	< 5 0	< 1 0		56 2	598	598
LCS03	ACRYLONITRILE	UG/L	< 1	< 1		< 1	< 1	0
LCS03	ALKALINITY BICARBONATE (AS CACO3)	MG/L	3190	3360		2080	1040	3360
LCS03	ANTIMONY-DISSOLVED	UG/L	< 3	< 3		< 3	< 3	0
LCS03	ARSENIC-DISSOLVED	UG/L	< 25	< 25		< 25	< 25	0
LCS03	BARIUM-DISSOLVED	UG/L	< 100	< 100		< 100	< 100	0
LCS03	BENZENE	UG/L	5 8	2 5		2 6	8 3	8 3
LCS03	BERYLLIUM-DISSOLVED	UG/L	< 4	< 4		< 4	< 4	0
LCS03	BROMOCHLOROMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS03	BROMODICHLOROMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS03	BROMOFORM	UG/L	< 1	< 1		< 1	< 1	0
LCS03	BROMOMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS03	CADMIUM-DISSOLVED	UG/L	30	3		< 3	3	30
LCS03	CARBON DISULFIDE	UG/L	< 1	< 1		< 1	< 1	0
LCS03	CARBON TETRACHLORIDE	UG/L	< 1	< 1		< 1	< 1	0
LCS03	CHLORIDE	MG/L	1010	1230		834	478	1230
LCS03	CHLOROBENZENE	UG/L	< 1	< 1		< 1	< 1	0
LCS03	CHLOROETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS03	CHLOROFORM	UG/L	< 1	< 1		< 1	< 1	0
LCS03	CHLOROMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS03	CHROMIUM-DISSOLVED	UG/L	< 50	< 50		< 50	< 50	0
LCS03	CIS-1 2 DICHLOROETHENE	UG/L	< 5 0	< 1 0		1	15 1	15 1
LCS03	CIS-1 3-DICHLOROPROPENE	UG/L	< 1	< 1		< 1	< 1	0
LCS03	COBALT TOTAL	UG/L	50	< 0 025		129	100	129
LCS03	COPPER DISSOLVED	UG/L	< 50	< 50		< 50	< 50	0
LCS03	DIBROMOCHLOROMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS03	DIBROMOMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS03	ETHYLBENZENE	UG/L	88	52 9		73	129	129
LCS03	IODOMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS03	IRON-TOTAL	UG/L	34800	34200		50200	71000	71000
LCS03	LEAD-DISSOLVED	UG/L	6	< 0 005		8	< 5	8
LCS03	MERCURY DISSOLVED	UG/L	< 1	< 1		< 1	< 1	0
LCS03	METHYLENE CHLORIDE	UG/L	< 5 0	< 1 0		13	5 1	13
LCS03	NICKEL DISSOLVED	UG/L	< 50	< 50		< 50	< 50	0
LCS03	NITROGEN AMMONIA	MG/L	373	400		313	297	400
LCS03	NITROGEN NITRATE	MG/L	0 055	< 0 05		< 0 05	0 105	0 105
LCS03	ODOR	TON				8	8	8
LCS03	PH FIELD	PH UNITS	7 17	7 19		7 04	6 84	7 19
LCS03	SELENIUM DISSOLVED	UG/L	< 25	< 25		< 25	< 25	0
LCS03	SILVER DISSOLVED	UG/L	< 25	< 25		< 25	< 25	0
LCS03	SODIUM-DISSOLVED	UG/L	580000	602000		553000	34000	602000
LCS03	SPECIFIC CONDUCTANCE FIELD	UMHOS/CM	655	5560		4930	4690	5560

WELL NAME	ANALYTE	UNITS	2/8/95	7/24/95	10/26/95	1/11/96	7/18/96	MAX
LCS03	STYRENE	UG/L	< 1	< 1		< 1	1 6	1 6
LCS03	TETRACHLOROETHENE	UG/L	< 1	< 1		< 1	< 1	0
LCS03	THALLIUM-DISSOLVED	UG/L	< 1	< 1		< 1	< 1	0
LCS03	TOLUENE	UG/L	116	25 0		28 7	191	191
LCS03	TRANS-1 2-DICHLOROETHENE	UG/L	< 1	< 1		< 1	< 1	0
LCS03	TRANS-1 3-DICHLOROPROPENE	UG/L	< 1	< 1		< 1	< 1	0
LCS03	TRANS-1 4-DICHLORO-2 BUTENE	UG/L	< 1	< 1		< 1	< 1	0
LCS03	TRICHLOROETHENE	UG/L	< 1	< 1		< 1	1 6	1 6
LCS03	TRICHLOROFLUOROMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS03	VANADIUM-DISSOLVED	UG/L	< 25	< 25		< 25	< 25	0
LCS03	VINYL ACETATE	UG/L	< 1	< 1		< 1	< 1	0
LCS03	VINYL CHLORIDE	UG/L	5 3	1 8		< 1		5 3
LCS03	XYLENE(TOTAL)	UG/L	259	153		229		259
LCS03	ZINC-DISSOLVED	UG/L	< 50	56		< 50		56
LCS04	1 1 1 2 TETRACHLOROETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS04	1 1 1-TRICHLOROETHANE	UG/L	< 5 0	2 6		2 6	3 4	3 4
LCS04	1 1 2 2 TETRACHLOROETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS04	1 1 2 TRICHLOROETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS04	1 1 DICHLOROETHANE	UG/L	11 8	2 0		7 4	62 2	62 2
LCS04	1 1 DICHLOROETHENE	UG/L	< 1	< 1		< 1	< 1	0
LCS04	1 2 3-TRICHLOROPROPANE	UG/L	< 1	< 1		< 1	< 1	0
LCS04	1 2 DIBROMO-3-CHLOROPROPANE	UG/L	< 0 2	< 0 2		< 0 2	< 0 2	0
LCS04	1 2-DIBROMOETHANE	UG/L	< 0 02	< 0 02		< 0 02	< 0 02	0
LCS04	1 2-DICHLOROBENZENE	UG/L	< 1	< 1		< 1	< 1	0
LCS04	1 2 DICHLOROETHANE	UG/L	< 1	< 1		< 1	3 6	3 6
LCS04	1 2 DICHLOROPROPANE	UG/L	< 1	< 1		< 1	< 1	0
LCS04	1 4-DICHLOROBENZENE	UG/L	6 4	4 5		7 6	5 6	7 6
LCS04	2 BUTANONE	UG/L	< 5 0	106		106	1150	1150
LCS04	2-HEXANONE	UG/L	35 4	34 8		83 7	43 5	83 7
LCS04	4-METHYL-2-PENTANONE	UG/L	< 5 0	2 4		2 4	20 3	20 3
LCS04	ACETONE	UG/L	< 5 0	< 1 0		114	887	887
LCS04	ACRYLONITRILE	UG/L	< 1	< 1		< 1	< 1	0
LCS04	ALKALINITY BICARBONATE (AS CACO3)	MG/L	2130	2220		1270	978	2220
LCS04	ANTIMONY-DISSOLVED	UG/L	< 3	< 3		< 3	< 3	0
LCS04	ARSENIC-DISSOLVED	UG/L	< 25	< 25		< 25	< 25	0
LCS04	BARIUM-DISSOLVED	UG/L	< 100	< 100		< 100	< 100	0
LCS04	BENZENE	UG/L	< 5 0	2 2		3	5 4	5 4
LCS04	BERYLLIUM-DISSOLVED	UG/L	< 4	< 4		< 4	< 4	0
LCS04	BROMOCHLOROMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS04	BROMODICHLOROMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS04	BROMOFORM	UG/L	< 1	< 1		< 1	< 1	0
LCS04	BROMOMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS04	CADMIUM-DISSOLVED	UG/L	4	4		< 3	3	4
LCS04	CARBON DISULFIDE	UG/L	< 1	< 1		< 1	< 1	0
LCS04	CARBON TETRACHLORIDE	UG/L	< 1	< 1		< 1	< 1	0
LCS04	CHLORIDE	MG/L	563	839		533	386	839
LCS04	CHLOROBENZENE	UG/L	< 1	< 1		< 1	< 1	0
LCS04	CHLOROETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS04	CHLOROFORM	UG/L	< 1	< 1		< 1	< 1	0
LCS04	CHLOROMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS04	CHROMIUM-DISSOLVED	UG/L	< 50	< 50		< 50	< 50	0
LCS04	CIS-1 2 DICHLOROETHENE	UG/L	< 50	< 1 0		1 1	27 0	27
LCS04	CIS-1 3-DICHLOROPROPENE	UG/L	< 1	< 1		< 1	< 1	0
LCS04	COBALT TOTAL	UG/L	0 05	< 0 025		151	100	151
LCS04	COPPER-DISSOLVED	UG/L	< 50	< 50		< 50	< 50	0
LCS04	DIBROMOCHLOROMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS04	DIBROMOMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS04	ETHYLBENZENE	UG/L	29 7	45 8		75 2	119	119
LCS04	IODOMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS04	IRON-TOTAL	UG/L	40700	38300		51900	65800	65800
LCS04	LEAD-DISSOLVED	UG/L	6	< 0 005		11	< 5	11
LCS04	MERCURY-DISSOLVED	UG/L	< 1	< 1		< 1	< 1	0
LCS04	METHYLENE CHLORIDE	UG/L	8 2	< 1 0		35 4	5 1	35 4
LCS04	NICKEL-DISSOLVED	UG/L	53	< 50		< 50	< 50	53
LCS04	NITROGEN AMMONIA	MG/L	194	328		198	205	328
LCS04	NITROGEN NITRATE	MG/L	< 0 05	< 0 05		< 0 05	70	70
LCS04	ODOR	TON				8	8	8
LCS04	PH FIELD	PH UNITS	6 97	7 12		6 75	6 57	7 12
LCS04	SELENIUM-DISSOLVED	UG/L	< 25	< 25		< 25	< 25	0
LCS04	SILVER DISSOLVED	UG/L	< 25	< 25		< 25	< 25	0
LCS04	SODIUM-DISSOLVED	UG/L	398000	414000		403000	431000	431000
LCS04	SPECIFIC CONDUCTANCE FIELD	UMHOS/CM	4310	4480		3570	3110	4480
LCS04	STYRENE	UG/L	< 1	< 1		< 1	1 9	1 9
LCS04	TETRACHLOROETHENE	UG/L	< 1	< 1		< 1	< 1	0
LCS04	THALLIUM-DISSOLVED	UG/L	2	< 1		< 1	< 1	2
LCS04	TOLUENE	UG/L	28 1	21 7		25 4	214	214
LCS04	TRANS-1 2-DICHLOROETHENE	UG/L	< 1	< 1		< 1	< 1	0
LCS04	TRANS-1 3-DICHLOROPROPENE	UG/L	< 1	< 1		< 1	< 1	0
LCS04	TRANS-1 4-DICHLORO-2 BUTENE	UG/L	< 1	< 1		< 1	< 1	0
LCS04	TRICHLOROETHENE	UG/L	< 1	< 1		< 1	2 4	2 4
LCS04	TRICHLOROFLUOROMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS04	VANADIUM-DISSOLVED	UG/L	< 25	< 25		< 25	< 25	0
LCS04	VINYL ACETATE	UG/L	< 1	< 1		< 1	< 1	0
LCS04	VINYL CHLORIDE	UG/L	5 4	< 1		< 1	< 1	5 4
LCS04	XYLENE(TOTAL)	UG/L	197	133		169	357	357
LCS04	ZINC DISSOLVED	UG/L	< 50	54		< 50	79	79
LCS05	1 1 1 2 TETRACHLOROETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS05	1 1 1 TRICHLOROETHANE	UG/L	< 5 0	< 1 0		1 6	8 3	8 3
LCS05	1 1 2 2 TETRACHLOROETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS05	1 1 2 TRICHLOROETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS05	1 1 DICHLOROETHANE	UG/L	10 8	< 1 0		6 5	56 6	56 6
LCS05	1 1 DICHLOROETHENE	UG/L	< 1	< 1		< 1	< 1	0
LCS05	1 2 3-TRICHLOROPROPANE	UG/L	< 1	< 1		< 1	< 1	0
LCS05	1 2 DIBROMO-3-CHLOROPROPANE	UG/L	< 0 2	< 0 2		< 0 2	< 0 2	0
LCS05	1 2 DIBROMOETHANE	UG/L	< 0 02	< 0 02		< 0 02	< 0 02	0
LCS05	1 2 DICHLOROBENZENE	UG/L	< 1	< 1		< 1	< 1	0
LCS05	1 2 DICHLOROETHANE	UG/L	< 1	< 1		< 1	4 0	4
LCS05	1 2 DICHLOROPROPANE	UG/L	< 1	< 1		< 1	< 1	0
LCS05	1 4-DICHLOROBENZENE	UG/L	< 5 0	3 2		7 1	3 4	7 1
LCS05	2 BUTANONE	UG/L	< 5 0	< 1 0		71 6	2200	2200
LCS05	2 HEXANONE	UG/L	< 5 0	45 4		92 9	29 5	92 9

