

R E P O R T

**GROUNDWATER
INVESTIGATION REPORT**

FORMER BARKSDALE FACILITY
BARDSDALE, WISCONSIN

(VOLUME 2 OF 2)

Prepared for

E.I. DuPont De Nemours and Company, Inc.
Wilmington, Delaware

March 1999

URS Greiner Woodward Clyde

5250 East Terrace Drive Suite J
Madison, WI 53718
D4BA7191.99

SITE: BA
PROJECT #: 7191
CATEGORY: 0700
DATE COMD: _____
BY WHOM: _____

Route To: Watershed/Wastewater Waste Management
 Remediation/Redevelopment Other

Facility/Project Name DuPont Barksdale Facility			License/Permit/Monitoring Number		Boring Number GP-01	
Boring Drilled By (Firm name and name of crew chief) Boart Longyear, Jeff Flamino			Date Drilling Started 9/15/1998		Date Drilling Completed 9/15/1998	
Drilling Method Direct Push			WI Unique Well No. NA		DNR Well ID No. NA	
Common Well Name NA			Final Static Water Level Feet MSL		Surface Elevation 615.3 Feet MSL	
Borehole Diameter 2.0 Inches			Boring Location or Local Grid Origin (Check if estimated: <input type="checkbox"/>)			
State Plane SW 1/4 of SE 1/4 of Section 24, T 4 8 N, R 5			Lat. ° ' "		Local Grid Location (If applicable)	
Facility ID			County Bayfield		County Code 4	
Civil Town/City/ or Village Barksdale			Long. ° ' "			
U <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/>			Feet <input type="checkbox"/> S <input type="checkbox"/> W <input type="checkbox"/>			

Sample Number	Liquin. Ali. & Recovered (in)	Block Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID	Soil Properties					Time of Sampling	
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200		
1	24		-1	Soft, moist, medium plastic, brown to dark brown silty CLAY with organic material	L/CI			0		M					
			-2	Dry, stiff, medium plastic, red to red brown, silty CLAY trace gravel	CL			0		D					
3	24		-4	Moist, medium dense, poorly sorted, red-white, medium to fine, SAND	SP			0		D					
			-5	Dry, stiff, medium plastic, red to red-brown, silty CLAY trace gravel	CL										
4	24		-6	Moist, very dense, poorly sorted, red to dark brown, medium fine SAND trace silt	SP CL			0		D					
			-7	Moist, stiff moderately plastic, red to red-brown, silty CLAY trace gravel	SP										
				Moist, very dense, poorly sorted, red-white, medium fine SAND trace silt											
				End of Boring @ 7.5 ft. BGS Refusal BFD w/hole plug											loosely cemented some sandstone fragments



I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm Woodward-Clyde International-Americas 2312 North Grandview Blvd., Suite 210 Waukesha, WI 53188	Tel: 414/513-0577 Fax: 414/513-0575
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This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completions of this form is mandatory. Failure to file this form may result in forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

Route To: **Watershed/Wastewater** Waste Management
Remediation/Redevelopment Other

Facility/Project Name DuPont Barksdale Facility			License/Permit/Monitoring Number		Boring Number GP-02		
Boring Drilled By (Firm name and name of crew chief) Boart Longyear, Jeff Flamino			Date Drilling Started 9/15/1998		Date Drilling Completed 9/15/1998		
Drilling Method Geoprobe			WI Unique Well No. NA		DNR Well ID No. NA		
Common Well Name NA			Final Static Water Level Feet MSL		Surface Elevation 625.8 Feet MSL		
Borehole Diameter 2.0 Inches			Boring Location or Local Grid Origin (Check if estimated: <input type="checkbox"/>)				
State Plane 529,890 N, 1,733,616 E S/C(N)			Lat. ° ' "		Local Grid Location (If applicable)		
SW 114 of SE 1/4 of Section 24, T 48 N, R 5			Long. ° ' "		Feet <input type="checkbox"/> S <input type="checkbox"/> E <input type="checkbox"/> N <input type="checkbox"/> W		
Facility ID		County Bavfield		County Code 4		Civil Town/City/ or Village Barksdale	

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	C U S C S	Graphic Log	Well Diagram	PID	Soil Properties					Time of Sampling
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
1	24			Brown loamy CLAY Red brown silty CLAY	CL			0		M				
2	24		-1					0		D				
3	24		-2		CL			0		M				
4	24		-3					0		M				
			-4					0		M				
			-5					0		M				
			-6					0		M				
			-7					0		M				
				End of Boring @ 7.5 ft. Refusal										

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm Woodward-Clyde International-Americas	Tel: 414/513-0577
	23 12 North Grandview Blvd., Suite 210 Waukesha, WI 53 188	Fax: 414/513-0575

Route To: Watershed/Wastewater Waste Management
 Remediation/Redevelopment Other

Facility/Project Name DuPont Barksdale Facility			License/Permit/Monitoring Number		Boring Number GP-03		
Boring Drilled By (Firm name and name of crew chief) Boart Longyear			Date Drilling Started 9/15/1998		Date Drilling Completed 9/15/1998		
Drilling Method Geoprobe			WI Unique Well No. NA		DNR Well ID No. NA		
Common Well Name NA			Final Static Water Level Feet MSL		Surface Elevation 634.0 Feet MSL		
Borehole Diameter 2.0 Inches			Boring Location or Local Grid Origin (Check if estimated: <input type="checkbox"/>) State Plane 530,131 N, 1,733,215 E S/C/N				
Local Grid Location (If applicable)			Lat. _____"		<input type="checkbox"/> N <input type="checkbox"/> E		
SW 1/4 of SE 1/4 of Section 24, T 48 N, R 5			Long. _____"		Feet <input type="checkbox"/> S <input type="checkbox"/> W		
Facility ID		County Bayfield		County Code 4		Civil Town/City/ or Village Barksdale	

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID	Soil Properties					Time of Sampling
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
1	24		1	Dark brown to red brown loamy CLAY Red brown silty CLAY	CL			0		D				
2	24		2		CL			0		D				
3	24		4		CL			0		M				
4	24		6	Becoming sandy				0		D				
			7	White, gray, and black pockets of fine to coarse sand	SM/CL									
			8	End of Boring @ 8 ft. Refusal										

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Signature	Firm Woodward-Clyde International-Americas 23 12 North Grandview Blvd., Suite 210 Waukesha, WI 53188	Tel: 414/513-0577 Fax: 414/513-0575
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State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION
Form 4400-122 Rev. 5-97

Watershed/Wastewater Waste Management
Remediation/Redevelopment Other

Facility/Project Name DuPont Barksdale Facility			License/Permit/Monitoring Number		Boring Number GP-04	
Boring Drilled By (Firm name and name of crew chief) Boart Longyear			Date Drilling Started 9/22/1998		Date Drilling Completed 9/22/1998	
Drilling Method Rotasonic			Final Static Water Level Feet MSL		Surface Elevation 642.3 Feet MSL	
WI Unique Well No. NA		DNR Well ID No. NA		Common Well Name NA		Borehole Diameter 6.0 Inches
Boring Location or Local Grid Origin (Check if estimated: <input type="checkbox"/>) State Plane 559,437 N, 1,732,755 E S/C/N SE 1/4 of SW 1/4 of Section 24, T 48 N, R 5				Local Grid Location (If applicable) Lat. _____ Long. _____		<input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W
Facility ID		County Bayfield		County Code 4		Civil Town/City/ or Village Barksdale

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID	Soil Properties					Time of Sampling
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
1 CS	60 54		1	Soft, brown-gray, non plastic SILT with roots	ML									
			2	Dry-moist, stiff, non plasticity, red-brown with occasional gray mottled silty CLAY, trace gravel, trace cobbles										
			3											
			4		CL									
			5											
2 CS	60 60		6											
			7											
			8	Moist, loose to medium dense, poorly sorted, red-brown, medium fine SAND, trace silt, occasional sandstone fragments										
			9											
			10											
3 CS	60 60		11	More reddish										
			12											

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Route To: Watershed/Wastewater Waste Management
 Remediation/Redevelopment Other

Facility/Project Name DuPont Barksdale Facility		License/Permit/Monitoring Number		Boring Number GP-06	
Boring Drilled By (Firm name and name of crew chief) Boart Longyear, Jon Weeks		Date Drilling Started 9/22/1998		Date Drilling Completed 9/22/1998	
Drilling Method Rotosonic		WI Unique Well No. NA		DNR Well ID No. NA	
Common Well Name NA		Final Static Water Level Feet MSL		Surface Elevation 643.9 Feet MSL	
Borehole Diameter 6.0 Inches		Boring Location or Local Grid Origin (Check if estimated: <input type="checkbox"/>) State Plane 530,357 N, 1,732,939 E S/C SE 1/4 of SW 1/4 of Section 24, T 48 N, R 5		Local Grid Location (If applicable) <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
Facility ID		County Bayfield		County Code 4	
				Civil Town/City/ or Village Barksdale	


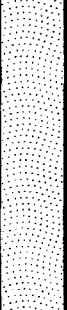
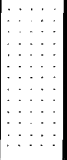
Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID	Soil Properties					Time of Sampling
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
1 CS	60 60		0-1	Dark gray to gray medium GRAVEL with medium coarse sand	GM									
			1-2	Moist, stiff, low plastic, red-brown, silty CLAY, trace gravel and roots										
			2-3											
			3-4											
			4-5		CL									
			5-6											
2 CS	60 60		6-7	Moist, medium dense, poorly sorted, red-brown medium fine SAND, trace gravel, trace silt										
			7-8											
			8-9											
			9-10											
			10-11		SP									
			11-12											
3 CS	60 42		10-11											

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm Woodward-Clyde International-Americas 2312 North Grandview Blvd., Suite 210 Waukesha, WI 53188	Tel: 414/513-0577 Fax: 414/513-0575
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Route : Watershed/Wastewater Waste Management
 Remediation/Redevelopment Other

Facility/Project Name DuPont Barksdale Facility			License/Permit/Monitoring Number		Boring Number GP-08			
Boring Drilled By (Firm name and name of crew chief) Boart Longyear, Jon Weeks			Date Drilling Started 9/22/1998		Date Drilling Completed 9/22/1998			
Drilling Method Rotosonic		WI Unique Well No. NA		DNR Well ID No. NA		Common Well Name NA		
Final Static Water Level Feet MSL		Surface Elevation 643.5 Feet MSL		Borehole Diameter 6.0 Inches				
Boring Location or Local Grid Origin (Check if estimated: <input type="checkbox"/>) State Plane 530,637 N, 1,733,121 E S/C/N			Local Grid Location (If applicable) Lat. _____ ' _____ ''		Local Grid Location (If applicable) Long. _____ ' _____ ''		Feet <input type="checkbox"/> N <input type="checkbox"/> S <input type="checkbox"/> E <input type="checkbox"/> W	
Boring Location or Local Grid Origin (continued) SW 114 of SE 1/4 of Section 24, T 48 N, R 5		Facility ID		County Bayfield		County Code 4		
				Civil Town/City/ or Village Barksdale				

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID	Soil Properties					Time of Sampling
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
1 CS	60 54		1	Dry-moist, stiff, low plasticity, red-brown, silty CLAY, trace gravel and roots	CL									
2 CS	60 60		5	Moist, medium dense, poorly sorted, red-brown, medium fine SAND, trace silt and clay	SP									
3 CS	60 60		10	Moist, medium dense, poorly cemented, red-brown and white layered, medium fine grained weathered SANDSTONE (fragments and disks present)										

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Route : Watershed/Wastewater Waste Management
 Remediation/Redevelopment Other

Facility/Project Name DuPont Barksdale Facility			License/Permit/Monitoring Number		Boring Number GP-09	
Boring Drilled By (Firm name and name of crew chief) Boart Longyear, Jeff Flamino			Date Drilling Started 9/15/1998		Date Drilling Completed 9/16/1998	
Drilling Method Geoprobe			WI Unique Well No. NA		DNR Well ID No. NA	
Common Well Name NA			Final Static Water Level Feet MSL		Surface Elevation Feet MSL	
Boring Location or Local Grid Origin (Check if estimated: <input type="checkbox"/>) State Plane SW 1/4 of SE 1/4 of Section 24 , T 48 N, R 5			Local Grid Location (If applicable)		Borehole Diameter 2.0 Inches	
Facility ID			County Bayfield		County Code 4	
			Civil Town/City/ or Village Barksdale			

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID	Soil Properties					Time of Sampling
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
1	24		1	Light gray-brown silty CLAY loam Red-brown silty CLAY (moist)	ML			0		M				
2	24		2		CL			0		M				
3	24		4	Becoming sandy				0		M				
			5	Less sand	SC									
4	24		6	Silty fine SAND	SM			0		M				
5	24		8	Moist, medium dense poorly cemented red brown and white layered, medium fine grained SANDSTONE				0		M				
			9	End of Boring @ 9.8 ft. Refusal										

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Route To: Watershed/Wastewater Waste Management
 Remediation/Redevelopment Other

Facility/Project Name DuPont Barksdale Facility			License/Permit/Monitoring Number		Boring Number MW-01	
Boring Drilled By (Firm name and name of crew chief) Boart Longyear, Jon Weeks			Date Drilling Started 9/19/1998		Date Drilling Completed 9/24/1998	
WI Unique Well No. NA			DNR Well ID No. NA		Common Well Name MW-01	
Final Static Water Level Feet MSL			Surface Elevation 668.8 Feet MSL		Borehole Diameter 6.0 Inches	
Boring Location or Local Grid Origin (Check if estimated: <input type="checkbox"/>) State Plane 530,750 N, 1,731,526 E S/C(N)			Lat. ° ' "		Local Grid Location (If applicable) <input checked="" type="checkbox"/> N <input checked="" type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
SW 1/4 of SW 1/4 of Section 24, T 48 N, R 5			Long. ° ' "		749.5 Feet <input type="checkbox"/> S 1525.5 Feet <input type="checkbox"/> W	

Facility ID	County Bayfield	County Code 4	Civil Town/City/ or Village Barksdale
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Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID	Soil Properties						Time of Sampling
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200		
1 CS	60 38		1	Moist, loose, moderately sorted dark brown silty GRAVEL, with medium fine sand and trace roots	GP										
			2	Moist, loose, poorly sorted, light brown - red brown, medium fine, SAND, trace silt	SP										
			3	Moist, loose, poorly sorted, white fine SAND, trace silt and roots	SP										
2 CS	60 60		4		SP										
			5	Moist, medium stiff, moderate plasticity, red brown, silty CLAY	CL										
3 CS	36 36		6		CL										
			7		CL										
			8		CL										
			9												
			10	Moist, medium dense, dark brown red brown, and white medium to fine grained friable SANDSTONE Becoming lighter 3" dark red brown layer											
			11												
			12												

I hereby certify that the information on this form is true and correct to the best of my knowledge.

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Boring Number **MW-01** Use only as an attachment to Form 4400-122.

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	Soil Properties					Time of Sampling
Number and Type	Length Att. & Recovered (in)							Compressive Strength	Moisture content	Liquid Limit	Plasticity Index	P 200	
4 CS	24		13	Becoming red									
	33		6	6" white layer									
5 CS	60		15	Becoming darker red									
	60		16										
6 CS	60		20										
	60		21										
7 CS	60		24	2" white layer									
	60		25										
8 CS	60		26	10" white layer									
	60		27										
			28										
			29										
			30										
			31										
			32										

Boring Number **MW-01**

Use only as an attachment to Form 4400-122.

Page 3 of 5

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	J S C S	Graphic Log	Well Diagram	ID	Soil Properties					Time of Sampling
Number and Type	Length Att. & Recovered (in)								Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
9 CS	120 54		33	13" moist-wet, brown red-brown layer										
			34											
			35											
			36											
			37											
			38											
			39											
			40											
			41											
			42											
			43											
			44											
		10 CS	240 18				45	Moist, very dense, layered red and white mottled competent SANDSTONE						
	46													
	47													
	48													
	49													
	50													
	51													
	52													

9" white layer

Becoming wet

Rounded granite pebbles

Moist, very dense, purple and white SANDSTONE

Boring Number		Use only as an attachment to Form 4400:122.										Page 5 of 5			
Sample		Blow Counts	Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID	Soil Properties						Time Samp
Number and Type	Length Att. & Recovered (in)								Compre Strength	Moisture Content	Liquid Limit	Plasticity Index			
			73												
			74												
			75												
			76												
			77												
			78												
			79												
			80												
			81	End of Boring @ 81 ft. Set well 75 to 80 ft.											

Route To: Watershed/Wastewater Waste Management
 Remediation/Redevelopment Other

Facility/Project Name DuPont Barksdale Facility		License/Permit/Monitoring Number		Boring Number MW-02	
Boring Drilled By (Firm name and name of crew chief) Boart Longyear, Jon Weeks		Date Drilling Started 10/13/1998		Date Drilling Completed 10/14/1998	
WI Unique Well No. NA		DNR Well ID No. NA		Common Well Name MW-02	
Final Static Water Level Feet MSL		Surface Elevation 644.3 Feet MSL		Borehole Diameter 6.0 Inches	
Boring Location or Local Grid Origin (Check if estimated: <input type="checkbox"/>) State Plane 530,316 N, 1,732,892 E S/C(N)		Local Grid Location (If applicable) <input checked="" type="checkbox"/> N <input checked="" type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W		316 Feet <input type="checkbox"/> S 2892.3 Feet <input type="checkbox"/> W	
SE 1/4 of SW 1/4 of Section 24, T 48 N, R 5		Lat. _____ ' _____ "		Long. _____ ' _____ "	

Facility ID	County Bayfield	County Code 4	Civil Town/City/ or Village Barksdale
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Sample Number and Type	Length, Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID	Soil Properties					Time of Sampling
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
1	24		1-3	Moist, stiff, low plasticity, red to brown silty CLAY, trace gravel	CL									Bag
2	24		8-10	Moist, moderately dense, poorly sorted, red to brown, silty SAND, trace gravel	SM									Bag

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm Woodward-Clyde International-Americas 2312 North Grandview Blvd., Suite 210 Waukesha, WI 53188	Tel: 414/513-0577 Fax 414/513-0575
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Route : Watershed/War&water Waste Management
Remediation/Redevelopment Other

Facility/Project Name DuPont Barksdale Facility			License/Permit/Monitoring Number		Boring Number MW-03	
Boring Drilled By (Firm name and name of crew chief) Boart Longyear, Jon Weeks			Date Drilling Started 9/28/1998		Date Drilling Completed 9/29/1998	
Drilling Method Rotosonic			WI Unique Well No. NA		DNR Well ID No. NA	
Common Well Name MW-03			Final Static Water Level Feet MSL		Surface Elevation 678.1 Feet MSL	
Borehole Diameter 6.0 Inches			Boring Location or Local Grid Origin (Check if estimated: <input type="checkbox"/>) State Plane 531,848 N, 1,732,017 E S/C(N)			
Local Grid Location (If applicable) NE 1/4 of SW 114 of Section 24, T 48 N, R 5			Lat. ° ' "		Long. ° ' "	
			<input checked="" type="checkbox"/> N <input checked="" type="checkbox"/> E		<input type="checkbox"/> S <input type="checkbox"/> W	

Facility ID	County Bayfield	County Code 4	Civil Town/City/ or Village Barksdale
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Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID	Soil Properties						Time of Sampling
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200		
1 CS	60 54		1	Dry to moist, loose, poorly sorted, dark brown, silty SAND	SM										
			2	Dry to moist, stiff, mod-plastic, red brown, silty CLAY, trace gravel	CL										
2 CS	60 60		5	Moist, medium dense, poorly sorted, red to brown, medium to fine, clayey SAND, trace silt, trace gravel (layers of light brown, reddish brown, red and light white brown)											
			6												
3 CS	60 60		10	4" gray layer with gravel											
			11												
			12												

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Route To: Watershed/Wastewater Waste Management
 Remediation/Redevelopment Other CI

Facility/Project Name DuPont Barksdale Facility			License/Permit/Monitoring Number		Boring Number MW-04	
Boring Drilled By (Firm name and name of crew chief) Boart Longyear, Jon Weeks			Date Drilling Started 9/28/1998		Date Drilling Completed 9/28/1998	
WI Unique Well No. NA		DNR Well ID No. NA	Common Well Name MW-04	Final Static Water Level Feet MSL		Surface Elevation 652.8 Feet MSL
Boring Location or Local Grid Origin (Check if estimated: <input type="checkbox"/>) State Plane 532,563 N, 1,734,517 E S/C (N)						Borehole Diameter 6.0 Inches
Boring Location or Local Grid Origin (Check if estimated: <input type="checkbox"/>) SE 1/4 of NE 1/4 of Section 24, T 48 N, R 5			Lat. _____ ° _____ ' _____ "		Local Grid Location (If applicable) <input checked="" type="checkbox"/> N <input checked="" type="checkbox"/> E 2563 Feet <input type="checkbox"/> S 4516.5 Feet <input type="checkbox"/> W	
Facility ID		County Bayfield		County Code 4	Civil Town/City/ or Village Barksdale	

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID	Soil Properties					Time of Sampling
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
1 CS	60 60		1	Moist, loose, well sorted, medium to fine, light brown to brown GRAVEL, with silty sand	GW									
			2	Moist, stiff, moderate plasticity, dark brown and dark brownish gray, silty CLAY	CL									
			3	Dry, stiff, moderate plasticity, red, silty CLAY, trace gravel	CL									
			4											
2 CS	60 60		5	Moist, dense, red, reddish brown, and white medium to fine grained friable SANDSTONE										
			6											
3 CS	60 60		10											
			11											
			12											

I hereby certify that the information on this form is true and correct to the best of my knowledge.





Signature	Firm Woodward-Clyde International-Americas 23 12 North Grandview Blvd., Suite 210 Waukesha, WI 53188	Tel: (414)513-0577 Fax: (414)513-0575
-----------	--	--

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completions of this form is mandatory. Failure to file this form may result in forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

Boring Number **MW-04**

Use only as an attachment to Form 4400-122.

Page 2 of 4

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	J S C S	Graphic Log	Well Diagram	PID	Soil Properties					Time of Sampling
Number and Type	Length Att. & Recovered (in)								Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
4 CS	60 60		13	Becoming dry										
			14											
			15											
			16											
5 CS	60 60		16	1/2" white layer										
			17	24" white layer										
			18											
			19											
6 CS	24 25		20	1" white layer										
			21											
			22											
			23											
7 CS	36 37		24	Wet										
			25											4" white layer
			26											
			27											
			28											
			29											
			30											
			31											
			32											

Boring Number **MW-04**

Use only as an attachment to Form 4400-122.

Page **3** of **4**

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID	Soil Properties					Time of Sampling
Number and Type	Length Att. & Recovered (in)								Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
8 CS	120 6		33	Wet, very dense, moderately cemented, white and reddish brown competent SANDSTONE		G								
			34											
			35											
			36											
			37											
			38											
			39											
			40											
9 CS	120 16		41											
			42											
			43											
			44											
			45											
			46											
			47											
			48											
			49											
			50											
			51											
			52											

Route : Watershed/Wastewater Waste Management
 Remediation/Redevelopment Other

Facility/Project Name DuPont Barksdale Facility		License/Permit/Monitoring Number		Boring Number MW-05	
Boring Drilled By (Firm name and name of crew chief) Boart Longyear, Jon Weeks		Date Drilling Started 10/19/1998		Date Drilling Completed 10/20/1998	
Drilling Method 4.25 HSA, 6" Tricone Wash		WI Unique Well No. NA		DNR Well ID No. NA	
Common Well Name MW-05		Final Static Water Level Feet MSL		Surface Elevation 621.1 Feet MSL	
Borehole Diameter 5.0 Inches		Boring Location or Local Grid Origin (Check if estimated: <input type="checkbox"/>) State Plane 529,591 N, 1,733,519 E S/C (N) NW 1/4 of NE 1/4 of Section 25, T 48 N, R 5		Local Grid Location (If applicable) Lat. _____ " <input type="checkbox"/> N <input type="checkbox"/> E Long. _____ " <input type="checkbox"/> S <input type="checkbox"/> W	

Facility ID	County Bayfield	County Code 4	Civil Town/City/ or Village Barksdale
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Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID	Soil Properties					Time of Sampling
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
			1	Moist, soft, non plastic, dark brown, silty CLAY, trace roots	CL	[Hatched Box]								
			2	Moist, Stiff, moderately plastic, red, silty CLAY, trace gravel										
			3											
			4											
			5											
			6		CL									
			7											
			8											
			9											
			10											
			11	Moist, dense, medium to fine, red, red brown and white layered medium to fine grained friable SANDSTONE										
			12											

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm Woodward-Clyde International-Americas 2312 North Grandview Blvd., Suite 210 Waukesha, WI 53188	Tel: (414)513-0577 Fax: (414)513-0575
-----------	---	--

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Boring Number **MW-05**

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Page **5** of **6**

Sample		310w Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	J S C S	Graphic .log	Well Diagram	ID	Soil Properties						Time of Sampling
Number and Type	Length Att. & Recovered (in)								Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200		
			73												
			74												
			75												
			76												
			77												
			78												
			79												
			80												
			81												
			82												
			83												
			84												
			85												
			86												
			87												
			88												
			89												
			90												
			91												
			92												

Purple and white SANDSTONE

Route : Watershed/Wastewater Waste Management
 Remediation/Redevelopment Other

Facility/Project Name DuPont Barksdale Facility		License/Permit/Monitoring Number		Boring Number PZ-1D	
Boring Drilled By (Firm name and name of crew chief) Boart Longyear, Jon Weeks		Date Drilling Started 9/23/1998		Date Drilling Completed 9/23/1998	
WI Unique Well No. NA		DNR Well ID No. NA		Common Well Name PZ-1D	
Final Static Water Level Feet MSL		Surface Elevation 643.7 Feet MSL		Borehole Diameter 6.0 Inches	
Boring Location or Local Grid Origin (Check if estimated: <input type="checkbox"/>) State Plane 530,857 N, 1,733,298 E S/C/N			Local Grid Location (If applicable)		
SW 114 of SE 1/4 of Section 24 , T 48 N, R 5			Lat. _____ " <input type="checkbox"/> N <input type="checkbox"/> E Long. _____ " <input type="checkbox"/> S <input type="checkbox"/> W		
Facility ID		County Bayfield		County Code 4	
Civil Town/City/ or Village Barksdale					

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID	Soil Properties					Time of Sampling
									Compressive Strength	moisture Content	Liquid Limit	Plasticity Index	P 200	
1 CS	60 48		1	Red brown silty GRAVEL Moist, stiff, non plastic, gray to dark brown, SILT, trace sand and roots	ML									
			2	Becoming light brown										
2 CS	60 60		3	Becoming red	CL									
			6	Moist, stiff, moderately plastic, red brown, silty CLAY, trace gravel										
3 CS	60 60		7	Moist, loose, poorly sorted, light brown to reddish brown, medium to fine SAND	SP									
			8	Moist, moderately dense, poorly sorted, red, white and brown, medium to fine SANDSTONE (Chequamegon Formation)										
			9											
			10											
			11											
			12											

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm Woodward-Clyde International-Americas 2312 North Grandview Blvd., Suite 210 Waukesha , WI 53188	Tel: (414)513-0577 Fax (414)513-0575
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Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	J S C S	Graphic Log	Well Diagram	'ID	SOIL PROPERTIES					Time of Sampling
Number and Type	Length Att. & Recovered (in)								Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	> 200	
			33											
			34											
			35											
			36											
			37											
			38											
			39											
			40											
			41											
			42											
			43											
			44											
			45											
			46											
			47											
			48											
			49											
			50											
			51											
			52											

Design Number: **D7-1D**

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Page 3 of 4

Route : Watershed/Wastewater Waste Management
 Remediation/Redevelopment Other

Facility/Project Name DuPont Barksdale Facility			License/Permit/Monitoring Number		Boring Number PZ-2D
Boring Drilled By (Firm name and name of crew chief) Boart Longyear, Jon Weeks			Date Drilling Started 10/15/1998	Date Drilling Completed 10/19/1998	Drilling Method Rotosonic
WI Unique Well No. NA	DNR Well ID No. NA	Common Well Name PZ-2D	Final Static Water Level Feet MSL	Surface Elevation 797.5 Feet MSL	Borehole Diameter 6.0 Inches

Boring Location or Local Grid Origin (Check if estimated: <input type="checkbox"/>) State Plane 535,102 N, 1,730,265 E S/C(N)			Lat. _____"	Local Grid Location (If applicable)	
N W 1/4 of N W 1/4 of Section 24, T 48 N, R 5			Long. _____"	Feet <input type="checkbox"/> S	Feet <input type="checkbox"/> W



Facility ID	(County) Bayfield	County Code 4	Civil Town/City/ or Village Barksdale
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Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID	Soil Properties					Time of Sampling
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
1 CS	60 60		1	Moist, soft, dark brown, SILT, trace roots	ML									
			2	Moist, stiff, moderate plasticity, red, silty CLAY, trace gravel	CL									
2 CS	60 60		5	Moist, dense, poorly sorted, medium to fine, red, clayey SAND, trace gravel										
3 CS	60 60		10											
			11											

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm Woodward-Clyde International-Americas 2312 North Grandview Blvd., Suite 210 Waukesha, WI 53188	Tel: 414/513-0577 Fax: 414/513-0575
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Boring Number **PZ-2D** Use only as an attachment to Form 4400-122.

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	SCS	Graphic Log	Well Diagram	PID	Soil Properties					Time of Sampling
Number and Type	Length Att. & Recovered (in)								Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
4 CS	60 60		13		SC									
			14											
			15											
			16											
5 CS	60 60		17											
			18											
			19											
			20											
6 CS	120 96		21	Moist, wet, loose, poorly sorted, medium to fine, light brown to red brown, silty clayey SAND, some angular gravel										
			22											
			23											
			24											
			25											
			26											
			27											
			28											
			29											
			30											
			31											
			32											

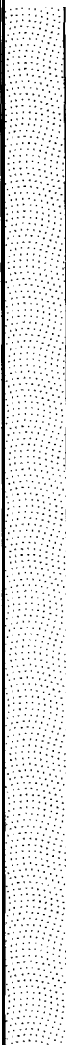
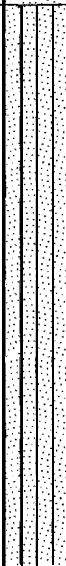

Boring Number **PZ-2D**

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Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	ID	Soil Properties					Time of Sampling
Number and Type	Length Att. & Recovered (in)								Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
8 CS	120		53	8" medium to fine sand layer (Wet)										
	120		54											
9 CS	156 180		55	Becoming moderately dense & wet										
			56											
			57											
			58											
			59											
			60											
			61											
			62											
			63											
			64											
65														
66														
67														
68														
69														
70														
71														
72														

Boring Number **P7-2D**


Sample		Blow counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID	Soil Properties					Time of Sampling
Number and Type	Length Att. & Recovered (in)								Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
14 CS	120 120		113	Moist, loose, poorly sorted, medium to fine, light brown to brown, SAND, some gravel	SP									
			114											
			115											
			116											
			117											
			118											
			119											
			120											
			121											
			122											
15 CS	60 60		125	Moist, dense, poorly sorted, fine, gray to dark brown, silty SAND, with gravel										
			126											
16 CS	120 120		130											
			131											
			132											

Boring Number **P7-2D** Use only as an attachment to Form 4400-122.

Sample		Flow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	S C S	Graphic Log	Well Diagram	PID	Soil Properties					Time of Sampling
Number and Type	Length Att. & Recovered (in)								Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
17 CS	120 120		133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152	8" sand layer	SM									

D7-2D

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Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID	SOIL PROPERTIES					Time of sampling
Number and Type	Length Att. & Recovered (in)								Compressive Strength	Moisture content	Liquid Limit	Plasticity Index	P 200	
25 CS	180 132		193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212	Becoming fine	SP									

Boring Number **PZ-2D**

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Page 15 of 15

Sample		Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID	Soil Properties					Time of Sampling
Number and Type	Length Att. & Recovered (in)								Compressive strength	Moisture content	Liquid Limit	Plasticity Index	P 200	
			273											
			274											
			275											
			276											
			277											
			278											
			279											
			280											
			281											
			282											
			283											
			284											
			285	End of Boring @ 285 ft. Set well										

Route To: Watershed/Wastewater Waste Management
 Remediation/Redevelopment Other

Facility/Project Name DuPont Barksdale Facility			License/Permit/Monitoring Number		Boring Number PZ-3D	
Boring Drilled By (Firm name and name of crew chief) Boart Longyear, Jon Weeks			Date Drilling Started 9/15/1998		Date Drilling Completed 9/21/1998	
WI Unique Well No. NA		DNR Well ID No. NA	Common Well Name PZ-3D	Final Static Water Level Feet MSL		Surface Elevation 790.3 Feet MSL
Boring Location or Local Grid Origin (Check if estimated: <input type="checkbox"/>)						Local Grid Location (If applicable)
State Plane 533,712 N, 1,725,172 E S/C/N			Lat. ° ' "		<input type="checkbox"/> N <input type="checkbox"/> E	
N W 1/4 of N W 1/4 of Section 23, T 48 N, R 5			Long. ° ' "		<input type="checkbox"/> S <input type="checkbox"/> W	
Facility ID		County Bayfield	County Code 4	Civil Town/City/ or Village Barksdale		

Sample Number and Type	Length Att. & Recovered (ft)	Block Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID	Soil Properties					Time of Sampling
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
1 CS	60 60		1	Moist to wet, red brown silty CLAY, with minor organic matter	CL									
2 CS	120 120		3	Moist to wet, red brown, silty CLAY, trace gravel										


I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm Woodward-Clyde International-Americas 23 12 North Grandview Blvd., Suite 210 Waukesha, WI 53 188	Tel: 414/513-0577 Fax: 414/513-0575
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Boring Number **PZ-3D**

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Page 2 of 12

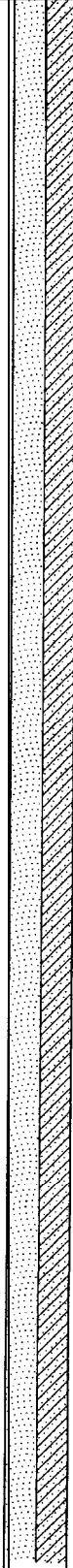
Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID	Soil Properties					Time of Sampling
Number and Type	Length Att. & Recovered (in)								Compressive Strength	Moisture Content	Liquidity Limit	Plasticity Index	P 200	
3 CS	240 240		-13	4' organic layer										
			-14											
			-15											
			-16											
			-17											
			-18											
			-19											
			-20											
			-21											
			-22											
			-23											
			-24											
			-25											
	-26													
	-27													
	-28													
	-29													
	-30													
	-31													
	-32													

Boring Number

PZ-3D

Use only as an attachment to Form 4400-122.

Page 6 of 12

Sample			Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID	Soil Properties					Time of Sampling
Number and Type	Length Att. & Recovered (in)	Blow Counts							Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
			-93											
			-94											
			-95											
			-96											
			-97											
			-98											
			-99											
			-100											
			-101											
			-102											
			-103											
			-104											
			-105											
			-106											
			-107											
			-108											
			-109											
			-110											
			-111											
			-112											

6
CS

240
240

Route: Watershed/Wastewater Waste Management
 Remediation/Redevelopment Other

Facility/Project Name DuPont Barksdale Facility			License/Permit/Monitoring Number		Boring Number PZ-4D	
Boring Drilled By (Firm name and name of crew chief) Boart Longyear, Jon Weeks			Date Drilling Started 9/30/1998		Date Drilling Completed 10/2/1998	
WI Unique Well No. NA		DNR Well ID No. NA	Common Well Name PZ-4D	Final Static Water Level Feet MSL		Surface Elevation 742.3 Feet MSL
Boring Location or Local Grid Origin (Check if estimated: <input type="checkbox"/>) State Plane 531,215 N, 1,727,585 E S/C Lat. SE 1/4 of SW 1/4 of Section 23, T48 N, R5 Local Grid Location (If applicable) U <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> Feet <input type="checkbox"/> Feet <input type="checkbox"/> W						
Facility ID		County Bayfield	County Code 4	Civil Town/City/ or Village Barksdale		

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID	Soil Properties					Time of Sampling
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
1 CS	60 60		1	Moist, loose, poorly sorted, dark brown to brown, medium to fine, silty SAND, with gravel	SM									
			2	Moist, stiff, moderate plasticity, red, silty CLAY, trace gravel	CL									
2 CS	60 60		7	Moist, dense, poorly sorted, dark brown to brown, fine, clayey SAND	SC									
			8	Moist to dry, stiff, non-plastic, varved SILT	ML									
			9	Moist, dense, poorly sorted, brown, fine, clayey SAND, trace silt	SC									
3 CS	36 36		10	Moist, loose, poorly sorted, light brown to brown, medium to fine, SAND, trace silt										
			11	Becoming light brown to white, fine, with silt										
			12	Becoming brown to dark brown, medium to										

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm Woodward-Clyde International-Americas 2312 North Grandview Blvd., Suite 210 Waukesha, WI 53188	Tel: (414)513-0577 Fax: (414)513-0575
-----------	---	--

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Boring Number **PZ-4D**

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Page 11 of 11

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	JCS	Graphic Log	Well Diagram	ID	Soil Properties					Time of Sampling
Number and Type	Length Att. & Recovered (in)								Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	p 200	
			193											
			194											
			195											
			196											
			197											
			198											
			199											
			200											
			201											
			202											
			203											
			204											
			205											
			206											
			207											
			208											
			209											
19 SS	12		210											
			211	End of Boring @ 211 ft.										

Route : Watershed/Wastewater Waste Management
 Remediation/Redevelopment Other

Facility/Project Name DuPont Barksdale Facility		License/Permit/Monitoring Number		Boring Number PZ-SD	
Boring Drilled By (Firm name and name of crew chief) Boart Longyear, Jon Weeks		Date Drilling Started 9/29/1998		Date Drilling Completed 9/30/1998	
Drilling Method Rotosonic		WI Unique Well No. NA		DNR Well ID No. NA	
Common Well Name PZ-5D		Final Static Water Level Feet MSL		Surface Elevation 668.4 Feet MSL	
Borehole Diameter 6.0 Inches		Boring Location or Local Grid Origin (Check if estimated: <input type="checkbox"/>) State Plane 529,689 N, 1,730,616 E S/C		Local Grid Location (If applicable) <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
N W 1/4 of N W 1/4 of Section 25, T 48 N, R 5		Lat. ° ' "		Long. ° ' "	
Facility ID		County Bayfield		County Code 4	
		Civil Town/City/ or Village Barksdale			

Sample Number	Lead Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID	Soil Properties					P 200	Time of Sampling
										Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index			
1	Cs	60 42		1	Wet, loose, poorly sorted, brown to dark brown, medium to fine, silty SAND, trace gravel and silt	SM										
				2	Moist, moderately dense, poorly sorted, red, medium to fine, clayey SAND, trace gravel											
				3	Moderately cemented	SC										
			4													
				5												
				6												
				7												
				8												
				9												
				10	Moist, loose, poorly sorted, red to light brown and white layered, medium to fine, SAND, trace silt and gravel											
				11												
				12												

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm Woodward-Clyde International-Americas 2312 North Grandview Blvd., Suite 210 Waukesha, WI 53188	Tel: 414/513-0577 Fax 414/513-0575
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Boring Number **PZ-5D**

Use only as an attachment to Form 4400-122.

Page 6 of 6

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	JSCS	Graphic Log	Well Diagram	ID	Soil Properties					Time of Sampling
Number and Type	Length Att. & Recovered (in)								Compressive Strength	Moisture Content	Liquid Limit	Elasticity Index	200	
			93											
			94											
			95											
			96											
			97											
			98											
			99											
8 CS	60 0		100											
			101											
			102											
			103											
			104											
			105											
			106	End of Boring @ 106 ft. Set Well										

Route To: Watershed/Wastewater Waste Management
 Remediation/Redevelopment Other

Facility/Project Name DuPont Barksdale Facility			License/Permit/Monitoring Number		Boring Number PZ-6D	
Boring Drilled By (Firm name and name of crew chief) Boart Longyear, Jon Weeks			Date Drilling Started 10/7/1998		Date Drilling Completed 10/12/1998	
WI Unique Well No. NA		DNR Well ID No. NA	Common Well Name PZ-6D	Final Static Water Level Feet MSL		Surface Elevation 693.6 Feet MSL
Boring Location or Local Grid Origin (Check if estimated: <input type="checkbox"/>) State Plane 531,644 N, 1,730,951 E S/C (N)		Local Grid Location (If applicable) <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W		Lat. _____"		Long. _____"
NW 1/4 of SW 1/4 of Section 24, T 48 N, R 5		Facility ID		County Bayfield	County Code 4	Civil Town/City/ or Village Barksdale





Sample	Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID	Soil Properties					Time of Sampling
										Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
	CS	48		1	Moist, loose, well sorted, brown, medium to fine, GRAVEL, some silt and sand	GW									
				2	Moist to dry, stiff, moderate plasticity, light reddish white to reddish brown, silty CLAY	CL									
			3												
			4												
			5												
	CS	60		6	Moist, loose, poorly sorted, red brown, medium to fine, SAND, trace gravel, trace sand										
				7	18" light brownish white layer										
				8											
				9											
				10											
				11											
				12											

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature _____ Firm **Woodward-Clyde International-Americas** Tel: 414/513-0577
2312 North Grandview Blvd., Suite 210 Waukesha, WI 53188 Fax: 414/513-0575

Borinn Number		PZ	D	Use only as an attachment to Form 4400 22.					Page 2 of 11				
Sample		Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID	Soil Properties					Time of Sampling
Number and Type	Length Att. & Recovered (in)							Blow Counts	Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	
4 CS	60	-13	8" gray layer with cobbles	SP									
	60	-14	Becoming brown										
5 CS	60	-15											
	60	-16											
6 CS	60	-17											
	60	-18											
7 CS	60	-19											
	60	-20											
7 CS	60	-21											
	60	-22	Wet										
7 CS	60	-23											
	60	-24											
7 CS	60	-25											
	60	-26	Moist to dry, very dense, poorly sorted, red to brown, medium to fine, silty clayey SAND, with gravel										
7 CS	60	-27											
	60	-28											
7 CS	60	-29											
	60	-30											
7 CS	60	-31											
	60	-32											

Boring Number **PZ D** Use only as an attachment to Form 4400 22. Page **4** of **11**

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID	Soil Properties					Time of Sampling
Number and Type	Length Att. & Recovered (in)								Compressive Strength	Moisture Content*	Liquid Limit	Plasticity Index	P 200	
11 CS	60 60		-53	Moist to dry										
			-54											
			-55											
			-56											
			-57											
12 CS	60 60		-58	Moist to wet, moderately dense										
			-59											
			-60											
			-61											
			-62											
13 CS	60 60		-63	Moist to dry, very dense										
			-64											
			-65											
			-66											
			-67											
14 CS	60 60		-68	Moist, loose, poorly sorted, brown, medium SAND	SP									
			-69	Moist, very dense, poorly sorted, brown to grayish brown, medium to fine, SAND, with gravel, some silt										
			-70											
			-71											
			-72											

Boring Number PZ-6D

Use only as an attachment to Form 4400-1:22.

Pane 5 of 11

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID	Soil Properties					P 200	Time of Sampling
Number and Type	Length Att. & Recovered (in)								Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index			
15 CS	60 60		- 73	Dry											
			- 74	Moist to dry											
			- 75												
			- 76												
			- 77												
16 CS	60 60		- 78												
			- 79												
			- 80												
			- 81												
			- 82												
17 CS	60 60		- 83												
			- 84												
			- 85												
			- 86												
			- 87												
18 CS	60 58		- 88												
			- 89												
			- 90												
			- 91												
			- 92												

SP/SM

Boring Number **PZ-6D**

Use only as an attachment to Form 4400-122.

Page 7 of 11

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID	Soil Properties					Time of Sampling
Number and Type	Length Att. & Type								Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
23 CS	60 60		-113	8" wet gray layer with cobbles										
			-114											
			-115											
			-116											
			-117											
24 CS	60 60		-118	1/2" white sand layer										
			-119											
			-120											
			-121											
			-122											
25 CS	60 60		-123											
			-124											
			-125											
			-126											
			-127											
26 CS	60 60		-128		SP									
			-129											
			-130											
			-131											
			-132											

Boring Number **PZ-6D** Use **only** as an attachment to Form 4400-122. Page 8 of 1

Sample		Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID	Soil Properties					P 200	Time of Sampling
Number and Type	Length Att. & Recovered (in)								Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index			
27 CS	60 60		133	Becoming coarser grained sand											
			134												
			135												
			136												
			137												
28 CS	60 60		138												
			139												
			140												
			141												
			142												
29 CS	60 60		143	10" sand layer (medium to fine)											
			144												
			145												
			146												
			147												
30 CS	36 36		148	Dry											
			149												
			150												
			151												
			152												

Boring Number **PZ-6D** Use only as an attachment to Form 4400-122. Page 11 of 11

Sample		Flow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	JSCS	Graphic Log	Well Diagram	ID	Soil Properties					Time of Sampling
Number and Type	Length, Att. & Recovered (in)								Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	> 200	
			193											
			194											
			195											
			196											
			197											
			198											
			199	Purple and white SANDSTONE										
			200											
			201											
			202											
			203											
			204											
			205	End of Boring @ 205 ft. Set Well										

34 CS 60 0

Facility/Project Name DU PONT BARKSDALE WORKS	Local Grid Location of Well _____ ft. <input type="checkbox"/> N. _____ ft. <input type="checkbox"/> E. _____ ft. <input type="checkbox"/> S. _____ ft. <input type="checkbox"/> W.	Well Name MW01
Facility License, Permit or Monitoring Number	Grid Origin Location Lat. A _____ Long. _____ or _____	Well Unique Well Number / DNR Well Number
Type of Well Water Table Observation Well <input type="checkbox"/> 11 Piezometer <input checked="" type="checkbox"/> 12	St. Plane _____ RN. _____ ft. E.	Date Well Installed 09/24/98
Distance Well Is From Waste/Source Boundary 450' FROM DYNAMITE AREA ft.	Section Location of Waste/Source SW 1/4 of SW 1/4 of Sec. 24, T. 48 N, R. 5 E	Well Installed By: (Person's Name and Firm) JOHN WEEKS BOART LONGYEAR
Well A Point of Enforcement Std. Application? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Location of Well Relative to Waste/Source u <input type="checkbox"/> Upgradient s <input type="checkbox"/> Sidegradient d <input checked="" type="checkbox"/> Downgradient n <input type="checkbox"/> Not Known	

A. Protective pipe, top elevation _____ ft. MSL Well casing, top elevation _____ ft. MSL C. Land surface elevation _____ ft. MSL Surface seal, bottom _____ ft. MSL or 0.0 ft.		1. Cap and lock? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 2. Protective cover pipe: a. Inside diameter: 4.0 in. b. Length: 7.0 in. c. Material: Steel <input checked="" type="checkbox"/> 04 Other <input type="checkbox"/> d. Additional protection? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, describe: _____ 3. Surface seal: Bentonite <input checked="" type="checkbox"/> 30 Concrete <input type="checkbox"/> 01 Other <input type="checkbox"/> 4. Material between well casing and protective pipe: Bentonite <input type="checkbox"/> 30 Annular space seal <input checked="" type="checkbox"/> Other <input type="checkbox"/> 5. Annular space seal: a. Granular Bentonite <input checked="" type="checkbox"/> 33 ✓ b. Lbs/gal mud weight _____ Bentonite-sand slurry <input type="checkbox"/> 35 c. _____ Lbs/gal mud weight _____ Bentonite slurry <input type="checkbox"/> 31 d. 3 % Bentonite _____ Bentonite-cement grout <input checked="" type="checkbox"/> 30 e. 12 Ft ³ volume added for any of the above f. Hollow installed: Tremie <input checked="" type="checkbox"/> 01 ✓ Tremie pumped <input type="checkbox"/> 02 Grout <input checked="" type="checkbox"/> 08 ✓ 6. Bentonite seal: a. Bentonite granules <input type="checkbox"/> 33 b. <input type="checkbox"/> 1/4 in. <input checked="" type="checkbox"/> 3/8 in. <input type="checkbox"/> 1/2 in. Bentonite pellets <input checked="" type="checkbox"/> 32 c. _____ Other <input type="checkbox"/> 7. Fine sand material: Manufacturer, product name & mesh size a. BADGER MINING RB #7 b. Volume added 0.2 ft ³ 8. Filter pack material: Manufacturer, product name and mesh size a. RED FLINT #30 b. Volume added 1.5 ft ³ 9. Well casing: Flush threaded PVC schedule 40 <input type="checkbox"/> 23 Flush threaded PVC schedule 80 <input checked="" type="checkbox"/> 24 Other <input type="checkbox"/> 10. Screen material: 2" Ø FT SCHED 80 PVC a. Screen type: Factory cut <input checked="" type="checkbox"/> 11 Continuous slot <input type="checkbox"/> 01 Other <input type="checkbox"/> b. Manufacturer TIMCO c. Slot size: 0.020 in. d. Slotted length: 5.0 ft. 11. Backfill material (below filter pack): None <input checked="" type="checkbox"/> 14 Other <input type="checkbox"/>
12. USCS classification of soil near screen: GP <input type="checkbox"/> GM <input type="checkbox"/> GC <input type="checkbox"/> GW <input type="checkbox"/> SW <input type="checkbox"/> SP <input type="checkbox"/> SM <input type="checkbox"/> SC <input type="checkbox"/> ML <input type="checkbox"/> MH <input type="checkbox"/> CL <input type="checkbox"/> CH <input type="checkbox"/> Bedrock <input checked="" type="checkbox"/> 13. Sieve analysis attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 1. Drilling method used: Rotary <input type="checkbox"/> 50 Hollow Stun Auger <input type="checkbox"/> 41 ROTOSONIC Other <input checked="" type="checkbox"/> 5. Drilling fluid used: Water <input checked="" type="checkbox"/> 02 Air <input type="checkbox"/> 01 Drilling Mud <input type="checkbox"/> 03 None <input type="checkbox"/> 99 5. Drilling additives used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Describe _____ 7. Source of water (attach analysis): WASHEURN MUNICIPAL		B. Bentonite seal, top _____ ft. MSL or 0.0 ft. F. Fine sand, top _____ ft. MSL or 72.0 ft. Filter pack top _____ ft. MSL or 73.0 ft. H. Screen joint, top _____ ft. MSL or 75.0 ft. Well bottom _____ ft. MSL or 80.0 ft. Filter pack, bottom _____ ft. MSL or 81.0 ft. K. Borehole, bottom _____ ft. MSL or 81.0 ft. Borehole, diameter 6.0 in. M. O.D. well casing 2.38 in. I.D. well casing 2.00 in.

I hereby certify that the information on this form is true and correct to the best of my knowledge.
 Signature: _____ Firm: _____

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Ad. Code. In accordance with ch. 144, Wis. Stats., failure to file this form may result in a forfeiture of not less than \$10, nor more than \$100 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than \$10,000 for each day of violation. NOTE: Shaded areas are for DNR use only. See instructions for more information including where the completed form should be sent.

Route to: Solid Waste Haz. Waste Wastewater
Env. Response & Repair Underground Tanks Other _____

Facility/Project Name DU PONT PARKS/DALE WORKS	County Name BAYFIELD	Well Name MW01
Facility License, Permit or Monitoring Number _____	County Code 04	Wis. Unique Well Number _____
		DNR Well Number _____

1. Can this well be purged dry? Yes No

2. Well development method
- surged with bailer and bailed 41
 - surged with bailer and pumped 61
 - surged with block and bailed 42
 - surged with block and pumped 62
 - surged with block, bailed and pumped 70
 - compressed air 20
 - bailed only 10
 - pumped only 51
 - pumped slowly 50
 - Other _____

3. Time spent developing well 170 min.

4. Depth of well (from top of well casing) 1.81 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 10.4 gal.

7. Volume of water removed from well 100.0 gal.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added NA

10. Analysis performed on water added? Yes No
(If yes, attach results)

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. <u>34.98</u> ft.	<u>34.98</u> ft.
Date	b. <u>10/14/98</u> 09/28/98 m m d d y y	<u>10/16/98</u> m m d d y y
Time	c. <u>09:05</u> a.m. p.m.	<u>14:50</u> a.m. p.m.
12. Sediment in well bottom	<u>5.0</u> inches	<u>0.0</u> inches
13. water clarity	<input type="checkbox"/> 10 <input type="checkbox"/> 15 (Describe)	Clear <input checked="" type="checkbox"/> 20 Turbid <input type="checkbox"/> 25 (Describe)

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids	<u>NA</u> mg/l	<u>NA</u> mg/l
15. COD	<u>NA</u> mg/l	<u>NA</u> mg/l

16. Additional comments on development:

CONDUCTIVITY ms/cm 0.20

pH SU 8.6

TEMP °C 10.2

DO mg/L 12.8

TURBIDITY NTU 19

Well developed by: Person's Name and Firm

Name: JEFF FLAMINO

Firm: BOART LONGYEAR

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: [Signature]

Print Initials: JRF

Firm: URS GREINER WOODWARD CLYDE

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

County/Project Name DU PONT PARKS DALE WORKS	Local Grid Location of Well ft. <input type="checkbox"/> N <input type="checkbox"/> S ft. <input type="checkbox"/> E <input type="checkbox"/> W	Well Name MW02
Facility License, Permit or Monitoring Number	Grid Origin Location Lat. - Long. - - 0 1	Wis. Unique Well Number DNR Well Number
Type of Well Water Table Observation Well <input type="checkbox"/> 11 Piezometer <input checked="" type="checkbox"/> 12	St. Plane _____ ft. N, _____ ft. E.	Date Well Installed 10/14/98 m m d d y y
Distance Well Is From Waste/Source Boundary ft.	Section Location of Waste/Source SE 1/4 of SW 1/4 of Sec. 24, T. 48 N. R. 05 E. W.	Well Installed By: (Person's Name and Firm) JOE WEEKS BOART LONG-YEAR
Is Well A Point of Enforcement Std. Application? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Location of Well Relative to Waste/Source u <input type="checkbox"/> Upgradient s <input type="checkbox"/> Sidegradient d <input type="checkbox"/> Downgradient n <input type="checkbox"/> Not Known	

Protective pipe, top elevation _____ ft. MSL	1. Cap and lock? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
B. Well casing, top elevation _____ ft. MSL	2. Protective cover pipe: a. Inside diameter: 4.0 in. b. Length: 7.0 ft. c. Material: Steel <input checked="" type="checkbox"/> 0 4 Other <input type="checkbox"/>
Lard surface elevation _____ ft. MSL	d. Additional protection? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, describe: _____
D. Surface seal, bottom _____ ft. MSL or _____ ft.	3. Surface seal: Bentonite <input checked="" type="checkbox"/> 30 Concrete <input type="checkbox"/> 0 Other <input type="checkbox"/>
2. USCS classification of soil near screen: GP <input type="checkbox"/> GM <input type="checkbox"/> GC <input type="checkbox"/> GW <input type="checkbox"/> SW <input type="checkbox"/> SP <input type="checkbox"/> SM <input type="checkbox"/> SC <input type="checkbox"/> ML <input type="checkbox"/> MH <input type="checkbox"/> CL <input type="checkbox"/> CH <input type="checkbox"/> Bedrock a SANDSTONE	4. Material between well casing and protective pipe: Bentonite <input type="checkbox"/> 3 0 Annular space seal <input checked="" type="checkbox"/>
3. Sieve analysis attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. Annular space seal: a. Granular Bentonite <input checked="" type="checkbox"/> 33 ✓ b. Lbs/gal mud weight. . . . Bentonite-sand slurry <input type="checkbox"/> 3 5 c. <input type="checkbox"/> Lbs/gal mud weight Bentonite slurry 31 d. 3 % Bentonite Bentonite cement grout <input checked="" type="checkbox"/> 50 e. 11 Ft ³ volume added for any of the above f. How installed: Tremie <input checked="" type="checkbox"/> 01 ✓ Tremie pumped <input type="checkbox"/> 02 Gravity <input checked="" type="checkbox"/> 08
4. Drilling method used: Rotary <input type="checkbox"/> 50 Hollow Stem Auger <input type="checkbox"/> 41 ROTISONIC Other <input checked="" type="checkbox"/>	6. Bentonite seal: a. Bentonite granules <input type="checkbox"/> 3 3 b. <input type="checkbox"/> 1/4 in. <input checked="" type="checkbox"/> 3/8 in. <input type="checkbox"/> 1/2 in. Bentonite pellets <input checked="" type="checkbox"/> 32 c. _____ Other <input type="checkbox"/>
15. Drilling fluid used: Water <input checked="" type="checkbox"/> 02 Air <input type="checkbox"/> 01 Drilling Mud <input type="checkbox"/> 03 None <input checked="" type="checkbox"/> 00	7. Fine sand material: Manufacturer, product name & mesh size a. BADGER MINING BB #7 b. Volume added 0.2 ft ³
6. Drilling additives used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Describe NA	8. Filter pack material: Manufacturer, product name and mesh size a. RED FINE #3 b. Volume added 3.1 ft ³
7. Source of water (attach analysis): WASHBURN MUNICIPAL	9. Well casing: Flush threaded PVC schedule 40 <input type="checkbox"/> 23 Flush threaded PVC schedule 80 <input type="checkbox"/> 24 Other <input type="checkbox"/>
J. Bentonite seal, top _____ ft. MSL or 00 ft.	10. Screen material: FLTH PVC SCHED 80 a. Screen type: Factory cut <input checked="" type="checkbox"/> 11 Continuous slot <input type="checkbox"/> 0 1 Other <input type="checkbox"/>
K. Fine sand, top _____ ft. MSL or 64.7 ft.	b. Manufacturer TIMCO
G. Filter pack, top _____ ft. MSL or 66.7 ft.	c. Slot size: 0.020 in.
I. Screen joint, top _____ ft. MSL or 69.3 ft.	d. Slotted length: 5.0 ft.
L Wellbottom _____ ft. MSL or 74.0 ft.	11. Backfill material (below filter pack): None <input checked="" type="checkbox"/> 14 Other <input type="checkbox"/>
M. Filter pack, bottom _____ ft. MSL or 83.0 ft.	
N. Borehole, bottom _____ ft. MSL or 83.0 ft.	
O. Borehole, diameter 6.0 in.	
P. O.D. well casing 2.38 in.	
N. LD. well casing 2.00 in.	

I hereby certify that the information on this form is true and correct to the best of my knowledge.
Signature _____ Firm _____

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 147, Wis. Ad. Code. In accordance with ch. 144, Wis. Stats., failure to file this form may result in a forfeiture of not less than \$10, nor more than \$5000 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not less than \$10, nor more than \$5000 for each day of violation.

Route Solid Waste Haz. Wastewater
Env. Response & Repair Underground Tanks Other _____

Facility/Project Name DU PONT BARKSDALE WORKS	County Name BAYFIELD	Well Name MW02
Facility License, Permit or Monitoring Number	County Code 04	Wis. Unique Well Number
		DNR Well Number

1. Can this well be purged dry? No

2. Well development method
- surged with bailer and bailed 41
 - surged with bailer and pumped 61
 - surged with block and bailed 42
 - surged with block and pumped 62
 - surged with block, bailed and pumped compressed air 70
 - bailed only 10
 - pumped only 51
 - pumped slowly 50
 - Other _____

3. Tie spent developing well 150 min.

4. Depth of well (from top of well casing) 75.8 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 175 gal.

7. Volume of water removed from well 180.0 gal.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added NA

10. Analysis performed on water added? No
(If yes, attach results)

	Before Development	After Development
Depth to Water (from top of well casing)	a. <u>22.25</u> ft.	<u>22.29</u> ft.
Date	b. <u>10/15/98</u> m m d d y y	<u>10/15/98</u> m m d d y y
Time	c. <u>13:38</u> <input type="checkbox"/> a.m. <input checked="" type="checkbox"/> p.m.	<u>17:45</u> <input type="checkbox"/> a.m. <input checked="" type="checkbox"/> p.m.
d. Sediment in well bottom	<u>4.2</u> inches	<u>0.0</u> inches
e. water clarity	Clear <input type="checkbox"/> 10 Turbid <input checked="" type="checkbox"/> 15 (Describe)	Clear <input checked="" type="checkbox"/> 20 Turbid <input type="checkbox"/> 25 (Describe)

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids NA mg/l NA mg/l

15. COD NA mg/l NA mg/l

16. Additional comments on development:

CONDUCTIVITY ms/cm 0.76
pH SU 8.3
TEMP °C 10.1
D O mg/L 12.5
TURBIDITY NTU 2

Well developed by: Person's Name and Firm

Name: JEFF FLAMINO

Firm: BOART LONGYEAR

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: [Signature]

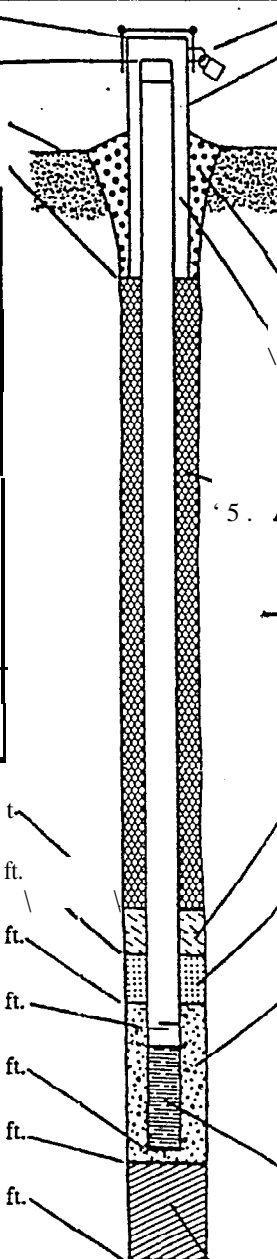
Print Initials: JRA

Firm: URS GREINER WOODWARD CLYDE

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

Facility/Project Name DU PONT BARKSDALE WORKS	Local Grid Location of Well _____ ft. <input type="checkbox"/> N. _____ ft. <input type="checkbox"/> E. _____ ft. <input type="checkbox"/> S. _____ ft. <input type="checkbox"/> W.	Well Name MW03
Facility License, Permit or Monitoring Number	Grid Origin Location Lat. _____ Long. _____ or St. Plane _____ ft. N. _____ ft. E.	Wis. Unique Well Number _____ DNR Well Number _____
Type of Well Water Table Observation Well <input type="checkbox"/> 11 Piezometer <input checked="" type="checkbox"/> 12	Section Location of Waste/Source NE 1/4 of SW 1/4 of Sec. 24, T. 48 N, R. 05 <input type="checkbox"/> E. <input type="checkbox"/> W.	Date Well Installed 09/29/98 m m d d y y
Distance Well Is From Waste/Source Boundary _____ ft.	Location of Well Relative to Waste/Source u <input type="checkbox"/> Upgradient s <input type="checkbox"/> Sidegradient d <input checked="" type="checkbox"/> Downgradient n <input type="checkbox"/> Not Known	Well Installed By: (Person's Name and Firm) JOE WEEKS BOART LONGYEAR
Is Well A Point of Enforcement Std. Application? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

Protective pipe, top elevation _____ ft. MSL	1. Cap and lock? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
B. Well casing, top elevation A _____ ft. MSL	2. Protective cover pipe: a. Inside diameter: _____ 4.0 in. b. Length: _____ 7.0 ft. c. Material: Steel <input checked="" type="checkbox"/> 04 Other <input type="checkbox"/>
Land surface elevation _____ ft. MSL	d. Additional protection? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, describe: _____
D. Surface seal, bottom _____ ft. MSL or _____ ft.	3. Surface seal: Bentonite <input checked="" type="checkbox"/> 3 0 Concrete <input type="checkbox"/> 0 Other <input type="checkbox"/>
2. USCS classification of soil near screen: GP <input type="checkbox"/> GM <input type="checkbox"/> GC <input type="checkbox"/> GW <input type="checkbox"/> SW <input type="checkbox"/> SP <input type="checkbox"/> SM <input type="checkbox"/> SC <input type="checkbox"/> ML <input type="checkbox"/> MH <input type="checkbox"/> CL <input type="checkbox"/> CH <input type="checkbox"/> Bedrock <input checked="" type="checkbox"/> SANDSTONE	4. Material between well casing and protective pipe: Bentonite <input type="checkbox"/> 30 Annular space seal <input checked="" type="checkbox"/> Other <input type="checkbox"/>
3. Sieve analysis attached? <input type="checkbox"/> Yes <input type="checkbox"/> No	5. Annular space seal: a. Granular Bentonite <input checked="" type="checkbox"/> 3 3 ✓ b. Lbs/gal mud weight. . . . Bentonite-sand slurry <input type="checkbox"/> 3 5 c. Lbs/gal mud weight Bentonite slurry <input type="checkbox"/> 3 d. 3 7 Bentonite Bentonite-cement grout <input checked="" type="checkbox"/> 5 0 e. 1 Ft ³ volume added for any of the above f. How installed: Tremie <input checked="" type="checkbox"/> 0 1 ✓ Tremie pumped <input type="checkbox"/> 0 2 Gravity <input type="checkbox"/> 0 8 ✓
4. Drilling method used: Rotary <input type="checkbox"/> 50 Hollow Stem Auger <input checked="" type="checkbox"/> 41 Other ROTOSONIC	6. Bentonite seal: a. Bentonite granules <input type="checkbox"/> 33 b. <input type="checkbox"/> 1/4 in. <input checked="" type="checkbox"/> 3/8 in. <input type="checkbox"/> 1/2 in. Bentonite pellets <input checked="" type="checkbox"/> 3 2 c. _____ Other <input type="checkbox"/>
15. Drilling fluid used: Water <input checked="" type="checkbox"/> 02 Air <input type="checkbox"/> 01 Drilling Mud <input type="checkbox"/> 03 <input type="checkbox"/> 04 <input type="checkbox"/> 05 <input type="checkbox"/> 06 <input type="checkbox"/> 07 <input type="checkbox"/> 08 <input type="checkbox"/> 09	7. Fine sand material: Manufacturer, product name & mesh size a. BADGER MINING BB #7 b. Volume added 0.8 ft ³
6. Milling additives used? <input type="checkbox"/> #1 <input type="checkbox"/> #2 <input checked="" type="checkbox"/> No	8. Filter pack material: Manufacturer, product name and mesh size a. RED FLINT #3 b. Volume added 1.8 ft ³
7. Source of water (attach analysis): WASHBURN MUNICIPAL	9. Well casing: Flush threaded PVC schedule 40 <input type="checkbox"/> 23 Flush threaded PVC schedule 80 <input checked="" type="checkbox"/> 24 Other <input type="checkbox"/>
Bentonite seal, top _____ ft. MSL or 0.0 ft	10. Screen material: FL. 7H PVC SCHED 80 a. Screen type: Factory cut <input checked="" type="checkbox"/> 1 1 Continuous slot <input type="checkbox"/> 0 1 Other <input type="checkbox"/>
Fine sand, top _____ ft. MSL or 65.3 ft.	b. Manufacturer TIMCO c. Slot size: _____ 0.020 in. d. Slotted length: _____ 5.0 ft.
G. Filter pack, top _____ ft. MSL or 66.9 ft.	11. Backfill material (below filter pack): None <input checked="" type="checkbox"/> 14 Other <input type="checkbox"/>
I. Screen joint, top _____ ft. MSL or 69.8 ft.	
I. Well bottom _____ ft. MSL or 74.8 ft.	
Filter pack, bottom _____ ft. MSL or 77.0 ft.	
Borehole bottom _____ ft. MSL or 77.0 ft.	
Borehole diameter 6.0 in.	
O.D. well casing 2.38 in.	
I.D. well casing 2.00 in.	



I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature _____ Firm _____

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Ad. Code. In accordance with ch. 144, Wis. Stats., failure to file this form may result in a forfeiture of not less than \$10, nor more than \$500 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not less than \$10, nor more than \$500 for each day of violation.

Route to: Solid Waste Haz. Waste Wastewater
Env. Response & Repair Underground Tanks Other

Facility/Project Name DU PONT BARKSDALE WORKS	County Name BAYFIELD	Well Name MW03
Facility License, Permit or Monitoring Number	County Code 04	Wis. Unique Well Number
		DNR Well Number

1. Can this well be purged dry? Yes No

2. Well development method
- surged with bailer and bailed 41
 - surged with bailer and pumped 61
 - surged with block and bailed 42
 - surged with block and pumped 62
 - surged with block, bailed and pumped 70
 - compressed air 20
 - bailed only 10
 - pumped only 51
 - pumped slowly 50
 - Other

3. Time spent developing well 270 min.

4. Depth of well (from top of well casing) 76.4 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 2 gal.

7. Volume of water removed from well 100.0 gal.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added NA

10. Analysis performed on water added? Yes No
(If yes, attach results)

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. <u>36.51</u> ft.	<u>32.63</u> ft.
Date	b. <u>10 14 98</u> 09 30 98	<u>10 23 98</u>
Time	c. <u>09:22</u> <input type="checkbox"/> a.m. <input checked="" type="checkbox"/> p.m.	<u>12:39</u> <input type="checkbox"/> a.m. <input checked="" type="checkbox"/> p.m.
12. Sediment in well bottom	<u>1.2</u> inches	<u>0.0</u> inches
13. water clarity	Clear <input type="checkbox"/> 10 Turbid <input checked="" type="checkbox"/> 15 (Describe)	Clear <input checked="" type="checkbox"/> 20 Turbid <input type="checkbox"/> 25 (Describe)

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids NA mg/l NA mg/l

15. COD NA mg/l NA mg/l

16. Additional comments on development:

CONDUCTIVITY ms/cm 0.40
pH SU 7.4
TEMP °C 11.8
DO mg/L 11.5
TURBIDITY NTU 4

Well developed by: Person's Name and Firm

Name: JEFF FLAMINO
Firm: BOART LONGYEAR

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: [Signature]
Print Initials: JRH
Firm: URS GREINER WOODWARD CLYDE

Facility/Project Name Du Pont BARKSDALE WORKS	Local Grid Location of Well ft. <input type="checkbox"/> N. <input type="checkbox"/> S. <input type="checkbox"/> E. <input type="checkbox"/> W.	Well Name MW04
Facility License, Permit or Monitoring Number	Grid Origin Location Lat. _____ Long. _____ or	Wis. Unique Well Number / DNR Well Number
Type of Well Water Table Observation Well <input type="checkbox"/> 11 Piezometer <input checked="" type="checkbox"/> 12	St. Plane _____ ft. N. _____ ft. E.	Date Well Installed 09/28/98 m m d d y y
Distance Well Is From Waste/Source Boundary 1750' (FROM TNX AREA) ft.	Section Location of Waste/Source E 1/4 of NE 1/4 of Sec. 21, T. 48 N., R. 5 W.	Well Installed By: (Person's Name and Firm) JOHN WEEKS
Well A Point of Enforcement Std. Application? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Location of Well Relative to Waste/Source u <input type="checkbox"/> Upgradient s <input checked="" type="checkbox"/> Sidegradient d <input type="checkbox"/> Downgradient n <input type="checkbox"/> Not Known	BOART LONGYEAR

A. Protective pipe, top elevation _____ ft. MSL	1. Cap and lock? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Well casing, top elevation _____ ft. MSL	2. Protective cover pipe: a. Inside diameter: 4.0 in. b. Length: 7.0 ft. c. Material: Steel <input checked="" type="checkbox"/> 04 Other <input type="checkbox"/>
C. Land surface elevation _____ ft. MSL	d. Additional protection? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, describe: _____
1. Surface seal, bottom _____ ft. MSL or 0.0 ft.	3. Surface seal: Bentonite <input checked="" type="checkbox"/> 3 0 Concrete <input type="checkbox"/> 0 1 Other <input type="checkbox"/>
12 USCS classification of soil near screen: GP <input type="checkbox"/> GM <input type="checkbox"/> GC <input type="checkbox"/> GW <input type="checkbox"/> SW <input type="checkbox"/> SP <input type="checkbox"/> SM <input type="checkbox"/> SC <input type="checkbox"/> ML <input type="checkbox"/> MH <input type="checkbox"/> CL <input type="checkbox"/> CH <input type="checkbox"/> Bedrock <input checked="" type="checkbox"/>	4. Material between well casing and protective pipe: Bentonite <input checked="" type="checkbox"/> 3 0 Annular space seal <input type="checkbox"/> Other <input type="checkbox"/>
13. Sieve analysis attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. Annular space seal: a. Granular Bentonite <input checked="" type="checkbox"/> 3 3 b. _____ Lbs/gal mud weight ... Bentonite-sand slurry <input type="checkbox"/> 3 5 c. _____ Lbs/gal mud weight ... Bentonite slurry <input type="checkbox"/> 3 1 d. _____ % Bentonite ... Bentonite-cement grout <input type="checkbox"/> 5 0 e. 8 Ft ³ volume added for any of the above
4. Drilling method used: Rotary <input type="checkbox"/> 5 0 Hollow Stan Auger <input type="checkbox"/> 4 1 Rotasonic Other <input checked="" type="checkbox"/>	f. How installed: Tremie <input checked="" type="checkbox"/> 0 1 ✓ Tremie pumped <input type="checkbox"/> 0 2 Gravity <input type="checkbox"/> 0 0
5. Drilling fluid used: Water <input checked="" type="checkbox"/> 0 2 Air <input type="checkbox"/> 0 1 Drilling Mud <input type="checkbox"/> 0 3 None <input type="checkbox"/> 9 9	6. Bentonite seal: a. Bentonite granules <input type="checkbox"/> 3 3 b. <input type="checkbox"/> 114 i.n. <input checked="" type="checkbox"/> 3/8 in. <input type="checkbox"/> 1/4 in. Bentonite pellets <input type="checkbox"/> 3 2 c. _____ Other <input type="checkbox"/>
6. Drilling additives used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7. Fine sand material: Manufacturer, product name & mesh size a. BADGER MINING BB #7 b. Volume added 0.2 ft ³
Describe _____	8. Filter pack material: Manufacturer, product name and mesh size a. RED FLINT #30 b. Volume added 4 ft ³
17. Source of water (attach analysis): WASHBURN MUNICIPAL	9. Well casing: Flush threaded PVC schedule 40 <input type="checkbox"/> 2 3 Flush threaded PVC schedule 80 <input checked="" type="checkbox"/> 2 4 Other <input type="checkbox"/>
r. Bentonite seal, top _____ ft. MSL or 0.0 ft.	10. Screen material: 2" FT SCHED 80 PVC a. Screen type: Factory cut <input checked="" type="checkbox"/> i i continuous slot <input type="checkbox"/> 0 1 Other <input type="checkbox"/>
r. Fine sand, top _____ ft. MSL or 46.5 ft.	b. Manufacturer TIMCO
Filter pack, top _____ ft. MSL or 48.0 ft.	c. Slot size: 0.020 in.
H. Screen joint, top _____ ft. MSL or 60.0 ft.	d. Slotted length: 5.0 ft.
Well bottom _____ ft. MSL or 66.0 ft.	11. Backfill material (below filter pack): None <input checked="" type="checkbox"/> 1 4 Other <input type="checkbox"/>
Filter pack, bottom _____ ft. MSL or 56.0 ft.	
n. Borehole, bottom _____ ft. MSL or 56.0 ft.	
Borehole, diameter 6.0 in.	
hi. O.D. well casing 2.38 in.	
I.D. well casing 2.00 in.	

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: _____ Firm: _____

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR-141, Wis. Ad. Code. In accordance with ch. 144, Wis. Stats., failure to file this form may result in a forfeiture of not less than \$10, nor more than \$1000 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than \$10,000 for each day of violation. NOTE: Shaded areas are for DNR use only. See instructions for more information including where the completed form should be sent.

Route Solid Waste Haz. Waste Wastewater
Env. Response & Repair Underground Tanks Other _____

Facility/Project Name DU PONT PARKSDALE WORKS	County Name BAYFIELD	Well Name MW04
Facility License, Permit or Monitoring Number	County Code 04	Wis. Unique Well Number
		DNR Well Number

1. Can this well be purged dry? Yes No

2. Well development method

surged with bailer and bailed	<input type="checkbox"/> 41
surged with bailer and pumped	<input type="checkbox"/> 61
surged with block and bailed	<input type="checkbox"/> 42
surged with block and pumped	<input type="checkbox"/> 62
surged with block, bailed and pumped	<input checked="" type="checkbox"/> 70
compressed air	<input type="checkbox"/> 20
bailed only	<input type="checkbox"/> 10
pumped only	<input type="checkbox"/> 51
pumped <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> 50
Other _____	<input checked="" type="checkbox"/>

3. Time spent developing well 200 min.

4. Depth of well (from top of well casing) 58.3 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 7.3 gal.

7. Volume of water removed from well 55.0 gal.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added NA

10. Analysis performed on water added?

(If yes, attach results)

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. <u>30.33</u> ft.	<u>30.39</u> ft.
Date	b. <u>10/13/98</u> m m d d y y	<u>10/13/98</u> m m d d y y
Time	c. <u>07:39</u> <input type="checkbox"/> a.m. <input type="checkbox"/> p.m.	<u>13:15</u> <input type="checkbox"/> a.m. <input type="checkbox"/> p.m.
12. Sediment in well bottom	<u>6.0</u> inches	<u>0.0</u> inches
13. water clarity	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Turbid <input checked="" type="checkbox"/> 15 (Describe)	Clear <input checked="" type="checkbox"/> 20 Turbid <input type="checkbox"/> 25 (Describe)
Fill in if drilling fluids were used and well is at solid waste facility:		
14. Total suspended solids	<u>NA</u> mg/l	<u>NA</u> mg/l
15. COD	<u>NA</u> mg/l	<u>NA</u> mg/l

16. Additional comments on development: Stabilized parameters after 55 GAL

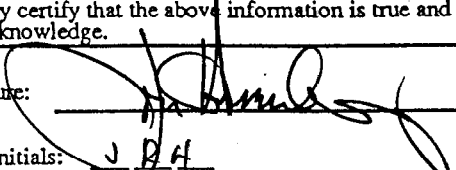
CONDUCTIVITY	mS/cm	<u>0.33</u>
pH	SU	<u>6.9</u>
TEMP	°C	<u>10.1</u>
DO	mg/L	<u>10.3</u>
TURBIDITY	NTU	<u>5</u>

Well developed by: Person's Name and Firm

Name: JEFF FLAMINO

Firm: BOART LONGYEAR

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: 

Print Initials: J.F.H.

