N62269.AR.000650
NAWC WARMINSTER
5090.3a

SUMMARY OF OFF-SITE DRILLING/TESTING NORTH OF AREA "A"
AT
NAVAL AIR WARFARE CENTER
WARMINSTER, PENNSYLVANIA

CONTRACT NO. N62472-94-D-0398
DELIVERY ORDER NO. J018

PREPARED FOR:

U.S. NAVY NORTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
10 INDUSTRIAL HIGHWAY
LESTER, PENNSYLVANIA 19113

FEBRUARY 23, 2000

Volume 2 of 2

PREPARED BY:

FOSTER WHEELER ENVIRONMENTAL CORPORATION
2300 Lincoln Highway East
One Oxford Valley, Suite 200
Langhorne, PA 19047-1829

Revision	Date	Prepared by	Approved By	Pages Affected
0	2/23/2000	D.F. Walsh, CPG	J. Irey, CHMM	All

WP2000#/WP0009

APPENDIX A

Borehole Lithology Logs

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Location: Naval Air Warfare Center - Area A; Warminster, PA	Boring Id: HN67
Logged By: C. Joblon	Elevation:
Drilling Subcontractor: Hardin-Huber, Inc.	Total Depth: @ 102'
Drilling Method: Air Hammer	Date(s): 12/2/99 - 12/22/99
Remarks: 16" to top bedrock, 10" hammer after setting surface casing	

Depth (ft.)	Blow Count	Recovery %	Color	USGS Code	Graphic Log	Material Description	Remarks	FID(ppm)/CGI
0			Brn/ Yellow			0-8' Silt w/trace clay, slightly cohesive		0/0%
								0/0%
			Brn			8-22' Silt w/f sand trace clay, slightly cohesive, moist	Weathered Became redder @ 13' 1/2" chips Very weathered Siltstone	0/0%
10'								
								0/0%
20'							Water @ 20'	0/0%
			Red/ Brn			22-50' Siltstone	Competent bedrock @ 22'	
							Set 10" casing @ 25' ~2-5 gpm 1/8-1/2" chips Fracture zone @ 32-33' ≅ 10gpm	0/0%
30'							No noticeable odor or sheen in water/cuttings	0/0%
								0/0%
40'								
							≅ 6-8 gpm	0/0%
50'			Gry Brn			50-60' f-vf Sandstone, hard	1/4" chips ≅ 6-8 gpm	0/0%

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Location: Naval Air Warfare Center - Area A; Warminster, PA	Boring Id: HN67
Logged By: C. Joblon	Elevation:
Drilling Subcontractor: Hardin-Huber, Inc.	Total Depth: @ 102'
Drilling Method: Air Hammer	Date(s): 12/2/99 - 12/22/99

Remarks: 16" to top bedrock, 10" hammer after setting surface casing

Depth (ft.)	Blow Count	Recovery %	Color	USGS Code	Graphic Log	Material Description	Remarks	FID(ppm)/CGI
								0/0%
60			Dk and Lt Gry/ Brn			60-70' m Sandstone, hard	No chips - 60-65' granular (sand) to 1/4" chips	0/0%
							>65; ≅ 10 gpm to 15 gpm	0/0%
70'			Red/Brn Dk & Lt Gry Brn			70-71' Mudstone soft 71-75' m Sandstone		0/0%
			Red Brn/ Brn Gry			75' - 85' Mudstone and Siltstone, soft, fissile	≅ 6-8 gpm 1/8" ~ or no chips	0/0%
80'							Muddy water @ discharge ≅ 10 gpm Becomes grayer @ 80' - more Siltstone	0/0%
			Pink Brn & Gry			85-95' m Sandstone	1/4-1/2" chips ≅ 10-15 gpm	0/0%
							No obvious/noticeable odor or sheen	0/0%
90'								
			Gry Brn			95-98' vf Sandstone	1/8" chips ≅ 10-15 gpm	0/0%
			Brn Red			98-102' Siltstone/Mudstone fissile, soft	Soft drilling @ 98'	0/0%
100'								0/0%
							End of Boring @ 102'	

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Location: Naval Air Warfare Center - Area A; Warminster, PA	Boring Id: HN68
Logged By: C. Joblon	Elevation:
Drilling Subcontractor: Hardin-Huber, Inc.	Total Depth: @ 81.5'
Drilling Method: Air Hammer	Date(s): 12/1/99-12/7/99

Remarks: FID/CGI w/cuttings/water discharge-highest FID = 8 ppm. No noticeable sheen on water in rolloff.

Depth (ft.)	Blow Count	Recovery %	Color	USGS Code	Graphic Log	Material Description	Remarks	FID(ppm)/CGI
0			Brn/red			0-6' Silt w/tr. clay, slightly cohesive		0/0%
								0/0%
			Brn Red			6-10.5' Siltstone	1/4" chips Dry bedrock @ 6'	
10'			Brn/red					0/0%
			Brn/red			10.5-11.5' micaeous Siltstone 11.5-14.0' Siltsone	Granular to 1/4" chips Dry	
							Set 10" casing @ 16' End of 16" borehole	0/0%
20'								0/0%
								0/0%
30'								0/0%
							Water @ ≅ 35' Slight odor in water @ 45'	
								0/0%
40'			Lt Gry/ Red			40-55' f Sandstone		0/0%
								0/0%

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Location: Naval Air Warfare Center - Area A; Warminster, PA	Boring Id: HN68
Logged By: C. Joblon	Elevation:
Drilling Subcontractor: Hardin-Huber, Inc.	Total Depth: @ 81.5'
Drilling Method: Air Hammer	Date(s): 12/1/99-12/7/99

Remarks: FID/CGI w/cuttings/water discharge-highest FID = 8 ppm. No noticeable sheen on water in rolloff.

Depth (ft.)	Blow Count	Recovery %	Color	USGS Code	Graphic Log	Material Description	Remarks	FID(ppm)/CGI
50'								1.5/0%
			Brn/Red			55-56' Siltstone		
			Dk Gry/ Red			56-72' f-m Sandstone		8/0%
60'								1.0/0%
							@65-70' yellow limonite staining	2.0/0%
							Hand drilling until 79'	
70'								0/0%
			Dk Brn/ Red			72-75' vf Sandstone (hard Siltstone?)		
			Gry/Brn			75-79' f Sandstone		0/0%
			Red/Brn			79-81.5 Mudstone	Soft drilling @ 79'	
80'								0/0%
							End of Boring @ 81.5'	

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Location: Naval Air Warfare Center - Area A; Warminster, PA	Boring Id: HN69
Logged By: C. Joblon	Elevation:
Drilling Subcontractor: Hardin-Huber, Inc.	Total Depth: @ 101'
Drilling Method: Air Hammer	Date(s): 11/30/99 - 12/15/99

Remarks:

Depth (ft.)	Blow Count	Recovery %	Color	USGS Code	Graphic Log	Material Description	Remarks	FID(ppm)/CGI
0'			Brn/Red			0-8' Silt, slightly cohesive, dry		0/0%
								0/0%
			Brn/Red			8-10' Silt and Mudstone (weathered)	1/8" chips	
10'			Brn/Red			10-35' Siltstone	Bedrock @ 10' Install 10" casing to 20' 12/2/99	0/0%
								0/0%
20'							Moist @ 20' - possibly due to static water	0/0%
								0/0%
30'								0/0%
			Red Brn			35-43' Mudstone, soft weathered	Producing very little water @ 35' ≅ 1-2 gpm	0/0%

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Location: Naval Air Warfare Center - Area A; Warminster, PA	Boring Id: HN69
Logged By: C. Joblon	Elevation:
Drilling Subcontractor: Hardin-Huber, Inc.	Total Depth: @ 101"
Drilling Method: Air Hammer	Date(s): 11/30/99 - 12/15/99

Remarks:

Depth (ft.)	Blow Count	Recovery %	Color	USGS Code	Graphic Log	Material Description	Remarks	FID(ppm)/CGI
40'								
			Gry/Brn			43-50' vf Sandstone weathered, fissile	Water @ ≅ 2-5 gpm 1/4" chips	
							No noticeable sheen or odor 46' fractured zone ≅ 6-8 gpm	0/0%
							48' ≅ 2-5 gpm	
50'			Dk Gry/ Brn			50-78' m Sandstone, hard	50' ≅ 6-8 gpm 1/2" chips	0/0%
							55' ≅ 10 gpm Fracture zone @ 56' 15 gpm	0/0%
60'							Fracture zone @ 60' ≅ 10 gpm	0/0%
							65' ≅ 15 gpm	0/0%
70'							1/8" chips to granular cuttings	0/0%
								0/0%
			Red/ Brn			78-83' Mudstone, soft	Soft drilling @ 78'	

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Location: Naval Air Warfare Center - Area A; Warminster, PA	Boring Id: HN69
Logged By: C. Joblon	Elevation:
Drilling Subcontractor: Hardin-Huber, Inc.	Total Depth: @ 101'
Drilling Method: Air Hammer	Date(s): 11/30/99 - 12/15/99

Remarks:

Depth (ft.)	Blow Count	Recovery %	Color	USGS Code	Graphic Log	Material Description	Remarks	FID(ppm)/CGI
80'								0/0%
			Lt Gry			83-86' m Sandstone	≅ 10-15 gpm	
			Gry/Brn			86-88' vf Sandstone		0/0%
							Water very muddy	
			Brn			88-91' Siltstone/Mudstone (fissile, soft)		0/0%
90'								
			Gry			91-92' f-m Sandstone, soft	≅ 15 gpm	
			Gry/Brn			92-93' vf Sandstone		0/0%
						93-98' vf Siltstone, fissile	Soft drilling	
			Red/Brn			98-101' Mudstone	Very soft drilling	
100'								0/0%
							End of boring @ 101'	

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Location: Naval Air Warfare Center - Area A; Warminster, PA	Boring Id: HN70
Logged By: C. Joblon	Elevation:
Drilling Subcontractor: Hardin-Huber, Inc.	Total Depth: @ 80'
Drilling Method: Air Hammer	Date(s): 12/2/99-12/9/99