WELL NAME	ANALYTE	UNITS	2/6/95	7/24/95	10/26/95	1/11/96	7/18/96	MAX
LCS05	4-METHYL 2 PENTANONE	UG/L	< 5 0	< 1 0		5 1	25 7	25 7
LCS05	ACETONE	UG/L	< 5 0	< 1 0		96 9	3590	3590
LCS05	ACRYLONITRILE	UG/L	< 1	< 1		< 1	< 1	0
LCS05	ALKALINITY BICARBONATE (AS CACO3)	MG/L	1410	3480		1890	918	3480
LCS05	ANTIMONY-DISSOLVED	UG/L	< 3	3		< 3	< 3	3
LCS05	ARSENIC-DISSOLVED	UG/L	< 25	< 25		< 25	< 25	0
LCS05	BARIUM-DISSOLVED	UG/L	< 100	< 100		< 100	< 100	0
LCS05	BENZENE	UG/L	5 9	1 5		3 3	5 1	5 9
LCS05	BERYLLIUM-DISSOLVED	UG/L	< 4	< 4		< 4	< 4	0
LCS05	BROMOCHLOROMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS05	BROMODICHLOROMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS05	BROMOFORM	UG/L	< 1	< 1		< 1	< 1	0
LCS05	BROMOMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS05	CADMIUM-DISSOLVED	UG/L	5	< 3		< 3	4	5
LCS05	CARBON DISULFIDE	UG/L	< 1	< 1		< 1	< 1	0
LCS05	CARBON TETRACHLORIDE	UG/L	< 1	< 1		< 1	< 1	0
LCS05	CHLORIDE	MG/L	377	1590		1010	342	1590
LCS05	CHLOROBENZENE	UG/L	< 1	< 1		< 1	< 1	0
LCS05	CHLOROETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS05	CHLOROFORM	UG/L	< 1	< 1		< 1	< 1	0
LCS05	CHLOROMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS05	CHROMIUM-DISSOLVED	UG/L	< 50	< 50		< 50	< 50	0
LCS05	CIS-1 2-DICHLOROETHENE	UG/L	< 1	< 1		< 1	31 3	31 3
LCS05	CIS-1 3-DICHLOROPROPENE	UG/L	< 1	< 1		< 1	< 1	0
LCS05	COBALT-TOTAL	UG/L	50	< 0 025		118	100	118
LCS05	COPPER-DISSOLVED	UG/L	< 50	< 50		< 50	< 50	0
LCS05	DIBROMOCHLOROMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS05	DIBROMOMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS05	ETHYLBENZENE	UG/L	60 9	31 5		12 4	103	103
LCS05	IODOMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS05	IRON-TOTAL	UG/L	34300	38000		41400	63800	63800
LCS05	LEAD-DISSOLVED	UG/L	6	< 005		8	< 5	8
LCS05	MERCURY-DISSOLVED	UG/L	< 1	< 1		< 1	< 1	0
LCS05	METHYLENE CHLORIDE	UG/L	11 8	< 1 0		22 1	15 7	22 1
LCS05	NICKEL-DISSOLVED	UG/L	33	< 50		< 50	< 50	33
LCS05	NITROGEN AMMONIA	MG/L	253	532		298	125	532
LCS05	NITROGEN NITRATE	MG/L	< 0 05	< 0 05		< 0 05	0 08	0 08
LCS05	ODOR	TON				4	8	8
LCS05	PH FIELD	PH UNITS	6 97	7 51		7 19	6 56	7 51
LCS05	SELENIUM-DISSOLVED	UG/L	< 25	< 25		< 25	< 25	0
LCS05	SILVER DISSOLVED	UG/L	< 25	< 25		< 25	< 25	0
LCS05	SODIUM-DISSOLVED	UG/L	336000	660000		509000	229000	660000
LCS05	SPECIFIC CONDUCTANCE FIELD	UMHOS/CM	3000	6500		4970	1960	6500
LCS05	STYRENE	UG/L	< 1	< 1		< 1	1 3	1 3
LCS05	TETRACHLOROETHENE	UG/L	< 1	< 1		< 1	< 1	0
LCS05	THALLIUM-DISSOLVED	UG/L	< 1	< 1		< 1	< 1	0
LCS05	TOLUENE	UG/L	101	3 6		16 8	212	212
LCS05	TRANS-1 2-DICHLOROETHENE	UG/L	< 1	< 1		< 1	< 1	0
LCS05	TRANS-1 3-DICHLOROPROPENE	UG/L	< 1	< 1		< 1	< 1	0
LCS05	TRANS-1 4-DICHLORO-2 BUTENE	UG/L	< 1	< 1		< 1	< 1	0
LCS05	TRICHLOROETHENE	UG/L	< 1	< 1		< 1	2 6	2 6
LCS05	TRICHLOROFLUOROMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS05	VANADIUM-DISSOLVED	UG/L	< 25	< 25		< 25	< 25	0
LCS05	VINYL ACETATE	UG/L	< 1	< 1		< 1	< 1	0
LCS05	VINYL CHLORIDE	UG/L	5 8	< 1		< 1	< 1	5 8
LCS05	XYLENE(TOTAL)	UG/L	187	88 0		140	305	305
LCS05	ZINC-DISSOLVED	UG/L	< 50	< 50		< 50	< 50	0
LCS06	1 1 1 2-TETRACHLOROETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS06	1 1 1-TRICHLOROETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS06	1 1 2 2 TETRACHLOROETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS06	1 1 2 TRICHLOROETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS06	1 1 DICHLOROETHANE	UG/L	19 1	6 5		< 1	< 1	19 1
LCS06	1 1-DICHLOROETHENE	UG/L	< 1	< 1		< 1	< 1	0
LCS06	1 2 3-TRICHLOROPROPANE	UG/L	< 1	< 1		< 1	< 1	0
LCS06	1 2-DIBROMO-3-CHLOROPROPANE	UG/L	< 0 2	< 0 2		< 0 2	< 0 2	0
LCS06	1 2-DIBROMOETHANE	UG/L	< 0 02	< 0 02		< 0 02	< 0 02	0
LCS06	1 2-DICHLOROBENZENE	UG/L	< 1	< 1		< 1	< 1	0
LCS06	1 2-DICHLOROETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS06	1 2-DICHLOROPROPANE	UG/L	< 1	< 1		< 1	< 1	0
LCS06	1 4-DICHLOROBENZENE	UG/L	< 1	< 1		< 1	< 1	0
LCS06	2-BUTANONE	UG/L	< 1	< 1		< 1	10 1	10 1
LCS06	2 HEXANONE	UG/L	< 5 0	26 2		8 6	< 1 0	26 2
LCS06	4-METHYL 2 PENTANONE	UG/L	< 1	< 1		< 1	< 1	0
LCS06	ACETONE	UG/L	< 5 0	< 1 0		5 6	6 3	6 3
LCS06	ACRYLONITRILE	UG/L	< 1	< 1		< 1	< 1	0
LCS06	ALKALINITY BICARBONATE (AS CACO3)	MG/L	302	457		866	1260	1260
LCS06	ANTIMONY DISSOLVED	UG/L	< 3	< 3		< 3	< 3	0
LCS06	ARSENIC-DISSOLVED	UG/L	< 25	< 25		< 25	< 25	0
LCS06	BARIUM-DISSOLVED	UG/L	< 100	< 100		< 100	< 100	0
LCS06	BENZENE	UG/L	< 1	4 7		< 1	< 1	4 7
LCS06	BERYLLIUM-DISSOLVED	UG/L	< 4	< 4		< 4	< 4	0
LCS06	BROMOCHLOROMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS06	BROMODICHLOROMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS06	BROMOFORM	UG/L	< 1	< 1		< 1	< 1	0
LCS06	BROMOMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS06	CADMIUM-DISSOLVED	UG/L	3	< 3		< 3	< 3	3
LCS06	CARBON DISULFIDE	UG/L	< 1	< 1		< 1	< 1	0
LCS06	CARBON TETRACHLORIDE	UG/L	< 1	< 1		< 1	< 1	0
LCS06	CHLORIDE	MG/L	30200	79 6		268	189	30200
LCS06	CHLOROBENZENE	UG/L	< 1	< 1		< 1	< 1	0
LCS06	CHLOROETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS06	CHLOROFORM	UG/L	< 1	< 1		< 1	< 1	0
LCS06	CHLOROMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS06	CHROMIUM-DISSOLVED	UG/L	< 50	< 50		< 50	< 50	0
LCS06	CIS-1 2 DICHLOROETHENE	UG/L	< 1	< 1		< 1	< 1	0
LCS06	CIS-1 3-DICHLOROPROPENE	UG/L	5	< 1		< 1	< 1	5
LCS06	COBALT TOTAL	UG/L	50	< 0 025		94	100	100
LCS06	COPPER DISSOLVED	UG/L	< 50	< 50		< 50	< 50	0
LCS06	DIBROMOCHLOROMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS06	DIBROMOMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS06	ETHYLBENZENE	UG/L	< 1	18 7		< 1	< 1	18 7

WELL NAME	ANALYTE	UNITS	2/6/95	7/24/95	10/26/95	1/11/96	7/18/96	MAX
LCS06	IODOMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS06	IRON-TOTAL	UG/L	14200	19300		31700	13100	31700
LCS06	LEAD-DISSOLVED	UG/L	6	< 0.005		12	< 5	12
LCS06	MERCURY-DISSOLVED	UG/L	< 1	< 1		< 1	< 1	0
LCS06	METHYLENE CHLORIDE	UG/L	< 1	< 1		< 1	< 1	0
LCS06	NICKEL-DISSOLVED	UG/L	< 50	< 50		< 50	< 50	0
LCS06	NITROGEN AMMONIA	MG/L	1 82	23 1		179	74 1	179
LCS06	NITROGEN NITRATE	MG/L	0 065	< 0 05		< 0 05	0 13	0 13
LCS06	ODOR	TON				8	4	8
LCS06	PH FIELD	PH UNITS	6 48	5 96		7 14	7 34	7 34
LCS06	SELENIUM-DISSOLVED	UG/L	< 25	< 25		< 25	< 25	0
LCS06	SILVER-DISSOLVED	UG/L	< 25	< 25		< 25	< 25	0
LCS06	SODIUM-DISSOLVED	UG/L	22100	48 8		192000	316000	316000
LCS06	SPECIFIC CONDUCTANCE FIELD	UMHOS/CM	632	48 8		2230	2140	2230
LCS06	STYRENE	UG/L	< 1	< 1		< 1	< 1	0
LCS06	TETRACHLOROETHENE	UG/L	< 1	< 1		< 1	< 1	0
LCS06	THALLIUM-DISSOLVED	UG/L	< 1	< 1		< 1	< 1	0
LCS06	TOLUENE	UG/L	< 1	23 7		< 1	< 1	23 7
LCS06	TRANS-1,2-DICHLOROETHENE	UG/L	< 1	< 1		< 1	< 1	0
LCS06	TRANS-1 3-DICHLOROPROPENE	UG/L	< 1	< 1		< 1	< 1	0
LCS06	TRANS-1 4-DICHLORO-2 BUTENE	UG/L	< 1	< 1		< 1	< 1	0
LCS06	TRICHLOROETHENE	UG/L	< 1	< 1		< 1	< 1	0
LCS06	TRICHLOROFLUOROMETHANE	UG/L	< 1	< 1		< 1	< 1	0
LCS06	VANADIUM-DISSOLVED	UG/L	< 25	< 25		< 25	< 25	0
LCS06	VINYL ACETATE	UG/L	< 1	< 1		< 1	< 1	0
LCS06	VINYL CHLORIDE	UG/L	< 1	1 5		< 1	< 1	1 5
LCS06	XYLENE(TOTAL)	UG/L	< 5 0	57 0		24	2 1	57
LCS06	ZINC-DISSOLVED	UG/L	< 50	< 50		< 50	< 50	0
TANKCO	1 1-DICHLOROETHENE	UG/L			< 100			0
TANKCO	1 1 DICHLOROETHENE	UG/L			< 100			0
TANKCO	1 1 DICHLOROETHENE	UG/L		< 100		< 100	< 100	0
TANKCO	1 1-DICHLOROETHENE	UG/L		< 100		< 100	< 100	0
TANKCO	1 2-DICHLOROETHANE	UG/L			< 100			0
TANKCO	1 2 DICHLOROETHANE	UG/L			< 100			0
TANKCO	1 2-DICHLOROETHANE	UG/L		< 100		< 100	< 100	0
TANKCO	1 2-DICHLOROETHANE	UG/L		< 100		< 100	< 100	0
TANKCO	1 4-DICHLOROBENZENE	UG/L			< 100			0
TANKCO	1 4-DICHLOROBENZENE	UG/L			< 100			0
TANKCO	1 4-DICHLOROBENZENE	UG/L		< 100		< 100	< 100	0
TANKCO	1 4-DICHLOROBENZENE	UG/L		< 100		< 100	< 100	0
TANKCO	2 4 5-TRICHLOROPHENOL	UG/L			< 40000			0
TANKCO	2 4 5-TRICHLOROPHENOL	UG/L			< 40000			0
TANKCO	2 4 5-TRICHLOROPHENOL	UG/L		< 40000		< 40000	< 40000	0
TANKCO	2 4 5-TRICHLOROPHENOL	UG/L		< 40000		< 40000	< 40000	0
TANKCO	2 4 5-TRICHLOROPHENOXYACETIC ACID	UG/L			< 100			0
TANKCO	2 4 5-TRICHLOROPHENOXYACETIC ACID	UG/L			< 100			0
TANKCO	2 4 5-TRICHLOROPHENOXYACETIC ACID	UG/L		< 100		< 100	< 100	0
TANKCO	2 4 5-TRICHLOROPHENOXYACETIC ACID	UG/L		< 100		< 100	< 100	0
TANKCO	2 4 6-TRICHLOROPHENOL	UG/L			< 200			0
TANKCO	2 4 6-TRICHLOROPHENOL	UG/L			< 200			0
TANKCO	2 4 6-TRICHLOROPHENOL	UG/L		< 200		< 200	< 200	0
TANKCO	2 4 6-TRICHLOROPHENOL	UG/L		< 200		< 200	< 200	0
TANKCO	2 4-DICHLOROPHENOXYACETIC ACID	UG/L			< 1000			0
TANKCO	2 4-DICHLOROPHENOXYACETIC ACID	UG/L			< 1000			0
TANKCO	2 4-DICHLOROPHENOXYACETIC ACID	UG/L		< 1000		< 1000	< 1000	0
TANKCO	2 4-DICHLOROPHENOXYACETIC ACID	UG/L		< 1000		< 1000	< 1000	0
TANKCO	2 4-DINITROTOLUENE	UG/L			< 70			0
TANKCO	2 4-DINITROTOLUENE	UG/L			< 70			0
TANKCO	2 4-DINITROTOLUENE	UG/L		< 70		< 70	< 70	0
TANKCO	2 4-DINITROTOLUENE	UG/L		< 70		< 70	< 70	0
TANKCO	2 BUTANONE	UG/L			< 20000			0
TANKCO	2 BUTANONE	UG/L			< 20000			0
TANKCO	2 BUTANONE	UG/L		< 20000		< 20000	< 20000	0
TANKCO	2 BUTANONE	UG/L		< 20000		< 20000	< 20000	0
TANKCO	2 METHYLPHENOL	UG/L			< 20000			0
TANKCO	2 METHYLPHENOL	UG/L			< 20000			0
TANKCO	2-METHYLPHENOL	UG/L		< 20000		< 20000	< 20000	0
TANKCO	2 METHYLPHENOL	UG/L		< 20000		< 20000	< 20000	0
TANKCO	3-METHYLPHENOL	UG/L			< 20000			0
TANKCO	3-METHYLPHENOL	UG/L			< 20000			0
TANKCO	3-METHYLPHENOL	UG/L		< 20000		< 20000	< 20000	0
TANKCO	3-METHYLPHENOL	UG/L		< 20000		< 20000	< 20000	0
TANKCO	4-METHYLPHENOL	UG/L			< 20000			0
TANKCO	4-METHYLPHENOL	UG/L			< 20000			0
TANKCO	4-METHYLPHENOL	UG/L			< 20000			0
TANKCO	4-METHYLPHENOL	UG/L		< 20000		< 20000	< 20000	0
TANKCO	4-METHYLPHENOL	UG/L		< 20000		< 20000	< 20000	0
TANKCO	ARSENIC-DISSOLVED	UG/L			< 25			0
TANKCO	ARSENIC-DISSOLVED	UG/L			< 25			0
TANKCO	ARSENIC-DISSOLVED	UG/L		< 25		< 25	< 25	0
TANKCO	ARSENIC-DISSOLVED	UG/L		< 25		< 25	< 25	0
TANKCO	BARIUM-DISSOLVED	UG/L			< 100			0
TANKCO	BARIUM-DISSOLVED	UG/L			< 100			0
TANKCO	BARIUM-DISSOLVED	UG/L		< 100		< 100	< 100	0
TANKCO	BARIUM-DISSOLVED	UG/L		< 100		< 100	< 100	0
TANKCO	BENZENE	UG/L			< 100			0
TANKCO	BENZENE	UG/L			< 100			0
TANKCO	BENZENE	UG/L		< 100		< 100	< 100	0
TANKCO	BENZENE	UG/L		< 100		< 100	< 100	0
TANKCO	BIOCHEMICAL OXYGEN DEMAND	MG/L			100000			100000
TANKCO	BIOCHEMICAL OXYGEN DEMAND	MG/L		43 9		43 9	283	283
TANKCO	CADMIUM-DISSOLVED	UG/L			< 5			0
TANKCO	CADMIUM-DISSOLVED	UG/L			< 3			0
TANKCO	CADMIUM-DISSOLVED	UG/L			< 3			0
TANKCO	CADMIUM-DISSOLVED	UG/L		< 5		< 5		0
TANKCO	CADMIUM-DISSOLVED	UG/L		< 3		< 3	< 5	0
TANKCO	CADMIUM-DISSOLVED	UG/L		< 3		< 3	3	3
TANKCO	CARBON TETRACHLORIDE	UG/L			< 100			0
TANKCO	CARBON TETRACHLORIDE	UG/L			< 100			0
TANKCO	CARBON TETRACHLORIDE	UG/L		< 100		< 100	< 100	0
TANKCO	CARBON TETRACHLORIDE	UG/L		< 100		< 100	< 100	0