Firm: URS GREINER WOODWARD CLYDE

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

Facility/Project Name DU PONT BARKSDALE WORKS	Local Grid Location of Well _____ ft. <input type="checkbox"/> N _____ ft. <input type="checkbox"/> E _____ ft. <input type="checkbox"/> S _____ ft. <input type="checkbox"/> W	Well Name MW05
Facility License, Permit or Monitoring Number	Grid Origin Location Lat. _____ Long. _____ or St. Plane _____ ft. N, _____ ft. E.	Wis. Unique Well Number _____ DNR Well Number _____
Type of Well Water Table Observation Well <input type="checkbox"/> 11 Piezometer <input checked="" type="checkbox"/> 12	Section Location of Waste/Source NW 1/4 of NE 1/4 of Sec. 25, T. 48 N, R. 05 <input type="checkbox"/> E <input type="checkbox"/> W	Date Well Installed 10/22/98 m m d d y y
Distance Well Is From Waste/Source Boundary _____ ft.	Location of Well Relative to Waste/Source u <input type="checkbox"/> Upgradient s <input type="checkbox"/> Sidegradient d <input checked="" type="checkbox"/> Downgradient n <input type="checkbox"/> Not Known	Well Installed By: (Person's Name and Firm) JOE WEEKS BOART LONGYEAR
Is Well A Point of Enforcement Std. Application? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

Protective pipe, top elevation _____ ft. MSL		1. Cap and lock? <input type="checkbox"/>
B. Well casing, top elevation _____ ft. MSL		2. Protective cover pipe: a. Inside diameter: 4.0 in. b. Length: 7.0 ft. c. Material: Steel <input checked="" type="checkbox"/> 04 Other <input type="checkbox"/>
C. Land surface elevation _____ ft. MSL		d. Additional protection? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, describe: _____
D. Surface seal, bottom _____ ft. MSL or _____ ft.		3. Surface seal: Bentonite <input checked="" type="checkbox"/> 3 0 Concrete <input type="checkbox"/> 0 Other <input type="checkbox"/>
2. USCS classification of soil near screen: GP <input type="checkbox"/> GM <input type="checkbox"/> GC <input type="checkbox"/> GW <input type="checkbox"/> SW <input type="checkbox"/> SP <input type="checkbox"/> SM <input type="checkbox"/> SC <input type="checkbox"/> ML <input type="checkbox"/> MH <input type="checkbox"/> CL <input type="checkbox"/> CH <input type="checkbox"/> Bedrock <input checked="" type="checkbox"/> SANDSTONE 1. Sieve analysis attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 14. Drilling method used: Rotary <input type="checkbox"/> 50 Hollow Stem Auger <input type="checkbox"/> 41 Other <input checked="" type="checkbox"/> ROTOSONIC 15. Drilling fluid used: Water <input checked="" type="checkbox"/> 02 <input type="checkbox"/> 01 Drilling Mud <input type="checkbox"/> 03 None <input type="checkbox"/> 99 Drilling _____ used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Describe NA 7. Source of water (attach analysis): WASHBURN MUNICIPAL		4. Material between well casing and Protective pipe: Bentonite <input type="checkbox"/> 3 0 Annular space seal <input checked="" type="checkbox"/> Other <input type="checkbox"/>
Bentonite seal, top _____ ft. MSL or 73.1 ft.	5. Annular space seal: a. Granular Bentonite <input type="checkbox"/> 3 3 b. Lbs/gal mud weight _____ Bentonite-sand slurry <input type="checkbox"/> 3 5 c. Lbs/gal mud weight _____ Bentonite slurry <input type="checkbox"/> 3 d. 3 % Bentonite _____ Bentonite-cement grout <input checked="" type="checkbox"/> 5 0 e. 18.7 Ft ³ volume added for any of the above f. How installed: Tremie <input type="checkbox"/> 0 1 Tremie pumped <input checked="" type="checkbox"/> 0 2 Gravity <input type="checkbox"/> 0 8	6. Bentonite seal: a. Bentonite granules <input type="checkbox"/> 3 3 b. <input type="checkbox"/> 1/4 in. <input checked="" type="checkbox"/> 3/8 in. <input type="checkbox"/> 1/2 in. Bentonite pellets <input checked="" type="checkbox"/> 3 2 c. Other <input type="checkbox"/>
Fine sand, top _____ ft. MSL or 82.1 ft.	7. Fine sand material: Manufacturer, product name & mesh size a. BADGER MINING RB #7 b. Volume added 0.2 ft ³	7. Fine sand material: Manufacturer, product name & mesh size a. RED FLINT #3 b. Volume added 1.6 ft ³
G. Filter pack, top _____ ft. MSL or 83.1 ft.	8. Filter pack material: Manufacturer, product name and mesh size a. RED FLINT #3 b. Volume added 1.6 ft ³	9. Well casing: Flush threaded PVC schedule 40 <input type="checkbox"/> 23 Flush threaded PVC schedule 80 <input checked="" type="checkbox"/> 24 Other <input type="checkbox"/>
screen joint, top _____ ft. MSL or 85.6 ft.	10. Screen material: FL. TH. PVC SCHED 80 a. Screen type: Factory cut <input checked="" type="checkbox"/> 1 1 Continuous slot <input type="checkbox"/> 0 1 Other <input type="checkbox"/>	10. Screen material: FL. TH. PVC SCHED 80 a. Screen type: Factory cut <input checked="" type="checkbox"/> 1 1 Continuous slot <input type="checkbox"/> 0 1 Other <input type="checkbox"/>
I. Well bottom _____ ft. MSL or 90.6 ft.	b. Manufacturer TIMCO c. Slot size: 0.020 in. d. Slotted length: 5.0 ft.	11. Backfill material (below filter pack): None <input type="checkbox"/> 1 4 Other <input type="checkbox"/>
Filter pack, bottom _____ ft. MSL or 98.0 ft.		
J. Borehole, bottom _____ ft. MSL or 98.0 ft.		
L. Borehole diameter 6.0 in.		
4. O.D. well casing 2.38 in.		
N. LD. well casing 8.00 in.		

I hereby certify that the information on this form is true and correct to the best of my knowledge.
Signature _____ Firm _____

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Route Solid Waste Haz. Waste Wastewater
Env. Response & Repair Underground Tanks Other

Facility/Project Name DU PONT BARKSDALE WORKS	County Name BAYFIELD	Well Name MW05
Facility License, Permit or Monitoring Number	County Code 04	Wis. Unique Well Number
		DNR Well Number

1. Can this well be purged dry? Yes No

2. Well development method

surged with bailer and bailed	<input type="checkbox"/>	41
surged with bailer and pumped	<input checked="" type="checkbox"/>	61
surged with block and bailed	<input type="checkbox"/>	42
surged with block and pumped	<input type="checkbox"/>	62
surged with block, bailed and pumped	<input type="checkbox"/>	70
compressed air	<input type="checkbox"/>	20
bailed only	<input type="checkbox"/>	10
pumped only	<input type="checkbox"/>	51
pumped slowly	<input type="checkbox"/>	50
Other	<input type="checkbox"/>	

3. Time spent developing well 160 min.

4. Depth of well (from top of well casing) 92.6 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 16.0 gal.

7. Volume of water removed from well 160.0 gal.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added NA

10. Analysis performed on water added? Yes No Both None
(If yes, attach results)

	Before Development	After Development
11. Depth to Water “(from top of well casing)”	a. <u>11.32</u> ft.	<u>8.99</u> ft.
Date	b. <u>10/21/98</u> m m d d y y	<u>10/21/98</u> m m d d y y
Time	c. <u>08:40</u> <input type="checkbox"/> a.m. <input type="checkbox"/> p.m.	<u>13:30</u> <input type="checkbox"/> a.m. <input type="checkbox"/> p.m.
12. Sediment in well bottom	<u>2.0</u> inches	<u>0.0</u> inches
13. water clarity	clear <input type="checkbox"/> 10 Turbid <input checked="" type="checkbox"/> 15 (Describe)	Clear <input checked="" type="checkbox"/> 20 Turbid <input type="checkbox"/> 25 (Describe)
Fill in if drilling fluids were used and well is at solid waste facility:		
14. Total suspended solids	<u>NA</u> mg/l	<u>NA</u> mg/l
15. COD	<u>NA</u> mg/l	<u>NA</u> mg/l

16. Additional comments on development:

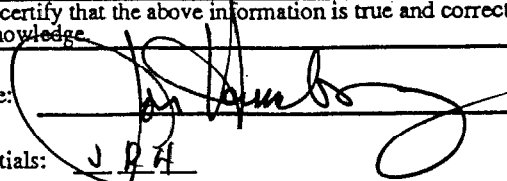
CONDUCTIVITY	ms/cm	<u>0.30</u>
pH	SU	<u>8.5</u>
TEMP	°C	<u>15.0</u>
DO	mg/L	<u>9.7</u>
TURBIDITY	NTU	<u>502</u>

Well developed by: Person's Name and Firm

Name: JEFF FLAMINO

Firm: BOART LONGYEAR

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: 

Print Initials: JFH

Firm: URS GREINER WOODWARD CLYDE

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

Facility/Project Name Du Pont Backsaw Works	Local Grid Location of Well ft. <input type="checkbox"/> N. <input type="checkbox"/> S. <input type="checkbox"/> E. <input type="checkbox"/> W.	Well Name PZ-15
Facility License, Permit or Monitoring Number	Grid Origin Location Lat. _____ Long. _____ or St. Plane _____ ft. N. _____ ft. E.	Well Unique Well Number / DNR Well Number
Type of Well Water Table Observation Well <input type="checkbox"/> 11 Piezometer <input checked="" type="checkbox"/> 12	Section Location of Waste/Source SW 1/4 of SE 1/4 of Sec. 24, T. 48N, R. 5E	Date Well Installed 09/23/98 m m d d y y
Distance Well Is From Waste/Source Boundary BURNING-GROUND ~ 700 ft.	Location of Well Relative to Waste/Source u <input type="checkbox"/> Upgradient s <input type="checkbox"/> Sidegradient d <input checked="" type="checkbox"/> Downgradient n <input type="checkbox"/> Not Known	Well Installed By: (Person's Name and Firm) JOHN WEEKS BOART LONGBEAR
Well A Point of Enforcement Sid. Application? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

A. Protective pipe, top elevation _____ ft. MSL	1. Cap and lock? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
B. Well casing, top elevation _____ ft. MSL	2. Protective cover pipe: a. Inside diameter: 4.0 in. b. Length: 7.0 ft. c. Material: Steel <input checked="" type="checkbox"/> 04 Other <input type="checkbox"/>
C. Land surface elevation _____ ft. MSL	d. Additional protection? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, describe: _____
D. Surface seal, bottom _____ ft. MSL or 15.0 ft.	3. Surface seal: Bentonite <input checked="" type="checkbox"/> 3 0 Concrete <input type="checkbox"/> 0 1 Other <input type="checkbox"/>
12 USCS classification of soil near screen: GP <input type="checkbox"/> GM <input type="checkbox"/> GC <input type="checkbox"/> GW <input type="checkbox"/> SW <input type="checkbox"/> SP <input type="checkbox"/> SM <input type="checkbox"/> SC <input type="checkbox"/> ML <input type="checkbox"/> MH <input type="checkbox"/> CL <input type="checkbox"/> CH <input type="checkbox"/> Bedrock <input checked="" type="checkbox"/> WEATHERED SANDSTONE	4. Material between well casing and protective pipe: Bentonite <input checked="" type="checkbox"/> 3 0 Annular space seal <input type="checkbox"/> Other <input type="checkbox"/>
13. Sieve analysis attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. Annular space seal: a. Granular Bentonite <input checked="" type="checkbox"/> 3 3 b. Lbs/gal mud weight... Bentonite-sand slurry <input type="checkbox"/> 3 5 c. Lbs/gal mud weight... Bentonite slurry <input type="checkbox"/> 3 1 d. _____ % Bentonite... Bentonite-cement grout <input type="checkbox"/> 5 0 e. _____ Ft ³ volume added for any of the above
Drilling method used: Rotary <input type="checkbox"/> 5 0 Hollow Stem Auger <input type="checkbox"/> 4 1 ROTASONIC Other <input checked="" type="checkbox"/>	f. How installed: Tremie <input type="checkbox"/> 0 1 Tremie pumped <input type="checkbox"/> 0 2 Gravity <input checked="" type="checkbox"/> 0 8
Drilling fluid used: Water <input type="checkbox"/> J02 Air <input type="checkbox"/> 0 1 Drilling Mud <input type="checkbox"/> 0 3 None <input checked="" type="checkbox"/> 9 9	6. Bentonite seal: a. Bentonite granules <input type="checkbox"/> 3 3 b. <input type="checkbox"/> 1/4 in. <input checked="" type="checkbox"/> 3/8 in. <input type="checkbox"/> 1/2 in. Bentonite pellets <input checked="" type="checkbox"/> 3 2 c. _____ Other <input type="checkbox"/>
Drilling additives used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7. Filter sand material: Manufacturer, product name & mesh size a. BADGER MINING BA # 7 b. Volume added 0.25 ft ³
Describe _____	8. Filter pack material: Manufacturer, product name and mesh size a. RED FLINT # 30 b. Volume added 1.5 ft ³
Source of water (attach analysis): NA	9. Well casing: Flush threaded PVC schedule 40 <input type="checkbox"/> 2 3 Flush threaded PVC schedule 80 <input checked="" type="checkbox"/> 2 4 Other <input type="checkbox"/>
Bentonite seal, top _____ ft. MSL or 0.0 ft.	10. Screen material: 2" FT SCREEN PVC a. Screen type: Factory cut <input checked="" type="checkbox"/> 1 1 Continuous slot <input type="checkbox"/> 0 1 Other <input type="checkbox"/>
F. Fine sand, top _____ ft. MSL or 15.0 ft.	b. Manufacturer FIMCO c. Slot size: 0.020 in. d. Slotted length: 5.0 ft.
G. Filter pack, top _____ ft. MSL or 17.5 ft.	11. Backfill material (below filter pack): None <input checked="" type="checkbox"/> 1 4 Other <input type="checkbox"/>
H. Screen joint, top _____ ft. MSL or 19.0 ft.	
I. Wellbottom _____ ft. MSL or 24.0 ft.	
J. Filter pack, bottom _____ ft. MSL or 26.0 ft.	
K. Borehole, bottom _____ ft. MSL or 25.0 ft.	
L. Borehole, diameter 6.0 in.	
M. O.D. well casing 2.38 in.	
N. I.D. well casing 2.00 in.	

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: _____ Firm: _____

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Ad. Code. In accordance with ch. 144, Wis. Stats., failure to file this form may result in a forfeiture of not less than \$10, nor more than \$100 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than \$10,000 for each day of violation. NOTE: Shaded areas are for DNR use only. See instructions for more information including where the completed form should be sent.

Route Solid Waste Haz. Waste Wastewater
Env. Response & Repair Underground Tanks Other

Facility/Project Name DU PONT PARKSIDE WORKS	County Name BAYFIELD	Well Name PZ15
Facility License, Permit or Monitoring Number	County Code 04	Wis. Unique Well Number
		DNR Well Number

1. Can this well be purged dry? Yes No

2. Well development method

- surged with bailer and bailed 41
- surged with bailer and pumped 61
- surged with block and bailed 42
- surged with block and pumped 62
- surged with block, bailed and pumped compressed air 70
- bailed only 20
- pumped only 10
- pumped slowly 5 51
- Other 50

3. Tie spent developing well 190 min

4. Depth of well (from top of well casing) 26.0 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 4.2 gal.

7. Volume of water removed from well 25.0 gal.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added NA

10. Analysis performed on water added? No
(If yes, attach results)

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. <u>17.33</u> ft.	<u>17.34</u> ft.
Date	b. <u>10/13/98</u> m m d d y y	<u>10/13/98</u> m m d d y y
Time	c. <u>14:00</u> <input type="checkbox"/> a.m. <input checked="" type="checkbox"/> p.m.	<u>18:15</u> <input type="checkbox"/> a.m. <input checked="" type="checkbox"/> p.m.
12. Sediment in well bottom	<u>12.5</u> inches	<u>00</u> inches
13. Water clarity	<input type="checkbox"/> 10 Turbid <input checked="" type="checkbox"/> 15 (Describe)	Clear <input checked="" type="checkbox"/> 20 Turbid <input type="checkbox"/> 25 (Describe)

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids NA mg/l | NA mg/l

15. COD NA mg/l | NA mg/l

16. Additional comments on development:

DRY 10X

CONDUCTIVITY	ms/cm	<u>0.37</u>
pH	SU	<u>5.9</u>
TEMP	°C	<u>10.6</u>
DO	mg/L	<u>12.6</u>
TURBIDITY	NTU	<u>0</u>

Well developed by: Person's Name and Firm

Name: JEFF FLAMINO

Firm: BOART LONGYARD

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: [Signature]

Print Initials: JRH

Firm: URS GREINER WOODWARD CLYDE

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

City/Project Name DU PONT BARKSDALE WORKS	Local Grid Location of Well _____ ft. <input type="checkbox"/> N. _____ ft. <input type="checkbox"/> E. _____ ft. <input type="checkbox"/> S. _____ ft. <input type="checkbox"/> W.	Well Name P225
Facility License, Permit or Monitoring Number	Grid Origin Location Lat. - - - - - Long. - - - - - or St Plane _____ ft. N. _____ ft. E.	Wis. Unique Well Number _____ DNR Well Number _____
Type of Well Water Table Observation Well <input type="checkbox"/> 11 Piezometer <input checked="" type="checkbox"/> 12	Section Location of Waste/Source SW 1/4 of NW 1/4 of Sec. 24, T. 48 N., R. 05	Date Well Installed 10/21/98 m m d d y y
Distance Well Is From Waste/Source Boundary _____ ft.	Location of Well Relative to Waste/Source u <input checked="" type="checkbox"/> Upgradient s <input type="checkbox"/> Sidegradient d <input type="checkbox"/> Downgradient n <input type="checkbox"/> Not Known	Installed By: (Pers. Well Installed By: i) JOE WEEKS
Is Well A Point of Enforcement Std. Application? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		BOART LONGYEAR

Protective pipe, top elevation _____ ft. MSL	1. Cap and lock? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
B. Well casing, top elevation _____ ft. MSL	2. Protective cover pipe: a. Inside diameter: _____ in. 4.0 b. Length: _____ ft. 7.0 c. Material: steel <input checked="" type="checkbox"/> 04 Other <input type="checkbox"/>
Land surface elevation _____ ft. MSL	d. Additional protection? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, describe: _____
D. Surface seal, bottom _____ ft. MSL or _____ ft.	3. Surface seal: Bentonite <input checked="" type="checkbox"/> 3 0 Concrete <input type="checkbox"/> 01 Other <input type="checkbox"/>
2. USCS classification of soil near screen: GP <input type="checkbox"/> GM <input type="checkbox"/> GC <input type="checkbox"/> GW <input type="checkbox"/> SW <input type="checkbox"/> SP <input type="checkbox"/> SM <input type="checkbox"/> SC <input type="checkbox"/> ML <input type="checkbox"/> MH <input type="checkbox"/> CL <input type="checkbox"/> CH <input type="checkbox"/> Bedrock <input checked="" type="checkbox"/> SANDSTONE	4. Material between well wing and protective pipe: Bentonite <input type="checkbox"/> 30 Annular space seal <input checked="" type="checkbox"/> Other <input type="checkbox"/>
3. Sieve analysis attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. Annular space seal: a. Granular Bentonite <input type="checkbox"/> 3 3 b. Lbs/gal mud weight. . . . Bentonite-sand slurry <input type="checkbox"/> 3 5 c. Lbs/gal mud weight. . . . Bentonite slurry <input type="checkbox"/> 3 1 d. 3 % Bentonite Bentonite-cement grout <input checked="" type="checkbox"/> 50 e. 39 Ft ³ volume added for any of the above f. How installed: Tremie <input type="checkbox"/> 01 Tremie pumped <input checked="" type="checkbox"/> 02 Gravity <input type="checkbox"/> 08
4. Drilling method used: Rotary <input type="checkbox"/> 50 Hollow Stem Auger <input type="checkbox"/> 41 ROTISONIC Other <input checked="" type="checkbox"/>	6. Bentonite seal: a. Bentonite granules <input type="checkbox"/> 33 b. <input type="checkbox"/> 1/4 in. <input checked="" type="checkbox"/> 3/8 in. <input type="checkbox"/> IrZin. Bentonite pellets <input checked="" type="checkbox"/> 32 c. _____ Other <input type="checkbox"/>
15. Drilling fluid used: Water <input checked="" type="checkbox"/> 02 Air <input type="checkbox"/> 01 Drilling Mud <input type="checkbox"/> 03 None <input type="checkbox"/> 99	7. Fine sand material: Manufacturer, product name & mesh size a. BADGER MINING BB #7 b. Volume added 0.2 ft ³
16. Drilling additives used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Describe NA	8. Filter pack material: Manufacturer, product name and mesh size a. RED FINT #3 b. Volume added 1.4 ft ³
17. Source of water (attach analysis): WASHBURN MUNICIPAL	9. Well casing: Flush threaded PVC schedule 40 <input type="checkbox"/> 23 Flush threaded PVC schedule 80 <input type="checkbox"/> 24 Other <input type="checkbox"/>
J. Bentonite seal, top _____ ft. MSL or 220.0 ft.	10. Screen material: FL. 7H . PVC SCHED 80 a. Screen type: Factory cut <input checked="" type="checkbox"/> 11 Continuous slot <input type="checkbox"/> 01 Other <input type="checkbox"/>
K. Fine sand, top _____ ft. MSL or 236.8 ft.	b. Manufacturer TIMCO
G. Filter pack, top _____ ft. MSL or 238.0 ft.	c. Slot size: 0.020 in.
I. Screen joint, top _____ ft. MSL or 239.3 ft.	d. Slotted length: 5.0 ft.
L. Wellbottom _____ ft. MSL or 244.3 ft.	11. Backfill material (below filter pack): None <input checked="" type="checkbox"/> 1, 4 Other <input type="checkbox"/>
M. Filter pack, bottom _____ ft. MSL or 246.0 ft.	
N. Borehole, bottom _____ ft. MSL or 246.0 ft.	
L. Borehole, diameter 6.0 in.	
M. O.D. well casing 2.38 in.	
N. I.D. well casing 2.00 in.	

I hereby certify that the information on this form is true and correct to the best of my knowledge.
Signature _____ Firm _____

Route to: Solid Waste Haz. Waste Wastewater
Env. Response & Repair Underground Tanks Other

Facility/Project Name DU PONT BARKSDALE WORKS	County Name BAYFIELD	Well Name P22s
Facility License, Permit or Monitoring Number	County Code 04	Wis. Unique Well Number
		DNR Well Number

1. Can this well be purged dry? Yes No

2. Well development method

surged with bailer and bailed	<input type="checkbox"/> 41
surged with bailer and pumped	<input type="checkbox"/> 61
surged with block and bailed	<input type="checkbox"/> 42
surged with block and pumped	<input type="checkbox"/> 62
surged with block bailed and pumped	<input checked="" type="checkbox"/> 70
compressed air	<input type="checkbox"/> 20
bailed only	<input type="checkbox"/> 10
pumped only	<input type="checkbox"/> 51
pumped slowly	<input type="checkbox"/> 50
Other	<input type="checkbox"/>

3. Time spent developing well 170 min.

4. Depth of well (from top of well casing) 246.2 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 36.0 gal.

7. Volume of water removed from well 380.0 gal.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added NA

10. Analysis performed on water added? Yes No
(If yes, attach results)

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. <u>42.20</u> ft.	<u>42.28</u> ft.
Date	b. <u>10/23/98</u> m m d d y y	<u>10/23/98</u> m m d d y y
Tie	c. <u>07:55</u> <input type="checkbox"/> a.m. <input checked="" type="checkbox"/> p.m.	<u>12:10</u> <input type="checkbox"/> a.m. <input checked="" type="checkbox"/> p.m.
2. Sediment in well bottom	<u>3.0</u> inches	<u>0.0</u> inches
3. water clarity	Clear <input type="checkbox"/> 110 Turbid <input checked="" type="checkbox"/> 15 (Describe)	Clear <input checked="" type="checkbox"/> 20 Turbid <input type="checkbox"/> 25 (Describe)

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids NA mg/l NA mg/l

15. COD NA mg/l NA mg/l

16. Additional comments on development:

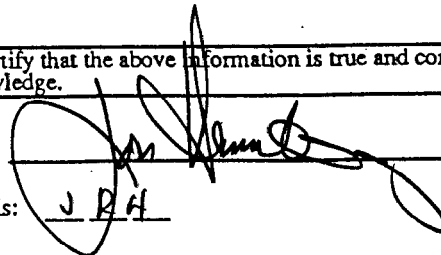
CONDUCTIVITY	ms/cm	<u>0.29</u>
pH	SU	<u>7.0</u>
TEMP	°C	<u>11.9</u>
DO	mg/L	<u>12.1</u>
TURBIDITY	NTU	<u>39</u>

Well developed by: Person's Name and Firm

Name: JEFF FLAMINO

Firm: BOART LONGYEAR

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: 

Print Initials: JRH

Firm: URS GREINER WOODWARD CLYDE

NOTE Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

Utility/Project Name
DU PONT BARKSDALE WORKS

Facility License, Permit or Monitoring Number

Type of Well Water Table Observation Well **11**
Piezometer

Distance Well Is From Waste/Source Boundary _____ ft.

Is Well A Point of Enforcement Std. Application?
 Yes No

Local Grid Location of Well
_____ ft. N. _____ ft. E.
_____ ft. S. _____ ft. W.

Grid Origin Location
Lat. _____ Long. _____ or
St. Plane _____ ft. N. _____ ft. E.

Section Location of Waste/Source
SW 1/4 of NW 1/4 of sec. 23, T. 48 N, R. 05 E. W.

Location of Well Relative to Waste/Source
 Upgradient Sidegradient
 Downgradient Not Known

Well Name **P23c**

Wis. Unique Well Number _____ DNR Well Number _____

Date Well Installed **10/23/98**
m m d d y y

Well Installed By: (Person's Name and Firm)
JOE WEEKS
BOART LONGYEAR

Protective pipe, top elevation _____ ft. MSL

B. Well casing, top elevation _____ ft. MSL

C. Land surface elevation _____ ft. MSL

D. Surface seal, bottom _____ ft. MSL or _____ ft.

USCS classification of soil near screen:
GP GM GC GW SW SP
SM SC ML MH CH
Bedrock SANDSTONE

3. Sieve analysis attached?

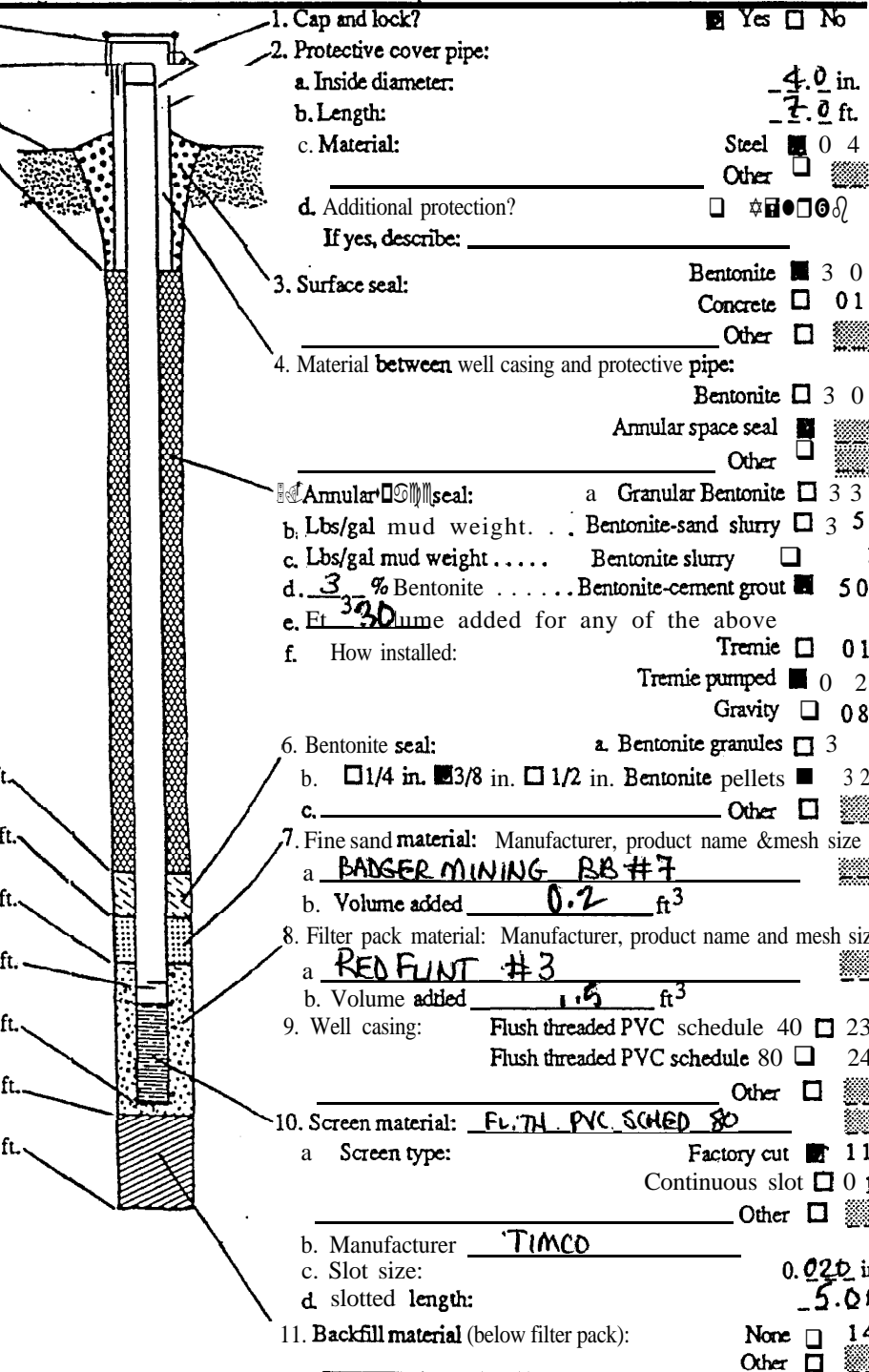
14. Drilling method used: Rotary 50
Hollow Stem Auger 41
ROTOSONIC Other

15. Drilling fluid used: Water 02 Air 01
Drilling Mud 03

16. Drilling additives used?

Describe **NA**

7. Source of water (attach analysis):
WASHBURN MUNICIPAL



1. Cap and lock? Yes No

2. Protective cover pipe:
a. Inside diameter: **4.0** in.
b. Length: **7.0** ft.
c. Material: Steel 0 4
Other

d. Additional protection?

If yes, describe: _____

3. Surface seal: Bentonite 3 0
Concrete 0 1
Other

4. Material between well casing and protective pipe:
Bentonite 3 0
Annular space seal
Other

Annular seal:
a. Granular Bentonite 3 3
b. Lbs/gal mud weight. . . . Bentonite-sand slurry 3 5
c. Lbs/gal mud weight Bentonite slurry 3 1
d. **3** % Bentonite Bentonite-cement grout 5 0
e. Et **30** volume added for any of the above
f. How installed: Tremie 0 1
Tremie pumped 0 2
Gravity 0 8

6. Bentonite seal: a. Bentonite granules 3 3
b. 1/4 in. 3/8 in. 1/2 in. Bentonite pellets 3 2
c. _____ Other

7. Fine sand material: Manufacturer, product name & mesh size
a. **BADGER MINING BB #7**
b. Volume added **0.2** ft³

8. Filter pack material: Manufacturer, product name and mesh size
a. **RED FLINT #3**
b. Volume added **1.5** ft³

9. Well casing: Flush threaded PVC schedule 40 23
Flush threaded PVC schedule 80 24
Other

10. Screen material: **FLTH. PVC SCHED 80**
a. Screen type: Factory cut 11
Continuous slot 0 1
Other

b. Manufacturer **TIMCO**
c. Slot size: **0.020** in.
d. slotted length: **5.0** ft.

11. Backfill material (below filter pack): None 14
Other

Bentonite seal, top _____ ft. MSL or **170.0** ft.

Fine sand top _____ ft. MSL or **176.0** ft.

G. Filter pack, top _____ ft. MSL or **177.0** ft.

Screen joint, top _____ ft. MSL or **178.7** ft.

I. Well bottom _____ ft. MSL or **183.7** ft.

Filter pack, bottom _____ ft. MSL or **185.0** ft.

J. Borehole, bottom _____ ft. MSL or **185.0** ft.

L. Borehole, diameter **6.0** in.

K. O.D. well casing **2.38** in.

N. L.D. well casing **2.00** in.

I hereby certify that the information on this form is true and correct to the best of my knowledge.
Signature _____ Firm _____

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Ad. Code. In accordance with ch. 144, Wis. Stats., failure to file this form may result in a forfeiture of not less than \$10, nor more than \$100.

Route to: Solid Waste Haz. Waste Wastewater
Env. Response & Repair Underground Tanks Other

Facility/Project Name DU PONT PARKSDALE WORKS	County Name BAYFIELD	Well Name PZ 3s
Facility License, Permit or Monitoring Number	County Code 04	Wis. Unique Well Number
		DNR Well Number

1. Can this well be purged dry? Yes No
2. Well development method
- surged with bailer and bailed 41
 - surged with bailer and pumped 61
 - surged with block and bailed 42
 - surged with block and pumped 62
 - surged with block, bailed and pumped 70
 - compressed air 20
 - bailed only 10
 - pumped only 51
 - pumped slowly 50
 - Other
3. Tie spent developing well 280 min.
4. Depth of well (from top of well casing) 189.7 ft.
5. Inside diameter of well 2.00 in.
6. Volume of water in filter pack and well casing 263 gal.
7. Volume of water removed from well 260.0 gal.
8. Volume of water added (if any) 0.0 gal.
9. Source of water added NA
10. Analysis performed on water added? Yes No
(If yes, attach results)

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. <u>41.08</u> ft.	<u>41.10</u> ft.
Date	b. <u>10/23/98</u> m m d d y y	<u>10/30/98</u> m m d d y y
Time	c. <u>11:35</u> <input type="checkbox"/> a.m. <input checked="" type="checkbox"/> p.m.	<u>13:30</u> <input type="checkbox"/> a.m. <input checked="" type="checkbox"/> p.m.
12. Sediment in well bottom	<u>2.0</u> inches	<u>0.0</u> inches
13. water clarity	<input type="checkbox"/> 10 <input type="checkbox"/> 15 <input type="checkbox"/> 20 Turbid <input checked="" type="checkbox"/> 15 (Describe)	Clear <input checked="" type="checkbox"/> 20 Turbid <input type="checkbox"/> 25 (Describe)
Fill in if drilling fluids were used and well is at solid waste facility:		
14. Total suspended solids	<u>NA</u> mg/l	<u>NA</u> mg/l
15. COD	<u>NA</u> mg/l	<u>NA</u> mg/l

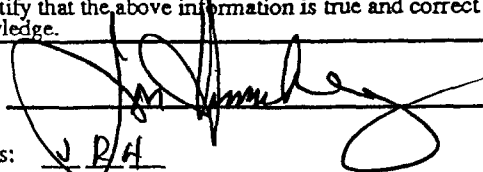
16. Additional comments on development:

CONDUCTIVITY mS/cm 0.29
 pH SU 8.7
 TEMP °C 11.5
 DO mg/L 11.6
 TURBIDITY NTU 14

Well developed by: Person's Name and Firm

Name: JEFF FLAMINO
 Firm: BOART LONGYEAR

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: 
 Print Initials: JRH
 Firm: URS GREINER WOODWARD CLYDE

NOTE Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

Facility/Project Name 10 PONT BARKDALE WORKS	Local Grid Location of Well ft. <input type="checkbox"/> N. <input type="checkbox"/> S. ft. <input type="checkbox"/> E. <input type="checkbox"/> W.	Well Name P24-3
Facility License, Permit or Monitoring Number	Grid Origin Location Lat. _____ Long. _____ or St. Plane _____ ft. N. _____ ft. E.	Wis. Unique Well Number & DNR Well Number
Type of Well Water Table Observation Well <input type="checkbox"/> 11 Piezometer <input checked="" type="checkbox"/> 12	Section Location of Waste/Source SE 1/4 of NW 1/4 of Sec. 23, T. 48N, R. 5 E.	Date Well Installed 10/06/98 m m d d y y
Distance Well Is From Waste/Source Boundary 500' ft.	Location of Well Relative to Waste/Source u <input type="checkbox"/> Upgradient s <input checked="" type="checkbox"/> Sidegradient d <input type="checkbox"/> Downgradient n <input type="checkbox"/> Not Known	Well Installed By: (Person's Name and Firm) JOHN WEEKS BOART LONGBEAR
Is Well A Point of Enforcement Std. Application? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

A. Protective pipe, top elevation _____ ft. MSL	1. Cap and lock? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
B. Well casing, top elevation _____ ft. MSL	2. Protective cover pipe: a. Inside diameter: 4.0 in. b. Length: 7.0 ft. c. Material: <input checked="" type="checkbox"/> Steel <input type="checkbox"/> 04 <input type="checkbox"/> Other <input type="checkbox"/>
C. Land surface elevation _____ ft. MSL	d. Additional protection? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, describe: _____
D. Surface seal, bottom _____ ft. MSL or 60 ft.	3. Surface seal: <input checked="" type="checkbox"/> Bentonite <input type="checkbox"/> 30 <input type="checkbox"/> Concrete <input type="checkbox"/> 01 <input type="checkbox"/> Other <input type="checkbox"/>
12 USCS classification of soil near screen: <input type="checkbox"/> GP <input type="checkbox"/> GM <input type="checkbox"/> GC <input type="checkbox"/> GW <input type="checkbox"/> SW <input type="checkbox"/> SP <input type="checkbox"/> <input type="checkbox"/> SM <input type="checkbox"/> SC <input type="checkbox"/> ML <input type="checkbox"/> MH <input type="checkbox"/> CL <input type="checkbox"/> CH <input type="checkbox"/> Bedrock <input type="checkbox"/>	4. Material between well casing and protective pipe: <input type="checkbox"/> Bentonite <input type="checkbox"/> 30 <input checked="" type="checkbox"/> Annular space seal <input type="checkbox"/> <input type="checkbox"/> Other <input type="checkbox"/>
13. Sieve analysis attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Drilling method used: Rotary <input type="checkbox"/> 50 Hollow Stem Auger <input type="checkbox"/> 41 ROTASONIC Other <input checked="" type="checkbox"/>	5. Annular space seal: a. Granular Bentonite <input type="checkbox"/> 33 b. Lbs/gal mud weight . . . Bentonite-sand slurry <input type="checkbox"/> 35 c. _____ Lbs/gal mudweight . . . Bentonite slurry <input type="checkbox"/> 31 d. 3% Bentonite Bentonite-cement grout <input checked="" type="checkbox"/> 50 e. 26 Ft ³ volume added for any of the above f. How installed: Tremie <input type="checkbox"/> 01 <input checked="" type="checkbox"/> Tremie pumped <input type="checkbox"/> 02 <input type="checkbox"/> Gravity <input type="checkbox"/> 08
Drilling fluid used: Water <input checked="" type="checkbox"/> 02 Air <input type="checkbox"/> 01 Drilling Mud <input type="checkbox"/> 03 None <input type="checkbox"/> 99	6. Bentonite seal: a. Bentonite granules <input type="checkbox"/> 33 b. <input type="checkbox"/> 1/4 in. <input checked="" type="checkbox"/> 3/8 in. <input type="checkbox"/> 1/2 in. Bentonite pellets <input type="checkbox"/> 32 c. _____ Other <input type="checkbox"/>
Drilling additives used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Describe _____	7. Fine sand material: Manufacturer, product name & mesh size a. BADGER MINING BB #7 b. Volume added 0.2 ft ³
source of water (attach analysis): WASHBURN MUNICIPAL	8. Filter pack material: Manufacturer, product name and mesh size a. RED FUNT #30 b. Volume added 1.6 ft ³
E. Bentonite seal, top _____ ft. MSL or 155.0 ft.	9. Well casing: Flush threaded PVC schedule 40 <input type="checkbox"/> 23 Flush threaded PVC schedule 80 <input checked="" type="checkbox"/> 24 <input type="checkbox"/> Other <input type="checkbox"/>
F. Fine sand, top _____ ft. MSL or 162.0 ft.	10. Screen material: 2" 6 FT SCHED 80 PVC a. Screen type: Factory cut <input checked="" type="checkbox"/> 11 Continuous slot <input type="checkbox"/> 01 <input type="checkbox"/> Other <input type="checkbox"/>
G. Filter pack, top _____ ft. MSL or 163.0 ft.	b. Manufacturer TIMCO c. Slot size: 0.020 in. d. Slotted length: 5.0 ft.
H. Screen joint, top _____ ft. MSL or 165.0 ft.	11. Backfill material (below filter pack): <input checked="" type="checkbox"/> None <input type="checkbox"/> 14 <input type="checkbox"/> Other <input type="checkbox"/>
I. Well bottom _____ ft. MSL or 170.0 ft.	
J. Filter pack, bottom _____ ft. MSL or 173.0 ft.	
K. Borehole, bottom _____ ft. MSL or 173.0 ft.	
L. Borehole, diameter 60 in.	
M. O.D. well casing 238 in.	
N. I.D. well casing 200 in.	

I hereby certify that the information on this form is true and correct to the best of my knowledge.
Signature: _____ Firm: _____

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Ad. Code. In accordance with ch. 144, Wis. Stats., failure to file this form may result in a forfeiture of not less than \$10, nor more than \$100 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than \$10,000 for each day of violation. NOTE: Shaded areas are for DNR use only. See instructions for use of this form.

Route to: Solid Waste Haz. Waste Wastewater
Env. Response & Repair Underground Tanks Other

Facility/Project Name DU PONT BARKSDALE WORKS	County Name BAYFIELD	Well Name PZ 4s
Facility License, Permit or Monitoring Number _____	County Code 04	Wis. Unique Well Number _____
		DNR Well Number _____

- 1. Can this well be purged dry? Yes No
- 2. Well development method
 - surged with bailer and bailed 41
 - surged with bailer and pumped 61
 - surged with block and bailed 42
 - surged with block and pumped 62
 - surged with block, bailed and pumped 70
 - compressed air 20
 - bailed only 10
 - pumped only** 51
 - pumped slowly 50
 - Other _____
- 3. Tie spent developing well 110 min
- 4. Depth of well (from top of well casing) 172.3 ft
- 5. Inside diameter of well 2.00 in.
- 6. Volume of water in filter pack and well casing 23.4 gal.
- 7. Volume of water removed from well 125.6 gal.
- 8. Volume of water added (if any) 0.0 gal.
- 9. Source of water added NA
- 10. Analysis performed on water added? Yes No
(If yes, attach results)

	Before Development	After Development
1. Depth to Water (from top of well casing)	a. <u>45.82</u> ft.	<u>45.82</u> ft.
Date	b. <u>10/13/98</u> m m d d y y	<u>10/15/98</u> m m d d y y
Time	c. <u>10:06</u> <input type="checkbox"/> a.m. <input checked="" type="checkbox"/> p.m.	<u>07:20</u> <input type="checkbox"/> a.m. <input checked="" type="checkbox"/> p.m.
2. Sediment in well bottom	<u>1.0</u> inches	<u>0.0</u> inches
3. Water clarity	Clear <input type="checkbox"/> 10 Turbid <input checked="" type="checkbox"/> 15 (Describe)	Clear <input checked="" type="checkbox"/> 20 Turbid <input type="checkbox"/> 25 (Describe)

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids	<u>NA</u> mg/l	<u>NA</u> mg/l
15. COD	<u>NA</u> mg/l	<u>NA</u> mg/l

16. Additional comments on development: **PARAMETER STABILIZED AFTER 6 VOLUMES.**

CONDUCTIVITY	ms/cm	<u>0.26</u>
pH	SU	<u>9.0</u>
TEMP	°C	<u>8.8</u>
DO	mg/L	<u>11.5</u>
TURBIDITY	NTU	<u>70</u>

Well developed by: Person's Name and Firm

Name: JEFF FLAMINO

Firm: BOART LONGYEAR

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: [Signature]

Print Initials: JRH

Firm: URS GREINER WOODWARD CLYDE

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

Facility/Project Name DuPont BARKSDALE WORKS	Local Grid Location of Well ft. <input type="checkbox"/> N. <input type="checkbox"/> S. <input type="checkbox"/> E. <input type="checkbox"/> W.	Well Name P255
Facility License, Permit or Monitoring Number	Grid Origin Location Lat. _____ Long. _____ or St. Plane _____ ft. N. _____ ft. E.	Wis. Unique Well Number _____ DNR Well Number _____
Type of Well Water Table Observation Well <input type="checkbox"/> 11 Piezometer <input checked="" type="checkbox"/> 12	Section Location of Waste/Source NW 1/4 of NW 1/4 of Sec. 25, T. 48 N. R. 5 E.	Date Well Installed 09/30/98 m m d d y y
Distance Well Is From Waste/Source Boundary 1100 (FROM DYANMITE AREA) ft.	Location of Well Relative to Waste/Source 1. <input type="checkbox"/> Upgradient 2. <input type="checkbox"/> Sidegradient 3. <input checked="" type="checkbox"/> Downgradient 4. <input type="checkbox"/> Not Known	Well Installed By: (Person's Name and Firm) JOE WEEKS BOART LONGYEAR
Well A Point of Enforcement Std. Application? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

A. Protective pipe, top elevation _____ ft. MSL	1. Cap and lock? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
B. Well casing, top elevation _____ ft. MSL	2. Protective cover pipe: a. Inside diameter: 4.0 in. b. Length: 7.0 ft. c. Material: Steel <input checked="" type="checkbox"/> 0 4 Other <input type="checkbox"/>
C. Land surface elevation _____ ft. MSL	d. Additional protection? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, describe: _____
D. Surface seal, bottom _____ ft. MSL or 0.0 ft.	3. Surface seal: Bentonite <input checked="" type="checkbox"/> 3 0 Concrete <input type="checkbox"/> 0 1 Other <input type="checkbox"/>
12. USCS classification of soil near screen: GP <input type="checkbox"/> GM <input type="checkbox"/> GC <input type="checkbox"/> GW <input type="checkbox"/> SW <input type="checkbox"/> SP <input type="checkbox"/> SM <input type="checkbox"/> SC <input type="checkbox"/> ML <input type="checkbox"/> MH <input type="checkbox"/> CL <input type="checkbox"/> CH <input type="checkbox"/> Bedrock <input checked="" type="checkbox"/>	4. Material between well casing and protective pipe: Bentonite <input type="checkbox"/> 3 0 Annular space seal <input checked="" type="checkbox"/>
13. Sieve analysis attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. Annular space seal: a. Granular Bentonite <input type="checkbox"/> 3 3 b. Lbs/gal mud weight ... Bentonite-sand slurry <input type="checkbox"/> 3 5 c. _____ Lbs/gal mud weight ... Bentonite slurry <input type="checkbox"/> 3 1 d. 3 % Bentonite ... Bentonite-cement grout <input checked="" type="checkbox"/> 5 0 e. 8 Ft ³ volume added for any of the above f. How installed: Tremie <input type="checkbox"/> 0 1 Tremie pumped <input checked="" type="checkbox"/> 0 2 Gravity <input type="checkbox"/> 0 8
Drilling method used: Rotary <input type="checkbox"/> 5 0 Hollow Stem Auger <input type="checkbox"/> 4 1 ROTONIC Other <input checked="" type="checkbox"/>	6. Bentonite seal: a. Bentonite granules <input type="checkbox"/> 3 3 b. <input type="checkbox"/> 1/4 in. <input checked="" type="checkbox"/> 3/8 in. <input type="checkbox"/> 1/2 in. Bentonite pellets <input type="checkbox"/> 3 2 c. _____ Other <input type="checkbox"/>
Drilling fluid used: Water <input checked="" type="checkbox"/> 0 2 Air <input type="checkbox"/> 0 1 Drilling Mud <input type="checkbox"/> 0 3 None <input type="checkbox"/> 9 9	7. Fine sand material: Manufacturer, product name & mesh size a. BADGER MINING AB #7 b. Volume added 0.2 ft ³
Drilling additives used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	8. Filter pack material: Manufacturer, product name and mesh size a. RED FLINT #30 b. Volume added 1.5 ft ³
Describe _____	9. Well casing: Flush threaded PVC schedule 40 <input type="checkbox"/> 2 3 Flush threaded PVC schedule 80 <input checked="" type="checkbox"/> 2 4 Other <input type="checkbox"/>
Source of water (attach analysis): WASHBURN MUNICIPAL	10. Screen material: 2" O.F.T. SCHED 80 PVC a. Screen type: Factory cut <input checked="" type="checkbox"/> 1 1 Continuous slot <input type="checkbox"/> 0 1 Other <input type="checkbox"/>
Bentonite seal, top m - e - - - ft. MSL or 48.0 ft	b. Manufacturer TMACO c. Slot size: 0.020 in. d. Slotted length: 5.0 ft.
F. Fine sand, top _____ ft. MSL or 56.5 ft.	11. Backfill material (below filter pack): None <input checked="" type="checkbox"/> 1 4 Other <input type="checkbox"/>
G. Filter pack, top _____ ft. MSL or 58.0 ft.	
H. Screen joint, top _____ ft. MSL or 60.0 ft.	
I. Well bottom _____ ft. MSL or 65.0 ft.	
J. Filter pack, bottom _____ ft. MSL or 66.0 ft.	
K. Borehole, bottom _____ ft. MSL or 66.0 ft.	
L. Borehole, diameter 6.0 in.	
M. O.D. well casing 2.38 in.	
I.D. well casing 2.00 in.	

I hereby certify that the information on this form is true and correct to the best of my knowledge.
Signature _____ Firm _____

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Ad. Code. In accordance with ch. 144, Wis. Stats., failure to file this form may result in a forfeiture of not less than \$10, nor more than \$100 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than \$10,000 for each day of violation. NOTE: Shaded areas are for DNR use only. See instructions for more information including where to file this form.

Route to: Solid Waste Haz. Waste Wastewater
Env. Response & Repair Underground Tanks Other

Facility/Project Name DU PONT BARKSDALE WORKS	County Name BAYFIELD	Well Name PZ5s
Facility License, Permit or Monitoring Number	County Code 04	Wis. Unique Well Number
		DNR Well Number

1. Can this well be purged dry? Yes No

2. Well development method

- surged with bailer and bailed 41
- surged with bailer and pumped 61
- surged with block and bailed 42
- surged with block and pumped 62
- surged with block, bailed and pumped 70
- compressed air 20
- bailed only 10
- pumped only 50
- pumped slowly 50
- Other

3. Time spent developing well 320 min.

4. Depth of well (from top of well casing) 66.9 ft

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 87 gal.

7. Volume of water removed from well 80.0 gal.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added NA

10. Analysis performed on water added? No
(If yes, attach results)

	Before Development	After Development
1. Depth to Water (from top of well casing)	a. <u>26.29</u> ft.	<u>26.22</u> ft.
Date	b. <u>10/15/98</u> m m d d y y	<u>10/15/98</u> m m d d y y
T-e	c. <u>08:20</u> <input type="checkbox"/> a.m. <input checked="" type="checkbox"/> p.m.	<u>16:10</u> <input type="checkbox"/> a.m. <input checked="" type="checkbox"/> p.m.
12. Sediment in well bottom	_____ inches	_____ inches
13. water clarity	clear <input type="checkbox"/> 10 Turbid <input checked="" type="checkbox"/> 15 (Describe)	Clear <input checked="" type="checkbox"/> 20 Turbid <input type="checkbox"/> 25 (Describe)
Fill in if drilling fluids were used and well is at solid waste facility:		
14. Total suspended solids	<u>NA</u> mg/l	<u>NA</u> mg/l
15. COD	<u>NA</u> mg/l	<u>NA</u> mg/l

16. Additional comments on development:

CONDUCTIVITY ms/cm 0.28

pH SU 8.1

TEMP °C 11.8

DO mg/L 12.8

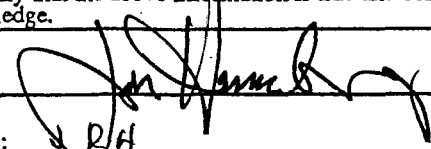
TURBIDITY NTU 0

Well developed by: person's Name and Firm

Name: JEFF FLAMINO

Firm: BOART LONGVERD

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: 

Print Initials: JFH

Firm: URS GREINER WOODWARD CLYDE

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

City/Project Name DU PONT BARKSDALE WORKS	Local Grid Location of Well ft. <input type="checkbox"/> N. <input type="checkbox"/> S. ft. <input type="checkbox"/> E. <input type="checkbox"/> W.	Well Name PZ60s
Facility License, Permit or Monitoring Number	Grid Origin Location Lat. _____ Long. _____ or St. Plane _____ ft. N. _____ ft. E.	Wis. Unique Well Number _____ DNR Well Number _____
Type of Well Water Table Observation Well <input type="checkbox"/> 11 Piezometer <input checked="" type="checkbox"/> 12	Section Location of Waste/Source NW 1/4 of SW 1/4 of Sec. 24, T. 48 N., R. 05 E. W.	Date Well Installed 10/19/98 m m d d y y
Distance Well Is From Waste/Source Boundary ft.	Location of Well Relative to Waste/Source u <input type="checkbox"/> Upgradient s <input type="checkbox"/> Sidegradient d <input type="checkbox"/> Downgradient n CI Not known	Well Installed By: (Person's Name and Firm) JOE WEEKS BOART LONGYEAR
Is Well A Point of Enforcement Std. Application? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

Protective pipe, top elevation _____ ft. MSL	1. Cap and lock? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
B. Well casing, top elevation _____ ft. MSL	2. Protective cover pipe: a. Inside diameter: 4.0 in. b. Length: 7.0 ft. c. Material: Steel <input checked="" type="checkbox"/> 04 Other <input type="checkbox"/>
Land surface elevation _____ ft. MSL	d. Additional protection? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, describe: _____
D. Surface seal, bottom _____ ft. MSL or _____ ft.	3. Surface seal: Bentonite <input checked="" type="checkbox"/> 3 0 Concrete <input type="checkbox"/> 0 Other <input type="checkbox"/>
2. USCS classification of soil near screen: GP <input type="checkbox"/> GM <input type="checkbox"/> GC <input type="checkbox"/> GW <input type="checkbox"/> SW <input type="checkbox"/> SP <input type="checkbox"/> SM <input type="checkbox"/> SC <input type="checkbox"/> ML <input type="checkbox"/> MH <input type="checkbox"/> CH <input type="checkbox"/> Bedrock <input checked="" type="checkbox"/> SANDSTONE	4. Material between well casing and protective pipe: Bentonite <input type="checkbox"/> 3 0 Annular space seal <input checked="" type="checkbox"/>
3. Sieve analysis attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. Annular space seal: a. Granular Bentonite <input type="checkbox"/> 3 3 b. Lbs/gal mud weight. Bentonite-sand slurry <input type="checkbox"/> 3 5 c. _____ Lbs/gal mud weight. Bentonite slurry <input type="checkbox"/> 3 1 d. Bentonite-cement grout-cement <input checked="" type="checkbox"/> 5 0 e. Ft ³ volume added for any of the above f. How installed: Tremie <input type="checkbox"/> 0 1 Tremie pumped <input checked="" type="checkbox"/> 0 2 Gravity <input type="checkbox"/> 0 8
14. Drilling method used: Rotary <input type="checkbox"/> 5 0 Hollow Stem Auger <input type="checkbox"/> 4 1 ROTORSONIC Other <input checked="" type="checkbox"/>	6. Bentonite seal: a. Bentonite granules <input type="checkbox"/> 3 3 b. <input type="checkbox"/> 1/4 in. <input checked="" type="checkbox"/> 3/8 in. <input type="checkbox"/> 1/2 in. Bentonite pellets <input checked="" type="checkbox"/> 3 2 c. _____ Other <input type="checkbox"/>
15. Drilling fluid used: Water <input checked="" type="checkbox"/> 0 2 Drilling Mud <input type="checkbox"/> 0 3	7. Filter sand material: Manufacturer, product name & mesh size a. BADGER MINING BB #7 b. Volume added 0.2 ft ³
16. Billing additives used? <input type="checkbox"/> yes <input checked="" type="checkbox"/> No Describe NA	8. Filter pack material: Manufacturer, product name and mesh size a. RED FINE #3 b. Volume added 1.6 ft ³
17. Source of water (attach analysis): WASHBURN MUNICIPAL	9. Well casing: Flush threaded PVC schedule 40 <input type="checkbox"/> 23 Flush threaded PVC schedule 80 <input type="checkbox"/> 24 Other <input type="checkbox"/>
3. Bentonite seal, top _____ ft. MSL or 152.0 ft.	10. Screen material: FLTH PVC SCHED 80 a. Screen type: Factory cut <input checked="" type="checkbox"/> 1 1 Continuous slot <input type="checkbox"/> 0 1 Other <input type="checkbox"/>
4. Filter sand, top _____ ft. MSL or 157.5 ft.	b. Manufacturer TIMCO c. Slot size: 0.020 in. d. Slotted length: 5.0 ft.
G. Filter pack, top _____ ft. MSL or 159.0 ft.	11. Backfill material (below filter pack): None <input checked="" type="checkbox"/> 1 4 Other <input type="checkbox"/>
I. Screen joint, top _____ ft. MSL or 160.4 ft.	
J. Well bottom _____ ft. MSL or 165.4 ft.	
K. Filter pack, bottom _____ ft. MSL or 171.0 ft.	
L. Borehole, bottom _____ ft. MSL or 171.0 ft.	
L. Borehole, diameter 6.0 in.	
M. O.D. well casing 2.38 in.	
N. LD. well casing 2.00 in.	

I hereby certify that the information on this form is true and correct to the best of my knowledge.
Signature _____ Firm _____

Route Solid Waste Haz. Waste Wastewater
Env. Response & Repair Underground Tanks Other

Facility/Project Name DU PONT PARKSDALE WORKS	County Name BAYFIELD	Well Name PZ60s
Facility License, Permit or Monitoring Number	County Code 04	Wis. Unique Well Number
		DNR Well Number

1. Can this well be purged dry? Yes No

2. Well development method

surged with bailer and bailed	<input type="checkbox"/> 41
surged with bailer and pumped	<input type="checkbox"/> 61
surged with block and bailed	<input type="checkbox"/> 42
surged with block and pumped	<input type="checkbox"/> 62
surged with block, bailed and pumped	<input checked="" type="checkbox"/> 70
compressed air	<input type="checkbox"/> 20
bailed only	<input type="checkbox"/> 10
pumped only	<input type="checkbox"/> 51
pumped slowly	<input type="checkbox"/> 50
Other	<input type="checkbox"/>

3. Tie spent developing well 240 min.

4. Depth of well (from top of well casing) 167.8 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 239 gal.

7. Volume of water removed from well 240.0 gal.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added NA

10. Analysis performed on water added? No
(If yes, attach results)

	Before Development	After Development
1. Depth to Water (from top of well casing)	a. <u>37.98</u> ft.	<u>36.85</u> ft.
Date	b. <u>10/19/98</u> m m d d y y	<u>10/20/98</u> m m d d y y
Tie	c. <u>17:45</u> <input type="checkbox"/> a.m. <input checked="" type="checkbox"/> p.m.	<u>11:48</u> <input type="checkbox"/> a.m. <input checked="" type="checkbox"/> p.m.
2. Sediment in well bottom	<u>3.0</u> inches	<u>0.0</u> inches
3. water clarity	Clear <input type="checkbox"/> 10 Turbid <input checked="" type="checkbox"/> 15 (Describe)	Clear <input checked="" type="checkbox"/> 20 Turbid <input type="checkbox"/> 25 (Describe)
fill in if drilling fluids were used and well is at solid waste facility:		
14. Total suspended solids	<u>NA</u> mg/l	<u>NA</u> mg/l
15. COD	<u>NA</u> mg/l	<u>NA</u> mg/l

16. Additional comments on development:

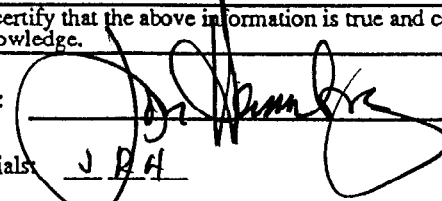
CONDUCTIVITY	ms/cm	<u>0.32</u>
pH	SU	<u>7.8</u>
TEMP	°C	<u>9.5</u>
DO	mg/L	<u>13.7</u>
TURBIDITY	NTU	<u>0</u>

Well developed by: Person's Name and Firm

Name: JEFF FLAMINO

Firm: BOART LONGYEAR

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: 

Print Initials: J F A

Firm: URS GREINER WOODWARD CLYDE

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

Facility/Project Name DUPONT BARKSDALE WORKS	Local Grid Location of Well _____ ft. <input type="checkbox"/> N. _____ ft. <input type="checkbox"/> E. _____ ft. <input type="checkbox"/> S. _____ ft. <input type="checkbox"/> W.	Well Name PZ-1D
Facility License, Permit or Monitoring Number	Grid Origin Location Lat. _____ Long. _____ or St. Plane _____ ft. N. _____ ft. E.	Wis. Unique Well Number _____ DNR Well Number _____
Type of Well Water Table Observation Well <input type="checkbox"/> 11 Piezometer <input checked="" type="checkbox"/> 12	Section Location of Waste/Source SW 1/4 of SE 1/4 of Sec. 24, T. 48 N., R. 5 <input type="checkbox"/> E. <input type="checkbox"/> W.	Date Well Installed 09 23 198 m m d d y y
Distance Well Is From Waste/Source Boundary ~ 700 ft.	Location of Well Relative to Waste/Source u <input type="checkbox"/> Upgradient s <input type="checkbox"/> Sidegradient d <input checked="" type="checkbox"/> Downgradient n <input type="checkbox"/> Not Known	Well Installed By: (Person's Name and Firm) JON WEEKS ROBERT LONGYEAR
Well A Point of Enforcement Std. Application? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

Protective pipe, top elevation _____ ft. MSL	1. Cap and lock? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
B. Well casing, top elevation _____ ft. MSL	2. Protective cover pipe: a. Inside diameter: 4.0 in. b. Length: 7.0 ft. c. Material: Steel <input checked="" type="checkbox"/> 04 Other <input type="checkbox"/>
C. Land surface elevation _____ ft. MSL	d. Additional protection? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, describe: _____
Surface seal, bottom _____ ft. MSL or _____ ft.	3. Surface seal: Bentonite <input checked="" type="checkbox"/> 3 0 Concrete <input type="checkbox"/> 0 1 Other <input type="checkbox"/>
12. USCS classification of coil near screen: GP <input type="checkbox"/> GM <input type="checkbox"/> GC <input type="checkbox"/> GW <input type="checkbox"/> SW <input type="checkbox"/> SP <input type="checkbox"/> SM <input type="checkbox"/> SC <input type="checkbox"/> ML <input type="checkbox"/> MH <input type="checkbox"/> CL <input type="checkbox"/> CH <input type="checkbox"/> Bedrock <input checked="" type="checkbox"/> SANDSTONE	4. Material between well casing and protective pipe: Bentonite <input type="checkbox"/> 3 0 Annular space seal <input checked="" type="checkbox"/>
13. Sieve analysis attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. Annular space seal: a. Granular Bentonite <input type="checkbox"/> 3 3 b. Lbs/gal mud weight . . . Bentonite-sand slurry <input type="checkbox"/> 3 5 c. _____ Lbs/gal mud weight Bentonite slurry <input type="checkbox"/> 3 1 d. 3 % Bentonite Bentonite-cement grout <input checked="" type="checkbox"/> 5 0 e. 8.5 Ft ³ volume added for any of the above
I. Drilling method used: Rotary <input type="checkbox"/> 5 0 Hollow Stan Auger <input type="checkbox"/> 4 1 ROTOSONIC Other <input checked="" type="checkbox"/>	f. How installed: Tremie <input type="checkbox"/> 0 1 Tremie pumped <input checked="" type="checkbox"/> 0 2 Gravity <input type="checkbox"/> 0 8
5. Drilling fluid used: Water <input checked="" type="checkbox"/> 0 2 Air <input type="checkbox"/> 0 1 Drilling Mud <input type="checkbox"/> 0 3 None <input type="checkbox"/> 9 9	6. Bentonite seal: a. Bentonite granules <input type="checkbox"/> 3 3 b. <input type="checkbox"/> 1/4 in. <input checked="" type="checkbox"/> 3/8 in. <input type="checkbox"/> 1/2 in. Bentonite pellets <input checked="" type="checkbox"/> 3 2 c. _____ Other <input type="checkbox"/>
5. Drilling additives used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7. Fine sand material: Manufacturer, product name & mesh size a. BADGER MINING RS #7 b. Volume added 0.2 ft ³
Describe _____	8. Filter pack material: Manufacturer, product name and mesh size a. RED FLINT #30 b. Volume added 5 ft ³
7. Source of water (attach analysis): WASHBURN MUNICIPAL	9. Well casing: Flush threaded PVC schedule 40 <input type="checkbox"/> 2 3 Flush threaded PVC schedule 80 <input checked="" type="checkbox"/> 2 4 Other <input type="checkbox"/>
Bentonite seal, top _____ ft. MSL or 610 ft.	10. Screen material: FT PVC Sched 80 a. Screen type: Factory cut <input checked="" type="checkbox"/> 1 1 continuous slot <input type="checkbox"/> 0 1 Other <input type="checkbox"/>
F. Fine sand, top _____ ft. MSL or 570 ft.	b. Manufacturer TIMCO
Filter pack, top _____ ft. MSL or 580 ft.	c. Slot size: 0.020 in.
H. Screen joint, top _____ ft. MSL or 600 ft.	d. Slotted length: 5.0 ft.
Well bottom _____ ft. MSL of 660 ft.	11. Backfill material (below filter pack): None <input checked="" type="checkbox"/> 1 4 Other <input type="checkbox"/>
Filter pack, bottom _____ ft. MSL or 670 ft.	
K. Borehole, bottom _____ ft. MSL or 670 ft.	
Borehole, diameter 6.0 in.	
M. O.D. well casing 2.38 in.	
I.D. well casing 2.00 in.	

I hereby certify that the information on this form is true and correct to the best of my knowledge.
Signature _____ Firm _____

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 145, and 160, Wis. Stats., and ch. NR 141, Wis. Ad. Code. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not less than \$10, nor more than \$1000 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than \$10,000 for each day of violation. NOTE: This form is for DNR use only. See instructions for more information including information on how to file this form.

Route to: Solid Waste Haz. Waste Wastewater
Env. Response & Repair Underground Tanks Other

Facility/Project Name DU PONT BARKSDALE WORKS	County Name BAYFIELD	Well Name PZ1D
Facility License, Permit or Monitoring Number	County Code 04	Wis. Unique Well Number
		DNR Well Number

1. can this well be purged dry? Yes No
2. Well development method
- surged with bailer and bailed 41
 - surged with bailer and pumped 61
 - surged with block and bailed 42
 - surged with block and pumped 62
 - surged with block, bailed and pumped 70
 - compressed air 20
 - bailed only 10
 - pumped only 51
 - pumped slowly 50
 - Other
3. Tie spent developing well 100 min.
4. Depth of well (from top of well casing) 67.6 ft.
5. Inside diameter of well 2.00 in.
6. Volume of water in filter pack and well casing 10.9 gal.
7. Volume of water removed from well 110.0 gal.
8. Volume of water added (if any) 0.0 gal.
9. Source of water added NA
10. Analysis performed on water added? No
(If yes, attach results)

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. <u>17.86</u> ft.	<u>17.70</u> ft.
Date	b. <u>10/13/98</u> m m d d y y	<u>10/13/98</u> m m d d y y
Tie	c. <u>14:05</u> <input type="checkbox"/> a.m. <input checked="" type="checkbox"/> p.m.	<u>18:18</u> <input type="checkbox"/> a.m. <input checked="" type="checkbox"/> p.m.
12. Sediment in well bottom	<u>0.8</u> inches	<u>0.0</u> inches
13. Water clarity	Clear <input type="checkbox"/> 10 Turbid <input checked="" type="checkbox"/> 15 (Describe)	Clear <input checked="" type="checkbox"/> 20 Turbid <input type="checkbox"/> 25 (Describe)
Fill in if drilling fluids were used and well is at solid waste facility:		
14. Total suspended solids	<u>NA</u> mg/l	<u>NA</u> mg/l
15. COD	<u>NA</u> mg/l	<u>NA</u> mg/l

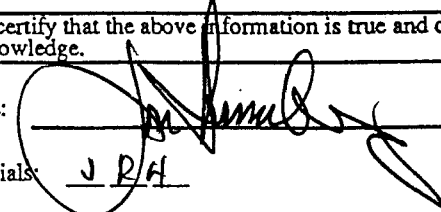
16. Additional comments on development:

CONDUCTIVITY ms/cm 157
 pH SU 6.3
 TEMP °C 11.2
 DO mg/L 12.6
 TURBIDITY NTU 0

Well developed by: Person's Name and Firm

Name: JEFF FLAMINO
 Firm: BOART LONGYEAR

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: 
 Print Initials: JRH
 Firm: URS GRINER WOODWARD CLYDE

1. Facility/Project Name DU PONT BARKSDALE WORKS	Local Grid Location of Well ft. <input type="checkbox"/> N. <input type="checkbox"/> S. ft. <input type="checkbox"/> E. <input type="checkbox"/> W.	Well Name PZ 2 B
2. Facility License, Permit or Monitoring Number	Grid Origin Location Lat. _____ Long. _____ or St. Plane _____ ft. N. _____ ft. E.	Wis. Unique Well Number _____ DNR Well Number _____
3. Type of Well Water Table Observation Well <input type="checkbox"/> 11 Piezometer <input checked="" type="checkbox"/> 12	Section Location of Waste/Source NN 1/4 of NW 1/4 of Sec. 24, T. 48 N., R. 05 E. W.	Date Well Installed 10/22/98 m m a a y y
4. Distance Well Is From Waste/Source Boundary ft. _____	Location of Well Relative to Waste/Source u <input checked="" type="checkbox"/> Upgradient s <input type="checkbox"/> Sidegradient d <input type="checkbox"/> Downgradient n <input type="checkbox"/> Not Known	Well Installed by (Person's Name and Firm) JOHN WEEKS BOB LANGYEAR
5. Is Well A Point of Enforcement Std. Application? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

Protective pipe, top elevation _____ ft. MSL B. Well using, top elevation _____ ft. MSL Land surface elevation _____ ft. MSL D. Surface seal, bottom _____ ft. MSL or _____ ft.		1. Can and lock? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 2. Protective cover pipe: a. Inside diameter: <u>4.0</u> in. b. Length: <u>7.0</u> ft. c. Material: Steel <input checked="" type="checkbox"/> 04 Other <input type="checkbox"/> d. Additional protection? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, describe: _____ 3. Surface seal: Bentonite <input checked="" type="checkbox"/> 30 Concrete <input type="checkbox"/> 01 Other <input type="checkbox"/> 4. Material between well casing and protective pipe: Bentonite <input type="checkbox"/> 30 Annular space seal <input type="checkbox"/> Other <input type="checkbox"/> 5. Space seal: a. Granular Bentonite <input type="checkbox"/> 33 b. Lbs/gal mud weight. . . . Bentonite-sand slurry <input type="checkbox"/> 35 c. Lbs/gal mud weight Bentonite slurry <input type="checkbox"/> 3 d. <u>3</u> % Bentonite Bentonite-cement grout <input checked="" type="checkbox"/> 50 e. <u>44</u> Ft ³ volume added for any of the above f. How installed: Tremie <input type="checkbox"/> 01 Tremie pumped <input checked="" type="checkbox"/> 02 Gravity <input type="checkbox"/> 08 6. Bentonite seal: a. Bentonite granules <input type="checkbox"/> 3 b. <input type="checkbox"/> 1/4 in. <input type="checkbox"/> 3/8 in. <input type="checkbox"/> 1/2 in. Bentonite pellets <input checked="" type="checkbox"/> 32 c. _____ Other <input type="checkbox"/> 7. Fine sand material: Manufacturer, product name & mesh size a. <u>BANGER MINING BB #7</u> b. Volume added <u>0.2</u> ft ³ 8. Filter pack material: Manufacturer, product name and mesh size a. <u>BENEFIT #3</u> b. Volume added <u>1.4</u> ft ³ 9. Well casing: Flush threaded PVC schedule 40 <input type="checkbox"/> 23 Flush threaded PVC schedule 80 <input checked="" type="checkbox"/> 24 Other <input type="checkbox"/> 10. Screen material: <u>FLTH PVC SCHED 80</u> 8. Screentype: Factory cut <input checked="" type="checkbox"/> 11 Continuous slot <input type="checkbox"/> 01 Other <input type="checkbox"/> b. Manufacturer <u>TIMCO</u> c. Slot size: 0. <u>020</u> in. d. Slotted length: <u>5.0</u> ft. 11. Backfill material (below filter pack): None <input checked="" type="checkbox"/> 14 Other <input type="checkbox"/>
2. USCS classification of soil near screen: GP <input type="checkbox"/> GM <input type="checkbox"/> GC <input type="checkbox"/> GW <input type="checkbox"/> SW <input type="checkbox"/> SP <input type="checkbox"/> SM <input type="checkbox"/> SC <input type="checkbox"/> ML <input type="checkbox"/> MH <input type="checkbox"/> CL <input type="checkbox"/> CH <input type="checkbox"/> Bedrock <input checked="" type="checkbox"/> SANDSTONE 3. Sieve analysis attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 14. Drilling method used: Rotary <input type="checkbox"/> 50 Hollow Stem Auger <input checked="" type="checkbox"/> 41 Other <u>ROTSONIC</u> 15. Drilling fluid used: Water <input checked="" type="checkbox"/> 02 Air <input type="checkbox"/> 01 Drilling Mud <input type="checkbox"/> 03 None <input type="checkbox"/> 04 16. Drilling additives used? <input type="checkbox"/> yes <input checked="" type="checkbox"/> No Describe <u>NA</u> 7. Source of water (attach analysis): <u>WASHBURN MUNICIPAL</u>		A. Bentonite seal, top _____ ft. MSL or <u>260.0</u> ft. Fine sand, top _____ ft. MSL or <u>271.5</u> ft. G. Filter pack, top _____ ft. MSL or <u>273.0</u> ft. Screen joint, top _____ ft. MSL or <u>278.9</u> ft. L Wellbottom _____ ft. MSL or <u>283.9</u> ft. Filter pack, bottom _____ ft. MSL or <u>285.0</u> ft. Borehole, bottom _____ ft. MSL or <u>285.0</u> ft. L. Borehole, diameter <u>6.0</u> in. A. O.D. well casing <u>2.38</u> in. N. I.D. well casing <u>2.00</u> in.

I hereby certify that the information on this form is true and correct to the best of my knowledge.
Signature _____ Firm _____

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Ad. Code. In accordance with ch. 144, Wis. Stats., failure to file this form may result in a forfeiture of not less than \$10, nor more than \$5000 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not less than \$10, nor more than \$5000 for each day of violation.

Route Solid Waste Haz. Waste Wastewater
Env. Response & Repair Underground Tanks Other

Facility/Project Name DV PONTBARKSDALE WORKS	County Name BAYFIELD	Well Name PZ2D
Facility License, Permit or Monitoring Number	County Code 04	Wis. Unique Well Number
		DNR Well Number

1. can this well be purged dry? Yes No

2. Well development method

surged with bailer and bailed	<input type="checkbox"/> 41
surged with bailer and pumped	<input type="checkbox"/> 61
surged with block and bailed	<input type="checkbox"/> 42
surged with block and pumped	<input type="checkbox"/> 62
surged with block, bailed and pumped	<input type="checkbox"/> ml 70
compressed air	<input type="checkbox"/> 20
bailed only	<input type="checkbox"/> 10
pumped only	<input type="checkbox"/> 51
pumped slowly	<input type="checkbox"/> 50
Other	<input type="checkbox"/>

3. Time spent developing well 380 min

4. Depth of well (from top of well casing) 285.9 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 45.1 gal.

7. Volume of water removed from well 580.0 gal.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added NA

10. Analysis performed on water added? Yes No
(If yes, attach results)

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. <u>26.25</u> ft.	<u>26.26</u> ft.
Date	b. <u>10/22/98</u> m m d d y y	<u>10/22/98</u> m m d d y y
Time	c. <u>07:55</u> <input type="checkbox"/> a.m. <input checked="" type="checkbox"/> p.m.	<u>18:55</u> <input type="checkbox"/> a.m. <input checked="" type="checkbox"/> p.m.
12. Sediment in well bottom	<u>— 1</u> . % inches	<u>0.0</u> inches
13. water clarity	Clear <input type="checkbox"/> 10 Turbid <input checked="" type="checkbox"/> 15 (Describe)	clear <input checked="" type="checkbox"/> 20 Turbid <input type="checkbox"/> 25 (Describe)
Fill in if drilling fluids were used and well is at solid waste facility:		
14. Total suspended solids	<u>NA</u> mg/l	<u>NA</u> mg/l
15. COD	<u>NA</u> mg/l	<u>NA</u> mg/l

16. Additional comments on development:

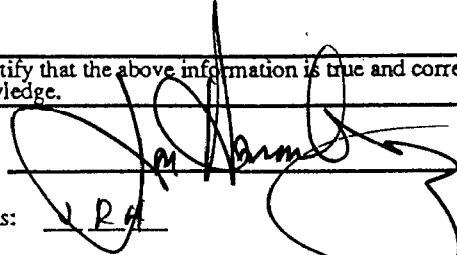
CONDUCTIVITY	ms/cm	<u>0.31</u>
pH	SU	<u>6.6</u>
TEMP	°C	<u>10.9</u>
DO	mg/L	<u>11.8</u>
TURBIDITY	NTU	<u>0</u>

Well developed by: Person's Name and Firm

Name: JEFF FLAMINO

Firm: BOART LONGYEAR

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: 

Print Initials: JRF

Firm: LRS GROINED WOODWARD CLYDE

NOTE Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

Facility/Project Name DUPONT BARKSDALE WORKS	Local Grid Location of Well ft. <input type="checkbox"/> N. <input type="checkbox"/> S. <input type="checkbox"/> E. <input type="checkbox"/> W.	Well Name PZ-3D
Facility License, Permit or Monitoring Number a - - - - -	Grid Origin Location Lat. _____ Long. _____ or St. Plane _____ ft. N. _____ ft. E.	Wisconsin Unique Well Number & DNR Well Number _____
Type of Well Water Table Observation Well <input type="checkbox"/> 11 Piezometer <input checked="" type="checkbox"/> 12	Section Location of Waste/Source NW 1/4 of NW 1/4 of Sec. 23, T. 48 N, R. 5 <input type="checkbox"/> E. <input checked="" type="checkbox"/> W.	Date Well Installed 09/22/98 m m d d y y
Distance Well Is From Waste/Source Boundary 1500 FT OR MORE ft.	Location of Well Relative to Waste/Source u <input checked="" type="checkbox"/> Upgradient s <input type="checkbox"/> Sidegradient d <input type="checkbox"/> Downgradient n <input type="checkbox"/> Not Known	Well Installed By: (Person's Name and Firm) JOHN WEEKS BOARE LONGYEAR
Well A Point of Enforcement Std. Application? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

<p>Protective pipe, top elevation _____ ft. MSL</p> <p>Well casing, top elevation _____ ft. MSL</p> <p>Land surface elevation _____ ft. MSL</p> <p>Surface seal, bottom _____ ft. MSL or _____ ft.</p> <p>12. USCS classification of soil near screen: GP <input type="checkbox"/> GM <input type="checkbox"/> GC <input type="checkbox"/> GW <input type="checkbox"/> SW <input type="checkbox"/> SP <input type="checkbox"/> SM <input type="checkbox"/> SC <input type="checkbox"/> ML <input type="checkbox"/> MH <input type="checkbox"/> CL <input type="checkbox"/> CH <input type="checkbox"/> Bedrock <input checked="" type="checkbox"/> LOOSELY CEMENTED SANDSTONE</p> <p>13. Sieve analysis attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>14. Drilling method used: Rotary <input type="checkbox"/> 50 Hollow Stan Auger <input type="checkbox"/> 4 11 <u>ROTASONIC</u> Other <input checked="" type="checkbox"/></p> <p>15. Drilling fluid used: Water <input checked="" type="checkbox"/> 02 Air <input type="checkbox"/> 01 Drilling Mud <input checked="" type="checkbox"/> 03 None <input type="checkbox"/> 99</p> <p>16. Drilling used? <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> No Describe _____</p> <p>17. source of water (attach analysis): <u>WASHBURN MUNICIPAL SYSTEM</u></p>		<p>1. Cap and lock? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>2. Protective cover pipe: a. Inside diameter: <u>4.0</u> in. b. Length: <u>7.0</u> ft. c. Material: Steel <input checked="" type="checkbox"/> 04 Other <input type="checkbox"/></p> <p>d. Additional protection? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, describe: _____</p> <p>3. Surface seal: Bentonite <input type="checkbox"/> 3 0 Concrete <input checked="" type="checkbox"/> 0 1 Other <input type="checkbox"/></p> <p>4. Material between well casing and protective pipe: Bentonite <input type="checkbox"/> 3 0 Annular space seal <input checked="" type="checkbox"/> Other <input type="checkbox"/></p> <p>5. Annular space seal: a. Granular Bentonite <input type="checkbox"/> 3 3 b. _____ Lbs/gal mud weight ... Bentonite-sand slurry <input type="checkbox"/> 3 5 c. _____ Lbs/gal mud weight ... Bentonite slurry <input type="checkbox"/> 3 1 d. <u>3</u> % Bentonite ... Bentonite-cement grout <input checked="" type="checkbox"/> 5 0 e. <u>3</u> Ft <u>32</u> ne added for any of the above f. How installed: Tremie <input type="checkbox"/> 0 1 Tremie pumped <input type="checkbox"/> 0 2 Gravity <input type="checkbox"/> 0 8</p> <p>6. Bentonite seal: a. Bentonite granules <input type="checkbox"/> 3 3 b. <input type="checkbox"/> 1/4 in. <input checked="" type="checkbox"/> 3/8 in. <input type="checkbox"/> 1/2 in. Bentonite pellets <input checked="" type="checkbox"/> 3 2 c. _____ Other <input type="checkbox"/></p> <p>7. Fine sand material: Manufacturer, product name & mesh size a. <u>BADGER MINING BB #7</u> b. Volume added <u>0.5</u> ft³</p> <p>8. Filter pack material: Manufacturer, product name and mesh size a. <u>RED FLINT #30</u> b. Volume added <u>0.5</u> ft³</p> <p>9. Well casing: Flush threaded PVC schedule 40 <input type="checkbox"/> 2 3 Flush threaded PVC schedule 80 <input type="checkbox"/> 2 4 <u>W/ ORING JOINTS</u> Other <input type="checkbox"/></p> <p>10. Screen material: <u>SCHED 80 FT PVC</u> a. Screentype: Factory cut <input checked="" type="checkbox"/> 1 1 Continuous slot <input type="checkbox"/> 0 1 Other <input type="checkbox"/></p> <p>b. Manufacturer <u>JOHANSON</u> c. Slot size: <u>0.020</u> in. d. Slotted length: <u>5.0</u> ft.</p> <p>11. Backfill material (below filter pack): None <input checked="" type="checkbox"/> 1 4 Other <input type="checkbox"/></p>
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I hereby certify that the information on this form is true and correct to the best of my knowledge.
 Signature: _____ Firm: _____

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Ad. Code. In accordance with ch. 144, Wis. Stats., failure to file this form may result in a forfeiture of not less than \$10, nor more than \$1000 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than \$10,000 for each day of violation. NOTE: Shaded areas are for DNR use only. See instructions for more information including where the completed form should be sent.