Remarks:

Depth (ft.)	Blow Count	Recovery %	Color	USGS Code	Graphic Log	Material Description	Remarks	FID(ppm)/CGI
0'			Brn/Red			0-6' Silt w/trace clay, slightly cohesive	Dry	0/0%
			Brn/Red			6-43' Siltstone	1/4-1/2" chips Bedrock @ 6' dry	0/0%
10'								0/0%
							End of 10" hole Casing set @ 16'	0/0%
20'								0/0%
								0/0%
30'								0/0%
							Water @ 35' No noticeable odor No sheen obvious on water	0/0%
								0/0%
40'								
			Dk Gry			43-60' m-f Sandstone	1/4" chips	
								0/0%

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Location: Naval Air Warfare Center - Area A; Warminster, PA	Boring Id: HN70
Logged By: C. Joblon	Elevation:
Drilling Subcontractor: Hardin-Huber, Inc.	Total Depth: @ 80'
Drilling Method: Air Hammer	Date(s): 12/2/99-12/9/99

Remarks:

Depth (ft.)	Blow Count	Recovery %	Color	USGS Code	Graphic Log	Material Description	Remarks	FID(ppm)/CGI
50'								0/0%
								0/0%
60'			Lt Gry/ Pink			60-73' m Sandstone	1/4" chips	0/0%
								0/0%
70'								0/0%
			Dk Brn/ Red			73-79' vf Sandstone	1/4" chips very hard	
								0/0%
								0/0%
			Red/Brn			79-80' Mudstone	Drilling easy @ 79' 1/8" chips - soft	
80'							**End of boring @ 80'**	

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Location: Naval Air Warfare Center - Area A; Warminster, PA	Boring Id: HN71
Logged By: C. Joblon	Elevation:
Drilling Subcontractor: Hardin-Huber, Inc.	Total Depth: @ 107'
Drilling Method: Air Hammer	Date(s): 12/28/99 - 1/4/00

Remarks: Pull sample HN71 from 0-70' pump @ 60-65' for lab and GC analysis - 1/4/00 @ 12:10

Depth (ft.)	Blow Count	Recovery %	Color	USGS Code	Graphic Log	Material Description	Remarks	FID(ppm)/CGI
0'			Brn			0-14' f Sand and Silt, slightly cohesive, oily		0/0%
								0/0%
10'								0/0%
			Yellow/ Brown			14-22' f Sand and Silt, dry		0/0%
20'								0/0%
			Brn/Red			22-55' Siltstone, hard	Set 16" casing @ ≅ 22' bgs	0/0%
30'								0/0%
							Water @ 35' 1 gpm No noticeable odors or sheen	0/0%

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Location: Naval Air Warfare Center - Area A; Warminster, PA	Boring Id: HN71
Logged By: C. Joblon	Elevation:
Drilling Subcontractor: Hardin-Huber, Inc.	Total Depth: @ 107'
Drilling Method: Air Hammer	Date(s): 12/28/99 - 1/4/00

Remarks: Pull sample HN71 from 0-70' pump @ 60-65' for lab and GC analysis - 1/4/00 @ 12:10

Depth (ft.)	Blow Count	Recovery %	Color	USGS Code	Graphic Log	Material Description	Remarks	FID(ppm)/CGI
40'								0/0%
								0/0%
50'								0/0%
			Brn			55-65' vf Sandstone	2-5 gpm - very muddy discharge, 1/4" chips	0/0%
60'							15-20 gpm	0/0%
			Beige/ Gry			65-75' m Sandstone	20-25 gpm 1/2" chips	0/0%
70'								0/0%
							End 16" drilling	
			Brn/Red			75-85' Mudstone, soft	Start 10" drilling, 20-25 gpm 1/8" chips Mudstone thickness difficult to determine - lack of cuttings 10 gpm	0/0%

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Location: Naval Air Warfare Center - Area A; Warminster, PA	Boring Id: HN71
Logged By: C. Joblon	Elevation:
Drilling Subcontractor: Hardin-Huber, Inc.	Total Depth: @ 107'
Drilling Method: Air Hammer	Date(s): 12/28/99 - 1/4/00

Remarks: Pull sample HN71 from 0-70' pump @ 60-65' for lab GC analysis - 1/4/00 @ 12:10

Depth (ft.)	Blow Count	Recovery %	Color	USGS Code	Graphic Log	Material Description	Remarks	FID(ppm)/CGI
80'							Soft drilling	0/0%
			Lt & Dk Brn			85-100' m Sandstone, soft	Crumbly 1/4" chips 10-15 gpm	0/0%
90'								0/0%
								0/0%
100'			Brn			100-102' Siltstone, hard		0/0%
						102-107' Mudstone/Siltstone, soft	Soft drilling @ 102' 10 gpm	
								0/0%
							End of Boring @ 107'	

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Location: Naval Air Warfare Center - Area A; Warminster, PA	Boring Id: HN72
Logged By: C. Joblon	Elevation:
Drilling Subcontractor: Hardin-Huber, Inc.	Total Depth: @ 80'
Drilling Method: Air Hammer	Date(s): 1/7/00 - 1/11/00

Remarks: Drillers think water/fracture zone from 45-50'. Sheen on discharge water below 65' bgs

Depth (ft.)	Blow Count	Recovery %	Color	USGS Code	Graphic Log	Material Description	Remarks	FID(ppm)/CGI
0'			Brn/Red			0-7' Silt w/sand, slightly corrosive		0/0%
								0/0%
			Brn/Red			7-40' Siltstone, dry	Granular and 1/8" chips	
10'								0/0%
								0/0%
20'								0/0%
								0/0%
30'								0/0%
								0/0%

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Location: Naval Air Warfare Center - Area A; Warminster, PA	Boring Id: HN72
Logged By: C. Joblon	Elevation:
Drilling Subcontractor: Hardin-Huber, Inc.	Total Depth: @ 80'
Drilling Method: Air Hammer	Date(s): 1/7/00 - 1/11/00

Remarks: Drillers think water/fracture zone from 45-50'. Sheen on discharge water below 65' bgs

Depth (ft.)	Blow Count	Recovery %	Color	USGS Code	Graphic Log	Material Description	Remarks	FID(ppm)/CGI
40'			Gry/Brn			40-45' vf Sandstone, dry		0/0%
			Gray			45-65' f-m Sandstone, soft	Slightly moist 1/4" chips Intervals of no chips -just silt and sand	0/0%
50'							@ 50' rounded chips - soft Interbedded w/soft Siltstone Very moist @ 50' but no obvious water	0/0%
								0/0%
							Water @ 57' very little ≅ 1 gpm	
60'							@ 60' 2-5 gpm No noticeable sheen or odor	0/0%
			Gry/Beige, Pink			65-70' m Sandstone	1/4" chips 2-5 gpm Sheen (filmy) on top of discharge water	0/0%
70'			Brn/Red			70-78' vf Sandstone/Siltstone, hard	Dye sample-cuttings btwn 70-72' (sheen). No indication of DNAPL w/dye GC sample @ 0945 2-5 gpm	0/0%
								0/0%
			Red/Brn			78-80' Mudstone, soft	Soft drilling 2-5 gpm	
80'							**End of Boring @ 80'**	

FOSTER WHEELER ENVIRONMENTAL CORPORATION

Location: Naval Air Warfare Center - Area A; Warminster, PA	Boring Id: HN73
Logged By: C. Joblon	Elevation:
Drilling Subcontractor: Hardin-Huber, Inc.	Total Depth: @ 130'
Drilling Method: Air Hammer	Date(s): 1/17/00 - 1/19/00

Remarks:

Depth (ft.)	Blow Count	Recovery %	Color	USGS Code	Graphic Log	Material Description	Remarks	FID(ppm)/CGI
0'			Red/Brn			0-2' Silt		0/0%
			Red/Brn			2-8' Siltstone/Mudstone dry, soft	Bedrock @ 2' 1/8" chips	
								0/0%
			Pink/Gry			8-12' f-m Sandstone soft		
10'								
			Brn/Gry			12-20' vf Sandstone dry	Set 10" casing @ 12' and grout	
								0/0%
20'			Brn/Gry			20-40' vf-f Sandstone w/minor Siltstone, occasional quartz	1/8-1/4" chips	0/0%
								0/0%
30'								0/0%
								0/0%

APPENDIX B

Laboratory Data Deliverables

CHEMTECH

CHAIN OF CUSTODY RECORD

Rod[redacted]
Englewood, NJ 07631
(201) 567-6868
Fax (201) 567-1333

Please [redacted] one:
[redacted] Cam[redacted]aza [redacted]
Edison, NJ 08837
(732) 225-4111
Fax (732) 225-4110

[redacted] Route 9 South
Barnegat, NJ 08005
(609) 698-0199
Fax (609) 698-0910

CHEMTECH JOB NO.: 16242WJ.
CHEMTECH QUOTE NO.:

CLIENT INFORMATION

REPORT TO BE SENT TO:

COMPANY: FOSTER WHEELER
ADDRESS: ONE OXFORD VALLEY SUITE 200
CITY: LANGHORNE STATE: PA ZIP: 19047
ATTENTION: JIM IREY
PHONE: 215 702 - 4000 FAX: - 4045

PROJECT INFORMATION

PROJECT NAME: NAWC WARMINSTER
PROJECT NO.: 1284.J018.0209
PROJECT MANAGER: JIM IREY
LOCATION: JACKSONVILLE RD
PHONE: 215 441-8512 FAX: - 8544

BILLING INFORMATION

BILL TO: LANGHORNE PO #:
ADDRESS: OFFICE
CITY: STATE: ZIP:
ATTENTION: ERICA VANAVER PHONE:

DATA TURNAROUND INFORMATION

FAX: 48 hrs DAYS *
HARD COPY: DAYS *
EDD: DAYS *
* TO BE APPROVED BY CHEMTECH
** NORMAL TURNAROUND TIME - 14 DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ NYS ASP "B"
☐ NJ REDUCED ☐ NYS ASP "A"
☐ NJ CLP ☐ EDD
☐ EDD FORMAT:

ANALYSIS

1 TCL VOA 624 2 3 4 5 6 7 8 9

CHEMTECH SAMPLE ID	SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
1. 10711	HN6701	AQ		X	12/20/99	1455	2	X									2wks
2.																	
3.																	
4.																	
5.																	
6.																	
7.																	
8.																	