WELL NAME	ANALYTE	UNITS	2/6/95	7/24/95	10/26/95	1/11/96	7/18/96	MAX
TANKCO	CHEMICAL OXYGEN DEMAND	MG/L			292			292
TANKCO	CHEMICAL OXYGEN DEMAND	MG/L			298			298
TANKCO	CHEMICAL OXYGEN DEMAND	MG/L		560		560	344	560
TANKCO	CHEMICAL OXYGEN DEMAND	MG/L		520		520	393	520
TANKCO	CHLORDANE	UG/L			< 20			0
TANKCO	CHLORDANE	UG/L			< 20			0
TANKCO	CHLORDANE	UG/L		< 20		< 20	< 20	0
TANKCO	CHLORDANE	UG/L		< 20		< 20	< 20	0
TANKCO	CHLOROBENZENE	UG/L			< 10000			0
TANKCO	CHLOROBENZENE	UG/L			< 10000			0
TANKCO	CHLOROBENZENE	UG/L		< 10000		< 10000	< 10000	0
TANKCO	CHLOROBENZENE	UG/L		< 10000		< 10000	< 10000	0
TANKCO	CHLOROFORM	UG/L			< 100			0
TANKCO	CHLOROFORM	UG/L			< 100			0
TANKCO	CHLOROFORM	UG/L		< 100		< 100	< 100	0
TANKCO	CHLOROFORM	UG/L		< 100		< 100	< 100	0
TANKCO	CHROMIUM-DISSOLVED	UG/L			< 50			0
TANKCO	CHROMIUM-DISSOLVED	UG/L			< 50			0
TANKCO	CHROMIUM-DISSOLVED	UG/L			< 50			0
TANKCO	CHROMIUM-DISSOLVED	UG/L		< 50		< 50	< 50	0
TANKCO	CHROMIUM-DISSOLVED	UG/L		< 50		< 50	< 50	0
TANKCO	CHROMIUM-DISSOLVED	UG/L		< 50		< 50	< 50	0
TANKCO	COPPER-DISSOLVED	UG/L			< 50			0
TANKCO	COPPER-DISSOLVED	UG/L			< 1000			0
TANKCO	COPPER-DISSOLVED	UG/L			< 1000			0
TANKCO	COPPER-DISSOLVED	UG/L		< 50		< 50	< 50	0
TANKCO	COPPER DISSOLVED	UG/L		< 1000		< 1000	< 1000	0
TANKCO	COPPER-DISSOLVED	UG/L		< 1000		< 1000	< 1000	0
TANKCO	CRESOL	UG/L			< 60000			0
TANKCO	CRESOL	UG/L			< 60000			0
TANKCO	CRESOL	UG/L		< 60000		< 60000	< 60000	0
TANKCO	CRESOL	UG/L		< 60000		< 60000	< 60000	0
TANKCO	CYANIDE TOTAL	MG/L			< 0 02			0
TANKCO	CYANIDE TOTAL	MG/L			< 0 02			0
TANKCO	CYANIDE TOTAL	MG/L		< 0 02		< 0 02	< 0 02	0
TANKCO	CYANIDE TOTAL	MG/L		< 0 02		< 0 02	< 0 02	0
TANKCO	ENDRIN	UG/L			< 10			0
TANKCO	ENDRIN	UG/L			< 10			0
TANKCO	ENDRIN	UG/L		< 10		< 10	< 10	0
TANKCO	ENDRIN	UG/L		< 10		< 10	< 10	0
TANKCO	HEPTACHLOR	UG/L			< 4			0
TANKCO	HEPTACHLOR	UG/L			< 4			0
TANKCO	HEPTACHLOR	UG/L		< 4		< 4	< 4	0
TANKCO	HEPTACHLOR	UG/L		< 4		< 4	< 4	0
TANKCO	HEXACHLOROBENZENE	UG/L			< 70			0
TANKCO	HEXACHLOROBENZENE	UG/L			< 70			0
TANKCO	HEXACHLOROBENZENE	UG/L		< 70		< 70	< 70	0
TANKCO	HEXACHLOROBENZENE	UG/L		< 70		< 70	< 70	0
TANKCO	HEXACHLOROBUTADIENE	UG/L			< 50			0
TANKCO	HEXACHLOROBUTADIENE	UG/L			< 50			0
TANKCO	HEXACHLOROBUTADIENE	UG/L		< 50		< 50	< 50	0
TANKCO	HEXACHLOROBUTADIENE	UG/L		< 50		< 50	< 50	0
TANKCO	HEXACHLOROETHANE	UG/L			< 300			0
TANKCO	HEXACHLOROETHANE	UG/L			< 300			0
TANKCO	HEXACHLOROETHANE	UG/L		< 300		< 300	< 300	0
TANKCO	HEXACHLOROETHANE	UG/L		< 300		< 300	< 300	0
TANKCO	LEAD-DISSOLVED	UG/L			< 5			0
TANKCO	LEAD-DISSOLVED	UG/L			< 5			0
TANKCO	LEAD-DISSOLVED	UG/L			< 5			0
TANKCO	LEAD-DISSOLVED	UG/L		10		10		10
TANKCO	LEAD-DISSOLVED	UG/L		9		9	< 5	9
TANKCO	LEAD-DISSOLVED	UG/L		9		9	< 5	9
TANKCO	LINDANE (GAMMA-BHC)	UG/L			< 200			0
TANKCO	LINDANE (GAMMA-BHC)	UG/L			< 200			0
TANKCO	LINDANE (GAMMA-BHC)	UG/L		< 200		< 200	< 200	0
TANKCO	LINDANE (GAMMA-BHC)	UG/L		< 200		< 200	< 200	0
TANKCO	MERCURY-DISSOLVED	UG/L			< 1			0
TANKCO	MERCURY-DISSOLVED	UG/L			< 1			0
TANKCO	MERCURY-DISSOLVED	UG/L			< 1			0
TANKCO	MERCURY-DISSOLVED	UG/L		< 1		< 1	< 1	0
TANKCO	MERCURY DISSOLVED	UG/L		< 1		< 1	< 1	0
TANKCO	MERCURY DISSOLVED	UG/L		< 1		< 1	< 1	0
TANKCO	METHOXYCHLOR	UG/L			< 5000			0
TANKCO	METHOXYCHLOR	UG/L			< 5000			0
TANKCO	METHOXYCHLOR	UG/L		< 5000		< 5000	< 5000	0
TANKCO	METHOXYCHLOR	UG/L		< 5000		< 5000	< 5000	0
TANKCO	NICKEL DISSOLVED	UG/L			< 50			0
TANKCO	NICKEL DISSOLVED	UG/L			< 1000			0
TANKCO	NICKEL DISSOLVED	UG/L			< 1000			0
TANKCO	NICKEL DISSOLVED	UG/L		< 50		< 50	< 50	0
TANKCO	NICKEL DISSOLVED	UG/L		< 1000		< 1000	< 1000	0
TANKCO	NICKEL-DISSOLVED	UG/L		< 1000		< 1000	< 1000	0
TANKCO	NITROBENZENE	UG/L			< 200			0
TANKCO	NITROBENZENE	UG/L			< 200			0
TANKCO	NITROBENZENE	UG/L		< 200		< 200	< 200	0
TANKCO	NITROBENZENE	UG/L		< 200		< 200	< 200	0
TANKCO	NITROGEN NITRATE/NITRITE	MG/L			< 0 05			0
TANKCO	NITROGEN NITRATE/NITRITE	MG/L		< 0 05		< 0 05	< 0 05	0
TANKCO	NITROGEN TOTAL KJELDAHL	MG/L			151		187	187
TANKCO	NITROGEN TOTAL KJELDAHL	MG/L		220		220	114	220
TANKCO	OIL AND GREASE	MG/L			< 5			0
TANKCO	OIL AND GREASE	MG/L			< 5			0
TANKCO	OIL AND GREASE	MG/L		< 5		< 5	< 5	0
TANKCO	OIL AND GREASE	MG/L		< 5		< 5	< 5	0
TANKCO	PENTACHLOROPHENOL	UG/L			< 10000			0
TANKCO	PENTACHLOROPHENOL	UG/L			< 10000			0
TANKCO	PENTACHLOROPHENOL	UG/L		< 10000		< 10000	< 10000	0
TANKCO	PENTACHLOROPHENOL	UG/L		< 10000		< 10000	< 10000	0
TANKCO	PH FIELD	PH UNITS			7 34			7 34
TANKCO	PH FIELD	PH UNITS			7 34			7 34
TANKCO	PH FIELD	PH UNITS		7 27		7 27	6 87	7 27

WELL NAME	ANALYTE	UNITS	2/6/95	7/24/95	10/26/95	1/11/96	7/18/96	MAX
TANKCO	PH FIELD	PH UNITS		7 27		7 27	6 87	7 27
TANKCO	PHOSPHOROUS TOTAL	MG/L			0 098		0 212	0 212
TANKCO	PHOSPHOROUS TOTAL	MG/L		0 179		0 179	0 191	0 191
TANKCO	PYRIDINE	UG/L			< 500			0
TANKCO	PYRIDINE	UG/L			< 500			0
TANKCO	PYRIDINE	UG/L		< 500		< 500	< 500	0
TANKCO	PYRIDINE	UG/L		< 500		< 500	< 500	0
TANKCO	SELENIUM-DISSOLVED	UG/L			< 25			0
TANKCO	SELENIUM-DISSOLVED	UG/L			< 25			0
TANKCO	SELENIUM-DISSOLVED	UG/L		< 25		< 25	< 25	0
TANKCO	SELENIUM-DISSOLVED	UG/L		< 25		< 25	< 25	0
TANKCO	SILVER-DISSOLVED	UG/L			< 50			0
TANKCO	SILVER-DISSOLVED	UG/L			< 25			0
TANKCO	SILVER-DISSOLVED	UG/L			< 25			0
TANKCO	SILVER-DISSOLVED	UG/L		< 50		< 50	< 50	0
TANKCO	SILVER-DISSOLVED	UG/L		< 25		< 25	< 25	0
TANKCO	SILVER-DISSOLVED	UG/L		< 25		< 25	< 25	0
TANKCO	SOLIDS TOTAL SUSPENDED	MG/L			61			61
TANKCO	SOLIDS TOTAL SUSPENDED	MG/L			52			52
TANKCO	SOLIDS TOTAL SUSPENDED	MG/L		92		92	95 0	95
TANKCO	SOLIDS TOTAL SUSPENDED	MG/L		95		95	106 0	106
TANKCO	TETRACHLOROETHENE	UG/L			< 100			0
TANKCO	TETRACHLOROETHENE	UG/L			< 100			0
TANKCO	TETRACHLOROETHENE	UG/L		< 100		< 100	< 100	0
TANKCO	TETRACHLOROETHENE	UG/L		< 100		< 100	< 100	0
TANKCO	TOXAPHENE	UG/L			< 300			0
TANKCO	TOXAPHENE	UG/L			< 300			0
TANKCO	TOXAPHENE	UG/L		< 300		< 300	< 300	0
TANKCO	TOXAPHENE	UG/L		< 300		< 300	< 300	0
TANKCO	TRICHLOROETHENE	UG/L			< 100			0
TANKCO	TRICHLOROETHENE	UG/L			< 100			0
TANKCO	TRICHLOROETHENE	UG/L		< 100		< 100	< 100	0
TANKCO	TRICHLOROETHENE	UG/L		< 100		< 100	< 100	0
TANKCO	VINYL CHLORIDE	UG/L			< 100			0
TANKCO	VINYL CHLORIDE	UG/L			< 100			0
TANKCO	VINYL CHLORIDE	UG/L		< 100		< 100	< 100	0
TANKCO	VINYL CHLORIDE	UG/L		< 100		< 100	< 100	0
TANKCO	ZINC-DISSOLVED	UG/L			< 50			0
TANKCO	ZINC-DISSOLVED	UG/L			< 50			0
TANKCO	ZINC-DISSOLVED	UG/L		61		61	< 50	61
TANKCO	ZINC-DISSOLVED	UG/L		< 50		< 50	< 50	0