Route Solid Waste Haz. Waste Wastewater
Env. Response & Repair Underground Tanks Other

Facility/Project Name DV PONTIAC PARKS DALE WORKS	County Name BAYFIELD	Well Name PZ 3D
Facility License, Permit or Monitoring Number	County Code 04	Wis. Unique Well Number
		DNR Well Number

1. Can this well be purged dry? Yes No

2. Well development method
- surged with bailer and bailed 41
 - surged with bailer and pumped 61
 - surged with block and bailed 42
 - surged with block and pumped 62
 - surged with block, bailed and pumped 70
 - compressed air 20
 - bailed only 10
 - pumped only 51
 - pumped slowly 50
 - Other _____

3. Time spent developing well 270 min.

4. Depth of well (from top of well casing) 229.6 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 32.8 gal.

7. Volume of water removed from well 320.0 gal.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added NA

10. Analysis performed on water added? Yes No
(If yes, attach results)

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. <u>41.50</u> ft.	<u>41.46</u> ft.
Date	b. <u>10/20/98</u> m m d d y y	<u>10/21/98</u> m m d d y y
Time	c. <u>16:25</u> a.m. p.m.	<u>13:15</u> a.m. p.m.
12. Sediment in well bottom	<u>3.1</u> inches	<u>0.0</u> inches
13. water clarity	Clear <input type="checkbox"/> 10 Turbid <input checked="" type="checkbox"/> 15 (Describe)	Clear <input checked="" type="checkbox"/> 20 Turbid <input type="checkbox"/> 25 (Describe)

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids	<u>NA</u> mg/l	<u>NA</u> mg/l
15. COD	<u>NA</u> mg/l	<u>NA</u> mg/l

16. Additional comments on development:

CONDUCTIVITY ms/cm 291
 pH SU 8.6
 TEMP °C 10.9
 DO mg/L 4.8
 TURBIDITY NTU 10

Well developed by: Person's Name and Firm

Name: JEFF FLAMINO

Firm: BOART LONGYEAR

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: 

Print Initials: J.F.A.

Firm: URS GREINER WOODWARD CLYDE

Facility/Project Name DuPont BARKSDALE WORKS	Local Grid Location of Well _____ ft. <input type="checkbox"/> N. _____ ft. <input type="checkbox"/> E. _____ ft. <input type="checkbox"/> S. _____ ft. <input type="checkbox"/> W.	Well Name PE-40
Facility License, Permit or Monitoring Number	Grid Origin Location Lat. _____ Long. _____ or _____	Wis. Unique Well Number: _____ DNR Well Number: _____
Type of Well: Water Table Observation Well <input type="checkbox"/> 11 Piezometer <input checked="" type="checkbox"/> 12	St. Plane _____ ft. N. _____ ft. E.	Date Well Installed 10, 05, 98 m m d d y y
Distance Well is From Waste/Source Boundary 500' (FROM BARREL DUMPS) ft.	Section Location of Waste/Source SE 1/4 of NW 1/4 of Sec. 23 T. 48 N. R. 5 <input type="checkbox"/> E. <input checked="" type="checkbox"/> W.	Well Installed By: (Person's Name and Firm) JOHN WEEKS
Well A Point of Enforcement Std. Application? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Location of Well Relative to Waste/Source u <input type="checkbox"/> Upgradient s <input checked="" type="checkbox"/> Sidegradient d <input type="checkbox"/> Downgradient n <input type="checkbox"/> Not Known	BOART LONGYEAR

A. Protective pipe, top elevation _____ ft. MSL	1. Cap and lock? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Well casing, top elevation _____ ft. MSL	2. Protective cover pipe: a. Inside diameter: 4.0 in. b. Length: 7.0 ft. c. Material: Steel <input checked="" type="checkbox"/> 04 Other <input type="checkbox"/>
C. Land surface elevation _____ ft. MSL	d. Additional protection? <input type="checkbox"/> No
Surface seal, bottom _____ ft. MSL or 0.0 ft.	3. Surface seal: Bentonite <input checked="" type="checkbox"/> 30 Concrete <input type="checkbox"/> 01 Other <input type="checkbox"/>
12 USCS classification of soil near screen: GP <input type="checkbox"/> GM <input type="checkbox"/> GC <input type="checkbox"/> GW <input type="checkbox"/> SW <input type="checkbox"/> SP <input type="checkbox"/> SM <input type="checkbox"/> SC <input type="checkbox"/> ML <input type="checkbox"/> MH <input type="checkbox"/> CL <input type="checkbox"/> CH <input type="checkbox"/> Bedrock <input type="checkbox"/>	4. Material between well casing and protective pipe: Bentonite <input type="checkbox"/> 30 Annular space seal <input checked="" type="checkbox"/>
13. Sieve analysis attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. Annular space seal: a. Granular Bentonite <input type="checkbox"/> 33 b. Lbs/gal mud weight... Bentonite-sand slurry <input type="checkbox"/> 35 c. 3 Lbs/gal mud weight... Bentonite slurry <input type="checkbox"/> 31 d. 3 % Bentonite... Bentonite-cement grout <input checked="" type="checkbox"/> 50 e. _____ Ft ³ volume added for any of the above
i. Drilling method used: Rotary <input type="checkbox"/> 50 Hollow Stan Auger <input type="checkbox"/> 41 ROTOSONIC Other <input checked="" type="checkbox"/>	f. How installed: Tremie <input type="checkbox"/> 01 Tremie pumped <input checked="" type="checkbox"/> 02 Gravity <input type="checkbox"/> 08
ii. Drilling fluid used: Water <input checked="" type="checkbox"/> 02 Air <input type="checkbox"/> 01 Drilling Mud <input type="checkbox"/> 03 None <input type="checkbox"/> 9 9	6. Bentonite seal: a. Bentonite granules <input type="checkbox"/> 33 b. <input type="checkbox"/> 1/4 in. <input checked="" type="checkbox"/> 3/8 in. <input type="checkbox"/> 1/2 in. Bentonite pellets <input type="checkbox"/> 32 c. _____ Other <input type="checkbox"/>
iii. Drilling additives used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7. Fine sand material: Manufacturer, product name & mesh size a. BADGER MINING BB #7 b. Volume added _____ ft ³
Describe _____	8. Filter pack material: Manufacturer, product name and mesh size a. RED FLINT #30 b. Volume added _____ ft ³
17. Source of water (attach analysis): WASHBURN MUNICIPAL	9. Well casing: Flush threaded PVC schedule 40 <input type="checkbox"/> 2 3 Flush threaded PVC schedule 80 <input checked="" type="checkbox"/> 24 Other <input type="checkbox"/>
q. Bentonite seal, top _____ ft. MSL or 190.0 ft.	10. Screen material: 2" OBT SCHED 80 PVC a. Screen type: Factory cut <input checked="" type="checkbox"/> 11 Continuous slot <input type="checkbox"/> 01 Other <input type="checkbox"/>
r. Fine sand, top _____ ft. MSL or 201.5 ft.	b. Manufacturer TIMCO
s. Filter pack, top _____ ft. MSL or 203.0 ft.	c. Slot size: 0.020 in.
H. Screen joint, top _____ ft. MSL or 205.0 ft.	d. Slotted length: 5.0 ft.
Well bottom _____ ft. MSL or 210.0 ft.	11. Backfill material (below filter pack): None <input checked="" type="checkbox"/> 14 Other <input type="checkbox"/>
L. Filter pack, bottom _____ ft. MSL or 211.0 ft.	
A. Borehole, bottom _____ ft. MSL or 211.0 ft.	
Borehole, diameter 6.0 in.	
M. O.D. well casing 2.38 in.	
I.D. well casing 2.00 in.	

I hereby certify that the information on this form is true and correct to the best of my knowledge.
Signature: _____ Firm: _____

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Ad. Code. In accordance with ch. 144, Wis. Stats., failure to file this form may result in a forfeiture of not less than \$10,000 nor more than \$100,000 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than \$10,000 for each day of violation. NOTE: Shaded areas are for DNR use only. See instructions for more information including where the completed form should be sent.

Route to: Solid Waste Haz. Waste Wastewater
Env. Response & Repair Underground Tanks Other

Facility/Project Name DV PONTIAC KESKIDAKE WORKS	County Name BAYFIELD	Well Name P24D	
Facility License, Permit or Monitoring Number	County Code 04	Wis. Unique Well Number	DNR Well Number

1. Can this well be purged dry? Yes No

2. Well development method

surged with bailer and bailed	<input type="checkbox"/> 41
surged with bailer and pumped	<input type="checkbox"/> 61
surged with block and bailed	<input type="checkbox"/> 42
surged with block and pumped	<input type="checkbox"/> 62
surged with block, bailed and pumped	<input checked="" type="checkbox"/> 70
compressed air	<input type="checkbox"/> 20
bailed only	<input type="checkbox"/> 10
pumped only	<input type="checkbox"/> 51
pumped slowly	<input type="checkbox"/> 50
Other	<input type="checkbox"/>

3. Time spent developing well 220 min.

4. Depth of Well (from top of well casing) 213.5 ft.

5. Inside diameter of well 2.00 in.

6. Volume of water in filter pack and well casing 30.1 gal.

7. Volume of water removed from well 275.0 gal.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added NA

10. Analysis performed on water added? Yes No
(If yes, attach results)

	Before Development	After Development
a. Depth to Water (from top of well casing)	<u>45.66</u> ft.	<u>45.73</u> ft.
b. Date	<u>10/13/98</u> m m d d y y	<u>10/15/98</u> m m d d y y
c. Time	<u>10:06</u> <input type="checkbox"/> a.m. <input checked="" type="checkbox"/> p.m.	<u>07:30</u> <input type="checkbox"/> a.m. <input checked="" type="checkbox"/> p.m.
1. Sediment in well bottom	<u>5.3</u> inches	<u>0.0</u> inches
2. water clarity	Clear <input type="checkbox"/> 10 Turbid <input checked="" type="checkbox"/> 15 (Describe)	Clear <input checked="" type="checkbox"/> 20 Turbid <input type="checkbox"/> 25 (Describe)
14. Total suspended solids	<u>NA</u> mg/l	<u>NA</u> mg/l
15. COD	<u>NA</u> mg/l	<u>NA</u> mg/l

fill in if drilling fluids were used and well is at solid waste facility:

16. Additional comments on development:

CONDUCTIVITY	ms/cm	<u>0.29</u>
pH	SU	<u>9.7</u>
TEMP	°C	<u>9.6</u>
DO	mg/L	<u>12.9</u>
TURBIDITY	NTU	<u>97</u>

Well developed by: Person's Name and Firm

Name: JEFF FLAMINO

Firm: BOART LONGYEAR

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature:

Print Initials: J.F.H.

Firm: URS GREINER WOODWARD CLYDE

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

Facility/Project Name DU PONT BARKSDALE WORKS	Local Grid Location of Well ft. <input type="checkbox"/> N. <input type="checkbox"/> S. <input type="checkbox"/> E. <input type="checkbox"/> W.	Well Name PZ 5D
Facility License, Permit or Monitoring Number	Grid Origin Location Lat. _____ Long. _____ or	Wis. Unique Well Number / DNR Well Number
Type of Well Water Table Observation Well <input type="checkbox"/> 11 Piezometer <input checked="" type="checkbox"/> 12	St. Plane _____ ft. N. _____ ft. E.	Date Well Installed 09/30/98 m m d d y y
Distance Well Is From Waste/Source Boundary -100 (FROM DYNAMITE AREA) ft.	Section Location of Waste/Source NW 1/4 of NW 1/4 of Sec. 25, T. 48 N., R. 5 W.	Well Installed By: (Person's Name and Firm) JON WEEKS BOART LONGYEAR
Well A Point of Enforcement Std. Application? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Location of Well Relative to Waste/Source u <input type="checkbox"/> Upgradient s <input type="checkbox"/> Sidegradient d <input checked="" type="checkbox"/> Downgradient n <input type="checkbox"/> Not Known	

A. Protective pipe, top elevation _____ ft. MSL Well casing, top elevation _____ ft. MSL C. Land surface elevation _____ ft. MSL Surface seal, bottom _____ ft. MSL or 0.0 ft.		1. Cap and lock? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 2. Protective cover pipe: a. Inside diameter: 4.0 in. b. Length: 7.2 ft. c. Material: Steel <input checked="" type="checkbox"/> 04 Other <input type="checkbox"/> d. Additional protection? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, describe: _____ 3. Surface seal: Bentonite <input checked="" type="checkbox"/> 3 0 & c 1 0 1 Other <input type="checkbox"/> 4. Material between well casing and protective pipe: Bentonite <input type="checkbox"/> 3 0 Annular space seal <input checked="" type="checkbox"/> Other <input type="checkbox"/> 5. Annular space seal: a. Granular Bentonite <input type="checkbox"/> 3 3 b. Lbs/gal mud weight. Bentonite-sand slurry <input type="checkbox"/> 3 5 c. _____ Lbs/gal mud weight Bentonite slurry <input type="checkbox"/> 3 1 d. 3 % Bentonite Bentonite-cement grout <input checked="" type="checkbox"/> 5 0 e. 18 Ft ³ volume added for any of the above f. How installed: Tremie <input type="checkbox"/> 0 1 Tremie pumped <input checked="" type="checkbox"/> 0 2 Gravity <input type="checkbox"/> 0 8 6. Bentonite seal: a. Bentonite granules <input type="checkbox"/> 3 3 b. <input type="checkbox"/> 1/4 in. <input checked="" type="checkbox"/> 3/8 in. <input type="checkbox"/> 1 1/2 in. Bentonite pellets <input checked="" type="checkbox"/> 3 2 c. _____ Other <input type="checkbox"/> 7. Fine sand material: Manufacturer, product name & mesh size a. BADGER MINING BB #7 b. Volume added 0.2 ft ³ 8. Filter pack material: Manufacturer, product name and mesh size a. RED FLINT #30 b. Volume added 1.5 ft ³ 9. Well casing: Flush threaded PVC schedule 40 <input type="checkbox"/> 2 3 Flush threaded PVC schedule 80 <input checked="" type="checkbox"/> 2 4 _____ Other <input type="checkbox"/> 10. Screen material: 26 F.T. SCHED 80 PVC a. Screen type: Factory cut <input checked="" type="checkbox"/> 1 1 Continuous slot <input type="checkbox"/> 0 1 _____ Other <input type="checkbox"/> b. Manufacturer TIMCO c. Slot size: _____ o. 0.020 in. d. Slotted length: 5.0 ft. 11. Backfill material (below filter pack): None <input checked="" type="checkbox"/> 1 4 Other <input type="checkbox"/>
12. USCS classification of soil near screen: GP <input type="checkbox"/> GM <input type="checkbox"/> GC <input type="checkbox"/> GW <input type="checkbox"/> SW <input type="checkbox"/> SP <input type="checkbox"/> SM <input type="checkbox"/> SC <input type="checkbox"/> ML <input type="checkbox"/> MH <input type="checkbox"/> CL <input type="checkbox"/> CH <input type="checkbox"/> Bedrock <input type="checkbox"/> 13. Sieve analysis attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No i. Drilling method used: Rotary <input type="checkbox"/> 5 0 Hollow Stan Auger <input type="checkbox"/> 4 1 ROTONIC Other <input checked="" type="checkbox"/> j. Drilling fluid used: Water <input checked="" type="checkbox"/> 0 2 Air <input type="checkbox"/> 0 1 Drilling Mud <input type="checkbox"/> 0 3 None <input type="checkbox"/> 9 9 k. Drilling used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Describe _____ l. Source of water (attach analysis): WASHBORN MUNICIPAL		Bentonite seal, top - m - m - ft. MSL or 90.0 ft. F. Fine sand, top _____ ft. MSL or 96.5 ft. Filter pack, top _____ ft. MSL or 99.0 ft. H. Screen joint, top _____ ft. MSL or 100.0 ft. Well bottom _____ ft. MSL or 105.0 ft. I. Filter pack, bottom _____ ft. MSL or 106.0 ft. K. Borehole, bottom _____ ft. MSL or 106.0 ft. Borehole diameter 6.0 in. M.O.D. well casing 2.38 in. I.D. well casing 2.00 in.

I hereby certify that the information on this form is true and correct to the best of my knowledge.
 Signature: _____ Firm: _____

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Ad. Code. In accordance with ch. 144, Wis. Stats., failure to file this form may result in a forfeiture of not less than \$10, nor more than \$1000 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than \$10,000 for each day of violation. NOTE: Shaded areas are for DNR use only. See instructions for more information including where the completed form should be sent.

Route to: Solid Waste Haz. Waste Wastewater
Env. Response & Repair Underground Tanks Other

Facility/Project Name DU PONT BRACKSDALE WORKS	County Name BAYFIELD	Well Name PZ5D
Facility License, Permit or Monitoring Number	County Code 04	Wis. Unique Well Number / DNR Well Number

1. Can this well be purged dry? Yes No
2. Well development method
- surged with bailer and bailed 41
 - surged with bailer and pumped 61
 - surged with block and bailed 42
 - surged with block and pumped 62
 - surged with block, bailed and pumped 70
 - compressed air 20
 - bailed only 10
 - pumped only 51
 - pumped slowly 30
 - Other _____
3. Time spent developing well 170 min
4. Depth of well (from top of well casing) 107.5 ft.
5. Inside diameter of well 2.00 in.
6. Volume of water in filter pack and well casing 16.0 gal.
7. Volume of water removed from well 160.0 gal.
8. Volume of water added (if any) 0.0 gal.
9. Source of water added NA
10. Analysis performed on water added? Yes No
(If yes, attach results)

	Before Development	After Development
1. Depth to Water (from top of well casing)	a. <u>30.30</u> ft.	<u>30.25</u> ft.
Date	b. <u>10/14/98</u> m m d d y y	<u>10/23/98</u> m m d d y y
Time	c. <u>09:10</u> <input type="checkbox"/> a.m. <input checked="" type="checkbox"/> p.m.	<u>14:15</u> <input type="checkbox"/> a.m. <input checked="" type="checkbox"/> p.m.
2. Sediment in well bottom	<u>1.5</u> inches	<u>0.0</u> inches
3. Water clarity	Clear <input type="checkbox"/> 10 Turbid <input checked="" type="checkbox"/> 15 (Describe)	Clear <input checked="" type="checkbox"/> 20 Turbid <input type="checkbox"/> 25 (Describe)
Fill in if drilling fluids were used and well is at solid waste facility:		
14. Total suspended solids	<u>NA</u> mg/l	<u>NA</u> mg/l
15. COD	<u>NA</u> mg/l	<u>NA</u> mg/l

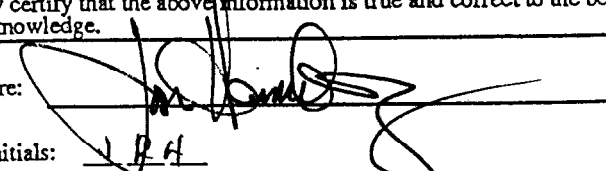
16. Additional comments on development:

CONDUCTIVITY ms/cm 0.22
 pH SU 8.2
 TEMP °C 10.0
 DO mg/L 13.7
 TURBIDITY NTU 0

Well developed by: Person's Name and Firm

Name: JEFF FLAMINO
 Firm: BOART LONGYEAR

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: 
 Print Initials: JFH
 Firm: URS GREINER WOODWARD CLYDE

Facility/Project Name DU PONT BARKSDALE WORKS	Local Grid Location of Well ft. <input type="checkbox"/> N. <input type="checkbox"/> S. <input type="checkbox"/> E. <input type="checkbox"/> W.	Well Name P26D
Facility License, Permit or Monitoring Number	Grid Origin Location	Well Unique Well Number / DNR Well Number
Type of Well Water Table Observation Well <input type="checkbox"/> 11 Piezometer <input checked="" type="checkbox"/> 12	Lat. _____ Long. _____ or St. Plane _____ ft. N. _____ ft. E.	Date Well Installed 10/12/98 m m d d y y
Distance Well Is From Waste/Source Boundary 100' (FROM DYNAMITE AREA) ft.	Section Location of Waste/Source NW 1/4 of SW 1/4 of Sec. 29, T. 48 N, R. 5 W.	Well Installed By: (Person's Name and Firm) BOB LONGYEAR
Well A Point of Enforcement Sid. Application? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Location of Well Relative to Waste/Source u <input type="checkbox"/> Upgradient s <input checked="" type="checkbox"/> Sidegradient d <input type="checkbox"/> Downgradient n <input type="checkbox"/> Not Known	

A. Protective pipe, top elevation _____ ft. MSL Well casing, top elevation _____ ft. MSL C. Land surface elevation _____ ft. MSL Surface seal, bottom _____ ft. MSL or 0.0 ft.		1. Cap and lock? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 2. Protective cover pipe: a. Inside diameter: 4.0 in. b. Length: 7.0 ft. c. Material: Steel <input checked="" type="checkbox"/> 04 Other <input type="checkbox"/> d. Additional protection? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, describe: _____ 3. Surface seal: Bentonite <input checked="" type="checkbox"/> 30 Concrete <input type="checkbox"/> 01 Other <input type="checkbox"/> 4. Material between well casing and protective pipe: Bentonite <input type="checkbox"/> 30 Annular space seal <input checked="" type="checkbox"/> _____ m a n 5. Annular space seal: a. Granular Bentonite <input type="checkbox"/> 33 b. Lbs/gal mud weight... Bentonite-sand slurry <input type="checkbox"/> 35 c. _____ Lbs/gal mud weight... Bentonite slurry <input type="checkbox"/> i-31 d. 3 % Bentonite... Bentonite-cement grout <input checked="" type="checkbox"/> 50 e. 32 Ft ³ volume added for my of the above f. How installed: Tremie <input type="checkbox"/> 01 Tremie pumped <input checked="" type="checkbox"/> 02 Gravity <input type="checkbox"/> 08 6. Bentonite seal: a. Bentonite granules <input type="checkbox"/> 33 b. <input type="checkbox"/> 1/4 in. <input checked="" type="checkbox"/> 3/8 in. <input type="checkbox"/> 1/2 in. Bentonite pellets <input checked="" type="checkbox"/> 32 c. _____ Other <input type="checkbox"/> 7. Fine sand material: Manufacturer, product name & mesh size a. BADGER MINING RB #7 b. Volume added 0.2 ft ³ 8. Filter pack material: Manufacturer, product name and mesh size a. RED FLINT #30 b. Volume added 4 ft ³ 9. Well casing: Flush threaded PVC schedule 40 <input type="checkbox"/> 2 3 Flush threaded PVC schedule 80 <input checked="" type="checkbox"/> 24 Other <input type="checkbox"/> 10. Screen material: 2" FT SCHED 80 PVC a. Screen type: Factory cut <input checked="" type="checkbox"/> 11 Continuous slot <input type="checkbox"/> 01 Other <input type="checkbox"/> b. Manufacturer _____ c. Slot size: 0.020 in. d. Slotted length: 5.0 ft. 11. Backfill material (below filter pack): None <input checked="" type="checkbox"/> 14 Other <input type="checkbox"/>
12. USCS classification of soil near screen: GP <input type="checkbox"/> GM <input type="checkbox"/> GC <input type="checkbox"/> GW <input type="checkbox"/> SW <input type="checkbox"/> SP <input type="checkbox"/> SM <input type="checkbox"/> SC <input type="checkbox"/> ML <input type="checkbox"/> MH <input type="checkbox"/> CL <input type="checkbox"/> CH <input type="checkbox"/> Bedrock <input checked="" type="checkbox"/> 13. Sieve analysis attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 1. Drilling method used: Rotary <input type="checkbox"/> 50 Hollow Stan Auger <input type="checkbox"/> 41 ROTOSONIC Other <input checked="" type="checkbox"/> 5. Drilling fluid used: Water <input type="checkbox"/> 02 Air <input type="checkbox"/> 01 Drilling Mud <input checked="" type="checkbox"/> 03 None <input type="checkbox"/> 99 5. Drilling additives used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Describe _____ 7. Source of water (attach analysis): WASHBURN MUNICIPAL		--- Bentonite seal, top _____ ft. MSL or 186.5 ft. F. Fine sand, top _____ ft. MSL or 196.5 ft. Filter pack, top _____ ft. MSL or 198.0 ft. H. Screen joint, top _____ ft. MSL or 200.0 ft. Well bottom _____ ft. MSL or 205.0 ft. --- Filter pack, bottom _____ ft. MSL or 206.0 ft. K. Borehole, bottom _____ ft. MSL or 206.0 ft. Borehole diameter 4.0 in. M. O.D. well casing 2.38 in. I.D. well casing 2.00 in.

I hereby certify that the information on this form is true and correct to the best of my knowledge.
 Signature: _____ Firm: _____

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Ad. Code. In accordance with ch. 144, Wis. Stats., failure to file this form may result in a forfeiture of not less than \$10, nor more than \$1000 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than \$10,000 for each day of violation. NOTE: Shaded areas are for DNR use only. See instructions for more information including where the completed form should be sent.

Route to: Solid Waste Haz. Waste Wastewater
Env. Response & Repair Underground Tanks Other

Facility/Project Name DU PONT BARKSDALE WORKS	County Name BAYFIELD	Well Name PZ6D
Facility License, Permit or Monitoring Number	County Code 04	Wis. Unique Well Number
		DNR Well Number

1. Can this well be purged dry? Yes No
2. Well development method
- surged with bailer and bailed 41
 - surged with bailer and pumped 61
 - surged with block and bailed 42
 - surged with block and pumped 62
 - surged with block, bailed and pumped 70
 - compressed air 20
 - bailed only 10
 - pumped only 51
 - pumped slowly 50
 - Other
3. Time spent developing well 210 min.
4. Depth of well (from top of well casing) 207.8 ft.
5. Inside diameter of well 2.00 in.
6. Volume of water in filter pack and well casing 30 q-gal.
7. Volume of water removed from well 30.0 gal.
8. Volume of water added (if any) 0.0 gal.
9. Source of water added NA
10. Analysis performed on water added? Yes No
(If yes, attach results)

	Before Development	After Development
Depth to Water (from top of well casing)	a. <u>38.00</u> ft.	<u>38.09</u> ft.
Date	b. <u>10/19/98</u> m m d d y y	<u>10/20/98</u> m m d d y y
Time	c. <u>18:10</u> <input type="checkbox"/> a.m. <input checked="" type="checkbox"/> p.m.	<u>11:50</u> <input type="checkbox"/> a.m. <input checked="" type="checkbox"/> p.m.
Sediment in well bottom	<u>01.0</u> inches	<u>0.0</u> inches
Water clarity	Clear <input type="checkbox"/> 10 Turbid <input checked="" type="checkbox"/> 15 (Describe)	Clear <input checked="" type="checkbox"/> 20 Turbid <input type="checkbox"/> 25 (Describe)

Fill in if drilling fluids were used and well is at solid waste facility:

4. Total suspended solids NA mg/l | NA mg/l

5. COD NA mg/l | NA mg/l

16. Additional comments on development:

CONDUCTIVITY ms/cm 0.30

pH SU 7.9

TEMP °C 10.7

DO mg/L 12.4

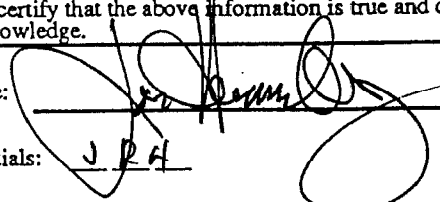
TURBIDITY NTU 0

well developed by: Person's Name and Firm

Name: JEFF FLAMINO

Firm: BOART LONGYEAR

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: 

Print Initials: JFH

Firm: URS GREINER WOODWARD CLYDE

NOTE: Shaded areas are for DNR use only. See instructions for more information including a list of county codes.

All abandonment work shall be performed in accordance with the provisions of Chapters NR 111, NR 112 or NR 141, Wis. Admin. Code, whichever is applicable. Also, see instructions on back.

(1) GENERAL INFORMATION		(2) FACILITY NAME	
Well/Drillhole/Borehole Location	County <u>RAYFIELD</u>	Original Well Owner (If Known) <u>(UNKNOWN) BELIEVED "GITCHENAUWEE COUNCIL"</u>	
<u>SW</u> 1/4 of <u>SE</u> 1/4 of Sec. <u>24</u> ; T. <u>48</u> N. R. <u>05</u>	<input type="checkbox"/> E <input checked="" type="checkbox"/> W	Present Well Owner <u>BRETING MANUFACTURING</u>	
(If applicable) <u>NA</u> Gov't Lot <u>NA</u> Grid Number	Grid Location <u>NA</u> ft. <input type="checkbox"/> N. <input type="checkbox"/> S., <u>NA</u> ft. <input type="checkbox"/> E. <input type="checkbox"/> W.	Street or Route <u>3401 E. SECOND ST.</u>	
Civil Town Name <u>BARKSDALE</u>	City, State, Zip Code <u>ASHLAND WI 54806-0113</u>	Facility Well No. and/or Name (If Applicable) <u>WEST WELL</u>	WI Unique Well No. <u>IW 707</u>
Street Address of Well <u>BARKSDALE BOYSCOUT CAMP</u>	Reason For Abandonment <u>REMOVED FROM SERVICE</u>		
City, Village <u>BARKSDALE</u>	Date of Abandonment <u>10-14-98</u>		

WELL/DRILLHOLE/BOREHOLE INFORMATION		(4) Depth to Water (Feet) <u>12</u>																
3) Original Well/Drillhole/Borehole Construction Completed On (Date) <u>JUNE 15, 1991</u>		Pump & Piping Removed? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable Liner(s) Removed? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable Screen Removed? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable Left in Place? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Explain																
<input type="checkbox"/> Monitoring Well <input checked="" type="checkbox"/> Water Well <input type="checkbox"/> Drillhole <input type="checkbox"/> Borehole	Construction Report Available? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <u>ATTACHED</u>	Was Casing Cut Off Below Surface? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Did Sealing Material Rise to Surface? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Did Material Settle After 24 Hours? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes, Was Hole Retopped? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No																
Construction Type: <input checked="" type="checkbox"/> Drilled <input type="checkbox"/> Driven (Sandpoint) <input type="checkbox"/> Dug <input type="checkbox"/> Other (Specify)	Formation Type: <input type="checkbox"/> Unconsolidated Formation <input checked="" type="checkbox"/> Bedrock	(5) Required Method of Placing Sealing Material <input type="checkbox"/> Conductor Pipe-Gravity <input checked="" type="checkbox"/> Conductor Pipe-Pumped <input type="checkbox"/> Dump Bailer <input type="checkbox"/> Other (Explain)																
Total Well Depth (ft.) <u>95'</u> Casing Diameter (ins.) <u>4"</u> (From ground surface) Casing Depth <u>40'</u>	(6) Sealing Materials For monitoring wells and monitoring well boreholes only <input type="checkbox"/> Neat Cement Grout <input type="checkbox"/> Sand-Cement (Concrete) Grout <input checked="" type="checkbox"/> Bentonite Pellets <input type="checkbox"/> Clay-Sand Slurry <input type="checkbox"/> Granular Bentonite <input type="checkbox"/> Bentonite-Sand Slurry <input checked="" type="checkbox"/> Bentonite - Cement Grout <input type="checkbox"/> Chipped Bentonite																	
Was Well Annular Space Grouted? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unknown If Yes, To What Depth? _____ Fee.	<table border="1"> <thead> <tr> <th>Sealing Material Used</th> <th>From (Ft.)</th> <th>To (Ft.)</th> <th>No. Yards, Sacks Sealant or Volume</th> <th>Mix Ratio or Mud Weight</th> </tr> </thead> <tbody> <tr> <td><u>3/8" BENTONITE CHIPS</u></td> <td><u>Surface</u></td> <td><u>8</u></td> <td><u>2 bags</u></td> <td><u>DRY</u></td> </tr> <tr> <td><u>3% BENTONITE PORTLAND GROUT</u></td> <td><u>8</u></td> <td><u>95</u></td> <td><u>75 GAL</u></td> <td></td> </tr> </tbody> </table>			Sealing Material Used	From (Ft.)	To (Ft.)	No. Yards, Sacks Sealant or Volume	Mix Ratio or Mud Weight	<u>3/8" BENTONITE CHIPS</u>	<u>Surface</u>	<u>8</u>	<u>2 bags</u>	<u>DRY</u>	<u>3% BENTONITE PORTLAND GROUT</u>	<u>8</u>	<u>95</u>	<u>75 GAL</u>	
Sealing Material Used	From (Ft.)	To (Ft.)	No. Yards, Sacks Sealant or Volume	Mix Ratio or Mud Weight														
<u>3/8" BENTONITE CHIPS</u>	<u>Surface</u>	<u>8</u>	<u>2 bags</u>	<u>DRY</u>														
<u>3% BENTONITE PORTLAND GROUT</u>	<u>8</u>	<u>95</u>	<u>75 GAL</u>															

(8) Comments:

7) Name of Person or Firm Doing Sealing Work
BOB LONGYEAR

Signature of Person Doing Work: [Signature] Date Signed: 10-14-98

Street or Route: 101 ALDERSON ST Telephone Number: (715) 359-7090

City, State, Zip Code: SHOFIELD WI 54476

(10) FOR DNR OR COUNTY USE ONLY

Date Received/Inspected: _____ District/County: _____

Reviewer/Inspector: _____

Follow up Necessary: _____

(13)

per TC, WELL CONSTRUCTOR'S REPORT TO WISCONSIN STATE BOARD OF HEALTH

SW, SE, Sec. 24 T48N R5W See Instructions on Reverse Side

RECEIVED
SAN. ENG. BUREAU
JAN 28 1951

1. County Bayfield Town Village City Barbodale
Check one and give name

2. Location S. of Village of Barbodale T48 R5W
Name of street and number of premise or Section, Town and Range numbers

3. Owner or Agent Getchegawnee Council
Name of individual, partnership or firm

4. Mail Address Ashland, Wis
Complete address required

6. From well to nearest: Building 7 ft; sewer _____ ft; drain _____ ft; septic tank _____ ft;
dry well or filter bed _____ ft; abandoned well _____ ft.

6. Well is intended to supply water for: _____

7. DRILLHOLE:

Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)
6"	0	40			
4"	0	95			

8. CASING AND LINER PIPE OR CURBING:

Dia. (in.)	Kind and Weight	From (ft.)	To (ft.)
4"	std steel pipe	0	40

9. GROUT:

Kind	From (ft.)	To (ft.)
Sumite Cement	20	40

11. MISCELLANEOUS DATA:

Yield test: 12 Hrs. at 5 GPM.

Depth from surface to water-level: 16 ft.

Water-level when pumping: 16 ft.

Water sample was sent to the state laboratory at:
Madison on Jan 20 1951
City

10. FORMATIONS:

Kind	From (ft.)	To (ft.)
clay	0	5
Braunstone	5	95

Construction of the well was completed on:
Jan 15 1951

The well is terminated 12 inches
 above, below the permanent ground surface.

Was the well disinfected upon completion?
Yes No

Was the well sealed watertight upon completion?
Yes No

Signature W. A. Gustafson
Registered Well Driller

Washburn Wis
Complete Mail Address

Please do not write in space below

Rec'd _____ NO _____

Ans'd _____

Interpretation _____

_____ I _____

10 ml 10 ml 10 ml 10 ml 10 ml

Gas—24 hrs. _____

48 hrs. _____

Confirm _____

B. Coli _____

Examiner— _____

All abandonment work shall be performed in accordance with the provisions of Chapters NR 111, NR 112 or NR 141, Wis. Admin. Code, whichever is applicable. Also, see instructions on back.

(1) GENERAL INFORMATION		(2) FACILITY NAME	
Well/Drillhole/Borehole Location <u>SW 1/4 of SE 1/4 of Sec. 24 ; T. 48 N. R. 05</u>	County <u>BAYFIELD</u>	Original Well Owner (If Known) <u>(UNKNOWN) BELIEVED "GITCHIGAUWEE COUNCIL"</u>	
(If applicable) <u>NA</u> Gov't Lot <u>NA</u> Grid Number	<input type="checkbox"/> E <input checked="" type="checkbox"/> W	Present Well Owner <u>BRETTING MANUFACTURING</u>	
Grid Location <u>NA</u> ft. <input type="checkbox"/> N <input type="checkbox"/> S. <u>NA</u> ft. <input type="checkbox"/> E. <input type="checkbox"/> W.		Street or Route <u>3401 E SECOND ST.</u>	
Civil Town Name <u>BARKSDALE</u>		City, State, Zip Code <u>ASHLAND WI 54806-0113</u>	
Street Address of Well <u>BARKSDALE BOYSCOUT CAMP</u>		Facility Well No. and/or Name (If Applicable) <u>EAST WELL</u>	WI Unique Well No. <u>NA</u>
City, Village <u>BARKSDALE</u>		Reason For Abandonment <u>REMOVED FROM SERVICE</u>	
		Date of Abandonment <u>10-14-98</u>	

WELL/DRILLHOLE/BOREHOLE INFORMATION		(4) Depth to Water (Feet) <u>15</u>	
Original Well/Drillhole/Borehole Construction Completed On (Date) <u>UNKNOWN</u>		Pump & Piping Removed? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	
<input type="checkbox"/> Monitoring Well <input checked="" type="checkbox"/> Water Well <input type="checkbox"/> Drillhole <input type="checkbox"/> Borehole	Construction Report Available? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Liner(s) Removed? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable	
Construction Type: <input checked="" type="checkbox"/> Drilled <input type="checkbox"/> Driven (Sandpoint) <input type="checkbox"/> Dug <input type="checkbox"/> Other (Specify)		Screen Removed? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No & [Not Applicable	
Formation Type: <input type="checkbox"/> Unconsolidated Formation <input checked="" type="checkbox"/> Bedrock		casing Left in Place? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Total Well Depth (ft.) <u>64'</u> Casing Diameter (ins.) <u>4"</u>		If No, Explain _____	
Casing Depth (ft.) <u>UNKNOWN</u>		was casing cut off Below Surface? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Was Well Annular Space Grouted? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unknown If Yes, To What Depth? _____ Feet		Did Sealing Material Rise to Surface? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
		Did Material Settle After 24 Hours? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
		If Yes, Was Hole Retopped? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
		(5) Required Method of Placing Sealing Material	
		<input checked="" type="checkbox"/> Conductor Pipe-Gravity <input type="checkbox"/> Conductor Pipe-Pumped	
		<input type="checkbox"/> Dump Bailer <input type="checkbox"/> Other (Explain)	
		(6) Sealing Materials	
		For monitoring wells and monitoring well boreholes only	
		<input type="checkbox"/> Neat Cement Grout	
		<input type="checkbox"/> Sand-Cement (Concrete) Grout	
		<input type="checkbox"/> Clay-Sand Slurry	
		<input type="checkbox"/> Bentonite-Sand Slurry	
		<input type="checkbox"/> Chipped Bentonite	
		<input type="checkbox"/> Bentonite Pellets	
		<input type="checkbox"/> GraxnhrBmtonite	
		<input type="checkbox"/> Bentonite - Cement Grout	

Sealing Material Used	From (FL) To (FT.)		No. Yards, Sacks Sealant or Volume	Mix Ratio or Mud Weight
	Surface	<u>64</u>		
<u>3/8" CHIP BENTONITE</u>	Surface	<u>64</u>	<u>8 bags</u>	<u>DRY</u>

(8) Comments: _____

(9) Name of Person or Firm Doing Sealing Work		(10) FOR DNR OR COUNTY USE ONLY	
<u>BOART LONGYEAR</u>		Date Received/Inspected	District/County
Signature of Person Doing Work <u>[Signature]</u>	Date Signed <u>10-14-98</u>	Reviewer/Inspector	
Street or Route <u>101 ALDERSON ST</u>	Telephone Number <u>(715) 359-7090</u>	Follow-up Necessary	
City, State, Zip Code <u>ASHFIELD WI 54476</u>			

All abandonment work shall be performed in accordance with the provisions of Chapters NR 811, NR 812 or NR 141, Wis. Adm. Code, whichever is applicable. Also, see instructions on back.

1) GENERAL INFORMATION		2) FACILITY NAME	
Well/Drillhole/Borehole Location <u>SP01</u>	County <u>BAYFIELD</u>	Original Well Owner (If Known) <u>DU PONT SPECIALTY CHEMICALS</u>	
SW 1/4 of SE 1/4 of Sec. <u>21</u> ; T. <u>48</u> N; R. <u>05</u>		Present Well Owner <u>SAME</u>	
(If applicable) <u>NA</u> Gov't Lot <u>NA</u> Grid Number		Street or Route <u>BARLEY MILL PLAZA, BLDG 27</u>	
Grid Location <u>NA</u> ft. <input type="checkbox"/> N. <input type="checkbox"/> S., <u>NA</u> ft. <input type="checkbox"/> E. <input type="checkbox"/> W.		City, State, Zip Code <u>WILMINGTON DE 19880-0027</u>	
Civil Town Name <u>BARKSDALE</u>		Facility Well No. and/or Name (If Applicable) <u>NA</u>	
Street Address of Well <u>NA</u>		WI Unique Well No. <u>NA</u>	
City, Village <u>BARKSDALE</u>		Reason For Abandonment <u>SAMPLING COMPLETED</u>	
		Date of Abandonment <u>9-15-98</u>	

WELL/DRILLHOLE/BOREHOLE INFORMATION		3) Original Well/Drillhole/Borehole Construction Completed On		4) Depth to Water (Feet) <u>NW</u>	
(Date) <u>SEPT. 15 1998</u>		<input type="checkbox"/> Monitoring Well <input type="checkbox"/> Water Well <input type="checkbox"/> Drillhole <input checked="" type="checkbox"/> Borehole		Pump & Piping Removed? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Not Applicable Liner(s) Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable Screen Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable Casing Left in Place? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If No, Explain <u>NEVER INSTALLED</u>	
Construction Report Available? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Construction Type: <input type="checkbox"/> Drilled <input checked="" type="checkbox"/> Driven (Sandpoint) <input type="checkbox"/> Dug <input type="checkbox"/> Other (Specify) <u>GEORDBE</u>		Was Casing Cut Off Below Surface? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Did Sealing Material Rise to Surface? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Did Material Settle After 24 Hours? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Was Hole Retopped? <input type="checkbox"/> Yes <input type="checkbox"/> No <u>NA</u>	
Formation Type: <input checked="" type="checkbox"/> Unconsolidated Formation <input type="checkbox"/> Bedrock		Total Well Depth (ft.) <u>7.5</u> Casing Diameter (in.) <u>NA</u> From ground surface Casing Depth (ft.) <u>NA</u>		5) Required Method of Placing Sealing Material <input checked="" type="checkbox"/> Conductor Pipe-Gravity <input type="checkbox"/> Conductor Pipe-Pumped <input type="checkbox"/> Dump Bailer <input type="checkbox"/> Other (Explain)	
Lower Drillhole Diameter (in.) <u>2.0</u>		Was Well Annular Space Grouted? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown If Yes, To What Depth? _____ Feet		6) Sealing Materials <input type="checkbox"/> Neat Cement Grout <input type="checkbox"/> Sand-Cement (Concrete) Grout <input type="checkbox"/> Concrete <input type="checkbox"/> Clay-Sand Slurry <input type="checkbox"/> Bentonite-Sand Slurry <input type="checkbox"/> Chipped Bentonite For monitoring wells and monitoring well boreholes only: <input type="checkbox"/> Bentonite Pellets <input checked="" type="checkbox"/> Granular Bentonite <input type="checkbox"/> Bentonite - Cement Grout	

(7) Material Used To Fill Well/Drillhole	From (Ft.)	To (Ft.)	No. Yards, Sacks, Sealant of Volume (Circle One)	Mix Ratio or Mud Weight
<u>GRANULAR BENTONITE</u>	<u>Surface</u>	<u>7.5</u>	<u>1.0 CF</u>	<u>DRY</u>

(8) Comments: BOREHOLE FOR SOIL SAMPLES ONLY - NO WELL EVER SET

9) Name of Person or Firm Doing Sealing Work <u>BOB LANGYEAR ENV. DRILLING</u>	
Signature of Person Doing Work <u>[Signature]</u>	Date Signed <u>9-15-98</u>
Street or Route <u>101 ANDERSON ST</u>	Telephone Number <u>(715) 387-9070</u>
City, State, Zip Code <u>SCHOFIELD, WI, 54476</u>	

10) FOR DNR OR COUNTY USE ONLY	
Date Received/Inspected	District/County
Reviewed/Inspector	<input type="checkbox"/> Complying Work <input type="checkbox"/> Noncomplying Work
Follow-up Necessary	

All abandonment work shall be performed in accordance with the provisions of Chapters NR 811, NR 812 or NR 141, Wis. Adm. Code, whichever is applicable. Also, see instructions on back.

(1) GENERAL INFORMATION		(2) FACILITY NAME	
Well/Drillhole/Borehole Location <u>GPO2</u>	County <u>BAYFIELD</u>	Original Well Owner (If Known) <u>DU PONT SPECIALTY CHEMICALS</u>	
(If applicable) <u>SW</u> 1/4 of <u>SE</u> 1/4 of Sec. <u>21</u> ; T. <u>48</u> N.; R. <u>05</u> <input type="checkbox"/> E <input checked="" type="checkbox"/> W		Present Well Owner <u>SAME</u>	
Gov't Lot <u>NA</u>	Grid Number <u>NA</u>	Street or Route <u>BARLEY MILL PLAZA, BLDG 27</u>	
Grid Location <u>NA</u> ft. <input type="checkbox"/> N. <input type="checkbox"/> S., <u>NA</u> ft. <input type="checkbox"/> E. <input type="checkbox"/> W.		City, State, Zip Code <u>WILMINGTON DE 19880-0027</u>	
Civil Town Name <u>BARKSDALE</u>		Facility Well No. and/or Name (If Applicable) <u>NA</u>	WI Unique Well No. <u>NA</u>
Street Address of Well <u>NA</u>		Reason For Abandonment <u>SAMPLING COMPLETED</u>	
City, Village <u>BARKSDALE</u>		Date of Abandonment <u>9-15-98</u>	

WELL/DRILLHOLE/BOREHOLE INFORMATION		(4) Depth to Water (Feet) <u>N/A</u>	
(3) Original Well/Drillhole/Borehole Construction Completed On (Date) <u>SEPT. 15 1998</u>		Pump & Piping Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable Liner(s) Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable Screen Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable Casing Left in Place? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If No, Explain <u>NEVER INSTALLED</u>	
<input type="checkbox"/> Monitoring Well <input type="checkbox"/> Water Well <input type="checkbox"/> Drillhole <input checked="" type="checkbox"/> Borehole	Construction Report Available? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Was Casing Cut Off Below Surface? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Did Sealing Material Rise to Surface? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Did Material Settle After 24 Hours? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Was Hole Retopped? <input type="checkbox"/> Yes <input type="checkbox"/> No <u>N/A</u>	
Construction Type: <input type="checkbox"/> Drilled <input checked="" type="checkbox"/> Driven (Sandpoint) <input type="checkbox"/> Dug <input type="checkbox"/> Other (Specify) <u>GEORDAE</u>		(5) Required Method of Placing Sealing Material <input checked="" type="checkbox"/> Conductor Pipe-Gravity <input type="checkbox"/> Conductor Pipe-Pumped <input type="checkbox"/> Dump Bailer <input type="checkbox"/> Other (Explain)	
Formation Type: <input checked="" type="checkbox"/> Unconsolidated Formation <input type="checkbox"/> Bedrock		(6) Sealing Materials For monitoring wells and monitoring well boreholes only <input type="checkbox"/> Neat Cement Grout <input type="checkbox"/> Bentonite Pellets <input type="checkbox"/> Sand-Cement (Concrete) Grout <input checked="" type="checkbox"/> Granular Bentonite <input type="checkbox"/> Concrete <input type="checkbox"/> Bentonite - Cement Grout <input type="checkbox"/> Clay-Sand Slurry <input type="checkbox"/> Bentonite-Sand Slurry <input type="checkbox"/> Chipped Bentonite	
Total Well Depth (ft.) <u>7.5</u> Casing Diameter (in.) <u>NA</u> (From ground surface) Casing Depth (ft.) <u>NA</u>			
Lower Drillhole Diameter (in.) <u>2.0</u>			
Was Well Annular Space Grouted? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown If Yes, To What Depth? _____ Feet			

(7)	Material Used To Fill Well/Drillhole	From (Ft.)	To (Ft.)	No. Yards, Sacks Sealant or Volume	(Circle One)	Mix Ratio or Mud Weight
	<u>GRANULAR BENTONITE</u>	<u>Surface</u>	<u>7.5</u>	<u>1 CF</u>		<u>DRY</u>

(8) Comments: BOREHOLE FOR SOIL SAMPLES ONLY - NO WELL EVER SET

(9) Name of Person or Firm Doing Sealing Work
BOART WINKYEAR ENV. DRILLING

Signature of Person Doing Work: [Signature] Date Signed: 9-15-98

Street or Route: 101 ANDERSON ST Telephone Number: (715) 357-7070

City, State, Zip Code: SCHOFIELD, WI, 54476

(10) FOR DNR OR COUNTY USE ONLY

Date Received/Inspected	District/County
Reviewer/Inspector	<input type="checkbox"/> Complying Wells <input type="checkbox"/> Non-complying Wells
Follow-up Necessary	

All abandonment work shall be performed in accordance with the provisions of Chapters NR 811, NR 812 or NR 141, Wis. Adm. Code, whichever is applicable. Also, see instructions on back.

1) GENERAL INFORMATION		(2) FACILITY NAME	
Well/Drillhole/Borehole Location <u>EPO3</u>	County <u>BAYFIELD</u>	Original Well Owner (If Known) <u>DU PONT SPECIALTY CHEMICALS</u>	
(If applicable) <u>SW</u> 1/4 of <u>SE</u> 1/4 of Sec. <u>21</u> ; T. <u>48</u> N.; R. <u>05</u> W.		Present Well Owner <u>SAME</u>	
Gov't Lot <u>NA</u> Grid Number		Street or Route <u>BARLEY MILL PLAZA, BLDG 27</u>	
Grid Location <u>NA</u> ft. <input type="checkbox"/> N. <input type="checkbox"/> S., <u>NA</u> ft. <input type="checkbox"/> E. <input type="checkbox"/> W.		City, State, Zip Code <u>WILMINGTON DE 19880-0027</u>	
Civil Town Name <u>BARKSDALE</u>		Facility Well No. and/or Name (If Applicable) <u>NA</u>	WI Unique Well No. <u>NA</u>
Street Address of Well <u>NA</u>		Reason For Abandonment <u>SAMPLING COMPLETED</u>	
City, Village <u>BARKSDALE</u>		Date of Abandonment <u>9-15-98</u>	

WELL/DRILLHOLE/BOREHOLE INFORMATION		(4) Depth to Water (Feet) <u>NW</u>	
(3) Original Well/Drillhole/Borehole Construction Completed On (Date) <u>SEPT. 15 1998</u>		<input type="checkbox"/> Pump & Piping Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Liner(s) Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Screen Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Casing Left in Place? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <u>NEVER INSTALLED</u>	
<input type="checkbox"/> Monitoring Well <input type="checkbox"/> Water Well <input type="checkbox"/> Drillhole <input checked="" type="checkbox"/> Borehole	Construction Report Available? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Was Casing Cut Off Below Surface? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/> Did Sealing Material Rise to Surface? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Did Material Settle After 24 Hours? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Was Hole Retopped? <input type="checkbox"/> Yes <input type="checkbox"/> No <u>NA</u>	
Construction Type: <input type="checkbox"/> Drilled <input checked="" type="checkbox"/> Driven (Sandpoint) <input type="checkbox"/> Dug <input type="checkbox"/> Other (Specify) <u>GEORDBE</u>	(5) Required Method of Placing Sealing Material <input checked="" type="checkbox"/> Conductor Pipe-Gravity <input type="checkbox"/> Conductor Pipe-Pumped <input type="checkbox"/> Dump Bailer <input type="checkbox"/> Other (Explain)		
Formation Type: <input checked="" type="checkbox"/> Unconsolidated Formation <input type="checkbox"/> Bedrock Total Well Depth (ft.) <u>8.0</u> Casing Diameter (in.) <u>NA</u> (From ground surface) Casing Depth (ft.) <u>NA</u> Lower Drillhole Diameter (in.) <u>2.0</u>	(6) Sealing Materials For monitoring wells and monitoring well boreholes only <input type="checkbox"/> Neat Cement Grout <input type="checkbox"/> Bentonite Pellets <input type="checkbox"/> Sand-Cement (Concrete) Grout <input checked="" type="checkbox"/> Granular Bentonite <input type="checkbox"/> Concrete <input type="checkbox"/> Bentonite - Cement Grout <input type="checkbox"/> Clay-Sand Slurry <input type="checkbox"/> Bentonite-Sand Slurry <input type="checkbox"/> Chipped Bentonite		
Was Well Annular Space Grouted? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, To What Depth? _____ Fed			

(7) Material Used To Fill Well/Drillhole	From (Ft.)	To (Ft.)	No. Yards, Sacks Sealant or Volume	(Circle One)	Mix Ratio or Mud Weight
<u>GRANULAR BENTONITE</u>	<u>Surface</u>	<u>8.0</u>	<u>1 CF</u>		<u>DRY</u>

(8) Comments: BOREHOLE FOR SOIL SAMPLES ONLY - NO WELL EVER SET

(9) Name of Person or Firm Doing Sealing Work
BOB LANGRISH ENV. DRILLING
 Signature of Person Doing Work: _____ Date Signed: 9-15-98
 Street or Route: 601 ANDERSON ST Telephone Number: (715) 351-7070
 City, State, Zip Code: SCHOFIELD, WI, 54476

(10) FOR DNR OR COUNTY USE ONLY

Date Received/Inspected	District/County
Reviewer/Inspector	<input type="checkbox"/> Complying Work <input type="checkbox"/> Noncomplying Work
Follow Up Necessary	

All abandonment work shall be performed in accordance with the provisions of Chapters NR 811, NR 812 or NR 141, Wis. Adm. Code, whichever is applicable. Also, see instructions on back.

(1) GENERAL INFORMATION		(2) FACILITY NAME	
Well/Drillhole/Borehole Location <u>SPOF</u>	County <u>BAYFIELD</u>	Original Well Owner (If Known) <u>DU PONT SPECIALTY CHEMICALS</u>	
(If applicable) <u>SE</u> 1/4 of <u>SW</u> 1/4 of Sec. <u>21</u> ; T. <u>48</u> N.; R. <u>05</u> <input type="checkbox"/> E <input type="checkbox"/> W		Present Well Owner <u>SAME</u>	
Gov't Lot <u>NA</u>	Grid Number <u>NA</u>	Street or Route <u>BARLEY MILL PLAZA, BLDG 27</u>	
Grid Location <u>NA</u> ft. <input type="checkbox"/> N. <input type="checkbox"/> S., <u>NA</u> ft. <input type="checkbox"/> E. <input type="checkbox"/> W.		City, State, Zip Code <u>WILMINGTON DE 19880-0027</u>	
Civil Town Name <u>BARKSDALE</u>	Street Address of Well <u>NA</u>	Facility Well No. and/or Name (If Applicable) <u>NA</u>	WI Unique Well No. <u>NA</u>
City, Village <u>BARKSDALE</u>		Reason For Abandonment <u>SAMPLING COMPLETED</u>	
		Date of Abandonment <u>9-22-98</u>	

WELL/DRILLHOLE/BOREHOLE INFORMATION		(4) Depth to Water (Feet) <u>15</u>	
(3) Original Well/Drillhole/Borehole Construction Completed On (Date) <u>SEPT. 22 1998</u>		<input type="checkbox"/> Pump & Piping Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Liner(s) Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Screen Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable <input type="checkbox"/> Casing Left in Place? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If No, Explain <u>NEVER INSTALLED</u>	
<input type="checkbox"/> Monitoring Well <input type="checkbox"/> Water Well <input type="checkbox"/> Drillhole <input checked="" type="checkbox"/> Borehole	Construction Report Available? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Was Casing Cut Off Below Surface? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Did Sealing Material Rise to Surface? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Did Material Settle After 24 Hours? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Was Hole Retopped? <input type="checkbox"/> Yes <input type="checkbox"/> No <u>NA</u>	
Construction Type: <input type="checkbox"/> Drilled <input checked="" type="checkbox"/> Driven (Sandpoint) <input type="checkbox"/> Dug <input type="checkbox"/> Other (Specify) <u>GEORDAE</u>	(5) Required Method of Placing Sealing Material <input checked="" type="checkbox"/> Conductor Pipe-Gravity <input type="checkbox"/> Conductor Pipe-Pumped <input type="checkbox"/> Dump Bailer <input type="checkbox"/> Other (Explain)		
Formation Type: <input checked="" type="checkbox"/> Unconsolidated Formation <input type="checkbox"/> Bedrock	(6) Sealing Materials For monitoring wells and monitoring well boreholes only <input type="checkbox"/> Neat Cement Grout <input type="checkbox"/> Sand-Cement (Concrete) Grout <input type="checkbox"/> Concrete <input type="checkbox"/> Clay-Sand Slurry <input type="checkbox"/> Bentonite-Sand Slurry <input type="checkbox"/> Chipped Bentonite <input type="checkbox"/> Bentonite Pellets <input checked="" type="checkbox"/> Granular Bentonite <input type="checkbox"/> Bentonite - Cement Grout		
Total Well Depth (ft.) <u>20</u> Casing Diameter (in.) <u>NA</u> (From ground surface) Casing Depth (ft.) <u>NA</u>			
Lower Drillhole Diameter (in.) <u>6.0</u>			
Was Well Annular Space Grouted? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown If Yes, To What Depth? _____ Feet			

(7) Material Used To Fill Well/Drillhole	From (Ft.)	To (Ft.)	No. Yards, Sacks Sealant or Volume (Circle One)	Mix Ratio or Mud Weight
<u>GRANULAR BENTONITE</u>	<u>Surface</u>	<u>20</u>	<u>3.5 CF</u>	<u>DRY</u>

(8) Comments: BOREHOLE FOR SOIL SAMPLES ONLY - NO WELL EVER SET

(9) Name of Person or Firm Doing Sealing Work
BOART LINKYEAR ENV. DRILLING

Signature of Person Doing Work: [Signature] Date Signed: 9-22-98

Project or Route: 101 ANDERSON ST Telephone Number: (715) 387-7020

City, State, Zip Code: SCHOFIELD, WI, 54476

FOR DNR OR COUNTY USE ONLY	
Date Received/Inspected	District/County
Reviewer/Inspector	<input type="checkbox"/> Complying Work <input type="checkbox"/> Noncomplying Work
Follow-up Necessary	

All abandonment work shall be performed in accordance with the provisions of Chapters NR 811, NR 812 or NR 141, Wis. Adm. Code, whichever is applicable. Also, see instructions on back.

(1) GENERAL INFORMATION		(2) FACILITY NAME	
Well/Drillhole/Borehole Location <u>GPOG</u>	County <u>BAYFIELD</u>	Original Well Owner (If Known) <u>DU PONT SPECIALTY CHEMICALS</u>	
1/4 of <u>NA</u> 1/4 of Sec. <u>21</u> ; T. <u>48</u> N.; R. <u>05</u> <input type="checkbox"/> E <input checked="" type="checkbox"/> W		Present Well Owner <u>SAME</u>	
(If applicable) Grid Location <u>NA</u> Gov't Lot <u>NA</u> Grid Number		Street or Route <u>BARLEY MILL PLAZA, BLDG 27</u>	
Grid Location <u>NA</u> ft. <input type="checkbox"/> N. <input type="checkbox"/> S., <u>NA</u> ft. <input type="checkbox"/> E. <input type="checkbox"/> W.		City, State, Zip Code <u>WILMINGTON DE 19880-0027</u>	
Civil Town Name <u>BARKSDALE</u>		Facility Well No. and/or Name (If Applicable) <u>NA</u>	WI Unique Well No. <u>NA</u>
Street Address of Well <u>NA</u>		Reason For Abandonment <u>SAMPLING COMPLETED</u>	
City, Village <u>BARKSDALE</u>		Date of Abandonment <u>9-22-98</u>	

WELL/DRILLHOLE/BOREHOLE INFORMATION	
(3) Original Well/Drillhole/Borehole Construction Completed On (Date) <u>SEPT. 22 1998</u>	
<input type="checkbox"/> Monitoring Well <input type="checkbox"/> Water Well <input type="checkbox"/> Drillhole <input checked="" type="checkbox"/> Borehole	Construction Report Available? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Construction Type: <input type="checkbox"/> Drilled <input checked="" type="checkbox"/> Driven (Sandpoint) <input type="checkbox"/> Dug <input type="checkbox"/> Other (Specify) <u>GEOPROBE</u>	
Formation Type: <input checked="" type="checkbox"/> Unconsolidated Formation <input type="checkbox"/> Bedrock	
Total Well Depth (ft.) <u>20</u> Casing Diameter (in.) <u>NA</u> (From ground surface) Casing Depth (ft.) <u>NA</u>	
Lower Drillhole Diameter (in.) <u>6.0</u>	
Was Well Annular Space Grouted? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown If Yes, To What Depth? _____ Feet	
(4) Depth to Water (Feet) <u>16.2</u>	
Pump & Piping Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable Liner(s) Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable Screen Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable Casing Left in Place? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If No, Explain <u>NEVER INSTALLED</u>	
Was Casing Cut Off Below Surface? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Did Sealing Material Rise to Surface? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Did Material Settle After 24 Hours? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Was Hole Retopped? <input type="checkbox"/> Yes <input type="checkbox"/> No <u>NA</u>	
(5) Required Method of Placing Sealing Material	
<input checked="" type="checkbox"/> Conductor Pipe-Gravity <input type="checkbox"/> Conductor Pipe-Pumped <input type="checkbox"/> Dump Bailer <input type="checkbox"/> Other (Explain)	
(6) Sealing Materials	
<input type="checkbox"/> Neat Cement Grout <input type="checkbox"/> Sand-Cement (Concrete) Grout <input type="checkbox"/> Concrete <input type="checkbox"/> Clay-Sand Slurry <input type="checkbox"/> Bentonite-Sand Slurry <input type="checkbox"/> Chipped Bentonite	For monitoring wells and monitoring well boreholes only <input type="checkbox"/> Bentonite Pellets <input checked="" type="checkbox"/> Granular Bentonite <input type="checkbox"/> Bentonite - Cement Grout

(7)	Material Used To Fill Well/Drillhole	From (Ft.)	To (Ft.)	No. Yards, Sacks Sealant or Volume (Circle One)	Mix Ratio or Mud Weight
	<u>GRANULAR BENTONITE</u>	<u>Surface</u>	<u>20</u>	<u>3.5 CK</u>	<u>DRY</u>

(8) Comments: BOREHOLE FOR SOIL SAMPLES ONLY - NO WELL EVER SET

(9) Name of Person or Firm Doing Sealing Work
BOART LONGYEAR ENV. DRILLING

Signature of Person Doing Work: [Signature] Date Signed: 9-22-98

Street or Route: 101 ANDERSON ST Telephone Number: (715) 387-7070

City, State, Zip Code: SCHOFIELD, WI, 54766

(10) FOR DNR OR COUNTY USE ONLY	
Date Received/Inspected	District/County
Reviewer/Inspector	<input type="checkbox"/> Complying Work <input type="checkbox"/> Noncomplying Work
Follow-up Necessary	

All abandonment work shall be performed in accordance with the provisions of Chapters NR 811, NR 812 or NR 141, Wis. Adm. Code, whichever is applicable. Also, see instructions on back.

1) GENERAL INFORMATION		(2) FACILITY NAME	
Well/Drillhole/Borehole Location <u>GPO8</u>	County <u>BAYFIELD</u>	Original Well Owner (If Known) <u>DU PONT SPECIALTY CHEMICALS</u>	
SW 1/4 of SE 1/4 of Sec. <u>24</u> ; T. <u>48</u> N.; R. <u>05</u> <input type="checkbox"/> E <input checked="" type="checkbox"/> W		Present Well Owner <u>SAME</u>	
(If applicable) <u>NA</u> Gov't Lot <u>NA</u> Grid Number		Street or Route <u>BARLEY MILL PLAZA, BLDG 27</u>	
Grid Location <u>NA</u> ft. <input type="checkbox"/> N. <input type="checkbox"/> S., <u>NA</u> ft. <input type="checkbox"/> E. <input type="checkbox"/> W.		City, State, Zip Code <u>WILMINGTON DE 19880-0027</u>	
Civil Town Name <u>BARKSDALE</u>		Facility Well No. and/or Name (If Applicable) <u>NA</u>	WI Unique Well No. <u>NA</u>
Street Address of Well <u>NA</u>		Reason For Abandonment <u>SAMPLING COMPLETED</u>	
City, Village <u>BARKSDALE</u>		Date of Abandonment <u>9-22-98</u>	

WELL/DRILLHOLE/BOREHOLE INFORMATION		(4) Depth to Water (Feet) <u>17</u>	
(3) Original Well/Drillhole/Borehole Construction Completed On (Date) <u>SEPT. 22 1998</u>		Pump & Piping Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable	
<input type="checkbox"/> Monitoring Well <input type="checkbox"/> Water Well <input type="checkbox"/> Drillhole <input checked="" type="checkbox"/> Borehole		Liner(s) Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable	
Construction Report Available? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Screen Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable	
Construction Type: <input type="checkbox"/> Drilled <input checked="" type="checkbox"/> Driven (Sandpoint) <input type="checkbox"/> Dug		Casing Left in Place? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
<input type="checkbox"/> Other (Specify) <u>GEORDAE</u>		If No, Explain <u>NEVER INSTALLED</u>	
Formation Type: <input checked="" type="checkbox"/> Unconsolidated Formation <input type="checkbox"/> Bedrock		Was Casing Cut Off Below Surface? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Total Well Depth (ft.) <u>20</u> Casing Diameter (in.) <u>NA</u>		Did Sealing Material Rise to Surface? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
(From ground surface) Casing Depth (ft.) <u>NA</u>		Did Material Settle After 24 Hours? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Lower Drillhole Diameter (in.) <u>6.0</u>		If Yes, Was Hole Retopped? <input type="checkbox"/> Yes <input type="checkbox"/> No <u>NA</u>	
Was Well Annular Space Grouted? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown If Yes, To What Depth? _____ Feet		(5) Required Method of Placing Sealing Material <input checked="" type="checkbox"/> Conductor Pipe-Gravity <input type="checkbox"/> Conductor Pipe-Pumped <input type="checkbox"/> Dump Bailer <input type="checkbox"/> Other (Explain)	
		(6) Sealing Materials For monitoring wells and monitoring well boreholes only	
		<input type="checkbox"/> Neat Cement Grout	
		<input type="checkbox"/> Sand-Cement (Concrete) Grout	
		<input type="checkbox"/> Concrete <input type="checkbox"/> Bentonite Pellets	
		<input type="checkbox"/> Clay-Sand Slurry <input checked="" type="checkbox"/> Granular Bentonite	
		<input type="checkbox"/> Bentonite-Sand Slurry <input type="checkbox"/> Bentonite - Cement Grout	
		<input type="checkbox"/> Chipped Bentonite	

(7) Material Used To Fill Well/Drillhole	From (Ft.)	To (Ft.)	No. Yards, Sacks Sealant or Volume	(Circle One)	Mix Ratio or Mud Weight
<u>GRANULAR BENTONITE</u>	Surface	<u>20</u>	<u>3 bags</u>	(1)	<u>DRY</u>

(8) Comments: BOREHOLE FOR SOIL SAMPLES ONLY - NO WELL EVER SET

9) Name of Person or Firm Doing Sealing Work
BOART LINDYEAR ENV. DRILLING

Signature of Person Doing Work: [Signature] Date Signed: 9-22-98

Project or Route: 101 ANDERSON ST Telephone Number: (715) 397-7020

City, State, Zip Code: SCHOFIELD, WI, 54486

(10) FOR DNR OR COUNTY USE ONLY	
Date Received/Inspected	District/County
Reviewed/Inspector	<input type="checkbox"/> Complying Work <input type="checkbox"/> Noncomplying Work
Follow-up Necessary	

All abandonment work shall be performed in accordance with the provisions of Chapters NR 811, NR 812 or NR 141, Wis. Adm. Code, whichever is applicable. Also, see instructions on back.

(1) GENERAL INFORMATION		(2) FACILITY NAME	
Well/Drillhole/Borehole Location <u>6P09</u>	County <u>BAYFIELD</u>	Original Well Owner (If Known) <u>DU PONT SPECIALTY CHEMICALS</u>	
(If applicable) <u>SW</u> 1/4 of <u>SE</u> 1/4 of Sec. <u>21</u> ; T. <u>48</u> N.; R. <u>05</u> <input type="checkbox"/> E <input checked="" type="checkbox"/> W		Present Well Owner <u>SAME</u>	
Grid Location <u>NA</u> ft. <input type="checkbox"/> N. <input type="checkbox"/> S., <u>NA</u> ft. <input type="checkbox"/> E. <input type="checkbox"/> W.	Gov't Lot <u>NA</u>	Street or Route <u>BARLEY MILL PLAZA, BLDG 27</u>	
Civil Town Name <u>BARKSDALE</u>	City, Village <u>BARKSDALE</u>	City, State, Zip Code <u>WILMINGTON DE 19880-0027</u>	
Street Address of Well <u>NA</u>	Facility Well No. and/or Name (If Applicable) <u>NA</u>	WI Unique Well No. <u>NA</u>	
Reason For Abandonment <u>SAMPLING COMPLETED</u>	Date of Abandonment <u>9-16-98</u>		

WELL/DRILLHOLE/BOREHOLE INFORMATION		(4) Depth to Water (Feet)	
(3) Original Well/Drillhole/Borehole Construction Completed On (Date) <u>SEPT. 16 1998</u>		Pump & Piping Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable	
<input type="checkbox"/> Monitoring Well	Construction Report Available? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Liner(s) Removed? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Applicable	
<input type="checkbox"/> Water Well		Screen Removed? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Not Applicable	
<input type="checkbox"/> Drillhole		Casing Left in Place? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
<input checked="" type="checkbox"/> Borehole		If No, Explain <u>NEVER INSTALLED</u>	
Construction Type: <input type="checkbox"/> Drilled <input checked="" type="checkbox"/> Driven (Sandpoint) <input type="checkbox"/> Dug		Was Casing Cut Off Below Surface? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
<input type="checkbox"/> Other (Specify) <u>GEORODE</u>		Did Sealing Material Rise to Surface? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Formation Type: <input checked="" type="checkbox"/> Unconsolidated Formation <input type="checkbox"/> Bedrock		Did Material Settle After 24 Hours? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Total Well Depth (ft.) <u>9.8</u>	Casing Diameter (in.) <u>NA</u>	If Yes, Was Hole Retopped? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <u>NA</u>	
(From ground surface)	Casing Depth (ft.) <u>NA</u>	(5) Required Method of Placing Sealing Material	
Lower Drillhole Diameter (in.) <u>2.0</u>		<input checked="" type="checkbox"/> Conductor Pipe-Gravity <input type="checkbox"/> Conductor Pipe-Pumped	
Was Well Annular Space Grouted? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown	If Yes, To What Depth? _____ Feet	<input type="checkbox"/> Dump Bailer <input type="checkbox"/> Other (Explain)	
		(6) Sealing Materials	
		For monitoring wells and monitoring well boreholes only	
		<input type="checkbox"/> Neat Cement Grout	
		<input type="checkbox"/> Sand-Cement (Concrete) Grout	
		<input type="checkbox"/> Concrete	
		<input type="checkbox"/> Clay-Sand Slurry	
		<input type="checkbox"/> Bentonite-Sand Slurry	
		<input type="checkbox"/> Chipped Bentonite	
		<input type="checkbox"/> Bentonite Pellets	
		<input checked="" type="checkbox"/> Granular Bentonite	
		<input type="checkbox"/> Bentonite - Cement Grout	

(7)	Material Used To Fill Well/Drillhole	From (Ft.)	To (Ft.)	No. Yards, Sacks Sealant or Volume (Circle One)	Mix Ratio or Mud Weight
	<u>GRANULAR BENTONITE</u>	<u>Surface</u>	<u>9.8</u>	<u>1 CF</u>	<u>DRY</u>

(8) Comments: BOREHOLE FOR SOIL SAMPLES ONLY - NO WELL EVER SET

(9) Name of Person or Firm Doing Sealing Work
BOART LANSYEAR ENV. DRILLING

Signature of Person Doing Work: [Signature] Date Signed: 9-16-98

Street or Route: 101 ANDERSON ST Telephone Number: (715) 397-7070

City, State, Zip Code: SCHOFIELD, WI, 54776

(10) FOR DNR OR COUNTY USE ONLY

Date Received/Inspected: _____ District/County: _____

Reviewer/Inspector: _____ Complying Work

Follow-up Necessary: _____ Noncomplying Work

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DuPont Environmental Remediation Services
Lab Analysis Report

October 21, 1998

Location: BARKSDALE WORKS
 Project Name: WATERPIPE INVESTIGATION 8/98
 Sample Source: S-CA1
 Sample Name: BAR-S-CA1
 Date Sampled: August 25, 1998
 Lab Sample ID: 1086005-1 Analysis Lab: PES-SAC

Method Number: 8321

Prep Method: 3550

Analyte/Parameter -----	Dilution -----	Result -----	MDL ---	PQL ---	Unit ---	Date Analyzed -----
1,3,5-TRINITROBENZENE	1.0	< 0.010	0.010	0.25	MG/KG	Oct 2, 1998
1,3-DINITROBENZENE	1.0	< 0.015	0.015	0.25	MG/KG	Oct 2, 1998
2,4,6-TRINITROTOLUENE	1.0	< 0.0050	0.0050	0.25	MG/KG	Oct 2, 1998
2,4-DINITROTOLUENE	1.0	< 0.018	0.018	0.25	MG/KG	Oct 2, 1998
2,6-DINITROTOLUENE	1.0	< 0.012	0.012	0.25	MG/KG	Oct 2, 1998
2- AND 4-NITROTOLUENE	1.0	< 0.035	0.035	0.25	MG/KG	Oct 2, 1998
2-AM-DNT	1.0	< 0.013	0.013	0.25	MG/KG	Oct 2, 1998
3-NITROTOLUENE	1.0	< 0.14	0.14	0.25	MG/KG	Oct 2, 1998
4-AN-DNT	1.0	< 0.015	0.015	0.25	MG/KG	Oct 2, 1998
HMX	1.0	< 0.011	0.011	0.25	MG/KG	Oct 2, 1998
NITROBENZENE	1.0	< 0.10	0.10	0.25	MG/KG	Oct 2, 1998
NITROGLYCERIN	1.0	< 0.092	0.092	0.50	MG/KG	Oct 2, 1998
PETN	1.0	< 0.12	0.12	0.50	MG/KG	Oct 2, 1998
RDX	1.0	< 0.025	0.025	0.25	MG/KG	Oct 2, 1998
TETRYL	1.0	< 0.0090	0.0090	0.25	MG/KG	Oct 2, 1998

Surrogates:

Analyte/Parameter -----	Dilution -----	RPR ---	Date Analyzed -----
NITROBENZENE-D5	1.0	129.0	Oct 2, 1998

DuPont Environmental Remediation Services
Lab Analysis Report

October 21, 1998

Location: BARKSDALE WORKS
 Project Name: UATERPIPE INVESTIGATION 8/98
 Sample Source: S-CA2
 Sample Name: BAR-S-CA2
 Date Sampled: August 25, 1998
 Lab Sample ID: 1086006-1 Analysis Lab: QES-SAC

Method Number: 8321

Prep Method: 3550

Analyte/Parameter -----	Dilution	Result	MDL	PPL	Unit	Date Analyzed -----
1,3,5-TRINITROBENZENE	1.0	< 0.010	0.010	0.25	MG/KG	Oct 2, 1998
1,3-DINITROBENZENE	1.0	< 0.015	0.015	0.25	MG/KG	Oct 2, 1998
2,4,6-TRINITROTOLUENE	1.0	< 0.0050	0.0050	0.25	MG/KG	Oct 2, 1998
2,4-DINITROTOLUENE	1.0	< 0.012 0.018	0.018	0.25	MG/KG	Oct 2, 1998
2,6-DINITROTOLUENE			0.012	0.25	MG/KG	Oct 2, 1998
2- AND 4-NITROTOLUENE	1:0	< 0.035	0.035	0.25	MG/KG	Oct 2, 1998
2-AM-DNT	1.0	< 0.013	0.013	0.25	MG/KG	Oct 2, 1998
3-NITROTOLUENE	1.0	<	0.14	0.25	MG/KG	Oct 2, 1998
4-AM-DNT	1:0	< 0.14 0.015	0.015	0.25	MG/KG	Oct 2, 1998
HMX	1.0	< 0.011	0.011	0.25	MG/KG	Oct 2, 1998
NITROBENZENE	1.0	<	0.10	0.25	MG/KG	Oct 2, 1998
NITROGLYCERIN	1.0	< 0.10 0.092	0.092	0.50	MG/KG	Oct 2, 1998
PETN	1.0	< 0.12	0.12	0.50	MG/KG	Oct 2, 1998
RDX	1.0	< 0.025	0.025	0.25	MG/KG	Oct 2, 1998
TETRYL	1:0	< 0.0090	0.0090	0.25	MG/KG	Oct 2, 1998

Surrogates:

Analyte/Parameter -----	Dilution	RPR	Date Analyzed -----
NITROBENZENE-D5	1.0	129.0	Oct 2, 1998

DuPont Environmental Remediation Services
 Lab Analysis Report

October 21, 1998

Location: BARKSDALE WORKS

Project Name: UATERPIPE INVESTIGATION 8/98

Sample Source: S-CA3

Sample Name: BAR-S-CA3

Date Sampled: August 26, 1998

Lab Sample ID: 1086008-1 Analysis Lab: QES-SAC

Method Number: 8321

Prep Method: 3550

Analyte/Parameter -----	Dilution -----	Result -----	MDL ---	PPL ---	Unit ---	Date Analyzed -----
1,3,5-TRINITROBENZENE	1.0		0.010	0.25	MG/KG	Oct 2, 1998
1,3-DINITROBENZENE	1.0	< 0.010 0.015	0.015	0.25	MG/KG	Oct 2, 1998
2,4,6-TRINITROTOLUENE	1.0	< 0.018 0.0050	0.0050	0.25	MG/KG	Oct 2, 1998
2,4-DINITROTOLUENE			0.018	0.25	MG/KG	Oct 2, 1998
2,6-DINITROTOLUENE	1.0		0.012	0.25	MG/KG	Oct 2, 1998
2- AND 4- NITROTOLUENE	1.0	< 0.012 0.035	0.035	0.25	MG/KG	Oct 2, 1998
2-AM-DNT		< 0.013	0.013	0.25	MG/KG	Oct 2, 1998
3-NITROTOLUENE	1.0	<	0.14	0.25	MG/KG	Oct 2, 1998
4-AM-DNT	1.0	< 0.14 0.015	0.015	0.25	MG/KG	Oct 2, 1998
HMK	1.0	c 0.011	0.011	0.25	MG/KG	Oct 2, 1998
NITROBENZENE	1.0	c 0.10	0.10	0.25	MG/KG	Oct 2, 1998
NITROGLYCERIN	1.0	c 0.092	0.092	0.50	MG/KG	Oct 2, 1998
PETN	1.0	< 0.12	0.12	0.50	MG/KG	Oct 2, 1998
RDX	1:0	< 0.025	0.025	0.25	MG/KG	Oct 2, 1998
TETRYL	1.0	< 0.0090	0.0090	0.25	MG/KG	Oct 2, 1998

Surrogates:

Analyte/Parameter -----	Dilution -- ml - ml --	RPR -- m	Date Analyzed -----
NITROBENZENE-D5	1.0	111.0	Oct 2, 1998

DuPont Environmental Remediation Services
 Lab Analysis Report

October 21, 1998

Location: BARKSDALE WORKS
 Project Name: UATERPIPE INVESTIGATION 8/98
 Sample Source: S-CA3DUP
 Sample Name: BAR-S-CA3DUP
 Date Sampled: August 26, 1998
 Lab Sample ID: 1086007-1 Analysis Lab: QES-SAC

Method Number: 8321

Prep Method: 3550

Analyte/Parameter	Dilution	Result	MDL	PQL	Unit	Date Analyzed
1,3,5-TRINITROBENZENE	1.0	0.010	0.010	0.25	MG/KG	Oct 2, 1998
1,3-DINITROBENZENE	1.0	< 0.015	0.015	0.25	MG/KG	Oct 2, 1998
2,4,6-TRINITROTOLUENE	1.0	< 0.0050	0.0050	0.25	MG/KG	Oct 2, 1998
2,4-DINITROTOLUENE		0.018	0.018	0.25	MG/KG	Oct 2, 1998
2,6-DINITROTOLUENE	1.0	< 0.012	0.012	0.25	MG/KG	Oct 2, 1998
2- AND 4-NITROTOLUENE	1.0	0.035	0.035	0.25	MG/KG	Oct 2, 1998
2-AM-DNT	1.0	< 0.013	0.013	0.25	MG/KG	Oct 2, 1998
3-NITROTOLUENE	1.0	< 0.14	0.14	0.25	MG/KG	Oct 2, 1998
4-AM-DNT	1.0	< 0.015	0.015	0.25	MG/KG	Oct 2, 1998
HMX	1.0	< 0.011	0.011	0.25	MG/KG	Oct 2, 1998
NITROBENZENE	1.0	< 0.10	0.10	0.25	MG/KG	Oct 2, 1998
NITROGLYCERIN	1.0	< 0.092	0.092	0.50	MG/KG	Oct 2, 1998
PETN	1.0	< 0.12	0.12	0.50	MG/KG	Oct 2, 1998
RDX	1.0	< 0.025	0.025	0.25	MG/KG	Oct 2, 1998
TETRYL	1.0	< 0.0090	0.0090	0.25	MG/KG	Oct 2, 1998

Surrogates:

Analyte/Parameter	Dilution	RPR	Date Analyzed
NITROBENZENE-D5	1.0	135.0	Oct 2, 1998

DuPont Environmental Remediation Services
 Lab Analysis Report

October 21, 1998

Location: BARKSDALE WORKS
 Project Name: WATERPIPE INVESTIGATION 8/98
 Sample Source: W-CA1
 Sample Name: BAR-W-CA1
 Date Sampled: August 25, 1998
 Lab Sample ID: 1086001-1 Analysis Lab: QES-SAC

Method Number: 8330M

Prep Method: METHOD

Analyte/Parameter	Dilution	Result	MDL	PQL	Unit	Date Analyzed
1,3,5-TRINITROBENZENE	1.0	< 0.026	0.026	0.26	UG/L	Oct 1, 1998
1,3-DINITROBENZENE	1.0	< 0.011	0.011	0.26	UG/L	Oct 1, 1998
2,4,6-TRINITROTOLUENE	1.0	< 0.018	0.018	0.26	UG/L	Oct 1, 1998
2,4-DINITROTOLUENE	1.0	< 0.025	0.025	0.26	UG/L	Oct 1, 1998
2,6-DINITROTOLUENE	1:0	< 0.020	0.020	0.26	UG/L	Oct 1, 1998
2- AND 4-NITROTOLUENE	1.0	< 0.024	0.024	0.26	UG/L	Oct 1, 1998
2-AM-DNT	1.0	< 0.024	0.024	0.26	UG/L	Oct 1, 1998
3-NITROTOLUENE	1.0	< 0.030	0.030	0.26	UG/L	Oct 1, 1998
4-AM-DNT	1.0	< 0.021	0.021	0.26	UG/L	Oct 1, 1998
HMX	1.0	< 0.047	0.047	0.26	UG/L	Oct 1, 1998
NITROBENZENE	1.0	< 0.029	0.029	0.26	UG/L	Oct 1, 1998
NITROGLYCERIN	1:0	< 0.088	0.088	0.50	UG/L	Oct 1, 1998
PETN	1.0	< 0.069	0.069	0.26	UG/L	Oct 1, 1998
RDX	1.0	< 0.043	0.043	0.26	UG/L	Oct 1, 1998
TETRYL	1:0	< 0.030	0.030	0.26	UG/L	Oct 1, 1998

Surrogates:

Analyte/Parameter	Dilution	RPR	Date Analyzed
NITROBENZENE-D5	1.0	61.0	Oct 1, 1998

DuPont Environmental Remediation Services
Lab Analysis Report

October 21, 1998

Location: BARKSDALE WORKS

Project Name: WATERPIPE INVESTIGATION 8/98

Sample Source: W-CA3A

Sample Name: BAR-W-CA3A

Date Sampled: August 26, 1998

Lab Sample ID: 1086002-1 Analysis Lab: QES-SAC

Method Number: 8330M

Prep Method: METHOD

Analyte/Parameter	Dilution	Result	MDL	PQL	Unit	Date Analyzed
1,3,5-TRINITROBENZENE	1.0	< 0.026	0.026	0.26	UG/L	Oct 1, 1998
1,3-DINITROBENZENE	1.0	< 0.011	0.011	0.26	UG/L	Oct 1, 1998
2,4,6-TRINITROTOLUENE	1.0	< 0.018	0.018	0.26	UG/L	Oct 1, 1998
2,4-DINITROTOLUENE	1.0	< 0.025	0.025	0.26	UG/L	Oct 1, 1998
2,6-DINITROTOLUENE	1.0	< 0.020	0.020	0.26	UG/L	Oct 1, 1998
2- AND 4-NITROTOLUENE	1.0	< 0.024	0.024	0.26	UG/L	Oct 1, 1998
2-AM-DNT	1.0	< 0.024	0.024	0.26	UG/L	Oct 1, 1998
3-NITROTOLUENE	1.0	< 0.030	0.030	0.26	UG/L	Oct 1, 1998
4-AM-DNT	1.0	< 0.021	0.021	0.26	UG/L	Oct 1, 1998
HMX	1.0	< 0.047	0.047	0.26	UG/L	Oct 1, 1998
NITROBENZENE	1.0	< 0.029	0.029	0.26	UG/L	Oct 1, 1998
NITROGLYCERIN	1.0	< 0.088	0.088	0.50	UG/L	Oct 1, 1998
PETN	1.0	< 0.069	0.069	0.26	UG/L	Oct 1, 1998
RDX	1.0	< 0.043	0.043	0.26	UG/L	Oct 1, 1998
TETRYL	1.0	< 0.030	0.030	0.26	UG/L	Oct 1, 1998

Surrogates:

Analyte/Parameter	Dilution	RPR	Date Analyzed
NITROBENZENE-D5	1.0	88.0	Oct 1, 1998

DuPont Environmental Remediation Services
Lab Analysis Report

October 21, 1998

Location: BARKSDALE WORKS
 Project Name: WATERPIPE INVESTIGATION 8/98
 Sample Source: W-CA3B
 Sample Name: BAR-U-CA3B
 Date Sampled: August 26, 1998
 Lab Sample ID: 1086003-1 Analysis Lab: QES-SAC

Method Number: 833013

Prep Method: METHOD

Analyte/Parameter	Dilution	Result	MDL	PQL	Unit	Date Analyzed
1,3,5-TRINITROBENZENE	1.0	< 0.026	0.026	0.26	UG/L	Oct 1, 1998
1,3-DINITROBENZENE	1.0	<	0.011	0.26	UG/L	Oct 1, 1998
2,4,6-TRINITROTOLUENE	1.0	< 0.011 0.018	0.018	0.26	UG/L	Oct 1, 1998
2,4-DINITROTOLUENE	1.0	< 0.025	0.025	0.26	UG/L	Oct 1, 1998
2,6-DINITROTOLUENE	1.0	< 0.020	0.020	0.26	UG/L	Oct 1, 1998
2- AND 4-NITROTOLUENE	1.0	<	0.024	0.26	UG/L	Oct 1, 1998
2-AM-DNT	1.0	< 0.024 0.024	0.024	0.26	UG/L	Oct 1, 1998
3-NITROTOLUENE	1.0	< 0.030	0.030	0.26	UG/L	Oct 1, 1998
4-AM-DNT	1.0	< 0.021	0.021	0.26	UG/L	Oct 1, 1998
HMX	1.0	<	0.047	0.26	UG/L	Oct 1, 1998
NITROBENZENE	1.0	< 0.047 0.029	0.029	0.26	UG/L	Oct 1, 1998
NITROGLYCERIN	1.0	< 0.069 0.088	0.088	0.50	UG/L	Oct 1, 1998
PETN			0.069	0.26	UG/L	Oct 1, 1998
RDX	1.0	<	0.043	0.26	UG/L	Oct 1, 1998
TETRYL	1.0	< 0.043 0.030	0.030	0.26	UG/L	Oct 1, 1998

Surrogates:

Analyte/Parameter	Dilution	RPR	Date Analyzed
NITROBENZENE-D5	1.0	74.0	Oct 1, 1998

Nitroaromatics and Nitramines by LCMS

Method 8330M

Client Name: E.I. DuPont De Nemours Co.