← Specify Preservatives
A – HCl B – HNO_3
C – H_2SO_4 D – NaOH
E – ICE F – Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:
1. S. M. Watson	12/20/99	1.
RELINQUISHED BY: 2. FEDEX	DATE/TIME: 12/21/99 1000	RECEIVED BY: 2.
RELINQUISHED BY: 3.	DATE/TIME: 12/21/99 1000	RECEIVED FOR LAB BY: 3. Sunny Patel

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non-Compliant ☐ Temp. of Cooler _____
Comments: please fax results to Meg Watson at (215) 441 8544

Page 1 of 1 Shipment Complete: Yes _____ No _____

Ver. 9-99 WHITE – CHEMTECH COPY FOR RETURN TO CLIENT YELLOW – CHEMTECH COPY PINK – SAMPLER COPY

32536

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
HN6701

Lab Name: CHEMTECH Contract: FOSTER WHEELER

Project No.: L6242 Site: NAWC WA Location: JACKSONVILLE R Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O10711

Sample wt/vol: 1.0 (g/mL) ML Lab File ID: A0412.D

Level: (low/med) Date Received: 12/21/99

% Moisture: not dec. 0 Date Analyzed: 12/22/99

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 5.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	5	U
75-35-4	1,1-Dichloroethene	5	U
67-64-1	Acetone	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	14	U
156-60-5	trans-1,2-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
71-43-2	Benzene	5	U
107-06-2	1,2-Dichloroethane	5	U
79-01-6	Trichloroethene	87	
78-87-5	1,2-Dichloropropane	5	U
75-27-4	Bromodichloromethane	5	U
10061-02-6	t-1,3-Dichloropropene	5	U
108-88-3	Toluene	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethyl Benzene	5	U
95-47-6	o-Xylene	5	U
1330-20-7	m/p-Xylenes	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
78-93-3	2-Butanone	45	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

HN6701

Lab Name: CHEMTECH Contract: FOSTER WHEELER

Project No.: L6242 Site: NAWC WA Location: JACKSONVILLE R Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O10711

Sample wt/vol: 1.0 (g/mL) ML Lab File ID: A0412.D

Level: (low/med) Date Received: 12/21/99

% Moisture: not dec. 0 Date Analyzed: 12/22/99

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 5.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
108-10-1	4-Methyl-2-Pentanone	290	U
591-78-6	2-Hexanone	40	U

CHEMTECH

CHAIN OF CUSTODY RECORD

North Jersey ☑
110 Route 4
Englewood, NJ 07631
(201) 567-6868 Fax (201) 567-1333

South Jersey ☐
515 Route 9 South
Barnegat, NJ 08005
(609) 698-0199 Fax (609) 698-0910

CHEMTECH JOB NO.: LG051NJ.

CHEMTECH QUOTE NO.:

CLIENT INFORMATION

REPORT TO BE SENT TO:

COMPANY: FOSTER WHEELER

ADDRESS: ONE OXFORD VALLEY SUITE 200

CITY: LANGHORNE STATE: PA ZIP: 19047

ATTENTION: JIM IREY

PHONE: 215 702 4000 FAX: - 4045

PROJECT INFORMATION

PROJECT NAME: NAWC WARMINSTER

PROJECT NO.: 1284. J018. E209.60000

PROJECT MANAGER: JIM IREY

LOCATION: WARMINSTER PA

PHONE: 215 441-8512 FAX: - 8544

BILLING INFORMATION

BILL TO: FOSTER WHEELER PO #: 022780

ADDRESS: ONE OXFORD VALLEY SUITE 200

CITY: LANGHORNE STATE: PA ZIP: 19047

ATTENTION: ERICA VANAVER PHONE:

DATA TURNAROUND INFORMATION

☐ 21 DAYS
☐ 14 DAYS
☐ 7 DAYS
☒ OTHER 48 hr.

APPROVED BY: (CHEMTECH'S PERSONNEL)

21 DAY TURNAROUND HARDCOPY, EMERGENCY OR RUSH IS FAX DATA UNLESS PREVIOUSLY APPROVED.

DATA DELIVERABLE INFORMATION

☑ NJ REDUCED
☐ NJ CLP
☐ USEPA CLP
☐ NYS CLP
☐ OTHER
☐ CHEMTECH FORMAT
☐ RESULTS ONLY
☐ DISKETTES
☐ NYS ASP

ANALYSIS

1 Volatile Organics (Method 624) 2 3 4 5 6 7 8 9

PRESERVATIVES

COMMENTS

← Specify Preservatives
A – HCl B – HNO_3
C – H_2SO_4 D – NaOH
E – ICE F – Other

CHEMTECH SAMPLE ID	SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	1	2	3	4	5	6	7	8	9	COMMENTS
1.	HN6801	AQ		X	12/8/99	1430		X									
2.																	
3.																	
4.																	
5.																	
6.																	
7.																	
8.																	

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:
1. M Nak	12/8/99	1.
RELINQUISHED BY: 2.	DATE/TIME:	RECEIVED BY: 2.
RELINQUISHED BY: 3.	DATE/TIME: 12/9/99	RECEIVED FOR LAB BY: 3. Mirley

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non-Compliant ☐ Temp. of Cooler _____

Comments:

SHIPPED FED-EX AIRBILL # 810462217378

Page 1 of 1

Shipment Complete: Yes _____ No _____

Ver. 3-99

WHITE – CHEMTECH COPY FOR RETURN TO CLIENT YELLOW – CHEMTECH COPY PINK – SAMPLER COPY

NO 024688

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

HN6801

Lab Name: CHEMTECH Contract: FOSTER WHEELER

Project No.: L6051 Site: NAWC Location: WARMINSTER,PA Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O95339

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: A0181.D

Level: (low/med) Date Received: 12/9/99

% Moisture: not dec. 0 Date Analyzed: 12/9/99

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	1	U
74-83-9	Bromomethane	2	U
75-00-3	Chloroethane	1	U
75-69-4	Trichlorofluoromethane	1	
75-35-4	1,1-Dichloroethene	1	U
75-09-2	Methylene Chloride	3	U
156-60-5	trans-1,2-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
67-66-3	Chloroform	9	
71-55-6	1,1,1-Trichloroethane	2	
56-23-5	Carbon Tetrachloride	160	E
71-43-2	Benzene	1	U
107-06-2	1,2-Dichloroethane	1	U
79-01-6	Trichloroethene	790	E
78-87-5	1,2-Dichloropropane	1	U
75-27-4	Bromodichloromethane	1	U
110-75-8	2-Chloro-vinyl-ether	10	U
10061-02-6	t-1,3-Dichloropropene	1	U
108-88-3	Toluene	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-00-5	1,1,2-Trichloroethane	11	
127-18-4	Tetrachloroethene	29	
124-48-1	Dibromochloromethane	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethyl Benzene	1	U
95-47-6	o-Xylene	1	U
1330-20-7	m/p-Xylenes	1	U
75-25-2	Bromoform	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
541-73-1	1,3-Dichlorobenzene	1	U
106-46-7	1,4-Dichlorobenzene	1	U
95-50-1	1,2-Dichlorobenzene	1	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
HN6801DL

Lab Name: CHEMTECH Contract: FOSTER WHEELER

Project No.: L6051 Site: NAWC Location: WARMINSTER,PA Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O95339DL

Sample wt/vol: 0.05 (g/mL) ML Lab File ID: A0196.D

Level: (low/med) Date Received: 12/9/99

% Moisture: not dec. 0 Date Analyzed: 12/10/99

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 100.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	100	UD
75-01-4	Vinyl Chloride	100	UD
74-83-9	Bromomethane	200	UD
75-00-3	Chloroethane	100	UD
75-69-4	Trichlorofluoromethane	100	UD
75-35-4	1,1-Dichloroethene	100	UD
75-09-2	Methylene Chloride	280	UD
156-60-5	trans-1,2-Dichloroethene	100	UD
75-34-3	1,1-Dichloroethane	100	UD
67-66-3	Chloroform	100	UD
71-55-6	1,1,1-Trichloroethane	100	UD
56-23-5	Carbon Tetrachloride	140	D
71-43-2	Benzene	100	UD
107-06-2	1,2-Dichloroethane	100	UD
79-01-6	Trichloroethene	6100	D
78-87-5	1,2-Dichloropropane	100	UD
75-27-4	Bromodichloromethane	100	UD
110-75-8	2-Chloro-vinyl-ether	1000	UD
10061-02-6	t-1,3-Dichloropropene	100	UD
108-88-3	Toluene	100	UD
10061-01-5	cis-1,3-Dichloropropene	100	UD
79-00-5	1,1,2-Trichloroethane	100	UD
127-18-4	Tetrachloroethene	100	UD
124-48-1	Dibromochloromethane	100	UD
108-90-7	Chlorobenzene	100	UD
100-41-4	Ethyl Benzene	100	UD
95-47-6	o-Xylene	100	UD
1330-20-7	m/p-Xylenes	100	UD
75-25-2	Bromoform	100	UD
79-34-5	1,1,2,2-Tetrachloroethane	100	UD
541-73-1	1,3-Dichlorobenzene	100	UD
106-46-7	1,4-Dichlorobenzene	100	UD
95-50-1	1,2-Dichlorobenzene	100	UD

CHEMTECH

CHAIN OF CUSTODY RECORD

North Jersey ☐
110 Route 4
Englewood, NJ 07631
(201) 567-6868 Fax (201) 567-1333

South Jersey ☐
515 Route 9 South
Barnegat, NJ 08005
(609) 698-0199 Fax (609) 698-0910

CHEMTECH JOB NO.: 16508 NJ

CHEMTECH QUOTE NO.:

CLIENT INFORMATION

REPORT TO BE SENT TO:

COMPANY: FOSTER WHEELER

ADDRESS: ONE OXFORD VALLEY SUITE 200

CITY: LANGHORNE STATE: PA ZIP: 19047

ATTENTION: JIM IREY

PHONE: 215-702-4000 FAX: -4045

PROJECT INFORMATION

PROJECT NAME: NAWC-WARMINSTER

PROJECT NO.: 1284-J018-0209

PROJECT MANAGER: JIM IREY

LOCATION: JACKSONVILLE Rd

PHONE: 215-441-8512 FAX: -8544

BILLING INFORMATION

BILL TO: LANGHORNE PO #:

ADDRESS: OFFICE

CITY: STATE: ZIP:

ATTENTION: ERICA VANAVER PHONE:

DATA TURNAROUND INFORMATION

☐ 21 DAYS
☐ 14 DAYS
☐ 7 DAYS
☒ OTHER 48hrs

APPROVED BY: (CHEMTECH'S PERSONNEL)

RUSH

21 DAY TURNAROUND HARDCOPY, EMERGENCY OR RUSH IS FAX DATA UNLESS PREVIOUSLY APPROVED.

DATA DELIVERABLE INFORMATION

☒ NJ REDUCED
☐ NJ CLP
☐ USEPA CLP
☐ NYS CLP
☐ OTHER
☐ CHEMTECH FORMAT
☐ RESULTS ONLY
☐ DISKETTES
☐ NYS ASP

ANALYSIS

TCL VOA 624

CHEMTECH SAMPLE ID	SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS (← Specify Preservatives: A – HCl, B – HNO_3, C – H_2SO_4, D – NaOH, E – ICE, F – Other)
1. 11729	HN 68	AQ		X	1-6-00	1415	2	X									2VOAs
2.																	
3.																	
4.																	
5.																	
6.																	
7.																	
8.																	

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:
1. C JOBLON	1-6-00 1500	1.
RELINQUISHED BY: 2. FEDEX	DATE/TIME: 1/10/00 1000	RECEIVED BY: 2.
RELINQUISHED BY: 3.	DATE/TIME: 1/10/00 1000	RECEIVED FOR LAB BY: 3. Sunny Patel

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non-Compliant ☐ Temp. of Cooler 3-1

Comments: FED EXPRESS # 8160 9847 5505

Page 1 of 1

Shipment Complete: Yes ____ No ____

Ver. 3-99

WHITE – CHEMTECH COPY FOR RETURN TO CLIENT YELLOW – CHEMTECH COPY PINK – SAMPLER COPY

NO 224692

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
HN 68

Lab Name: CHEMTECH Contract: FOSTER WHEELER

Project No.: L6508 Site: NAWC-WA Location: JACKSONVILLE R Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O11729

Sample wt/vol: 1.0 (g/mL) ML Lab File ID: A0800.D

Level: (low/med) Date Received: 1/10/00

% Moisture: not dec. 0 Date Analyzed: 1/11/00

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 5.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	5	U
75-35-4	1,1-Dichloroethene	5	U
67-64-1	Acetone	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	14	U
156-60-5	trans-1,2-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	50	
71-43-2	Benzene	5	U
107-06-2	1,2-Dichloroethane	5	U
79-01-6	Trichloroethene	2500	E
78-87-5	1,2-Dichloropropane	5	U
75-27-4	Bromodichloromethane	5	U
10061-02-6	t-1,3-Dichloropropene	5	U
108-88-3	Toluene	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U
127-18-4	Tetrachloroethene	24	
124-48-1	Dibromochloromethane	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethyl Benzene	5	U
95-47-6	o-Xylene	5	U
1330-20-7	m/p-Xylenes	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
156-59-2	cis-1,2-Dichloroethene	7	
78-93-3	2-Butanone	45	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
HN 68

Lab Name: CHEMTECH Contract: FOSTER WHEELER

Project No.: L6508 Site: NAWC-WA Location: JACKSONVILLE R Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O11729

Sample wt/vol: 1.0 (g/mL) ML Lab File ID: A0800.D

Level: (low/med) Date Received: 1/10/00

% Moisture: not dec. 0 Date Analyzed: 1/11/00

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 5.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
108-10-1	4-Methyl-2-Pentanone	290	U
591-78-6	2-Hexanone	40	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
HN 68DL

Lab Name: CHEMTECH Contract: FOSTER WHEELER

Project No.: L6508 Site: NAWC-WA Location: JACKSONVILLE R Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O11729DL

Sample wt/vol: 0.1 (g/mL) ML Lab File ID: A0812.D

Level: (low/med) Date Received: 1/10/00

% Moisture: not dec. 0 Date Analyzed: 1/11/00

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 50.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
74-87-3	Chloromethane	50	UD
75-01-4	Vinyl Chloride	50	UD
74-83-9	Bromomethane	100	UD
75-00-3	Chloroethane	50	UD
75-35-4	1,1-Dichloroethene	50	UD
67-64-1	Acetone	50	UD
75-15-0	Carbon Disulfide	50	UD
75-09-2	Methylene Chloride	140	UD
156-60-5	trans-1,2-Dichloroethene	50	UD
75-34-3	1,1-Dichloroethane	50	UD
67-66-3	Chloroform	50	UD
71-55-6	1,1,1-Trichloroethane	50	UD
56-23-5	Carbon Tetrachloride	50	UD
71-43-2	Benzene	50	UD
107-06-2	1,2-Dichloroethane	50	UD
79-01-6	Trichloroethene	2600	D
78-87-5	1,2-Dichloropropane	50	UD
75-27-4	Bromodichloromethane	50	UD
10061-02-6	t-1,3-Dichloropropene	50	UD
108-88-3	Toluene	50	UD
10061-01-5	cis-1,3-Dichloropropene	50	UD
79-00-5	1,1,2-Trichloroethane	50	UD
127-18-4	Tetrachloroethene	50	UD
124-48-1	Dibromochloromethane	50	UD
108-90-7	Chlorobenzene	50	UD
100-41-4	Ethyl Benzene	50	UD
95-47-6	o-Xylene	50	UD
1330-20-7	m/p-Xylenes	50	UD
100-42-5	Styrene	50	UD
75-25-2	Bromoform	50	UD
79-34-5	1,1,2,2-Tetrachloroethane	50	UD
156-59-2	cis-1,2-Dichloroethene	50	UD
78-93-3	2-Butanone	450	UD

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
HN 68DL

Lab Name: CHEMTECH Contract: FOSTER WHEELER

Project No.: L6508 Site: NAWC-WA Location: JACKSONVILLE R Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O11729DL

Sample wt/vol: 0.1 (g/mL) ML Lab File ID: A0812.D

Level: (low/med) Date Received: 1/10/00

% Moisture: not dec. 0 Date Analyzed: 1/11/00

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 50.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
108-10-1	4-Methyl-2-Pentanone	2900	UD
591-78-6	2-Hexanone	400	UD

CHEMTECH

CHAIN OF CUSTODY RECORD

[redacted] 10 R[redacted]
Englewood, NJ 07631
(201) 567-6868
Fax (201) 567-1333

[redacted] Please [redacted] one:
☑ 205 Campus Plaza
Edison, NJ 08837
(732) 225-4111
Fax (732) 225-4110

☐ 513 Route 9 South
Barnegat, NJ 08005
(609) 698-0199
Fax (609) 698-0910

CHEMTECH JOB NO.: L6208NJ

CHEMTECH QUOTE NO.:

CLIENT INFORMATION

REPORT TO BE SENT TO:

COMPANY: FOSTER WHEELER

ADDRESS: ONE OXFORD VALLEY

CITY: LANGHORNE STATE: PA ZIP: ~~1890~~ 19047

ATTENTION: JIM IREY

PHONE: 215 702 4000 FAX: - 4045

PROJECT INFORMATION

PROJECT NAME: NAWC WARM

PROJECT NO.: 1289.J018.0209

PROJECT MANAGER: JIM IREY

LOCATION: JACKSONVILLE RD

PHONE: FAX: - 8544

BILLING INFORMATION

BILL TO: FWENC PO #:

ADDRESS: ONE OXFORD VALLEY

CITY: LANGHORNE STATE: PA ZIP:

ATTENTION: ERICA VANAVER PHONE:

DATA TURNAROUND INFORMATION

FAX: 48 hrs. DAYS *

HARD COPY: DAYS *

EDD: DAYS *

* TO BE APPROVED BY CHEMTECH

** NORMAL TURNAROUND TIME - 14 DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP

☐ RESULTS + QC ☐ NYS ASP "B"

☑ NJ REDUCED ☐ NYS ASP "A"

☐ NJ CLP ☐ EDD

☐ EDD FORMAT:

ANALYSIS

1 TCL VOA 2 3 4 5 6 7 8 9

CHEMTECH SAMPLE ID	SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1 (A)	2	3	4	5	6	7	8	9	COMMENTS
1.	HN6901	AQ		X	12/16/99	1405	2	X									Invoice
2.																	Invoice Broker
3.																	
4.																	
5.																	
6.																	
7.																	
8.																	

← Specify Preservatives
A – HCl B – HNO_3
C – H_2SO_4 D – NaOH
E – ICE F – Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:
1. M Nak[illegible]	12/16/99	1.
RELINQUISHED BY:	DATE/TIME:	RECEIVED BY:
2. Fe[illegible]	12/17/99 1000	2.
RELINQUISHED BY:	DATE/TIME:	RECEIVED FOR LAB BY:
3.	12/17/99 1000	3. Sunny Patel.