APPENDIX L
ALTERNATE CLOSURE DESIGN DEMONSTRATION
FOR SIDE SLOPE CLOSURE

TRAIL RIDGE LANDFILL
SIDE SLOPE CLOSURE
ALTERNATE CLOSURE DESIGN DEMONSTRATION

This analysis is based upon "Municipal Solid Waste Alternate Design Closure Guidance" Document dated February 10, 1995, prepared by the Department of Environmental Protection, Solid Waste Section

A. FINAL CLOSURE - MINIMUM DESIGN

1 DETERMINE IMPINGEMENT RATE

Use the HELP Model, Version 3 and the following

- a Default Rainfall and Temperature Data for Jacksonville
- b Maximum Leaf Area Index of 2 0 - Fair Gross
- c Evaporative Zone Depth at 22 Inches
- d Growing Season - 365 Days

From the HELP Model Results - Average Annual

Precipitation - 46 43 IN
Runoff - 0 179 IN
Evapotranspiration - 36 93 IN

Thus·

IMPINGEMENT RATE (e) = Precipitation - Runoff - Evapotranspiration
= 46 34 IN - 0 179 IN - 36 93 IN/YR
= 9 23 IN/YR
= 0 025 IN/DAY = 7 44x10^{-9}m/sec

2 DETERMINE MAXIMUM HEAD OVER LINER - T_{MAX}

Moore's Equation

$$T_{MAX} = C \times L[(4(e/k)+(\tan B^2))^{1/2} - \tan B] / 2\cos B$$

Where

L	=	Length of horizontal projection of the leachate collection layer from top to collector, m
e	=	Impingement rate, m/sec
k	=	Saturated hydraulic conductivity of the drainage layer, m/sec
tanB	=	Slope to collection pipe, dimensionless
C	=	Constant, 39 37 in/m

Therefore

L	=	110 FT	=	33 52 m
e	=	$7\ 44\times10^{-9}$ m/sec		
k	=	1×10^{3} cm/sec	=	1×10^{-5} m/sec
tanB	=	0 04		

Thus

T_{MAX} = $39\ 37\times33\ 52[(4(7\ 44\times10^{-9}/1\times10^{-5})+(0\ 04)^{2})^{1/2} - 0\ 04] / 2 \times 0\ 999$

T_{MAX} = 18 25 IN = 0 46 m

3 DETERMINE LEAKAGE RATE - Q

$$Q = 0\ 6 \times C \times a^{0\ 1} \times h^{0\ 9} \times k^{0\ 74}$$

Where

Q	=	Leakage rate, gal/acre/day
a	=	Area of hole for leakage, 0 0001m^2
h	=	Head of liquid over hole, m
k	=	Hydraulic conductivity of soil under liner, m/sec
C	=	Constant, 2 282$\times10^{7}$ gal-sec/day/m^3

Therefore

h	=	T_{MAX}	=	2 32 m
k	=	1×10^{-4} cm/sec	=	1×10^{-6} m/sec

Thus

$Q = 0\ 6 \times 2\ 282\times10^{7} \times (0\ 0001)^{0\ 1} \times (0\ 46)^{0\ 9} \times (1\times10^{-6})^{0\ 74}$

Q = 99 1 gal/acre/day

B. FINAL CLOSURE - ALTERNATE DESIGN

1 DETERMINE IMPINGEMENT RATE

e = 7.44×10^{-9} m/sec (Same as minimum design, See Page 1)

2 DETERMINE MAXIMUM HEAD OVER LINER - T_{MAX}

Moore's Equation

T_{MAX} = $C \times L[(4(e/k)+(\tan B)^2)^{1/2} - \tan B] / 2\cos B$

Where

L = 60 FT = 18 29 m
k = 1×10^{-5} m/sec
tanB = 0 333
cosB = 0 9487

Thus

T_{MAX} = 39 37x18 29[(4(7 44x10⁻⁹/1x10⁻⁵)+(0 333)²)^½ - 0 333] / 2 x 0 9487
T_{MAX} = 1 67 IN = 0 14 FT

3 DETERMINE LEAKAGE RATE - Q

Using Darcy's Law

Q = $C \times k\,(h+H)/H$

Where

h = Head of liquid above soil liner, ft
H = Thickness of soil liner, ft
k = Hydraulic conductivity of soil liner, cm/sec
C = Constant, 9 239x10^{8} gal-sec/cm/acre/day

Therefore

h = T_{MAX} = 0 14 FT
H = 1 FT
k = 1 0x10^{-7} cm/sec

Thus

Q = 9 239x10^{8} x 1 0x10^{-7} x (0 14+1)/1
Q = 105 3 gal/acre/day

Since the leakage rate for alternate design (105 3 gal/acre/day) is no more than 10% greater than the leakage rate for the minimum design (99.1 gal/acre/day) based on "Municipal Solid Waste Alternate Design Closure Guidance" Document dated February 10, 1995 prepared by the Department of Environmental Protection, Solid Waste Section.

Juanita Bader Clem Oct 25, 1996

I certify that this analysis is in accordance with "Municipal Solid Waste Alternate Design Closure Guidance" Document dated February 10, 1995 as prepared by the Department of Environmental Protection, Solid Waste Section

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**                                                                          **
**                                                                          **
**              HYDROLOGIC EVALUATION OF LANDFILL PERFORMANCE               **
**               HELP MODEL VERSION 3 01   (14 OCTOBER 1994)                **
**                 DEVELOPED BY ENVIRONMENTAL LABORATORY                    **
**                   USAE WATERWAYS EXPERIMENT STATION                      **
**             FOR USEPA RISK REDUCTION ENGINEERING LABORATORY              **
**                                                                          **
**                                                                          **
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******************************************************************************


PRECIPITATION DATA FILE       C \HELP3\DATA4 D4
TEMPERATURE DATA FILE         C \HELP3\DATA7 D7
SOLAR RADIATION DATA FILE     C \HELP3\DATA13 D13
EVAPOTRANSPIRATION DATA       C \HELP3\DATA11 D11
SOIL AND DESIGN DATA FILE     C·\HELP3\DATA10 D10
OUTPUT DATA FILE              C \HELP3\TR OUT


TIME:  14 45     DATE    7/29/1996


******************************************************************************

     TITLE   TRAIL RIDGE LANDFILL

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     NOTE   INITIAL MOISTURE CONTENT OF THE LAYERS AND SNOW WATER WERE
              COMPUTED AS NEARLY STEADY-STATE VALUES BY THE PROGRAM


                                   LAYER  1
                                   --------

                     TYPE 1 - VERTICAL PERCOLATION LAYER
                         MATERIAL TEXTURE NUMBER   5
           THICKNESS                     =       6 00    INCHES
           POROSITY                      =       0 4570 VOL/VOL
           FIELD CAPACITY                =       0.1310 VOL/VOL
           WILTING POINT                 =       0 0580 VOL/VOL
           INITIAL SOIL WATER CONTENT    =       0 0579 VOL/VOL
           EFFECTIVE SAT  HYD  COND      =   0.100000005000E-02 CM/SEC
         NOTE   SATURATED HYDRAULIC CONDUCTIVITY IS MULTIPLIED BY  3 00
                  FOR ROOT CHANNELS IN TOP HALF OF EVAPORATIVE ZONE