Client ID: D4BA7191-GP04-092298

Lab ID: 301719-0002-SA

Matrix: AQUEOUS

Authorized: 24 SEP 98

Sampled: 22 SEP 98

Prepared: 29 SEP 98

Received: 21 SEP 98

Analyzed: 07 OCT 98

Parameter	Result	Units	Reporting Limit
HMX	ND	ug/L	0.26
1,3,5-Trinitrobenzene	ND	ug/L	0.26
RDX	ND	ug/L	0.26
3-Dinitrobenzene	ND	ug/L	0.26
4,6-Trinitrotoluene	ND	ug/L	0.26
etryl	ND	ug/L	0.26
Nitrobenzene	ND	ug/L	0.26
Nitroglycerin	ND	ug/L	0.26
2,4-Dinitrotoluene	ND	ug/L	0.50
2-Am-DNT	ND	ug/L	0.26
2,6-Dinitrotoluene	ND	ug/L	0.26
4-Am-DNT	ND	ug/L	0.26
2-rnd 4-Nitrotoluene	ND	ug/L	0.26
PETN	ND	ug/L	0.26
3-Nitrotoluene	ND	ug/L	0.26
Surrogate	Recovery		
Nitrobenzene-d5	150	%	

ND = Not detected
 NA = Not applicable

Reported By: Mike Filigenzi

Approved By: Karla Buechler

The cover letter is an integral part of this report.

Rev 230787

Nitroaromatics and Nitramines by LCMS

Method 8330M

Client Name: E.I. DuPont de Nemours Co.
 Client ID: D4BA7191-GP06-092298
 Lab ID: 301719-0003-SA
 Matrix: AQUEOUS
 Authorized: 24 SEP 98

Sampled: 22 SEP 98 Received: 24 SEP 98
 Prepared: 29 SEP 98 Analyzed: 07 OCT 98

Parameter	Result	Units	Reporting Limit
HMX	ND	ug/L	0.26
1,3,5-Trinitrobenzene	ND	ug/L	0.26
RDX	ND	ug/L	0.26
1,3-Dinitrobenzene	ND	ug/L	0.26
2,4,6-Trinitrotoluene	ND	ug/L	0.26
Tetryl	ND	ug/L	0.26
Nitrobenzene	ND	ug/L	0.26
Nitroglycerin in	ND	ug/L	0.26
2,4-Dinitrotoluene	ND	ug/L	0.50
2-Am-DNT	ND	ug/L	0.26
2,6-Dini troluene	ND	ug/L	0.26
4-Am-DNT	ND	ug/L	0.26
2- and 4-Nitrotoluene	ND	ug/L	0.26
PETN	ND	ug/L	0.26
3-Nitrotoluene	ND	ug/L	0.26
Surrogate	Recovery		
Nitrobenzene-d5	164	%	

ND = Not detected
 NA = Not applicable

Reported By: Mike Filigenzi

Approved By: Karla Buschler

The cover letter is an integral part of this report.
 Rev 230787

Nitroaromatics and Nitramines by LCMS

Method 8321

Client Name: E.I. DuPont De Nemours Co.

Client ID: D4BA7191-GP0606-B FT

Lab ID:

Matrix: 301719-0001-SA

22 SEP 98

Received: 24 SEP 99

Authorized: 24 SEP 98

Prepared: 30 SEP 98

Analyzed: 07 OCT 98

Parameter	Result	Units	Reporting Limit
HPX	ND	mg/kg	0.25
1,3,5-Trinitrobenzene	ND	mg/kg	0.25
RDX	ND	mg/kg	0.25
1,3-Dinitrobenzene	ND	mg/kg	0.25
2,4,6-Trinitrotoluene	ND	mg/kg	0.25
Tetryl	ND	mg/kg	0.25
Nitrobenzene	ND	mg/kg	0.25
Nitroglycerin	ND	mg/kg	0.50
2,4-Dinitrotoluene	ND	mg/kg	0.25
2-Am-DNT	ND	mg/kg	0.25
2,6-Dinitrotoluene	ND	mg/kg	0.25
4-Am-DNT	ND	mg/kg	0.25
2- and 4-Nitrotoluene	ND	mg/kg	0.25
PETN	ND	mg/kg	0.50
3-NI toluene	ND	mg/kg	0.25
Surrogate	Recovery1		
Nitrobenzene-d5	98	%	

NDD = Not detected
NAIA = Not applicable

Reported By: Mike Filigenzi

Approved By: Karla Buechler

The cover letter is an integral part of this report.

Rev 230787

Nitroaromatics and Nitramines by LCMS

Method 8330M

Client Name: E.I. DuPont De Nemours Co.

Client ID: D4BA7191-GP08-092298

Lab ID: 3Q1719-0004-SA

Matrix: A4USQUS98

Prepared: 22 SEP 98

Received: 21 SEP 98

Authorized:

29 SEP 98

Analyzed: 07 OCT 98

Parameter	Result	Units	Reporting Limit
HMX	ND	ug/L	0.26
1,3,5-Trinitrobenzene	ND	ug/L	0.26
RDX	ND	ug/L	0.26
1,3-Dinitrobenzene	ND	ug/L	0.26
2,4,6-Trinitrotoluene	ND	ug/L	0.26
Tetryl	ND	ug/L	0.26
Nitrobenzene	ND	ug/L	0.26
Nitroglycerin	ND	ug/L	0.26
2,4-Dinitrotoluene	ND	ug/L	0.50
2-Am-DNT	ND	ug/L	0.26
2,6-Dinitrotoluene	ND	ug/L	0.26
4-Am-DNT	ND	ug/L	0.26
2- and 4-Nitrotoluene	ND	ug/L	0.26
PETN	ND	ug/L	0.26
3-Nitrotoluene	ND	ug/L	0.26
Surrogate	Recovery		
Nitrobenzene-d5	162	%	

ND = Not detected
 NA = Not applicable

Reported By: Mike Filigenzi

Approved By: Karla Buechler

The cover letter is an integral part of this report.

Rev 230787

Nitroaromatics and Nitramines by LCMS

Method 8330M

Client Name: E. I. DuPont De Nemours Co.

Client ID: D4BA7191-PZ1D-092398

Lab ID: 361719-0005-SA

Matrix: A4 SEPS98

Sampled: 23 SEP 98

Received: 24 SEP 98

Prepared: 29 SEP 98

Analyzed: 07 OCT 98

Parameter	Result	Units	Reporting Limit
HMX	ND	ug/L	0.26
1,3,5-Trinitrobenzene	ND	ug/L	0.26
ROX	ND	ug/L	0.26
1,3-Dinitrobenzene	ND	ug/L	0.26
2,4,6-Trinitrotoluene	ND	ug/L	0.26
Tetryl	ND	ug/L	0.26
Nitrobenzene	ND	ug/L	0.26
Nitroglycerin	ND	ug/L	0.50
2,4-Dinitrotoluene	ND	ug/L	0.26
2-Am-DNT	ND	ug/L	0.26
2,6-Dinitrotoluene	ND	ug/L	0.26
4-Am-DNT	ND	ug/L	0.26
2- and 4-Nitrotoluene	ND	ug/L	0.26
PETN	ND	ug/L	0.26
3-Nitrotoluene	ND	ug/L	0.26
Surrogate	Recovery		
Nitrobenzene-d5	162	%	

ND = Not detected
NA = Not applicable

Reported By: Mike Filigenzi

Approved By: Karla Buechler

The cover letter is an integral part of this report.
Rev 230787

Nitroaromatics and Nitramines by LCMS

Method 8330M

Client Name: E. I. DuPont De Nemours Co.

Client ID: D4BA7191-BLANK-092298

Lab ID: 301719-0006-SA

Matrix: AQUEOUS

Authorized: 24 SEP 98

Sampled: 22 SEP 98

Prepared: 29 SEP 98

Received: 24 SEP 98

Analyzed: 07 OCT 98

Parameter	Result	Units	Reporting Limit
HMX	ND	ug/L	0.26
1,3,5-Trinitrobenzene	ND	ug/L	0.26
RDX	ND	ug/L	0.26
1,3-Dinitrobenzene	ND	ug/L	0.26
2,4,6-Trinitrotoluene	ND	ug/L	0.26
Tetryl	ND	ug/L	0.26
Nitrobenzene	ND	ug/L	0.26
Nitroglycerin	ND	ug/L	0.50
2,4-Dinitrotoluene	ND	ug/L	0.26
2-Am-DNT	ND	ug/L	0.26
2,6-Dinitrotoluene	ND	ug/L	0.26
4-Am-DNT	ND	ug/L	0.26
2- and 4-Nitrotoluene	ND	ug/L	0.26
PETH	ND	ug/L	0.26
3-Nitrotoluene	ND	ug/L	0.26
Surrogate	Recovery		
Nitrobenzene-d5	162	%	

ND = Not detected
NA = Not applicable

Reported By: Mike Filigenzi

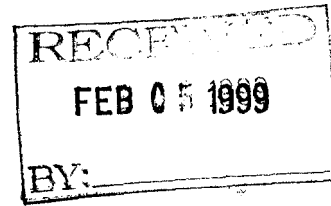
Approved By: Karla Buechler

The cover letter is an integral part of this report.
Rev 230787



Quanterra Incorporated
880 Riverside Parkway
West Sacramento, California 9.5605

916 3 73-5600 Telephone
916 372-1059 Fax



January 20, 1999

QUANTERRA INCORPORATED PROJECT NUMBER: 302917
PO/CONTRACT: LBIO-62243 QE56

Pam McGill
E.I. du Pont de Nemours and Co.
Barley Mill Plaza, Bldg. 27
Wilmington, DE 19805

Dear Ms. McGill,

This report contains the analytical results for the thirty one samples received under chain of custody by Quanterra Incorporated on December 4, 1998. These samples are associated with your Barksdale 12/98 GW sampling project.

Preliminary results for the Explosives were sent by facsimile to Ms. Pam McGill and Mr. Bob Raymond.

The case narrative is an integral part of this report.

If you have any questions, please feel free to call me at (916)374-4383.

Sincerely,

A handwritten signature in cursive script that reads "Calvin Tanaka".

Calvin Tanaka
Project Manager



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CASE NARRATIVE

QUANTERRA INCORPORATED PROJECT NUMBER 302917

General Comments

The sample containers were received intact and in good condition. Any discrepancies that would have impacted the analyses would have been forwarded to Ms. Cheri Short and documented on the enclosed Chain of Custody forms.

Where applicable, the reporting limits are adjusted to reflect any dilutions.

The holding time for Nitrate and Nitrite had expired on samples 302917-0023, -0025, -0027, and -0029 before they were received by the laboratory. Samples were received on December 5, 1998 that were to be analyzed in place of the 302917-0021, -0023, -0025, -0027, -0029, and -0031. The results are reported in project 303014.

The samples were prepared and analyzed within the method-specified holding time requirements, except as noted below.

All Method Blank and LCS results for the analytical set met the specified QC criteria for acceptance, except as noted below.

Explosives - Method 8321

The recoveries HMX and RDX in the LCS and matrix spikes were above the control limits. There is no impact on the sample results as these compounds were not detected in the samples.

The Continuing Calibration Curve (CCV) standard subsequent to samples 302917-0017 through -0031 had a response for 3-Nitrotoluene below the specified limit. An injection for a low level standard immediately subsequent to the CCV gave a concentration for the compound that was within the specified limits. Therefore, no corrective action was taken.

Anions - Method 300.0

The holding time for Nitrate and Nitrite had expired on samples 302917-0023, -0025, -0027, and -0029 before they were received by the laboratory. Additional samples were received on December 5, 1998 that were to be analyzed in place of the 302917-0021, -0023, -0025, -0027, -0029, and -0031. The results are reported in project 303014.



CASE NARRATIVE

QUANTERRA INCORPORATED PROJECT NUMBER 302917

There were no other anomalies associated with this project.

Quanterra - Western Region
Quality Control Definitions

QC Parameter	Definition
QC Batch	A set of up to 20 field samples plus associated laboratory QC samples that are similar in composition (matrix) and that are processed within the same time period with the same reagent and standard lots.
Duplicate Control Sample (DCS)	Consist of a pair of LCSs analyzed within the same QC batch to monitor precision and accuracy independent of sample matrix effects. This QC is performed only if required by client or when insufficient sample is available to perform MYMSD.
Duplicate Sample (DU)	A second aliquot of an environmental sample, taken from the same sample container when possible, that is processed independently with the first sample aliquot. The results are used to assess the effect of the sample matrix on the precision of the analytical process. The precision estimated using this sample is not necessarily representative of the precision for other samples in the batch.
Laboratory Control Sample (LCS)	A volume of reagent water for aqueous samples or a contaminant-free solid matrix (Ottawa sand) for soil and sediment samples which is spiked with known amounts of representative target analytes and required surrogates. An LCS is carried through the entire analytical process and is used to monitor the accuracy of the analytical process independent of potential matrix effects.
Matrix Spike and Matrix Spike Duplicate (MYMSD)	A field sample fortified with known quantities of target analytes that are also added to the LCS. Matrix spike duplicate is a second matrix spike sample. MSs/MSDs are carried through the entire analytical process and are used to determine sample matrix effect on accuracy of the measurement system. The accuracy and precision estimated using MS/MSD is only representative of the precision of the sample that was spiked.
Method Blank (MB)	A sample composed of all the reagents (in the same quantities) in reagent water carried through the entire analytical process. The method blank is used to monitor the level of contamination introduced during sample preparation steps.
Surrogate Spike	Organic constituents not expected to be detected in environmental media and are added to every sample and QC at a known concentration. Surrogates are used to determine the efficiency of the sample preparation and the analytical process.

Source: Quanterra® Quality Control Program, Policy QA-003, Rev. 0. 8/19/96.



SAMPLE DESCRIPTION INFORMATION
for
E.I. DuPont De Nemours Co.

Lab ID	Client ID	Matrix	Sampled		Received Date
			Date	Time	
302917-0001-SA	BAR-G-MW-1	AQUEOUS	03 DEC 98	08:15	04 DEC 98
302917-0002-SA	BAR-G-MW-1-DIS	AQUEOUS	03 DEC 98	08:15	04 DEC 98
302917-0003-SA	BAR-G-MW-2	AQUEOUS	03 DEC 98	10:55	04 DEC 98
302917-0004-SA	BAR-G-MW-2-DIS	AQUEOUS	03 DEC 98	10:55	04 DEC 98
302917-0005-SA	BAR-G-MW-3	AQUEOUS	03 DEC 98	11:35	04 DEC 98
302917-0006-SA	BAR-G-MW-3-DIS	AQUEOUS	03 DEC 98	11:35	04 DEC 98
302917-0007-SA	BAR-G-MW-4	AQUEOUS	03 DEC 98	10:15	04 DEC 98
302917-0008-SA	BAR-G-MW-4-DIS	AQUEOUS	03 DEC 98	10:15	04 DEC 98
302917-0009-SA	BAR-G-MW-5	AQUEOUS	03 DEC 98	09:10	04 DEC 98
302917-0010-SA	BAR-G-MW-5-DIS	AQUEOUS	03 DEC 98	09:10	04 DEC 98
302917-0011-SA	BAR-G-MW-5-DUP	AQUEOUS	03 DEC 98	09:10	04 DEC 98
302917-0012-SA	BAR-G-MW-5-DUP-DIS	AQUEOUS	03 DEC 98	09:10	04 DEC 98
302917-0013-SA	BAR-W-B1	AQUEOUS	03 DEC 98	13:00	04 DEC 98
302917-0014-SA	BAR-W-B1-DIS	AQUEOUS	03 DEC 98	13:00	04 DEC 98
302917-0015-SA	BAR-W-B3	AQUEOUS	03 DEC 98	12:20	04 DEC 98
302917-0016-SA	BAR-W-B3-DIS	AQUEOUS	03 DEC 98	12:20	04 DEC 98
302917-0017-SA	BAR-W-B6	AQUEOUS	03 DEC 98	12:10	04 DEC 98
302917-0018-SA	BAR-W-B6-DIS	AQUEOUS	03 DEC 98	12:10	04 DEC 98
302917-0019-SA	BAR-W-B8	AQUEOUS	03 DEC 98	12:45	04 DEC 98
302917-0020-SA	BAR-W-B8-DIS	AQUEOUS	03 DEC 98	12:45	04 DEC 98
302917-0021-SA	BAR-G-IW711	AQUEOUS	02 DEC 98	14:20	04 DEC 98
302917-0022-SA	BAR-G-IW711-DIS	AQUEOUS	02 DEC 98	14:20	04 DEC 98
302917-0023-SA	BAR-G-CX533-INFLOW	AQUEOUS	02 DEC 98	10:30	04 DEC 98
302917-0023-MS	BAR-CX533-INFLOW-MS	AQUEOUS	02 DEC 98	10:30	04 DEC 98
302917-0023-SD	BAR-CX533-INFLOW-MSD	AQUEOUS	02 DEC 98	10:30	04 DEC 98
302917-0023-DU	BAR-G-CX533-INFLOW	AQUEOUS	02 DEC 98	10:30	04 DEC 98
302917-0024-SA	BAR-G-CX533-INFLOW-DIS	AQUEOUS	02 DEC 98	10:30	04 DEC 98
302917-0024-MS	BAR-G-CX533-INFLOW-DIS-MS	AQUEOUS	02 DEC 98	10:30	04 DEC 98
302917-0024-SD	BAR-G-CX533-INFLOW-DIS-MSD	AQUEOUS	02 DEC 98	10:30	04 DEC 98
302917-0025-SA	BAR-G-CX533-INFLOW-DUP	AQUEOUS	02 DEC 98	10:30	04 DEC 98
302917-0026-SA	BAR-G-CX533-INFLOW-DUP-DIS	AQUEOUS	02 DEC 98	10:30	04 DEC 98
302917-0027-SA	BAR-G-CX533-SYSTEM	AQUEOUS	02 DEC 98	10:50	04 DEC 98
302917-0028-SA	BAR-G-CX533-SYSTEM-DIS	AQUEOUS	02 DEC 98	10:50	04 DEC 98
302917-0029-SA	BAR-G-CX533-EFFLUENT	AQUEOUS	02 DEC 98	11:00	04 DEC 98
302917-0030-SA	BAR-G-CX533-EFFLUENT-DIS	AQUEOUS	02 DEC 98	11:00	04 DEC 98
302917-0031-SA	BAR-G-IW882	AQUEOUS	02 DEC 98	15:05	04 DEC 98
302917-0032-SA	BAR-G-IW882-DIS	AQUEOUS	02 DEC 98	15:05	04 DEC 98

Chain of Custody Record



OUA-4124-1

Client E I DuPont		Project Manager Bob Raymond		Date	Chain Of Custody Number 63135
Address Barley Mill Plaza, Bldg 27		Telephone Number (Area Code)/Fax Number (302) 992-6972		Lab Number 30217	Page 1 of 4
City Wilmington	State DE	Zip Code 19805	Site Contact Wayne Peterson	Lab Contact C. Tanaka	Analysis (Attach list if more space is needed)
Project Name GW samp 12/98			Carrier/Waybill Number		

Sample I.D. No. and Description <small>(Containers for each sample may be combined on one line)</small>	Date	Time	Matrix			Containers & Preservatives							8321	Diss Iron	Cations/Anions	Special Instructions, Conditions of Receipt
			Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH					
BAR-G-mw-1	12-3-98	815				X		X					X		X	
BAR-G-mw-1-DIS		↓						X					X			
BAR-G-mw-2		1055				X		X					X		X	
BAR-G-mw-2-DIS		↓						X					X			
BAR-G-mw-3		1135				X		X					X		X	1-ABB rec'd w/crac
BAR-G-mw-3-DIS								X					X			
BAR-G-mw-4		1015				X		X					X		X	
BAR-G-mw-4-DIS		↓						X					X			
BAR-G-mw-5		910				X		X					X		X	1-ABB rec'd w/crac
BAR-G-mw-5-DIS		910						X					X		X	
BAR-G-mw-5-DUP		↓				X		X					X		X	1-ABB rec'd w/crac
BAR-G-mw-5-DUP-DIS		↓						X					X			

Possible Hazard Identification: Non-Hazard Flammable Skin Irritant Poison B Unknown

Sample Disposal: Return To Client Disposal By Lab Archive For _____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required: 24 Hours 48 Hours 7 Days 14 Days 21 Days Other _____

QC Requirements (Specify)

1. Relinquished By <i>[Signature]</i>	Date 12/3/98	Time 1400	1. Received By <i>[Signature]</i>	Date 12/04/98	Time 1200
2. Relinquished By	Date	Time	2. Received By	Date	Time
3. Relinquished By	Date	Time	3. Received By	Date	Time

Comments: **Received in good condition except where**

DU... UTID... HITE... s with... amp... JAR... rned... ant w... ort;... Field

Chain of Custody Record



QUA-4124-1

Client: **E I DuPont** Project Manager: **Bob Raymond** Date: _____ Chain Of Custody Number: **63132**

Address: **Barley Mill Plaza, Bldg 27** Telephone Number (Area Code)/Fax Number: **(302) 992-6972** Lab Number: **302917** Page: **2** of **4**

City: **Wilmington** State: **DE** Zip Code: **19805** Site Contact: **Wayne Peterson** Lab Contact: **C. Tanaka**

Project Name: **GW Samp 12/98** Carrier/Waybill Number: _____

Sample I.D. No. and Description <small>(Containers for each sample may be combined on one line)</small>	Date	Time	Matrix			Containers & Preservatives						Analysis (Attach list if more page is needed)							Special Instructions/ Conditions of Receipt						
			Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	P321	Diss Iron	Cations/Anions	Iron	Inorg/Geochem	TOC	S		metals	NHS				
BAR-W-B1	12-3-98	1300				X		X						X	X										
BAR-W-B1-DIS		↓						X						X	X										
BAR-W-B3		1220				X		X						X	X										
BAR-W-B3-DIS		↓						X						X	X										
BAR-W-B6		1210				X		X						X	X										
BAR-W-B6-DIS		↓						X						X	X										
BAR-W-B8		1245				X		X						X	X										
BAR-W-B8-DIS		↓						X						X	X										
BAR-G-IW709						X	X	X						X	X	X	X	X	X	X	X	X	X	X	X
BAR-G-IW711	12-2-98	1420				X	X	X						X	X										
BAR-G-CX533-INFLOW	12-2-98	1030				X	X	X						X	X										
BAR-G-CX533-SYSTEM	↓	1050				X	X	X						X	X										

Possible Hazard Identification: Non-Hazard Flammable Skin Irritant Poison B Unknown

Sample Disposal: Return To Client Disposal By Lab Archive For _____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required: 24 Hours 48 Hours 7 Days 14 Days 21 Days Other _____

QC Requirements (Specify): _____

1. Relinquished By:	Date: 12/3/98	Time: 1400	1. Received By:	Date: 12/04/98	Time: 1300
2. Relinquished By: _____	Date: _____	Time: _____	2. Received By: _____	Date: _____	Time: _____
3. Relinquished By: _____	Date: _____	Time: _____	3. Received By: _____	Date: _____	Time: _____

Comments: _____

DISTRIBUTION: WITH TE - stays with the sample; WITH RY - returned to client with report; PIN - field cl...

1. Samples received in good condition. MCD 12/4/98

Chain of Custody Record



QUA-4124-1

Client E I Dupont		Project Manager Bob Raymond		Date 12-2-98	Chain Of Custody Number 63133
Address Barkly Mill Plaza Bldg 27		Telephone Number (Area Code) Fax Number (302) 992-6972		Lab Number 302917	Page 3 of 4
City Wilmington	State DE	Zip Code 19805	Site Contact Wayne Petusich	Lab Contact C. Tanaka	Analysis (Attach list if more space is needed)
Project Name GW Samp 12/98			Carrier/Waybill Number		
Contract/Purchase Order/Quote No. QE 56					

Sample I.D. No. and Description <small>(Containers for each sample may be combined on one line)</small>	Date	Time	Matrix			Containers & Preservatives						8321	Diss Iron	Inorg/Grav Chlor	TOC	S	total metals	Diss metals	NH3	Special Instructions/ Conditions of Receipt
			Aqueous	Sed.	Soil	Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH									
BAR-G-CX 533-2 Effluent	12-2-98	1100				X	X	X			X	X	X	X	X	X	X	X	X	
BAR-CX 533-INFLOW-DUP		1030				X	X	X			X	X	X	X	X	X	X	X	X	
BAR-CX 533-INFLOW-MS		1030				X	X	X			X	X	X	X	X	X	X	X	X	
BAR-CX 533-INFLOW-MSD		1030				X	X	X			X	X	X	X	X	X	X	X	X	
BAR-G-IW 709 882-DIS	12-2-98	1505						X			X	X	X	X	X	X	X	X	X	Only Dissolved Metals
BAR-G-IW 709 884-DIS								X			X	X	X	X	X	X	X	X	X	
BAR-G-IW 709 883-DIS								X			X	X	X	X	X	X	X	X	X	
BAR-G-CX 533- ^{inflow-dis} DIS	12-2-98	1030						X			X	X	X	X	X	X	X	X	X	
BAR-G-CX 533- ^{system-dis} DIS	12-2-98	1050						X			X	X	X	X	X	X	X	X	X	
BAR-G-CX 533- ^{effluent-dis} MS-DIS	12-2-98	1100						X			X	X	X	X	X	X	X	X	X	
BAR-G-CX 533- ^{inflow-dis} MSD-DIS	12-2-98	1030						X			X	X	X	X	X	X	X	X	X	
BAR-G-IW 709 881-DIS								X			X	X	X	X	X	X	X	X	X	

Possible Hazard Identification	Sample Disposal	QC Requirements (Specify)
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown	<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months longer than 3 months	No sample received with it BAR-G-IW 709-DIS-REC'd BAR-G-IW 711-DIS-REC'd
Turn Around Time Required		
<input type="checkbox"/> 24 Hours <input type="checkbox"/> 48 Hours <input type="checkbox"/> 7 Days <input type="checkbox"/> 14 Days <input type="checkbox"/> 21 Days <input type="checkbox"/> Other _____		

1. Relinquished By <i>Wayne Petusich</i>	Date 12/3/98	Time 1400	1. Received By <i>MCD</i>	Date 12/04/98	Time 12:00
2. Relinquished By	Date	Time	2. Received By	Date	Time
3. Relinquished By	Date	Time	3. Received By	Date	Time

Comments: **Samples received in good condition. MCD 12/04/98**

DISTRIBUTION: ...ITE ... with the sample. ... Y ... ned ... at with ... ort; P ... field d ...

Chain of Custody Record



QUA-4124-1

Client: **Boji El Dupont** Project Manager: **Bob Raymond** Date: _____ Chain Of Custody Number: **63134**

Address: **Barkley Mill Plaza, Bldg 27** Telephone Number (Area Code)/Fax Number: **(302) 992-6972** Lab Number: **302917** Page: **4** of **4**

City: **Wilmington** State: **DE** Zip Code: **19805** Site Contact: **Wayne Petersen** Lab Contact: **C. Tandan**

Project Name: **GW SAMP 12/98** Carrier/Waybill Number: _____

Contract/Purchase Order/Quote No.: **QE 56**

Sample I.D. No. and Description <small>(Containers for each sample may be combined on one line)</small>	Date	Time	Matrix			Containers & Preservatives						Analysis (Attach list if more space is needed)							Special Instructions/ Conditions of Receipt	
			Aqueous	Sed.	Soil	Unpres	H2SO4	HNO3	HCl	NaOH	ZnAc	NaOH	B321	Diss iron	Diss metals	Inorg/Geochem	TOC	S		Total Iron
BAR-G-IW708						X	X	X			X	X	X	X	X	X	X	X	X	TRM 12/3/98
BAR-G-IW711-DIS	12-2-98	1420							X											
BAR-G-CX533-DIS <small>inflow MS-DIS</small>	12-2-98	1030							X											
BAR-G-CX533-2DIS <small>inflow MSO-DIS</small>	12-2-98	1030							X											
BAR-G-CX533-MS-DIS									X											TRM 12/2
BAR-G-CX533-MSO-DIS									X											
BAR-G-IW708 DIS									X											
BAR-K-EQBLK1						X	X	X			X	X	X	X	X	X	X	X	X	TRM 12/3/98
BAR-K-FQBLK1 DIS									X											
BAR-G-IW882	12-2-98	1505				X	X	X			X	X	X	X	X	X	X	X	X	
BAR-G-IW883						X	X	X			X	X	X	X	X	X	X	X	X	
BAR-G-IW884						X	X	X			X	X	X	X	X	X	X	X	X	TRM 12/3/98

Possible Hazard Identification: Non-Hazard Flammable Skin Irritant Poison B Unknown

Sample Disposal: Return To Client Disposal By Lab Archive For _____ Months (A fee may be assessed if samples are retained longer than 3 months)

Turn Around Time Required: 24 Hours 48 Hours 7 Days 14 Days 21 Days Other _____

QC Requirements (Specify): _____

1. Relinquished By:	Date: 12/3/98	Time: 1400	1. Received By:	Date: 120498	Time: 1200
2. Relinquished By:	Date:	Time:	2. Received By:	Date:	Time:
3. Relinquished By:	Date:	Time:	3. Received By:	Date:	Time:

Comments: **Samples received in good condition. MS 120498**

DISTRIBUTION: WHITE - stays with the sample; CANNARY - returned to client with report; PINK - field copy



Nitroaromatics and Nitramines by LCMS
Method 8330M

Client Name: E. I. DuPont De Nemours Co.
Client ID: BAR-G-CX533-INFLOW
LAB. ID: 302917-0023-SA
Matrix: AQUEOUS
Authorized: 04 DEC 98

Sampled: 02 DEC 98
Prepared: 09 DEC 98

Received: 04 DEC 98
Analyzed: 18 DEC 98

Dilution Factor: 1.0

Parameter	Result	Units	Reporting Limit	Qualifier
HMX	ND	ug/L	0.26	
1,3,5-Trinitrobenzene	ND	ug/L	0.26	
RDX	ND	ug/L	0.26	
1,3-Dinitrobenzene	ND	ug/L	0.26	
2,4,6-Trinitrotoluene	ND	ug/L	0.26	
Tetryl	ND	ug/L	0.26	
Nitrobenzene	ND	ug/L	0.26	
Nitroglycerin	ND	ug/L	0.50	
2,4-Dinitrotoluene	0.17	ug/L	0.26	J
2-Am-DNT	0.48	ug/L	0.26	
2,6-Dinitrotoluene	1.6	ug/L	0.26	
4-Am-DNT	0.56	ug/L	0.26	
2- and 4-Nitrotoluene	ND	ug/L	0.26	
PETN	ND	ug/L	0.26	
3-Nitrotoluene	ND	ug/L	0.26	

Surrogate	Recovery	Acceptable Range
Nitrobenzene-d5	119 %	65 - 135

Note J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Reported By: Mike Filigenzi

Approved By: Karla Buechler

The cover letter is an integral part of this report.

Rev 230787



METALS

(Water - Total)

Client Name: E. I. DuPont De Nemours Co.
Client ID: BAR-G-CX533-INFLOW
Lab ID: 302917-0023-SA
Matrix: AQUEOUS
Authorized: 04 DEC 98
Sampled: 02 DEC 98
Prepared: See Below
Received: 04 DEC 98
Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Calcium	39.6	mg/L	5.0	6010B	09 DEC 98	10 DEC 98
Iron	ND	mg/L	0.10	6010B	09 DEC 98	10 DEC 98
Magnesium	15.5	mg/L	5.0	6010B	09 DEC 98	10 DEC 98
Potassium	ND	mg/L	5.0	6010B	09 DEC 98	10 DEC 98
Sodium	8.1	mg/L	5.0	6010B	09 DEC 98	10 DEC 98

ND = Not detected
NA = Not applicable

Reported By: Allan Wong

Approved By: Mei Lai

The cover letter is an integral part of this report.
Rev 230787



GENERAL INORGANICS

(Water)

Client Name: E.I. DuPont De Nemours Co.

Client ID: BAR-G-CX533-INFLOW

Lab ID: 302917-0023-SA

Matrix: AQUEOUS

Authorized: 04 DEC 98

Sampled: 02 DEC 98

Prepared: See Below

Received: 04 DEC 98

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Alkalinity, Total (as CaCO3)	142	mg/L	5.0	310.1	NA	07 DEC 98
Alkalinity, Bi carb. (as CaCO3)	142	mg/L	5.0	310.1	NA	07 DEC 98
Alkalinity, Carb. (as CaCO3)	ND	mg/L	5.0	310.1	NA	07 DEC 98
Ammonia as N	ND	mg/L	0.10	350.1		08 DEC 98
Bromide	ND	mg/L	0.50	300.0	NA	04 DEC 98
Chloride	1.2	mg/L	1.0	300.0	NA	04 DEC 98
Fluoride	ND	mg/L	1.0	300.0	NA	04 DEC 98
Nitrogen, Total Kjeldahl (as N)	ND	mg/L	0.50	351.2	14 DEC 98	15 DEC 98
Organic Carbon, Total	ND	mg/L	1.0	415.1-Oxidation	NA	16 DEC 98
Solids, Total Dissolved	228	mg/L	10.0	160.1	NA	09 DEC 98
Solids, Total Suspended	ND	mg/L	5.0	160.2	NA	07 DEC 98
Sulfate	28.7	mg/L	2.0	300.0	NA	04 DEC 98
Sulfide, Total	ND	mg/L	0.050	376.2		08 DEC 98

Note 0 : Reporting limit(s) raised due to high level of analyte present in sample.

ND = Not detected
NA = Not applicable

Reported By: Luz Gargaritano

Approved By: Mark Frey

The cover letter is an integral part of this report.

Rev 230787



GENERAL INORGANICS

(Water)

Client Name: E. I. DuPont De Nemours Co.

Client IO: BAR-G-CX533-INFLOW

Lab IO: 303014-0002-SA

Matrix: AQUEOUS

Sampled: 04 OEC 98

Received: 05 OEC 98

Authorized: 05 OEC 98

Prepared: See Below

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date	Dilution
Nitrate (as N)	1.9	mg/L	0.050	300.0	NA	05 OEC 98	10
Nitrite (as N)	NO	mg/L	0.050	300.0	NA	05 OEC 98	10

NO = Not detected
NA = Not applicable

Reported By: Hamid Foolad

Approved By: Josefina Jones

The cover letter is an integral part of this report.

Rev 230787



METALS

(Water - Dissolved)

Client Name: E. I. DuPont De Nemours Co.
Client ID: BAR-G-CX533-INFLOW-DIS
Lab ID: 302917-0024-SA
Matrix: AQUEOUS
Authorized: 04 DEC 98
Sampled: 02 DEC 98
Prepared: See Below
Received: 04 DEC 98
Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Calcium	41.7	mg/L	5.0 0.10	6010B	09 DEC 98	09 DEC 98
Iron	ND	mg/L		6010B	09 DEC 98	09 DEC 98
Magnesium	16.9	mg/L	5.0	6010B	09 DEC 98	09 DEC 98
Potassium	ND	mg/L	5.0	6010B	09 DEC 98	09 DEC 98
Sodium	8.4	mg/L	5.0	6010B	09 DEC 98	09 DEC 98

ND = Not detected
NA = Not applicable

Reported By: Allan Wang

Approved By: Mei Lai

The cover letter is an integral part of this report.
Rev 230787



Nitroaromatics and Nitramines by LCMS
Method 8330M

Client Name: E. I. DuPont De Nemours Co.
Client ID: BAR-G- IW711
LAB ID: 302917-0021-SA
Matrix: AQUEOUS
Authorized: 04 DEC 98

Sampled: 02 DEC 98
Prepared: 09 DEC 98

Received: 04 DEC 98
Analyzed: 18 DEC 98

Dilution Factor: 1.0

Parameter	Result	Units	Reporting Limit	Qualifier
HMK	ND	ug/L	0.26	
1,3,5-Trinitrobenzene	ND	ug/L	0.26	
RDX	ND	ug/L	0.26	
1,3-Dinitrobenzene	ND	ug/L	0.26	
2,4,6-Trinitrotoluene	ND	ug/L	0.26	
Tetryl	ND	ug/L	0.26	
Nitrobenzene	ND	ug/L	0.26	
Nitroglycerin	ND	ug/L	0.50	
2,4-Dinitrotoluene	ND	ug/L	0.26	
2-Am-DNT	ND	ug/L	0.26	
2,6-Dinitrotoluene	ND	ug/L	0.26	
4-Am-DNT	ND	ug/L	0.26	
2- and 4- Nitrotoluene	ND	ug/L	0.26	
PETN	ND	ug/L	0.26	
3-Nitrotoluene	ND	ug/L	0.26	

Surrogate	Recovery	Acceptable Range
Nitrobenzene-d5	127 %	65 - 135

ND = Not Detected

Reported By: Mike Filigenzi

Approved By: Karla Buechler

The cover letter is an integral part of this report.

Rev 230787



METALS

(Water - Total)

Client Name: E.I. DuPont De Nemours Co.

Client ID: BAR-G-IW711

Lab ID: 302917-0021-SA

Matrix: AQUEOUS

Authorized: 04 DEC 98

Sampled: 02 DEC 98

Prepared: See Below

Received: 04 DEC 98

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Iron	0.13	mg/L	0.10	60108	09 DEC 98	10 DEC 98

ND = Not detected
NA = Not applicable

Reported By: Allan Wong

Approved By: Mei Lai

The cover letter is an integral part of this report,
Rev 230787



GENERAL INORGANICS

(Water)

Client Name: E. I. DuPont De Nemours Co.

Client ID: BAR-G-IW711

Lab ID: 302917-0021-SA

Matrix: AQUEOUS

Authorized: 04 DEC 98

Sampled: 02 DEC 98

Prepared: See Below

Received: 04 DEC 98

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Organic Carbon, Total	ND	mg/L	1.0	415.1-Oxidation	NA	16 DEC 98
Solids, Total Dissolved	117	mg/L	10.0	160.1	NA	09 DEC 98
Solids, Total Suspended	ND	mg/L	5.0	160.2	NA	07 DEC 98
Sulfate	4.0	mg/L	1.0	300.0	NA	04 DEC 98
Sulfide, Total	ND	mg/L	0.050	376.2	NA	08 DEC 98

ND = Not detected
NA = Not applicable

Reported By: Luz Gargaritano

Approved By: Mark Frey

The cover letter is an integral part of this report.
Rev 230787



GENERAL INORGANICS

(Water)

Client Name: E.I. DuPont De Nemours Co.

Client ID: BAR-G-IV711

Lab ID: 303014-0001-SA

Matrix: AQUEOUS

Authorized: 05 DEC 98

Sampled: 04 DEC 98

Prepared: See Below

Received: 05 DEC 98

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date	Dilution
Nitrate (as N)	ND	mg/L	0.050	300.0	NA	05 DEC 98	1.0
Nitrite (as N)	ND	mg/L	0.050	300.0	NA	05 DEC 98	1.0

ND = Not detected

NA = Not applicable

Reported By: Hamid Foolad

Approved By: Josefina Jones

The cover letter is an integral part of this report.

Rev 230787



METALS

(Water - Dissolved)

Client Name: E. I. DuPont De Nemours Co.

Client ID: BAR-G-IW711-DIS

Lab ID: 302917-0022-SA

Matrix: AQUEOUS

Authorized: 04 DEC 98

Sampled: 02 DEC 98

Prepared: See Below

Received: 04 DEC 98

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Iron	ND	mg/L	0.10	6010B	09 DEC 98	09 DEC 98

ND = Not detected

NA = Not applicable

Reported By: Allan Wong

Approved By: Mei Lai

The cover letter is an integral part of this report.

Rev 230787



Nitroaromatics and Nitramines by LCMS
Method 8330M

-Client Name: E.I. DuPont De Nemours Co.
Client ID: BAR-G-IW882
LAB ID: 302917-0031-SA
Matrix: AQUEOUS
-Authorized: 04 DEC 98

Sampled: 02 DEC 98
Prepared: 09 DEC 98

Received: 04 DEC 98
Analyzed: 19 DEC 98

Dilution Factor: 1.0

Parameter	Result	Units	Reporting Limit	Qualifier
-HMX	ND	ug/L	0.26	
1,3,5-Trinitrobenzene	ND	ug/L	0.26	
RDX	ND	ug/L	0.26	
1,3-Dinitrobenzene	ND	ug/L	0.26	
-2,4,6-Trinitrotoluene	ND	ug/L	0.26	
Tetryl	ND	ug/L	0.26	
Nitrobenzene	ND	ug/L	0.26	
Nitroglycerin	ND	ug/L	0.50	
-2,4-Dinitrotoluene	0.41	ug/L	0.26	
2-Am-DNT	ND	ug/L	0.26	
2,6-Dinitrotoluene	ND	ug/L	0.26	
4-Am-DNT	ND	ug/L	0.26	
-2- and 4-Nitrotoluene	ND	ug/L	0.26	
PETN	ND	ug/L	0.26	
3-Nitrotoluene	ND	ug/L	0.26	

Surrogate	Recovery	Acceptable Range
-Nitrobenzene-d5	123 %	65 - 135

ND = Not Detected

-Reported By: Mike Filigenzi

Approved By: Karla Buechler

The cover letter is an integral part of this report.
Rev 230787



METALS

(Water - Total)

Client Name: E.I. DuPont De Nemours Co.
Client ID: BAR-G- IW882
Lab ID: 302917-0031-SA
Matrix: AQUEOUS
Authorized: 04 DEC 98

Sampled: 02 DEC 98
Prepared: See Below

Received: 04 DEC 98
Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Calcium	15.5	mg/L	5.0	60108	09 DEC 98	10 DEC 98
Iron	1.3	mg/L	5.0	6010B	09 DEC 98	10 DEC 98
Magnesium	ND	mg/L	5.0	6010B	09 DEC 98	10 DEC 98
Potassium	ND	mg/L		6010B	09 DEC 98	10 DEC 98
Sodium	5.3	mg/L	5.0	60108	09 DEC 98	10 DEC 98

ND = Not detected
NA = Not applicable

Reported By: Allan Wong

Approved By: Mei Lai

The cover letter is an integral part of this report.
Rev 230787



GENERAL INORGANICS

(Water)

Client Name: E.I. DuPont De Nemours Co.

Client ID: BAR-G-IW882

Lab ID: 302917-0031-SA

Matrix: AQUEOUS

Authorized: 04 DEC 98

Sampled: 02 DEC 98

Prepared: See Below

Received: 04 DEC 98

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Alkalinity, Total (as CaCO3)	71.8	mg/L	5.0	310.1	NA	07 DEC 98
Alkalinity, Bi carb. (as CaCO3)	71.8	mg/L	5.0	310.1	NA	07 DEC 98
Alkalinity, Carb. (as CaCO3)	ND	mg/L	5.0		NA	
Ammonia as N	ND	mg/L	0.10	310.1 350.1	NA	07 08 DEC 98 98
Bromide	ND	mg/L	0.50	300.0	NA	
Chloride	5.2	mg/L	1.0			04 DEC 98
Fluoride	0.79	mg/L	0.50	300.0 300.0	NA NA	04 DEC 98
Nitrogen, Total Kjeldahl (as N)	ND	mg/L	0.50	351.2	14 DEC 98	15 DEC 98
Organic Carbon, Total	ND	mg/L	1.0	415.1-Oxidation	NA	16 DEC 98
Solids, Total Dissolved	73.0	mg/L	10.0	160.1	NA	09 DEC 98
Solids, Total Suspended	ND	mg/L	5.0	160.2	NA	
Sulfate	3.0	mg/L	1.0			07 DEC 98
Sulfide, Total	ND	mg/L	0.050	300.0 376.2	NA NA	04 DEC 98

ND = Not detected
NA = Not applicable

Reported By: Luz Gargaritano

Approved By: Mark Frey

The cover letter is an integral part of this report.

Rev 230787



- GENERAL INORGANICS

(Water)

Client Name: E.I. DuPont De Nemours Co.

Client ID: BAR-G-1W882

Lab ID: 303014-0004-SA

Matrix: AQUEOUS

Sampled: 04 DEC 98

Received: 05 DEC 98

Authorized: 05 DEC 98

Prepared: See Below

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date	Dilution
Nitrate (as N)	0.053	mg/L	0.050	300.0	HA	05 DEC 98	1.0
Nitrite (as N)	ND	mg/L	0.050	300.0	NA	05 DEC 98	1.0

ND = Not detected

NA = Not applicable

Reported By: Hamid Foolad

Approved By: Josefina Jones

The cover Letter is an integral part of this report.

Rev 230787



METALS

(Water - Dissolved)

Client Name: E.I. DuPont De Nemours Co.

Client ID: BAR-G-IW882-DIS

Lab ID: 302917-0032-SA

Matrix: AQUEOUS

Authorized: 04 DEC 98

Sampled: 02 DEC 98

Prepared: See Below

Received: 04 DEC 98

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Calcium	11.2	mg/L	5.0	6010B	09 DEC 98	09 DEC 98
Iron	5.3	mg/L	5.00	6010B	09 DEC 98	09 DEC 98
Magnesium		mg/L	5.0	6010B	09 DEC 98	09 DEC 98
Potassium	ND	mg/L		6010B	09 DEC 98	09 DEC 98
Sodium	5.2	mg/L	5.0	6010B	09 DEC 98	09 DEC 98

ND = Not detected
NA = Not applicable

Reported By: Allan Wong

Approved By: Mei Lai

The cover letter is an integral part of this report.

Rev 230787



Nitroaromatics and Nitramines by LCMS
Method 8330M

Client Name: E.I. DuPont De Nemours Co.
- Client ID: BAR-G-MW-1
LAB ID: 302917-0001-SA
Matrix: AQUEOUS
- Authorized: 04 DEC 98

Sampled: 03 DEC 98
Prepared: 09 DEC 98

Received: 04 DEC 98
Analyzed: 18 DEC 98

Dilution Factor: 1.0

Parameter	Result	Units	Reporting Limit	Qualifier
HMX	ND	ug/L	0.26	
-1,3,5-Trinitrobenzene	ND	ug/L	0.26	
RDX	ND	ug/L	0.26	
1,3-Dinitrobenzene	ND	ug/L	0.26	
-2,4,6-Trinitrotoluene	ND	ug/L	0.26	
-Tetryl	ND	ug/L	0.26	
Nitrobenzene	ND	ug/L	0.26	
Nitroglycerin	ND	ug/L	0.50	
-2,4-Dinitrotoluene	ND	ug/L	0.26	
2-Am-DNT	ND	ug/L	0.26	
2,6-Dinitrotoluene	ND	ug/L	0.26	
4-Am-DNT	ND	ug/L	0.26	
-2- and 4-Nitrotoluene	ND	ug/L	0.26	
PETN	ND	ug/L	0.26	
3-Nitrotoluene	ND	ug/L	0.26	

Surrogate	Recovery	Acceptable Range
_Nitrobenzene-d5	106 %	65 - 135

ND = Not Detected

- Reported By: Mike Filigenzi

Approved By: Karla Buechler

The cover letter is an integral part of this report.

Rev 230787



METALS

(Water - Total)

Client Name: E.I. DuPont De Nemours Co.

Client ID: BAR-G-MW-1

Lab ID: 302917-0001-SA

Matrix: AQUEOUS

Authorized: 04 DEC 98

Sampled: 03 DEC 98

Prepared: See Below

Received: 04 DEC 98

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Oate	Analyzed Date
Calci um	18.4	mg/L			09 DEC 98	10 DEC 98
Iron	2.1		5.0	6010B		
Magnesi um	7.3	mg/L	0.10	6010B	09 DEC 98	10 DEC 98
Potassi um	ND	mg/L	5.0	6010B	09 DEC 98	10 DEC 98
Sodi um	ND	mg/L	5.0	6010B	09 DEC 98	10 DEC 98

ND = Not detected
NA = Not applicable

Reported By: Allan Wong

Approved By: Mei Lai

The cover letter is an integral part of this report.
Rev 230787



GENERAL INORGANICS

(Water)

Client Name: E.I. DuPont De Nemours Co.

Client ID: BAR-G-MW-1

Lab ID: 302917-0001-SA

Matrix: AQUEOUS

Authorized: 04 DEC 98

Sampled: 03 DEC 98

Prepared: See Below

Received: 04 DEC 98

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Bromide	ND		0.50		NA	04 DEC 98
Chloride	4.1	mg/L	1.0	300.0	NA	04 DEC 98
Fluoride	ND	mg/L	0.50	300.0 300.0	NA	04 DEC 98
Nitrate (as N)	0.071				NA	04 DEC 98
Nitrite (as N)	ND	mg/L	0.050	300.0	NA	04 DEC 98
Sulfate	3.4	mg/L	1.0	300.0		04 DEC 98

ND = Not detected
NA = Not applicable

Reported By: Hamid Foolad

Approved By: Mark Frey

The cover letter is an integral part of this report.

Rev 230787



METALS

(Water - Dissolved)

Client Name: E.I. DuPont De Nemours Co.

Client ID: BAR-G-MW-1-DIS

Lab ID: 302917-0002-SA

Matrix: AQUEOUS

Authorized: 04 DEC 98

Sampled: 03 DEC 98

Prepared: See Below

Received: 04 DEC 98

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Iron	ND	mg/L	0.10	6010B	09 DEC 98	09 DEC 98

ND = Not detected
NA = Not applicable

Reported By: Allan Wong

Approved By: Mei Lai

The cover letter is an integral part of this report.
Rev 230787



Nitroaromatics and Nitramines by LCMS
Method 8330M

Client Name: E. I. DuPont De Nemours Co.
Client ID: BAR-G-MW-2
LAB ID: 302917-0003-SA
Matrix: AQUEOUS
Authorized: 04 DEC 98

Sampled: 03 DEC 98
Prepared: 09 DEC 98

Received: 04 DEC 98
Analyzed: 18 DEC 98

Dilution Factor: 1.0

Parameter	Result	Units	Reporting Limit	Qualifier
HMX	ND	ug/L	0.26	
1,3,5-Trinitrobenzene	ND	ug/L	0.26	
RDX	ND	ug/L	0.26	
1,3-Dinitrobenzene	ND	ug/L	0.26	
2,4,6-Trinitrotoluene	ND	ug/L	0.26	
Tetryl	ND	ug/L	0.26	
Nitrobenzene	ND	ug/L	0.26	
Nitroglycerin	ND	ug/L	0.50	
2,4-Dinitrotoluene	1.5	ug/L	0.26	
2-Am-DNT	2.0	ug/L	0.26	
2,6-Dinitrotoluene	2.6	ug/L	0.26	
4-Am-DNT	2.0	ug/L	0.26	
2- and 4-Nitrotoluene	0.16	ug/L	0.26	J
PETN	ND	ug/L	0.26	
3-Nitrotoluene	ND	ug/L	0.26	

Surrogate	Recovery	Acceptable Range
Nitrobenzene-d5	110 %	65 - 135

Note J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Reported By: Mike Filigenzi

Approved By: Karla Buechler

The cover letter is an integral part of this report.

Rev 230787



METALS

(Water - Total)

Client Name: E. I. DuPont De Nemours Co.

Client ID: BAR-G-MW-2

Lab ID: 302917-0003-SA

Matrix: AQUEQUS

Authorized: 04 DEC 98

Sampled: 03 DEC 98

Prepared: See Below

Received: 04 DEC 98

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Calcium	107	mg/L	5.0	6010B	09 DEC 98	10 DEC 98
Iron	0.30	mg/L	0.10	6010B	09 DEC 98	10 DEC 98
Magnesium	44.1	mg/L	5.0	6010B	09 DEC 98	10 DEC 98
Potassium	ND	mg/L	5.0	6010B	09 DEC 98	10 DEC 98
Sodium	23.5	mg/L	5.0	6010B	09 DEC 98	10 DEC 98

ND = Not detected
NA = Not applicable

Reported By: Allan Wong

Approved By: Mei Lai

The cover letter is an integral part of this report.

Rev 230787



GENERAL INORGANICS

(Water)

Client Name: E. I. DuPont De Nemours Co.

Client ID: BAR-G-MW-2

Lab ID: 302917-0003-SA

Matrix: AQUEOUS

Authorized: 04 DEC 98

Sampled: 03 DEC 98

Prepared: See Below

Received: 04 DEC 98

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Bromide	ND	mg/L	0.50	300.0	NA	04 DEC 98
Chloride	4.8	mg/L	1.0	300.0	NA	04 DEC 98
Fluoride	ND	mg/L	0.50	300.0	NA	04 DEC 98
Nitrate (as N)	44.8	mg/L	2.5	300.0	NA	04 DEC 98 o
Nitrite (as N)	0.078	mg/L	0.050	300.0	NA	04 DEC 98
Sulfate	91.5	mg/L	5.0	300.0	NA	04 DEC 98 o

Note o : Reporting limit(s) raised due to high level of analyte present in sample.

ND = Not detected
NA = Not applicable

Reported By: Hamid Foolad

Approved By: Mark Frey

The cover letter is an integral part of this report.

Rev 230787



METALS

(Water - Dissolved)

Client Name: E. I. DuPont De Nemours Co.

Client ID: BAR-G-MW-2-DIS

Lab ID: 302917-0004-SA

Matrix: AQUEOUS

Authorized: 04 DEC 98

Sampled: 03 DEC 98

Prepared: See Below

Received: , 04 DEC 98

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Iron	ND	mg/L	0.10	6010B	09 DEC 98	09 DEC 98

ND = Not detected
NA = Not applicable

Reported By: Allan Wong

Approved By: Mei Lai

The cover letter is an integral part of this report.
Rev 230787



Nitroaromatics and Nitramines by LCMS
Method 8330M

Client Name: E.I. DuPont De Nemours Co.
Client ID: BAR-G-MW-3
LAB ID: 302917-0005-SA
Matrix: AQUEOUS
- Authorized: 04 DEC 98

Sampled: 03 DEC 98
Prepared: 09 DEC 98

Received: 04 DEC 98
Analyzed: 18 DEC 98

Dilution Factor: 1.0

Parameter	Result	Units	Reporting Limit	Qualifier
HMX	ND	ug/L	0.26	
1,3,5-Trinitrobenzene	ND	ug/L	0.26	
RDX	ND	ug/L	0.26	
1,3-Dinitrobenzene	0.023	ug/L	0.26	J
2,4,6-Trinitrotoluene	ND	ug/L	0.26	
Tetryl	ND	ug/L	0.26	
Nitrobenzene	ND	ug/L	0.26	
Nitroglycerin	ND	ug/L	0.50	
2,4-Dinitrotoluene	12	ug/L	0.26	
2-Am-DNT	0.24	ug/L	0.26	J
2,6-Dinitrotoluene	2.2	ug/L	0.26	
4-Am-DNT	0.24	ug/L	0.26	J
2- and 4-Nitrotoluene	0.25	ug/L	0.26	J
PETN	ND	ug/L	0.26	
3-Nitrotoluene	ND	ug/L	0.26	

Surrogate	Recovery	Acceptable Range
Nitrobenzene-d5	92.0 %	65 - 135

Note J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

- Reported By: Mike Filigenzi

Approved By: Karla Buechler

The cover letter is an integral part of this report.

Rev 230787



METALS

(Water - Total)

Client Name: E.I. DuPont De Nemours Co.

Client ID: BAR-G-MW-3

Lab ID: 302917-0005-SA

Matrix: AQUEOUS

Authorized: 04 DEC 98

Sampled: 03 DEC 98

Prepared: See Below

Received: 04 DEC 98

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Calcium	3.8	mg/L	5.0	6010B	09 DEC 98	10 DEC 98
Iron	37.3	mg/L	0.10	6010B	09 DEC 98	10 DEC 98
Magnesium		mg/L	5.0	6010B	09 DEC 98	10 DEC 98
Potassium	5.2	mg/L	5.0	6010B	09 DEC 98	10 DEC 98
Sodium	16.2	mg/L	5.0	6010B	09 DEC 98	10 DEC 98

ND= Not detected
NA = Not applicable

Reported By: Allan Wong

Approved By: Mei Lai

The cover letter is an integral part of this report.
Rev 230787



GENERAL INORGANICS

(Water)

Client Name: E.I. DuPont De Nemours Co.

Client ID: BAR-G-MW-3

Lab ID: 302917-0005-SA

Matrix: AQUEOUS

Authorized: 04 DEC 98

Sampled: 03 DEC 98

Prepared: See Below

Received: 04 DEC 98

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Bromide	ND	mg/L	0.50	300.0	NA	04 DEC 98
Chloride	4.8	mg/L	1.0	300.0	NA	04 DEC 98
Fluoride	ND	mg/L	0.50	300.0	NA	04 DEC 98
Nitrate (as N)	0.059	mg/L	0.050	300.0		04 DEC 98
Nitrite (as N)	ND	mg/L	0.050	300.0	NA	04 DEC 98
Sulfate	49.5	mg/L	3.0	300.0	NA	04 DEC 98

Note 0 : Reporting limit(s) raised due to high level of analyte present in sample.

ND = Not detected
NA = Not applicable

Reported By: Hamid Foolad

Approved By: Mark Frey

The cover letter is an integral part of this report.

Rev 230787



METALS

(Water - Dissolved)

Client Name: E.I. DuPont De Nemours Co.

Client ID: BAR-G-MW-3-DIS

Lab ID: 302917-0006-SA

Matrix: AQUEOUS

Authorized: 04 DEC 98

Sampled: 03 DEC 98

Prepared: See Below

Received: 04 DEC 98

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Iron	ND	mg/L	0.10	6010B	09 DEC 98	09 DEC 98

ND = Not detected
NA= Not applicable

Reported By: Allan Wong

Approved By: Mei Lai

The cover letter is an integral part of this report.

Rev 230787



Nitroaromatics and Nitramines by LCMS
Method 8330M

Client Name: E.I. DuPont De Nemours Co.
Client ID: BAR-G-MW-4
LAB ID: 302917-0007-SA
Matrix: AQUEOUS
- Authorized: 04 DEC 98

Sampled: 03 DEC 98
Prepared: 09 DEC 98

Received: 04 DEC 98
Analyzed: 18 DEC 98

Dilution Factor: 1.0

Parameter	Result	Units	Reporting Limit	Qualifier
HMX	ND	ug/L	0.26	
1,3,5-Trinitrobenzene	ND	ug/L	0.26	
RDX	ND	ug/L	0.26	
1,3-Dinitrobenzene	ND	ug/L	0.26	
2,4,6-Trinitrotoluene	ND	ug/L	0.26	
Tetryl	ND	ug/L	0.26	
Nitrobenzene	ND	ug/L	0.26	
Nitroglycerin	ND	ug/L	0.50	
2,4-Dinitrotoluene	ND	ug/L	0.26	
2-Am-DNT	ND	ug/L	0.26	
2,6-Dinitrotoluene	ND	ug/L	0.26	
4-Am-DNT	ND	ug/L	0.26	
2- and 4-Nitrotoluene	ND	ug/L	0.26	
PETN	ND	ug/L	0.26	
3-Nitrotoluene	ND	ug/L	0.26	

Surrogate	Recovery	Acceptable Range
- Nitrobenzene- d5	111 %	65 - 135

ND = Not Detected

- Reported By: Mike Filigenzi

Approved By: Karla Buechler

The cover letter is an integral part of this report.

Rev 230787



METALS

(Water - Total)

Client Name: E.I. DuPont De Nemours Co.
Client ID: BAR-G-MW-4
Lab ID: 302917-0007-SA
Matrix: AQUEOUS
Authorized: 04 DEC 98
Sampled: 03 DEC 98
Prepared: See Below
Received: 04 DEC 98
Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Calcium	40.3	mg/L	5.0	6010B	09 DEC 98	10 DEC 98
Iron	0.20	mg/L	5.00	6010B	09 DEC 98	10 DEC 98
Magnesium	10.7	mg/L	5.0	6010B	09 DEC 98	10 DEC 98
Potassium	ND	mg/L		6010B	09 DEC 98	10 DEC 98
Sodium	5.6	mg/L	5.0	6010B	09 DEC 98	10 DEC 98

ND = Not detected
NA = Not applicable

Reported By: Allan Wong

Approved By: Mei Lai

The cover letter is an integral part of this report.
Rev 230787



GENERAL INORGANICS

(Water)

Client Name: E.I. DuPont De Nemours Co.

Client ID: BAR-G-MW-4

Lab ID: 302917-0007-SA

Matrix: AQUEOUS

Authorized: 04 DEC 98

Sampled: 03 DEC 98

Prepared: See Below

Received: 04 DEC 98

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Bromide	ND	mg/L	0.50	300.0	NA	04 DEC 98
Chloride	1.5	mg/L	1.0	300.0	NA	04 DEC 98
Fluoride	ND	mg/L	0.50	300.0	NA	04 DEC 98
Nitrate (as N	0.17	mg/L	0.050	300.0	NA	04 DEC 98
Nitrite (as N	ND	mg/L	0.050	300.0	NA	04 DEC 98
Sulfate	22.8	mg/L	1.0	300.0	NA	04 DEC 98

ND = Not detected
NA = Not applicable

Reported By: Hamid Foolad

Approved By: Mark Frey

The cover letter is an integral part of this report.

Rev 230787



METALS

(Water - Dissolved)

Client Name: E.I. DuPont De Nemours Co.

Client ID: BAR-G-MW-4-DIS

Lab ID: 302917-0008-SA

Matrix: AQUEOUS

Authorized: 04 DEC 98

Sampled: 03 DEC 98

Prepared: See Below

Received: 04 DEC 98

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Iron	ND	mg/L	0.10	6010B	09 DEC 98	09 DEC 98

ND = Not detected

NA = Not applicable

Reported By: Allan Wong

Approved By: Mei Lai

The cover letter is an integral part of this report.

Rev 230787



Nitroaromatics and Nitramines by LCMS
Method 8330M

Client Name: E.I. DuPont De Nemours Co.
Client ID: BAR-G-MW-5
LAB ID: 302917-0009-SA
Matrix: AQUEOUS
Authorized: 04 DEC 98

Sampled: 03 DEC 98
Prepared: 09 DEC 98

Received: 04 DEC 98
Analyzed: 18 DEC 98

Dilution Factor: 1.0

Parameter	Result	Units	Reporting Limit	Qualifier
HMX	ND	ug/L	0.26	
1,3,5-Trinitrobenzene	ND	ug/L	0.26	
RDX	ND	ug/L	0.26	
1,3-Dinitrobenzene	ND	ug/L	0.26	
2,4,6-Trinitrotoluene	ND	ug/L	0.26	
Tetryl	ND	ug/L	0.26	
Nitrobenzene	ND	ug/L	0.26	
Nitroglycerin	ND	ug/L	0.50	
2,4-Dinitrotoluene	ND	ug/L	0.26	
2-Am-DNT	ND	ug/L	0.26	
2,6-Dinitrotoluene	ND	ug/L	0.26	
4-Am-DNT	ND	ug/L	0.26	
2- and 4-Nitrotoluene	ND	ug/L	0.26	
PETN	ND	ug/L	0.26	
3-Nitrotoluene	ND	ug/L	0.26	

Surrogate	Recovery	Acceptable Range
Nitrobenzene-d5	104 %	65 - 135

ND = Not Detected

Reported By: Mike Filigenzi

Approved By: Karla Buechler

The cover letter is an integral part of this report.

Rev 230787



METALS

(Water - Total)

Client Name: E.I. DuPont De Nemours Co.

Client ID: BAR-G-MW-5

Lab ID: 302917-0009-SA

Matrix: AQUEOUS

Authorized: 04 DEC 98

Sampled: 03 DEC 98

Prepared: See Below

Received: 04 DEC 98

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Calcium			5.0			
Iron	18.3	mg/L	0.10	6010B	09 DEC 98	10 DEC 98
	17.0	mg/L		6010B	09 DEC 98	10 DEC 98
Magnesium	7.9	mg/L	5.0	6010B	09 DEC 98	10 DEC 98
Potassium		mg/L	5.0	60108	09 DEC 98	10 DEC 98
Sodium	ND	mg/L	5.0	6010B	09 DEC 98	10 DEC 98

ND = Not detected
NA = Not applicable

Reported By: Allan Wong

Approved By: Mei Lai

The cover letter is an integral part of this report.

Rev 230787



GENERAL INORGANICS

(Water)

Client Name: E.I. DuPont De Nemours Co.

Client ID: BAR-G-MW-5

Lab ID: 302917-0009-SA

Matrix: AQUEOUS

Authorized: 04 DEC 98

Sampled: 03 DEC 98

Prepared: See Below

Received: 04 DEC 98

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Bromide	ND	mg/L	0.50	300.0	NA	04 DEC 98
	5.9	mg/L	1.0	300.0	NA	04 DEC 98
Chloride	0.60	mg/L	0.50	300.0		04 DEC 98
Nitrate (as N)	ND		0.050	300.0	NA	
Nitrite (as N)	ND	mg/L	0.050	300.0	NA	04 DEC 98
Sulfate	3.4	mg/L	1.0	300.0	NA	04 DEC 98

ND = Not detected
NA = Not applicable

Reported By: Hamid Foolad

Approved By: Mark Frey

The cover letter is an integral part of this report.

Rev 230787



METALS

(Water - Dissolved)

Client Name: E.I. DuPont De Nemours Co.

Client ID: BAR-G-MW-5-DIS

Lab ID: 302917-0010-SA

Matrix: AQUEOUS

Authorized: 04 DEC 98

Sampled: 03 DEC 98

Prepared: See Below

Received: 04 DEC 98

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Iron	ND	mg/L	0.10	6010B	09 DEC 98	09 DEC 98

ND = Not detected
NA = Not applicable

Reported By: Allan Wong

Approved By: Mei Lai

The cover letter is an integral part of this report.
Rev 230787



Nitroaromatics and Nitramines by LCMS
Method 8330M

Client Name: E. I. DuPont De Nemours Co.
Client ID: BAR-W-B1
LAB ID: 302917-0013-SA
Matrix: AQUEOUS
Authorized: 04 DEC 98

Sampled: 03 DEC 98
Prepared: 09 DEC 98

Received: 04 DEC 98
Analyzed: 18 DEC 98

Dilution Factor: 1.0

Parameter	Result	Units	Reporting Limit	Qualifier
HMX	ND	ug/L	0.26	
1,3,5-Trinitrobenzene	ND	ug/L	0.26	
RDX	ND	ug/L	0.26	
1,3-Dinitrobenzene	0.048	ug/L	0.26	J
2,4,6-Trinitrotoluene	0.20	ug/L	0.26	J
Tetryl	ND	ug/L	0.26	
Nitrobenzene	ND	ug/L	0.26	
Nitroglycerin	ND	ug/L	0.50	
2,4-Dinitrotoluene	0.90	ug/L	0.26	
2-Am-DNT	0.79	ug/L	0.26	
2,6-Dinitrotoluene	1.3	ug/L	0.26	
4-Am-DNT	1.4	ug/L	0.26	
2- and 4-Nitrotoluene	ND	ug/L	0.26	
1-ETN	ND	ug/L	0.26	
3-Nitrotoluene	ND	ug/L	0.26	

surrogate	Recovery	Acceptable Range
Nitrobenzene-d5	110 %	65 - 135

Note J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Reported By: Mike Filigenzi

Approved By: Karla Buechler

The cover letter is an integral part of this report.
Rev 230787



METALS

(Water - Total)

Client Name: E.I. DuPont De Nemours Co.

Client ID: BAR-W-B1

Lab ID: 302917-0013-SA

Matrix: AQUEOUS

Authorized: 04 DEC 98

Sampled: 03 DEC 98

Prepared: See Below

Received: 04 DEC 98

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Calcium	23.6	mg/L	5.0 0.10	6010B	09 DEC 98	10 DEC 98
Iron	2.6	mg/L	5.0	6010B	09 DEC 98	10 DEC 98
Magnesium	11.4	mg/L	5.0	6010B	09 DEC 98	10 DEC 98
Potassium	ND	mg/L		6010B	09 DEC 98	10 DEC 98
Sodium	ND	mg/L	5.0	6010B	09 DEC 98	10 DEC 98

ND = Not detected

NA = Not applicable

Reported By: Allan Wong

Approved By: Mei Lai

The cover letter is an integral part of this report.

Rev 230787



GENERAL INORGANICS

(Water)

Client Name: E.I. DuPont De Nemours Co.

Client ID: BAR-W-B1

Lab ID: BAR-W-B1

Matrix: 302917-0013-SA

Authorized: 04 DEC 98

Sampled: 03 DEC 98

Prepared: See Below

Received: 04 DEC 98

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Bromide	ND	mg/L	1.0	300.0	NA	04 DEC 98
Chloride	0.8	mg/L	0.50	300.0	NA	04 DEC 98
Nitrate (as N)	0.36	mg/L	0.050	300.0		04 DEC 98
Nitrite (as N)	ND				NA	
Sulfate	35.9	mg/L	0.050 2.0	300.0 300.0	NA	04 DEC 98 0

Note 0 : Reporting limit(s) raised due to high level of analyte present in sample.

ND = Not detected
NA = Not applicable

Reported By: Hamid Foolad

Approved By: Mark Frey

The cover letter is an integral part of this report.

Rev 230787



METALS

(Water - Dissolved)

Client Name: E.I. DuPont De Nemours Co.

Client ID: BAR-W-B1-DIS

Lab ID: 302917-0014-SA

Matrix: AQUEOUS

Authorized: 04 DEC 98

Sampled: 03 DEC 98

Prepared: See Below

Received: 04 DEC 98

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Iron	0.45	mg/L	0.10	6010B	09 DEC 98	09 DEC 98

ND = Not detected

NA = Not applicable

Reported By: Allan Wong

Approved By: Mei Lai

The cover letter is an integral part of this report.

Rev 230787



Nitroaromatics and Nitramines by LCMS
Method 8330M

Client Name: E. I. DuPont De Nemours Co.
Client ID: BAR-W-B3
LAB' ID: 302917-0015-SA
Matrix: AQUEOUS
Authorized: 04 DEC 98

Sampled: 03 DEC 98
Prepared: 09 DEC 98

Received: 04 DEC 98
Analyzed: 18 DEC 98

Dilution Factor: 1.0

Parameter	Result	Units	Reporting Limit	Qualifier
HMX	ND	ug/L	0.26	
1,3,5-Trinitrobenzene	ND	ug/L	0.26	
RDX	ND	ug/L	0.26	
1,3-Dinitrobenzene	0.078	ug/L	0.26	J
2,4,6-Trinitrotoluene	0.087	ug/L	0.26	J
Tetryl	ND	ug/L	0.26	
Nitrobenzene	ND	ug/L	0.26	
Nitroglycerin	ND	ug/L	0.50	
2,4-Dinitrotoluene	1.2	ug/L	0.26	
2-Am-DNT	0.87	ug/L	0.26	
2,6-Dinitrotoluene	1.7	ug/L	0.26	
4-Am-DNT	1.6	ug/L	0.26	
2- and 4-Nitrotoluene	0.17	ug/L	0.26	J
PETN	ND	ug/L	0.26	
3-Nitrotoluene	ND	ug/L	0.26	

Surrogate	Recovery	Acceptable Range
Nitrobenzene-d5	121 %	65 - 135

Note J = Result is detected below the reporting limit or is an estimated concentration.
ND = Not Detected

Reported By: Mike Fil igenzi

Approved By: Karla Buechler

The cover letter is an integral part of this report.

Rev 230787



METALS

(Water - Total)

Client Name: E.I. DuPont De Nemours Co.

Client ID: BAR-W-B3

Lab ID: 302917-0015-SA

Matrix: AQUEOUS

Authorized: 04 DEC 98

Sampled: 03 DEC 98

Prepared: See Below

Received: 04 DEC 98

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Calcium	24.9	mg/L	5.0	6010B	09 DEC 98	10 DEC 98
Iron	3.3	mg/L	0.10	6010B	09 DEC 98	10 DEC 98
Magnesium	12.7	mg/L	5.0	6010B	09 DEC 98	10 DEC 98
Potassium	ND	mg/L	5.0	6010B	09 DEC 98	10 DEC 98
Sodium	ND	mg/L	5.0	6010B	09 DEC 98	10 DEC 98

ND = Not detected
NA = Not applicable

Reported By: Allan Wong

Approved By: Mei Lai

The cover letter is an integral part of this report.
Rev 230787



GENERAL INORGANICS

(Water)

Client Name: E. I. DuPont De Nemours Co.

Client ID: BAR-W-B3

Lab ID: 302917-0015-SA

Matrix: AQUEOUS

Authorized: 04 DEC 98

Sampled: 03 DEC 98

Prepared: See Below

Received: 04 DEC 98

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Bromide	ND	mg/L	0.50	300.0	NA	04 DEC 98
Chloride	7.5	mg/L	1.0	300.0	NA	04 DEC 98
Fluoride	ND	mg/L	1.0	300.0	NA	04 DEC 98
Nitrate (as N)	0.32	mg/L	0.050	300.0	NA	04 DEC 98
Nitrite (as N)	ND	mg/L	0.050	300.0	NA	04 DEC 98
Sulfate	42.8	mg/L	2.0	300.0	NA	04 DEC 98

Note o : Reporting limit(s) raised due to high level of analyte present in sample.