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non-Compliant ☐ Temp. of Cooler

Comments: please fax results to 215 · 441-8544 Attn MEG

Page 1 of 1

Shipment Complete: Yes No

Ver. 9-99

WHITE – CHEMTECH COPY FOR RETURN TO CLIENT YELLOW – CHEMTECH COPY PINK – SAMPLER COPY

32527

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
HN6901

Lab Name: CHEMTECH Contract: FOSTER WHEELER

Project No.: L6208 Site: NAWC WA Location: JACKSONVILLE R Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O96117

Sample wt/vol: 1.0 (g/mL) ML Lab File ID: D8845.D

Level: (low/med) Date Received: 12/17/99

% Moisture: not dec. 0 Date Analyzed: 12/17/99

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
74-87-3	Chloromethane	25	U
75-01-4	Vinyl Chloride	25	U
74-83-9	Bromomethane	25	U
75-00-3	Chloroethane	25	U
75-35-4	1,1-Dichloroethene	25	U
67-64-1	Acetone	25	U
75-15-0	Carbon Disulfide	25	U
75-09-2	Methylene Chloride	25	U
156-60-5	trans-1,2-Dichloroethene	25	U
75-34-3	1,1-Dichloroethane	25	U
78-93-3	2-Butanone	25	U
156-59-2	cis-1,2-Dichloroethene	25	U
74-97-5	Bromochloromethane	25	U
67-66-3	Chloroform	25	U
71-55-6	1,1,1-Trichloroethane	25	U
563-58-6	1,1-Dichloropropene	25	U
56-23-5	Carbon Tetrachloride	25	U
71-43-2	Benzene	25	U
107-06-2	1,2-Dichloroethane	25	U
79-01-6	Trichloroethene	650	
78-87-5	1,2-Dichloropropane	25	U
74-95-3	Dibromomethane	25	U
75-27-4	Bromodichloromethane	25	U
108-10-1	4-Methyl-2-Pentanone	25	U
108-88-3	Toluene	25	U
110-75-8	2-Chloroethyl vinyl ether	25	U
10061-02-6	t-1,3-Dichloropropene	25	U
10061-01-5	cis-1,3-Dichloropropene	25	U
79-00-5	1,1,2-Trichloroethane	25	U
591-78-6	2-Hexanone	25	U
124-48-1	Dibromochloromethane	25	U
127-18-4	Tetrachloroethene	25	U
108-90-7	Chlorobenzene	25	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
HN6901

Lab Name: CHEMTECH Contract: FOSTER WHEELER

Project No.: L6208 Site: NAWC WA Location: JACKSONVILLE R Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O96117

Sample wt/vol: 1.0 (g/mL) ML Lab File ID: D8845.D

Level: (low/med) Date Received: 12/17/99

% Moisture: not dec. 0 Date Analyzed: 12/17/99

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
100-41-4	Ethyl Benzene	25	U
1330-20-7	m/p-Xylenes	25	U
95-47-6	o-Xylene	25	U
100-42-5	Styrene	25	U
75-25-2	Bromoform	25	U
79-34-5	1,1,2,2-Tetrachloroethane	25	U
541-73-1	1,3-Dichlorobenzene	25	U
106-46-7	1,4-Dichlorobenzene	25	U
95-50-1	1,2-Dichlorobenzene	25	U

CHEMTECH

CHAIN OF CUSTODY RECORD

[redacted]0 Ro[redacted] Englewood, NJ 07631 (201) 567-6868 Fax (201) 567-1333

[redacted]5 Car[redacted]Plaza [redacted] Edison, NJ 08837 (732) 225-4111 Fax (732) 225-4110

[redacted] Route [redacted] South Barnegat, NJ 08005 (609) 698-0199 Fax (609) 698-0910

CHEMTECH JOB NO.: 16330NJ

CHEMTECH QUOTE NO.:

CLIENT INFORMATION

REPORT TO BE SENT TO:

COMPANY: FOSTER WHEELER

ADDRESS: ONE OXFORD VALLEY SUITE 200

CITY: LANGHORNE STATE: PA ZIP: 19047

ATTENTION: JIM IREY

PHONE: (218) 702 4000 FAX: - 4045

PROJECT INFORMATION

PROJECT NAME: NAWC WARMINSTER

PROJECT NO.: 1284. J018. 0209

PROJECT MANAGER: JIM IREY

LOCATION: JACKSONVILLE RD.

PHONE: (215) 441-8512 FAX: 8544

BILLING INFORMATION

BILL TO: LANGHORNE PO #:

ADDRESS: OFFICE

CITY: STATE: ZIP:

ATTENTION: ERICA VANAVER PHONE:

DATA TURNAROUND INFORMATION

FAX: 48 hrs DAYS *

HARD COPY: DAYS *

EDD: DAYS *

* TO BE APPROVED BY CHEMTECH

** NORMAL TURNAROUND TIME - 14 DAYS

DATA DELIVERABLE INFORMATION

- ☐ RESULTS ONLY
- ☐ RESULTS + QC
- ☑ NJ REDUCED
- ☐ NJ CLP
- ☐ EDD FORMAT:
- ☐ USEPA CLP
- ☐ NYS ASP "B"
- ☐ NYS ASP "A"
- ☐ EDD

ANALYSIS

TCL VOA 624

PRESERVATIVES

CHEMTECH SAMPLE ID	SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	A 1	2	3	4	5	6	7	8	9	COMMENTS
1. 11127	HN-14I	AQ		X	12/27/99	1210	2	X									2 VOAs
2. 11128	HN-69				12/27/99	1622	2	X									"
3.																	
4.																	
5.																	
6.																	
7.																	
8.																	

← Specify Preservatives
A – HCl B – HNO_3
C – H_2SO_4 D – NaOH
E – ICE F – Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:
1. M. Watt	12/27/99	1.
RELINQUISHED BY: 2. FeDEX	DATE/TIME: 12/28/99 1000	RECEIVED BY: 2.
RELINQUISHED BY: 3.	DATE/TIME: 12/28/99 1000	RECEIVED FOR LAB BY: 3. Sunny Patel

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non-Compliant ☐ Temp. of Cooler

Comments:

please fax results to Meg at (215) 441-8544

Page 1 of 1

Shipment Complete: Yes No

Ver. 9-99

WHITE – CHEMTECH COPY FOR RETURN TO CLIENT YELLOW – CHEMTECH COPY PINK – SAMPLER COPY

32535

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
HN-69

Lab Name: CHEMTECH Contract: FOSTER WHEELER

Project No.: L6330 Site: NAWC WA Location: JACKSONVILLE Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O11128

Sample wt/vol: 1.0 (g/mL) ML Lab File ID: A0491.D

Level: (low/med) Date Received: 12/28/99

% Moisture: not dec. 0 Date Analyzed: 12/29/99

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 5.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	5	U
75-35-4	1,1-Dichloroethene	5	U
67-64-1	Acetone	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	14	U
156-60-5	trans-1,2-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	8	
71-43-2	Benzene	5	U
107-06-2	1,2-Dichloroethane	5	U
79-01-6	Trichloroethene	520	
78-87-5	1,2-Dichloropropane	5	U
75-27-4	Bromodichloromethane	5	U
10061-02-6	t-1,3-Dichloropropene	5	U
108-88-3	Toluene	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U
127-18-4	Tetrachloroethene	9	
124-48-1	Dibromochloromethane	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethyl Benzene	5	U
95-47-6	o-Xylene	5	U
1330-20-7	m/p-Xylenes	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
78-93-3	2-Butanone	45	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
HN-69

Lab Name: CHEMTECH Contract: FOSTER WHEELER

Project No.: L6330 Site: NAWC WA Location: JACKSONVILLE Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O11128

Sample wt/vol: 1.0 (g/mL) ML Lab File ID: A0491.D

Level: (low/med) Date Received: 12/28/99

% Moisture: not dec. 0 Date Analyzed: 12/29/99

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 5.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
108-10-1	4-Methyl-2-Pentanone	290	U
591-78-6	2-Hexanone	40	U

FORM I VOA

3/90

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
HN-14I

Lab Name: CHEMTECH Contract: FOSTER WHEELER

Project No.: L6330 Site: NAWC WA Location: JACKSONVILLE Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O11127

Sample wt/vol: 1.0 (g/mL) ML Lab File ID: A0492.D

Level: (low/med) Date Received: 12/28/99

% Moisture: not dec. 0 Date Analyzed: 12/29/99

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 5.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	5	U
75-35-4	1,1-Dichloroethene	5	U
67-64-1	Acetone	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	14	U
156-60-5	trans-1,2-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	15	
71-43-2	Benzene	5	U
107-06-2	1,2-Dichloroethane	5	U
79-01-6	Trichloroethene	930	E
78-87-5	1,2-Dichloropropane	5	U
75-27-4	Bromodichloromethane	5	U
10061-02-6	t-1,3-Dichloropropene	5	U
108-88-3	Toluene	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U
127-18-4	Tetrachloroethene	13	
124-48-1	Dibromochloromethane	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethyl Benzene	5	U
95-47-6	o-Xylene	5	U
1330-20-7	m/p-Xylenes	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
78-93-3	2-Butanone	45	U

LVK

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
HN-14I

Lab Name: CHEMTECH Contract: FOSTER WHEELER

Project No.: L6330 Site: NAWC WA Location: JACKSONVILLE Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O11127

Sample wt/vol: 1.0 (g/mL) ML Lab File ID: A0492.D

Level: (low/med) Date Received: 12/28/99

% Moisture: not dec. 0 Date Analyzed: 12/29/99

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 5.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
108-10-1	4-Methyl-2-Pentanone	290	U
591-78-6	2-Hexanone	40	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
HN-14IDL

Lab Name: CHEMTECH Contract: FOSTER WHEELER

Project No.: L6330 Site: NAWC WA Location: JACKSONVILLE Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O11127DL