                                   LAYER  2
                                   --------

                     TYPE 1 - VERTICAL PERCOLATION LAYER
                         MATERIAL TEXTURE NUMBER   5
           THICKNESS                     =      18 00    INCHES
           POROSITY                      =       0 4570 VOL/VOL
           FIELD CAPACITY                =       0 1310 VOL/VOL
           WILTING POINT                 =       0 0580 VOL/VOL
           INITIAL SOIL WATER CONTENT    =       0 0967 VOL/VOL
           EFFECTIVE SAT  HYD  COND      =   0 100000005000E-02 CM/SEC
```

LAYER 3

TYPE 1 - VERTICAL PERCOLATION LAYER
MATERIAL TEXTURE NUMBER 0

THICKNESS	=	600 00	INCHES
POROSITY	=	0 5200	VOL/VOL
FIELD CAPACITY	=	0 2920	VOL/VOL
WILTING POINT	=	0.1400	VOL/VOL
INITIAL SOIL WATER CONTENT	=	0.2963	VOL/VOL
EFFECTIVE SAT HYD. COND	=	0 100000005000E-02	CM/SEC

GENERAL DESIGN AND EVAPORATIVE ZONE DATA

NOTE SCS RUNOFF CURVE NUMBER WAS USER-SPECIFIED

SCS RUNOFF CURVE NUMBER	=	63.71	
FRACTION OF AREA ALLOWING RUNOFF	=	100 0	PERCENT
AREA PROJECTED ON HORIZONTAL PLANE	=	1 000	ACRES
EVAPORATIVE ZONE DEPTH	=	22 0	INCHES
INITIAL WATER IN EVAPORATIVE ZONE	=	1 781	INCHES
UPPER LIMIT OF EVAPORATIVE STORAGE	=	10.054	INCHES
LOWER LIMIT OF EVAPORATIVE STORAGE	=	1 276	INCHES
INITIAL SNOW WATER	=	0 000	INCHES
INITIAL WATER IN LAYER MATERIALS	=	179 890	INCHES
TOTAL INITIAL WATER	=	179 890	INCHES
TOTAL SUBSURFACE INFLOW	=	0 00	INCHES/YEAR

EVAPOTRANSPIRATION AND WEATHER DATA

NOTE EVAPOTRANSPIRATION DATA WAS OBTAINED FROM
JACKSONVILLE FLORIDA

MAXIMUM LEAF AREA INDEX	=	2 00
START OF GROWING SEASON (JULIAN DATE)	=	0
END OF GROWING SEASON (JULIAN DATE)	=	367
AVERAGE ANNUAL WIND SPEED	=	8 20 MPH
AVERAGE 1ST QUARTER RELATIVE HUMIDITY	=	73 00 %
AVERAGE 2ND QUARTER RELATIVE HUMIDITY	=	72 00 %
AVERAGE 3RD QUARTER RELATIVE HUMIDITY	=	79 00 %
AVERAGE 4TH QUARTER RELATIVE HUMIDITY	=	78 00 %

NOTE PRECIPITATION DATA FOR JACKSONVILLE FLORIDA
WAS ENTERED FROM THE DEFAULT DATA FILE

NOTE TEMPERATURE DATA WAS SYNTHETICALLY GENERATED USING
COEFFICIENTS FOR JACKSONVILLE FLORIDA

NORMAL MEAN MONTHLY TEMPERATURE (DEGREES FAHRENHEIT)

JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
53.20	55 10	61 30	67 70	74 10	79 00
81 30	81 00	78 20	69 50	60 80	54 80

NOTE SOLAR RADIATION DATA WAS SYNTHETICALLY GENERATED USING
COEFFICIENTS FOR JACKSONVILLE FLORIDA

STATION LATITUDE = 30 50 DEGREES

****

AVERAGE MONTHLY VALUES IN INCHES FOR YEARS 1974 THROUGH 1978

	JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
PRECIPITATION						
TOTALS	2 99	2 19	2 81	2 39	6 66	3 89
	6 14	6.74	6 73	1 78	1 21	2 90
STD DEVIATIONS	1 64	1.35	1 10	1.98	3 02	1.63
	2 65	3 16	1 83	1.21	0 97	1 30
RUNOFF						
TOTALS	0 001	0 000	0 000	0.005	0 110	0 000
	0 000	0.025	0 038	0 000	0 000	0 000
STD DEVIATIONS	0 002	0 000	0 000	0 011	0 140	0 000
	0 000	0 056	0 083	0 000	0 000	0 000
EVAPOTRANSPIRATION						
TOTALS	2 153	2.239	2 820	2 658	4 304	4 517
	4 896	4 965	3 144	1 736	1 590	1 910
STD DEVIATIONS	0 837	0 621	1 046	1 306	1 833	1 576
	1 773	1 141	0.379	0 487	0 452	0 250
PERCOLATION/LEAKAGE THROUGH LAYER 3						
TOTALS	1 2396	0 8715	0 9107	1 0379	0 7805	0 6700
	0 9736	0 6996	0 5741	0 7149	0 9554	0 9938
STD DEVIATIONS	0 6999	0 2743	0 1998	0 4737	0 1536	0 2665
	0.4263	0 1450	0 2216	0 3405	0 4566	0 6676

****

****

AVERAGE ANNUAL TOTALS & (STD DEVIATIONS) FOR YEARS 1974 THROUGH 1978

	INCHES		CU FEET	PERCENT
PRECIPITATION	46 43	(4.511)	168533.6	100 00
RUNOFF	0 179	(0 1217)	650 99	0 386
EVAPOTRANSPIRATION	36 931	(4 4166)	134060 62	79 545
PERCOLATION/LEAKAGE THROUGH FROM LAYER 3	10.42153	(1 85973)	37830 148	22.44665
CHANGE IN WATER STORAGE	-1 104	(3 5252)	-4008 11	-2.378

****

****

PEAK DAILY VALUES FOR YEARS 1974 THROUGH 1978

	(INCHES)	(CU. FT)
PRECIPITATION	5 40	19602.000
RUNOFF	0 302	1094 8177
PERCOLATION/LEAKAGE THROUGH LAYER 3	0.091771	333 12973
SNOW WATER	0.00	0 0000
MAXIMUM VEG SOIL WATER (VOL/VOL)	0 3327	
MINIMUM VEG SOIL WATER (VOL/VOL)	0 0503	

****

****

FINAL WATER STORAGE AT END OF YEAR 1978

LAYER	(INCHES)	(VOL/VOL)
1	1 1141	0 1857
2	1 6364	0 0909
3	171.6184	0 2860
SNOW WATER	0 000	

****
****

APPENDIX M
QUALITY ASSURANCE/QUALITY CONTROL PLAN
FOR SIDE SLOPE CLOSURE

TRAIL RIDGE LANDFILL
INCREMENTAL SIDE SLOPE CLOSURE
QUALITY ASSURANCE/QUALITY CONTROL PLAN

This plan addresses the quality assurance and quality control (QA/QC) for the incremental closure (close-as-you-go) of Trail Ridge Landfill This program delineates the quality procedures and standards for the construction. This plan includes the closure of the side slopes only. The top area will be the final closure for which a closure permit will be obtained, prior to final closure construction

In the context of this plan, quality assurance and quality control are defined as follows

Quality Assurance - A planned and systematic pattern of all means and actions designed to provide adequate confidence that items or services meet contractual and regulatory requirements and will perform satisfactorily in service

Quality Control - Those actions which provide a means to measure and regulate the characteristics of an item or service to contract and regulatory requirements

The City of Jacksonville, Florida is the owner/permittee of Trail Ridge Landfill Trail Ridge Landfill, Inc operates the landfill England, Thims & Miller, Inc is the design engineer The name of the Contractor for each incremental closure shall be provided to the Department of Environmental Protection (DEP), prior to construction

All QA/QC activities (including monitoring, sampling and testing) shall be directed and conducted by third parties, whom are independent of the Contractor

The QA/QC Plan for this project includes General QA/QC and Soils QA/QC The General QA/QC includes full-time services to periodically observe the contractor's work to verify substantial compliance with permits, plans, specifications and design concepts These services will include the following

General Quality Control Monitor - shall monitor the construction for compliance with the permits, plans, specifications and design including construction to proper lines and grades, maintain daily logs and weekly progress reports of the construction (including observation data sheets, problem identification and correction logs), make note of any construction deviations, coordinate qualifying and testing of materials, monitor any waste excavation, and monitor filling This individual shall be experienced in civil site construction and solid waste regulations

General Quality Assurance Engineer - shall supervise the construction monitoring and waste removal to verify compliance with permits, plans, specification and design concepts This individual shall be experienced in civil site construction and solid waste regulations and shall be a registered Professional Engineer

The General QA/QC Program includes monitoring the following activities

1 General Earthwork
2 Storm Drainage Installation
3 General Construction Quality Control

The Soils QA/QC for this project includes soil material qualifying, sampling and testing to verify substantial compliance with the material standards This work will include the following

Soils Quality Control Monitor - shall pre-qualify soil materials, monitor the installation of soil materials, determine where in-place soil materials shall be tested, and test the in-place soil materials This individual shall be responsible for assuring that all soil materials have been pre-qualified and have a chain-of-custody from the pre-qualified source to the project site, prior to installation This individual shall be experienced in civil site construction and soil testing standards and procedures

Soils Quality Assurance Engineer - shall supervise the soil material pre-qualifying and testing of in-place soil materials to assure compliance with the test standards and testing frequency requirements, and verify compliance with the plans, specification and design. This individual shall be experienced in civil site construction and soil testing procedures and shall be a registered Professional Engineer

The QA/QC Plan including monitoring construction of the following

A. Final Cover (Intermediate Cover, Compacted Clay Layer and Vegetative Cover)

Incremental side slope closure of Trail Ridge Landfill includes a final cover consisting of 12" of intermediate cover, 12" of clay, and 24" of vegetative cover. The clay layer of the final cover must be placed in two 6" (minimum) lifts The Soils Quality Control Monitor shall observe the clay layer construction on a full-time (on-site) basis The QA/QC for the final cover is as follows·

1 Intermediate Cover

a. Location - The fill material shall come from an off-site source The Soils Quality Control Monitor shall visually inspect the fill material

b. Standard - Soil shall be free of brush, weeds, and other litter, and free of roots, stumps, stones and any other extraneous or toxic matter

The intermediate cover shall be a minimum of 12" thick

Compacted to 90% of Modified Proctor maximum dry density (ASTM D 1557)

c Frequency - Depth measurements and density tests shall be conducted at the frequency of four per acre

2 Clay Layer (referred to as Barrier Layer in Chapter 62-701, F A C)

a. Borrow Source - Prior to clay layer installation, an appropriate borrow source shall be located Suitability of the clay layer construction materials from that source shall be determined in accordance with the following

(1) If demonstrated field experience is available from at least three prior successful projects of five or more acres each to document that a given borrow source can meet the requirements of the project specifications, then extensive laboratory testing of the borrow source will not be required However, the source of material shall be geologically similar to and the methods of excavating and stockpiling the material shall be consistent with those used on the prior projects Furthermore, a minimum of three representative samples from the appropriate thickness of the in-situ stratum or from stockpiles of the borrow material proposed for clay layer construction shall be submitted to the Owners independent soil testing laboratory to document through index testing that the proposed material is consistent with the material used on prior successful projects At a minimum, index testing shall consist of percent fines, Atterberg limits and moisture content determinations

(2) If demonstrated field experience as defined above is not available or cannot be documented, then the following requirements shall be met

(a) A field exploration and laboratory testing program shall be conducted by the Owners independent soil testing laboratory to document the horizontal and vertical extent and the homogeneity of the soil strata proposed for use as clay layer material A sufficient number of index tests from each potential borrow stratum shall be performed to quantify the variability of the borrow materials and to document that the proposed borrow material complies with specifications At a minimum, the index tests shall consist of percent fines, Atterberg limits and moisture content determinations

(b) Sufficient laboratory hydraulic conductivity tests shall be conducted on samples representative of the range invariability of the proposed borrow source (ASTM D-5084) For each such sample, test specimens shall be prepared and tested to cover the range of molding conditions (moisture content and dry density) required by project specifications The hydraulic conductivity tests shall be conducted in triaxial type permeameters The test specimens shall be consolidated under an isotropic consolidation stress no greater than 10 pounds per square inch and permeated with water under an adequate backpressure to achieve saturation of the test specimens The inflow to and outflow from the specimens shall be monitored with time and the hydraulic conductivity calculated for each recorded flow increment. The test shall continue until steady state flow is achieved and relatively constant values of hydraulic conductivity are measured (ASTM D-5084) The borrow source will only be considered suitable if the hydraulic conductivity of the material, as documented on laboratory test specimens, can be shown to meet the requirements of the project specifications at the 98 percent confidence level

(3) The Soils Quality Assurance Engineer shall review the pre-qualification data and shall approve or reject the clay layer material for use

b Test Strip - Prior to full-scale clay layer installation, a field test section or test strip shall be constructed at the site above a prepared subbase The test strip shall be considered acceptable if the measured hydraulic conductivities of undisturbed samples from the test strip meet the requirements of the project specifications at the 98 percent confidence level If the test section fails to achieve the desired results, additional test sections shall be constructed in accordance with the following requirements

(1) The test section shall be of sufficient size (20' x 60' minimum) such that full-scale clay layer installation procedures can be duplicated within the test section,

(2) The test section shall be constructed using the same equipment for spreading, kneading and compaction and the same construction procedures (e g , number of passes, moisture addition and homogenization, if needed) that are anticipated for use during full-scale clay layer installation,

(3) At a minimum, the clay layer test section shall be subject to the following field and laboratory testing requirements by Soils Quality Control Monitor

(a) A minimum of five random samples of the clay layer construction material delivered to the site during test section installation shall be tested for moisture content (ASTM D-2216), percent fines (ASTM D-1140) and Atterberg limits (ASTM D-4318),

(b) At least five field density and moisture determinations shall be performed on each lift of the compacted clay layer test section;

(c) Upon completion of the test section lift, the thickness of the lift shall be measured at a minimum of five random locations to check for thickness adequacy, and

(d) A minimum of five Shelby tube or drive cylinder (ASTM D-2937) samples shall be obtained from each lift of the test section for laboratory hydraulic conductivity testing Laboratory hydraulic conductivity testing shall be conducted in triaxial type permeameters (ASTM D-5084) The test specimens shall be consolidated under an isotropic consolidation stress no greater than 10 pounds per square inch and permeated with water under an adequate backpressure to achieve saturation of the test specimens The inflow to and outflow from the specimens shall be monitored with time and the hydraulic conductivity calculated for each recorded flow increment The test shall continue until steady state flow is achieved and relatively constant values of hydraulic conductivity are measured (ASTM D-5084)

(e) The test strip shall meet or exceed the standards established below except the field density which shall be established by the QA Engineer, based upon the test strip results If the test strip fails to meet these standards, the construction methods and/or material will be rejected and the test strip shall be performed again

c Final Cover Installation - Full scale final cover installation may begin only after completion of a successful test section During clay layer construction, quality control testing shall be provided to document that the installed clay layer conforms to project specifications The testing frequency for quality control testing is specified below, however, <u>during construction of the first five acres, the frequencies shall be doubled</u> The clay layer shall be installed in two 6" lifts for a total minimum thickness of 12"

(1) Location - The clay layer shall be tested in place The locations of testing shall be random locations as determined by the Soils Quality Control Monitor If there are indications of a change in product quality or construction procedures during final cover construction, additional tests shall be performed to determine compliance

(2) Standard

(a) Clay Layer Subgrade - Compacted to 90% of Modified Proctor maximum dry density (ASTM D-1557) (See Intermediate Cover above)

(b) Field Density - The field density shall be established by the QA Engineer based upon the test strip results and shall be determined by Standard Proctor Density (ASTM D-698) In no case shall the field density be less than 80% of Standard Proctor Density (ASTM D-698).

(c) Thickness - Each lift (two total) shall be a minimum of 6" thick.

(d) Hydraulic Conductivity - The compacted clay layer shall have an in-place hydraulic conductivity no greater than 1 0 x 10^{-7} cm/sec (ASTM D-5084)

(3) Field Testing Frequency

(a) Prior to the laying of the clay layer materials, the clay layer subgrade shall be compacted to the specified density Density tests shall be conducted at a minimum rate of two tests per acre,