ND = Not detected

NA = Not applicable

Reported By: Hamid Foolad

Approved By: Mark Frey

The cover letter is an integral part of this report.

Rev 230787



METALS

(Water - Dissolved)

Client Name: E. I. DuPont De Nemours Co.

Client ID: BAR-W-B3-DIS

Lab ID: 302917-0016-SA

Matrix: AQUEOUS

Authorized: 04 DEC 98

Sampled: 03 DEC 98

Prepared: See Below

Received: 04 DEC 98

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Iron	0.89	mg/L	0.10	6010B	09 DEC 98	09 DEC 98

ND = Not detected

NA = Not applicable

Reported By: Allan Wong

Approved By: Mei Lai

The cover letter is an integral part of this report.

Rev 230787



Nitroaromatics and Nitramines by LCMS
Method 8330M

Client Name: E.I. DuPont De Nemours Co.
Client ID: BAR-W-B6
LAB ID: 302917-0017-SA
Matrix: AQUEOUS
Authorized: 04 DEC 98

Sampled: 03 DEC 98
Prepared: 09 DEC 98

Received: 04 DEC 98
Analyzed: 18 DEC 98

Dilution Factor: 1.0

Parameter	Result	Units	Reporting Limit	Qualifier
HMX	ND	ug/L	0.26	
1,3,5-Trinitrobenzene	ND	ug/L	0.26	
RDX	ND	ug/L	0.26	
1,3-Dinitrobenzene	ND	ug/L	0.26	
2,4,6-Trinitrotoluene	ND	ug/L	0.26	
Tetryl	ND	ug/L	0.26	
Nitrobenzene	ND	ug/L	0.26	
Nitroglycerin	ND	ug/L	0.50	
2,4-Dinitrotoluene	ND	ug/L	0.26	
2-Am-DNT	ND	ug/L	0.26	
2,6-Dinitrotoluene	ND	ug/L	0.26	
4-Am-DNT	ND	ug/L	0.26	
2- and 4-Nitrotoluene	ND	ug/L	0.26	
PETN	ND	ug/L	0.26	
3-Nitrotoluene	ND	ug/L	0.26	

Surrogate	Recovery	Acceptable Range
Nitrobenzene-d5	107 %	65 - 135

ND = Not Detected

Reported By: Mike Filigenzi

Approved By: Karla Buechler

The cover letter is an integral part of this report.

Rev 230787



METALS

(Water - Total)

Client Name: E. I. DuPont De Nemours Co.

Client ID: BAR-W-B6

Lab ID: 302917-0017-SA

Matrix: AQUEOUS

Authorized: 04 DEC 98

Sampled: 03 DEC 98

Prepared: See Below

Received: 04 DEC 98

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Calcium	10.9	mg/L	5.0	6010B	09 DEC 98	10 DEC 98
Iron	4.4	mg/L	0.10	6010B	09 DEC 98	10 DEC 98
Magnesium	ND	mg/L	5.0	6010B	09 DEC 98	10 DEC 98
Potassium	ND	mg/L	5.0	6010B	09 DEC 98	10 DEC 98
Sodium	ND	mg/L	5.0	6010B	09 DEC 98	10 DEC 98

ND = Not detected

NA = Not applicable

Reported By: Allan Wong

Approved By: Mei Lai

The cover letter is an integral part of this report.

Rev 230787



GENERAL INORGANICS

(Water)

Client Name: E. I. DuPont De Nemours Co.

Client ID: BAR-W-B6

Lab ID: 302917-0017-SA

Matrix: AQUEOUS

Authorized: 04 DEC 98

Sampled: 03 DEC 98

Prepared: See Below

Received: 04 DEC 98

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Bromide	ND	mg/L	0.50	300.0	NA	04 DEC 98
Chloride	6.6	mg/L	1.0	300.0	NA	04 DEC 98
Fluoride	ND	mg/L	0.50	300.0	NA	04 DEC 98
Nitrate (as N)	0.064	mg/L	0.050	300.0	NA	04 DEC 98
Nitrite (as N)	ND	mg/L	0.050	300.0	NA	04 DEC 98
Sulfate	8.7	mg/L	1.0	300.0	NA	04 DEC 98

ND = Not detected

NA = Not applicable

Reported By: Hamid Foolad

Approved By: Mark Frey

The cover letter is an integral part of this report.

Rev 230787



METALS

(Water - Dissolved)

Client Name: E.I. DuPont De Nemours Co.

Client ID: BAR-W-BG-DIS

Lab ID: 302917-0018-SA

Matrix: AQUEOUS

Authorized: 04 DEC 98

Sampled: 03 DEC 98

Prepared: See Below

Received: 04 DEC 98

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Iron	0.66	mg/L	0.10	6010B	09 DEC 98	09 DEC 98

ND = Not detected
NA = Not applicable

Reported By: Allan Wong

Approved By: Mei Lai

The cover letter is an integral part of this report.
Rev 230787



Nitroaromatics and Nitramines by LCMS
Method 8330M

- Client Name: E.I. DuPont De Nemours Co.
Client ID: BAR-W-B8
LAB ID: 302917-0019-SA
Matrix: AQUEOUS
- Authorized: 04 DEC 98

Sampled: 03 DEC 98
Prepared: 09 DEC 98

Received: 04 DEC 98
Analyzed: 18 DEC 98

Dilution Factor: 1.0

Parameter	Result	Units	Reporting Limit	Qualifier
HMX	ND	ug/L	0.26	
- 1,3,5-Trinitrobenzene	ND	ug/L	0.26	
RDX	ND	ug/L	0.26	
1,3-Dinitrobenzene	ND	ug/L	0.26	
- 2,4,6-Trinitrotoluene	0.26	ug/L	0.26	
Tetryl	ND	ug/L	0.26	
Nitrobenzene	ND	ug/L	0.26	
Nitroglycerin	ND	ug/L	0.50	
- 2,4-Dinitrotoluene	0.31	ug/L	0.26	
2-Am- DNT	0.51	ug/L	0.26	
2,6-Dinitrotoluene	0.32	ug/L	0.26	
4-Am- DNT	1.1	ug/L	0.26	
- 2- and 4- Nitrotoluene	ND	ug/L	0.26	
PETN	ND	ug/L	0.26	
3- Nitrotoluene	ND	ug/L	0.26	

Surrogate	Recovery	Acceptable Range
- Nitrobenzene-d5	113 %	65 - 135

ND = Not Detected

"Reported By: Mike Filigenzi

Approved By: Karla Buechler

The cover letter is an integral part of this report.

Rev 230787



METALS

(Water - Total)

Client Name: E.I. DuPont De Nemours Co.

Client ID: BAR-W-B8

Lab ID: 302917-0019-SA

Matrix: AQUEOUS

Authorized: 04 DEC 98

Sampled: 03 DEC 98

Prepared: See Below

Received: 04 DEC 98

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Calcium	8.1	mg/L	5.0	6010B	09 DEC 98	10 DEC 98
Iron	4.2	mg/L	0.10	6010B	09 DEC 98	10 DEC 98
Magnesium	ND	mg/L	5.0	6010B	09 DEC 98	10 DEC 98
Potassium	ND	mg/L	5.0	6010B	09 DEC 98	10 DEC 98
Sodium	ND	mg/L	5.0	6010B	09 DEC 98	10 DEC 98

ND = Not detected

NA = Not applicable

Reported By: Allan Wong

Approved By: Mei Lai

The cover letter is an integral part of this report.

Rev 230787



GENERAL INORGANICS

(Water)

Client Name: E.I. DuPont De Nemours Co.

Client ID: BAR-W-B8

Lab ID: 302917-0019-SA

Matrix: AQUEOUS

Authorized: 04 DEC 98

Sampled: 03 DEC 98

Prepared: See Below

Received: 04 DEC 98

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Bromide	ND	mg/L	0.50	300.0	NA	04 DEC 98
Chloride	5.6	mg/L	1.0	300.0	NA	04 DEC 98
Fluoride	ND	mg/L	0.50	300.0	NA	04 DEC 98
Nitrate (as N	0.061	mg/L	0.050	300.0	NA	04 DEC 98
Nitrite (as N)	ND	mg/L	0.050	300.0	NA	04 DEC 98
Sulfate	7.6	mg/L	1.0	300.0	NA	04 DEC 98

ND = Not detected
NA = Not applicable

Reported By: Hamid Foolad

Approved By: Mark Frey

The cover letter is an integral part of this report.

Rev 230787



METALS

(Water - Dissolved)

Client Name: E. I. DuPont De Nemours Co.

Client ID: BAR-W-B8-DIS

Lab ID: 302917-0020-SA

Matrix: AQUEOUS

Authorized: 04 DEC 98

Sampled: 03 DEC 98

Prepared: See Below

Received: 04 DEC 98

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Iron	0.55	mg/L	0.10	6010B	09 DEC 98	09 DEC 98

ND = Not detected
NA = Not applicable

Reported By: Allan Wong

Approved By: Mei Lai

The cover letter is an integral part of this report.
Rev 230787



GENERAL INORGANICS.

(Water)

Client Name: E.I. DuPont De Nemours Co.

Client ID: BAR-G-CX533-INFLOW-DUP

Lab ID: 303014-0003-SA

Matrix: AQUEOUS

Sampled: 04 DEC 98

Received: 05 DEC 98

Authorized: 05 DEC 98

Prepared: See Below

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date	Dilution
Nitrate (as N)	1.9	mg/L	0.050	300.0	NA	05 DEC 98	1.0
Nitrite (as N)	ND	mg/L	0.050	300.0	HA	05 DEC 98	1.0

ND = Not detected

NA = Not applicable

Reported By: Hamid Foolad

Approved By: Josefina Jones

The cover letter is an integral part of this report.

Rev 230787



Nitroaromatics and Nitramines by LCMS
Method 8330M

Client Name: E. I. DuPont De Nemours Co.
Client ID: BAR-G-MW-5-DUP
LAB. ID: 302917-0011-SA
Matrix: AQUEOUS
Authorized: 04 DEC 98

Sampled: 03 DEC 98
Prepared: 09 DEC 98

Received: 04 DEC 98
Analyzed: 18 DEC 98

Dilution Factor: 1.0

Parameter	Result	Units	Reporting Limit	Qualifier
HMX	ND	ug/L	0.26	
1,3,5-Trinitrobenzene	ND	ug/L	0.26	
RDX	ND	ug/L	0.26	
1,3-Dinitrobenzene	ND	ug/L	0.26	
2,4,6-Trinitrotoluene	ND	ug/L	0.26	
Tetryl	ND	ug/L	0.26	
Nitrobenzene	ND	ug/L	0.26	
Nitroglycerin	ND	ug/L	0.50	
2,4-Dinitrotoluene	ND	ug/L	0.26	
2-Am-DNT	ND	ug/L	0.26	
2,6-Dinitrotoluene	ND	ug/L	0.26	
4-Am-DNT	ND	ug/L	0.26	
2- and 4-Nitrotoluene	ND	ug/L	0.26	
PETN	ND	ug/L	0.26	
3-Nitrotoluene	ND	ug/L	0.26	

Surrogate	Recovery	Acceptable Range
Nitrobenzene-d5	111 %	65 - 135

ND = Not Detected

Reported By: Mike Filigenzi

Approved By: Karla Buechler

The cover letter is an integral part of this report.
Rev 230787



Nitroaromatics and Nitramines by LCMS
Method 8330M

Client Name: E. I. DuPont De Nemours Co.
Client ID: BAR-G-CX533-INFLOW-DUP
LAB ID: 302917-0025-SA
Matrix: AQUEOUS
Authorized: 04 DEC 98

Sampled: 02 DEC 98
Prepared: 09 DEC 98

Received: 04 DEC 98
Analyzed: 18 DEC 98

Dilution Factor: 1.0

Parameter	Result	Units	Reporting Limit	Qualifier
HMX	ND	ug/L	0.26	
1,3,5-Trinitrobenzene	ND	ug/L	0.26	
RDX	ND	ug/L	0.26	
1,3-Dinitrobenzene	ND	ug/L	0.26	
2,4,6-Trinitrotoluene	ND	ug/L	0.26	
Tetryl	ND	ug/L	0.26	
Nitrobenzene	ND	ug/L	0.26	
Nitroglycerin	ND	ug/L	0.50	
2,4-Dinitrotoluene	0.15	ug/L	0.26	J
2-Am-DNT	0.48	ug/L	0.26	
2,6-Dinitrotoluene	1.7	ug/L	0.26	
4-Am-DNT	0.50	ug/L	0.26	
2- and 4-Nitrotoluene	ND	ug/L	0.26	
2,4,6-ETN	ND	ug/L	0.26	
3-Nitrotoluene	ND	ug/L	0.26	

Surrogate	Recovery	Acceptable Range	
Nitrobenzene-d5	144 %	65 - 135	i

Note i = Surrogate recovery is outside of control limits.

Note J = Result is detected below the reporting limit or is an estimated concentration.

ID = Not Detected

Reported By: Mike Filigenzi

Approved By: Karla Buechler

The cover letter is an integral part of this report.

Rev 230787



Nitroaromatics and Nitramines by LCMS
Method 8330M

Client Name: E. I. DuPont De Nemours Co.
Client ID: BAR-G-CX533-SYSTEM
LAB ID: 302917-0027-SA
Matrix: AQUEOUS
Authorized: 04 DEC 98

Sampled: 02 DEC 98
Prepared: 09 DEC 98

Received: 04 DEC 98
Analyzed: 18 DEC 98

Dilution Factor: 1.0

Parameter	Result	Units	Reporting Limit	Qualifier
HMX	ND	ug/L	0.26	
1,3,5-Trinitrobenzene	ND	ug/L	0.26	
RDX	ND	ug/L	0.26	
1,3-Dinitrobenzene	ND	ug/L	0.26	
2,4,6-Trinitrotoluene	ND	ug/L	0.26	
Tetryl	ND	ug/L	0.26	
Nitrobenzene	ND	ug/L	0.26	
Nitroglycerin	ND	ug/L	0.50	
2,4-Dinitrotoluene	ND	ug/L	0.26	
2-Am-DNT	ND	ug/L	0.26	
2,6-Dinitrotoluene	ND	ug/L	0.26	
4-Am-DNT	ND	ug/L	0.26	
2- and 4-Nitrotoluene	ND	ug/L	0.26	
NETN	ND	ug/L	0.26	
3-Nitrotoluene	ND	ug/L	0.26	

Surrogate	Recovery	Acceptable Range
Nitrobenzene- d5	121 %	65 - 135

ND = Not Detected

Reported By: Mike Filigenzi

Approved By: Karla Buechler

The cover letter is an integral part of this report.

Rev 230787



Nitroaromatics and Nitramines by LCMS
Method 8330M

Client Name: E. I. DuPont De Nemours Co.
 - Client ID: BAR-G-CX533-EFFLUENT
 LAB ID: 302917-0029-SA
 Matrix: AQUEOUS
 - Authorized: 04 DEC 98

Sampled: 02 DEC 98
 Prepared: 09 DEC 98

Received: 04 DEC 98
 Analyzed: 18 DEC 98

Dilution Factor: 1.0

-Parameter	Result	Units	Reporting Limit	Qualifier
HMX	ND	ug/L	0.26	
-1,3,5-Trinitrobenzene	ND	ug/L	0.26	
RDX	ND	ug/L	0.26	
1,3-Dinitrobenzene	ND	ug/L	0.26	
2,4,6-Trinitrotoluene	ND	ug/L	0.26	
-Tetryl	ND	ug/L	0.26	
Nitrobenzene	ND	ug/L	0.26	
Nitroglycerin	ND	ug/L	0.50	
-2,4-Dinitrotoluene	ND	ug/L	0.26	
-2-Am-DNT	ND	ug/L	0.26	
2,6-Dinitrotoluene	ND	ug/L	0.26	
4-Am-DNT	ND	ug/L	0.26	
-2- and 4-Nitrotoluene	ND	ug/L	0.26	
PETN	ND	ug/L	0.26	
3-Nitrotoluene	ND	ug/L	0.26	

Surrogate	Recovery	Acceptable Range
Nitrobenzene-d5	116 %	65 - 135

ND = Not Detected

- Reported By: Mike Filigenzi

Approved By: Karla Buechler

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Rev 230787

Explosives - Method 8321



QC LOT ASSIGNMENT REPORT - MS QC
Special Services - LC or GC Mass Spectrometry

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (BLANK/LCS)	MS QC Run Number (SA, MS, SD, DU)
302917-0001-SA	AQUEOUS	8321-LOW-A		09 DEC 98-7A	09 DEC 98-7A
302917-0003-SA	AQUEOUS	8321-LOW-A		09 DEC 98-7A	09 DEC 98-7A
302917-0005-SA	AQUEOUS	8321-LOW-A		09 DEC 98-7A	09 DEC 98-7A
302917-0007-SA	AQUEOUS	8321-LOW-A		09 DEC 98-7A	09 DEC 98-7A
302917-0009-SA	AQUEOUS	8321-LOW-A		09 DEC 98-7A	09 DEC 98-7A
302917-0011-SA	AQUEOUS	8321-LOW-A		09 DEC 98-7A	09 DEC 98-7A
302917-0013-SA	AQUEOUS	8321-LOW-A		09 DEC 98-7A	09 DEC 98-7A
302917-0015-SA	AQUEOUS	8321-LOW-A		09 DEC 98-7A	09 DEC 98-7A
302917-0017-SA	AQUEOUS	8321-LOW-A		09 DEC 98-7A	09 DEC 98-7A
302917-0019-SA	AQUEOUS	8321-LOW-A		09 DEC 98-7A	09 DEC 98-7A
302917-0021-SA	AQUEOUS	8321-LOW-A		09 DEC 98-7A	09 DEC 98-7A
302917-0023-SA	AQUEOUS	8321-LOW-A		09 DEC 98-7A	09 DEC 98-7A
302917-0023-MS	AQUEOUS	8321-LOW-A		09 DEC 98-7A	09 DEC 98-7A
302917-0023-SD	AQUEOUS	8321-LOW-A		09 DEC 98-7A	09 DEC 98-7A
302917-0025-SA	AQUEOUS	8321-LOW-A		09 DEC 98-7A	09 DEC 98-7A
302917-0027-SA	AQUEOUS	8321-LOW-A		09 DEC 98-7A	09 DEC 98-7A
302917-0029-SA	AQUEOUS	8321-LOW-A		09 DEC 98-7A	09 DEC 98-7A
302917-0031-SA	AQUEOUS	8321-LOW-A		09 DEC 98-7A	09 DEC 98-7A



METHOD BLANK REPORT

Special Services - LC or GC Mass Spectrometry
Project: 302917

Test : 8321-EXP-LOW-A
Method: 8330M
Matrix: AQUEOUS
QC Lot: 09 DEC 98-7A
Analyzed: 18 DEC 98

Nitroaromatics and Nitramines by LCMS

QC Run: 15:10 DEC 98-7A
Time

Analyte	Result	Units	Reporting Limit	Qualifier
HMX	ND			
1,3,5-Trinitrobenzene	ND	ug/L	0.26 0.26	
RDX	ND	ug/L	0.26	
1,3-Dinitrobenzene		ug/L	0.26	
2,4,6-Trinitrotoluene	ND	ug/L	0.26	
Tetryl	ND	ug/L	0.26	
Nitrobenzene	ND			
Nitroglycerin	ND	ug/L	0.26 0.50	
2,4-Dinitrotoluene	ND	ug/L	0.26	
2-Am-DNT	ND			
2,6-Dinitrotoluene	ND	ug/L	0.26 0.26	
4-Am-DNT	ND	ug/L	0.26	
2- and 4-Nitrotoluene	ND			
PETN	ND	ug/L	0.26 0.26	
3-Nitrotoluene	ND	ug/L	0.26	

Surrogate	% Recovery	Acceptable Range
Nitrobenzene-d5	110	65 -135

ND = Not Detected



LABORATORY CONTROL SAMPLE REPORT
Special Services - LC or GC Mass Spectrometry
Project:302917

Category: 8321-LOW-A Explosives by LCMS

Testcode: 8321-EXP-LOW-A

Matrix: AQUEOUS

QC Lot: 09 DEC 98-7A

Analyzed Date: 18 DEC 98 Time: 15:37

Method: 8330M

Concentration Units: ug/L

QC Run: 09 DEC 98-7A

Analyte	-----Concentration-----		Accuracy(%)	
	Spi ked	Meas ured	LCS	Li mi ts
MX	0.500	0.807	161	65-135 #
1,3,5-Trinitrobenzene	0.500	0.464	93	65-135
RDX	0.500	0.702	140	65-135 #
1,3-Dinitrobenzene	0.500	0.526	105	65-135
2,4,6-Trinitrotoluene	0.500	0.534	107	65-135
Tetryl	0.500	0.467	93	65-135
Nitrobenzene	0.500	0.557	111	65-135
Nitroglycerin	2.60	2.49	96	65-135
2,4-Dinitrotoluene	0.500	0.545	109	65-135
2-Am-DNT	0.500	0.518	104	65-135
2,6-Dinitrotoluene	0.500	0.588	118	65-135
4-Am-DNT	0.500	0.547	109	65-135
2- and 4-Nitrotoluene	1.00	1.16	116	65-135
PETN	1.30	1.30	100	65-135
3-Nitrotoluene	0.500	0.520	104	65-135

Surrogate	-----Concentration-----		Accuracy(%)	
	Spi ked	Meas ured	LCS	Li mi ts
Nitrobenzene- d5	2.60	2.79	107	65-135

Calculations are performed before rounding to avoid round-off errors in calculated results.



MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
 Special Services - LC or GC Mass Spectrometry
 Project: 302917

Category: 8321-LOW-A Explosives by LCMS
 Test : 8321-EXP-LOW-A
 Matrix : AQUEOUS
 Sample : 302917-0023
 IS Run : 09 DEC 98-7A
 Units : ug/L

Method: 8330M

Analyte	Sample Result	Concentration		Amount Spiked		%Recovery		%RPD	Acceptance Limit	
		MS Result	MSD Result	MS	MSD	MS	MSD		Recov.	RPD
AMX	ND	0.802	0.483	0.500	0.500	160	97	50	65-135	35
1,5-										
1,3-Dinitrobenzene	ND		0.437	0.500	0.500	109	87	22	65-135	35
2,4-Dinitrobenzene	ND	0.546 0.618	0.404	0.500	0.500	124	81	42	65-135	35
1,3-Dinitrobenzene	ND	0.537	0.503	0.500	0.500	107	101	6.5	65-135	35
2,6-										
2,4-Dinitrotoluene	ND		0.431	0.500	0.500	112	86	26	65-135	35
2,4-Dinitrotoluene	ND	0.558 0.512	0.334	0.500	0.500	102	67	42	65-135	35
2,4-Dinitrotoluene	ND	0.594	0.656	0.500	0.500	119	131	9.9	65-135	35
2,4-Dinitrotoluene	ND	2.84	2.18	2.60	2.60	109	84	26	65-135	35
2,4-Dinitrotoluene	0.173 J	0.897	0.910	0.500	0.500	145	147	1.4	65-135	35
2,4-Dinitrotoluene		1.4	1.4	0.50	0.50	177	176	0.36	65-135	35
2,4-Dinitrotoluene	0.48	2.51	2.38	0.500	0.500	190	164	5.3	65-135	35
2,4-Dinitrotoluene	0.56	1.3	1.3	0.50	0.50	156	141	6.0	65-135	35
2,4-Dinitrotoluene										
2,4-Dinitrotoluene	ND	1.29	1.30	1.00	1.00	129	130	0.54	65-135	35
2,4-Dinitrotoluene	ND	0.134	0.991	1.30	1.30	103	76	30	65-135	35
2,4-Dinitrotoluene			0.647	0.500	0.500	123	129	4.8	65-135	35

Substrates	Sample %Recovery	%Recovery MS	%Recovery MSD	Acceptance Limit Recovery
Vitrobenzene-d5	119	127	135	65-135

J = Result is detected below the reporting limit or is an estimated concentration.
 ND = Not Detected

Calculations are performed before rounding to avoid round-off errors in calculated results.

Selected Metals - Method 6010B



METALS

(Water - Dissolved)

Client Name: E.I. DuPont De Nemours Co.

Client ID: BAR-G-MW-5-DUP-DIS

Lab ID: 302917-0012-SA

Matrix: AQUEOUS

Authorized: 04 DEC 98

Sampled: 03 DEC 98

Prepared: See Below

Received: 04 DEC 98

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Iron	ND	mg/L	0.10	6010B	09 DEC 98	09 DEC 98

ND = Not detected
NA = Not applicable

Reported By: Allan Wong

Approved By: Mei Lai

The cover letter is an integral part of this report.
Rev 230787



METALS

(Water - Dissolved)

Client Name: E.I. DuPont De Nemours Co.

Client ID: BAR-G-CX533-INFLOW-DUP-DIS

Lab ID: 302917-0026-SA

Matrix: AQUEOUS

Authorized: 04 DEC 98

Sampled: 02 DEC 98

Prepared: See Below

Received: 04 DEC 98

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Calcium	40.9	mg/L	5.0 0.10	6010B	09 DEC 98	09 DEC 98
Iron	ND	mg/L		6010B	09 DEC 98	09 DEC 98
Magnesium	16.6	mg/L	5.0	6010B	09 DEC 98	09 DEC 98
Potassium	ND	mg/L	5.0	6010B	09 DEC 98	09 DEC 98
Sodium	8.3	mg/L	5.0	6010B	09 DEC 98	09 DEC 98

ND = Not detected

NA = Not applicable

Reported By: Allan Wong

Approved By: Mei Lai

The cover letter is an integral part of this report.

Rev 230787



METALS

(Water - Dissolved)

Client Name: E.I. DuPont De Nemours Co.

Client ID: BAR-G-CX533-SYSTEM-DIS

Lab ID: 302917-0028-SA

Matrix: AQUEOUS

Sampled: 02 DEC 98

Received: 04 DEC 98

Authorized: 04 DEC 98

Prepared: See Below

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Calcium	36.8	mg/L	5.0 0.10	6010B	09 DEC 98	09 DEC 98
Iron	ND	mg/L		6010B	09 DEC 98	09 DEC 98
Magnesium	14.7	mg/L	5.0	6010B	09 DEC 98	09 DEC 98
Potassium	ND	mg/L	5.0	6010B	09 DEC 98	09 DEC 98
Sodium	7.0	mg/L	5.0	6010B	09 DEC 98	09 DEC 98

ND = Not detected
NA = Not applicable

Reported By: Allan Wong

Approved By: Mei Lai

The cover letter is an integral part of this report.
Rev 230787



METALS

(Water - Dissolved)

Client Name: E. I. DuPont De Nemours Co.

Client ID: BAR-G-CX533-EFFLUENT-DIS

Lab ID: 302917-0030-SA

Matrix: AQUEOUS

Sampled: 02 DEC 98

Received: 04 DEC 98

Authorized: 04 DEC 98

Prepared: See Below

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Calcium	36.3	mg/L	5.0	6010B	09 DEC 98	09 DEC 98
Iron	ND	mg/L	0.10	6010B	09 DEC 98	09 DEC 98
Magnesium	14.5	mg/L	5.0	6010B	09 DEC 98	09 DEC 98
Potassium	ND	mg/L	5.0	6010B	09 DEC 98	09 DEC 98
Sodium	6.7	mg/L	5.0	6010B	09 DEC 98	09 DEC 98

ND = Not detected

NA = Not applicable

Reported By: Allan Wong

Approved By: Mei Lai

The cover letter is an integral part of this report.

Rev 230787



METALS

(Water - Total)

Client Name: E.I. DuPont De Nemours Co.

Client ID: BAR-G-MW-5-DUP

Lab ID: 302917-0011-SA

Matrix: AQUEOUS

Authorized: 04 DEC 98

Sampled: 03 DEC 98

Prepared: See Below

Received: 04 DEC 98

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Calcium	18.4	mg/L	5.0	6010B	09 DEC 98	10 DEC 98
Iron	13.7	mg/L	0.10	6010B	09 DEC 98	10 DEC 98
Magnesium	7.0	mg/L	5.0	6010B	09 DEC 98	10 DEC 98
Potassium	7.4	mg/L	5.0	6010B	09 DEC 98	10 DEC 98
Sodium	ND'	mg/L	5.0	6010B	09 DEC 98	10 DEC 98

ND = Not detected

NA = Not applicable

Reported By: Allan Wong

Approved By: Mei Lai

The cover letter is an integral part of this report.

Rev 230787



METALS

(Water - Total)

Client Name: E.I. DuPont De Nemours Co.

Client ID: BAR-G-CX533-INFLOW-DUP

Lab ID: 302917-0025-SA

Matrix: AQUEOUS

Authorized: 04 DEC 98

Sampled: 02 DEC 98

Prepared: See Below

Received: 04 DEC 98

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Calcium	39.3	mg/L	5.0 0.10	6010B	09 DEC 98	10 DEC 98
Iron	ND	mg/L	5.0	6010B	09 DEC 98	10 DEC 98
Magnesium	15.3	mg/L	5.0	6010B	09 DEC 98	10 DEC 98
Potassium	ND		5.0	6010B	09 DEC 98	10 DEC 98
Sodium	8.0	mg/L	5.0	6010B	09 DEC 98	10 DEC 98

ND = Not detected
NA = Not applicable

Reported By: Allan Wong

Approved By: Mei Lai

The cover letter is an integral part of this report.
Rev 230787



METALS

(Water - Total)

Client Name: E. I. DuPont De Nemours Co.
Client ID: BAR-G-CX533-SYSTEM
Lab ID: 302917-0027-SA
Matrix: AQUEOUS
Authorized: 04 DEC 98
Sampled: 02 DEC 98
Prepared: See Below
Received: 04 DEC 98
Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Calcium	38.8	mg/L	5.0 0.10	6010B	09 DEC 98	10 DEC 98
Iron	ND	mg/L		6010B	09 DEC 98	10 DEC 98
Magnesium	15.7	mg/L	5.0	6010B	09 DEC 98	10 DEC 98
Potassium	ND	mg/L	5.0	6010B	09 DEC 98	10 DEC 98
Sodium	8.6	mg/L	5.0	6010B	09 DEC 98	10 DEC 98

ND = Not detected
NA = Not applicable

Reported By: Allan Wong

Approved By: Mei Lai

The cover letter is an integral part of this report.

Rev 230787



METALS

(Water - Total)

Client Name: E. I. DuPont De Nemours Co.
Client ID: BAR-G-CX533-EFFLUENT
Lab ID: 302917-0029-SA
Matrix: AQUEOUS
Authorized: 04 DEC 98
Sampled: 02 DEC 98
Prepared: See Below
Received: 04 DEC 98
Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Calcium	35.0	mg/L	5.0 0.10	60108	09 DEC 98	10 DEC 98
Iron	ND	mg/L		6010B	09 DEC 98	10 DEC 98
Magnesium	13.6	mg/L	5.0	6010B	09 DEC 98	10 DEC 98
Potassium	ND	mg/L	5.0	6010B	09 DEC 98	10 DEC 98
Sodium	6.9	mg/L	5.0	6010B	09 DEC 98	10 DEC 98

ND = Not detected
NA = Not applicable

Reported By: Allan Wong

Approved By: Mei Lai

The cover letter is an integral part of this report.
Rev 230787



QC LOT ASSIGNMENT REPORT - MS QC
Metals Analysis and Preparation

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (BLANK/LCS)	MS QC Run Number (SA,MS,SD,DU)
302917-0001-SA	AQUEOUS	ICP-AT		09 DEC 98-S	09 DEC 98-S
302917-0003-SA	AQUEOUS	ICP-AT		09 DEC 98-S	09 DEC 98-S
302917-0005-SA	AQUEOUS	ICP-AT		09 DEC 98-S	09 DEC 98-S
302917-0007-SA	AQUEOUS	ICP-AT		09 DEC 98-S	09 DEC 98-S
302917-0009-SA	AQUEOUS	ICP-AT		09 DEC 98-S	09 DEC 98-S
302917-0011-SA	AQUEOUS	ICP-AT		09 DEC 98-S	09 DEC 98-S
302917-0013-SA	AQUEOUS	ICP-AT		09 DEC 98-S	09 DEC 98-S
302917-0015-SA	AQUEOUS	ICP-AT		09 DEC 98-S	09 DEC 98-S
302917-0017-SA	AQUEOUS	ICP-AT		09 DEC 98-S	09 DEC 98-S
302917-0019-SA	AQUEOUS	ICP-AT		09 DEC 98-S	09 DEC 98-S
302917-0021-SA	AQUEOUS	ICP-AT		09 DEC 98-S	09 DEC 98-S
302917-0023-SA	AQUEOUS	ICP-AT		09 DEC 98-S	09 DEC 98-S
302917-0023-MS	AQUEOUS	ICP-AT		09 DEC 98-S	09 DEC 98-S
302917-0023-SD	AQUEOUS	ICP-AT		09 DEC 98-S	09 DEC 98-S
302917-0025-SA	AQUEOUS	ICP-AT		09 DEC 98-S	09 DEC 98-S
302917-0027-SA	AQUEOUS	ICP-AT		09 DEC 98-S	09 DEC 98-S
302917-0029-SA	AQUEOUS	ICP-AT		09 DEC 98-S	09 DEC 98-S
302917-0031-SA	AQUEOUS	ICP-AT		09 DEC 98-S	09 DEC 98-S
302917-0002-SA	AQUEOUS	ICP-AD		09 DEC 98-E	09 DEC 98-E
302917-0004-SA	AQUEOUS	ICP-AD		09 DEC 98-E	09 DEC 98-E
302917-0006-SA	AQUEOUS	ICP-AD		09 DEC 98-E	09 DEC 98-E
302917-0008-SA	AQUEOUS	ICP-AD		09 DEC 98-E	09 DEC 98-E
302917-0010-SA	AQUEOUS	ICP-AD		09 DEC 98-E	09 DEC 98-E
302917-0012-SA	AQUEOUS	ICP-AD		09 DEC 98-E	09 DEC 98-E
302917-0014-SA	AQUEOUS	ICP-AD		09 DEC 98-E	09 DEC 98-E
302917-0016-SA	AQUEOUS	ICP-AD		09 DEC 98-E	09 DEC 98-E
302917-0018-SA	AQUEOUS	ICP-AD		09 DEC 98-E	09 DEC 98-E
302917-0020-SA	AQUEOUS	ICP-AD		09 DEC 98-E	09 DEC 98-E
302917-0022-SA	AQUEOUS	ICP-AD		09 DEC 98-E	09 DEC 98-E
302917-0024-SA	AQUEOUS	ICP-AD		09 DEC 98-E	09 DEC 98-E
302917-0024-MS	AQUEOUS	ICP-AD		09 DEC 98-E	09 DEC 98-E
302917-0024-SD	AQUEOUS	ICP-AD		09 DEC 98-E	09 DEC 98-E
302917-0026-SA	AQUEOUS	ICP-AD		09 DEC 98-E	09 DEC 98-E
302917-0028-SA	AQUEOUS	ICP-AD		09 DEC 98-E	09 DEC 98-E
302917-0030-SA	AQUEOUS	ICP-AD		09 DEC 98-E	09 DEC 98-E
302917-0032-SA	AQUEOUS	ICP-AD		09 DEC 98-E	09 DEC 98-E



METHOD BLANK REPORT
Metals Analysis and Preparation
Project: 302917

Test: 6010B-WSAC-AT ICP Quantitative Scan (Update 3)
Method: 6010B
Matrix: AQUEOUS
QC Lot: 09 DEC 98-SX QC Run: 09 DEC 98-S
Analyzed: 10 DEC 98 Time: 10:43

Analyte	Result	Units	Reporting Limit	Qualifier
Calcium	ND	mg/L	5.0	
Iron	ND	mg/L	0.10	
Magnesium	ND	mg/L	5.0	
Potassium	ND	mg/L	5.0	
Sodium	ND	mg/L	5.0	

Test: 6010B-WSAC-AD ICP Quantitative Scan (Update 3)
Method: 6010B
Matrix: AQUEOUS
QC Lot: 09 DEC 98-EX QC Run: 09 DEC 98-E
Analyzed: 09 DEC 98 Time: 16:59

Analyte	Result	Units	Reporting Limit	Qualifier
Calcium	ND	mg/L	5.0	
Iron	ND	mg/L	0.10	
Magnesium	ND	mg/L	5.0	
Potassium	ND	mg/L	5.0	
Sodium	ND	mg/L	5.0	

ND = Not Detected



LABORATORY CONTROL SAMPLE REPORT
Metals Analysis and Preparation
Project: 302917

Category: ICP-AT ICP Metals
Test: 6010B-WSAC-AT
Matrix: AQUEOUS
QC Lot: 09 DEC 98-SX
Concentration Units: mg/L

QC Run: 09 DEC 98-S

Analyte	Concentration		Accuracy (%)	
	Spiked	Measured	LCS	Limits
- Al umi num	2.00	1.92	96	81-119
Antimony	0.500	0.491	98	79-125
Arsenic	2.00	1.90	95	80-118
Barium	2.00	2.02	101	88-108
- Beryllium	0.0500	0.0482	96	85-119
Boron	1.00	0.963	96	89-109
Cadmium	0.0500	0.0522	104	76-118
- Calcium	50.0	48.4	97	79-123
Chromium	0.200	0.198	99	76-126
Cobalt	0.500	0.495	99	77-113
Copper	0.250	0.241	97	87-107
- Iron	1.00	1.01	101	90-110
Lead	0.500	0.495	99	79-115
Lithium	1.00	0.973	97	87-107
Magnesium	50.0	47.8	96	76-116
- Manganese	0.500	0.489	98	87-113
Molybdenum	1.00	0.978	98	79-121
nickel	0.500	0.501	100	83-117
- Potassium	50.0	48.8	98	85-105
Selenium	2.00	1.92	96	82-126
Silver	0.0500	0.0484	97	73-127
Sodium	50.0	49.1	98	82-108
- Thallium	2.00	2.12	106	76-128
Tin	2.00	1.91	95	87-107
Titanium	1.00	0.998	100	90-110
Vanadium	0.500	0.496	99	75-115
- Zinc	0.500	0.482	96	71-121

Calculations are performed before rounding to avoid round-off errors in calculated results.



- LABORATORY CONTROL SAMPLE REPORT
Metals Analysis and Preparation
Project: 302917

(cont.)

Category: ICP-AD ICP Metals / Dissolved
- Test: 6010B-WSAC-AD
Matrix: AQUEOUS
QC Lot: 09 DEC 98-EX
- Concentration Units: mg/L

QC Run: 09 DEC 98-E

Analyte	Concentration		Accuracy(%)	
	Spiked	Measured	LCS	Limits
Aluminum	2.00	2.01	100	80-120
Antimony	0.500	0.515	103	80-120
Arsenic	2.00	1.95	97	80-120
- Barium	2.00	2.02	101	80-120
Beryllium	0.0500	0.0505	101	80-120
Boron	1.00	0.960	96	80-120
Cadmium	0.0500	0.0531	106	80-120
- Calcium	50.0	50.3	101	80-120
Chromium	0.200	0.204	102	80-120
Cobalt	0.500	0.511	102	80-120
- Copper	0.250	0.245	98	80-120
Iron	1.00	1.03	103	80-120
Lead	0.500	0.503	101	80-120
Lithium	1.00	0.960	96	80-120
- Magnesium	50.0	50.2	100	80-120
Manganese	0.500	0.510	102	80-120
Molybdenum	1.00	1.01	101	80-120
Nickel	0.500	0.504	101	80-120
- Potassium	50.0	48.2	96	80-120
Selenium	2.00	1.99	99	80-120
Silicon	10.0	9.80	98	80-120
Silver	0.0500	0.0493	99	80-120
- Sodium	50.0	48.7	97	80-120
Sulfur	10.0	10.2	102	80-120
Thallium	2.00	2.04	102	80-120
Tin	2.00	2.03	101	80-120
- Titanium	1.00	1.01	101	80-120
Vanadium	0.500	0.500	100	80-120
Zinc	0.500	0.512	102	80-120

calculations are performed before rounding to avoid round-off errors in calculated results.



MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
 1's Analysis and Preparation
 Project: 302917

Category: ICP-AT ICP Metals
 Test : 6010B-WSAC-AT
 Matrix : AQUEOUS
 Sample : 302917-0023
 AS Run : 09 DEC 98-S
 Units : mg/L

Method: 6010B

-----Concentration-----

Analyte	Sample Result	MS Result	MSD Result	Amount Spiked		%Recovery		%RPD	Acceptance Limit	
				MS	MSD	MS	MSD		Recov.	RPD
Aluminum	ND	1.94	1.91	2.00	2.00	97	96	1.4	81-119	20
Antimony	ND	0.493	0.487							
Arsenic	ND	1.87	1.85	0.500	0.500	94	97.93	1.3	80-118	79-125 20 20
Barium	0.0501	2.11	2.10	2.00	2.00	103	102	0.85	88-108	20
Beryllium	0.00011	0.0490	0.0484	0.0500	0.0500	98	96	1.3	85-119	20
Boron	0.0266	1.00	0.995	1.00	1.00	97	97	0.48	89-109	20
Cadmium	ND	0.0522	0.0482	0.0500	0.0500	104	96	8.0	76-118	20
Calcium	39.6	87.9	87.1	50.0	50.0	99	95	0.90	79-123	20
Chromium	ND	0.198	0.196	0.200	0.200	98	98	0.85	76-126	20
Cobalt	0.00075	0.490	0.484	0.500	0.500		97	1.3	77-113	20
Copper	0.839	1.09	1.10	0.250	0.250	99	103	0.94	87-107	20
Iron	ND	1.01	0.997	1.00	1.00			1.1	90-110	20
Lead	0.0572	0.766	0.651	0.500	0.500	101	100	1.6	79-115	20
Lithium	0.00219	0.996	0.956	1.00	1.00	196	199	4.1	87-107	20
Magnesium	15.5	63.6	62.9	50.0	50.0	98	95	1.2	76-116	20
Manganese	0.00106	0.489	0.481	0.500	0.500		96	1.7	87-113	20
Molybdenum	0.00089	0.979	0.961	1.00	1.00	98	96	1.8	79-121	20
Nickel	0.00407	0.500	0.498	0.500	0.500	99	99	0.39	83-117	20
Potassium	ND	50.8	51.2	50.0	50.0	102	102	0.81	85-105	20
Selenium	0.00536	1.90	1.85	2.00	2.00	95	92	3.0	82-126	20
Silver	ND	0.0474	0.0460	0.0500	0.0500	95	92	3.1	73-127	20
Sodium	8.09	58.1	57.7	50.0	50.0	100	99	0.58	82-108	20
Thallium	0.0210	2.09	2.05	2.00	2.00	96	102	1.6	76-128	20
Tin	ND	1.92	1.91	2.00	2.00	101	95	0.34	87-107	20
Titanium	0.00005	1.01	1.00	1.00	1.00		100	1.3	90-110	20
Vanadium	0.00232	0.503	0.497	0.500	0.500	100	99	1.2	75-115	20
Zinc	0.101	0.581	0.576	0.500	0.500	96	95	0.88	71-121	20

ND = Not Detected

Calculations are performed before rounding to avoid round-off errors in calculated results.



MAT..IX SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
 Sample Analysis and Preparation
 Project: 302917 (cont.)

Category: ICP-AD ICP Metals / Dissolved
 Test : 6010B-WSAC-AD
 Matrix : AQUEOUS
 Sample : 302917-0024
 IS Run : 09 DEC 98-E
 Units : mg/L

Method: 6010B

Analyte	-----Concentration-----			Amount Spiked		%Recovery		%RPD	Acceptance Limit	
	Sample Result	MS Result	MSD Result	MS	MSD	MS	MSD		Recov.	RPD
Calcium	ND	89.3	90.8	50.0	50.0	102	98	1.6	80-120	20
Iron	16.9	66.52	1.03	1.00	1.00		103	1.6	80-120	20
Magnesium		51.3	67.9	50.0	50.0	99	102	2.0	80-120	20
Potassium	Nil		51.7	50.0	50.0	103	103	0.89	80-120	20
Sodium	8.4	57.7	58.8	50.0	50.0	99	101	1.9	80-120	20

ND = Not Detected

Calculations are performed before rounding to avoid round-off errors in calculated results.

General Inorganics
- Various Methods



GENERAL INORGANICS

{Water}

Client Name: E. I. DuPont De Nemours Co.

Client ID: BAR-G-MW-5-DUP

Lab ID: 302917-0011-SA

Matrix: AQUEOUS

Authorized: 04 DEC 98

Sampled: 03 DEC 98

Prepared: See Below

Received: 04 DEC 98

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Bromide	ND	mg/L	0.50		NA	04 DEC 98
Chloride	5.1	mg/L	1.0	300.0	NA	04 DEC 98
Fluoride	0.63	mg/L	0.50	300.0	NA	04 DEC 98
Nitrate (as N)	ND		0.50		NA	04 DEC 98
Nitrite (as N)	ND	mg/L	0.050	300.0	NA	04 DEC 98
Sulfate	3.4	mg/L	1.0	300.0	NA	04 DEC 98

ND = Not detected
NA = Not applicable

Reported By: Hamid Foolad

Approved By: Mark Frey

The cover letter is an integral part of this report.

Rev 230787



GENERAL INORGANICS

(Water)

Client Name: E.I. DuPont De Nemours Co.
Client ID: BAR-G-CX533-INFLOW-DUP
Lab ID: 302917-0025-SA
Matrix: AQUEOUS
Authorized: 04 DEC 98

Sampled: 02 DEC 98
Prepared: See Below

Received: 04 DEC 98
Analyzed: See Below

Table with 7 columns: Parameter, Result, Units, Reporting Limit, Analytical Method, Prepared Date, Analyzed Date. Rows include Alkalinity (Total, Bicarb, Carb), Ammonia as N, Bromide, Chloride, Fluoride, Nitrogen (Total Kjeldahl), Organic Carbon (Total), Solids (Total Dissolved, Total Suspended), Sulfate, and Sulfide.

Note 0 : Reporting limit(s) raised due to high level of analyte present in sample.

ND = Not detected
NA = Not applicable

Reported By: Luz Gargaritano

Approved By: Mark Frey

The cover letter is an integral part of this report.
Rev 230787



GENERAL INORGANICS

(Water)

Client Name: E. I. DuPont De Nemours Co.

Client ID: BAR-G-CX533-SYSTEM

Lab ID: 302917-0027-SA

Matrix: AQUEOUS

Authorized: 04 DEC 98

Sampled: 02 DEC 98

Prepared: See Below

Received: 04 DEC 98

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Alkalinity, Total (as CaCO3)	143	mg/L	5.0	310.1	NA	07 DEC 98
Alkalinity, Bicarb. (as CaCO3)	143	mg/L	5.0	310.1	NA	07 DEC 98
Alkalinity, Carb. (as CaCO3)	ND	mg/L	5.0	310.1	NA	07 DEC 98
Ammonia as N	ND	mg/L	0.10	350.1	NA	08 DEC 98
Bromide	ND	mg/L	0.50	300.0	NA	04 DEC 98
Chloride	1.1	mg/L	1.0	300.0	NA	04 DEC 98
Fluoride	ND	mg/L	1.0	300.0	NA	04 DEC 98
Nitrogen, Total Kjeldahl (as N)	ND	mg/L	0.50	351.2	14 DEC 98	15 DEC 98
Organic Carbon, Total	ND	mg/L	1.0	415.1-Oxidation	NA	16 DEC 98
Solids, Total Dissolved	212	mg/L	10.0	160.1	NA	09 DEC 98
Solids, Total Suspended	ND	mg/L	5.0	160.2	NA	07 DEC 98
Sulfate	30.8	mg/L	2.0		NA	04 DEC 98
Sulfide, Total	ND	mg/L	0.050	306.0	NA	08 DEC 98

Note o : Reporting limit(s) raised due to high level of analyte present in sample.

ND = Not detected

NA = Not applicable

Reported By: Luz Gargaritano

Approved By: Mark Frey

The cover letter is an integral part of this report.

Rev 230787



GENERAL INORGANICS

(Water)

Client Name: E.I. DuPont De Nemours Co,

Client ID: BAR-G-CX533-EFFLUENT

Lab ID: 302917-0029-SA

Matrix: AQUEOUS

Authorized: 04 DEC 98

Sampled: 02 DEC 98

Prepared: See Below

Received: 04 DEC 98

Analyzed: See Below

Parameter	Result	Units	Reporting Limit	Analytical Method	Prepared Date	Analyzed Date
Alkalinity, Total (as CaCO3)	132	mg/L	5.0	310.1	NA	07 DEC 98
Alkalinity, Bicarb. (as CaCO3)	132	mg/L	5.0	310.1	NA	07 DEC 98
Alkalinity, Carb. (as CaCO3)	ND	mg/L	5.0	310.1	NA	07 DEC 98
Ammonia as N	ND	mg/L	0.10	350.1	NA	08 DEC 98
Bromide	ND	mg/L	0.50	300.0	NA	04 DEC 98
Chloride	1.1	mg/L	1.0	300.0	NA	04 DEC 98
Fluoride	ND	mg/L	0.50	300.0	NA	04 DEC 98
Nitrogen, Total Kjeldahl (as N)	ND	mg/L	0.50	351.2	14 DEC 98	15 DEC 98
Organic Carbon, Total	ND	mg/L	1.0	415.1-Oxidation	NA	16 DEC 98
Solids, Total Dissolved	188	mg/L	10.0	160.1	NA	09 DEC 98
Solids, Total Suspended	ND	mg/L	5.0	160.2	NA	07 DEC 98
Sulfate	23.7	mg/L	1.0	300.0	NA	04 DEC 98
Sulfide, Total	ND	mg/L	0.050	376.2	NA	08 DEC 98

ND = Not detected
NA = Not applicable

Reported By: Luz Gargaritano

Approved By: Mark Frey

The cover letter is an integral part of this report.

Rev 230787



QC LOT ASSIGNMENT REPORT - MS QC
Wet Chemistry Analysis and Preparation

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (BLANK/LCS)	MS QC Run Number (SA,MS,SD,DU)
302917-0021-SA	AQUEOUS	S-A		08 DEC 98-A	08 DEC 98-AA
302917-0023-SA	AQUEOUS	S-A		08 DEC 98-A	08 DEC 98-AA
302917-0023-MS	AQUEOUS	S-A		08 DEC 98-A	08 DEC 98-AA
302917-0023-SD	AQUEOUS	S-A		08 DEC 98-A	08 DEC 98-AA
302917-0025-SA	AQUEOUS	S-A		08 DEC 98-A	08 DEC 98-AA
302917-0027-SA	AQUEOUS	S-A		08 DEC 98-A	08 DEC 98-AA
302917-0029-SA	AQUEOUS	S-A		08 DEC 98-A	08 DEC 98-AA
302917-0031-SA	AQUEOUS	S-A		08 DEC 98-A	08 DEC 98-AA
302917-0001-SA	AQUEOUS	IC-A		04 DEC 98-A	04 DEC 98-AA
302917-0003-SA	AQUEOUS	IC-A		04 DEC 98-A	04 DEC 98-AA
302917-0005-SA	AQUEOUS	IC-A		04 DEC 98-A	04 DEC 98-AA
302917-0007-SA	AQUEOUS	IC-A		04 DEC 98-A	04 DEC 98-AA
302917-0009-SA	AQUEOUS	IC-A		04 DEC 98-A	04 DEC 98-AA
302917-0011-SA	AQUEOUS	IC-A		04 DEC 98-A	04 DEC 98-AA
302917-0013-SA	AQUEOUS	IC-A		04 DEC 98-A	04 DEC 98-AA
302917-0015-SA	AQUEOUS	IC-A		04 DEC 98-A	04 DEC 98-AA
302917-0017-SA	AQUEOUS	IC-A		04 DEC 98-A	04 DEC 98-AA
302917-0019-SA	AQUEOUS	IC-A		04 DEC 98-A	04 DEC 98-AA
302917-0021-SA	AQUEOUS	IC-A		04 DEC 98-A	04 DEC 98-AA
302917-0023-SA	AQUEOUS	IC-A		04 DEC 98-A	04 DEC 98-AA
302917-0023-MS	AQUEOUS	IC-A		04 DEC 98-A	04 DEC 98-AA
302917-0023-SD	AQUEOUS	IC-A		04 DEC 98-A	04 DEC 98-AA
302917-0025-SA	AQUEOUS	IC-A		04 DEC 98-A	04 DEC 98-AA
302917-0027-SA	AQUEOUS	16-A		04 DEC 98-A	04 DEC 98-AA
302917-0029-SA	AQUEOUS	IC-A		04 DEC 98-A	04 DEC 98-AA
302917-0031-SA	AQUEOUS	IC-A		04 DEC 98-A	04 DEC 98-AA
302917-0001-SA	AQUEOUS	IC-A		04 DEC 98-A	04 DEC 98-AA
302917-0003-SA	AQUEOUS	IC-A		04 DEC 98-A	04 DEC 98-AA
302917-0005-SA	AQUEOUS	IC-A		04 DEC 98-A	04 DEC 98-AA
302917-0007-SA	AQUEOUS	IC-A		04 DEC 98-A	04 DEC 98-AA
302917-0009-SA	AQUEOUS	IC-A		04 DEC 98-A	04 DEC 98-AA
302917-0011-SA	AQUEOUS	IC-A		04 DEC 98-A	04 DEC 98-AA
302917-0013-SA	AQUEOUS	IC-A		04 DEC 98-A	04 DEC 98-AA
302917-0015-SA	AQUEOUS	IC-A		04 DEC 98-A	04 DEC 98-AA
302917-0017-SA	AQUEOUS	IC-A		04 DEC 98-A	04 DEC 98-AA
302917-0019-SA	AQUEOUS	IC-A		04 DEC 98-A	04 DEC 98-AA
302917-0021-SA	AQUEOUS	TDS-A		09 DEC 98-A	09 DEC 98-AA
302917-0023-SA	AQUEOUS	TDS-A		09 DEC 98-A	09 DEC 98-AA
302917-0023-MS	AQUEOUS	TDS-A		09 DEC 98-A	09 DEC 98-AA
302917-0023-SD	AQUEOUS	TDS-A		09 DEC 98-A	09 DEC 98-AA
302917-0025-SA	AQUEOUS	TDS-A		09 DEC 98-A	09 DEC 98-AA
302917-0027-SA	AQUEOUS	TDS-A		09 DEC 98-A	09 DEC 98-AA
302917-0029-SA	AQUEOUS	TDS-A		09 DEC 98-A	09 DEC 98-AA
302917-0031-SA	AQUEOUS	TDS-A		09 DEC 98-A	09 DEC 98-AA
302917-0021-SA	AQUEOUS	TSS-A		07 DEC 98-A	07 DEC 98-AA
302917-0023-SA	AQUEOUS	TSS-A		07 DEC 98-A	07 DEC 98-AA
302917-0023-DU	AQUEOUS	TSS-A		07 DEC 98-A	07 DEC 98-AA
302917-0025-SA	AQUEOUS	TSS-A		07 DEC 98-A	07 DEC 98-AA



QC LOT ASSIGNMENT REPORT - MS QC
Wet Chemistry Analysis and Preparation

(cont.)

Laboratory Sample Number	QC Matrix	QC Category	QC Lot Number (DCS)	QC Run Number (BLANK/LCS)	MS QC Run Number (SA, MS, SD, DU)
302917-0027-SA	AQUEOUS	TSS-A		07 DEC 98-A	07 DEC 98-AA
302917-0029-SA	AQUEOUS	TSS-A		07 DEC 98-A	07 DEC 98-AA
302917-0031-SA	AQUEOUS	TSS-A		07 DEC 98-A	07 DEC 98-AA
302917-0021-SA	AQUEOUS	TOC-A		16 DEC 98-A	16 DEC 98-AA
302917-0023-SA	AQUEOUS	TOC-A		16 DEC 98-A	16 DEC 98-AA
302917-0023-MS	AQUEOUS	TOC-A		16 DEC 98-A	16 DEC 98-AA
302917-0023-SD	AQUEOUS	TOC-A		16 DEC 98-A	16 DEC 98-AA
302917-0025-SA	AQUEOUS	TOC-A		16 DEC 98-A	16 DEC 98-AA
302917-0027-SA	AQUEOUS	TOC-A		16 DEC 98-A	16 DEC 98-AA
302917-0029-SA	AQUEOUS	TOC-A		16 DEC 98-A	16 DEC 98-AA
302917-0031-SA	AQUEOUS	TOC-A		16 DEC 98-A	16 DEC 98-AA
302917-0023-SA	AQUEOUS	WSALK-A		07 DEC 98-A	07 DEC 98-AA
302917-0023-DU	AQUEOUS	WSALK-A		07 DEC 98-A	07 DEC 98-AA
302917-0025-SA	AQUEOUS	WSALK-A		07 DEC 98-A	07 DEC 98-AA
302917-0027-SA	AQUEOUS	WSALK-A		07 DEC 98-A	07 DEC 98-AA
302917-0029-SA	AQUEOUS	WSALK-A		07 DEC 98-A	07 DEC 98-AA
302917-0031-SA	AQUEOUS	WSALK-A		07 DEC 98-A	07 DEC 98-AA
302917-0023-SA	AQUEOUS	NH3-A		08 DEC 98-A	08 DEC 98-AA
302917-0023-MS	AQUEOUS	NH3-A		08 DEC 98-A	08 DEC 98-AA
302917-0023-SD	AQUEOUS	NH3-A		08 DEC 98-A	08 DEC 98-AA
302917-0025-SA	AQUEOUS	NH3-A		08 DEC 98-A	08 DEC 98-AA
302917-0027-SA	AQUEOUS	NH3-A		08 DEC 98-A	08 DEC 98-AA
302917-0029-SA	AQUEOUS	NH3-A		08 DEC 98-A	08 DEC 98-AA
302917-0031-SA	AQUEOUS	NH3-A		08 DEC 98-A	08 DEC 98-AA
302917-0023-SA	AQUEOUS	TKN-A		14 DEC 98-A	14 DEC 98-AA
302917-0023-MS	AQUEOUS	TKN-A		14 DEC 98-A	14 DEC 98-AA
302917-0023-SD	AQUEOUS	TKN-A		14 DEC 98-A	14 DEC 98-AA
302917-0025-SA	AQUEOUS	TKN-A		14 DEC 98-A	14 DEC 98-AA
302917-0027-SA	AQUEOUS	TKN-A		14 DEC 98-A	14 DEC 98-AA
302917-0029-SA	AQUEOUS	TKN-A		14 DEC 98-A	14 DEC 98-AA
302917-0031-SA	AQUEOUS	TKN-A		14 DEC 98-A	14 DEC 98-AA



METHOD BLANK REPORT
Wet Chemistry Analysis and Preparation
Project: 302917

Test: S-AT Sul fide, Total
Method: 376.2
Matrix: AQUEOUS
QC Lot: 08 DEC 98-AX QC Run: 08 DEC 98-A
Analyzed: 08 DEC 98 Time: 10:00

Analyte	Result	Units	Reporting Limit	Qualifier
Sul fide, Total	ND	mg/L	0.050	

Test: IC-SCAN-28-A Ion Chromatography Scan, Multiple elements
Method: 300.0
Matrix: AQUEOUS
QC Lot: 04 DEC 98-AX QC Run: 04 DEC 98-A
Analyzed: 04 DEC 98 Time: 13:57

Analyte	Result	Units	Reporting Limit	Qualifier
Bromide	ND	mg/L	0.50	
Chloride	ND	mg/L	1.0	
Fluoride	ND	mg/L	0.50	
Sulfate	ND	mg/L	1.0	

Test: IC-SCAN-28-A Ion Chromatography Scan, Multiple elements
Method: 300.0
Matrix: AQUEOUS
QC Lot: 04 DEC 98-AX QC Run: 04 DEC 98-A
Analyzed: 04 DEC 98 Time: 13:57

Analyte	Result	Units	Reporting Limit	Qualifier
Nitrate (as N)	ND	mg/L	0.050	
Nitrite' (as N)	ND	mg/L	0.050	

ND = Not Detected



METHOD BLANK REPORT (cont.)
Wet Chemistry Analysis and Preparation
Project: 302917

Test: TDS-A Total Dissolved Solids (TDS)
Method: 160.1
Matrix: AQUEOUS
QC Lot: 09 DEC 98-AX QC Run: 09 DEC 98-A
Analyzed: 09 DEC 98 Time: 17:45

Analyte	Result	Units	Reporting Limit	Qualifier
Solids, Total Dissolved	ND	mg/L	10.0	

Test: TSS-A Total Suspended Solids (TSS)
Method: 160.2
Matrix: AQUEOUS
QC Lot: 07 DEC 98-AX QC Run: 07 DEC 98-A
Analyzed: 07 DEC 98 Time: 10:10

Analyte	Result	Units	Reporting Limit	Qualifier
Solids, Total Suspended	ND	mg/L	5.0	

Test: TOC-A Total Organic Carbon (TOC)
Method: 415.1-Oxidation
Matrix: AQUEOUS
QC Lot: 16 DEC 98-AX QC Run: 16 DEC 98-A
Analyzed: 16 DEC 98 Time: 15:37

Analyte	Result	Units	Reporting Limit	Qualifier
Organic Carbon, Total	ND	mg/L	1.0	

Test: ALK-WSAC-AT STD-Alkalinity, Total as CaCO3
Method: 310.1
Matrix: AQUEOUS
QC Lot: 07 DEC 98-AX QC Run: 07 DEC 98-A
Analyzed: 07 DEC 98 Time: 09:50

Analyte	Result	Units	Reporting Limit	Qualifier
Alkalinity, Total (as CaCO3)	ND	mg/L	5.0	
Alkalinity, Bicarb. (as CaCO3)	ND	mg/L	5.0	
Alkalinity, Carb. (as CaCO3)	ND	mg/L	5.0	

ND = Not Detected



METHOD BLANK REPORT (cont.)
Wet Chemistry Analysis and Preparation
Project: 302917

Test: NH3-A Ammonia
Method: 350.1
Matrix: AQUEOUS
QC Lot: 08 DEC 98-AX
Analyzed: 08 DEC 98

QC Run: 08 DEC 98-A
Time: 15:37

Analyte	Result	Units	Reporting Limit	Qualifier
Ammonia as N	ND	mg/L	0.10	

Test: TKN-LACH-A Total Kjeldahl Nitrogen by Lachat (TKN)
Method: 351.2
Matrix: AQUEOUS
QC Lot: 14 DEC 98-AX
Analyzed: 15 DEC 98

QC Run: 14 DEC 98-A
Time: 14:24

Analyte	Result	Units	Reporting Limit	Qualifier
Nitrogen, Total Kjeldahl (as N)	ND	mg/L	0.50	

ND = Not Detected



LABORATORY CONTROL SAMPLE REPORT
 Wet Chemistry Analysis and Preparation
 Project: 302917

Category: S-A Sulfi de
 Test: S-AT
 Matrix: AQUEOUS
 QC Lot: 08 DEC 98-AX
 Concentration Units: mg/L

QC Run: 08 DEC 98-A

Analyte	Concentration		Accuracy(%)	
	Spiked	Measured	LCS	Limits
Sulfide, Total	0.200	0.197	98	88-114

Category: IC-A Ion Chromatography Inorganics
 Test: IC-SCAN-28-A
 Matrix: AQUEOUS
 QC Lot: 04 DEC 98-AX
 Concentration Units: mg/L

QC Run: 04 DEC 98-A

Analyte	Concentration		Accuracy(%)	
	Spiked	Measured	LCS	Limits
Fluoride	5.00	4.95	99	90-110
Chloride	10.0	9.50	95	90-110
Nitrite (as N)	5.00	0.959	96	90-110
Nitrate (as N)	1.00	0.939	94	90-110
Orthophosphate (as P)	2.00	1.85	93	90-110
Sulfate	20.0	19.2	96	90-110

Category: TDS-A Total Dissolved Solids
 Test: TDS-A
 Matrix: AQUEOUS
 QC Lot: 09 DEC 98-AX
 Concentration Units: mg/L

QC Run: 09 DEC 98-A

Analyte	Concentration		Accuracy(%)	
	Spiked	Measured	LCS	Limits
Solids, Total Dissolved	500	516	103	80-120

Category: TSS-A Total Suspended Solids
 Test: TSS-A
 Matrix: AQUEOUS
 QC Lot: 07 DEC 98-AX
 Concentration Units: mg/L

QC Run: 07 DEC 98-A

Analyte	Concentration		Accuracy(%)	
	Spiked	Measured	LCS	Limits
Solids, Total Suspended	37.2	36.0	97	85-115

Calculations are performed before rounding to avoid round-off errors in calculated results.



LABORATORY CONTROL SAMPLE REPORT
Jet Chemistry Analysis and Preparation
Project: 302917

(cont.)

Category: TOC-A Total Organic Carbon
- Test: TOC-A
Matrix: AQUEOUS
QC Lot: 16 DEC 98-AX
Concentration Units: mg/L

QC Run: 16 DEC 98-A

Analyte	Concentration		Accuracy(%)	
	Spiked	Measured	LCS	Limits
-Organic Carbon, Total	10.0	10.0	100	90-110

Category: WSALK-A Alkalinity by Titration
Test: ALK-WSAC-AT
Matrix: AQUEOUS
QC Lot: 07 DEC 98-AX
Concentration Units: mg/L

QC Run: 07 DEC 98-A

Analyte	Concentration		Accuracy(%)	
	Spiked	Measured	LCS	Limits
Alkalinity, Total (as CaCO3)	157	169	108	90-110

Category: NH3-A Ammonia
Test: NH3-A
Matrix: AQUEOUS
QC Lot: 08 DEC 98-AX
Concentration Units: mg/L

QC Run: 08 DEC 98-A

Analyte	Concentration		Accuracy(%)	
	Spiked	Measured	LCS	Limits
Ammonia as N	2.00	2.02	101	90-110

Category: TKN-A Total Kjeldahl Nitrogen
Test: TKN-LACH-A
Matrix: AQUEOUS
QC Lot: 14 DEC 98-AX
Concentration Units: mg/L

QC Run: 14 DEC 98-A

Analyte	Concentration		Accuracy(%)	
	Spiked	Measured	LCS	Limits
-Nitrogen, Total Kjeldahl (as N)	1.00	1.03	103	81-114

Calculations are performed before rounding to avoid round-off errors in calculated results.



MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
 W_ Chemistry Analysis and Preparation
 Project: 302917

Category: S-A Sul fide
 Test : S-AT
 Matrix : AQUEOUS
 Sample : 302917-0023
 MS Run : 08 DEC 98-AA
 Units : mg/L

Method: 376.2

-----Concentration-----

Analyte	Sample Result	MS Result	MSD Result	Amount Spiked		%Recovery		%RPD	Acceptance Limit	
				MS	MSD	MS	MSD		Recov.	RPD
Sulfide, Total	ND	0.187	0.185	0.200	0.200	94	92	1.1	75-125	25

Category: IC-A Ion Chromatography Inorganics
 Test : IC-SCAN-28-A
 Matrix : AQUEOUS
 Sample : 302917-0023
 MS Run : 04 DEC 98-AA
 Units : mg/L

Method: 300.0

-----Concentration-----

Analyte	Sample Result	MS Result	MSD Result	Amount Spiked		%Recovery		%RPD	Acceptance Limit	
				MS	MSD	MS	MSD		Recov.	RPD
Chloride	1.20	49.2 24.9	49.0	50.0	50.0	96				
Fluoride	ND		25.1	25.0	25.0	100	100 96	0.0 62.40	75-125	75-125 20 20
Nitrite (as N)	ND	23.6 5.07	24.0 5.24	5.00	5.00	101	105	3.2	75-125	20
Bromide	ND			25.0	25.0	95				
Nitrate (as N)	2.51	7.43	7.33	5.00	5.00	98	96 96	1.3 1.4	75-125	75-125 20 20
Sulfate	28.7	102	102	75.0	75.0	98	97	0.63	75-125	20
Orthophosphate (as P)	ND	10.1	10.2	10.0	10.0	101	102	1.5	75-125	20

ND . Not Detected

Calculations are performed before rounding to avoid round-off errors in calculated results.



MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
chemistry Analysis and Preparation
Project: 302917 (cont.)

Category: TDS-A Total Dissolved Solids
Test : TDS-A
Matrix : AQUEOUS
Sample : 302917-0023
MS Run : 09 DEC 98-AA
Units : mg/L

Method: 160.1

-----Concentration-----

Analyte	Sample Result	MS Result	MSD Result	Amount Spiked		%Recovery		%RPD	Acceptance Limit	
				MS	MSD	MS	MSD		Recov.	RPD
Solids, Total Dissolved	228	700	697	500	500	94	94	0.43	75-125	20

Category: TOC-A Total Organic Carbon
Test : TOC-A
Matrix : AQUEOUS
Sample : 302917-0023
MS Run : 16 DEC 98-AA
Units : mg/L

Method: 415.1-Oxidation

-----Concentration-----

Analyte	Sample Result	MS Result	MSD Result	Amount Spiked		%Recovery		%RPD	Acceptance Limit	
				MS	MSD	MS	MSD		Recov.	RPD
Organic Carbon, Total	ND	10	10	10	10	104	105	0.96	75-125	20

Category: NH3-A Ammonia
Test : NH3-A
Matrix : AQUEOUS
Sample : 302917-0023
MS Run : 08 DEC 98-AA
Units : mg/L

Method: 350.1

-----Concentration-----

Analyte	Sample Result	MS Result	MSD Result	Amount Spiked		%Recovery		%RPD	Acceptance Limit	
				MS	MSD	MS	MSD		Recov.	RPD
Ammonia as N	ND	0.45	0.44	0.50	0.50	90	88	2.3	75-125	20

Not Detected

Calculations are performed before rounding to avoid round-off errors in calculated results.



MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC REPORT
 Chemistry Analysis and Preparation
 Project: 302917 (cont.)

Category: TKN-A Total Kjeldahl Nitrogen
 Test : TKN-LACH-A
 Matrix : AQUEOUS
 Sample : 302917-0023
 MS Run : 14 DEC 98-AA
 Units : mg/L

Method: 351.2

Analyte	-----Concentration-----			Amount Spiked		%Recovery		%RPD		Acceptance
	Sample Result	MS Result	MSD Result	MS	MSD	MS	MSD	MS	MSD	Limit Recov. RPD
Nitrogen, Total Kjeldahl (as N)	ND	2.4	2.4	2.5	2.5	97	97	0.54	75-125	20

ND Not Detected

Calculations are performed before rounding to avoid round-off errors in calculated results.



MATRIX DUPLICATE QC REPORT
Wet Chemistry Analysis and Preparation
Project: 302917

Category: TSS-A Total Suspended Solids
Test: TSS-A
Matrix: AQUEOUS
Sample: 302917-0023
Units: mg/L
QC Lot: 07 DEC 98-AX

Method: 160.2

MS Run: 07 DEC 98-AA

----- Concentration -----					
Analyte	Sample	Duplicate	%RPD SA-DU	Control Limits	RPD Limit
Solids, Total Suspended	ND	ND	NC	-	20

Category: WSALK-A Alkalinity by Titration
Test: ALK-WSAC-AT
Matrix: AQUEOUS
Sample: 302917-0023
Units: mg/L
QC Lot: 07 DEC 98-AX

Method: 310.1

MS Run: 07 DEC 98-AA

----- Concentration -----					
Analyte	Sample	Duplicate	%RPD SA-DU	Control Limits	RPD Limit
Alkalinity, Total (as CaCO3)	142	146	2.4	-	10

NC = Not Calculated, calculation not applicable.

ND = Not Detected

Calculations are performed before rounding to avoid round-off errors in calculated results.



Quanterra Incorporated
880 Riverside Parkway
West Sacramento, California 9.5605

916 373-5600 Telephone
916 372-1059 Fax

January 22, 1999

QUANTERRA INCORPORATED PROJECT NUMBER: 303014
PO/CONTRACT: LBIO-62243 QE56

Pam McGill .
E.I. du Pont de Nemours and Co.
Barley Mill Plaza, Bldg. 27
Wilmington, DE 19805

Dear Ms. McGill,

This report contains the analytical results for the four samples received under chain of custody by Quanterra Incorporated on December 5, 1998. These samples are associated with your GW SAMP 12/98 project.

The case narrative is an integral part of this report.

If you have any questions, please feel free to call me at (916)374-4383.

Sincerely,

A handwritten signature in cursive script, appearing to read "Calvin Tanaka".

Calvin Tanaka
Project Manager



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Sample Data Sheets

Method Blank Reports

Laboratory QC Reports



CASE NARRATIVE

QUANTERRA INCORPORATED PROJECT NUMBER 303014

General Comments

The sample containers were received intact and in good condition. Any discrepancies that would have impacted the analyses would have been forwarded to Ms. Cheri Short and documented on the enclosed Chain of Custody forms.

Where applicable, the reporting limits are adjusted to reflect any dilutions.

The samples were to be analyzed in place of the samples for 3 029 17-002 1, -0023, -0025, and -003 1 which were received on December 4, 1998. The holding time for Nitrate and Nitrite had expired on samples 302917-0023 and -0025.

The samples were prepared and analyzed within the method-specified holding time requirements.

All Method Blank and LCS results for the analytical set met the specified QC criteria for acceptance.

There were no anomalies associated with this project.

Quanterra - Western Region
Quality Control Definitions

QC Parameter	Definition
QC Batch	A set of up to 20 field samples plus associated laboratory QC samples that are similar in composition (matrix) and that are processed within the same time period with the same reagent and standard lots.
Duplicate Control Sample (DCS)	Consist of a pair of LCSs analyzed within the same QC batch to monitor precision and accuracy independent of sample matrix effects. This QC is performed only if required by client or when insufficient sample is available to perform MS/MSD.
Duplicate Sample (DU)	A second aliquot of an environmental sample, taken from the same sample container when possible, that is processed independently with the first sample aliquot. The results are used to assess the effect of the sample matrix on the precision of the analytical process. The precision estimated using this sample is not necessarily representative of the precision for other samples in the batch.
Laboratory Control Sample (LCS)	A volume of reagent water for aqueous samples or a contaminant-free solid matrix (Ottawa sand) for soil and sediment samples which is spiked with known amounts of representative target analytes and required surrogates. An LCS is carried through the entire analytical process and is used to monitor the accuracy of the analytical process independent of potential matrix effects.
Matrix Spike and Matrix Spike Duplicate (MS/MSD)	A field sample fortified with known quantities of target analytes that are also added to the LCS. Matrix spike duplicate is a second matrix spike sample. MSs/MSDs are carried through the entire analytical process and are used to determine sample matrix effect on accuracy of the measurement system. The accuracy and precision estimated using MS/MSD is only representative of the precision of the sample that was spiked.
Method Blank (MB)	A sample composed of all the reagents (in the same quantities) in reagent water carried through the entire analytical process. The method blank is used to monitor the level of contamination introduced during sample preparation steps.
Surrogate Spike	Organic constituents not expected to be detected in environmental media and are added to every sample and QC at a known concentration. Surrogates are used to determine the efficiency of the sample preparation and the analytical process.

Source: Quanterra® Quality Control Program. Policy QA-003, Rev. 0. 8/19/96.



SAMPLE DESCRIPTION INFORMATION
for
E.I. DuPont De Nemours Co.

Lab ID	Client ID	Matrix	Sampled		Received	
			Date	Time	Date	Date
303014-0001-SA	BAR-G-IW711	AQUEOUS	04 DEC 98	10:50	05 DEC 98	05 DEC 98
303014-0002-SA	BAR-G-CX533-INFLOW	AQUEOUS	04 DEC 98	11:05	05 DEC 98	05 DEC 98
303014-0002-MS	BAR-G-CX533-INFLOW-MS	AQUEOUS	04 DEC 98	11:05	05 DEC 98	05 DEC 98
303014-0002-SD	BAR-G-CX533-INFLOW-MSD		04 DEC 98	11:05	05 DEC 98	05 DEC 98
303014-0003-SA	BAR-G-CX533-INFLOW-DUP	AQUEOUS	04 DEC 98	11:05	05 DEC 98	05 DEC 98
303014-0004-SA	BAR-G-IW882	AQUEOUS	04 DEC 98	10:10	05 DEC 98	05 DEC 98

Client: Zi DuPont Project Manager: Bob Raymond Date: 12/4/98

Page 1 of 1

Address: Barley Mill Plaza BLDG 27 Phone # 302-992-6972 Lab # 302917

City: Wilmington DE 19805 Site Contact: Wayne Peterson Lab Contact: C. Tanaka

Project Name: GW Samp 12/98

PO: QE56

Sample ID	Date	Time	Matrix	Containers & Preservative	Analysis
BAR-G-CX533-inflow	12-4-98	1105	WATER	PLASTIC Non Preserved	ANIONS & CATIONS PER CHEZ1 SHORT 302-992-#6913
BAR-G-CX533-inflow-Dup	↓	↓			
BAR-G-CX533-inflow-MS	↓	↓			
BAR-G-CX533-inflow-MSD	↓	↓			
BAR-G-IW-882	↓	1010			
BAR-G-IW-711	↓	1050			
BAR-G-IW-883					

Relinquished by

Thom R May 12/4/98 @ 1500

Received by

MCDyars 120598 @ 1030

Received in good condition.
MED 120598

Anions - Method 300.0



PC LOT ASSIGNMENT REPORT - MS QC
Wet Chemistry Analysis and Preparation

Laboratory Sample Number	PC Matrix	QC Category	PC Lot Number (DCS)	PC Run Number (BLANK/LCS)	MS QC Run Number (SA,MS,SD,DU)
303014-0001 -SA	AQUEOUS	IC-A		05 DEC 98-A	05 DEC 98-AA
303014-0002-SA	AQUEOUS	IC-A		05 DEC 98-A	05 DEC 98-AA
303014-0002-MS	AQUEOUS	IC-A		05 DEC 98-A	05 DEC 98-AA
303014-0002-SD	AQUEOUS	IC-A		05 DEC 98-A	05 DEC 98-AA
303014-0003 -SA	AQUEOUS	IC-A		05 DEC 98-A	05 DEC 98-AA
303014-0004-SA	AQUEOUS	IC-A		05 DEC 98-A	05 DEC 98-AA



METHOD BLANK REPORT

Wet Chemistry Analysis and Preparation

Project: 303014

Test: IC-SCAN-Z-A Ion Chromatography Scan, Multiple elements

Method: 300.0

Matrix: AQUEOUS

PC Lot: 05 DEC 98-AX

QC Run: 05 DEC 98-A

Analyzed: 05 DEC 98

Time: 16:11

"Analyte	Result	Units	Reporting Limit	Qualifier
Nitrate (as N)	ND	mg/L	0.050	
Nitrite (as N)	ND	mg/L	0.050	

ND = Not Detected



LABORATORY CONTROL SAMPLE REPORT

Wet Chemistry Analysis and Preparation

Project: 303014

Category: IC-A Ion Chromatography Inorganics

Test: IC-SCAN-2-A

Matrix: AQUEOUS

PC Lot: 05 DEC 98-AX

QC Run: 05 DEC 98-A

Concentration Units: mg/L

Analyte	Concentration		Accuracy(%)	
	Spiked	Measured	LCS	Limits
Fluoride	5.00	4.86	97	90-110
Chloride	10.0	9.31	93	90-110
Nitrite (as N)	1.00	0.954	95	90-110
Bromide	5.00	4.58	92	90-110
Nitrate (as N)	1.00	0.922	92	90-110
Orthophosphate (as P)	2.00	1.84	92	90-110
Sulfate	20.0	19.0	95	90-110

Calculations are performed before rounding to avoid round-off errors in calculated results.



MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC REPORT

Uet Chemistry Analysis and Preparation

P_ject: 303014

Category: IC-A Ion Chromatography Inorganics

Test : IC-SCAN-2-A

Method: 300.0

M_rix : AQUEOUS

S_ple : 303014-0002

MS Run : 05 DEC 98-AA

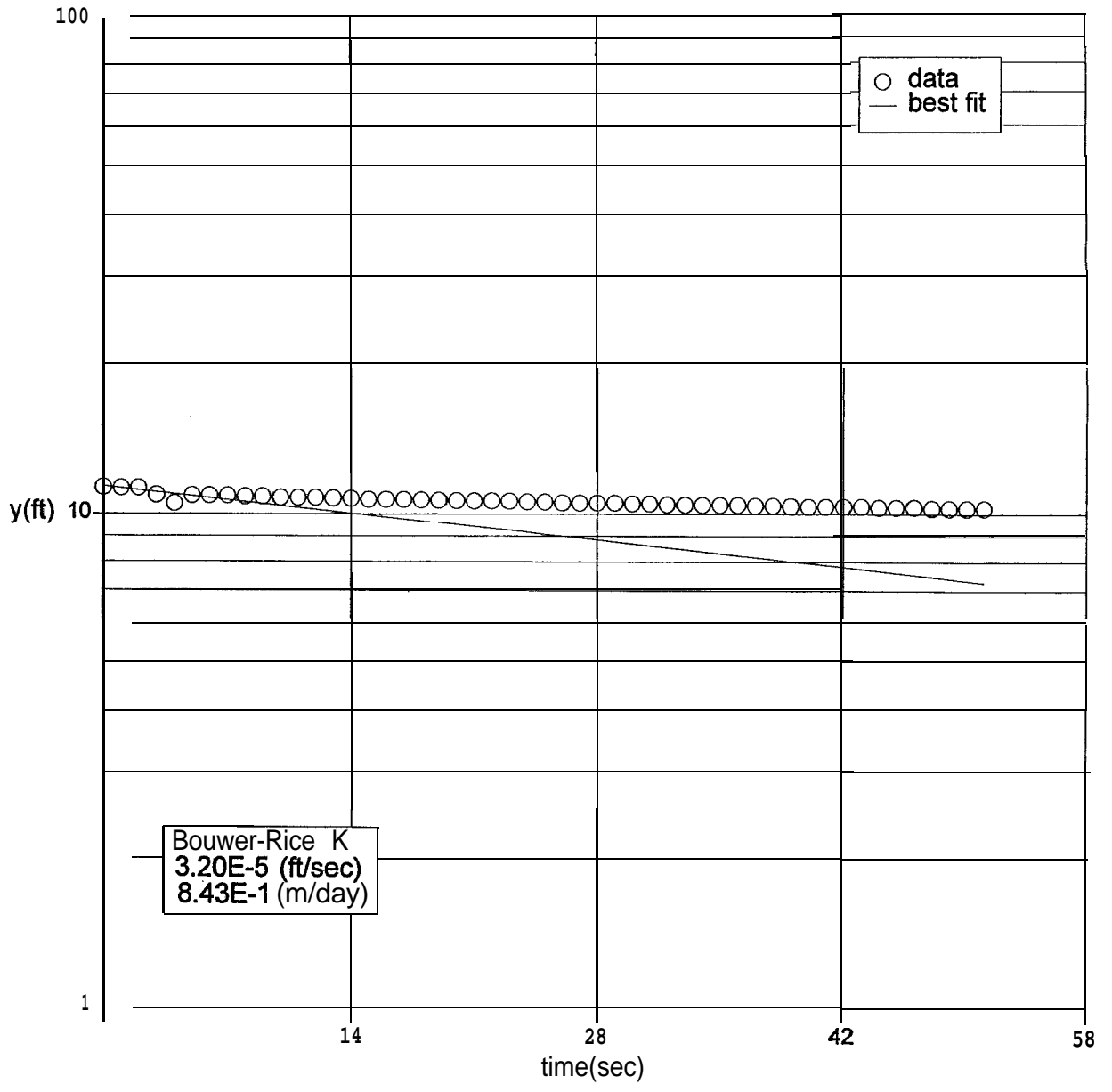
Units : mg/L

-----Concentration-----

Analyte	Sample Result	MS Result	MSD Result	Amount Spiked		%Recovery		Acceptance		
				MS	MSD	MS	MSD	%RPD	Limit	RPD
						MS	MSD	Recov.	RPD	
Chloride	1.04	96.3	92.6	100	100	95	92	3.9	75-125	20
F - wide	ND	49.9	48.2	50.0	50.0	100	96	3.4	75-125	20
N_rite (as N)	ND	10.4	9.03	10.0	10.0	104	90	14	75-125	20
Bromide	ND	47.2	45.1	50.0	50.0	94	90	4.7	75-125	20
N&rate (as N)	1.92	11.3	10.8	10.0	10.0	94	99	4.3	75-125	20
Sulfate	23.6	163	159	150	150	93	90	2.2	75-125	20
Orthophosphate (as P)	ND	19.4	19.4	20.0	20.0	97	97	0.13	75-125	20

ND □ Not Detected

Calculations are performed before rounding to avoid round-off errors in calculated results.



MW-1 Falling Head Test - Barksdale

Slug Test Results

Title: Barksdale
Client: Dupont
Job Number: D4BA7191
Well Number: MW-1 Falling

Hydraulic Conductivity

Bouwer-Rice: 3.203-S (ft/sec), 8.433-1 (m/day)

Well Geometry (ft)

H: 100.0
Le: 7.0
Lw: 47.88
rc: .083
rw: .25

drainable filter pack porosity: 0.2
effective radius: 1.34E-1 (ft)

Bouwer Rice Coefficients

Le/rw: 28.0
A: 2.364
B: 0.34
c: 1.901
ln(Re/rw): 2.789

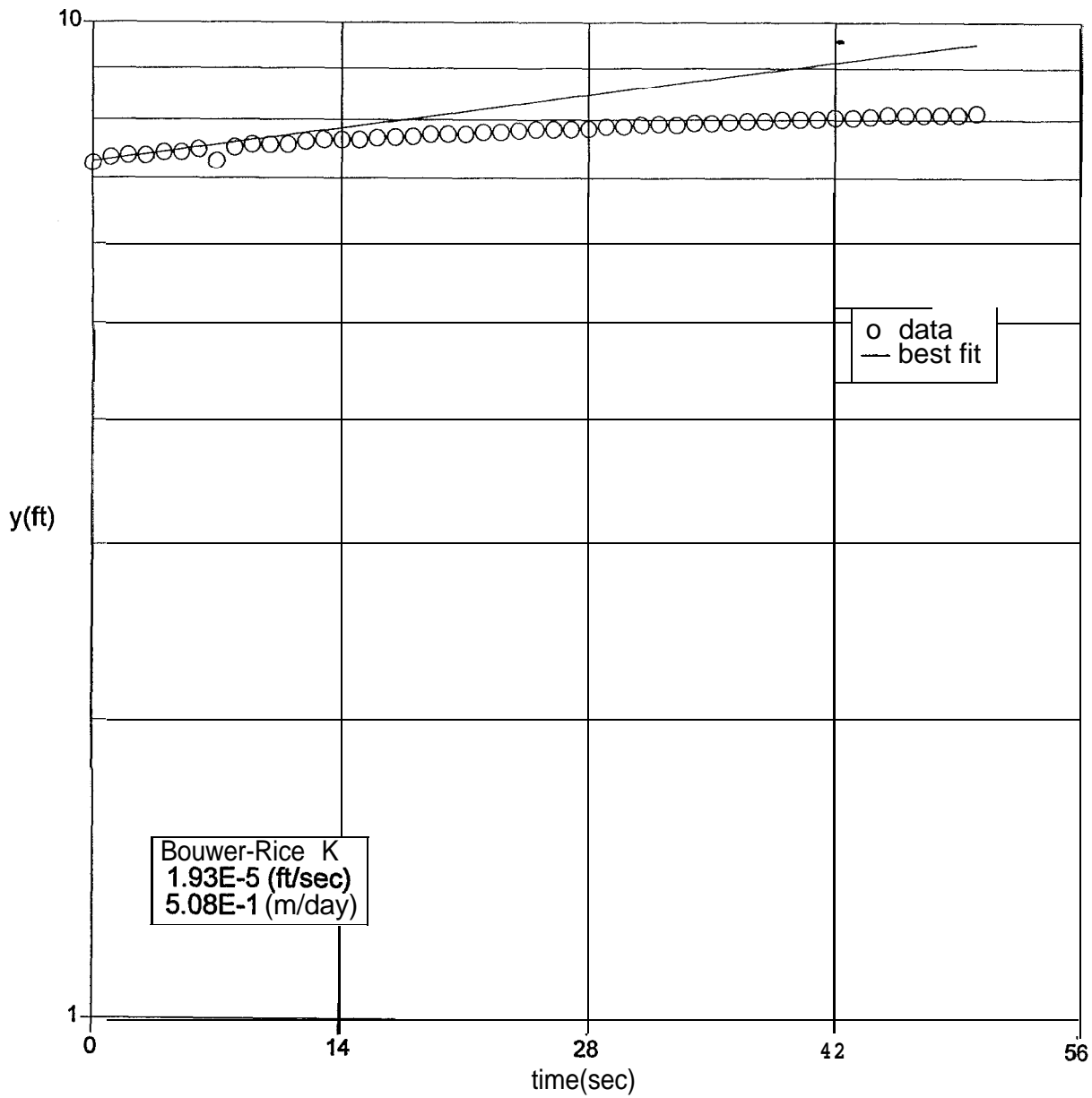
Least Squares Fit

slope: -8.913-3
intercept: 2.43E+0

Recovery Data and Fit

time(sec)	y(ft)	weight	fit(ft)
0.0	11.316	1.0	11.358
1.0	11.283	1.0	11.257
2.0	11.283	1.0	11.157
3.0	10.922	1.0	11.058
4.0	10.496	0.0	10.960
5.0	10.890	1.0	10.863
6.0	10.890	0.0	10.767
7.0	10.890	0.0	10.671
8.0	10.840	0.0	10.577
9.0	10.840	0.0	10.483
10.0	10.791	0.0	10.390
11.0	10.791	0.0	10.298
12.0	10.791	0.0	10.206
13.0	10.758	0.0	10.116
14.0	10.742	0.0	10.026
15.0	10.709	0.0	9.937
16.0	10.709	0.0	9.849
17.0	10.709	0.0	9.762
18.0	10.676	0.0	9.675
19.0	10.660	0.0	9.590
20.0	10.644	0.0	9.505

21.0	10.627	0.0	9.420
22.0	10.627	0.0	9.337
23.0	10.611	0.0	9.254
24.0	10.578	0.0	9 . 1 7 2
25.0	10.578	0.0	9.091
26.0	10.545	0.0	9.010
27.0	10.529	0.0	8.930
28.0	10.529	0.0	8.851
29.0	10.529	0.0	8.773
30.0	10.496	0.0	8.695
31.0	10.496	0.0	8.618
32.0	10.463	0.0	8.541
33.0	10.447	0.0	8.466
34.0	10.447	0.0	8.390
35.0	10.447	0.0	8.316
36.0	10.447	0.0	8.242
37.0	10.398	0.0	8.169
38.0	10.398	0.0	8.097
39.0	10.381	0.0	8.025
40.0	10.365	0.0	7.954
41.0	10.365	0.0	7.883
42.0	10.365	0.0	7.813
43.0	10.365	0.0	7.744
44.0	10.316	0.0	7.676
45.0	10.316	0.0	7.607
46.0	10.316	0.0	7.540
47.0	10.266	0.0	7.473
48.0	10.266	0.0	7.407
49.0	10.266	0.0	7.341
50.0	10.266	0.0	7.276



MW-1 Rising Head Test - Barksdale

Slug Test Results

Title: Barksdale
Client: Dupont
Job Number: D4BA7191
Well Number: MW-1 Rising

Hydraulic Conductivity

Bower-Rice: 1.933-S (ft/sec), 5.08E-1 (m/day)

Well Geometry (ft)

H: 100.0
Le: 7.0
Lw: 47.88
rc: .083
rw: .25

drainable filter pack porosity: 0.2
effective radius: 1.34E-1 (ft)

Bower Rice Coefficients

Le/rw: 28.0
A: 2.364
B: 0.34
c: 1.901
ln(Re/rw): 2.789

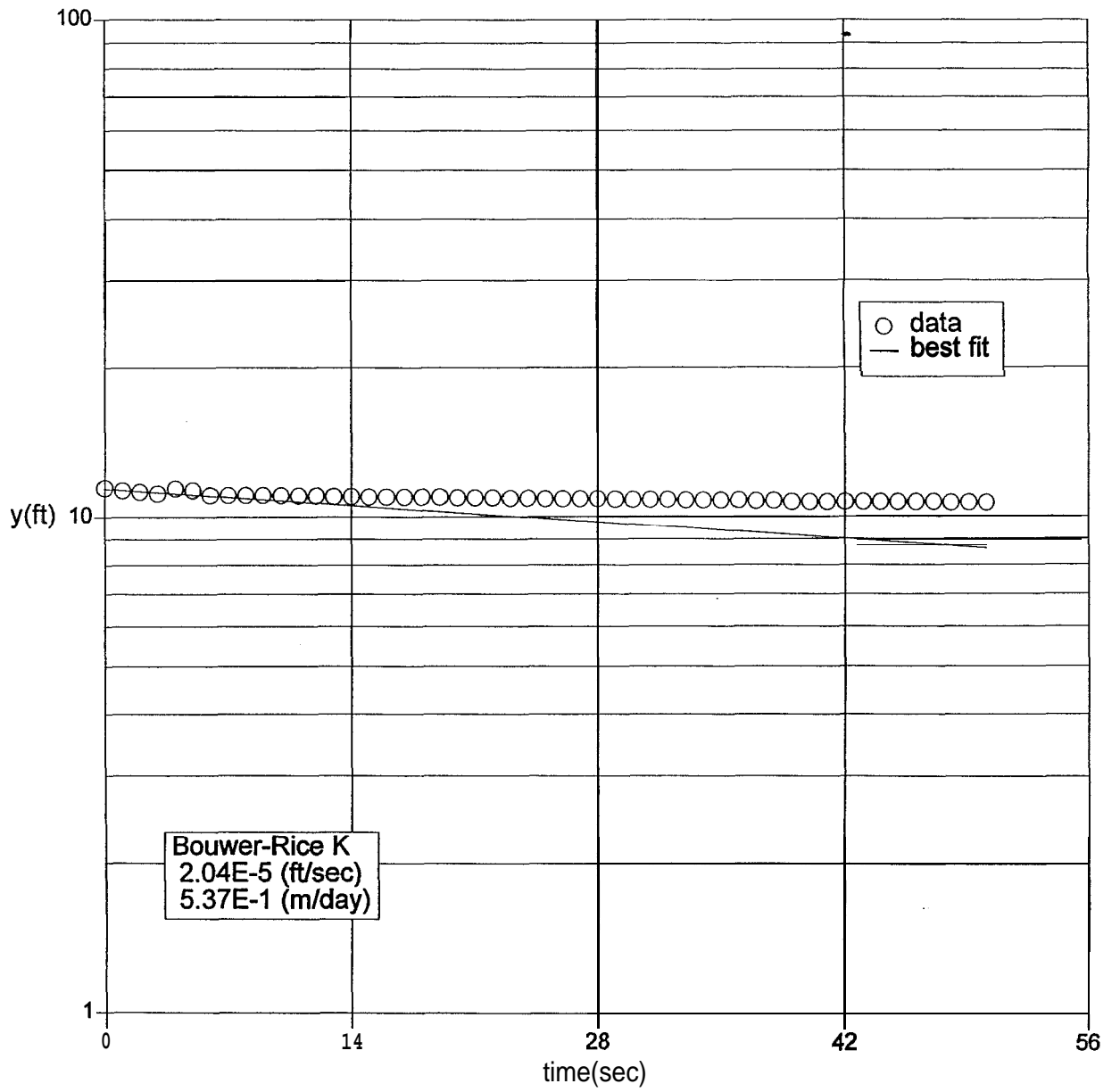
Least Squares Fit

slope: 5.363-3
intercept: 1.98E+0

Recovery Data and Fit

time(sec)	y(ft)	weight	fit(ft)
0.0	7.249	1.0	7.278
1.0	7.347	1.0	7.317
2.0	7.380	1.0	7.357
3.0	7.380	1.0	7.396
4.0	7.429	1.0	7.436
5.0	7.429	0.0	7.476
6.0	7.478	0.0	7.516
7.0	7.282	0.0	7.557
8.0	7.511	0.0	7.597
9.0	7.560	0.0	7.638
10.0	7.560	0.0	7.679
11.0	7.560	0.0	7.721
12.0	7.610	0.0	7.762
13.0	7.642	0.0	7.804
14.0	7.642	0.0	7.846
15.0	7.642	0.0	7.888
16.0	7.675	0.0	7.930
17.0	7.692	0.0	7.973
18.0	7.700	0.0	8.016
19.0	7.741	0.0	8.059
20.0	7.743.	0.0	8.102

21.0	7.741	0.0	8.146
22.0	7.774	0.0	8.190
23.0	7.774	0.0	8.234
24.0	7.806	0.0	8.278
25.0	7.823	0.0	8.322
26.0	7.823	0.0	8.367
27.0	7.823	0.0	8.412
28.0	7.839	0.0	8.457
29.0	7.872	0.0	8.503
30.0	7.872	0.0	8.549
31.0	7.905	0.0	8.594
32.0	7.921	0.0	8.641
33.0	7.905	0.0	8.687
34.0	7.938	0.0	8.734
35.0	7.938	0.0	8.781
36.0	7.954	0.0	8.828
37.0	7.970	0.0	8.875
38.0	7.970	0.0	8.923
39.0	8.003	0.0	8.971
40.0	8.003	0.0	9.019
41.0	8.003	0.0	9.068
42.0	8.036	0.0	9.117
43.0	8.036	0.0	9.166
44.0	8.052	0.0	9.215
45.0	8.085	0.0	9.264
46.0	8.085	0.0	9.314
47.0	8.085	0.0	9.364
48.0	8.085	0.0	9.415
49.0	8.085	0.0	9.465
50.0	8.118	0.0	9.516



MW-2 Falling Head Test - Barksdale

Slug Test Results

Title: Barksdale
Client: Dupont
Job Number: D4BA7191
Well Number: MW-2 Falling

Hydraulic Conductivity

Bouwer-Rice: 2.043-S (ft/sec), 5.373-1 (m/day)

Well Geometry (ft)

H: 100.0
Le: 7.0
Lw: 54.47
rc: .083
rw: .25

drainable filter pack porosity: 0.2
effective radius: 1.34E-1 (ft)

Bouwer Rice Coefficients

Le/rw: 28.0
A: 2.364
B: 0.34
c: 1.901
ln(Re/rw): 2.841

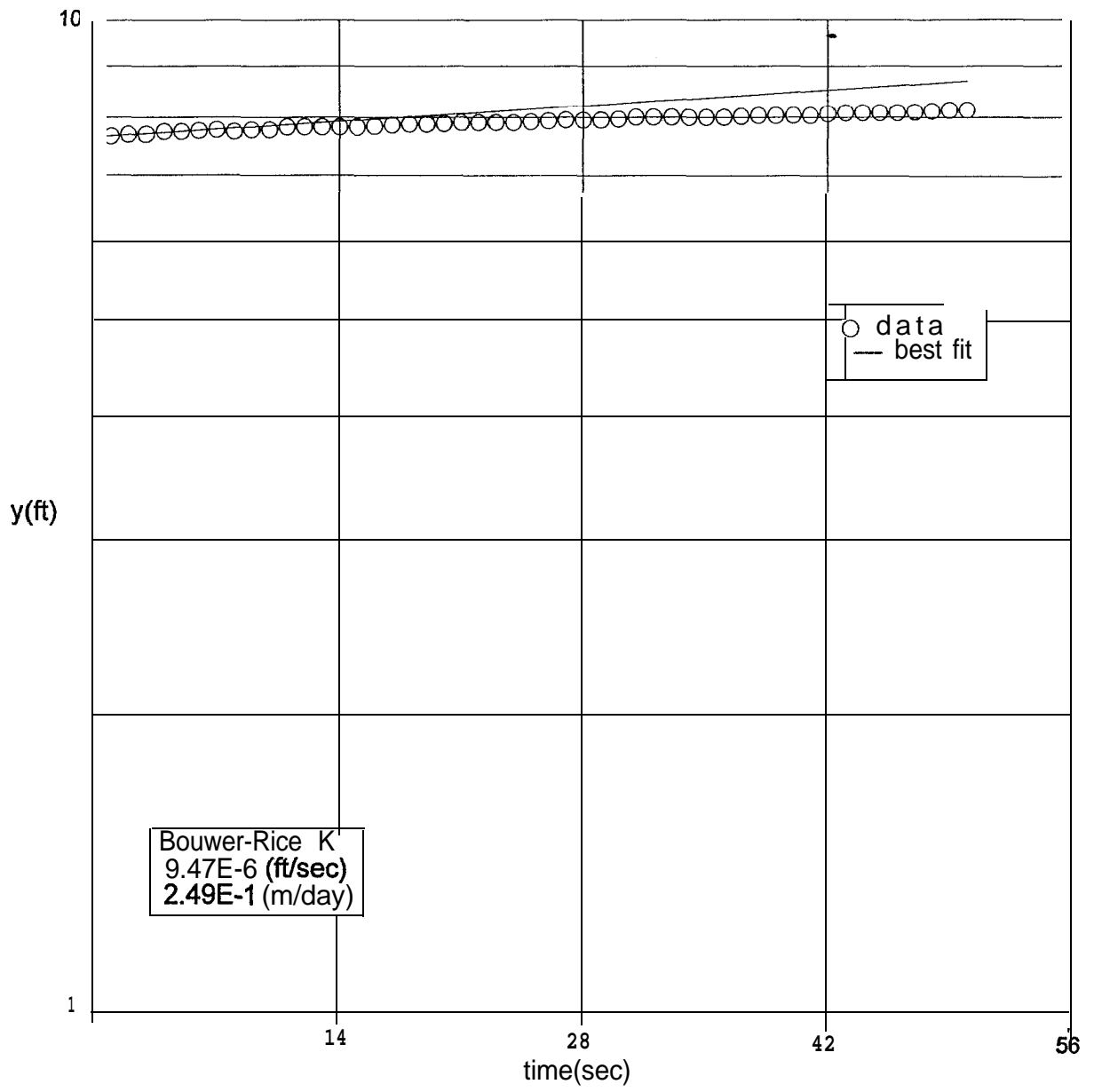
Least Squares Fit

slope: -5.56E-3
intercept: 2.43E+0

Recovery Data and Fit

time(sec)	y(ft)	weight	fit(ft)
0.0	11.447	1.0	11.391
1.0	11.316	1.0	11.328
2.0	11.234	1.0	11.265
3.0	11.152	1.0	11.202
4.0	11.398	0.0	11.140
5.0	11.316	0.0	11.078
6.0	11.054	1.0	11.017
7.0	11.054	0.0	10.956
8.0	11.054	0.0	10.895
9.0	11.054	0.0	10.834
10.0	11.037	0.0	10.774
11.0	11.021	0.0	10.714
12.0	11.021	0.0	10.655
13.0	10.988	0.0	10.596
14.0	10.988	0.0	10.537
15.0	10.972	0.0	10.479
16.0	10.972	0.0	10.420
17.0	10.955	0.0	10.363
18.0	10.955	0.0	10.305
19.0	10.955	0.0	10.248
20.0	10.922	0.0	10.191

21.0	10.922	0.0	10.135
22.0	10.922	0.0	10.078
23.0	10.890	0.0	10.022
24.0	10.890	0.0	9 . 9 6 7
25.0	10.857	0.0	9.911
26.0	10.857	0.0	9.856
27.0	10.857	0.0	9.802
28.0	10.857	0.0	9.747
29.0	10.840	0.0	9.693
30.0	10.824	0.0	9.639
31.0	10.824	0.0	9.586
32.0	10.824	0.0	9.533
33.0	10.791	0.0	9.480
34.0	10.791	0.0	9.427
35.0	10.791	0.0	9.375
36.0	10.791	0.0	9.323
37.0	10.742	0.0	9.271
38.0	10.758	0.0	9.220
39.0	10.709	0.0	9.169
40.0	10.709	0.0	9.118
41.0	10.709	0.0	9.067
42.0	10.709	0.0	9.017
43.0	10.709	0.0	8.967
44.0	10.709	0.0	8.917
45.0	10.709	0.0	8.867
46.0	10.693	0.0	8.818
47.0	10.709	0.0	8.769
48.0	10.660	0.0	8.721
49.0	10.676	0.0	8.672
50.0	10.660	0.0	8.624



MW-2 Rising Head Test - Barksdale

Slug Test Results

Title: Barksdale
Client: Dupont
Job Number: D4BA7191
Well Number: MW-2 Rising

Hydraulic Conductivity

Bouwer-Rice: 9.473-6 (ft/sec), 2.493-1 (m/day)

Well Geometry (ft)

H: 100.0
Le: 7.0
Lw: 54.47
rc: .083
rw: .25

drainable filter pack porosity: 0.2
effective radius: 1.34E-1 (ft)

Bouwer Rice Coefficients

Le/rw: 28.0
A: 2.364
B: 0.34
c: 1.901
ln(Re/rw): 2.841

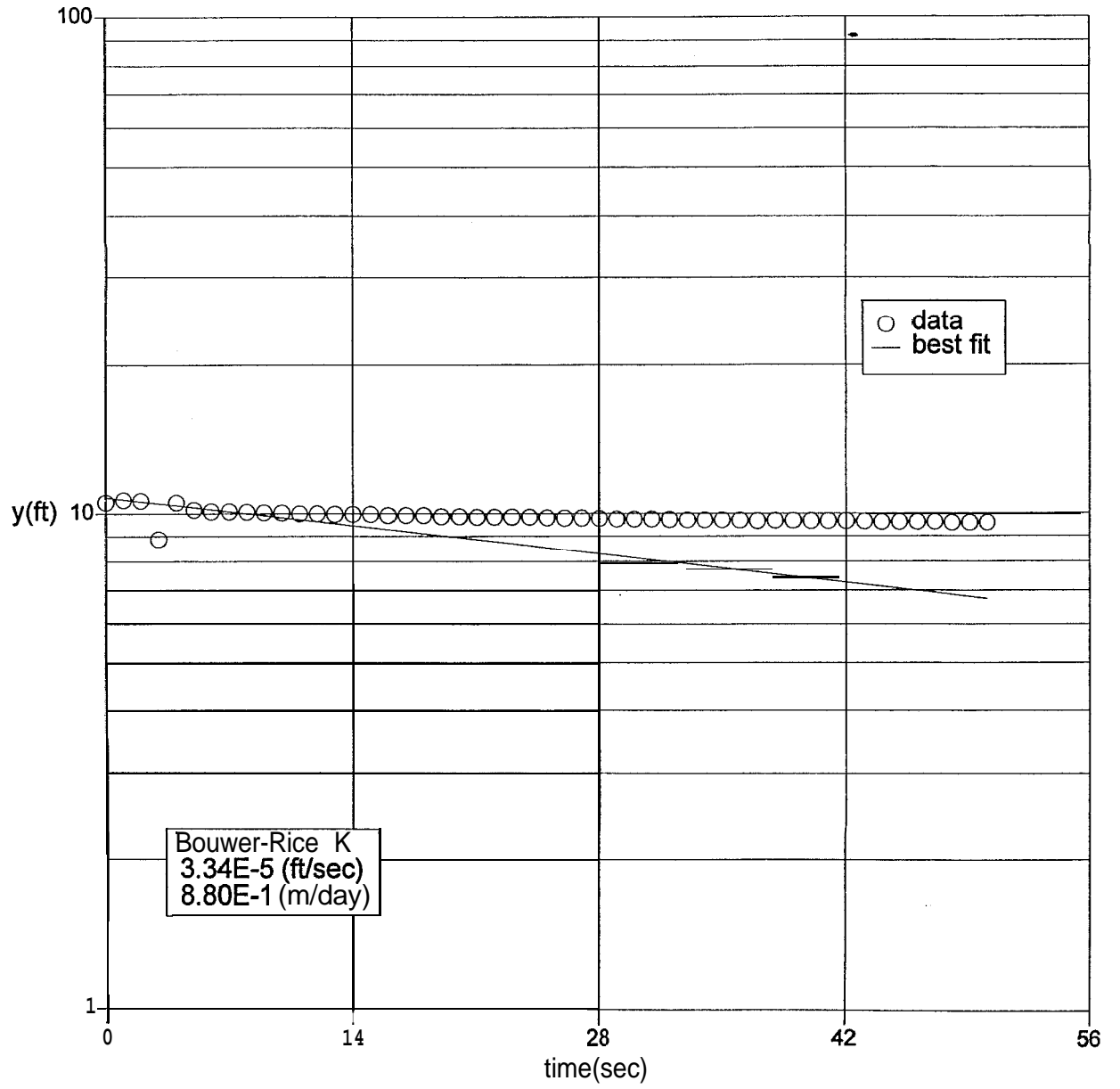
Least Squares Fit

slope: 2.59E-3
intercept: 2.03E+0

Recovery Data and Fit

time (sec)	y (ft)	weight	fit (ft)
0.0	7.642	1.0	7.644
1.0	7.659	1.0	7.663
2.0	7.692	1.0	7.683
3.0	7.692	1.0	7.703
4.0	7.741	1.0	7.723
5.0	7.741	1.0	7.743
6.0	7.757	1.0	7.763
7.0	7.774	0.0	7.783
8.0	7.741	0.0	7.803
9.0	7.774	0.0	7.824
10.0	7.774	0.0	7.844
11.0	7.823	0.0	7.864
12.0	7.823	0.0	7.885
13.0	7.823	0.0	7.905
14.0	7.823	0.0	7.925
15.0	7.823	0.0	7.946
16.0	7.839	0.0	7.967
17.0	7.856	0.0	7.987
18.0	7.872	0.0	8.008
19.0	7.872	0.0	8.029
20.0	7.888	0.0	8.049

21.0	7.905	0.0	8.070
22.0	7.905	0.0	8.091
23.0	7.905	0.0	8.112
24.0	7.905	0.0	8 . 1 3 3
25.0	7.921	0.0	8.154
26.0	7.938	0.0	8.175
27.0	7.954	0.0	8.196
28.0	7.954	0.0	8.218
29.0	7.954	0.0	8.239
30.0	7.970	0.0	8.260
31.0	8.003	0.0	8.282
32.0	8.003	0.0	8.303
33.0	8.003	0.0	8.325
34.0	8.003	0.0	8.346
35.0	8.003	0.0	8.368
36.0	8.003	0.0	8.389
37.0	8.020	0.0	8.411
38.0	8.036	0.0	8.433
39.0	8.036	0.0	8.455
40.0	8.036	0.0	8.477
41.0	8.036	0.0	8.499
42.0	8.069	0.0	8.521
43.0	8.085	0.0	8.543
44.0	8.085	0.0	8.565
45.0	8.085	0.0	8.587
46.0	8.085	0.0	8.609
47.0	8.102	0.0	8.631
48.0	8.118	0.0	8.654
49.0	8.134	0.0	8.676
50.0	8.134	0.0	8.699



MW-3 Falling Head Test - Barksdale

Slug Test Results

Title: Barksdale
Client: Dupont
Job Number: D4BA7191
Well Number: MW-3 Falling

Hydraulic Conductivity

Bower-Rice: 3.343-5 (ft/sec), 8.80E-1 (m/day)

Well Geometry (ft)

H: 100.0
Le: 7.0
Lw: 44.25
rc: .083 ,
rw: .25

drainable filter pack porosity: 0.2
effective radius: 1.34E-1 (ft)

Bower Rice Coefficients

Le/rw: 28.0
A: 2.364
B: 0.34
c: 1.901
ln(Re/rw): 2.758

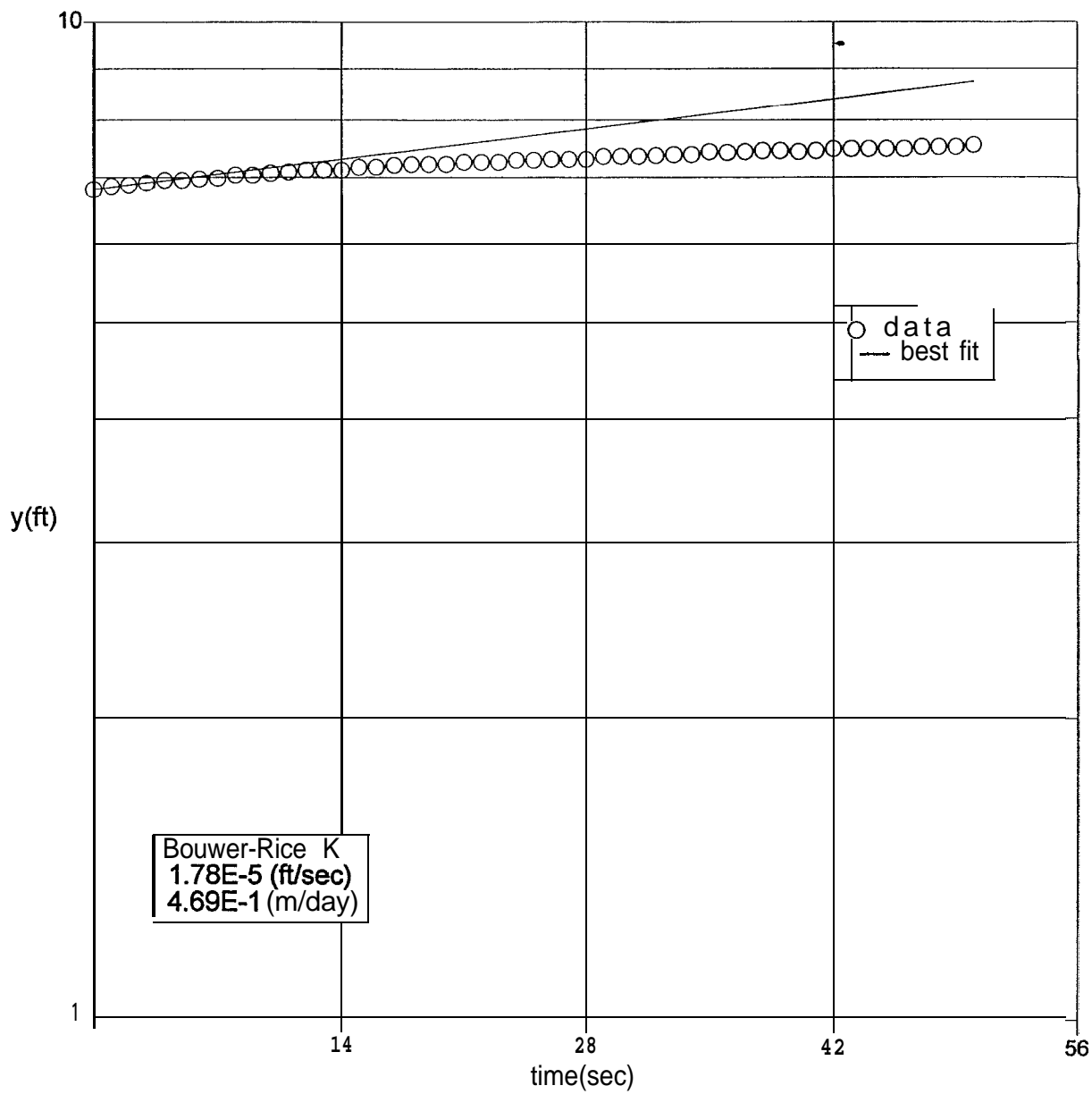
Least Squares Fit

slope: -9.40E-3
intercept: 2.38E+0

Recovery Data and Fit

time(sec)	y(ft)	weight	fit(ft)
0.0	10.545	0.0	10.791
1.0	10.660	0.0	10.690
2.0	10.627	0.0	10.590
3.0	8.872	0.0	10.491
4.0	10.529	1.0	10.393
5.0	10.184	1.0	10.296
6.0	10.102	1.0	10.199
7.0	10.102	1.0	10.104
8.0	10.086	1.0	10.009
9.0	10.053	0.0	9.916
10.0	10.037	0.0	9.823
11.0	10.004	0.0	9.731
12.0	10.004	0.0	9.640
13.0	9.971	0.0	9.550
14.0	9.971	0.0	9.460
15.0	9.971	0.0	9.372
16.0	9.922	0.0	9.284
17.0	9.922	0.0	9.197
18.0	9.922	0.0	9.111
19.0	9.873	0.0	9.026
20.0	9.873	0.0	8.942

21.0	9.840	0.0	8.858
22.0	9.840	0.0	8.775
23.0	9.840	0.0	8.693
24.0	9.840	0.0	8 . 6 1 2
25.0	9.807	0.0	8.531
26.0	9.791	0.0	8.451
27.0	9.791	0.0	8.372
28.0	9.774	0.0	8.294
29.0	9.742	0.0	8.216
30.0	9.742	0.0	8.139
31.0	9.742	0.0	8.063
32.0	9.725	0.0	7.988
33.0	9.709	0.0	7.913
34.0	9.709	0.0	7.839
35.0	9.709	0.0	7.765
36.0	9.692	0.0	7.693
37.0	9.660	0.0	7.621
38.0	9.676	0.0	7.550
39.0	9.676	0.0	7.479
40.0	9.660	0.0	7.409
41.0	9.660	0.0	7.340
42.0	9.660	0.0	7.271
43.0	9.643	0.0	7.203
44.0	9.610	0.0	7.135
45.0	9.610	0.0	7.069
46.0	9.610	0.0	7.003
47.0	9.610	0.0	6.937
48.0	9.578	0.0	6.872
49.0	9.578	0.0	6.808
50.0	9.578	0.0	6.744



MW-3 Rising Head Test - Barksdale

Slug Test Results

Title: Barksdale
Client: Dupont
Job Number: D4BA7191
Well Number: MW-3 Rising

Hydraulic Conductivity

Bouwer-Rice: 1-783-5 (ft/sec), 4.693-1 (m/day)

Well Geometry (ft)

H: 100.0
Le: 7.0
Lw: 44.25
rc: .083
rw: .25

drainable filter pack porosity: 0.2
effective radius: 1.34E-1 (ft)

Bouwer Rice Coefficients

Le/rw: 28.0
A: 2.364
B: 0.34
c: 1.901
ln(Re/rw): 2.758

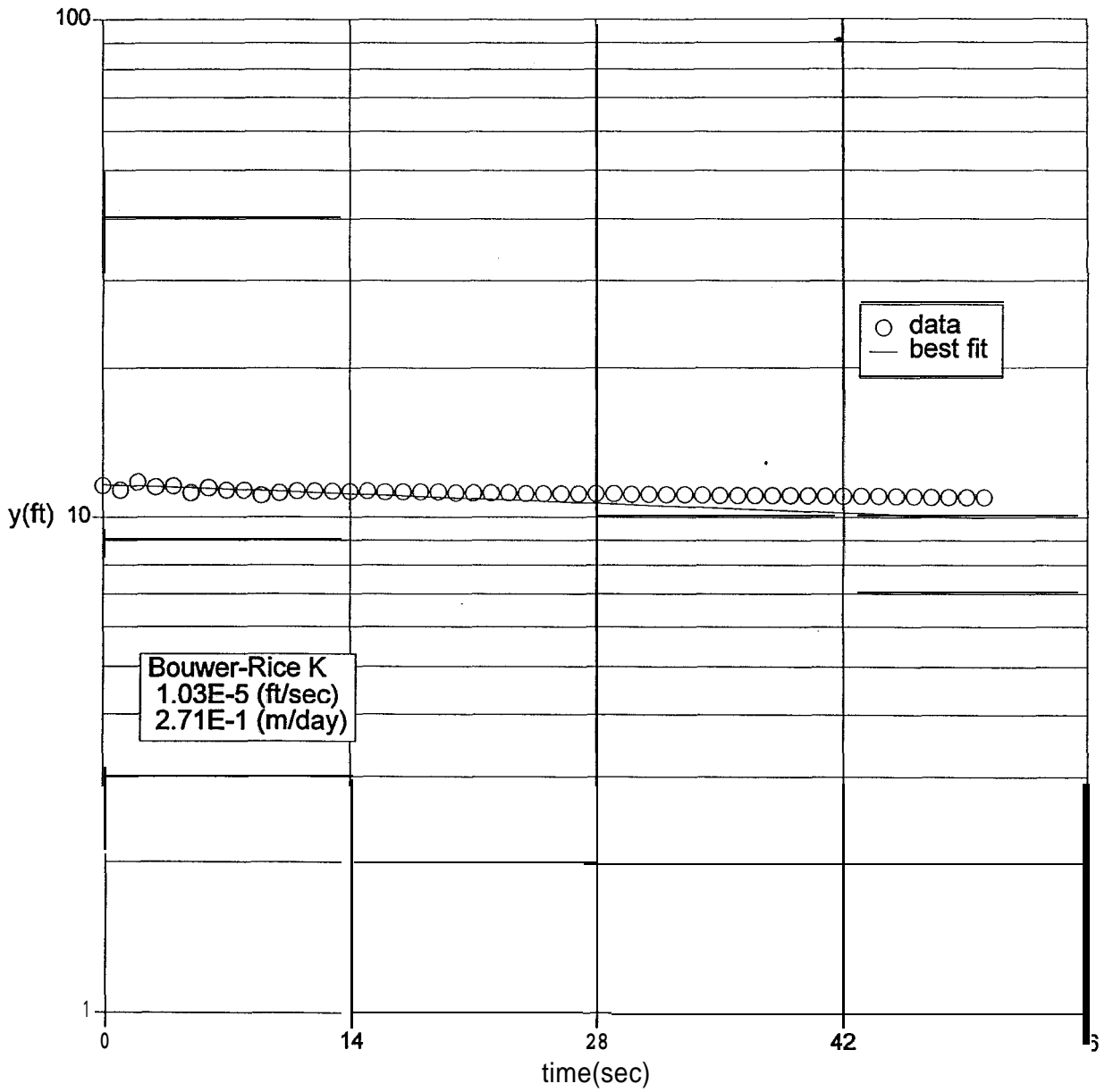
Least Squares Fit

slope: 5.01E-3
intercept: 1.92E+0

Recovery Data and Fit

time (sec)	y(ft)	weight	fit(ft)
0.0	6.806	1.0	6.809
1.0	6.855	1.0	6.844
2.0	6.872	1.0	6.878
3.0	6.904	1.0	6.913
4.0	6.954	1.0	6.947
5.0	6.954	0.0	6.982
6.0	6.970	0.0	7.017
7.0	6.986	0.0	7.052
8.0	7.036	0.0	7.088
9.0	7.036	0.0	7.123
10.0	7.068	0.0	7.159
11.0	7.085	0.0	7.195
12.0	7.118	0.0	7.231
13.0	7.118	0.0	7.267
14.0	7.118	0.0	7.304
15.0	7.167	0.0	7.340
16.0	7.167	0.0	7.377
17.0	7.200	0.0	7.414
18.0	7.216	0.0	7.452
19.0	7.216	0.0	7.489
20.0	7.216	0.0	7.527

21.0	7.249	0.0	7.564
22.0	7.249	0.0	7.602
23.0	7.249	0.0	7.640
24.0	7.282	0.0	7 . 6 7 9
25.0	7.282	0.0	7.717
26.0	7.298	0.0	7.756
27.0	7.298	0.0	7.795
28.0	7.298	0.0	7.834
29.0	7.347	0.0	7.873
30.0	7.347	0.0	7.913
31.0	7.347	0.0	7.953
32.0	7.364	0.0	7.993
33.0	7.380	0.0	8.033
34.0	7.380	0.0	8.073
35.0	7.429	0.0	8.113
36.0	7.413	0.0	8.154
37.0	7.429	0.0	8.195
38.0	7.446	0.0	8.236
39.0	7.446	0.0	8.278
40.0	7.429	0.0	8.319
41.0	7.446	0.0	8.361
42.0	7.478	0.0	8.403
43.0	7.478	0.0	8.445
44.0	7.478	0.0	8.487
45.0	7.478	0.0	8.530
46.0	7.478	0.0	8.573
47.0	7.511	0.0	8.616
48.0	7.511	0.0	8.659
49.0	7.511	0.0	8.703
50.0	7.544	0.0	8.746



MW-4 Falling Head Test - Barksdale

Slug Test Results

Title: Barksdale
Client: Dupont
Job Number: D4BA7191
Well Number: MW-4 Falling

Hydraulic Conductivity

Bouwer-Rice: 1.03E-5 (ft/sec), 2.71E-1 (m/day)

Well Geometry (ft)

H: 100.0
Le: 7.0
Lw: 28.57
rc: .083
rw: .25

drainable filter pack porosity: 0.2
effective radius: 1.34E-1 (ft)

Bouwer Rice Coefficients

Le/rw: 28.0
A: 2.364
B: 0.34
c: 1.901
ln(Re/rw): 2.596

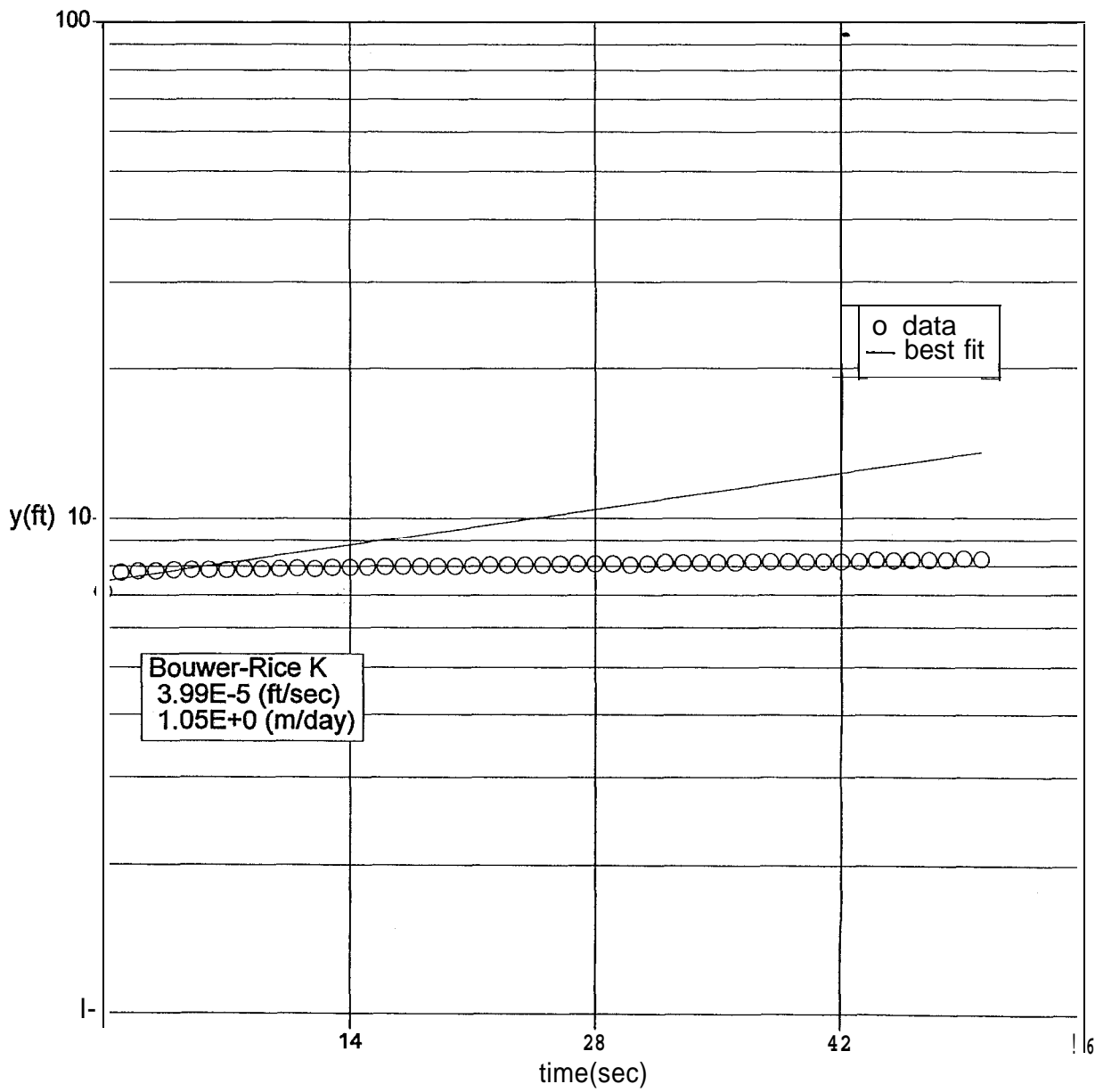
Least Squares Fit

slope: -3.08E-3
intercept: 2.45E+0

Recovery Data and Fit

time(sec)	y(ft)	weight	fit(ft)
0.0	11.578	1.0	11.618
1.0	11.332	0.0	11.582
2.0	11.759	0.0	11.546
3.0	11.496	0.0	11.511
4.0	11.546	1.0	11.475
5.0	11.185	0.0	11.440
6.0	11.447	1.0	11.405
7.0	11.316	1.0	11.370
8.0	11.316	1.0	11.335
9.0	11.054	0.0	11.300
10.0	11.185	0.0	11.265
11.0	11.283	0.0	11.231
12.0	11.283	0.0	11.196
13.0	11.267	0.0	11.162
14.0	11.250	0.0	11.127
15.0	11.283	0.0	11.093
16.0	11.234	0.0	11.059
17.0	11.234	0.0	11.025
18.0	11.234	0.0	10.991
19.0	11.234	0.0	10.957
20.0	11.185	0.0	10.924

21.0	11.185	0.0	10.890
22.0	11.185	0.0	10.857
23.0	11.185	0.0	10.823
24.0	11.152	0.0	10.790
25.0	11.152	0.0	10.757
26.0	11.152	0.0	10.724
27.0	11.152	0.0	10.691
28.0	11.152	0.0	10.658
29.0	11.152	0.0	10.625
30.0	11.119	0.0	10.592
31.0	11.119	0.0	10.560
32.0	11.103	0.0	10.527
33.0	11.103	0.0	10.495
34.0	11.070	0.0	10.463
35.0	11.054	0.0	10.431
36.0	11.054	0.0	10.399
37.0	11.054	0.0	10.367
38.0	11.054	0.0	10.335
39.0	11.054	0.0	10.303
40.0	11.054	0.0	10.271
41.0	11.021	0.0	10.240
42.0	11.021	0.0	10.208
43.0	11.021	0.0	10.177
44.0	11.021	0.0	10.145
45.0	11.004	0.0	10.114
46.0	11.004	0.0	10.083
47.0	10.972	0.0	10.052
48.0	10.972	0.0	10.021
49.0	10.972	0.0	9.990
50.0	10.972	0.0	9.960



MW-4 Rising Head Test - Barksdale

Slug Test Results

Title: Barksdale
Client: Dupont
Job Number: D4BA7191
Well Number: MW-4 Rising

Hydraulic Conductivity

Bower-Rice: 3.99E-5 (ft/sec), 1.05E+0 (m/day)

Well Geometry (ft)

H: 100.0
Le: 7.0
Lw: 28.57
rc: .083
rw: .25

drainable filter pack porosity: 0.2
effective radius: 1.34E-1 (ft)

Bower Rice Coefficients

Le/rw: 28.0
A: 2.364
B: 0.34
c: 1.901
ln(Re/rw): 2.596

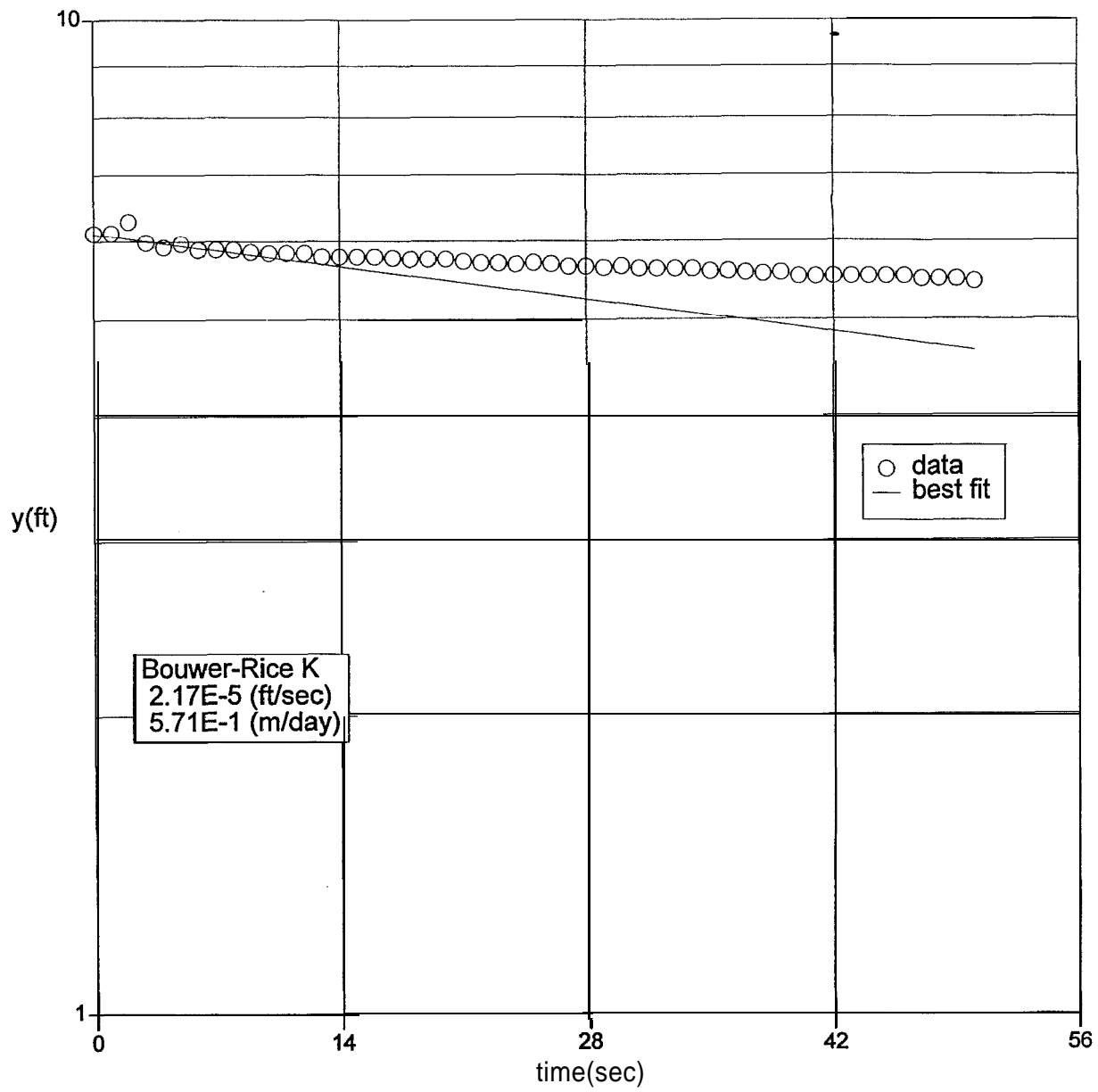
Least Squares Fit

slope: 1.19E-2
intercept: 2.01E+0

Recovery Data and Fit

time(sec)	y(ft)	weight	fit(ft)
0.0	7.118	1.0	7.460
1.0	7.774	1.0	7.550
2.0	7.823	1.0	7.640
3.0	7.823	1.0	7.732
4.0	7.872	1.0	7.824
5.0	7.872	1.0	7.918
6.0	7.872	1.0	8.013
7.0	7.872	0.0	8.109
8.0	7.905	0.0	8.206
9.0	7.905	0.0	8.305
10.0	7.905	0.0	8.404
11.0	7.921	0.0	8.505
12.0	7.905	0.0	8.607
13.0	7.954	0.0	8.710
14.0	7.954	0.0	8.815
15.0	7.970	0.0	8.920
16.0	7.987	0.0	9.027
17.0	8.003	0.0	9.135
18.0	8.003	0.0	9.245
19.0	8.003	0.0	9.356
20.0	8.003	0.0	9.468

21.0	8.020	0.0	9.581
22.0	8.036	0.0	9.696
23.0	8.036	0.0	9.812
24.0	8.036	0.0	9.930
25.0	8.036	0.0	10.049
26.0	8.069	0.0	10.170
27.0	8.085	0.0	10.292
28.0	8.085	0.0	10.415
29.0	8.085	0.0	10.540
30.0	8.036	0.0	10.666
31.0	8.085	0.0	10.794
32.0	8.134	0.0	10.923
33.0	8.118	0.0	11.054
34.0	8.118	0.0	11.187
35.0	8.134	0.0	11.321
36.0	8.134	0.0	11.457
37.0	8.167	0.0	11.594
38.0	8.167	0.0	11.733
39.0	8.167	0.0	11.874
40.0	8.167	0.0	12.016
41.0	8.167	0.0	12.160
42.0	8.167	0.0	12.306
43.0	8.167	0.0	12.453
44.0	8.216	0.0	12.602
45.0	8.200	0.0	12.754
46.0	8.216	0.0	12.906
47.0	8.216	0.0	13.061
48.0	8.216	0.0	13.218
49.0	8.266	0.0	13.376
50.0	8.249	0.0	13.537



MW-5 Falling Head Test - Barksdaie

Slug Test Results

Title: Barksdale
Client: Dupont
Job Number: D4BA7191
Well Number: MW-5 Falling

Hydraulic Conductivity

Bouwer-Rice: 2.173-5 (ft/sec), 5.71E-1 (m/day)

Well Geometry (ft)

H: 100.0
Le: 7.0
Lw: 84.6
rc: .083
rw: .25

drainable filter pack porosity: 0.2
effective radius: 1.34E-1 (ft)

Bouwer Rice Coefficients

Le/rw: 28.0
A: 2.364
B: 0.34
c: 1.901
ln(Re/rw): 3.093

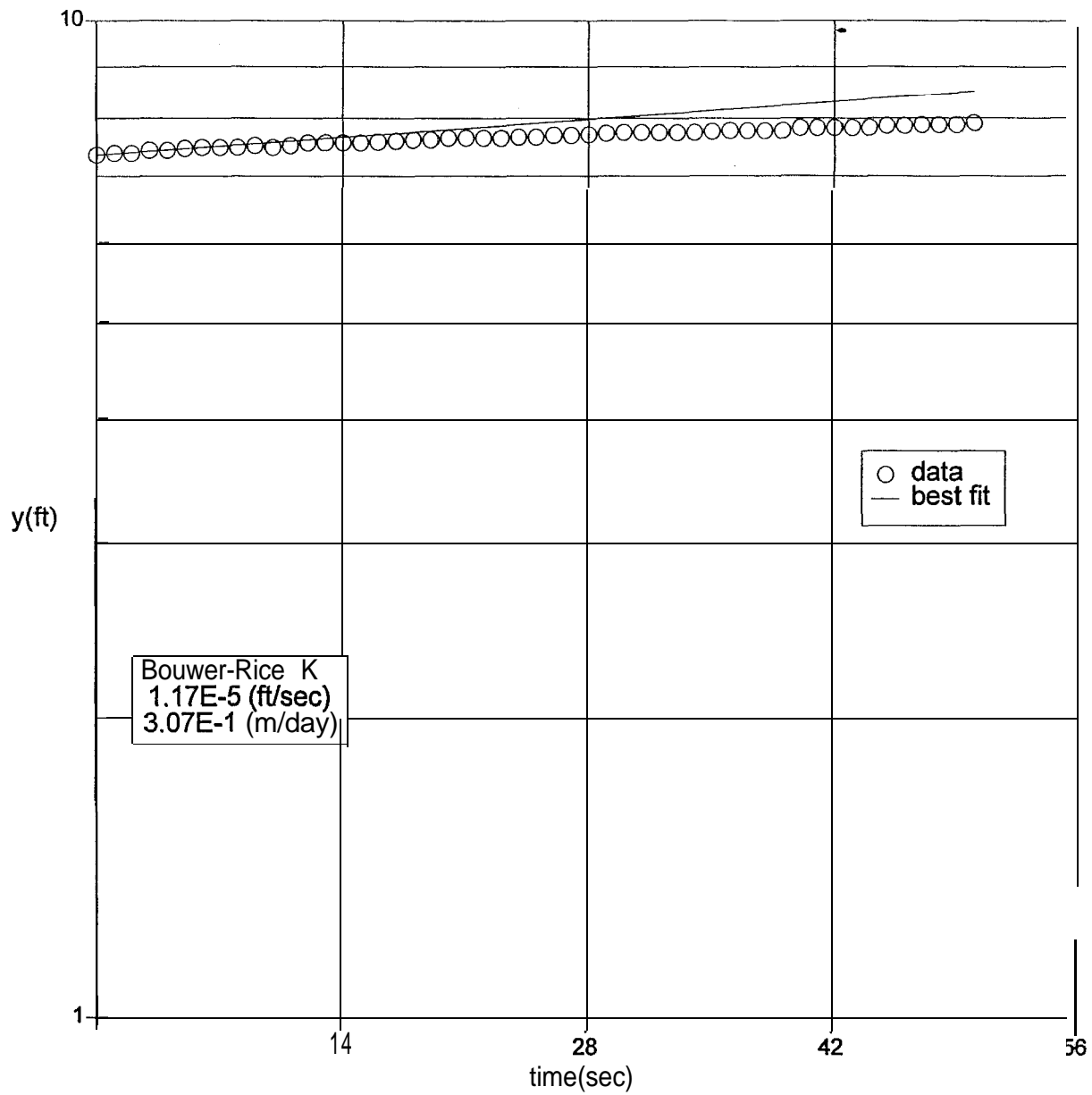
Least Squares Fit

slope: -5.44E-3
intercept: 1.81E+0

Recovery Data and Fit

time(sec)	y(ft)	weight	fit(ft)
0.0	6.119	1.0	6.109
1.0	6.119	1.0	6.076
2.0	6.283	0.0	6.043
3.0	5.988	1.0	6.010
4.0	5.922	1.0	5.978
5.0	5.972	0.0	5.945
6.0	5.890	1.0	5.913
7.0	5.890	1.0	5.881
8.0	5.890	1.0	5.849
9.0	5.857	0.0	5.817
10.0	5.840	0.0	5.786
11.0	5.840	0.0	5.754
12.0	5.840	0.0	5.723
13.0	5.791	0.0	5.692
14.0	5.791	0.0	5.661
15.0	5.791	0.0	5.631
16.0	5.791	0.0	5.600
17.0	5.775	0.0	5.570
18.0	5.758	0.0	5.540
19.0	5.758	0.0	5.509
20.0	5.758	0.0	5.480

21.0	5.726	0.0	5.450
22.0	5.709	0.0	5.420.
23.0	5.709	0.0	5.391
24.0	5.693	0.0	5 . 3 6 2
25.0	5.709	0.0	5.333
26.0	5.693	0.0	5.304
27.0	5.660	0.0	5.275
28.0	5.660	0.0	5.246
29.0	5.644	0.0	5.218
30.0	5.660	0.0	5.190
31.0	5.627	0.0	5.161
32.0	5.627	0.0	5.133
33.0	5.627	0.0	5.106
34.0	5.627	0.0	5.078
35.0	5.594	0.0	5.050
36.0	5.594	0.0	5.023
37.0	5.578	0.0	4.996
38.0	5.562	0.0	4.969
39.0	5.578	0.0	4.942
40.0	5.529	0.0	4.915
41.0	5.529	0.0	4.888
42.0	5.529	0.0	4.862
43.0	5.529	0.0	4.835
44.0	5.529	0.0	4.809
45.0	5.529	0.0	4.783
46.0	5.529	0.0	4.757
47.0	5.496	0.0	4.731
48.0	5.496	0.0	4.706
49.0	5.496	0.0	4.680
50.0	5.463	0.0	4.655



MW-5 Rising Head Test - Barksdale

Slug Test Results

Title: Barksdale
Client: Dupont
Job Number: D4BA7191
Well Number: MW-5 Rising

Hydraulic Conductivity

Bouwer-Rice: 1.17E-5 (ft/sec), 3.07E-1 (m/day)

Well Geometry (ft)

H: 100.0
Le: 7.0
Lw: 84.6
rc: .083
rw: .25

drainable filter pack porosity: 0.2
effective radius: 1.34E-1 (ft)

Bouwer Rice Coefficients

Le/rw: 28.0
A: 2.364
B: 0.34
c: 1.901
ln(Re/rw): 3.093

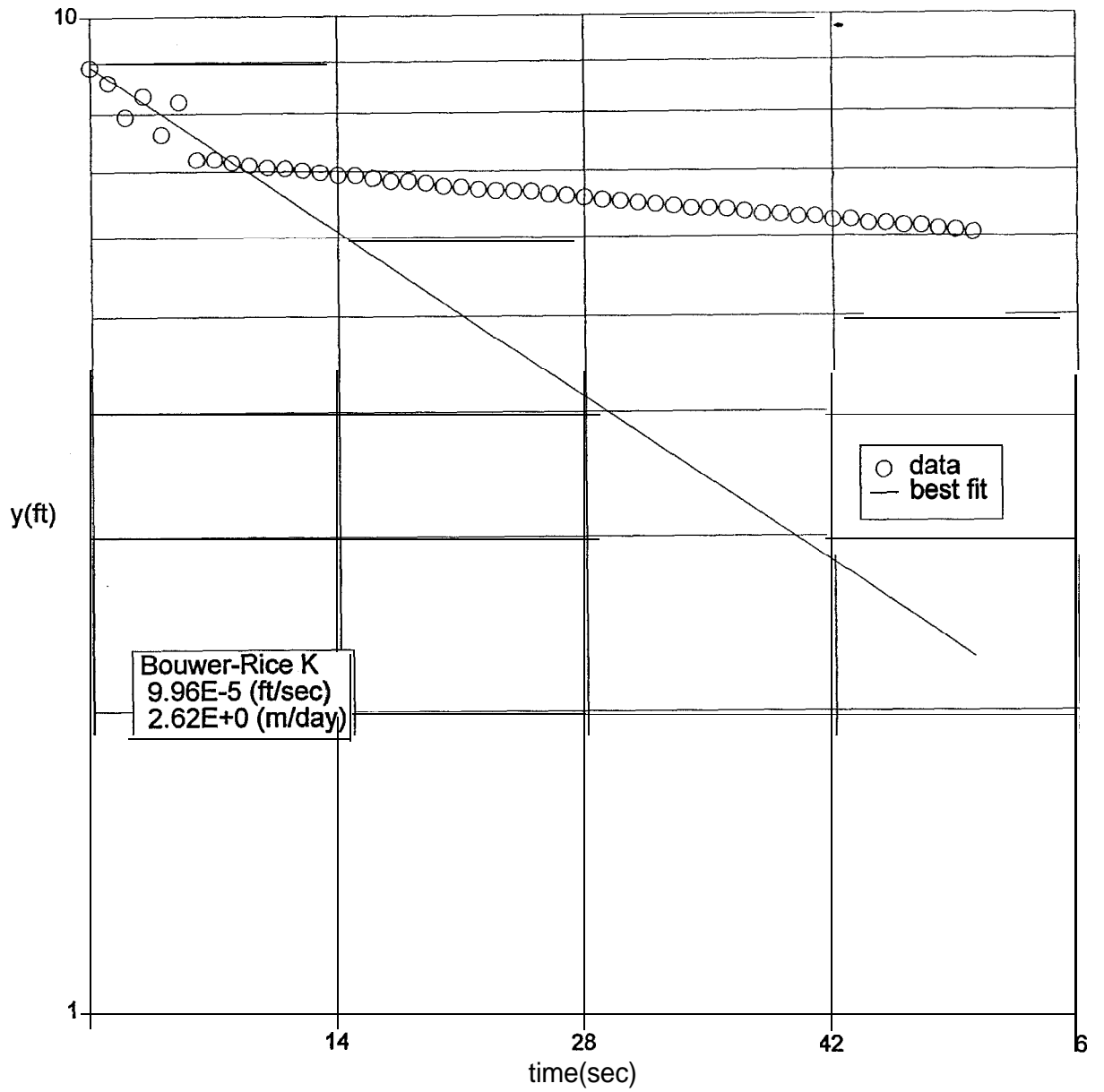
Least Squares Fit

slope: 2.923-3
intercept: 1.99E+0

Recovery Data and Fit

time (sec)	y(ft)	weight	fit (ft)
0.0	7.347	1.0	7.350
1.0	7.380	1.0	7.372
2.0	7.380	1.0	7.393
3.0	7.429	1.0	7.415
4.0	7.429	1.0	7.437
5.0	7.462	1.0	7.458
6.0	7.478	1.0	7.480
7.0	7.478	0.0	7.502
8.0	7.478	0.0	7.524
9.0	7.511	0.0	7.546
10.0	7.478	0.0	7.568
11.0	7.511	0.0	7.590
12.0	7.560	0.0	7.613
13.0	7.560	0.0	7.635
14.0	7.560	0.0	7.657
15.0	7.560	0.0	7.680
16.0	7.577	0.0	7.702
17.0	7.593	0.0	7.725
18.0	7.610	0.0	7.747
19.0	7.610	0.0	7.770
20.0	7.642	0.0	7.793

21.0	7.642	0.0	7.816
22.0	7.642	0.0	7.838
23.0	7.642	0.0	7.861
24.0	7.659	0.0	7.884
25.0	7.659	0.0	7.907
26.0	7.692	0.0	7.931
27.0	7.692	0.0	7.954
28.0	7.708	0.0	7.977
29.0	7.724	0.0	8.000
30.0	7.741	0.0	8.024
31.0	7.741	0.0	8.047
32.0	7.741	0.0	8.071
33.0	7.741	0.0	8.095
34.0	7.741	0.0	8.118
35.0	7.757	0.0	8.142
36.0	7.774	0.0	8.166
37.0	7.774	0.0	8.190
38.0	7.774	0.0	8.214
39.0	7.774	0.0	8.238
40.0	7.823	0.0	8.262
41.0	7.823	0.0	8.286
42.0	7.823	0.0	8.310
43.0	7.823	0.0	8.335
44.0	7.823	0.0	8.359
45.0	7.856	0.0	8.384
46.0	7.856	0.0	8.408
47.0	7.872	0.0	8.433
48.0	7.872	0.0	8.457
49.0	7.872	0.0	8.482
50.0	7.905	0.0	8.507



PZ-1 Falling Head Test - Barksdale

Slug Test Results

Title: Barksdale
Client: Dupont
Job Number: D4BA7191
Well Number: PZ-1 Falling

Hydraulic Conductivity

Bouwer-Rice: 9.96E-5 (ft/sec), 2.62E+0 (m/day)

Well Geometry (ft)

H: 100.0
Le: 7.0
Lw: 50.8
rc: .083
rw: .25

drainable filter pack porosity: 0.2
effective radius: 1.34E-1 (ft)

Bouwer Rice Coefficients

Le/rw: 28.0
A: 2.364
B: 0.34
c: 1.901
ln(Re/rw): 2.812

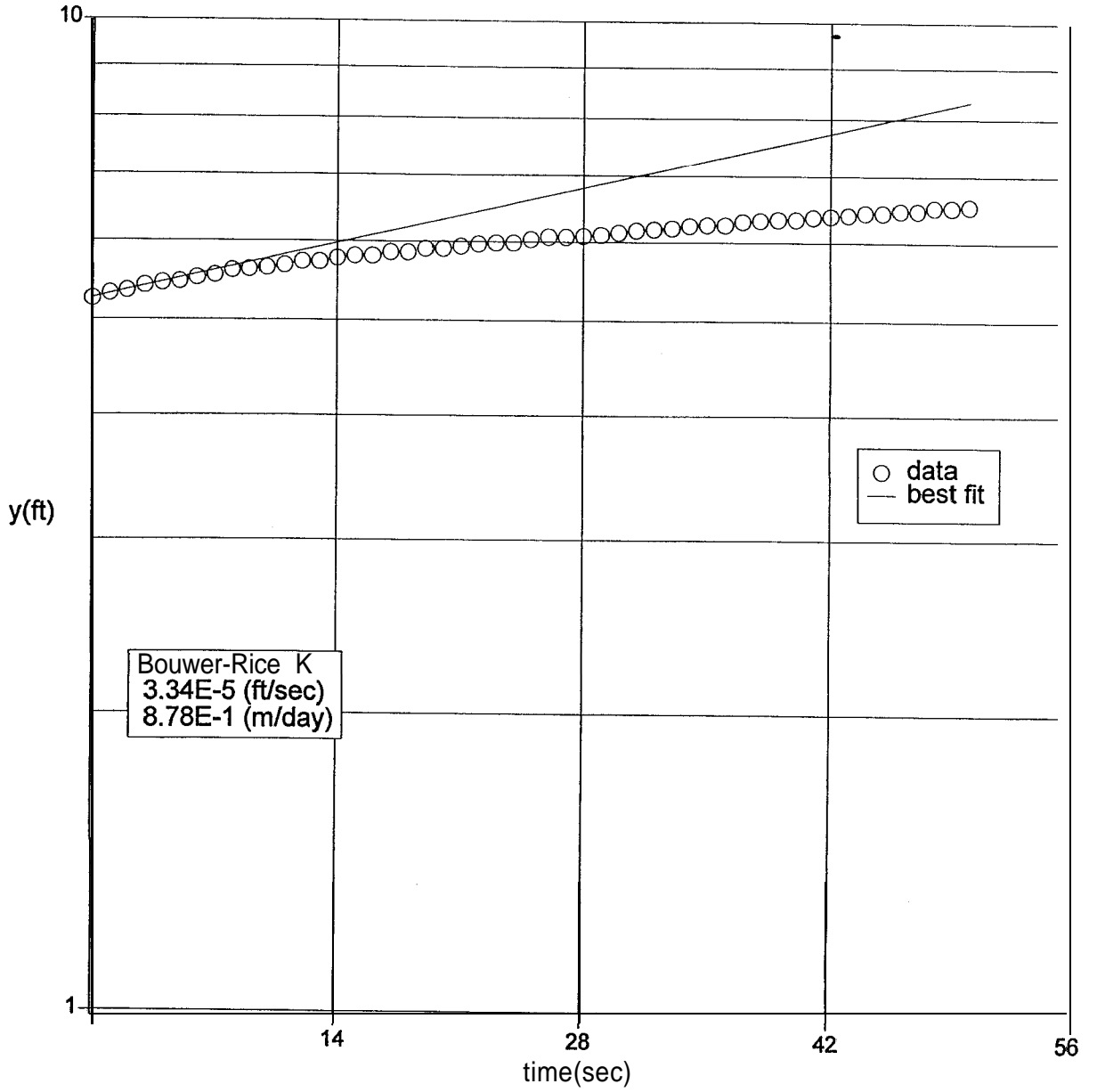
Least Squares Fit

slope: -2.75E-2
intercept: 2.19E+0

Recovery Data and Fit

time (sec)	y (ft)	weight	fit (ft)
0.0	8.907	1.0	8.927
1.0	8.596	1.0	8.685
2.0	7.940	0.0	8.450
3.0	8.333	1.0	8.221
4.0	7.628	0.0	7.998
5.0	8.218	1.0	7.781
6.0	7.202	1.0	7.570
7.0	7.202	1.0	7.365
8.0	7.152	1.0	7.166
9.0	7.103	1.0	6.971
10.0	7.070	0.0	6.782
11.0	7.054	0.0	6.599
12.0	7.021	0.0	6.420
13.0	6.988	0.0	6.246
14.0	6.939	0.0	6.077
15.0	6.939	0.0	5.912
16.0	6.890	0.0	5.752
17.0	6.841	0.0	5.596
18.0	6.841	0.0	5.444
19.0	6.808	0.0	5.297
20.0	6.759	0.0	5.153

21.0	6.742	0.0	5.013
22.0	6.710	0.0	4.877
23.0	6.693	0.0	4.745
24.0	6.677	0.0	4.617
25.0	6.677	0.0	4.492
26.0	6.628	0.0	4.370
27.0	6.611	0.0	4.251
28.0	6.578	0.0	4.136
29.0	6.546	0.0	4.024
30.0	6.529	0.0	3.915
31.0	6.496	0.0	3.809
32.0	6.480	0.0	3.706
33.0	6.447	0.0	3.605
34.0	6.414	0.0	3.507
35.0	6.414	0.0	3.412
36.0	6.398	0.0	3.320
37.0	6.365	0.0	3.230
38.0	6.316	0.0	3.142
39.0	6.316	0.0	3.057
40.0	6.283	0.0	2.974
41.0	6.283	0.0	2.894
42.0	6.234	0.0	2.815
43.0	6.234	0.0	2.739
44.0	6.185	0.0	2.665
45.0	6.185	0.0	2.593
46.0	6.152	0.0	2.522
47.0	6.152	0.0	2.454
48.0	6.103	0.0	2.387
49.0	6.086	0.0	2.323
50.0	6.054	0.0	2.260



PZ-1 Rising Head Test - Barksdale

Slug Test Results

Title: Barksdale
Client: Dupont
Job Number: D4BA7191
Well Number: PZ-1 Rising

Hydraulic Conductivity

Bower-Rice: $3.34E-5$ (ft/sec), $8.783-1$ (m/day)

Well Geometry (ft)

H: 100.0
Le: 7.0
Lw: 50.8
rc: .083
rw: .25

drainable filter pack porosity: 0.2
effective radius: $1.34E-1$ (ft)

Bower Rice Coefficients

Le/rw: 28.0
A: 2.364
B: 0.34
c: 1.901
ln(Re/rw): 2.812

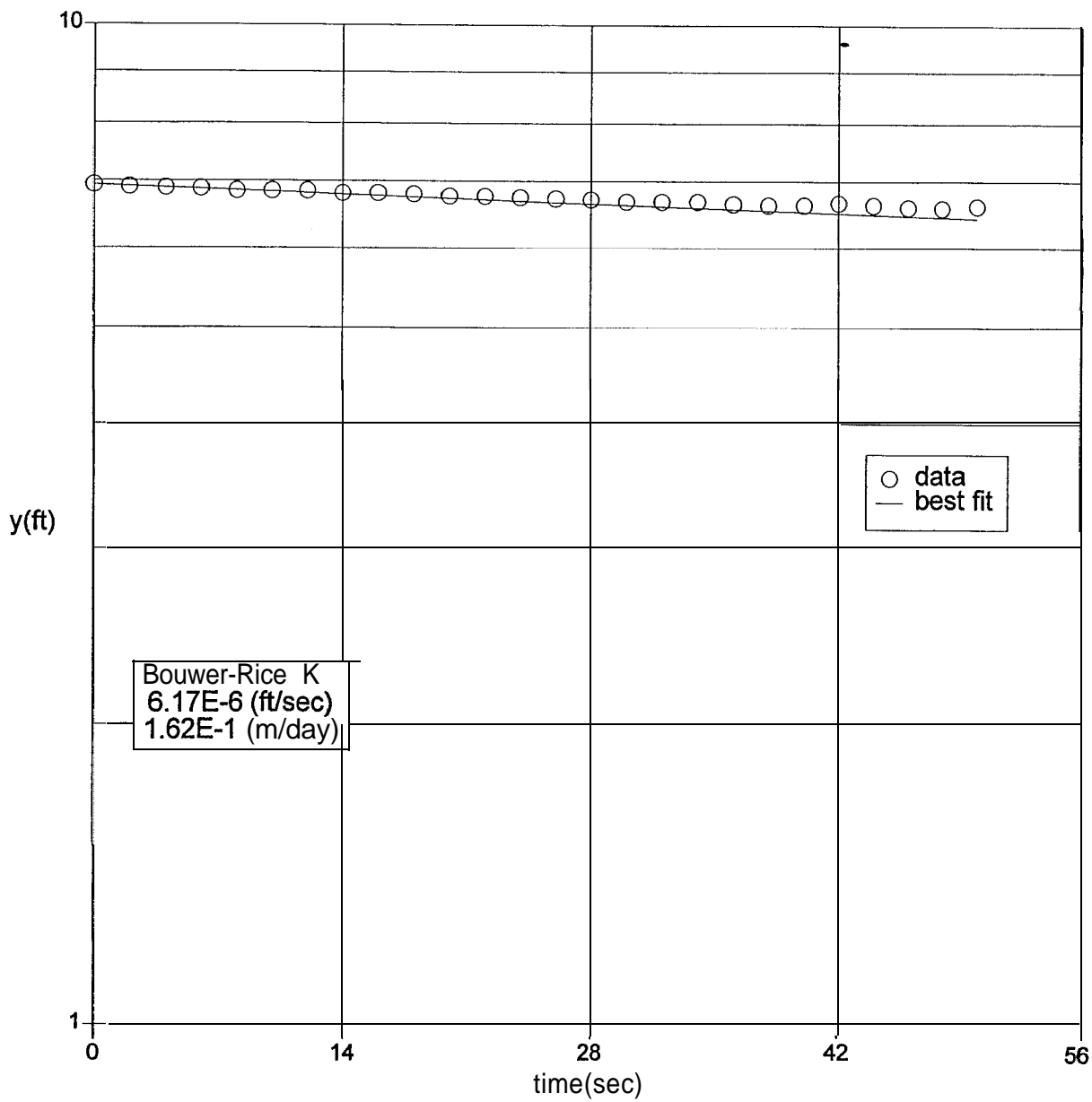
Least Squares Fit

slope: $9.20E-3$
intercept: $1.66E+0$

Recovery Data and Fit

time(sec)	y(ft)	weight	fit(ft)
0.0	5.248	1.0	5.255
1.0	5.314	1.0	5.304
2.0	5.346	1.0	5.353
3.0	5.412	1.0	5.402
4.0	5.445	1.0	5.452
5.0	5.461	0.0	5.502
6.0	5.510	0.0	5.553
7.0	5.543	0.0	5.604
8.0	5.609	0.0	5.656
9.0	5.625	0.0	5.708
10.0	5.642	0.0	5.761
11.0	5.674	0.0	5.814
12.0	5.724	0.0	5.868
13.0	5.724	0.0	5.922
14.0	5.773	0.0	5.977
15.0	5.806	0.0	6.032
16.0	5.806	0.0	6.088
17.0	5.855	0.0	6.144
18.0	5.855	0.0	6.201
19.0	5.904	0.0	6.258
20.0	5.904	0.0	6.316