Sample wt/vol: 0.1 (g/mL) ML Lab File ID: A0513.D

Level: (low/med) _____ Date Received: 12/28/99

% Moisture: not dec. 0 Date Analyzed: 12/30/99

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 10.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
74-87-3	Chloromethane	50	UD
75-01-4	Vinyl Chloride	50	UD
74-83-9	Bromomethane	100	UD
75-00-3	Chloroethane	50	UD
75-35-4	1,1-Dichloroethene	50	UD
67-64-1	Acetone	50	UD
75-15-0	Carbon Disulfide	50	UD
75-09-2	Methylene Chloride	140	UD
156-60-5	trans-1,2-Dichloroethene	50	UD
75-34-3	1,1-Dichloroethane	50	UD
67-66-3	Chloroform	50	UD
71-55-6	1,1,1-Trichloroethane	50	UD
56-23-5	Carbon Tetrachloride	50	UD
71-43-2	Benzene	50	UD
107-06-2	1,2-Dichloroethane	50	UD
79-01-6	Trichloroethene	980	D
78-87-5	1,2-Dichloropropane	50	UD
75-27-4	Bromodichloromethane	50	UD
10061-02-6	t-1,3-Dichloropropene	50	UD
108-88-3	Toluene	50	UD
10061-01-5	cis-1,3-Dichloropropene	50	UD
79-00-5	1,1,2-Trichloroethane	50	UD
127-18-4	Tetrachloroethene	50	UD
124-48-1	Dibromochloromethane	50	UD
108-90-7	Chlorobenzene	50	UD
100-41-4	Ethyl Benzene	50	UD
95-47-6	o-Xylene	50	UD
1330-20-7	m/p-Xylenes	50	UD
100-42-5	Styrene	50	UD
75-25-2	Bromoform	50	UD
79-34-5	1,1,2,2-Tetrachloroethane	50	UD
156-59-2	cis-1,2-Dichloroethene	50	UD
78-93-3	2-Butanone	450	UD

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
HN-14IDL

Lab Name: CHEMTECH Contract: FOSTER WHEELER

Project No.: L6330 Site: NAWC WA Location: JACKSONVILLE Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O11127DL

Sample wt/vol: 0.1 (g/mL) ML Lab File ID: A0513.D

Level: (low/med) Date Received: 12/28/99

% Moisture: not dec. 0 Date Analyzed: 12/30/99

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 10.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
108-10-1	4-Methyl-2-Pentanone	2900	UD
591-78-6	2-Hexanone	400	UD

CHEMTECH

CHAIN OF CUSTODY RECORD

[redacted] Rou[redacted] Englewood, NJ 07631 (201) 567-6868 Fax (201) 567-1333

[redacted] Cam[redacted]aza [redacted] Edison, NJ 08837 (732) 225-4111 Fax (732) 225-4110

[redacted] Route [redacted]h Barnegat, NJ 08005 (609) 698-0199 Fax (609) 698-0910

CHEMTECH JOB NO.: L6132NJ

CHEMTECH QUOTE NO.:

CLIENT INFORMATION

REPORT TO BE SENT TO:

COMPANY: FOSTER WHEELER

ADDRESS: ONE OXFORD VALLEY SUITE 200

CITY: LANGHORNE STATE: PA ZIP: 19047

ATTENTION: JIM IREY

PHONE: 215 702-4000 FAX: -4045

PROJECT INFORMATION

PROJECT NAME: NAWC WARMINSTER

PROJECT NO.: 1284.J018.9904.00000

PROJECT MANAGER: JIM IREY

LOCATION: JACKSONVILLE RD

PHONE: 215 ~~[illegible]~~ 441 8512 FAX: 215 441 8544

BILLING INFORMATION

BILL TO: FOSTER WHEELER PO #:

ADDRESS: ONE OXFORD VALLEY SUITE 200

CITY: LANGHORNE STATE: PA ZIP: 19047

ATTENTION: ERICA VANAVER PHONE: 702 4000

DATA TURNAROUND INFORMATION

FAX: 48 hrs DAYS *

HARD COPY: _____ DAYS *

EDD: _____ DAYS *

* TO BE APPROVED BY CHEMTECH

** NORMAL TURNAROUND TIME - 14 DAYS

DATA DELIVERABLE INFORMATION

- ☐ RESULTS ONLY
- ☐ RESULTS + QC
- ☑ NJ REDUCED
- ☐ NJ CLP
- ☐ EDD FORMAT: _____
- ☐ USEPA CLP
- ☐ NYS ASP "B"
- ☐ NYS ASP "A"
- ☐ EDD

ANALYSIS

1 TCL VOA 624 2 3 4 5 6 7 8 9

PRESERVATIVES

COMMENTS

← Specify Preservatives
A – HCl B – HNO_3
C – H_2SO_4 D – NaOH
E – ICE F – Other

CHEMTECH SAMPLE ID	SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	A 1	2	3	4	5	6	7	8	9	COMMENTS
1. 95720.	HN7001	AQ		X	12/13/99	1525	2	X									
2.																	
3.																	
4.																	
5.																	
6.																	
7.																	
8.																	

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:
1. [signature]	12/13/99	1.
RELINQUISHED BY: 2.	DATE/TIME:	RECEIVED BY: 2.
RELINQUISHED BY: 3.	DATE/TIME: 12/14/99 0980	RECEIVED FOR LAB BY: 3. [signature]

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non-Compliant ☐ Temp. of Cooler _____

Comments: please fax results to M Watson at 215-441-8544

Page 1 of 1

Shipment Complete: Yes _____ No _____

Ver. 9-99

WHITE – CHEMTECH COPY FOR RETURN TO CLIENT YELLOW – CHEMTECH COPY PINK – SAMPLER COPY

32542

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
HN7001

Lab Name: CHEMTECH Contract: FOSTER WHEELER

Project No.: L6132 Site: NAWC WA Location: JACKSONVILLE R Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O95720

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: E7311.D

Level: (low/med) Date Received: 12/14/99

% Moisture: not dec. 0 Date Analyzed: 12/16/99

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	1	U
74-83-9	Bromomethane	2	U
75-00-3	Chloroethane	1	U
75-35-4	1,1-Dichloroethene	1	U
67-64-1	Acetone	1	U
75-15-0	Carbon Disulfide	1	U
75-09-2	Methylene Chloride	3	U
156-60-5	trans-1,2-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
67-66-3	Chloroform	2	
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	7	
71-43-2	Benzene	1	U
107-06-2	1,2-Dichloroethane	1	U
79-01-6	Trichloroethene	370	E
78-87-5	1,2-Dichloropropane	1	U
75-27-4	Bromodichloromethane	1	U
10061-02-6	t-1,3-Dichloropropene	1	U
108-88-3	Toluene	2	
10061-01-5	cis-1,3-Dichloropropene	1	U
79-00-5	1,1,2-Trichloroethane	1	U
127-18-4	Tetrachloroethene	17	
124-48-1	Dibromochloromethane	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethyl Benzene	1	U
95-47-6	o-Xylene	1	U
1330-20-7	m/p-Xylenes	1	U
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	4	
78-93-3	2-Butanone	9	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
HN7001

Lab Name: CHEMTECH Contract: FOSTER WHEELER

Project No.: L6132 Site: NAWC WA Location: JACKSONVILLE R Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O95720

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: E7311.D

Level: (low/med) Date Received: 12/14/99

% Moisture: not dec. 0 Date Analyzed: 12/16/99

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
108-10-1	4-Methyl-2-Pentanone	58	U
591-78-6	2-Hexanone	8	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
HN7001DL

Lab Name: CHEMTECH Contract: FOSTER WHEELER

Project No.: L6132 Site: NAWC WA Location: JACKSONVILLE R Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O95720DL

Sample wt/vol: 0.5 (g/mL) ML Lab File ID: E7310.D

Level: (low/med) Date Received: 12/14/99

% Moisture: not dec. 0 Date Analyzed: 12/16/99

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 10.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
74-87-3	Chloromethane	10	UD
75-01-4	Vinyl Chloride	10	UD
74-83-9	Bromomethane	20	UD
75-00-3	Chloroethane	10	UD
75-35-4	1,1-Dichloroethene	10	UD
67-64-1	Acetone	10	UD
75-15-0	Carbon Disulfide	10	UD
75-09-2	Methylene Chloride	28	UD
156-60-5	trans-1,2-Dichloroethene	10	UD
75-34-3	1,1-Dichloroethane	10	UD
67-66-3	Chloroform	10	UD
71-55-6	1,1,1-Trichloroethane	10	UD
56-23-5	Carbon Tetrachloride	10	UD
71-43-2	Benzene	10	UD
107-06-2	1,2-Dichloroethane	10	UD
79-01-6	Trichloroethene	310	D
78-87-5	1,2-Dichloropropane	10	UD
75-27-4	Bromodichloromethane	10	UD
10061-02-6	t-1,3-Dichloropropene	10	UD
108-88-3	Toluene	10	UD
10061-01-5	cis-1,3-Dichloropropene	10	UD
79-00-5	1,1,2-Trichloroethane	10	UD
127-18-4	Tetrachloroethene	15	D
124-48-1	Dibromochloromethane	10	UD
108-90-7	Chlorobenzene	10	UD
100-41-4	Ethyl Benzene	10	UD
95-47-6	o-Xylene	10	UD
1330-20-7	m/p-Xylenes	10	UD
100-42-5	Styrene	10	UD
75-25-2	Bromoform	10	UD
79-34-5	1,1,2,2-Tetrachloroethane	10	UD
156-59-2	cis-1,2-Dichloroethene	10	UD
78-93-3	2-Butanone	90	UD

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
HN7001DL

Lab Name: CHEMTECH Contract: FOSTER WHEELER

Project No.: L6132 Site: NAWC WA Location: JACKSONVILLE R Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O95720DL

Sample wt/vol: 0.5 (g/mL) ML Lab File ID: E7310.D

Level: (low/med) Date Received: 12/14/99

% Moisture: not dec. 0 Date Analyzed: 12/16/99

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 10.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
108-10-1	4-Methyl-2-Pentanone	580	UD
591-78-6	2-Hexanone	80	UD

CHEMTECH

CHAIN OF CUSTODY RECORD

North Jersey
110 Route 4
Englewood, NJ 07631
(201) 567-6868 Fax (201) 567-1333

South Jersey
515 Route 9 South
Barnegat, NJ 08005
(609) 698-0199 Fax (609) 698-0910

CHEMTECH JOB NO.: L6415NJ

CHEMTECH QUOTE NO.:

CLIENT INFORMATION

REPORT TO BE SENT TO:

COMPANY: FOSTER WHEELER

ADDRESS: ONE OXFORD VALLEY SUITE 200

CITY: LANGHORNE STATE: PA ZIP: 19047

ATTENTION: JIM IREY

PHONE: 215-702-4000 FAX: - 4045

PROJECT INFORMATION

PROJECT NAME: NAWC-WARMINSTER

PROJECT NO.: 1284.5018.0209

PROJECT MANAGER: JIM IREY

LOCATION: JACKSONVILLE Rd

PHONE: 215-441-8512 FAX: - 8544

BILLING INFORMATION

BILL TO: LANGHORNE PO #:

ADDRESS: OFFICE

CITY: STATE: ZIP:

ATTENTION: ERICA VANAVER PHONE:

DATA TURNAROUND INFORMATION

- ☐ 21 DAYS
- ☐ 14 DAYS
- ☐ 7 DAYS
- ☐ OTHER

48hrs

APPROVED BY: (CHEMTECH'S PERSONNEL)

21 DAY TURNAROUND HARDCOPY, EMERGENCY OR RUSH IS FAX DATA UNLESS PREVIOUSLY APPROVED.

DATA DELIVERABLE INFORMATION

- ☐ NJ REDUCED
- ☐ NJ CLP
- ☐ USEPA CLP
- ☐ NYS CLP
- ☐ OTHER
- ☐ CHEMTECH FORMAT
- ☐ RESULTS ONLY
- ☐ DISKETTES
- ☐ NYS ASP

ANALYSIS

1 TCL VOA 624 2 3 4 5 6 7 8 9

CHEMTECH SAMPLE ID	SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
1.	HN-71	AQ		X	1-4-00	1210	2	X									
2.																	
3.																	
4.																	
5.																	
6.																	
7.																	
8.																	

← Specify Preservatives
A – HCl B – HNO_3
C – H_2SO_4 D – NaOH
E – ICE F – Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:
1. [signature]	1-4-00	1. 816879475538 FedEx
RELINQUISHED BY: 2.	DATE/TIME:	RECEIVED BY: 2.
RELINQUISHED BY: 3.	DATE/TIME: 1000 1-5-00	RECEIVED FOR LAB BY: 3. Sunny Patel

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non-Compliant ☐ Temp. of Cooler _____

Comments: PLEASE FAX RESULTS TO MELT @ 215-441-8544

* EDISON LAB *

Page 1 of 1

Shipment Complete: Yes _____ No _____

Ver. 3-99

WHITE – CHEMTECH COPY FOR RETURN TO CLIENT YELLOW – CHEMTECH COPY PINK – SAMPLER COPY

№ 024689

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
HN-71

Lab Name: CHEMTECH Contract: FOSTER WHEELER

Project No.: L6415 Site: NAWC-WA Location: N/A Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O11371

Sample wt/vol: 1.0 (g/mL) ML Lab File ID: A0661.D

Level: (low/med) Date Received: 1/5/00

% Moisture: not dec. 0 Date Analyzed: 1/5/00

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 5.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	5	U
75-35-4	1,1-Dichloroethene	5	U
67-64-1	Acetone	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	14	U
156-60-5	trans-1,2-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
71-43-2	Benzene	5	U
107-06-2	1,2-Dichloroethane	5	U
79-01-6	Trichloroethene	110	
78-87-5	1,2-Dichloropropane	5	U
75-27-4	Bromodichloromethane	5	U
10061-02-6	t-1,3-Dichloropropene	5	U
108-88-3	Toluene	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U
127-18-4	Tetrachloroethene	5	U
124-48-1	Dibromochloromethane	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethyl Benzene	5	U
95-47-6	o-Xylene	5	U
1330-20-7	m/p-Xylenes	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
78-93-3	2-Butanone	45	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
HN-71

Lab Name: CHEMTECH Contract: FOSTER WHEELER

Project No.: L6415 Site: NAWC-WA Location: N/A Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O11371

Sample wt/vol: 1.0 (g/mL) ML Lab File ID: A0661.D

Level: (low/med) Date Received: 1/5/00

% Moisture: not dec. 0 Date Analyzed: 1/5/00

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 5.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
108-10-1	4-Methyl-2-Pentanone	290	U
591-78-6	2-Hexanone	40	U

EDISON

CHEMTECH

CHAIN OF CUSTODY RECORD

Please check one

North Jersey ☐
110 Route 4
Englewood, NJ 07631
(201) 567-6868 Fax (201) 567-1333

South Jersey ☐
515 Route 9 South
Barnegat, NJ 08005
(609) 698-0199 Fax (609) 698-0910

CHEMTECH JOB NO.: L645INJ-
CHEMTECH QUOTE NO.:

CLIENT INFORMATION

REPORT TO BE SENT TO:

COMPANY: FOSTER WHEELER
ADDRESS: ONE OXFORD VALLEY SUITE 200
CITY: LANGHORNE STATE: PA ZIP: 19047
ATTENTION: J. IREY
PHONE: 215-702-4000 FAX: -4045

PROJECT INFORMATION

PROJECT NAME: NAWC - WARMINSTER
PROJECT NO.: 1284-J018-0209
PROJECT MANAGER: J. IREY
LOCATION: JACKSONVILLE Rd
PHONE: 215-441-8512 FAX: -8544

BILLING INFORMATION

BILL TO: LANGHORNE PO #:
ADDRESS: OFFICE
CITY: STATE: ZIP:
ATTENTION: ERICA LANAUER PHONE:

DATA TURNAROUND INFORMATION

☐ 21 DAYS
☐ 14 DAYS
☐ 7 DAYS
☐ OTHER

APPROVED BY: (CHEMTECH'S PERSONNEL) #48hrs

21 DAY TURNAROUND HARDCOPY, EMERGENCY OR RUSH IS FAX DATA UNLESS PREVIOUSLY APPROVED.

DATA DELIVERABLE INFORMATION

☐ NJ REDUCED
☐ NJ CLP
☐ USEPA CLP
☐ NYS CLP
☐ OTHER
☐ CHEMTECH FORMAT
☐ RESULTS ONLY
☐ DISKETTES
☐ NYS ASP

ANALYSIS

TCL VOA 624

PRESERVATIVES / COMMENTS

CHEMTECH SAMPLE ID	SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	1	2	3	4	5	6	7	8	9	COMMENTS
1. 11471	HN71	AQ		X	1-5-00	1500	2	X									2 VOAs
2.																	
3.																	
4.																	
5.																	
6.																	
7.																	
8.																	

← Specify Preservatives
A – HCl B – HNO_3
C – H_2SO_4 D – NaOH
E – ICE F – Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1. C. JOBLON	1-5-00 / 1530	1.
RELINQUISHED BY: 2. FED EX	DATE/TIME: 1/6/00 / 1000	RECEIVED BY: 2.
RELINQUISHED BY: 3.	DATE/TIME: 1/6/00 1000	RECEIVED FOR LAB BY: 3. Sunny Patel

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non-Compliant ☐ Temp. of Cooler _____
Comments: FED EXPRESS # 816898475527
PACKER SAMPLE < 80' BGS

Page 1 of 1

Shipment Complete: Yes _____ No _____

Ver. 3-99 WHITE – CHEMTECH COPY FOR RETURN TO CLIENT YELLOW – CHEMTECH COPY PINK – SAMPLER COPY

NO 224690

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
HN71

Lab Name: CHEMTECH Contract: FOSTER WHEELER

Project No.: L6451 Site: NAWC-WA Location: JACKSONVILLE R Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O11471

Sample wt/vol: 1.0 (g/mL) ML Lab File ID: A0749.D

Level: (low/med) Date Received: 1/6/00

% Moisture: not dec. 0 Date Analyzed: 1/8/00

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 5.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	5	U
75-35-4	1,1-Dichloroethene	5	U
67-64-1	Acetone	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	14	U
156-60-5	trans-1,2-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	12	
71-43-2	Benzene	5	U
107-06-2	1,2-Dichloroethane	5	U
79-01-6	Trichloroethene	800	E
78-87-5	1,2-Dichloropropane	5	U
75-27-4	Bromodichloromethane	5	U
10061-02-6	t-1,3-Dichloropropene	5	U
108-88-3	Toluene	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U
127-18-4	Tetrachloroethene	14	
124-48-1	Dibromochloromethane	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethyl Benzene	5	U
95-47-6	o-Xylene	5	U
1330-20-7	m/p-Xylenes	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
78-93-3	2-Butanone	45	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
HN71

Lab Name: CHEMTECH Contract: FOSTER WHEELER

Project No.: L6451 Site: NAWC-WA Location: JACKSONVILLE R Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O11471

Sample wt/vol: 1.0 (g/mL) ML Lab File ID: A0749.D

Level: (low/med) Date Received: 1/6/00

% Moisture: not dec. 0 Date Analyzed: 1/8/00

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 5.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
108-10-1	4-Methyl-2-Pentanone	290	U
591-78-6	2-Hexanone	40	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
HN71DL

Lab Name: CHEMTECH Contract: FOSTER WHEELER

Project No.: L6451 Site: NAWC-WA Location: JACKSONVILLE R Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O11471DL

Sample wt/vol: 0.1 (g/mL) ML Lab File ID: A0784.D

Level: (low/med) Date Received: 1/6/00

% Moisture: not dec. 0 Date Analyzed: 1/10/00

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 50.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
74-87-3	Chloromethane	50	UD
75-01-4	Vinyl Chloride	50	UD
74-83-9	Bromomethane	100	UD
75-00-3	Chloroethane	50	UD
75-35-4	1,1-Dichloroethene	50	UD
67-64-1	Acetone	50	UD
75-15-0	Carbon Disulfide	50	UD
75-09-2	Methylene Chloride	140	UD
156-60-5	trans-1,2-Dichloroethene	50	UD
75-34-3	1,1-Dichloroethane	50	UD
67-66-3	Chloroform	50	UD
71-55-6	1,1,1-Trichloroethane	50	UD
56-23-5	Carbon Tetrachloride	50	UD
71-43-2	Benzene	50	UD
107-06-2	1,2-Dichloroethane	50	UD
79-01-6	Trichloroethene	770	D
78-87-5	1,2-Dichloropropane	50	UD
75-27-4	Bromodichloromethane	50	UD
10061-02-6	t-1,3-Dichloropropene	50	UD
108-88-3	Toluene	50	UD
10061-01-5	cis-1,3-Dichloropropene	50	UD
79-00-5	1,1,2-Trichloroethane	50	UD
127-18-4	Tetrachloroethene	50	UD
124-48-1	Dibromochloromethane	50	UD
108-90-7	Chlorobenzene	50	UD
100-41-4	Ethyl Benzene	50	UD
95-47-6	o-Xylene	50	UD
1330-20-7	m/p-Xylenes	50	UD
100-42-5	Styrene	50	UD
75-25-2	Bromoform	50	UD
79-34-5	1,1,2,2-Tetrachloroethane	50	UD
156-59-2	cis-1,2-Dichloroethene	50	UD
78-93-3	2-Butanone	450	UD