(b) A minimum of two moisture content and field density determinations shall be conducted per acre per lift of the compacted clay layer The degree of compaction shall be checked using the one-point field Proctor test or other appropriate test procedures; and

(c) A minimum of four thickness measures shall be conducted per acre per lift of the compacted clay layer

(4) Laboratory Testing Frequency

(a) Percent fines (ASTM D-1140) of the clay layer material shall be determined at a minimum frequency of two tests per acre per lift of installed clay layer,

(b) Atterberg limits determinations shall be performed on one sample per acre per lift of installed clay layer, and

(c) Hydraulic conductivity testing of Shelby tube or drive cylinder (ASTM D-2937) samples of the compacted clay layer shall be performed at a minimum frequency of one test per acre per lift Laboratory hydraulic conductivity tests shall be conducted in triaxial type permeameters (ASTM D-5084) The test specimens shall be consolidated under an isotropic consolidation stress no greater than 10 pounds per square inch and permeated with water under an adequate backpressure to achieve saturation of the test specimens The inflow to and outflow from the specimens shall be monitored with time and the hydraulic conductivity calculated for each recorded flow increment The test shall continue until steady state flow is achieved and relatively constant values of hydraulic conductivity are measured

(5) Deficiency - If the test data from a clay layer section does not meet the requirements of the project specifications, additional random samples shall be tested from that clay layer section If such additional testing demonstrates that the thickness and hydraulic conductivity meet the requirements of the project specifications at the 95 percent confidence level, that clay layer section will be considered acceptable If not, that clay layer section shall be reworked or reconstructed so that it does meet these requirements

3 Clay Layer Tie-In (To Existing Clay Layer, Where Applicable)

a Location - The edge of any existing final cover adjacent to the proposed final cover area

b. Standard - The compacted clay layer of any existing final cover and the proposed final cover must be tied together to form one continuous seamless layer At the interface, the existing and new clay layers shall be compacted to form a seamless connection

c Frequency - The Soils Quality Control Monitor shall monitor the tie-in by visual inspection on a continuous basis

4 Vegetative Cover

a Location - The vegetative cover shall be tested in place The location of testing shall be determined by the Soils Quality Control Monitor.

b Standard - Top soil which is reasonably free of brush, weeds, and other litter, and relatively free of roots, stumps, stones and any other extraneous or toxic matter harmful to plant growth Roots with a diameter greater than 3/8" shall be hand picked and removed
The vegetative cover shall be at least 24" thick

c Frequency - Depth measurements shall be taken at the frequency of four per acre The soil shall be monitored on a continuous basis for extraneous matter

5 Final Cover Repairs (When Applicable)

If, during construction of the final cover system, damage is sustained on the final cover system (including the intermediate cover, clay layer and vegetative cover), the areas of damage shall be reconstructed and retested in accordance with corresponding section described above All repair areas shall be tested at the frequencies prescribed above, unless more frequent testing is required at the discretion of the Soils Quality Assurance Engineer

B Downcomer Pipes

Downcomer pipes shall be installed in the final cover at the low point of the terraces, to intercept the stormwater between terraces The downcomer pipes shall include the terrace side drains and terrace underdrain piping

The downcomer pipes shall be constructed as shown on the Construction Drawings. The clay around the pipes shall be compacted into a uniform homogeneous material Prior to placement of vegetative cover over the downcomer pipes, the pipe shall be inspected by the General Quality Control Monitor

1. Location - The compacted clay layer shall be tested in place The locations of testing shall be determined by the Soils Quality Control Monitor If there are indications of a change in product quality or construction procedures during construction, additional tests shall be performed to determine compliance

2 Standard -

a. Clay Layer Subgrade - Compacted to 90% of Modified Proctor maximum dry density (ASTM D 1557) (12" thick minimum)

b Field Density - The field density of the clay layer shall be as established in Section A.2 c (2)(b) above and shall be determined by Standard Proctor Density (ASTM D 698)

c. Thickness - Twelve inches minimum below pipe

d Hydraulic Conductivity - The compacted clay layer shall have an in-place hydraulic conductivity no greater than $1\ 0 \times 10^{-7}$ cm/sec (ASTM D 5084).

3. Field Testing Frequency -

a. Prior to the laying of the compacted clay materials, the subbase shall be compacted to the specified density Density tests and thickness shall be conducted at a minimum rate of one per 75 L F of pipe (Minimum of one test between terraces)

b A minimum of one moisture content and field density determination of the compacted clay layer shall be conducted per 75 L F of pipe

c A minimum of two thickness measures of the compacted clay layer shall be conducted per 75 L F of pipe

4. Laboratory Testing Frequency -

a Hydraulic conductivity testing of Shelby tube or drive cylinder (ASTM D 2937) samples of the compacted clay layer shall be performed at a minimum frequency of one test per 75 L F of pipe (at least once between terraces) Laboratory hydraulic conductivity tests shall be conducted in triaxial type permeameters (ASTM D 5084) The test specimens shall be consolidated under an isotropic consolidation stress no greater than 10 pounds per square inch and permeated with water under an adequate backpressure to achieve saturation of the test specimens The inflow to and outflow from the specimens shall be monitored with time and the hydraulic conductivity calculated for each recorded flow increment The test shall continue until steady state flow is achieved and relatively constant values of hydraulic conductivity are measured

5. Deficiency - If the test data from a compacted clay layer section does not meet the requirements of the project specifications, that section shall be reworked or reconstructed so that it does meet these requirements

C Underdrain Filter Sand

The underdrains in the terraces shall be surrounded by filter sand as shown on the Contract Drawings. The QA/QC for the filter sand is as follows

1. Filter Sand

a Location - The material shall be pre-qualified prior to installation

If the testing is done at the borrow source, a chain of custody shall be provided

b Standard - Clean, uniformly graded sand with a uniformity coefficient of 1 5 or greater and an effective grain size of 0.2 mm to 0 5 mm Grain size distribution shall be conducted as part of pre-qualification

The sand shall have a hydraulic conductivity no less than 1.0×10^{-3} cm/sec at a density of 100 percent Modified Proctor The hydraulic conductivity testing shall be by Constant Head method (ASTM D2434)

c Frequency - The hydraulic conductivity of the sand shall be tested once per 100 C Y of sand material

D Gas Vents

Gas vents shall be installed through the final cover The QA/QC for gas vent materials shall be as follows:

1 Gravel

a Location - The gravel shall be pre-qualified by certification by the supplier

b Standard - The gravel shall be clean gravel with no fines The gravel shall be FDOT No 4 Course Aggregate (ASTM D 448)

The gravel shall be non-calcareous (ASTM D 4373)

c Frequency - The gravel shall be certified by the supplier The gravel shall be tested once per 100 C Y

2 Bentonite

a Location - The material shall be pre-qualified with documentation from the supplier

b Standard - The material shall be a homogeneous, inorganic material with at least 50 percent, by weight, passing the No 200 sieve (ASTM D 1140)

c Frequency - The material shall be certified by the supplier, one time only.

APPENDIX N
CLOSURE AND POST-CLOSURE
COST ESTIMATES

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

FINANCIAL ASSURANCE COST ESTIMATES

Date October 25, 1996

Date of FDEP Approval ____________

I. GENERAL INFORMATION.

Facility Name Trail Ridge Class I Landfill GMS No GMS 3116P03090

Permit No SC16-184444 Expiration Date 12-24-96

Address (facility) 5110 U.S. Highway 301, Baldwin, Florida 32234

Address (mailing) Same As Above

Permittee (operating authority) Trail Ridge Landfill, Inc.

Facility Lat 30°14'00"N Long 82°02'30"W or UTM's ____________

Description of the Solid Waste Disposal Units included This estimate is for closure after Fill Phase 10 (The estimated worst case).

Landfill Acreage included in this Estimate 100.1 Ac (94.8 Ac Top Area + 5.3 Ac Side Slopes)

Date Disposal Unit Began Accepting Waste 5/18/92 Design Life of Disposal Unit ____ Years

Type of Landfill X Class I ____ Class III

____ Exempt, Type of Exemption ____________

Closure Plan Approved Yes / No

II. TYPE OF FINANCIAL DOCUMENT SUBMITTED TO ENSURE FINANCIAL ASSURANCE:

___ Trust Fund Agreement ___ Performance Bond (only for landfills with an approved closure plan)

___ Letter of Credit ___ Standby Trust Fund Agreement

___ Insurance Certificate XX Escrow Account

___ Financial Guarantee Bond ___ Other (Explain) ____________

III. ESTIMATED CLOSING COST

For the time period in the landfill operation when the extent and manner of its operation makes closing most expensive

**** Third Party Estimate/Quote must be provided for each item.**
**** Costs must be for a third party providing all material and labor.**

All items must be addressed. Attach a detailed explanation for all items marked not applicable (N/A)

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL**
1 Monitoring Wells The monitoring wells will be installed prior to closure (as part of operation).				
Borehole Excavation	CY			
Backfill	CY			
Gravel Pack	CY			
Casing	LF			
Screen	EA			
Cap	EA			
			Subtotal Monitor Wells	$ 0.00
2 Slope and Fill				
Excavation	CY	N/A		
Placement/Spreading	~~CY~~ SY	484,484	$ 1.89/SY	$ 915,674.76
Compaction	CY	Included with Placement/Spreading		
Delivery-Off Site Material	CY	Included as part of operation		
			Subtotal Slope and Fill	$ 915,674.76
3 Cover Material				
Clay Admixture	CY	N/A		
Synthetic Material (Top Area Only)	SY	458,832	$ 4.11/SY*	$ 1,885,799.52
Off-site ~~On-Site~~ Clay/Soil	~~CY~~ SY	25,652	$10.13/SY	259,854.76
			Subtotal Cover Material	$ 2,145,654.28

* Based upon NSC, October 1, 1996 Price List.

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL**
4 Top Soil Cover				
Off-site ~~On-Site~~ Material (Sand)	CY	152,944	$ 11.80/CY	$ 1,804,739.20
Off-Site Material (Top Soil)	CY	170,046	$ 12.285/CY	$ 2,089,015.11
Delivery	CY	Included with Material		
Spreading	CY	Included with Material		
Compaction	CY	Included with Material		
			Subtotal Top Soil Cover	$ 3,893,754.31
5 Stormwater Control				
Excavation, Grading & Recontouring *	CY	8,815	$ 6.00/CY	$ 52,890.00
Stormwater Sideslope Conveyances Downcomers	~~AC~~-LF	4,450	$ 52.50/LF	$ 233,625.00
Ditch Construction	LF	41,050	$ 12.60/LF	$ 517,230.00
Underdrain ~~Berm Construction~~ - Terrace Drainage	~~CY~~EA	14	$ 2,000/EA	$ 28,000.00
			Subtotal Stormwater Control	$ 831,745.00

* Assume one intermediate berm 3' high and 10' wide on the top with downcomers.

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL**
6 Gas Migration Control				
Wells	LF	69	$ 5,307.75/EA	$ 366,,234.75
Pipe and Fittings	LF	Included with Wells		
Traps	EA	Included with Gas Collection System below		
Sump	EA	Included with Gas Collection System below		
Flare Assembly	EA	Included with Gas Collection System below		
Flame Arrestor	EA	Included with Gas Collection System below		
Mist Eliminator	EA	Included with Gas Collection System below		
Flow Meter	EA	Included with Gas Collection System below		
Blowers	EA	Included with Gas Collection System below		
Monitoring Probes	EA	Included with Gas Collection System below		
Gas Collection System *	LS	1		$ 2,700,000.00
			Subtotal Gas Migration Control	$ 3,066,234.75

* This is an estimate only without benefit of design.

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL**
7 Revegetation				
Sodding	SY	484,484	$ 1.89/SY	$ 915,674.76
Soil Preparation/Grading	SY	N/A		
Hydroseeding	AC	N/A		--
Fertilizer	AC	Included with Hydroseeding and Sodding		
Mulch	AC	Included with Hydroseeding and Sodding		
			Subtotal Revegetation	$ 915,674.76
8 Landscape Irrigation System N/A				
Pipe and Fittings	LF			
Pumps	EA			
			Subtotal Landscape Irrigation System	$ 0.00
9 Security System The security system was installed as part of operation.				
Fencing	LF			
Gate(s)	EA			
Sign(s)	EA			
			Subtotal Security System	$ 0.00
10 Engineering				
Closure Plan Report	LS		$ 20,000.00	$ 20,000.00
Certified Engineering Drawings (for construction)	LS		$ 250,000.00	$ 250,000.00
Closure Permit	LS		$ 50,000.00	$ 50,000.00
Other (Detail)				
			Subtotal Engineering	$ 320,000.00

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL**
11 Benchmark Installation	EA	Included with Benchmark Survey		
Benchmark Survey	LS		$ 20,000.00	$ 20,000.00
			Subtotal Benchmark Installation	$ 20,000.00
12 Certification of Closure	LS		$ 60,000.00	$ 60,000.00
			Subtotal Certification of Closure	$ 60,000.00
13 Administrative *				
P E Supervisor	HR	104	$ 125.00/HR	$ 13,000.00
On-Site Engineer	HR	1300	$ 75.00/HR	$ 97,500.00
Office Engineer	HR	208	$ 95.00/HR	& 19,760.00
On-Site Technician	HR			
Other- (explain)				
Clerical				$ 5,824.00
Expenses				$ 10,000.00
			Subtotal Administrative	$ 146,084.00

* Based upon a construction schedule of 26 weeks.

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL**
14 Quality Assurance				
P E Supervisor	HR	100	$ 100.00/HR	$ 10,000.00
On-Site Engineer	HR	1200	$ 52.00/Hr	$ 62,400.00
Office Engineer	HR	400	$ 80.00/HR	$ 32,000.00
On-Site Technician	HR	4800	$ 39.50/HR	$ 189,600.00
Other- (explain)				
Laboratory				$ 60,000.00
			Subtotal Quality Assurance	$ 354,000.00
15 Site Specific Costs (explain)				
Mobilization/Demobilization	LS			$ 100,000.00
Erosion Control	LS			$ 100,000.00

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL**

Bonds (1.2% of Construction Costs) $ 150,000.00

Subtotal Site Specific Costs $ 350,000.00

16 Contingency 15 % of Total 1,952,823.28

TOTAL CLOSING COSTS 14,971,645.14

Note: The construction costs are based upon the side slope closure of Trail Ridge Landfill Units 9, 10 & 11 (J.B. Coxwell Contracting, Inc. unit prices of Jan. 28, 1994 plus 5%).

CERTIFICATION BY ENGINEER

This is to certify that the Financial Assurance Cost Estimates pertaining to the engineering features of this solid waste management facility have been examined by me and found to conform to engineering principals applicable to such facilities In my professional judgement, the Cost Estimates are a true, correct and complete representation of the financial liabilities for closing and long-term care of the facility, and comply with the requirements of Florida Administrative Code (FAC), Rule 17-701 630 and all other Department of Environmental Protection rules, and statutes of the State of Florida It is understood that the Financial Assurance Cost Estimates shall be revised and submitted to the Department annually as required by FAC 17-701 630(4)

Juanitta Bader Clem

Signature

3131 St. Johns Bluff Road South

Mailing Address

Juanitta Bader Clem, Project Manager

Name and Title (please type)

Jacksonville, Florida 32246

City, State, Zip Code

43245

Florida Registration Number (please affix seal)

(904) 642-8990

Telephone Number

Date Oct. 25, 1996

This opinion of Probable Cost is based upon a final closure after Fill Phase 10, which would require final closure design. This opinion of Probable Cost is without benefit of final design.

IV. ANNUAL COST FOR LONG-TERM CARE

(for 20 or 30 yrs ,see 17-701 600(1)a 1)
(circle one)

****Third Party Estimate/Quote must be provided for each item**
****Costs must be for a third party providing material and labor.**

All items must be addressed. Attach a detailed explanation for all items marked not applicable (N/A)

DESCRIPTION	UNIT (A)	QUANTITY (B)	UNIT COST (C)	ANNUAL COST** (D)=(A)x(B)x(C)
1 Groundwater Monitoring 17-701 510(6), (8)(a)	sampling frequency events/yr	# of wells	$/well/event	$/yr
Monthly	N/A			
Quarterly	N/A			
Semi-Annual	2	42	784.50*	65,898.00
Annual Report	1			1,528.00
Semi-Annual Report	1			1,284.00

Subtotal Groundwater Monitoring $ 68,710.00

* Includes sampling and laboratory analysis.

DESCRIPTION	UNIT (A)	QUANTITY (B)	UNIT COST (C)	ANNUAL COST** (D)=(A)x(B)x(C)
2 Gas Monitoring 17-701 400(10)	sampling frequency events/yr	# of locations	$/location/event	$/yr
Monthly	N/A			
Quarterly	4	52*	$ 35/Location	$ 7,280.00
Semi-Annual	N/A			
Annual	N/A			

* Assume one gas probe every 200 feet around landfill.

Subtotal Gas Migration Monitoring $ 7,280.00