21.0	5.937	0.0	6.375
22.0	5.970	0.0	6.434
23.0	5.986	0.0	6.493
24.0	5.986	0.0	6.553
25.0	6.035	0.0	6.614
26.0	6.068	0.0	6.675
27.0	6.068	0.0	6.736
28.0	6.084	0.0	6.799
29.0	6.101	0.0	6.861
30.0	6.134	0.0	6.925
31.0	6.166	0.0	6.989
32.0	6.183	0.0	7.053
33.0	6.199	0.0	7.118
34.0	6.232	0.0	7.184
35.0	6.248	0.0	7.251
36.0	6.248	0.0	7.318
37.0	6.298	0.0	7.385
38.0	6.314	0.0	7.453
39.0	6.330	0.0	7.522
40.0	6.330	0.0	7.592
41.0	6.363	0.0	7.662
42.0	6.380	0.0	7.733
43.0	6.396	0.0	7.804
44.0	6.429	0.0	7.876
45.0	6.429	0.0	7.949
46.0	6.462	0.0	8.023
47.0	6.462	0.0	8.097
48.0	6.511	0.0	8.172
49.0	6.511	0.0	8.247
50.0	6.527	0.0	8.323



PZ-2 Falling Head Test - Barksdale

Slug Test Results

Title: Barksdale
Client: Dupont
Job Number: D4BA7191
Well Number: PZ-2 Falling

Hydraulic Conductivity

Bouwer-Rice: 6.17E-6 (ft/sec), 1.62E-1 (m/day)

Well Geometry (ft)

H: 400.0
Le: 7.0
Lw: 260.94
rc: .083
rw: .25

drainable filter pack porosity: 0.2
effective radius: 1.34E-1 (ft)

Bouwer Rice Coefficients

Le/rw: 28.0
A: 2.364
B: 0.34
c: 1.901
ln(Re/rw): 3.13

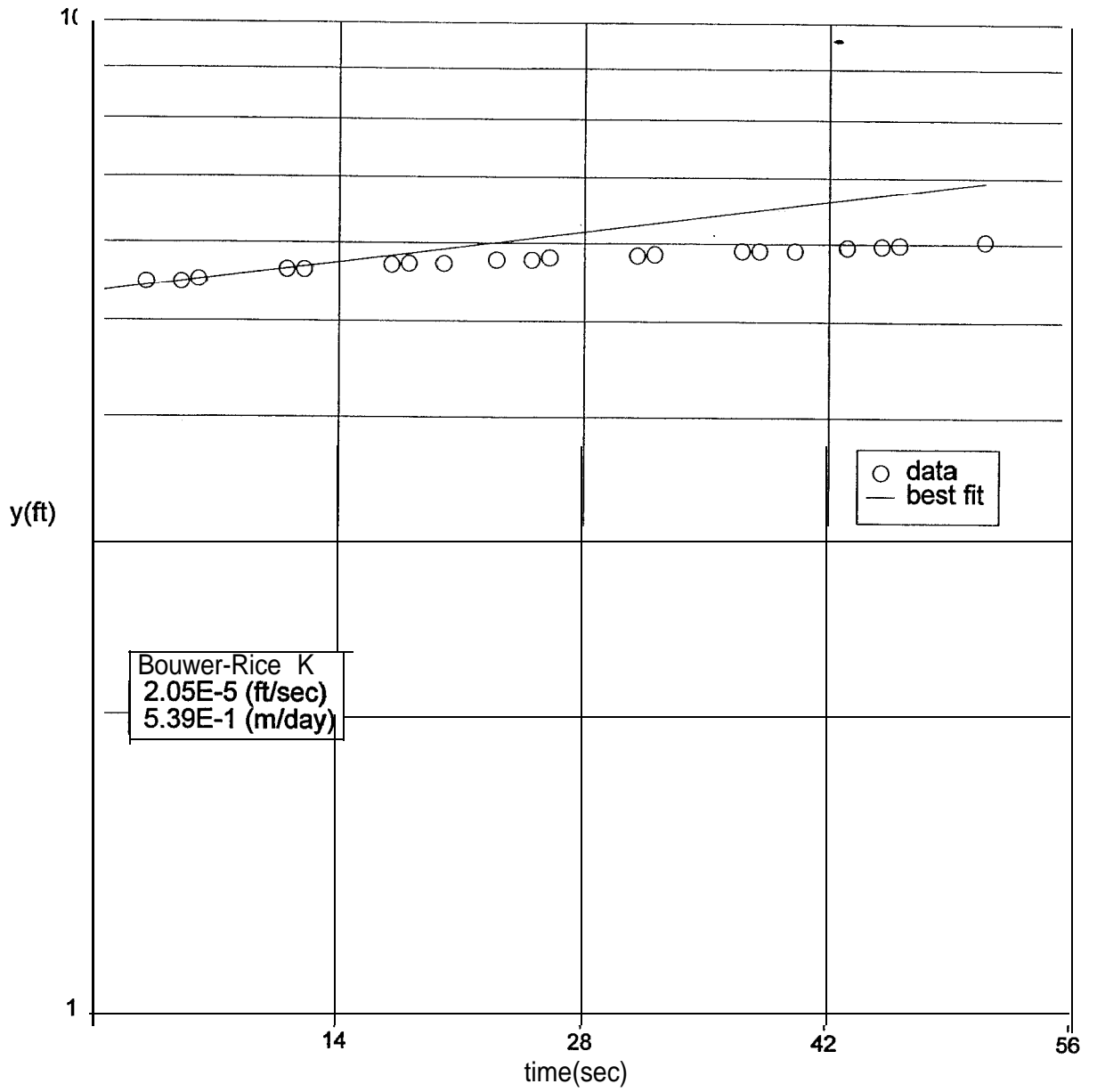
Least Squares Fit

slope: -1.53E-3
intercept: 1.94E+0

Recovery Data and Fit

time(sec)	y(ft)	weight	fit(ft)
0.0	6.939	1.0	6.934
2.0	6.906	1.0	6.913
4.0	6.890	1.0	6.892
6.0	6.874	1.0	6.871
8.0	6.841	0.0	6.850
10.0	6.841	0.0	6.829
12.0	6.841	0.0	6.808
14.0	6.808	0.0	6.787
16.0	6.808	0.0	6.766
18.0	6.792	0.0	6.746
20.0	6.759	0.0	6.725
22.0	6.759	0.0	6.705
24.0	6.742	0.0	6.684
26.0	6.726	0.0	6.664
28.0	6.710	0.0	6.644
30.0	6.677	0.0	6.623
32.0	6.677	0.0	6.603
34.0	6.677	0.0	6.583
36.0	6.644	0.0	6.563
38.0	6.628	0.0	6.543
40.0	6.628	0.0	6.523

42.0	6.660	0.0	6.503
44.0	6.628	0.0	6.483
46.0	6.595	0.0	6.463
48.0	6.578	0.0	6 . 4 4 4
50.0	6.611	0.0	6.424



PZ-2 Rising Head Test - Barksdale

Slug Test Results

Title: Barksdale
Client: Dupont
Job Number: D4BA7191
Well Number: PZ-2 Rising

Hydraulic Conductivity

Bouwer-Rice: 2.05E-5 (ft/sec), 5.393-1 (m/day)

Well Geometry (ft)

H: 400.0
Le: 7.0
Lw: 260.94
rc: .083
rw: .25

drainable filter pack porosity: 0.2
effective radius: 1.34E-1 (ft)

Bouwer Rice Coefficients

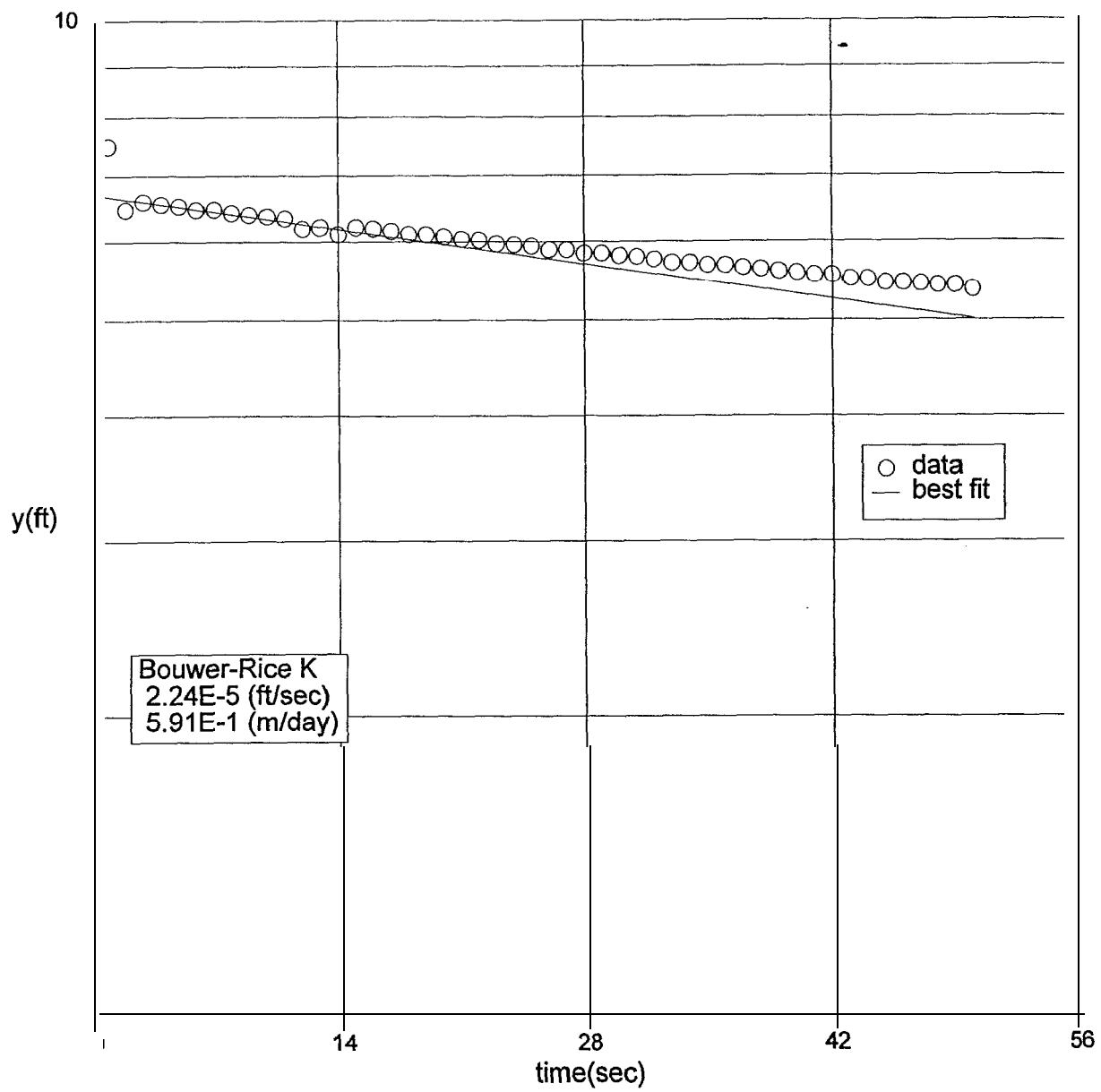
Le/rw: 28.0
A: 2.364
B: 0.34
c: 1.901
ln(Re/rw): 3.13

Least Squares Fit

slope: 5.073-3
intercept: 1.68E+0

Recovery Data and Fit

time(sec)	y(ft)	weight	fit(ft)
0.0	5.314	1.0	5.346
3.0	5.478	1.0	5.428
5.0	5.478	1.0	5.483
6.0	5.510	1.0	5.511
11.0	5.642	1.0	5.653
12.0	5.642	0.0	5.682
17.0	5.707	0.0	5.828
18.0	5.724	0.0	5.857
20.0	5.724	0.0	5.917
23.0	5.773	0.0	6.008
25.0	5.773	0.0	6.069
26.0	5.806	0.0	6.100
31.0	5.838	0.0	6.256
32.0	5.855	0.0	6.288
37.0	5.904	0.0	6.450
38.0	5.904	0.0	6.483
40.0	5.904	0.0	6.549
43.0	5.953	0.0	6.649
45.0	5.970	0.0	6.717
46.0	5.986	0.0	6.751
51.0	6.035	0.0	6.924



PZ-3 Falling Head Test - Barksdale

Slug Test Results

Title: Barksdale
Client: Dupont
Job Number: D4BA7191
Well Number: PZ-3 Falling

Hydraulic Conductivity

Bower-Rice: 2.243-5 (ft/sec), 5.91E-1 (m/day)

Well Geometry (ft)

H: 400.0
Le: 7.0
Lw: 185.26
rc: .083
rw: .25

drainable filter pack porosity: 0.2
effective radius: 1.34E-1 (ft)

Bower Rice Coefficients

Le/rw: 28.0
A: 2.364
B: 0.34
c: 1.901
ln(Re/rw): 3.004

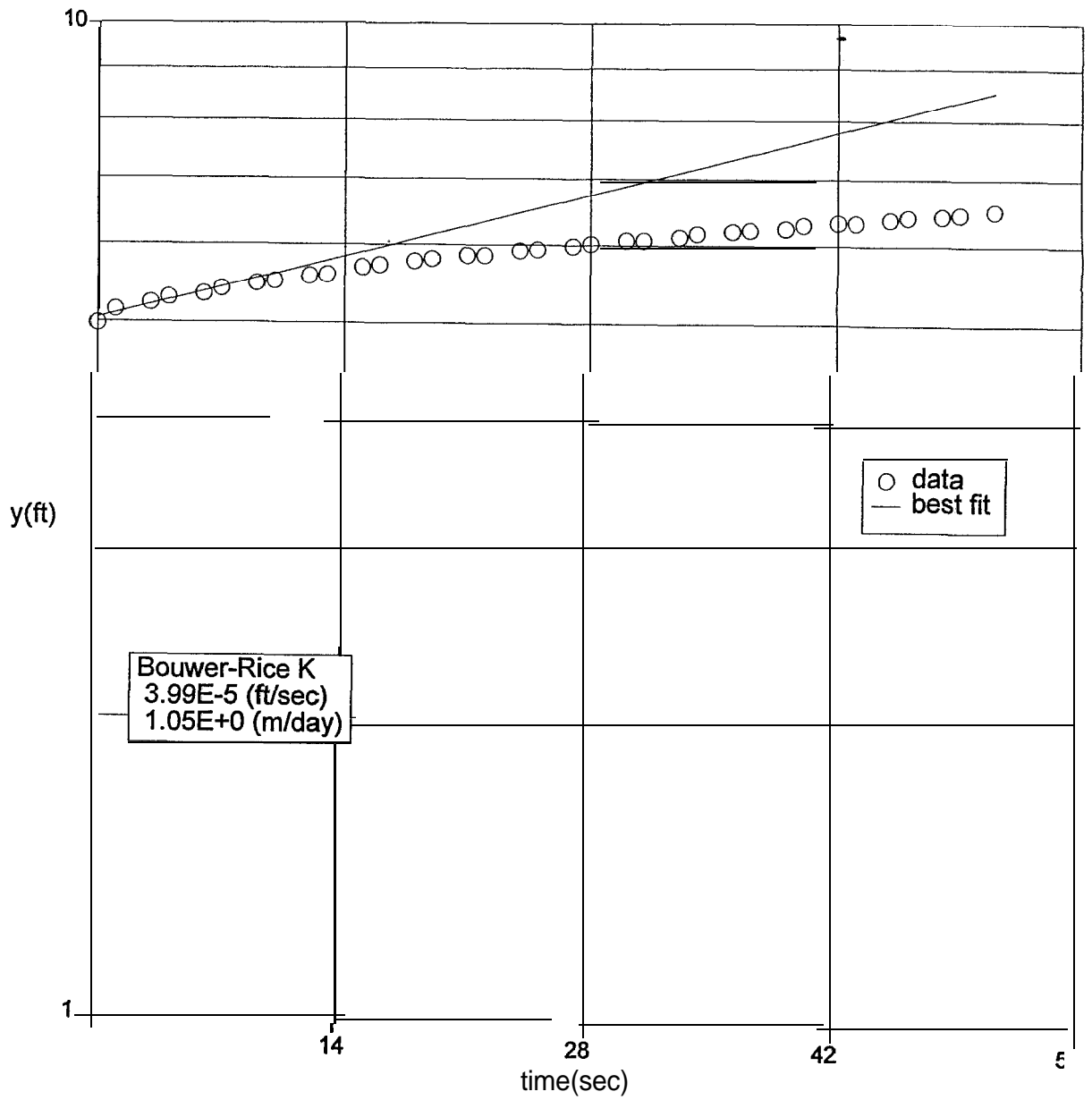
Least Squares Fit

slope: -5.80E-3
intercept: 1.90E+0

Recovery Data and Fit

time(sec)	y(ft)	weight	fit(ft)
0.0	9.252	0.0	6.698
1.0	7.481	0.0	6.659
2.0	6.464	0.0	6.621
3.0	6.579	1.0	6.582
4.0	6.546	1.0	6.544
5.0	6.513	1.0	6.506
6.0	6.464	1.0	6.469
7.0	6.464	0.0	6.431
8.0	6.415	0.0	6.394
9.0	6.382	0.0	6.357
10.0	6.366	0.0	6.321
11.0	6.333	0.0	6.284
12.0	6.185	0.0	6.248
13.0	6.202	0.0	6.212
14.0	6.103	0.0	6.176
15.0	6.202	0.0	6.140
16.0	6.185	0.0	6.105
17.0	6.152	0.0	6.069
18.0	6.103	0.0	6.034
19.0	6.103	0.0	5.999
20.0	6.070	0.0	5.965

21.0	6.038	0.0	5.930
22.0	6.021	0.0	5.896
23.0	5.972	0.0	5.862
24.0	5.956	0.0	5.828
25.0	5.939	0.0	5.794
26.0	5.890	0.0	5.761
27.0	5.890	0.0	5.728
28.0	5.841	0.0	5.694
29.0	5.841	0.0	5.662
30.0	5.808	0.0	5.629
31.0	5.792	0.0	5.596
32.0	5.759	0.0	5.564
33.0	5.710	0.0	5.532
34.0	5.710	0.0	5.500
35.0	5.677	0.0	5.468
36.0	5.677	0.0	5.436
37.0	5.644	0.0	5.405
38.0	5.628	0.0	5.374
39.0	5.595	0.0	5.343
40.0	5.578	0.0	5.312
41.0	5.546	0.0	5.281
42.0	5.546	0.0	5.251
43.0	5.496	0.0	5.220
44.0	5.496	0.0	5.190
45.0	5.447	0.0	5.160
46.0	5.447	0.0	5.130
47.0	5.431	0.0	5.101
48.0	5.414	0.0	5.071
49.0	5.414	0.0	5.042
50.0	5.365	0.0	5.013



PZ-3 Rising Head Test - Barksdale

Slug Test Results

Title: Barksdale
Client: Dupont
Job Number: D4BA7191
Well Number: PZ-3 Rising

Hydraulic Conductivity

Bouwer-Rice: 3.993-5 (ft/sec), 1.05E+0 (m/day)

Well Geometry (ft)

H: 400.0
Le: 7.0
Lw: 185.26
rc: .083
rw: .25

drainable filter pack porosity: 0.2
effective radius: 1.34E-1 (ft)

Bouwer Rice Coefficients

Le/rw: 28.0
A: 2.364
B: 0.34
c: 1.901
ln(Re/rw): 3.004

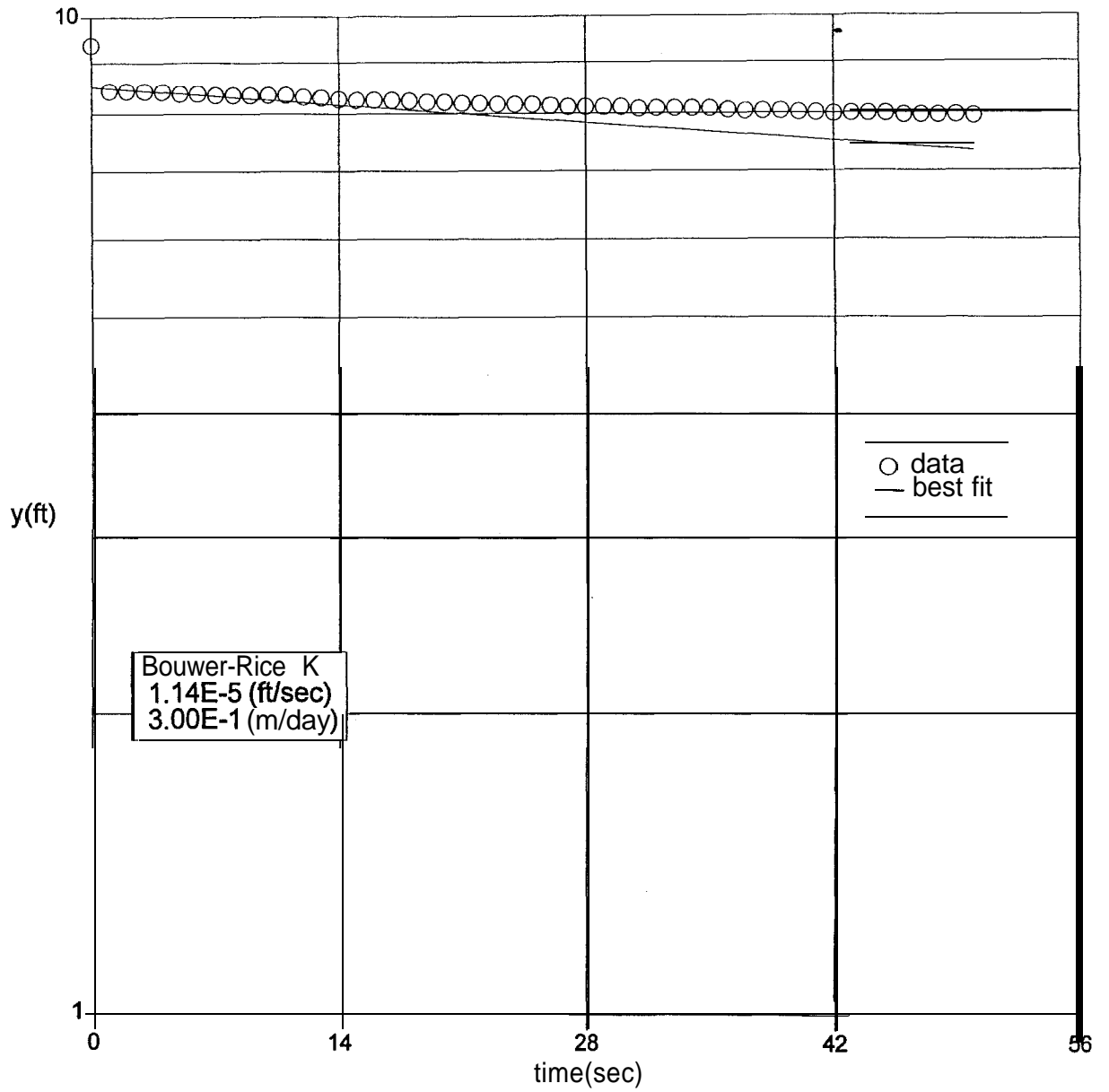
Least Squares Fit

slope: 1.03E-2
intercept: 1.62E+0

Recovery Data and Fit

time(sec)	y(ft)	weight	fit(ft)
0.0	4.986	1.0	5.050
1.0	5.150	1.0	5.102
3.0	5.232	1.0	5.208
4.0	5.297	1.0	5.262
6.0	5.346	1.0	5.372
7.0	5.412	1.0	5.428
9.0,	5.478	0.0	5.541
10.0	5.510	0.0	5.598
12.0	5.576	0.0	5.715
13.0	5.592	0.0	5.774
15.0	5.691	0.0	5.894
16.0	5.724	0.0	5.955
18.0	5.773	0.0	6.079
19.0	5.806	0.0	6.142
21.0	5.855	0.0	6.270
22.0	5.855	0.0	6.335
24.0	5.920	0.0	6.467
25.0	5.937	0.0	6.534
27.0	5.986	0.0	6.670
28.0	6.019	0.0	6.739
30.0	6.068	0.0	6.880

31.0	6.068	0.0	6.951
33.0	6.117	0.0	7.096
34.0	6.166	0.0	7.169
36.0	6.199	0.0	7 . 3 1 8
37.0	6.216	0.0	7.394
39.0	6.248	0.0	7.548
40.0	6.298	0.0	7.626
42.0	6.330	0.0	7.785
43.0	6.330	0.0	7.866
45.0	6.380	0.0	8.030
46.0	6.412	0.0	8.113
48.0	6.429	0.0	8.282
49.0	6.462	0.0	8.368
51.0	6.511	0.0	8.542



PZ-4 Falling Head Test - Barksdale

Slug Test Results

Title: Barksdale
Client: Dupont
Job Number: D4BA7191
Well Number: PZ-4 Falling

Hydraulic Conductivity

Bouwer-Rice: 1.14E-5 (ft/sec), 3.00E-1 (m/day)

Well Geometry (ft)

H: 400.0
Le: 7.0
Lw: 168.89
rc: .083
rw: .25

drainable filter pack porosity: 0.2
effective radius: 1.34E-1 (ft)

Bouwer Rice Coefficients

Le/rw: 28.0
A: 2.364
B: 0.34
c: 1.901
ln(Re/rw): 2.975

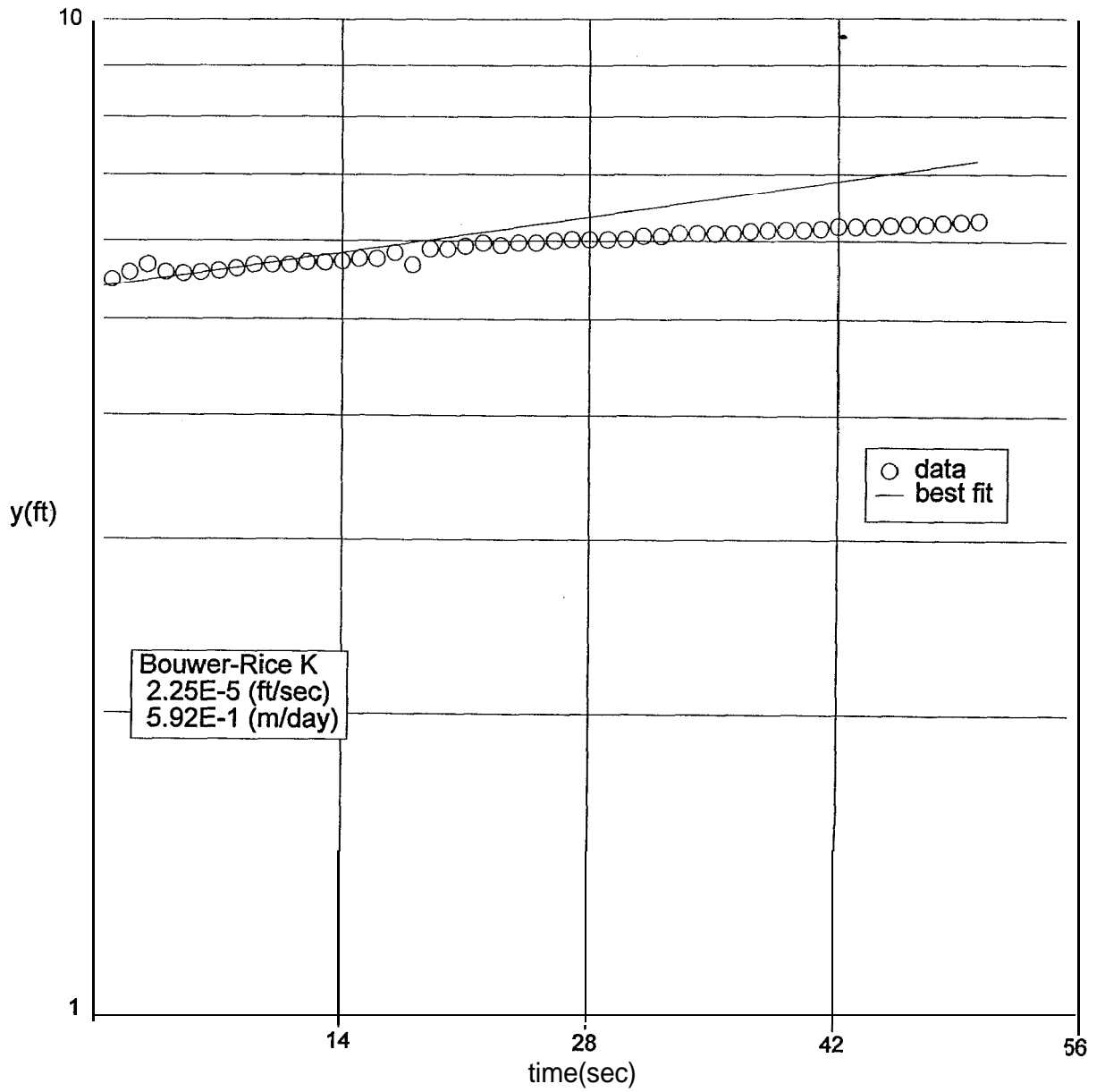
Least Squares Fit

slope: -2.97E-3
intercept: 2.14E+0

Recovery Data and Fit

time (sec)	y (ft)	weight	fit (ft)
0.0	9.380	0.0	8.511
1.0	8.430	0.0	8.485
2.0	8.430	0.0	8.460
3.0	8.430	1.0	8.435
4.0	8.420	1.0	8.410
5.0	8.380	1.0	8.385
6.0	8.380	0.0	8.360
7.0	8.350	0.0	8.335
8.0	8.350	0.0	8.311
9.0	8.350	0.0	8.286
10.0	8.350	0.0	8.261
11.0	8.350	0.0	8.237
12.0	8.320	0.0	8.212
13.0	8.300	0.0	8.188
14.0	8.270	0.0	8.164
15.0	8.250	0.0	8.139
16.0	8.250	0.0	8.115
17.0	8.250	0.0	8.091
18.0	8.240	0.0	8.067
19.0	8.220	0.0	8.043
20.0	8.220	0.0	8.019

21.0	8.190	0.0	7.995
22.0	8.190	0.0	7.972
23.0	8.170	0.0	7.948
24.0	8.170	0.0	7 . 9 2 4
25.0	8.170	0.0	7.901
26.0	8.150	0.0	7.877
27.0	8.120	0.0	7 . 8 5 4
28.0	8.120	0.0	7.831
29.0	8.120	0.0	7.807
30.0	8.120	0.0	7.784
31.0	8.090	0.0	7.761
32.0	8.090	0.0	7.738
33.0	8.090	0.0	7.715
34.0	8.090	0.0	7.692
35.0	8.090	0.0	7.669
36.0	8.060	0.0	7.646
37.0	8.040	0.0	7.624
38.0	8.040	0.0	7.601
39.0	8.040	0.0	7.578
40.0	8.020	0.0	7.556
41.0	8.010	0.0	7.534
42.0	7.990	0.0	7.511
43.0	7.990	0.0	7.489
44.0	7.990	0.0	7.467
45.0	7.990	0.0	7.444
46.0	7.960	0.0	7.422
47.0	7.960	0.0	7.400
48.0	7.960	0.0	7.378
49.0	7.960	0.0	7.356
50.0	7.940	0.0	7.335



PZ-4 Rising Head Test - Barksdale

Slug Test Results

Title: Barksdale
Client: Dupont
Job Number: D4BA7191
Well Number: PZ-4 Rising

Hydraulic Conductivity

Bouwer-Rice: 2.25E-5 (ft/sec), 5.923-1 (m/day)

Well Geometry (ft)

H: 400.0
Le: 7.0
Lw: 168.89
rc: .083
rw: .25

drainable filter pack porosity: 0.2
effective radius: 1.34E-1 (ft)

Bouwer Rice Coefficients

Le/rw: 28.0
A: 2.364
B: 0.34
c: 1.901
ln(Re/rw): 2.975

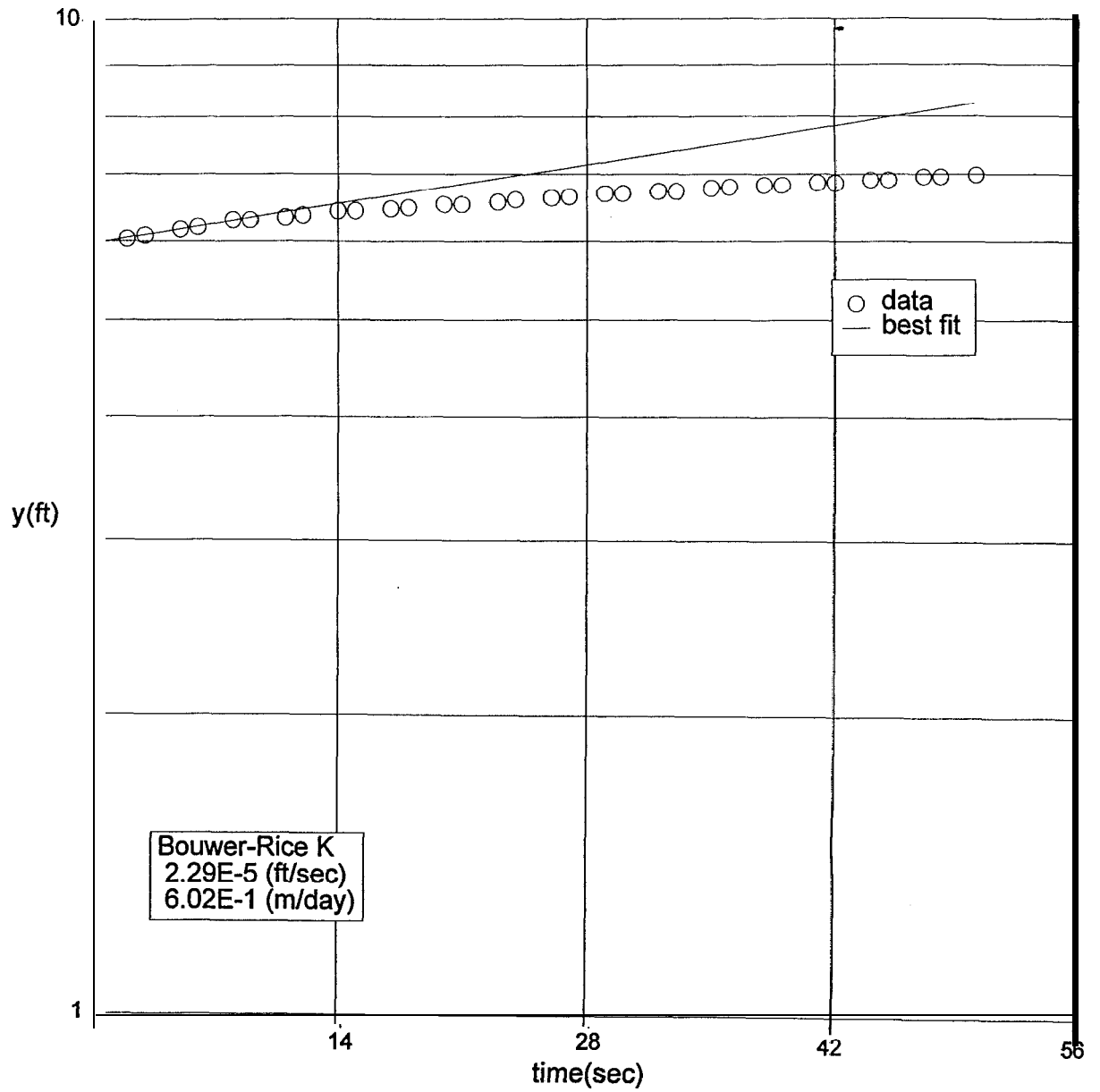
Least Squares Fit

slope: 5.87E-3
intercept: 1.68E+0

Recovery Data and Fit

time(sec)	y(ft)	weight	fit(ft)
0.0	1.085	0.0	5.378
1.0	5.480	0.0	5.409
2.0	5.578	0.0	5.441
3.0	5.677	0.0	5.473
4.0	5.578	0.0	5.505
5.0	5.562	0.0	5.538
6.0	5.578	1.0	5.570
7.0	5.595	1.0	5.603
8.0	5.628	1.0	5.636
9.0	5.677	1.0	5.669
10.0	5.677	0.0	5.702
11.0	5.677	0.0	5.736
12.0	5.710	0.0	5.770
13.0	5.710	0.0	5.804
14.0	5.726	0.0	5.838
15.0	5.759	0.0	5.872
16.0	5.759	0.0	5.907
17.0	5.841	0.0	5.941
18.0	5.677	0.0	5.976
19.0	5.890	0.0	6.012
20.0	5.890	0.0	6.047

21.0	5.923	0.0	6.082
22.0	5.972	0.0	6.118
23.0	5.939	0.0	6.154
24.0	5.972	0.0	6 . 1 9 0
25.0	5.972	0.0	6.227
26.0	6.005	0.0	6.263
27.0	6.021	0.0	6.300
28.0	6.021	0.0	6.337
29.0	6.021	0.0	6.375
30.0	6.021	0.0	6.412
31.0	6.070	0.0	6.450
32.0	6.070	0.0	6.488
33.0	6.103	0.0	6.526
34.0	6.103	0.0	6.564
35.0	6.103	0.0	6.603
36.0	6.103	0.0	6.642
37.0	6.136	0.0	6.681
38.0	6.152	0.0	6.720
39.0	6.152	0.0	6.760
40.0	6.152	0.0	6.800
41.0	6.169	0.0	6.840
42.0	6.202	0.0	6.880
43.0	6.202	0.0	6.920
44.0	6.202	0.0	6.961
45.0	6.218	0.0	7.002
46.0	6.234	0.0	7.043
47.0	6.234	0.0	7.085
48.0	6.251	0.0	7.126
49.0	6.267	0.0	7.168
50.0	6.284	0.0	7.210



PZ-5 Rising Head Test - Barksdale

Slug Test Results

Title: Barksdale
Client: Dupont
Job Number: D4BA7191
Well Number: PZ-5 Rising

Hydraulic Conductivity

Bower-Rice: 2.29E-5 (ft/sec), 6.02E-1 (m/day)

Well Geometry (ft)

H: 400.0
Le: 7.0
Lw: 78.6
rc: .083
rw: .25

drainable filter pack porosity: 0.2
effective radius: 1.34E-1 (ft)

Bower Rice Coefficients

Le/rw: 28.0
A: 2.364
B: 0.34
c: 1.901
ln(Re/rw): 2.758

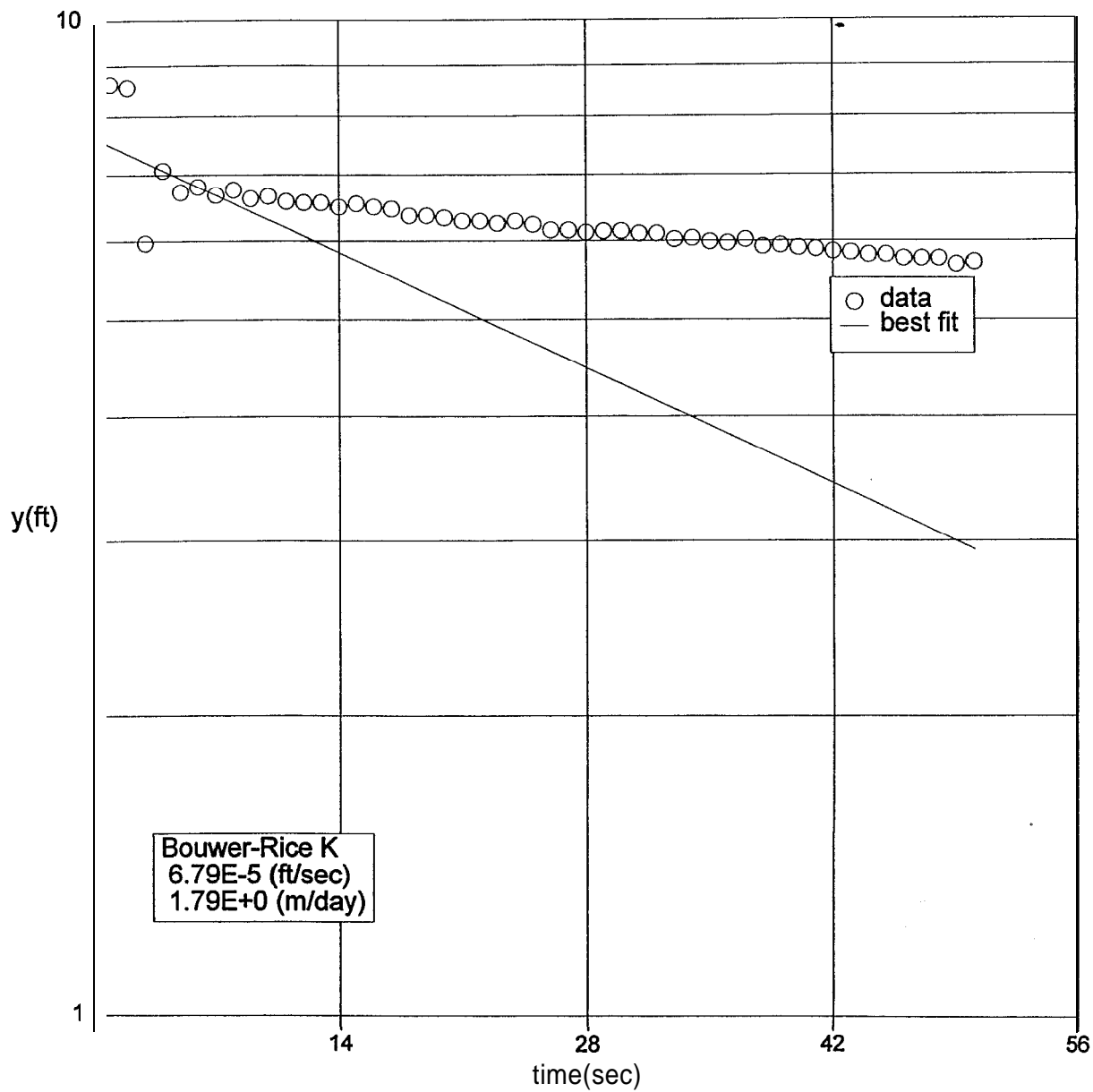
Least Squares Fit

slope: 6.43E-3
intercept: 1.79E+0

Recovery Data and Fit

time(sec)	y(ft)	weight	fit (ft.)
0.0	5.986	1.0	5.971
2.0	6.035	1.0	6.049
3.0	6.084	1.0	6.088
5.0	6.166	1.0	6.167
6.0	6.199	1.0	6.206
8.0	6.298	1.0	6.287
9.0	6.298	0.0	6.327
11.0	6.330	0.0	6.409
12.0	6.363	0.0	6.451
14.0	6.429	0.0	6.534
15.0	6.429	0.0	6.576
17.0	6.462	0.0	6.662
18.0	6.478	0.0	6.705
20.0	6.527	0.0	6.792
21.0	6.527	0.0	6.835
23.0	6.560	0.0	6.924
24.0	6.593	0.0	6.969
26.0	6.626	0.0	7.059
27.0	6.642	0.0	7.104
29.0	6.691	0.0	7.196
30.0	6.691	0.0	7.243

32.0	6.724	0.0	7.337
33.0	6.724	0.0	7.384
35.0	6.773	0.0	7.480
36.0	6.790	0.0	7.528
38.0	6.822	0.0	7.625
39.0	6.822	0.0	7.675
41.0	6.855	0.0	7.774
42.0	6.855	0.0	7.824
44.0	6.904	0.0	7.926
45.0	6.904	0.0	7.977
47.0	6.954	0.0	8.080
48.0	6.954	0.0	8.132
50.0	6.986	0.0	8.238



PZ-5 Falling Head Test - Barksdale

Slug Test Results

Title: Barksdale
Client: Dupont
Job Number: D4BA7191
Well Number: PZ-5 Falling

Hydraulic Conductivity

Bouwer-Rice: 6.79E-5 (ft/sec), 1.79E+0 (m/day)

Well Geometry (ft)

H: 400.0
Le: 7.0
Lw: 78.6
rc: .083
rw: .25

drainable filter pack porosity: 0.2
effective radius: 1.34E-1 (ft)

Bouwer Rice Coefficients

Le/rw: 28.0
A: 2.364
B: 0.34
c: 1.901
ln(Re/rw): 2.758

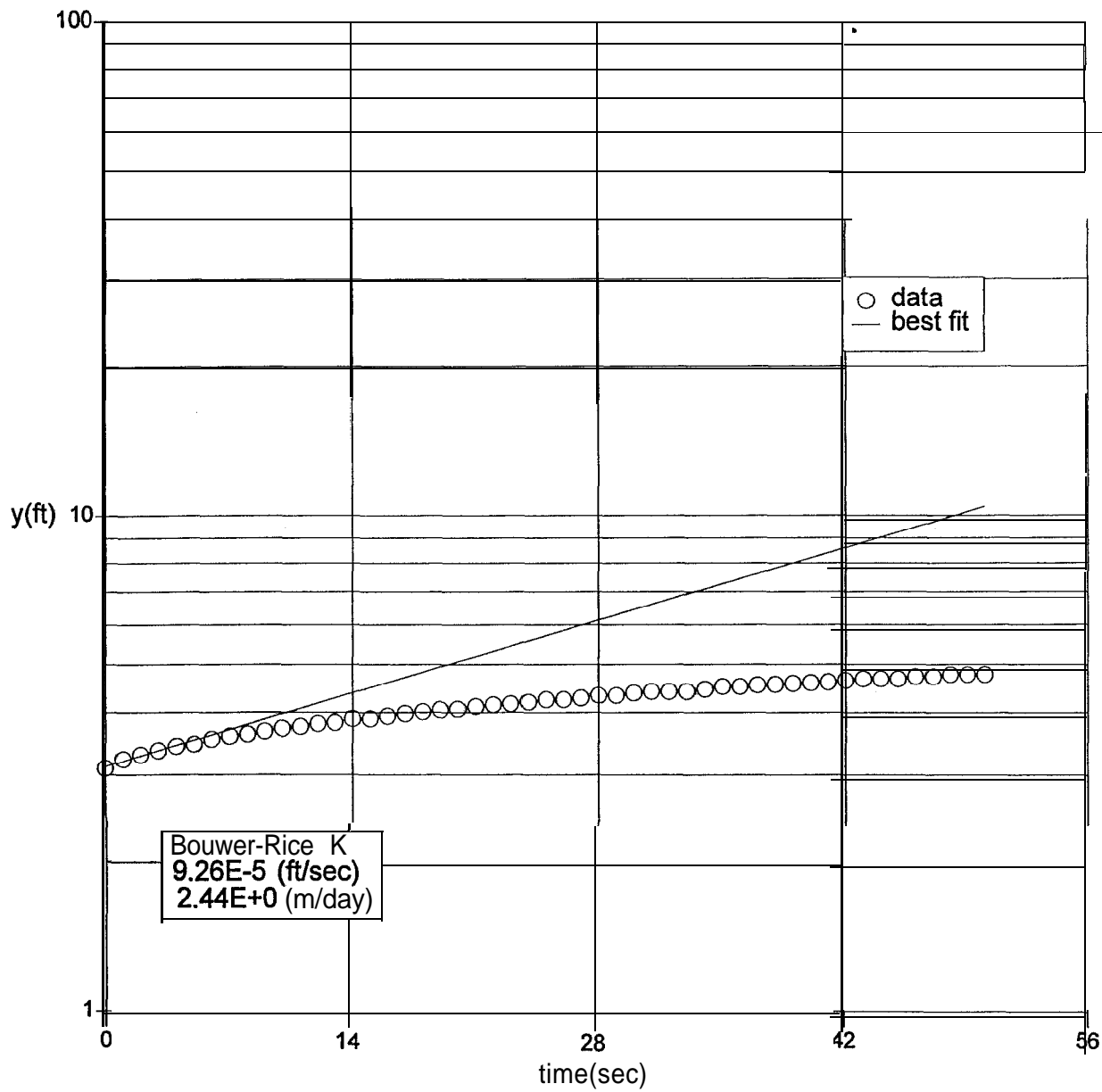
Least Squares Fit

slope: -1.91E-2
intercept: 2.03E+0

Recovery Data and Fit

time(sec)	y(ft)	weight	fit(ft)
0.0	9.777	0.0	7.633
1.0	8.629	0.0	7.488
2.0	8.563	0.0	7.347
3.0	5.972	0.0	7.208
4.0	7.071	1.0	7.071
5.0	6.726	0.0	6.938
6.0	6.808	1.0	6.807
7.0	6.677	1.0	6.678
8.0	6.759	0.0	6.552
9.0	6.628	0.0	6.428
10.0	6.661	0.0	6.306
11.0	6.579	0.0	6.187
12.0	6.562	0.0	6.070
13.0	6.562	0.0	5.955
14.0	6.497	0.0	5.843
15.0	6.546	0.0	5.732
16.0	6.497	0.0	5.624
17.0	6.464	0.0	5.517
18.0	6.366	0.0	5.413
19.0	6.366	0.0	5.311
20.0	6.333	0.0	5.210

21.0	6.284	0.0	5.112
22.0	6.284	0.0	5.015
23.0	6.251	0.0	4.920
24.0	6.284	0.0	4.827
25.0	6.234	0.0	4.736
26.0	6.152	0.0	4.647
27.0	6.152	0.0	4.559
28.0	6.120	0.0	4.473
29.0	6.136	0.0	4.388
30.0	6.136	0.0	4.305
31.0	6.103	0.0	4.224
32.0	6.103	0.0	4.144
33.0	6.021	0.0	4.065
34.0	6.038	0.0	3.989
35.0	5.988	0.0	3.913
36.0	5.972	0.0	3.839
37.0	6.021	0.0	3.767
38.0	5.923	0.0	3.695
39.0	5.939	0.0	3.625
40.0	5.906	0.0	3.557
41.0	5.890	0.0	3.490
42.0	5.857	0.0	3.424
43.0	5.841	0.0	3.359
44.0	5.808	0.0	3.295
45.0	5.808	0.0	3.233
46.0	5.759	0.0	3.172
47.0	5.759	0.0	3.112
48.0	5.759	0.0	3.053
49.0	5.677	0.0	2.995
50.0	5.710	0.0	2.939



PZ-6 Rising Head Test - Barksdale

Slug Test Results

Title: Barksdale
Client: Dupont
Job Number: D4BA7191
Well Number: PZ-6 Rising

Hydraulic Conductivity

Bouwer-Rice: 9.26E-5 (ft/sec), 2.44E+0 (m/day)

Well Geometry (ft)

H: 400.0
Le: 7.0
Lw: 170.6
rc: .083
rw: .25

drainable filter pack porosity: 0.2
effective radius: 1.34E-1 (ft)

Bouwer Rice Coefficients

Le/rw: 28.0
A: 2.364
B: 0.34
c: 1.901
ln(Re/rw): 2.978

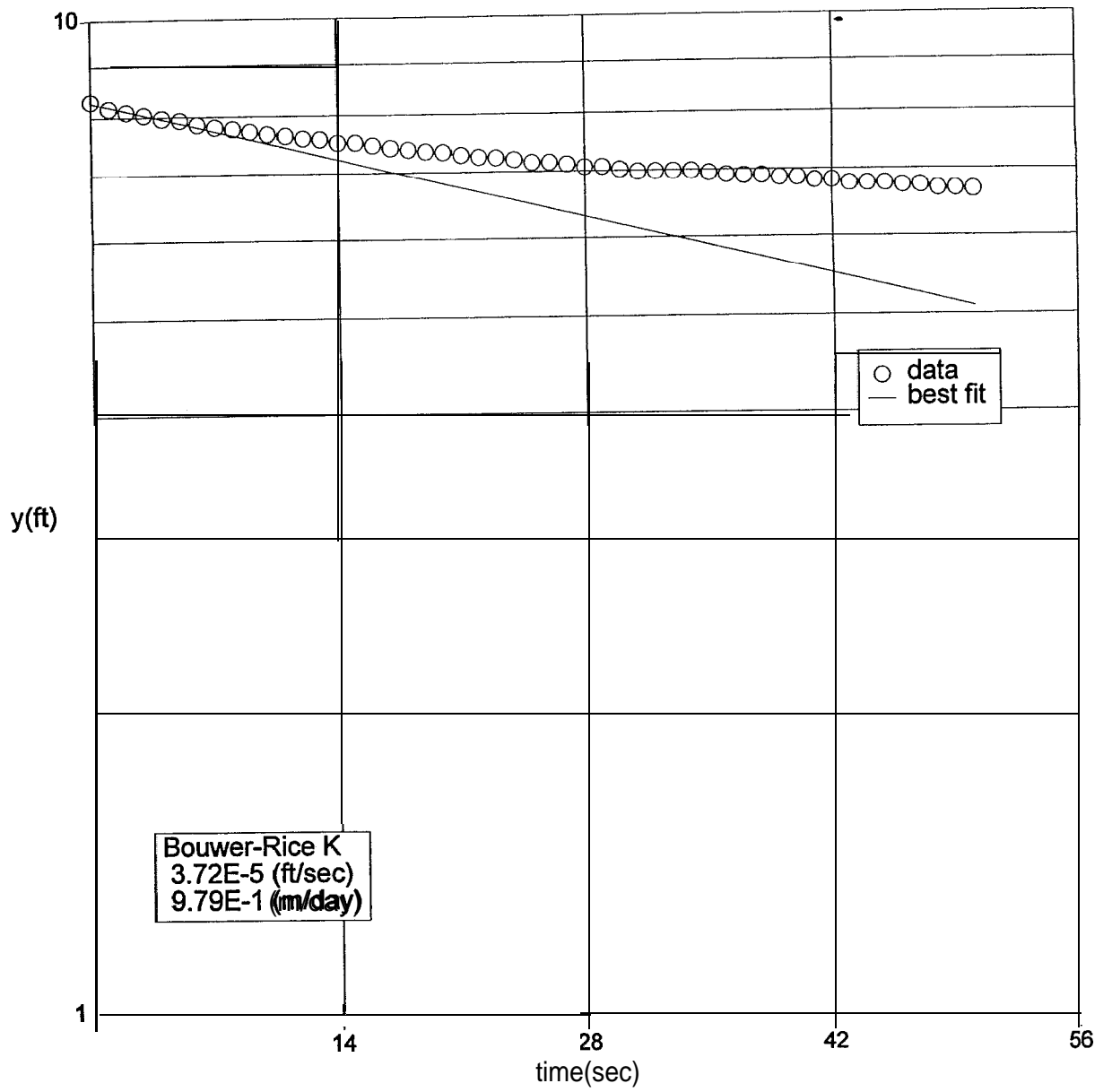
Least Squares Fit

slope: 2.41E-2
intercept: 1.14E+0

Recovery Data and Fit

time(sec)	y(ft)	weight	fit(ft)
0.0	3.097	1.0	3.124
1.0	3.228	1.0	3.201
2.0	3.294	1.0	3.279
3.0	3.359	1.0	3.359
4.0	3.425	1.0	3.441
5.0	3.458	0.0	3.525
6.0	3.540	0.0	3.611
7.0	3.589	0.0	3.699
8.0	3.622	0.0	3.789
9.0	3.671	0.0	3.881
10.0	3.720	0.0	3.976
11.0	3.753	0.0	4.073
12.0	3.802	0.0	4.173
13.0	3.818	0.0	4.274
14.0	3.884	0.0	4.379
15.0	3.884	0.0	4.486
16.0	3.933	0.0	4.595
17.0	3.982	0.0	4.707
18.0	4.015	0.0	4.822
19.0	4.048	0.0	4.940
20.0	4.064	0.0	5.060

21.0	4.114	0.0	5.184
22.0	4.146	0.0	5.310
23.0	4.163	0.0	5.440
24.0	4.196	0.0	5.573
25.0	4.245	0.0	5.709
26.0	4.245	0.0	5.848
27.0	4.278	0.0	5.991
28.0	4.327	0.0	6.137
29.0	4.327	0.0	6.287
30.0	4.376	0.0	6.440
31.0	4.409	0.0	6.597
32.0	4.409	0.0	6.758
33.0	4.409	0.0	6.923
34.0	4.458	0.0	7.092
35.0	4.507	0.0	7.265
36.0	4.507	0.0	7.443
37.0	4.540	0.0	7.624
38.0	4.556	0.0	7.810
39.0	4.573	0.0	8.001
40.0	4.589	0.0	8.196
41.0	4.606	0.0	8.396
42.0	4.638	0.0	8.601
43.0	4.671	0.0	8.811
44.0	4.671	0.0	9.026
45.0	4.671	0.0	9.246
46.0	4.720	0.0	9.472
47.0	4.720	0.0	9.703
48.0	4.770	0.0	9.940
49.0	4.770	0.0	10.183
50.0	4.770	0.0	10.431



PZ-6 Falling Head Test - Barksdale

Slug Test Results

Title: Barksdale
Client: Dupont
Job Number: D4BA7191
Well Number: PZ-6 Falling

Hydraulic Conductivity

-----mm-----w-----
Bouwer-Rice: 3.723-5 (ft/sec), 9.793-1 (m/day)

Well Geometry (ft)

H: 400.0
Le: 7.0
Lw: 170.6
rc: .083
rw: .25

drainable filter pack porosity: 0.2
effective radius: 1.34E-1 (ft)

Bouwer Rice Coefficients

Le/rw: 28.0
A: 2.364
B: 0.34
c: 1.901
ln(Re/rw): 2.978

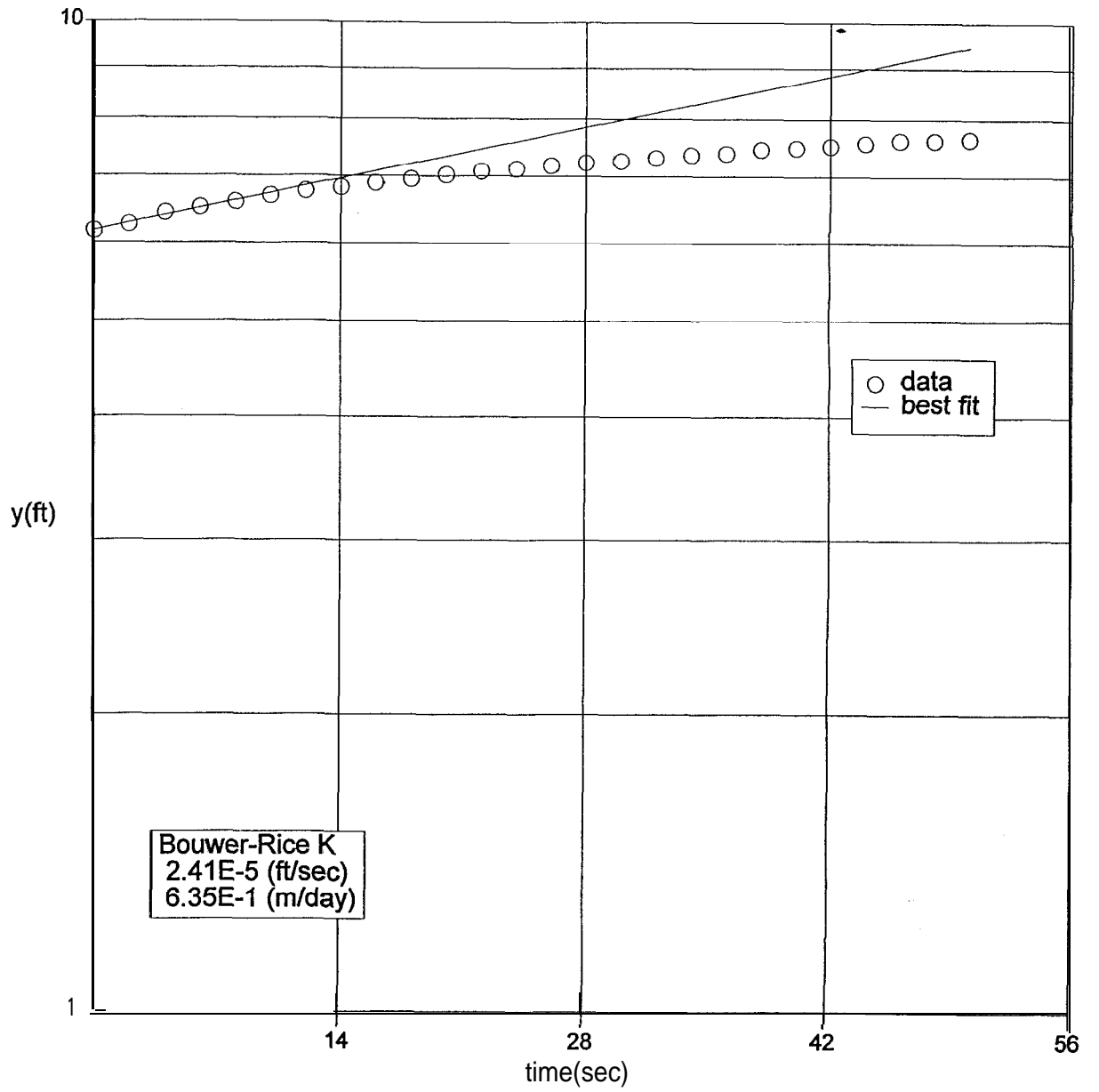
Least Squares Fit

slope: -9.69E-3
intercept: 2.11E+0

Recovery Data and Fit

time(sec)	y(ft)	weight	fit(ft)
0.0	8.295	1.0	8.269
1.0	8.164	1.0	8.190
2.0	8.098	1.0	8.111
3.0	8.033	1.0	8.032
4.0	7.967	1.0	7.955
5.0	7.934	0.0	7.878
6.0	7.852	0.0	7.802
7.0	7.803	0.0	7.727
8.0	7.770	0.0	7.653
9.0	7.721	0.0	7.579
10.0	7.672	0.0	7.506
11.0	7.639	0.0	7.433
12.0	7.590	0.0	7.362
13.0	7.574	0.0	7.291
14.0	7.508	0.0	7.221
15.0	7.508	0.0	7.151
16.0	7.459	0.0	7.082
17.0	7.410	0.0	7.014
18.0	7.377	0.0	6.946
19.0	7.344	0.0	6.879
20.0	7.328	0.0	6.813

21.0	7.278	0.0	6.747
22.0	7.246	0.0	6.682
23.0	7.229	0.0	6.618
24.0	7 . 1 9 6	0.0	6.554
25.0	7.147	0.0	6.491
26.0	7.147	0.0	6.428
27.0	7.114	0.0	6.366
28.0	7.065	0.0	6.305
29.0	7.065	0.0	6.244
30.0	7.016	0.0	6.184
31.0	6.983	0.0	6.124
32.0	6.984	0.0	6.065
33.0	6.984	0.0	6.007
34.0	6.984	0.0	5.949
35.0	6.951	0.0	5.892
36.0	6.918	0.0	5.835
37.0	6.902	0.0	5.778
38.0	6.902	0.0	5.723
39.0	6.869	0.0	5.668
40.0	6.869	0.0	5.613
41.0	6.820	0.0	5.559
42.0	6.820	0.0	5.505
43.0	6.770	0.0	5.452
44.0	6.770	0.0	5.400
45.0	6.770	0.0	5.348
46.0	6.738	0.0	5.296
47.0	6.738	0.0	5.245
48.0	6.688	0.0	5.194
49.0	6.688	0.0	5.144
50.0	6.672	0.0	5.095



PZ-1 Shallow Rising Head Test - Barksdale

Slug Test Results

Title: Barksdale
Client: Dupont
Job Number: D4BA7191
Well Number: PZ-1 Shallow Rising

Hydraulic Conductivity

Bouwer-Rice: 2.41E-5 (ft/sec), 6.353-1 (m/day)

Well Geometry (ft)

H: 100.0
Le: 7.0
Lw: 9.68
rc: .083
rw: .25

drainable filter pack porosity: 0.2
effective radius: 1.34E-1 (ft)

Bouwer Rice Coefficients

Le/rw: 28.0
A: 2.364
B: 0.34
c: 1.901
ln(Re/rw): 2.189

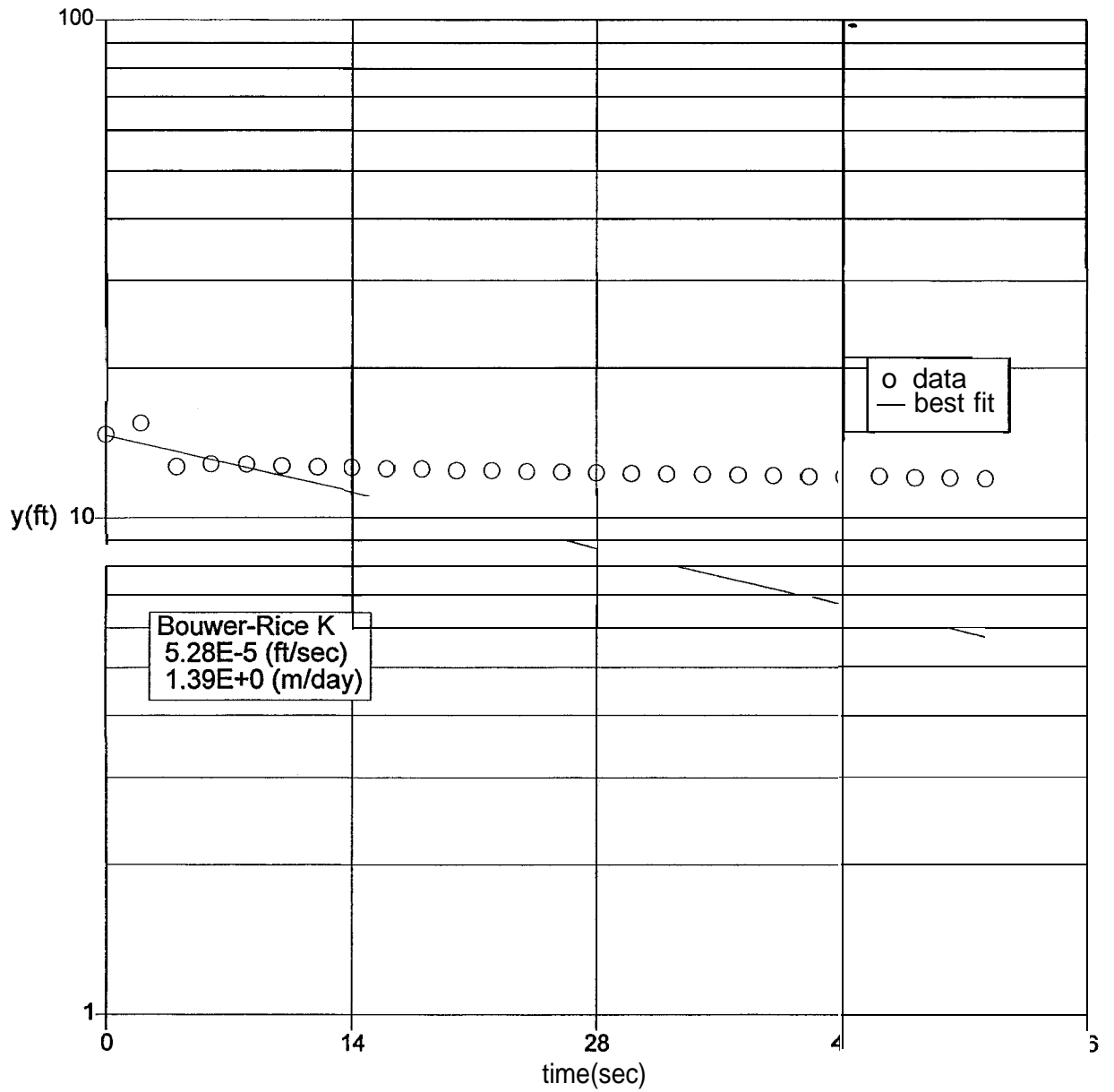
Least Squares Fit

slope: 8.54E-3
intercept: 1.82E+0

Recovery Data and Fit

time(sec)	y(ft)	weight	fit(ft)
0.0	6.170	1.0	6.175
2.0	6.260	1.0	6.282
4.0	6.430	1.0	6.390
6.0	6.510	1.0	6.500
8.0	6.590	1.0	6.612
10.0	6.690	0.0	6.726
12.0	6.760	0.0	6.842
14.0	6.820	0.0	6.960
16.0	6.890	0.0	7.080
18.0	6.950	0.0	7.202
20.0	7.020	0.0	7.326
22.0	7.080	0.0	7.452
24.0	7.120	0.0	7.581
26.0	7.170	0.0	7.711
28.0	7.220	0.0	7.844
30.0	7.250	0.0	7.980
32.0	7.300	0.0	8.117
34.0	7.350	0.0	8.257
36.0	7.380	0.0	8.399
38.0	7.450	0.0	8.544
40.0	7.480	0.0	8.691

42.0	7.510	0.0	8.841
44.0	7.560	0.0	8.993
46.0	7.610	0.0	9.148
48.0	7.610	0.0	9.306
50.0	7.640	0.0	9.466



PZ-1 Shallow Falling Head Test - Barksdale

Slug Test Results

Title: Barksdale
Client: Dupont
Job Number: D4BA7191
Well Number: PZ-1 Shallow Falling

Hydraulic Conductivity

Bouwer-Rice: 5.28E-5 (ft/sec), 1.39E+0 (m/day)

Well Geometry (ft)

H: 100.0
Le: 7.0
Lw: 9.68
rc: .083
rw: .25

drainable filter pack porosity: 0.2
effective radius: 1.34E-1 (ft)

Bouwer Rice Coefficients

Le/rw: 28.0
A: 2.364
B: 0.34
c: 1.901
ln(Re/rw): 2.189

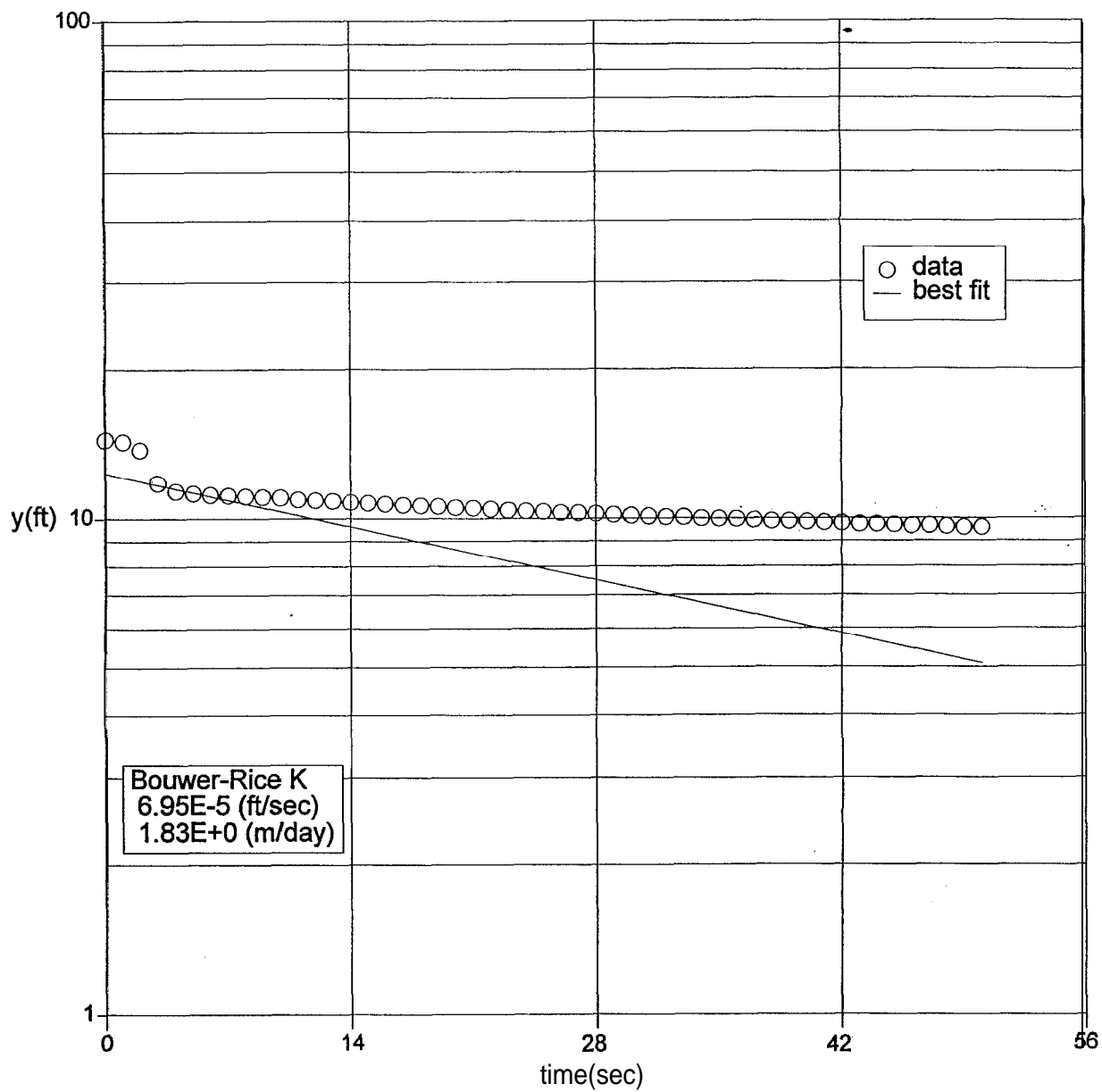
Least Squares Fit

slope: -1.87E-2
intercept: 2.68E+0

Recovery Data and Fit

time(sec)	y(ft)	weight	fit(ft)
0.0	14.730	1.0	14.656
2.0	15.510	0.0	14.118
4.0	12.690	0.0	13.599
6.0	12.840	1.0	13.100
8.0	12.810	1.0	12.619
10.0	12.730	0.0	12.155
12.0	12.680	0.0	11.709
14.0	12.630	0.0	11.279
16.0	12.560	0.0	10.865
18.0	12.550	0.0	10.466
20.0	12.460	0.0	10.081
22.0	12.450	0.0	9.711
24.0	12.400	0.0	9.354
26.0	12.370	0.0	9.011
28.0	12,330	0.0	8.680
30.0	12.280	0.0	8.361
32.0	12.250	0.0	8.054
34.0	12.230	0.0	7.758
36.0	12.200	0.0	7.473
38.0	12.170	0.0	7.199
40.0	12.120	0.0	6.934

42.0	12.100	0.0	6.679
44.0	12.100	0.0	6.434
46.0	12.020	0.0	6.198
48.0	12.020	0.0	5 . 9 7 0
50.0	11.970	0.0	5.751



PZ-2 Shallow Falling Head Test - Barksdale

Slug Test Results

Title: Barksdale
Client: Dupont
Job Number: D4BA7191
Well Number: PZ-2 Shallow Falling

Hydraulic Conductivity

Bouwer-Rice: 6.953-5 (ft/sec), 1.83E+0 (m/day)

Well Geometry (ft)

H: 400.0
Le: 7.0
Lw: 204.74
rc: .083
rw: .25

drainable filter pack porosity: 0.2
effective radius: 1.34E-1 (ft)

Bouwer Rice Coefficients

Le/rw: 28.0
A: 2.364
B: 0.34
c: 1.901
ln(Re/rw): 3.037

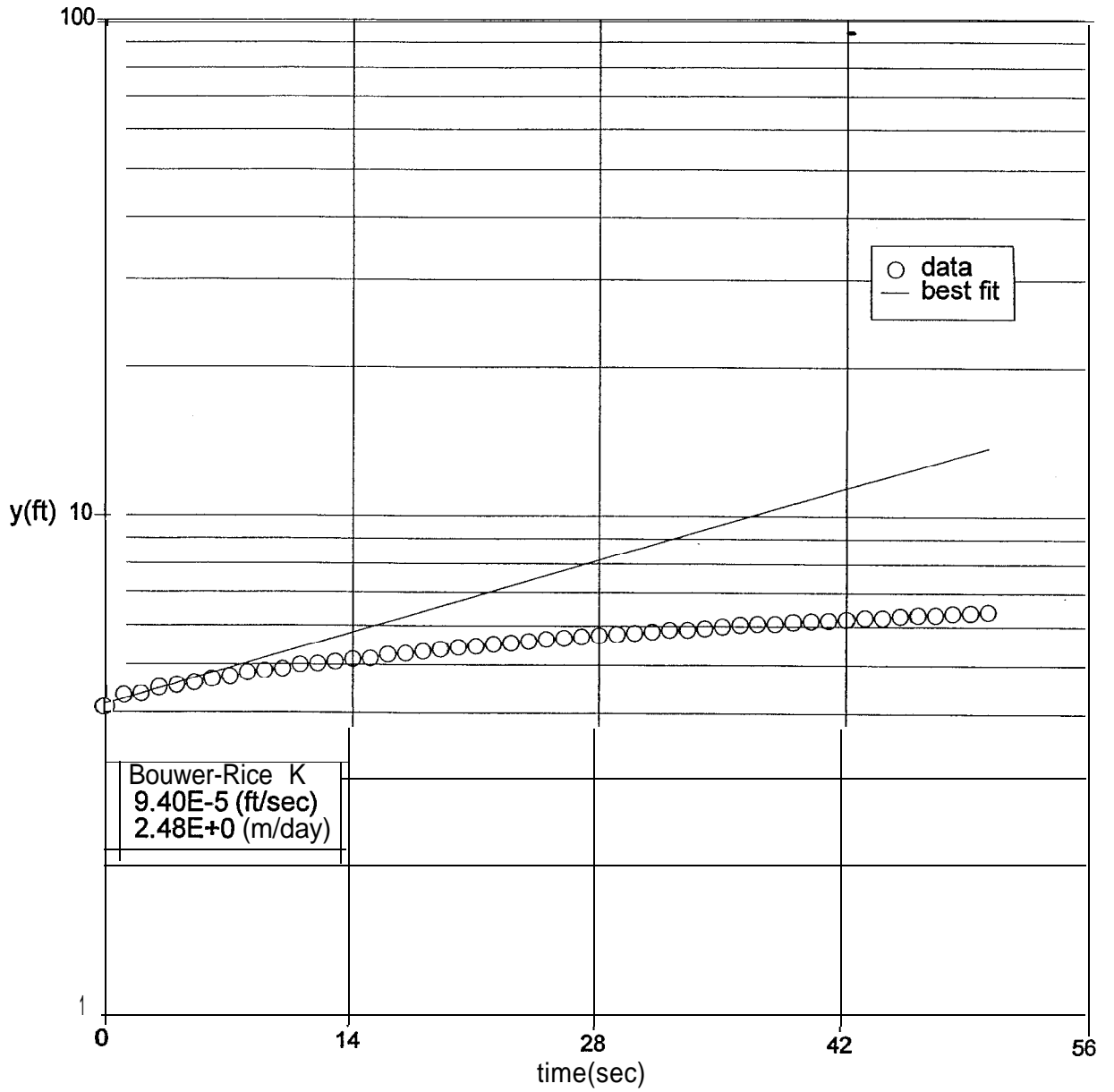
Least Squares Fit

slope: -1.783-2
intercept: 2.51E+0

Recovery Data and Fit

time(sec)	y(ft)	weight	fit(ft)
0.0	14.460	0.0	12.351
1.0	14.320	0.0	12.134
2.0	13.780	0.0	11.920
3.0	11.820	1.0	11.710
4.0	11.370	1.0	11.504
5.0	11.250	1.0	11.302
6.0	11.180	1.0	11.103
7.0	11.150	0.0	10.907
8.0	11.100	0.0	10.715
9.0	11.070	0.0	10.526
10.0	11.030	0.0	10.341
11.0	10.930	0.0	10.159
12.0	10.890	0.0	9.980
13.0	10.860	0.0	9.805
14.0	10.790	0.0	9.632
15.0	10.760	0.0	9.462
16.0	10.710	0.0	9.296
17.0	10.660	0.0	9.132
18.0	10.630	0.0	8.971
19.0	10.580	0.0	8.813
20.0	10.530	0.0	8.658

21.0	10.500	0.0	8.506
22.0	10.450	0.0	8.356
23.0	10.400	0.0	8.209
24.0	10.360	0.0	8.065
25.0	10.330	0.0	7.923
26.0	10.280	0.0	7.783
27.0	10.270	0.0	7.646
28.0	10.220	0.0	7.511
29.0	10.180	0.0	7.379
30.0	10.140	0.0	7.249
31.0	10.100	0.0	7.122
32.0	10.070	0.0	6.996
33.0	10.050	0.0	6.873
34.0	10.000	0.0	6.752
35.0	9.990	0.0	6.633
36.0	9.970	0.0	6.517
37.0	9.920	0.0	6.402
38.0	9.870	0.0	6.289
39.0	9.870	0.0	6.178
40.0	9.840	0.0	6.070
41.0	9.810	0.0	5.963
42.0	9.770	0.0	5.858
43.0	9.740	0.0	5.755
44.0	9.740	0.0	5.653
45.0	9.710	0.0	5.554
46.0	9.660	0.0	5.456.
47.0	9.660	0.0	5.360
48.0	9.610	0.0	5.266
49.0	9.580	0.0	5.173
50.0	9.580	0.0	5.082