DESCRIPTION	UNIT (A)	QUANTITY (B)	UNIT COST (C)	ANNUAL COST** (D)=(A)x(B)x(C)
3 Leachate Monitoring 17-701 510(5), (6)(b), 17-701 510(8)(c)	sampling frequency events/yr	# of locations	$/location/event	$/yr
Monthly	N/A			
~~Quarterly~~ Semi-Annual	2	6	$ 1,892.50*	$ 22,710.00
~~Semi-Annual~~ Composite	2	1	$ 1,114.00*	$ 2,228.00
~~Annual~~	Semi-Annual Report is included with Groundwater Monitoring			

Subtotal Leachate Monitoring $ 24,938.00

* Includes sampling and laboratory analysis.

DESCRIPTION	UNIT (A)	QUANTITY (B)	UNIT COST (C)	ANNUAL COST** (D)=(A)x(B)x(C)
4 Surface Water Monitoring 17-701 510(4), (8)(b)	sampling frequency events/yr	# of locations	$/location/event	$/yr
Monthly	N/A			
Quarterly	4	3	$ 486.00**	$ 5,832.00
** Includes sampling and laboratory analysis.				
Semi-Annual	N/A			
Quarterly Report* ~~Annual~~	2	1	$ 516.00	$ 1,032.00

* Includes quarterly surface water and gas monitoring reports

Subtotal Surface Water Monitoring $ 6,864.00

5 Maintenance of Leachate Collection/Treatment Systems (between semi-annual reports).

Collection Pipes	LF	N/A		
Sumps, Traps	EA	N/A		
Lift Stations	EA	N/A		
Impoundments- Liner Repair	SF	N/A		
Sludge Removal	CY	N/A		
Aeration Systems- Floating Aerators	EA	N/A		
Spray Aerators	EA	N/A		
Off-Site Disposal	1000gal	5,657.5	$ 50.00/1000 gal.	$ 282,875.00

On-Site Pretreatment
System Maintenance-(Describe)

Other (Describe)-

Replace/Maintain Pumps, Panels, etc. $ 30,500.00

Subtotal Leachate Collection/Treatment System Maintenance $ 313,375.00

DESCRIPTION	UNIT (A)	QUANTITY (B)	UNIT COST (C)	ANNUAL COST** (D)=(A)x(B)x(C)

6 Maintenance of Groundwater Monitoring Wells ~~LF~~ LS 1 $ 5,300.00 $ 5,300.00

Subtotal Groundwater Monitoring Well Maintenance $ 5,300.00

* Assume replacement of one well per year.

7 Maintenance of Gas Migration System

Piping, Vents	LF	The gas collection system has
Blowers	EA	not been designed. Asume
Flaring Units	EA	$ 12,000 per year for all
Meters, Valves	EA	maintenance.

Subtotal Gas Migration System Maintenance $ 12,000.00

8 Landscape Maintenance

Mowing	AC	155	$ 220/AC	$ 34,100.00
Fertilizer	AC	155	$ 275/AC	$ 42,625.00
Irrigation	AC	N/A		

Subtotal Landscape Maintenance $ 76,725.00

9 Benchmark Maintenance EA N/A

Subtotal Benchmark Maintenance $ 0.00

10 Administrative/Overhead-

P E Supervisor	HR	2080	$ 25.00/HR*	$ 52,000.00
On-Site Engineer	HR			
Office Engineer	HR			
On-Site Technician	HR	2080 x 4	$ 18.00/HR*	$ 149,760.00
Other (explain)				
Electricity-include Leachate Pumps, Blowers, Lighting, etc	LS			$ 25,000.00

Subtotal Administrative $ 226,760.00

* Labor rates include direct and indirect labor costs, including benefits, etc.

DESCRIPTION	UNIT (A)	QUANTITY (B)	UNIT COST (C)	ANNUAL COST** (D)=(A)x(B)x(C)

11 Maintenance of Cover

Sodding Soil	AC	7.75*	$ 1200/AC	$ 9,300.00
Regrading	AC	Included with Sodding, Soil		
Liner Repair-Synthetic	SY	Included with Sodding, Soil		
Clay	CY	N/A		

Subtotal Cover Integrity Maintenance $ 9,300.00

* 5% of the 155 AC landfill.

12 Surface Water Drainage Maintenance

Ditch Cleaning	LF	10,400	$ 1.00/LF	$10,400.00
Stormwater Conveyance Maint	EA	1	$ 4,600/EA	$ 4,600.00

Subtotal Drainage Maintenance $ 15,000.00

13 Security System Maintenance

Fences	LF	Assume $ 10,000 per year		
Gate(s)	EA	for all maintenance.		
Sign(s)	EA			

Subtotal Security System Maintenance $ 10,000.00

14 Remedial Actions LS

Subtotal Remedial Actions $ 0.00

15 Site Specific Costs (explain)

Subtotal Site Specific Costs $ 0.00

LONG-TERM CARE COSTS ($/yr) $ 776,252.00

TOTAL LONG-TERM CARE COSTS ($) $ 23,287,560.00

CERTIFICATION BY ENGINEER

This is to certify that the Financial Assurance Cost Estimates pertaining to the engineering features of this solid waste management facility have been examined by me and found to conform to engineering principals applicable to such facilities In my professional judgement, the Cost Estimates are a true correct and complete representation of the financial liabilities for closing and long-term care of the facility, and comply with the requirements of Florida Administrative Code (FAC), Rule 17-701 630 and all other Department of Environmental Protection rules, and statutes of the State of Florida. It is understood that the Financial Assurance Cost Estimates shall be revised and submitted to the Department annually as required by FAC 17-701 630(4)

Juanitta Bader Clem
Signature

3131 St. Johns Bluff Road South
Mailing Address

Juanitta Bader Clem, Project Manager
Name and Title (please type)

Jacksonville, Florida 32246
City, State, Zip Code

43245
Florida Registration Number (please affix seal)

(904) 642-8990
Telephone Number

Date Oct 25, 1996

APPENDIX O

STORMWATER MANAGEMENT MODIFICATION

FOR AGENCY USE ONLY

ACOE Application # ____________ SJR Application # ____________

Date Application Received ____________ Date Application Received ____________

Proposed Project Lat. ___° ___' ___" Fee Received $ ____________

Proposed Project Long. ___° ___' ___" Fee Receipt # ____________

Date Received ______ Project Use Codes ______

Assigned Reviewers ____________ Reviewer# 's ______

SECTION A

Are any of the activities described in this application proposed to occur in, on, or over wetlands or other surface waters?

___ yes ___ no

A. Type of Environmental Resource Permit Requested (check at least one)

_____ Noticed General - include information requested in Section B
_____ Standard General (Single Family Dwelling) - include information requested in Sections C and D
_____ Standard General (all other projects) - include information requested in Sections C and E.
_____ Individual (Single Family Dwelling) - include information requested in Sections C and D
_____ Individual (all other projects) - include information requested in Sections C and E.
_____ Conceptual - include information requested in Sections C and E.
_____ Mitigation Bank Permit (construction) - include information requested in Sections C and F
(If the proposed mitigation bank involves the construction of a surface water management system requiring another permit defined above, check the appropriate box and submit the information requested by the applicable section)
_____ Mitigation Bank (conceptual) - include information requested in Sections C and F
_____ Standard General Stormwater - include information requested in Sections C and H
_X_ Individual Stormwater - include information requested in Sections C and H

B. Type of activity for which you are applying (check at least one)

_____ Construction and operation of a new system including dredging or filling in, on or over wetlands and other surface waters.
_____ Alteration and operation of an existing system which was not previously permitted by a WMD or DEP
_X_ Modification of a system previously permitted by a WMD or DEP. Provide previous permit numbers:
SW10-184444 Including DEP File Nos. 184444, 184445 and 184447.

_X_ Alteration and operation of a system ___ Extension of permit duration
___ Abandonment of a system ___ Construction and operation of additional phases of a system
___ Removal of a system

C. Are you requesting authorization to use State Owned Submerged Lands? ___ **yes** _X_ **no**
(If yes, include the information requested in Section G.)

D. For activities in, on or over wetlands or other surface waters, check type of federal dredge and fill permit requested:

___ Individual N/A ___ Programmatic General
___ General ___ Nationwide

E. Are you claiming to qualify for an exemption? ___ **yes** _X_ **no**

If yes provide rule number if known ____________

OWNER(S) OF LAND	ENTITY TO RECEIVE PERMIT (IF OTHER THAN OWNER)
NAME City of Jacksonville	NAME Trail Ridge Lanfill, Inc.
ADDRESS 515 N. Laura St., 6th floor	ADDRESS 5110 U.S. Hwy. 301
CITY, STATE, ZIP Jacksonville, FL 32202	CITY, STATE, ZIP Baldwin, FL 32234
COMPANY AND TITLE Department of Public Utilities, Solid Waste Division	COMPANY AND TITLE Trail Ridge Landfill, Inc. Greg Mathes, General Manager & Div. President
TELEPHONE (904) 632-8081 FAX (904) 632-4470	TELEPHONE (904) 289-9100 FAX (904) 289-9013
AGENT AUTHORIZED TO SECURE PERMIT (IF AN AGENT IS USED)	**CONSULTANT (IF DIFFERENT FROM AGENT)**
NAME	NAME Juanitta Bader Clem, P.E.
COMPANY AND TITLE	COMPANY AND TITLE Vice President England, Thims & Miller, Inc.
ADDRESS	ADDRESS 3131 St. Johns Bluff Rd. S.
CITY, STATE, ZIP	CITY, STATE, ZIP Jacksonville, FL 32246
TELEPHONE ( ) FAX ( )	TELEPHONE (904) 642-8990 FAX (904) 646-9485

Name of project, including phase if applicable Trail Ridge Landfill
Is this application for part of a multi-phase project? ___ yes X no
Total applicant-owned area contiguous to the project 978± ac
Total project area for which a permit is sought 184.4± ac Drainage Area
Impervious area for which a permit is sought 18 ac Existing
What is the total area (metric equivalent for federally funded projects) of work in, on, or over wetlands or other surface waters?
0 acres ___ square feet ___ hectares ___ square meters
If a docking facility, the number of proposed new slips N/A

Project location (use additional sheets, if needed)
County(ies) Duval
Section(s) 18,19,20 Township(s) 3S Range(s) 23E
Section(s) ___ Township(s) ___ Range(s) ___
Land Grant name, if applicable ___
Tax Parcel Identification Number ___
Street address, road, or other location ___
City, Zip Code if applicable ___

Describe, in general terms, the proposed project, system or activity.

Modify the existing stormwater treatment facility from a filtration system to a wet detention facility.

If there have been any pre-application meetings, including at the project site, with regulatory staff, please list the date(s), location(s), and names of key staff and project representatives.

N/A

Please identify by number any MSSW/Wetland Resource/ERP/ACOE permits pending, issued or denied for projects at the location and any related enforcement actions.

Agency	Date	No.\Type of Application	Action Taken(Pending/Issued/Denied)
DEP	12-24-91	Solid Waste/MSSW	Issued

Note: The following information is required for projects proposed to occur in, on or over wetlands or other surface waters that need a federal dredge and fill permit and/or authorization to use state owned submerged lands Please provide the names ,addresses and zip codes of property owners whose property directly adjoins the project (excluding applicant). Please attach a plan view showing the owner's names and adjoining property lines Attach additional sheets if necessary.

1 ______

2. N/A

3 ______

4. ______

By signing and submitting this application form, I am applying, or I am applying on behalf of the applicant, for the permit and any proprietary authorizations identified above, according to the supporting data and other incidental information filed with this application. I am familier with the information contained in this application, and represent that such information is true complete and accurate. I understand this is an application and not a permit, and work prior to approval is a violation I understand that this application and any permit issued or proprietary authorization issued pursuant thereto, does not relieve me of any obligation for obtaining any other required federal, state, water management district or local permit prior to commencement of construction. I agree, or I agree on behalf of my corporation, to operate and maintain the permitted system unless the permitting agency authorizes transfer of the permit to a responsible operation entity I understand that knowingly making any false statement or representation in this application is a violation of Section 373.430, F.S., and 18 U.S C. Section 1001.

John Van Gessel

Typed/Printed Name of Applicant (If no Agent is used) or Agent (If one is so authorized below)

Oct 24, 1996

Signature of Applicant/Agent Date

Vice President and General Counsel

(Corporate Title if applicable)

AN AGENT MAY SIGN ABOVE ONLY IF THE APPLICANT COMPLETES THE FOLLOWING:

I hereby designate and authorize the agent listed above to act on my behalf, or on behalf of my corporation, as the agent in the processing of this application for the permit and/or proprietary authorization indicated above, and to furnish, on request, supplemental information in support of the application In addition, I designate and authorize the above-listed agent to bind me, or my corporation, to perform any requirement which may be necessary to procure the permit or authorization indicated above. I understand that knowingly making any false statement or representation in this application is a violation of Section 373 430, F S, and 18 U S C Section 1001

Typed/Printed Name of Applicant Signature of Applicant Date

(Corporate Title if applicable)

Please note: The applicant's original signature (not a copy) is required above.

PERSON AUTHORIZING ACCESS TO THE PROPERTY MUST COMPLETE THE FOLLOWING:

I either own the property described in this application or I have legal authority to allow access to the property, and I consent, after receiving prior notification, to any site visit on the property by agents or personnel from the Department of Environmental Protection, the Water Management District and the U.S. Army Corps of Engineers necessary for the review and inspection of the proposed project specified in this application. I authorize these agents or personnel to enter the property as many times as may be necessary to make such review and inspection Further, I agree to provide entry to the project site for such agents or personnel to monitor permitted work if a permit is granted

John Van Gessel Oct 24, 1996

Typed/Printed Name Signature Date

Vice President and General Counsel

(Corporate Title if applicable)

SECTION C
ENVIRONMENTAL RESOURCE PERMIT NOTICE OF RECEIPT OF APPLICATION

This information is required in addition to that required in other sections of the application. Please submit five copies of this notice of receipt of application and all attachments. Please submit all information on 8 1/2" x 11" paper.

Project Name: Trail Ridge Landfill County. Duval
Owner City of Jacksonville, Florida
Applicant. Trail Ridge Landfill, Inc.
Applicant's Address. 5110 US Hwy. 301
Baldwin, FL 32234

1 Indicate the project boundaries on a USGS quadrangle map reduced or enlarged as necessary to legibly show the entire project. If not apparent from the quad map, attach a location map showing a north arrow and a graphic scale, Section(s), Township(s), and Range(s), and sufficient detail to allow a person unfamiliar with the site to find it.

2 Provide the names of all wetlands, or other surface waters that would be dredged, filled, impounded, diverted, drained, or would receive discharge (either directly or indirectly), or would otherwise be impacted by the proposed activity, and specify if they are in an Outstanding Florida Water or Aquatic Preserve
The pond discharges to the headwaters of Deep Creek.

3 Attach a depiction (plan and section views), which clearly shows the works or other facilities proposed to be constructed. Use a scale sufficient to show the location and type of works Use multiple sheets, if necessary

4 Briefly describe the proposed project (such as "construct a deck with boatshelter", "replace two existing culverts", "construct surface water management system to serve 150 acre residential development")
Modify an existing stormwater treatment facility from a filtration system to a wet detention facility.

5 Specify the acreage of wetlands or other surface waters, if any, that are proposed to be disturbed, filled, excavated, or otherwise impacted by the proposed activity
N/A - this is an existing pond.

6 Provide a brief statement describing any proposed mitigation for impacts to wetlands and other surface waters (attach additional sheets if necessary)
N/A

FOR AGENCY USE ONLY
Application Name:
Application Number:
Office where the application can be inspected:
Date to be posted
Date to be removed:

SECTION H
INFORMATION FOR ENVIRONMENTAL RESOURCE STORMWATER PERMITS

Provide the information requested below if the proposed project requires an environmental resource stormwater permit.

I. General Permit Category: Projects which meet one of the following performance criteria qualify for a general permit. If applicable, indicate the appropriate general permit category below:

a) Systems which discharge into a stormwater management system which is permitted pursuant to Paragraphs 40C-42.024(2)(b), (c), or (d), F.A.C., or Subsection 40C-42.024(3), F.A.C., or which was previously approved pursuant to a noticed exemption under Section 17-25.030, F.A.C., where the appropriate treatment criteria specified in this chapter and applied to the permitted or exempt system are not exceeded by the discharge; or,

b) Systems which meet the applicable design and performance standards of Section 40C-42.025, F.A.C., and which comply with any or more of the following:

1. dry detention systems within project areas less than 5 acres in size, and which serve a drainage area less than 5 acres in size and which meet the criteria of Subsection 40C-42.026(1), F.A.C.;

2. retention systems which meet the criteria of Subsection 40C-42.026(2), F.A.C.;