PZ-2 Shallow Rising Head Test - Barksdale

Slug Test Results

Title: Barksdale
Client: Dupont
Job Number: D4BA7191
Well Number: PZ-2 Shallow Rising

Hydraulic Conductivity

Bouwer-Rice: $9.40E-5$ (ft/sec), $2.48E+0$ (m/day)

Well Geometry (ft)

H: 400.0
Le: 7.0
Lw: 204.74
rc: .083
rw: .25

drainable filter pack porosity: 0.2
effective radius: $1.34E-1$ (ft)

Bouwer Rice Coefficients

Le/rw: 28.0
A: 2.364
B: 0.34
c: 1.901
ln(Re/rw): 3.037

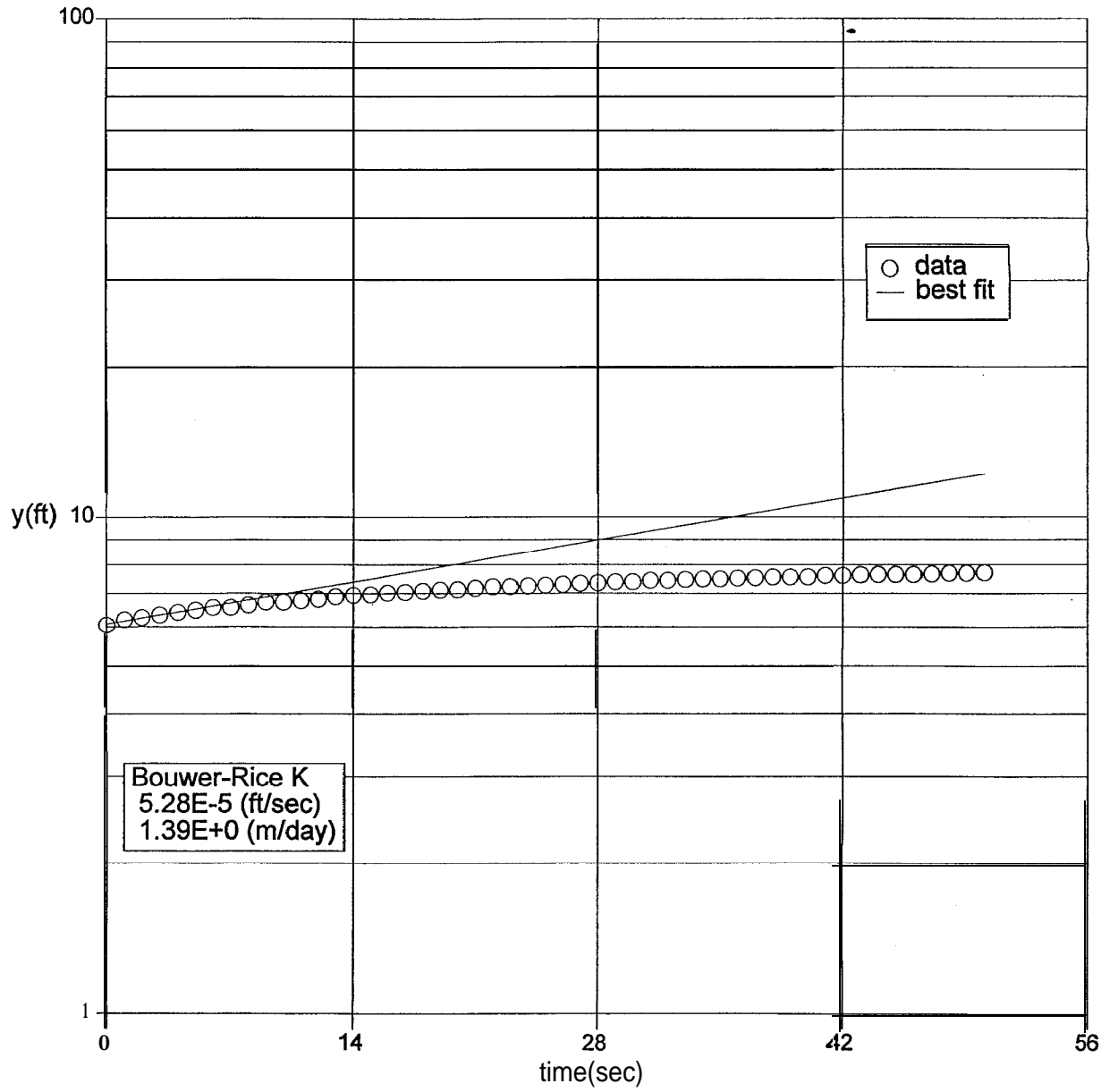
Least Squares Fit

slope: $2.40E-2$
intercept: $1.42E+0$

Recovery Data and Fit

time(sec)	y(ft)	weight	fit(ft)
0.0	4.100	1.0	4.157
1.0	4.330	1.0	4.258
2.0	4.360	1.0	4.361
3.0	4.490	1.0	4.467
4.0	4.540	1.0	4.576
5.0	4.590	0.0	4.687
6.0	4.670	0.0	4.801
7.0	4.720	0.0	4.918
8.0	4.810	0.0	5.037
9.0	4.850	0.0	5.160
10.0	4.890	0.0	5.285
11.0	4.990	0.0	5.414
12.0	5.020	0.0	5.545
13.0	5.070	0.0	5.680
14.0	5.130	0.0	5.818
15.0	5.150	0.0	5.959
16.0	5.250	0.0	6.104
17.0	5.280	0.0	6.253
18.0	5.330	0.0	6.405
19.0	5.380	0.0	6.560
20.0	5.430	0.0	6.720

21.0	5.460	0.0	6.883
22.0	5.510	0.0	7,050
23.0	5.540	0.0	7.222
24.0	5.590	0.0	7.397
25.0	5.640	0.0	7.577
26.0	5.670	0.0	7.761
27.0	5.710	0.0	7.950
28.0	5.740	0.0	8.143
29.0	5.770	0.0	8.341
30.0	5.810	0.0	8.544
31.0	5.850	0.0	8.752
32.0	5.900	0.0	8.964
33.0	5.900	0.0	9.182
34.0	5.940	0.0	9.405
35.0	5.990	0.0	9.634
36.0	6.040	0.0	9.868
37.0	6.070	0.0	10.108
38.0	6.070	0.0	10.354
39.0	6.120	0.0	10.605
40.0	6.150	0.0	10.863
41.0	6.170	0.0	11.127
42.0	6.200	0.0	11.398
43.0	6.250	0.0	11.675
44.0	6.250	0.0	11.959
45.0	6.300	0.0	12.249
46.0	6.330	0.0	12.547
47.0	6.330	0.0	12.852
48.0	6.380	0.0	13.164
49.0	6.400	0.0	13.484
50.0	6.430	0.0	13.812



PZ-3 Shallow Rising Head Test - Barksdale

Slug Test Results

Title: Barksdale
Client: Dupont
Job Number: D4BA7191
Well Number: PZ-3 Shallow Rising

Hydraulic Conductivity

Bower-Rice: 5.28E-5 (ft/sec), 1.39E+0 (m/day)

Well Geometry (ft)

H: 400.0
Le: 7.0
Lw: 145.73
rc: .083
I-W: .25

drainable filter pack porosity: 0.2
effective radius: 1.34E-1 (ft)

Bower Rice Coefficients

Le/rw: 28.0
A: 2.364
B: 0.34
c: 1.901
ln(Re/rw): 2.93

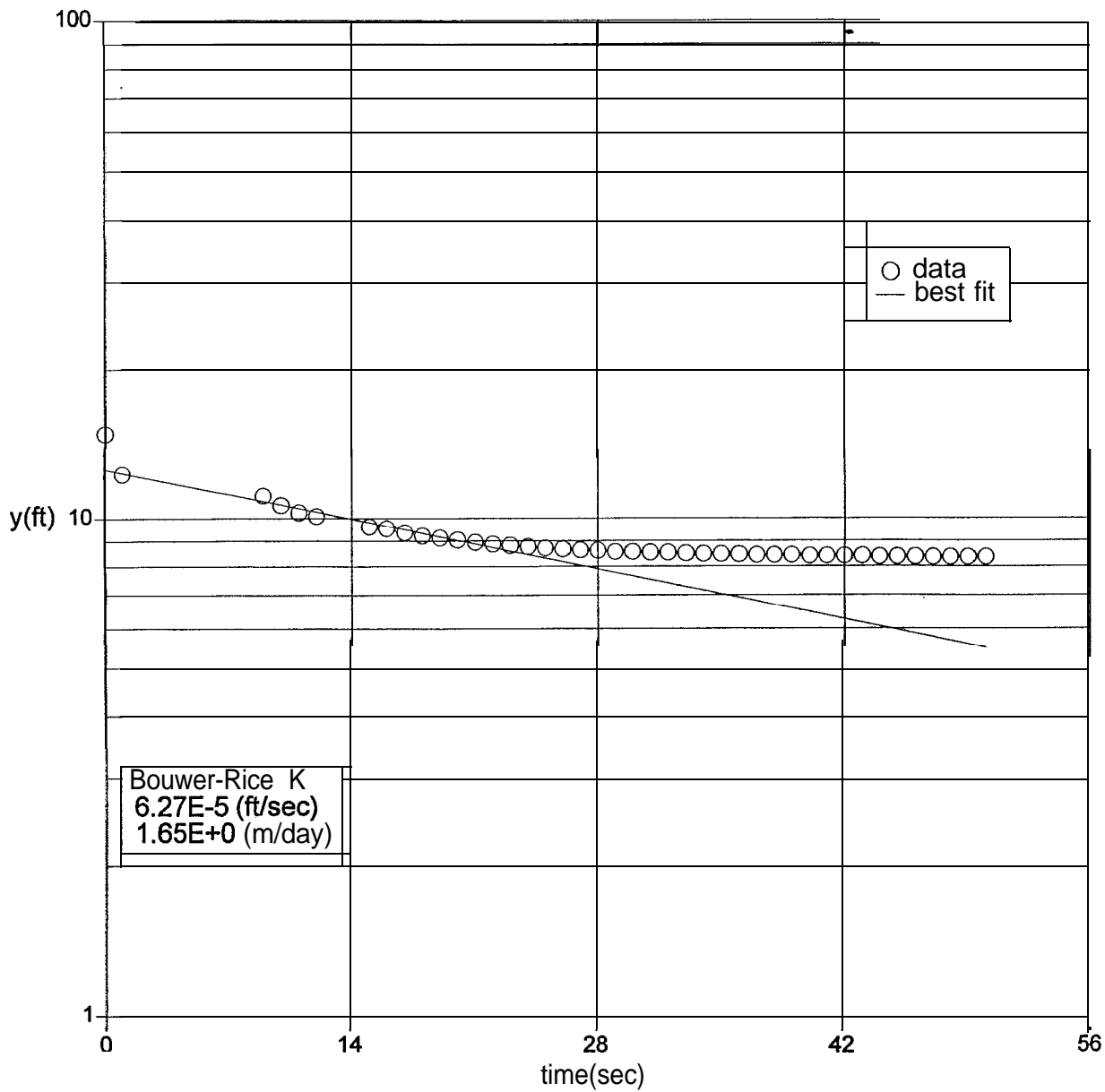
Least Squares Fit

slope: 1.40E-2
intercept: 1.80E+0

Recovery Data and Fit

time(sec)	y(ft)	weight	fit(ft)
0.0	6.040	1.0	6.075
1.0	6.200	1.0	6.160
2.0	6.260	1.0	6.247
3.0	6.330	1.0	6.335
4.0	6.410	1.0	6.424
5.0	6.480	0.0	6.514
6.0	6.560	0.0	6.606
7.0	6.560	0.0	6.699
8.0	6.640	0.0	6.793
9.0	6.720	0.0	6.888
10.0	6.720	0.0	6.985
11.0	6.770	0.0	7.083
12.0	6.820	0.0	7.183
13.0	6.900	0.0	7.284
14.0	6.950	0.0	7.386
15.0	6.970	0.0	7.490
16.0	7.020	0.0	7.596
17.0	7.040	0.0	7.703
18.0	7.080	0.0	7.811
19.0	7.120	0.0	7.921
20.0	7.130	0.0	8.032

21.0	7.170	0.0	8.145
22.0	7.220	0.0	8.260
23.0	7.230	0.0	8.376
24.0	7.250	0.0	8 . 4 9 4
25.0	7.280	0.0	8.613
26.0	7.300	0.0	8.734
27.0	7.330	0.0	8.857
28.0	7.350	0.0	8.982
29.0	7.380	0.0	9.108
30.0	7.380	0.0	9.236
31.0	7.430	0.0	9.366
32.0	7.430	0.0	9.498
33.0	7.460	0.0	9.631
34.0	7.480	0.0	9.767
35.0	7.480	0.0	9.904
36.0	7.510	0.0	10.043
37.0	7.530	0.0	10.185
38.0	7.560	0.0	10.328
39.0	7.560	0.0	10.473
40.0	7.560	0.0	10.620
41.0	7.610	0.0	10.770
42.0	7.610	0.0	10.921
43.0	7.630	0.0	11.075
44.0	7.640	0.0	11.231
45.0	7.640	0.0	11.388
46.0	7.640	0.0	11.549
47.0	7.660	0.0	11.711
48.0	7.690	0.0	11.876
49.0	7.690	0.0	12.043
50.0	7.710	0.0	12.212



PZ-3 Shallow Falling Head Test - Barksdale

Slug Test Results

Title: Barksdale
Client: Dupont
Job Number: D4BA7191
Well Number: PZ-3 Shallow Falling

Hydraulic Conductivity

Bower-Rice: 6.27E-5 (ft/sec), 1.65E+0 (m/day)

Well Geometry (ft)

H: 400.0
Le: 7.0
Lw: 145.73
rc: .083
rw: .25

drainable filter pack porosity: 0.2
effective radius: 1.34E-1 (ft)

Bower Rice Coefficients

Le/rw: 28.0
A: 2.364
B: 0.34
c: 1.901
ln(Re/rw): 2.93

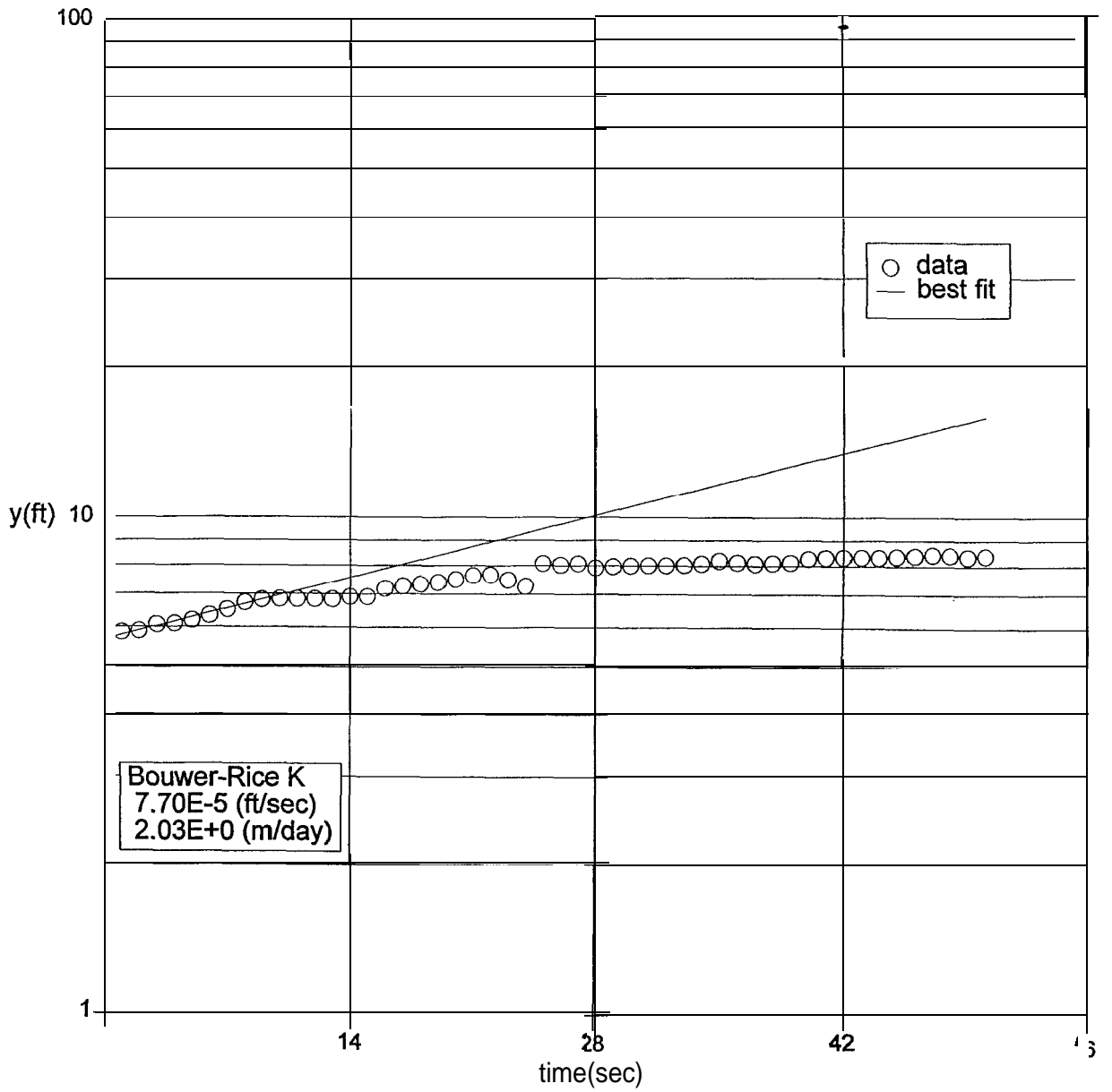
Least Squares Fit

slope: -1.66E-2
intercept: 2.53E+0

Recovery Data and Fit

time(sec)	y(ft)	weight	fit(ft)
0.0	14.870	0.0	12.570
1.0	12.300	1.0	12.364
9.0	11.120	1.0	10.827
10.0	10.630	1.0	10.649
11.0	10.270	1.0	10.474
12.0	10.090	0.0	10.302
15.0	9.610	0.0	9.802
16.0	9.540	0.0	9.641
17.0	9.360	0.0	9.482
18.0	9.220	0.0	9.326
19.0	9.130	0.0	9.173
20.0	9.050	0.0	9.022
21.0	8.950	0.0	8.874
22.0	8.870	0.0	8.728
23.0	8.820	0.0	8.584
24.0	8.770	0.0	8.443
25.0	8.710	0.0	8.304
26.0	8.660	0.0	8.168
27.0	8.630	0.0	8.033
28.0	8.610	0.0	7.901
29.0	8.560	0.0	7.771

30.0	8.560	0.0	7.643
31.0	8.530	0.0	7.518
32.0	8.530	0.0	7.394
33.0	8.500	0.0	7.272
34.0	8.480	0.0	7.153
35.0	8.460	0.0	7.035
36.0	8.450	0.0	6.919
37.0	8.430	0.0	6.806
38.0	8.430	0.0	6.694
39.0	8.430	0.0	6.584
40.0	8.400	0.0	6.475
41.0	8.400	0.0	6.369
42.0	8.400	0.0	6.264
43.0	8.400	0.0	6.161
44.0	8.360	0.0	6.060
45.0	8.360	0.0	5.960
46.0	8.360	0.0	5.862
47.0	8.350	0.0	5.766
48.0	8.350	0.0	5.671
49.0	8.350	0.0	5.578
50.0	8.350	0.0	5.486



PZ-4 Shallow Rising Head Test - Barksdale

Slug Test Results

Title: Barksdale
Client: Dupont
Job Number: D4BA7191
Well Number: PZ-4 Shallow Rising

Hydraulic Conductivity

Bouwer-Rice: 7.70E-5 (ft/sec), 2.03E+0 (m/day)

Well Geometry (ft)

H: 400.0
Le: 7.0
Lw: 127.7
rc: .083
rw: .25

drainable filter pack porosity: 0.2
effective radius: 1.34E-1 (ft)

Bouwer Rice Coefficients

Le/rw: 28.0
A: 2.364
B: 0.34
c: 1.901
ln(Re/rw): 2.892

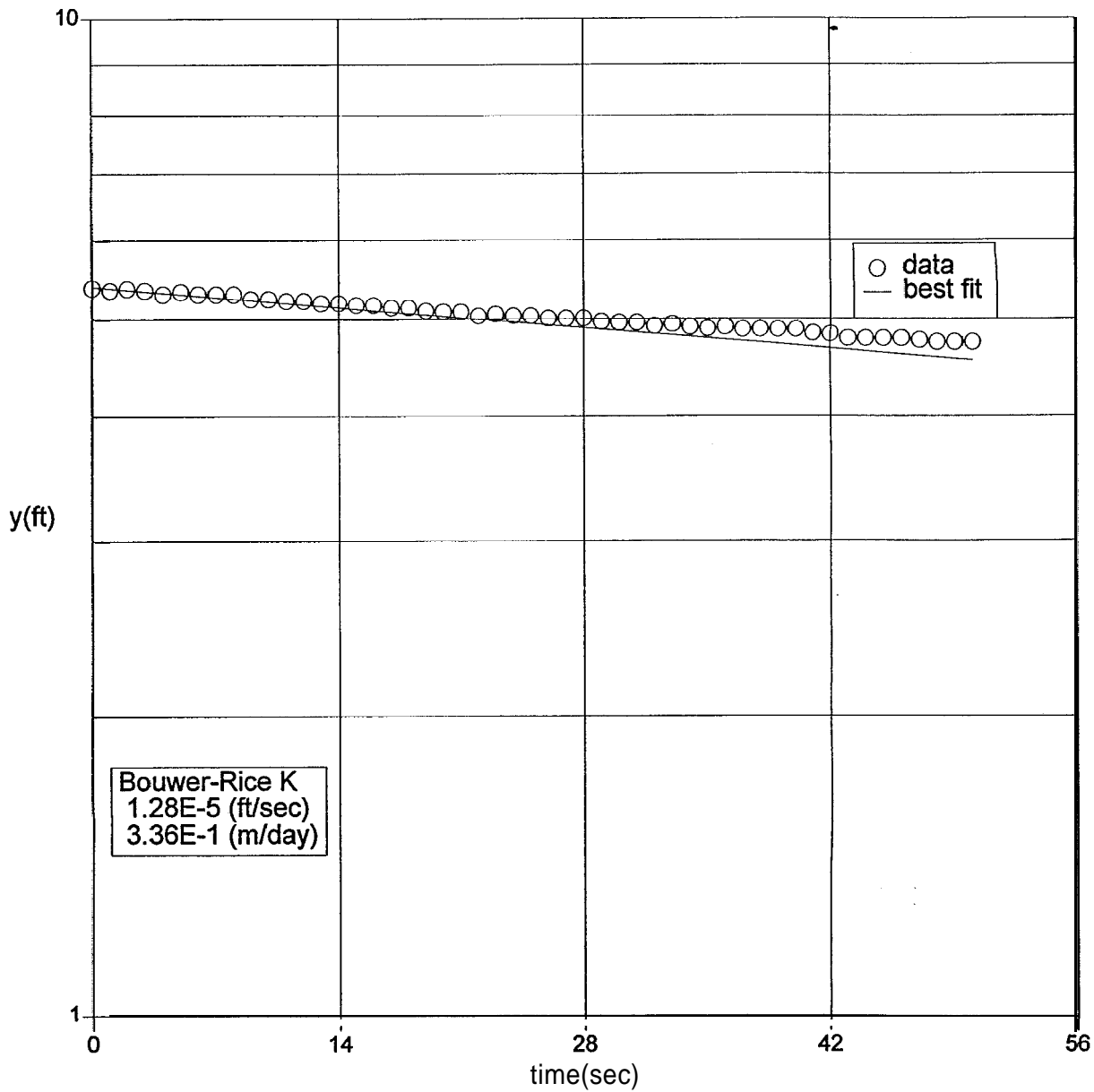
Least Squares Fit

slope: 2.07E-2
intercept: 1.73E+0

Recovery Data and Fit

time(sec)	y(ft)	weight	fit(ft)
0.0	5.590	1.0	5.659
1.0	5.860	1.0	5.777
2.0	5.890	1.0	5.897
3.0	6.070	1.0	6.020
4.0	6.090	1.0	6.146
5.0	6.190	0.0	6.274
6.0	6.330	0.0	6.405
7.0	6.510	0.0	6.539
8.0	6.720	0.0	6.675
9.0	6.820	0.0	6.815
10.0	6.840	0.0	6.957
11.0	6.840	0.0	7.102
12.0	6.840	0.0	7.250
13.0	6.840	0.0	7.401
14.0	6.910	0.0	7.556
15.0	6.920	0.0	7.714
16.0	7.190	0.0	7.875
17.0	7.270	0.0	8.039
18.0	7.330	0.0	8.207
19.0	7.400	0.0	8.378
20.0	7.490	0.0	8.553

21.0	7.630	0.0	8.731
22.0	7.660	0.0	8.914
23.0	7.480	0.0	9.100
24.0	7.270	0.0	9.289
25.0	8.070	0.0	9.483
26.0	8.020	0.0	9.681
27.0	8.070	0.0	9.883
28.0	7.920	0.0	10.090
29.0	7.960	0.0	10.300
30.0	8.000	0.0	10.515
31.0	8.010	0.0	10.735
32.0	8.010	0.0	10.959
33.0	8.020	0.0	11.187
34.0	8.080	0.0	11.421
35.0	8.190	0.0	11.659
36.0	8.120	0.0	11.902
37.0	8.080	0.0	12.151
38.0	8.100	0.0	12.404
39.0	8.120	0.0	12.663
40.0	8.260	0.0	12.927
41.0	8.320	0.0	13.197
42.0	8.330	0.0	13.473
43.0	8.330	0.0	13.754
44.0	8.320	0.0	14.041
45.0	8.360	0.0	14.334
46.0	8.390	0.0	14.633
47.0	8.430	0.0	14.938
48.0	8.410	0.0	15.250
49.0	8.350	0.0	15.568
50.0	8.390	0.0	15.893



PZ-4 Shallow Falling Head Test - Barksdale

Slug Test Results

Title: Barksdale
Client: Dupont
Job Number: D4BA7191
Well Number: PZ-4 Shallow Falling

Hydraulic Conductivity

Bouwer-Rice: 1-283-5 (ft/sec), 3.363-1 (m/day)

Well Geometry (ft)

H: 400.0
Le: 7.0
Lw: 127.7
rc: .083
rw: .25

drainable filter pack porosity: 0.2
effective radius: 1.34E-1 (ft)

Bouwer Rice Coefficients

Le/rw: 28.0
A: 2.364
B: 0.34
c: 1.901
ln(Re/rw): 2.892

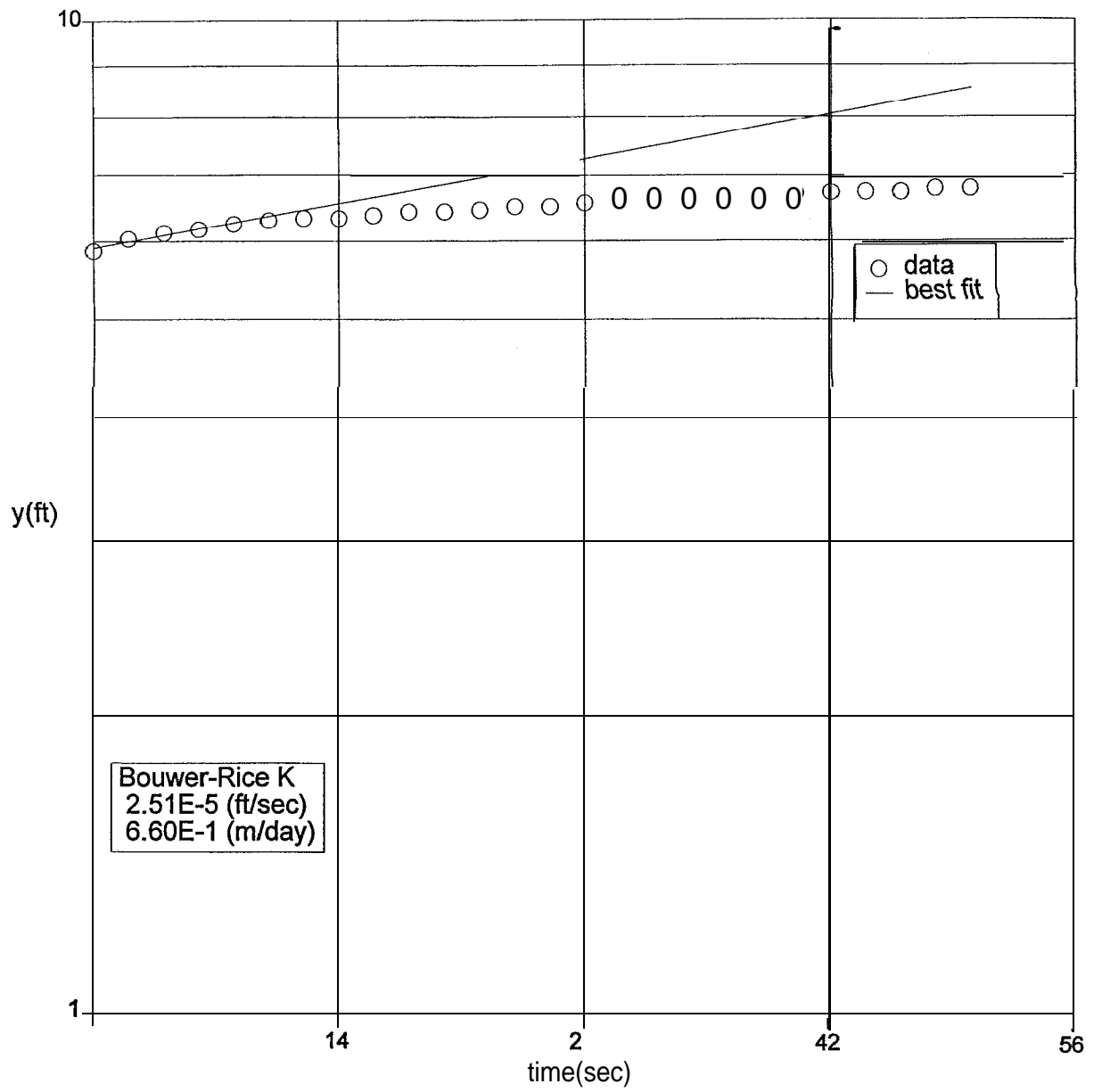
Least Squares Fit

slope: -3.42E-3
intercept: 1.68E+0

Recovery Data and Fit

time(sec)	y(ft)	weight	fit (ft)
0.0	5.380	1.0	5.391
1.0	5.350	0.0	5.373
2.0	5.370	1.0	5.354
3.0	5.350	1.0	5.336
4.0	5.300	1.0	5.318
5.0	5.330	0.0	5.300
6.0	5.300	0.0	5.282
7.0	5.300	0.0	5.264
8.0	5.300	0.0	5.246
9.0	5.240	0.0	5.228
10.0	5.240	0.0	5.210
11.0	5.220	0.0	5.192
12.0	5.220	0.0	5.174
13.0	5.190	0.0	5.157
14.0	5.190	0.0	5.139
15.0	5.170	0.0	5.121
16.0	5.170	0.0	5.104
17.0	5.140	0.0	5.087
18.0	5.140	0.0	5.069
19.0	5.100	0.0	5.052
20.0	5.090	0.0	5.035

21.0	5.090	0.0	5.017
22.0	5.040	0.0	5.000
23.0	5.060	0.0	4.983
24.0	5.040	0.0	4.966
25.0	5.040	0.0	4.949
26.0	5.010	0.0	4.932
27.0	5.010	0.0	4.915
28.0	5.010	0.0	4.899
29.0	4.970	0.0	4.882
30.0	4.960	0.0	4.865
31.0	4.960	0.0	4.849
32.0	4.920	0.0	4.832
33.0	4.940	0.0	4.815
34.0	4.910	0.0	4.799
35.0	4.890	0.0	4.783
36.0	4.910	0.0	4.766
37.0	4.880	0.0	4.750
38.0	4.880	0.0	4.734
39.0	4.880	0.0	4.718
40.0	4.880	0.0	4.702
41.0	4.840	0.0	4.685
42.0	4.830	0.0	4.669
43.0	4.780	0.0	4.653
44.0	4.780	0.0	4.638
45.0	4.780	0.0	4.622
46.0	4.780	0.0	4.606
47.0	4.760	0.0	4.590
48.0	4.740	0.0	4.575
49.0	4.740	0.0	4.559
50.0	4.740	0.0	4.543



PZ-5 Shallow Rising Head Test - Bark&dale

Slug Test Results

Title: Barksdale
Client: Dupont
Job Number: D4BA7191
Well Number: PZ-5 Shallow Rising

Hydraulic Conductivity

Bouwer-Rice: 2.51E-5 (ft/sec), 6.60E-1 (m/day)

Well Geometry (ft)

H: 200.0
Le: 7.0
Lw: 42.04
rc: .083
rw: .25

drainable filter pack porosity: 0.2
effective radius: 1.34E-1 (ft)

Bouwer Rice Coefficients

Le/rw: 28.0
A: 2.364
B: 0.34
c: 1.901
ln(Re/rw): 2.65

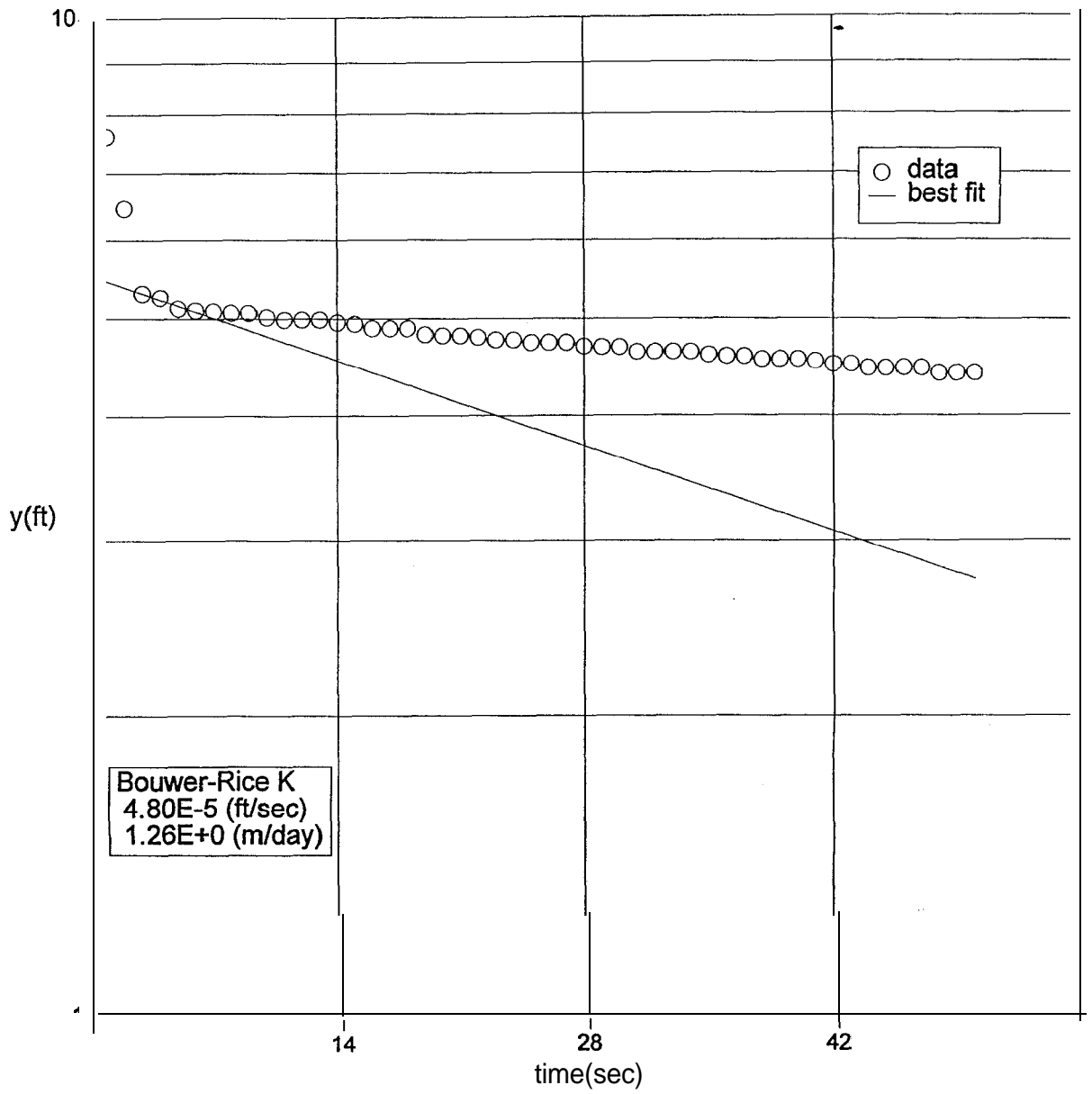
Least Squares Fit

slope: 7.34E-3
intercept: 1.78E+0

Recovery Data and Fit

time(sec)	y(ft)	weight	fit(ft)
0.0	5.870	1.0	5.913
2.0	6.040	1.0	6.000
4.0	6.120	1.0	6.089
6.0	6.170	1.0	6.179
8.0	6.250	1.0	6.270
10.0	6.300	0.0	6.363
12.0	6.330	0.0	6.457
14.0	6.330	0.0	6.552
16.0	6.380	0.0	6.649
18.0	6.430	0.0	6.747
20.0	6.430	0.0	6.847
22.0	6.460	0.0	6.948
24.0	6.510	0.0	7.051
26.0	6.510	0.0	7.155
28.0	6.560	0.0	7.261
30.0	6.590	0.0	7.368
32.0	6.590	0.0	7.477
34.0	6.640	0.0	7.588
36.0	6.670	0.0	7.700
38.0	6.690	0.0	7.814
40.0	6.710	0.0	7.929

42.0	6.720	0.0	8.047
44.0	6.770	0.0	8.165
46.0	6.770	0.0	8.286
48.0	6.820	0.0	8.409
50.0	6.820	0.0	a.533



PZ-5 Shallow Falling Head Test - Bark&dale

Slug Test Results

Title: Barksdale
Client: Dupont
Job Number: D4BA7191
Well Number: PZ-5 Shallow Falling

Hydraulic Conductivity

Bower-Rice: 4.80E-5 (ft/sec), 1.26E+0 (m/day)

Well Geometry (ft)

H: 200.0
Le: 7.0
Lw: 42.04
rc: .083
rw: .25

drainable filter pack porosity: 0.2
effective radius: 1.34E-1 (ft)

Bower Rice Coefficients

Le/rw: 28.0
A: 2.364
B: 0.34
c: 1.901
ln(Re/rw): 2.65

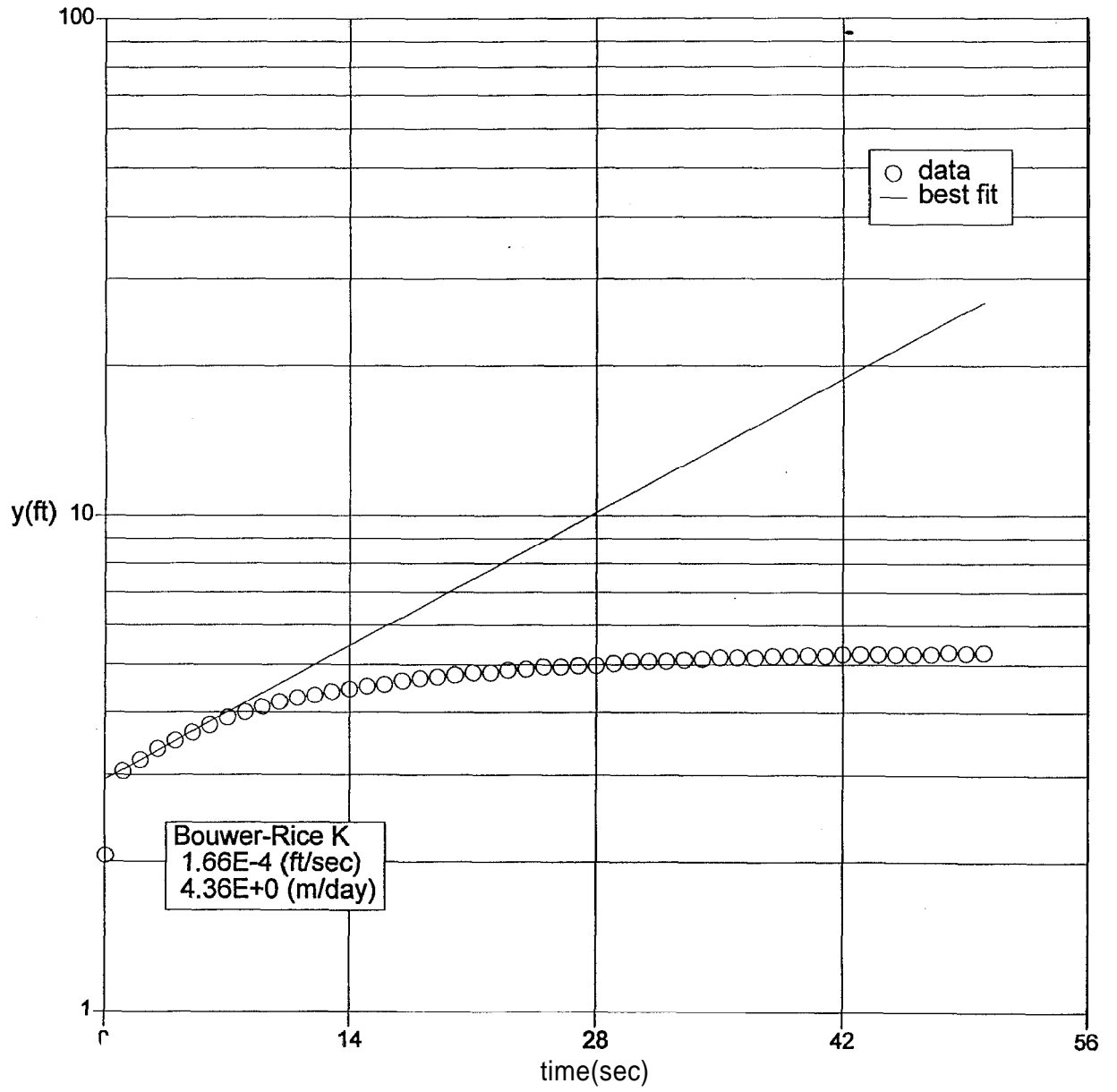
Least Squares Fit

slope: -1.40E-2
intercept: 1.71E+0

Recovery Data and Fit

time(sec)	y(ft)	weight	fit(ft)
0.0	7.740	0.0	5.531
1.0	7.610	0.0	5.453
2.0	6.450	0.0	5.377
3.0	5.300	1.0	5.302
4.0	5.250	1.0	5.228
5.0	5.120	1.0	5.155
6.0	5.100	1.0	5.084
7.0	5.090	0.0	5.013
8.0	5.070	0.0	4.943
9.0	5.070	0.0	4.874
10.0	5.020	0.0	4.806
11.0	4.990	0.0	4.739
12.0	4.990	0.0	4.673
13.0	4.990	0.0	4.607
14.0	4.960	0.0	4.543
15.0	4.940	0.0	4.480
16.0	4.890	0.0	4.417
17.0	4.890	0.0	4.356
18.0	4.890	0.0	4.295
19.0	4.820	0.0	4.235
20.0	4.810	0.0	4.176

21.0	4.810	0.0	4.118
22.0	4.790	0.0	4.060
23.0	4.760	0.0	4.004
24.0	4.760	0.0	3.948
25.0	4.730	0.0	3.893
26.0	4.730	0.0	3.838
27.0	4.730	0.0	3.785
28.0	4.690	0.0	3.732
29.0	4.680	0.0	3.680
30.0	4.680	0.0	3.629
31.0	4.630	0.0	3.578
32.0	4.630	0.0	3.528
33.0	4.630	0.0	3.479
34.0	4.630	0.0	3.430
35.0	4.600	0.0	3.383
36.0	4.580	0.0	3.335
37.0	4.580	0.0	3.289
38.0	4.550	0.0	3.243
39.0	4.550	0.0	3.198
40.0	4.550	0.0	3.153
41.0	4.530	0.0	3.109
42.0	4.500	0.0	3.066
43.0	4.500	0.0	3.023
44.0	4.460	0.0	2.981
45.0	4.460	0.0	2.939
46.0	4.460	0.0	2.898
47.0	4.460	0.0	2.858
48.0	4.410	0.0	2.818
49.0	4.410	0.0	2.779
50.0	4.410	0.0	2.740



PZ-6 Shallow Rising Head Test - Barksdale

Slug Test Results

Title: Barksdale
Client: Dupont
Job Number: D4BA7191
Well Number: PZ-6 Shallow Rising

Hydraulic Conductivity

Bower-Rice: 1-663-4 (ft/sec), 4.36E+0 (m/day)

Well Geometry (ft)

H: 400.0
Le: 7.0
Lw: 131.87
rc: .083
rw: .25

drainable filter pack porosity: 0.2
effective radius: 1.34E-1 (ft)

Bower Rice Coefficients

Le/rw: 28.0
A: 2.364
B: 0.34
c: 1.901
ln(Re/rw): 2.901

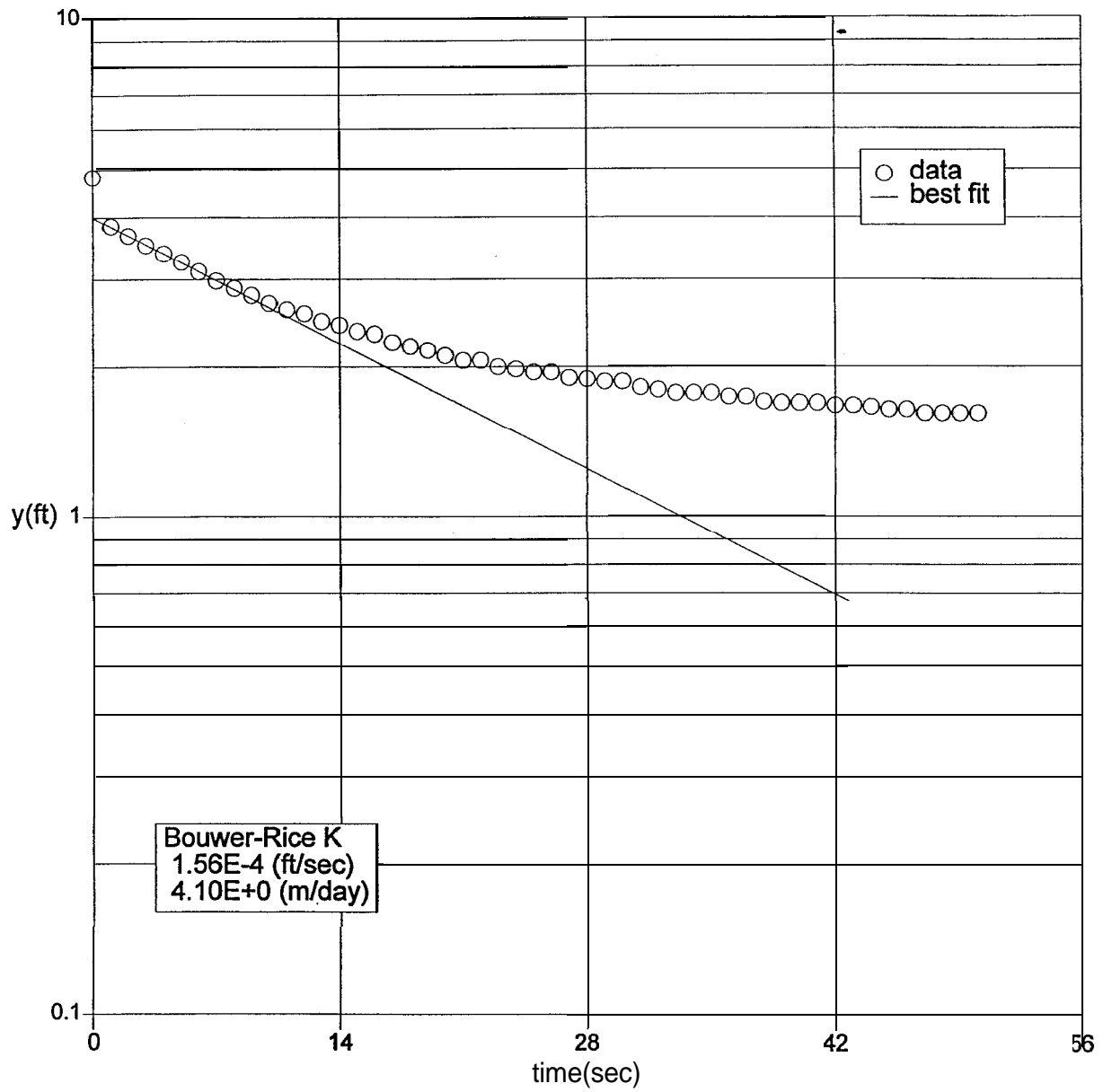
Least Squares Fit

slope: 4.43E-2
intercept: 1.08E+0

Recovery Data and Fit

time(sec)	y(ft)	weight	fit(ft)
0.0	2.060	0.0	2.934
1.0	3.050	1.0	3.067
2.0	3.210	1.0	3.206
3.0	3.380	1.0	3.351
4.0	3.510	1.0	3.503
5.0	3.640	1.0	3.662
6.0	3.770	0.0	3.828
7.0	3.900	0.0	4.001
8.0	4.000	0.0	4.182
9.0	4.100	0.0	4.372
10.0	4.200	0.0	4.570
11.0	4.280	0.0	4.777
12.0	4.330	0.0	4.993
13.0	4.410	0.0	5.220
14.0	4.460	0.0	5.456
15.0	4.520	0.0	5.703
16.0	4.560	0.0	5.961
17.0	4.640	0.0	6.232
18.0	4.690	0.0	6.514
19.0	4.720	0.0	6.809
20.0	4.770	0.0	7.117

21.0	4.820	0.0	7.440
22.0	4.820	0.0	7.777
23.0	4.880	0.0	8.129
24.0	4.900	0.0	8.497
25.0	4.950	0.0	8.882
26.0	4.950	0.0	9.284
27.0	4.980	0.0	9.705
28.0	4.980	0.0	10.145
29.0	5.030	0.0	10.604
30.0	5.080	0.0	11.085
31.0	5.080	0.0	11.587
32.0	5.080	0.0	12.112
33.0	5.110	0.0	12.660
34.0	5.130	0.0	13.234
35.0	5.160	0.0	13.833
36.0	5.160	0.0	14.460
37.0	5.160	0.0	15.115
38.0	5.200	0.0	15.800
39.0	5.200	0.0	16.515
40.0	5.210	0.0	17.263
41.0	5.210	0.0	18.045
42.0	5.250	0.0	18.863
43.0	5.250	0.0	19.717
44.0	5.250	0.0	20.610
45.0	5.250	0.0	21.544
46.0	5.250	0.0	22.520
47.0	5.250	0.0	23.540
48.0	5.290	0.0	24.606
49.0	5.280	0.0	25.721
50.0	5.290	0.0	26.886



PZ-6 Shallow Falling Head Test - Barksdale

Slug Test Results

Title: Barksdale
Client: Dupont
Job Number: D4BA7191
Well Number: PZ-6 Shallow Falling

Hydraulic Conductivity

Bouwer-Rice: 1-563-4 (ft/sec), 4.10E+0 (m/day)

Well Geometry (ft)

H: 400.0
Le: 7.0
Lw: 131.87
rc: .083
rw: .25

drainable filter pack porosity: 0.2
effective radius: 1.34E-1 (ft)

Bouwer Rice Coefficients

Le/rw: 28.0
A: 2.364
B: 0.34
c: 1.901
ln(Re/rw): 2.901

Least Squares Fit

slope: -4.16E-2
intercept: 1.38E+0

Recovery Data and Fit

time(sec)	y(ft)	weight	fit(ft)
0.0	4.820	0.0	3.992
1.0	3.840	1.0	3.830
2.0	3.670	1.0	3.674
3.0	3.510	1.0	3.524
4.0	3.380	1.0	3.380
5.0	3.250	1.0	3.243
6.0	3.110	0.0	3.110
7.0	2.980	0.0	2.984
8.0	2.880	0.0	2.862
9.0	2.790	0.0	2.746
10.0	2.690	0.0	2.634
11.0	2.610	0.0	2.526
12.0	2.560	0.0	2.423
13.0	2.470	0.0	2.325
14.0	2.430	0.0	2.230
15.0	2.360	0.0	2.139
16.0	2.330	0.0	2.052
17.0	2.240	0.0	1.968
18.0	2.200	0.0	1.888
19.0	2.160	0.0	1.811
20.0	2.110	0.0	1.737

21.0	2.060	0.0	1.667
22.0	2.060	0.0	1.599
23.0	2.000	0.0	1.534
24.0	1.980	0.0	1 . 4 7 1
25.0	1.950	0.0	1.411
26.0	1.950	0.0	1.354
27.0	1.900	0.0	1.299
28.0	1.890	0.0	1.246
29.0	1.870	0.0	1.195
30.0	1.870	0.0	1.146
31.0	1.820	0.0	1.100
32.0	1.800	0.0	1.055
33.0	1.770	0.0	1.012
34.0	1.770	0.0	0.971
35.0	1.770	0.0	0.931
36.0	1.740	0.0	0.893
37.0	1.740	0.0	0.857
38.0	1.700	0.0	0.822
39.0	1.690	0.0	0.788
40.0	1.690	0.0	0.756
41.0	1.690	0.0	0.725
42.0	1.670	0.0	0.696
43.0	1.670	0.0	0.667
44.0	1.660	0.0	0.640
45.0	1.640	0.0	0.614
46.0	1.640	0.0	0.589
47.0	1.610	0.0	0.565
48.0	1.610	0.0	0.542
49.0	1.610	0.0	0.520
50.0	1.610	0.0	0.499

Appendix F
Water Main Closure (Photograph Log)

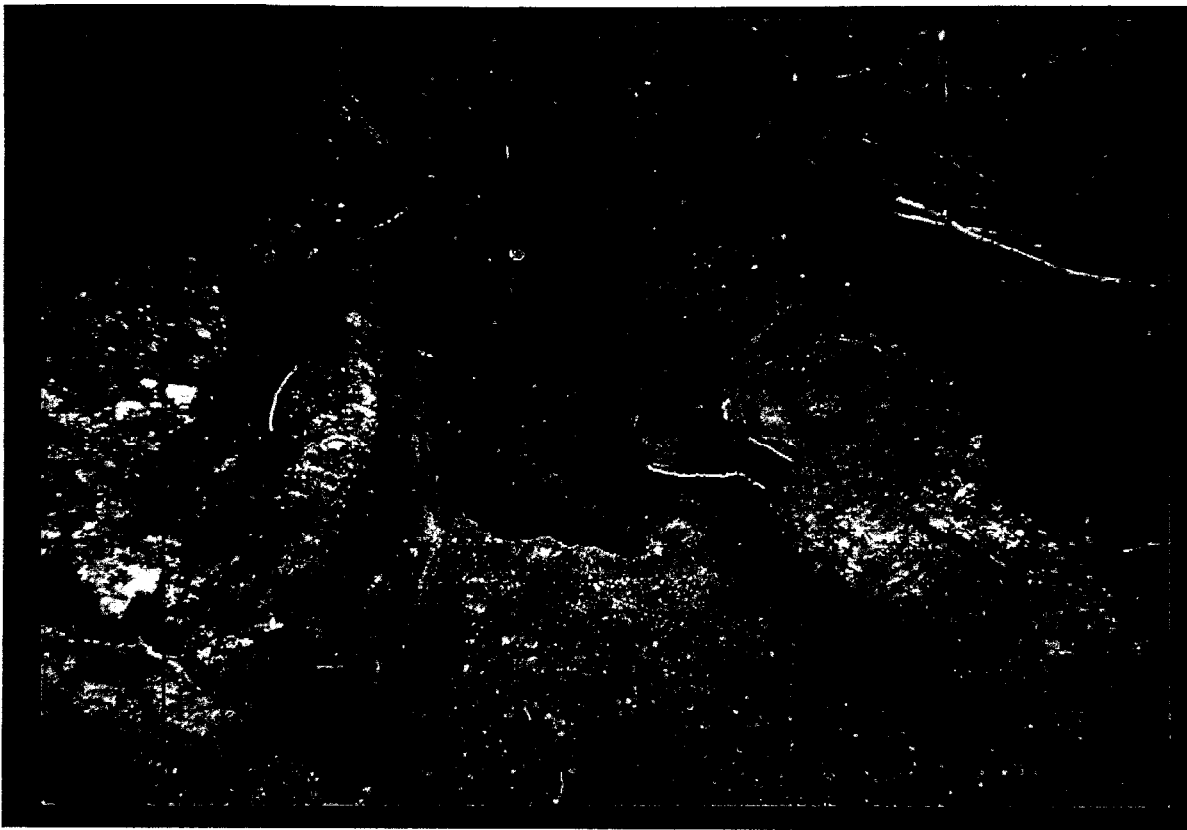


Photo 1: Closure Area 1- West Branch Water Line Prior to Wet Tap - August 24, 1998

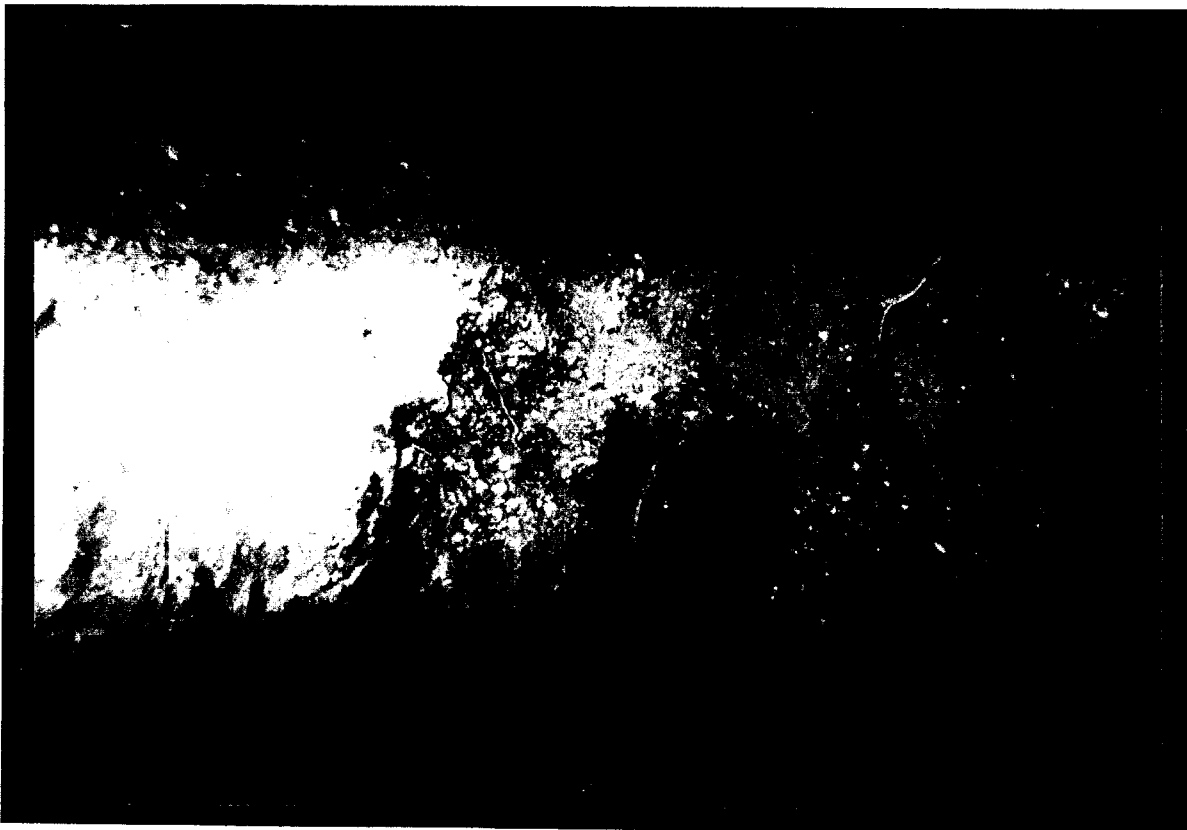


Photo 2: Closure Area 1- West Branch Water Line After Cut - August 24, 1998

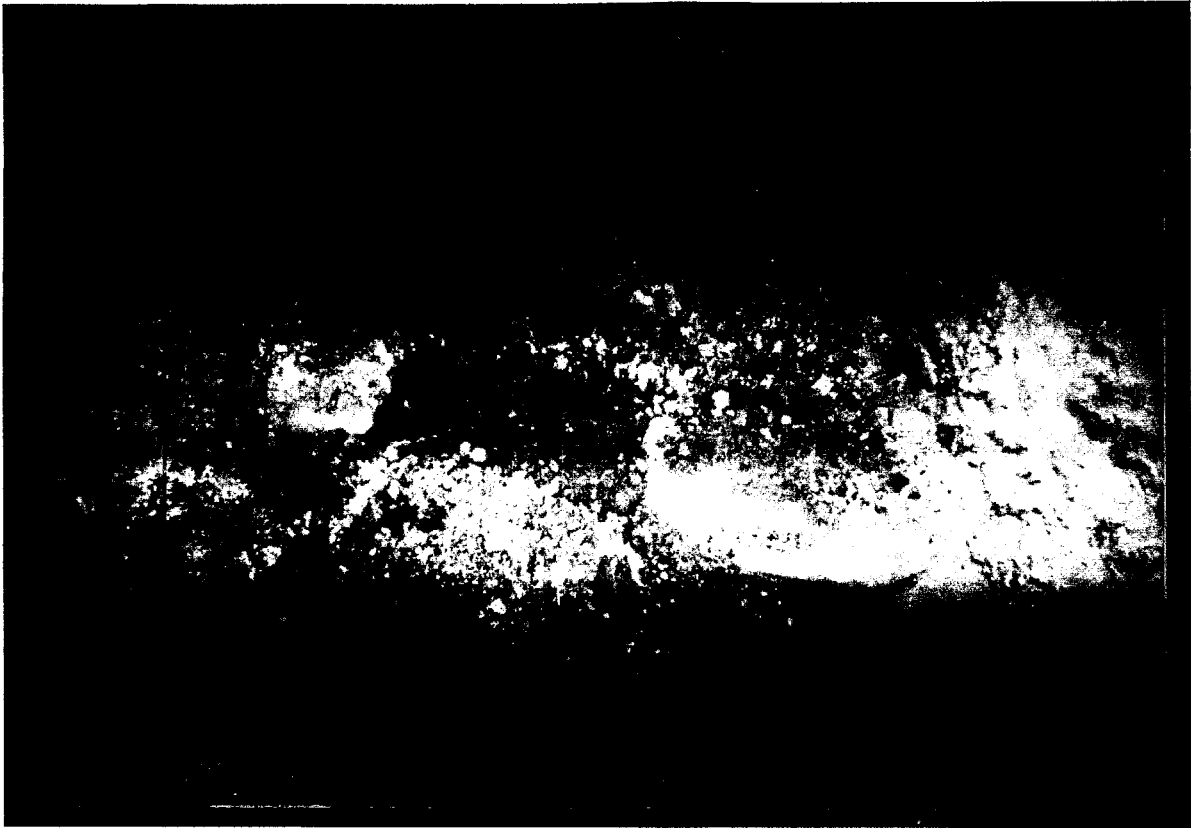


Photo 3: Closure Area 1- North Branch Water Line with Concrete Thrust Block - August 24, 1998



Photo 4: Closure Area 1- Area After Backfilling to Grade- August 24, 1998



Photo 5: Closure Area 2 - During Excavation - August 25, 1998



Photo 6: Closure Area 2- After Pipe Plug Installation (typical) - August 25, 1998



Photo 7: Closure Area 2- After Concrete Thrust Block Installation (typical) - August 25, 1998

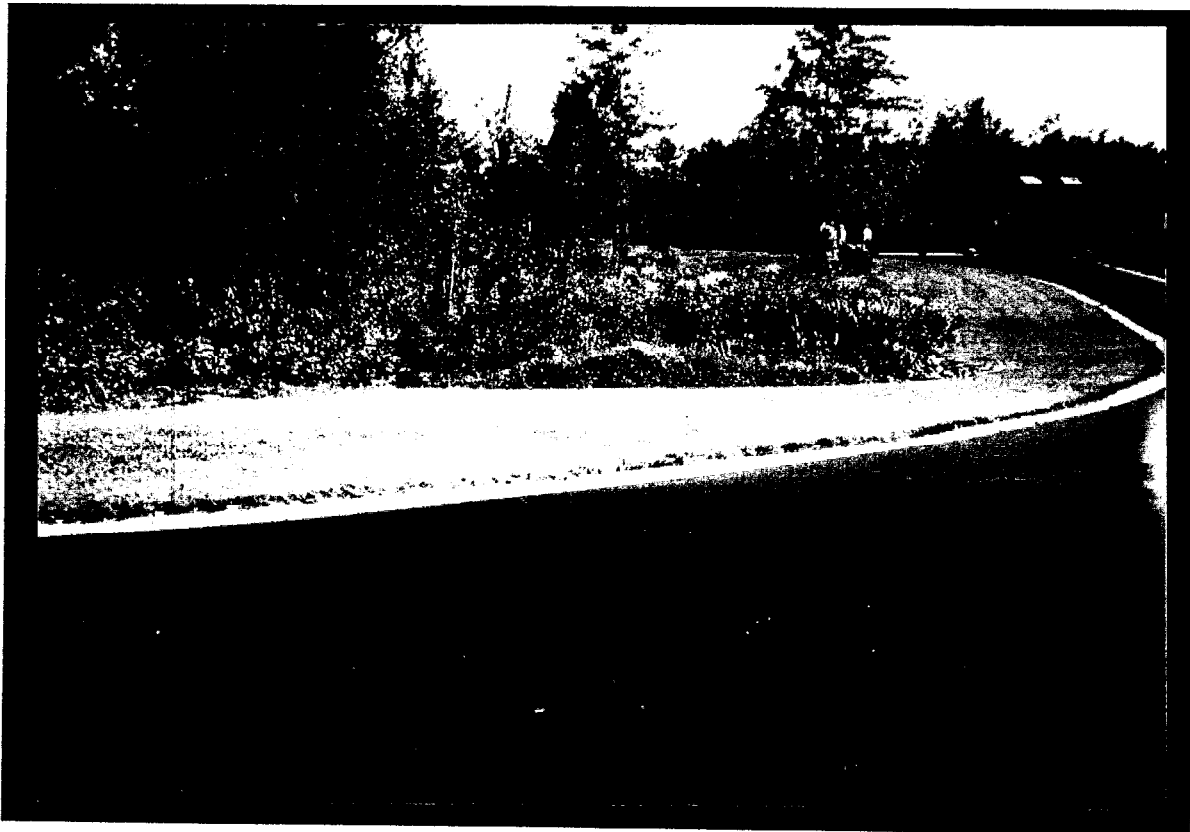


Photo 8: Closure Area 3- North View Prior to Excavation - August 25, 1998

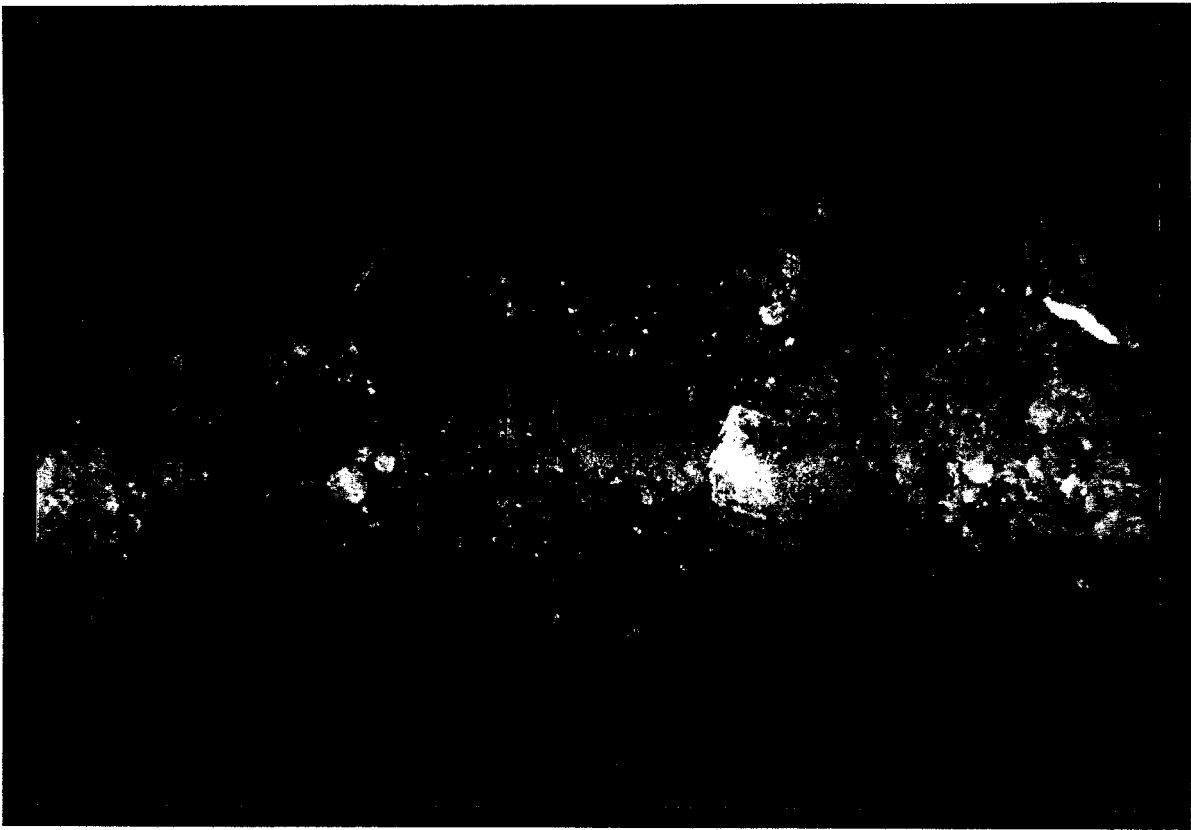


Photo 9: Closure Area 3- North Branch Water Line Closure - September 16, 1998

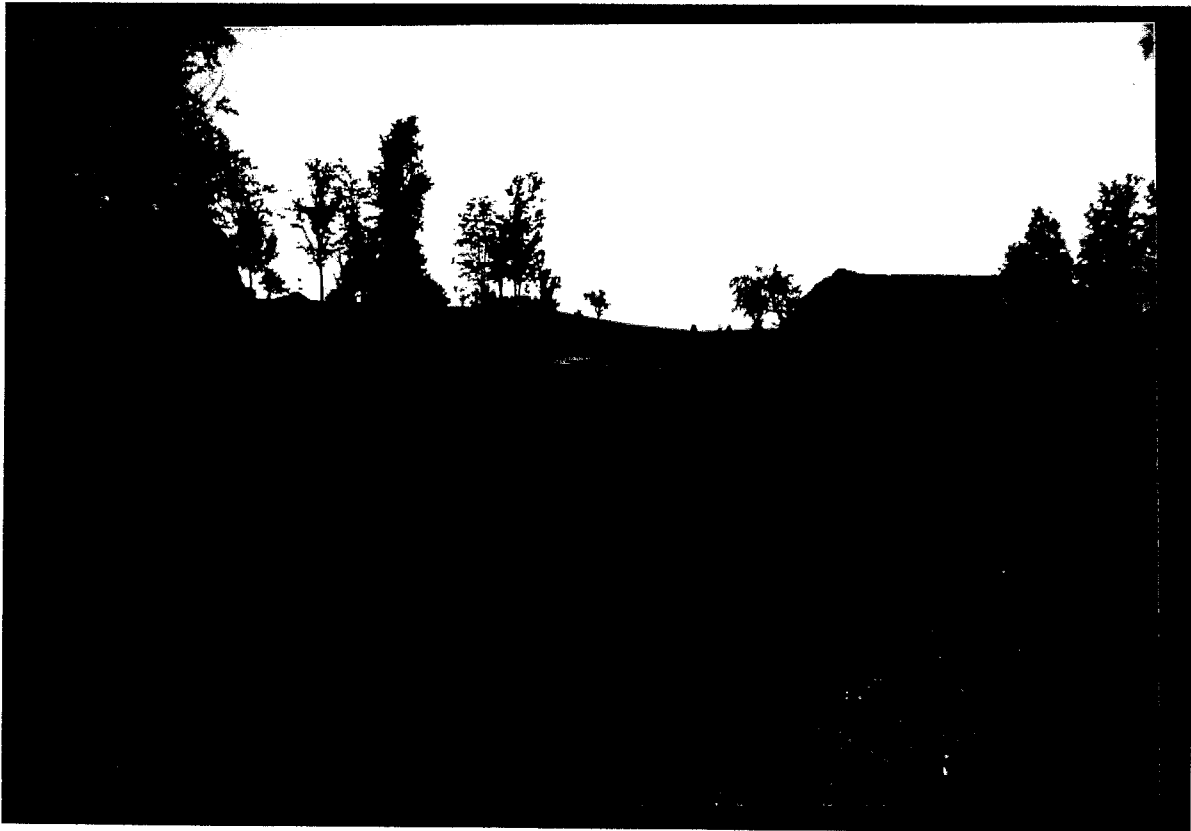


Photo 10: Closure Area 3- Northeast View After Backfilling to Grade - September 16, 1998

Appendix G
Trilinear Diagrams of DuPont-Bardsdale Groundwater Data

MEMORANDUM

Date: February 25, 1999

To: Jon Hammerberg (Madison)

From: Bill Deutsch (Seattle)

Subject: Trilinear Diagrams of Dupont-Barksdale Groundwater Data

The eleven groundwater datasets you provided for the Dupont-Barksdale groundwater have been plotted on the attached trilinear diagram. Alkalinity data were only available for samples CX533 and IW882. The carbonate/bicarbonate concentration is calculated from the alkalinity value. Because the carbonate/bicarbonate anions are usually the dominant anions in groundwater, their concentration in the other nine samples was estimated. This was done by assuming that the entire electrical imbalance in the nine samples was due to the lack of carbonate/bicarbonate. The concentration was set equal to the imbalance. The complete dataset used for the trilinear plot is attached (Table 1).

The trilinear diagram shows that all of the water samples are a Ca/Mg type and seven of the wells cluster together in the carbonate/bicarbonate field. Two wells (B1 and B3) plot close to each other and have a significant amount of sulfate in addition to carbonate/bicarbonate. Wells B6 and B8 appear to have water that is different than the other wells. These two wells have a very low overall amount of dissolved species. Also, the major anions are sulfate and chloride to a much greater extent than the carbonate/bicarbonate found in the other wells. The difference in water composition between the "B" wells and the other seven samples is significant enough to suggest that they are from different aquifers or they are from a single aquifer that has been impacted by local, distinct environmental conditions.

Dupont - Barksdale Project

- 1 bar-g-ck533
- 2 bar-g-iw882
- 3 bar-g-mw1
- 4 bar-g-mw2
- 5 bar-g-mw3
- 6 bar-g-mw4
- 7 bar-g-mw5
- 8 bar-w-b1
- 9 bar-w-b3
- A bar-w-B6
- B bar-w-b8

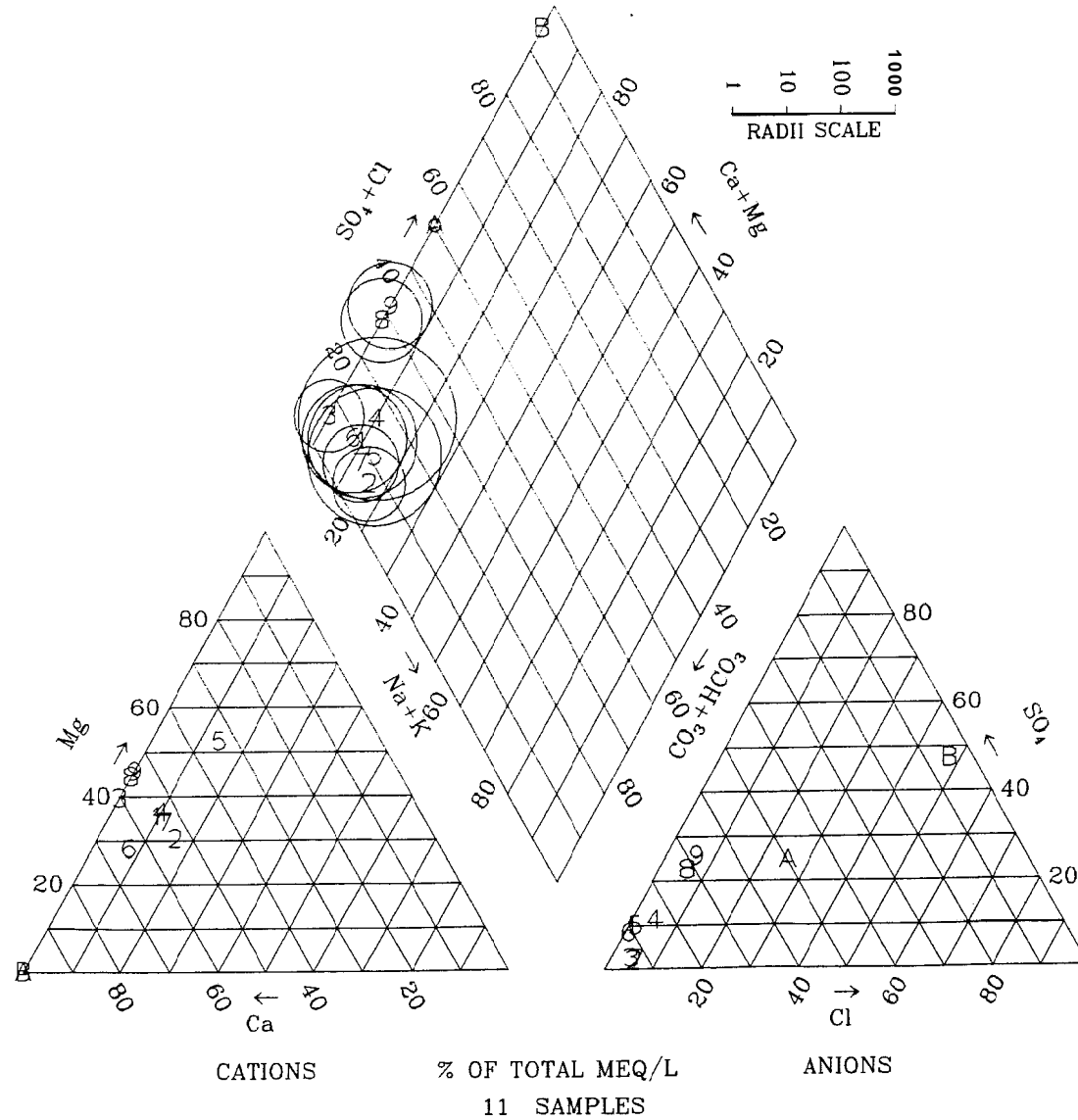


Table 1
Dupont Barksdale Project

	BAR-G- CX533- INFLOW	BAR-G- IW882	BAR-G- MW-1	BAR-G- MW-2	BAR-G- MW-3	BAR-G- MW-4	BAR-G- MW-5	BAR-W-01	BAR-W-B3	BAR-W-B6	BAR-W-B8
Sample Date	12/2/98	12/2/98	12/3/98	12/3/98	12/3/98	12/3/98	12/3/98	12/3/98	12/3/98	12/3/98	12/3/98
Water Depth (ft TOR)			35.0	22.2	32.7	30.5	8.8				
Field pH (SU)			8.6	8.3	7.1	6.9	8.5				
Field Conductivity (mS/cm)			0.2	0.8	0.4	0.3	0.3				
Field Temp (C)			10.2	10.1	11.8	10.3	15.0				
Turbidity (NTU)			19.0	2.0	14.0	5.0	502.0				
Calcium (Ca)	39.6	15.5	18.4	107.0	40.0	40.3	18.3	23.6	24.9	10.9	8.1
Iron		1.3	2.1	0.3	3.8	0.2	14.0	2.6	3.3	4.4	4.2
Magnesium (Mg)	15.5	5.3	7.3	44.1	37.8	10.7	7.0	11.4	12.7		
Potassium (K)					5.2		7.9				
Sodium (Na)	8.1	5.3		23.5	16.2	5.6					
Carbonate/Bicarbonate as CO3	170	86	80	434	279	157	87	71	71	11	0.5
Chloride (Cl)	1.2	5.2	4.1	4.8	4.8	1.5	5.9	6.8	7.5	6.6	5.6
Nitrate (NO3)	1.9	0.053	0.071	44.8	0.059	0.17		0.036	0.032	0.064	0.061
Sulfate (SO4)	28.7	3	3.4	91.5	49.5	22.8	3.4	35.9	42.8	8.7	7.6

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