3. underdrain systems which meet the criteria of Subsection 40C-42.026(3), F.A.C.;

4. underground exfiltration trench systems which meet the criteria of Subsection 40C-42.026(4), F.A.C.;

XX 5 wet detention systems which meet the criteria of Subsection 40C-42.026(5), F.A.C., or

6. swale systems which meet the criteria of Subsection 40C-42.026(6), F A C ; or,

c) Systems that include a combination of management practices including but not limited to retention basins, swales, pervious pavement, landscape or natural retention storage that will provide for the percolation of the runoff from a three-year one-hour design storm, or,

d) Modification or reconstruction by a city, county, state agency, or special district with drainage responsibility of an existing stormwater management system which is not intended to increase the original design capacity, and which will not increase pollution loading, or change points of discharge in a manner that would adversely affect the designated uses of waters of the State, or,

e) Paving of existing public dirt roads if all of the following are met

1 the road will not serve new development,

2 additional traffic lanes are not added to the road,

3 the traffic load is not expected to significantly increase;

4 the drainage system serving the road is not significantly altered,

5. erosion and sediment control measures are utilized to prevent turbidity during construction; and,

6. the project does not require a wetland resource management (dredge and fill) permit pursuant to Chapter 17-312, F.A.C

Individual Permit Categories: If applicable, indicate the appropriate permit category below.

a) Wetlands stormwater management systems which meet the design and performance criteria in Sections 40C-42.025 and 40C-42.0265, F.A.C.; or,

b) Systems which employ a treatment methodology or device other than those described in Subsections 40C-42.024(2) or (3), F.A.C.; or,

c) Systems which do not meet the applicable design criteria of Sections 40C-42.025, 40C-42.026, or 40C-42.0265, F.A.C.

Required Technical Information

All applicable technical information must be submitted with the completed application form. Failure to provide all required information will result in a delay in application processing and permit issuance.

A. General site conditions

1. Recent aerial photo of project site (no photocopies) - 1" to 400' scale maximum: See Drawing No. 2

2. Map(s) or applicable construction plan(s) (no larger than 24" X 36") showing: See attached design plans cover sheet.

a. General location of project shown on USGS quad map(s), including points of discharge:

b. Project area boundary: Drawing No. 4

c Pre-development (existing) topography, Drawing No. 5

d Pre-development drainage patterns including points of discharge for existing site drainage and drainage basin boundaries: Drawing No. 5

e. Off-site drainage area and flow patterns across project site, N/A

f. Location of existing drainage right-of-way or easements on-site: N/A

g. Location of private and public water supply wells on-site; and Drawing No. 4

h All wetlands on the site: Drawing No. 4

3 SCS soils map and report and/or soil boring data for treatment facility locations (borings should be a minimum 6 ft depth below ground surface and 5 ft. below proposed treatment facility bottom),

4 Water table data

a. Date, location, and water table level of actual measurements (if collected) with the estimated depth of antecedent rainfall (nearest NOAA rainfall station or other rain gage) during the previous one month period; and

b. Estimated normal dry and wet season water table elevation (provide source or method of estimate

B. Post-development project site conditions

1. Describe or document the legal outfall for point discharges of treated stormwater to adjacent property; Existing outfall - No change

2. Identify and describe all on-site and off-site stormwater management systems which discharge into or receive discharge from the proposed project; Existing pond and ditches - See Drawing No. 5

3. Provide the design tailwater elevation(s) at all points of discharge (include source or method of estimate); No change

4. Include the following on construction drawings for the project site: No change

a. Project land use and land cover;

b. Proposed construction, including erosion and sediment control plan for each phase (show specifications for erosion/sediment control measures on plans);

c. Vegetative cover plan for all on-site and off-site earth surfaces disturbed by construction;

d. Legal reservations for access to the treatment system for maintenance and operation by future maintenance entities for subdivided projects;

e Provide locations for the following on construction plans:

(1) Drainage divide and area (in acres) served by each hydraulically separate stormwater treatment system;

(2) Septic tank or other proposed on-site wastewater treatment facility; and

(3) Wells and surface water withdrawals;

f. Provide plans, elevations and/or profiles, and details for the following·

(1) Roadway and parking pavements,

(2) Floor slabs, walkways and other paved surfaces;

(3) Earthwork grades for pervious landscaped areas; and

(4) All stormwater treatment and drainage facilities,

(5). Show the following details for stormwater treatment systems construction plans·

a All treatment systems:

(1) Show the elevation of normal wet season water table, design normal water elevation, and elevations for storage of the treatment volume;

(2) Details of oil and grease control mechanism, if required;

(3) Details of the outlet and overflow control structure, and

(4) Details of treatment drawdown outlets. Show the design tailwater elevations on the outlet details; and

(5) The minimum erosion and sediment control measures to be implemented during construction and all permanent control measures in post-development conditions;

N/A b. Retention/detention facilities (including swales designed for retention/detention treatment only):

(1) Plan contours and/or cross section details showing bottom contours and elevations, all design dimensions, side slopes, and top of bank elevations; and

(2) Grassing or planting of all treatment system earth surfaces;

N/A c. Exfiltration trench:

(1) Trench dimensions and elevations;

(2) Pipe diameter, material, length, slope, perforation specification;

(3) Trench rock material with fillable porosity and filter fabric protection;

(4) Overflow elevation for trenches with outfall;

(5) Inlet and outlet structure details including sediment sumps; and

(6) Design and location of observation well(s);

N/A d Underdrain and filter systems·

(1) Pipe length, slope, diameter, and minimum and maximum inverts,

(2) Maintenance access (such as at-grade cleanouts) for the filter pipe,

(3) Permeability of filter media for filtration systems,

(4) Permeability of soils for underdrain systems;

(5) Filter media gradation (uniformity coefficient and effective grain size) for filtration systems;

(6) Underdrain or filter detail at a uniform horizontal and vertical scale no greater than 1 inch 5 feet (to scale, not typical);

(7) Permeable, protective and stable surface cover (at the surface slope) for the filter surface (such as gravel); and

(8) Filter fabric protection as applicable for perforated pipes, coarse aggregate sections, and round the filter section;

e. Wet detention systems:

(1) Littoral zone location and depths; and N/A

(2) Elevation contours of pond bottom; Drawing No. 5

N/A f. Wetland stormwater management systems:

(1) Delineation of wetland areas utilized for stormwater treatment;

N/A g. Karst Sensitive Areas

(1) Geologic borings and geologic sections through the retention basin area A geologic boring should be performed at the point of maximum excavation within the basin;

(2) Location and description of limestone outcrops and any karst features, i.e., sinkholes or solution pipes which exist at the project site; and

(3) Inventory of existing wells within a 1000 foot radius of the stormwater basin;

6. Design analysis/calculations (minimum required): See the attached calculations.

a. Provide the rational method runoff coefficient (c), drainage area, and impervious area (percentage of total drainage area) for each treatment system;

b. Calculate treatment volume required for each separate system (based on information in 5.a. above);

c. Provide stage-storage tabulations to demonstrate that required treatment storage is available in the treatment system below the overflow elevation;

d. Demonstrate 72 hour drawdown for retention, filtration, underdrain, or exfiltration trench systems based on natural soil conditions and/or specified filter media (with safety factor of 2 for filtration, underdrain, and exfiltration). Calculations must consider normal wet season water table and tailwater conditions to demonstrate recovery,

e. Demonstrate that the function of the proposed treatment systems does not adversely affect the treatment performance of all other stormwater management systems which serve or are served by the proposed project;

f Demonstrate no more than half the treatment volume is discharged within 48 to 60 hours following a storm event for wet detention and wetland stormwater management systems;

g Design analysis for sizing wet detention permanent pool volume;

h Describe any additional management practices such as pretreatment, which will be used to enhance the water quality of the stormwater discharge, and

i Peak discharge and conveyance calculations (if appropriate) for pre-development and post-development conditions as follows: No change in existing system.

(1) Runoff characteristics, including area, runoff curve number or runoff coefficient, SCS hydrologic soil group, and time of concentration for each drainage hydrologic unit;

(2) Design storms used including duration, frequency, and time distribution;

(3) Runoff hydrograph(s) for each drainage basin for all required design storm events;

(4) State-storage computations for any storage area, such as a detention area or channel storage, used in storage routing;

(5) Stage-discharge computations for any storage areas at a selected control point, such as structure control or natural restriction;

(6) Flood routings through on-site conveyance and storage areas;

(7) Water surface profiles and elevations in the primary surface water management system for the required design storm event(s); and

(8) Runoff peak rates and volumes discharged from the system for the design storm event(s);

7. Operation and maintenance

See attached stormwater Operations Plan

a. Describe the overall maintenance and operation schedule for the proposed stormwater treatment system;

b. If the proposed operation and maintenance entity is not a property owners association, provide proof of the existence of an entity or the future acceptance of the system by an entity, pursuant to Paragraphs 40C-42.027, (1)(a)-(d), F.A.C., which will operate and maintain the system;

c. If a property owners association is the proposed operation and maintenance entity, provide articles of incorporation for this association and the declaration, restrictive covenants, deed restrictions or other operational documents that assign responsibility for the operation and maintenance of the system, pursuant to 40C-42.027(4), F.A.C., and

d. Provide information to ensure the continued adequate access to stormwater treatment systems for maintenance purposes;

8. Alternative stormwater treatment (individual permit)

If equivalent treatment is to be provided, it is the applicant's responsibility to demonstrate that the stormwater management system, as designed, will meet or exceed the requirements set forth in the rule. Describe the subject stormwater discharge system. Discuss how the design is intended to achieve a treatment level equivalent to the design and performance criteria in Subparagraph 40C-42.024(2)(b)2. or Subsection 40C-42.024(4), F.A.C. Provide design analysis and calculations necessary to demonstrate that equivalent treatment will be achieved.

9 Wekiva River Basin (if applicable)

Submit the Local Government Notification form when any part of the system/project is within the Wekiva River Protection Area.

Note. If professional engineering, geology, or landscape architecture is required by Florida Statute for the design of the proposed stormwater management system, construction plans and calculations must be signed and sealed by an appropriate professional registered in the State of Florida.

TRAIL RIDGE LANDFILL
STORMWATER TREATMENT
MODIFICATION TO WET DETENTION

SITE AREA:

Landfill	155 0 AC
Roadway	7 0 AC
Ditch (Paved)	7.0 AC
Storage Area (Paved)	4 0 AC
Open	11 4 AC
	184.4 AC

RUN-OFF COEFFICIENT:

Landfill	155.0 AC	@ 0 8 =	124 0
Road, Ditch, Storage	18.0 AC	@ 0 9 =	16 2
Open Area	11 4 AC	@ 0 3 =	3.4
	184 4 AC		143 6

Composite Runoff Coefficient = 143 6/184 4 = 0 78

POND.

EL	AREA (AC)
80	3 0 AC (Bottom)
90	5 5 AC
100	8.1 AC
102	8.8 AC
104	9 5 AC
106	10.2 AC

WET DETENTION TREATMENT·

In accordance with Rule 40C-42 026 (4) (a), F A C., Wet detention stormwater management systems shall provide a treatment volume of the greater of the following

1 First one inch of runoff, or
2 2.5 inches of runoff from the impervious area

Therefore:

1 1 IN x 184 4 AC x FT/12 IN = 15.37 AC-FT

2 2 5 IN x (7.0 AC + 7 0 AC + 4 0 AC) x FT/12 IN = 3.75 AC-FT

Thus.

The facility must provide a treatment volume of 15 37 AC-FT

STORAGE VOLUME:

Outfall Control Elevation - EL. 105 42 (Lowest Culvert)

EL	AREA (AC)	TOTAL STORAGE (AC-FT)
103.8	9.4	0 0 (Normal Water Level)
104 0	9.5	1 9
105 0	9.8	11 5
105.42	10.0	15 7

Thus, with a normal water elevation of 103 8, the pond will provide treatment in excess of the required volume

RECOVERY OF TREATMENT VOLUME.

In accordance with Rule 40C-42.026(4) (b), F.A C , Wet detention stormwater management systems shall be designed so that the outfall structures shall bleed down one-half the appropriate treatment volume of stormwater within 48 to 60 hours following a storm event, but no more than one-half of this volume will be discharged within the first 48 hours

Therefore

$$\text{Max. Discharge Rate } (Q_{MAX}) = \frac{\text{Storage Volume}}{\text{48 Hours (2)}} = \frac{\text{13 8 AC-FT}}{\text{48 HR (2)}} = \text{1 74 CFS}$$

$$\text{Min. Discharge Rate } (Q_{MIN}) = \frac{\text{13 8 AC-FT}}{\text{60 HR (2)}} = \text{1 39 CFS}$$

Ground Water Inflow = 0 56 CFS (Based upon the base flow in the existing perimeter ditch on 10/15/96, one week after a storm event)

Total Discharge Max = 2.30 CFS or 1,032 2 GPM

Total Discharge Min = 1 95 CFS or 875 8 GPM

The discharge of treatment volume shall be controlled by the existing stormwater pump station This existing stormwater pump station has three pumps which were pump tested during installation, and each pump discharges at approximately 1,500 GPM. These pumps discharge to the wetland irrigation system and overflow to the existing dispersion pond

From the pond, treated stormwater shall enter the stormwater pump station via two existing 12" pipes (located at the end of the existing filter bed) The rate of the discharge will be controlled by metering the existing gate valves to control the inlet rate between 875 8 GPM and 1,032 2 GPM Note that the treatment elevations will be controlled via floats in the pump station and two back-up pumps are provided This triplex pump station provides for pump alternation of all three pumps

PERMANENT POOL VOLUME·

In accordance with Rule 40C-42 026 (4) (c), F A C , Wet detention stormwater management systems shall contain a permanent pool of water sized to provide an average residence time of at least 14 days during the wet season (June - October).

Further, in accordance with Rule 40C-42 026 (4) (d) 2 a , in lieu of the littoral zone requirements, the applicant may provide at least fifty percent additional permanent pool volume

Therefore, the required permanent pool volume.

Reg Volume = Area x Runoff Coefficient x 30" x (21 days/153 days)

= 184 4 AC x 0 78 x 30" x FT/12" x (21/153)

= 49 35 AC-FT

Storage below Control EL 105 42 ≈ 160± AC-FT

Thus, the permanent pool volume exceeds the required volume

POND DEPTH.

The pond is an existing permitted, constructed and certified treatment pond with a permitted depth of approximately 24 feet to Normal Water and since operation of the pond began, permanent pool volume of approximately 160 AC-FT

The existing Solid Waste/MSSW Permit includes monitoring of the stormwater discharge and since operation of the pond began, there have been no violations.

OPERATIONS PLAN:

During operations of Trial Ridge Landfill, the stormwater structures and conveyance ditches shall be maintained on an as needed basis (note that the perimeter ditch has been constructed and is concrete lined) to provide drainage to the stormwater management pond.

Areas that have been completed to final grade shall be closed and vegetated as soon as possible, in accordance with the Solid Waste Closure Plan

MAPS

AND

CD'S

SCANNED

SEPERATELY