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
HN71DL

Lab Name: CHEMTECH Contract: FOSTER WHEELER

Project No.: L6451 Site: NAWC-WA Location: JACKSONVILLE R Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O11471DL

Sample wt/vol: 0.1 (g/mL) ML Lab File ID: A0784.D

Level: (low/med) Date Received: 1/6/00

% Moisture: not dec. 0 Date Analyzed: 1/10/00

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 50.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
108-10-1	4-Methyl-2-Pentanone	2900	UD
591-78-6	2-Hexanone	400	UD

CHEMTECH

CHAIN OF CUSTODY RECORD

North Jersey
110 Route 4
Englewood, NJ 07631
(201) 567-6868 Fax (201) 567-1333

Please check one
South Jersey
515 Route 9 South
Barnegat, NJ 08005
(609) 698-0199 Fax (609) 698-0910

CHEMTECH JOB NO.: L6484NJ

CHEMTECH QUOTE NO.:

CLIENT INFORMATION

REPORT TO BE SENT TO:

COMPANY: FOSTER WHEELER

ADDRESS: ONE OXFORD VALLEY SUITE 200

CITY: LANGHORNE STATE: PA ZIP: 19047

ATTENTION: JIM IREY

PHONE: 215-702-4000 FAX: -4045

PROJECT INFORMATION

PROJECT NAME: NAWC-WARMINSTER

PROJECT NO.: 1284-J018-0209

PROJECT MANAGER: JIM IREY

LOCATION: JACKSONVILLE Rd

PHONE: 215-441-8512 FAX: -0544

BILLING INFORMATION

BILL TO: LANGHORNE PO #:

ADDRESS: OFFICE

CITY: STATE: ZIP:

ATTENTION: ERICA LANAUER PHONE:

DATA TURNAROUND INFORMATION

- ☐ 21 DAYS
- ☐ 14 DAYS
- ☐ 7 DAYS
- ☒ OTHER 48hrs

APPROVED BY: (CHEMTECH'S PERSONNEL)

21 DAY TURNAROUND HARDCOPY, EMERGENCY OR RUSH IS FAX DATA UNLESS PREVIOUSLY APPROVED.

DATA DELIVERABLE INFORMATION

- ☐ NJ REDUCED
- ☐ NJ CLP
- ☐ USEPA CLP
- ☐ NYS CLP
- ☐ OTHER
- ☐ CHEMTECH FORMAT
- ☐ RESULTS ONLY
- ☐ DISKETTES
- ☐ NYS ASP

ANALYSIS

TCL VOA 624

PRESERVATIVES

← Specify Preservatives
A – HCl B – HNO_3
C – H_2SO_4 D – NaOH
E – ICE F – Other

CHEMTECH SAMPLE ID	SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	1	2	3	4	5	6	7	8	9	COMMENTS
1. M616	HN71	AQ		X	1600	1525	2	X									
2.																	
3.																	
4.																	
5.																	
6.																	
7.																	
8.																	

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:
1. [illegible]	1-6-00 1600	1. Fed Ex.
RELINQUISHED BY: 2.	DATE/TIME:	RECEIVED BY: 2.
RELINQUISHED BY: 3.	DATE/TIME: 1/6/00 1000	RECEIVED FOR LAB BY: 3. Sunny Patel

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non-Compliant ☐ Temp. of Cooler 3.9

Comments: FED EXPRESS # 8168 9847 5516

Page 1 of 1

Shipment Complete: Yes ____ No ____

Ver. 3-99

WHITE – CHEMTECH COPY FOR RETURN TO CLIENT YELLOW – CHEMTECH COPY PINK – SAMPLER COPY

№ 024691

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
HN71

Lab Name: CHEMTECH Contract: FOSTER WHEELER

Project No.: L6484 Site: NAWC WA Location: JACKSONVILLE R Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O11616

Sample wt/vol: 1.0 (g/mL) ML Lab File ID: A0751.D

Level: (low/med) Date Received: 1/7/00

% Moisture: not dec. 0 Date Analyzed: 1/8/00

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 5.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	5	U
75-35-4	1,1-Dichloroethene	5	U
67-64-1	Acetone	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	14	U
156-60-5	trans-1,2-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
67-66-3	Chloroform	5	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	8	
71-43-2	Benzene	5	U
107-06-2	1,2-Dichloroethane	5	U
79-01-6	Trichloroethene	580	E
78-87-5	1,2-Dichloropropane	5	U
75-27-4	Bromodichloromethane	5	U
10061-02-6	t-1,3-Dichloropropene	5	U
108-88-3	Toluene	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	5	U
127-18-4	Tetrachloroethene	10	
124-48-1	Dibromochloromethane	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethyl Benzene	5	U
95-47-6	o-Xylene	5	U
1330-20-7	m/p-Xylenes	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
78-93-3	2-Butanone	45	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
HN71

Lab Name: CHEMTECH Contract: FOSTER WHEELER

Project No.: L6484 Site: NAWC WA Location: JACKSONVILLE R Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O11616

Sample wt/vol: 1.0 (g/mL) ML Lab File ID: A0751.D

Level: (low/med) Date Received: 1/7/00

% Moisture: not dec. 0 Date Analyzed: 1/8/00

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 5.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
108-10-1	4-Methyl-2-Pentanone	290	U
591-78-6	2-Hexanone	40	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
HN71DL

Lab Name: CHEMTECH Contract: FOSTER WHEELER

Project No.: L6484 Site: NAWC WA Location: JACKSONVILLE R Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O11616DL

Sample wt/vol: 0.1 (g/mL) ML Lab File ID: A0786.D

Level: (low/med) _____ Date Received: 1/7/00

% Moisture: not dec. 0 Date Analyzed: 1/10/00

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 50.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
74-87-3	Chloromethane	50	UD
75-01-4	Vinyl Chloride	50	UD
74-83-9	Bromomethane	100	UD
75-00-3	Chloroethane	50	UD
75-35-4	1,1-Dichloroethene	50	UD
67-64-1	Acetone	50	UD
75-15-0	Carbon Disulfide	50	UD
75-09-2	Methylene Chloride	140	UD
156-60-5	trans-1,2-Dichloroethene	50	UD
75-34-3	1,1-Dichloroethane	50	UD
67-66-3	Chloroform	50	UD
71-55-6	1,1,1-Trichloroethane	50	UD
56-23-5	Carbon Tetrachloride	50	UD
71-43-2	Benzene	50	UD
107-06-2	1,2-Dichloroethane	50	UD
79-01-6	Trichloroethene	510	D
78-87-5	1,2-Dichloropropane	50	UD
75-27-4	Bromodichloromethane	50	UD
10061-02-6	t-1,3-Dichloropropene	50	UD
108-88-3	Toluene	50	UD
10061-01-5	cis-1,3-Dichloropropene	50	UD
79-00-5	1,1,2-Trichloroethane	50	UD
127-18-4	Tetrachloroethene	50	UD
124-48-1	Dibromochloromethane	50	UD
108-90-7	Chlorobenzene	50	UD
100-41-4	Ethyl Benzene	50	UD
95-47-6	o-Xylene	50	UD
1330-20-7	m/p-Xylenes	50	UD
100-42-5	Styrene	50	UD
75-25-2	Bromoform	50	UD
79-34-5	1,1,2,2-Tetrachloroethane	50	UD
156-59-2	cis-1,2-Dichloroethene	50	UD
78-93-3	2-Butanone	450	UD

4 ne

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

HN71DL

Lab Name: CHEMTECH Contract: FOSTER WHEELER

Project No.: L6484 Site: NAWC WA Location: JACKSONVILLE R Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O11616DL

Sample wt/vol: 0.1 (g/mL) ML Lab File ID: A0786.D

Level: (low/med) Date Received: 1/7/00

% Moisture: not dec. 0 Date Analyzed: 1/10/00

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 50.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
108-10-1	4-Methyl-2-Pentanone	2900	UD
591-78-6	2-Hexanone	400	UD

CHEMTECH

CHAIN OF CUSTODY RECORD

Please [illegible] one:

☐ 110 Route 4, Englewood, NJ 07631, (201) 567-6868, Fax (201) 567-1333
☐ 205 Campus Plaza 1, Edison, NJ 08837, (732) 225-4111, Fax (732) 225-4110
☐ 515 Route 9 South, Barnegat, NJ 08005, (609) 698-0199, Fax (609) 698-0910

CHEMTECH JOB NO.: L6571NJ
CHEMTECH QUOTE NO.:

CLIENT INFORMATION (REPORT TO BE SENT TO:)

COMPANY: FOSTER WHEELER
ADDRESS: ONE OXFORD VALLEY ST 200
CITY: LANGHORNE STATE: PA ZIP: 19047
ATTENTION: JIM IREY
PHONE: 215 702 4000 FAX: - 4045

PROJECT INFORMATION

PROJECT NAME: NAWC WARMINSTER
PROJECT NO.: 1284.J018.0209
PROJECT MANAGER: JIM IREY
LOCATION: JACKSONVILLE RD
PHONE: 215 441 8512 FAX: - 8544

BILLING INFORMATION

BILL TO: LANGHORNE PO #:
ADDRESS: OFFICE
CITY: STATE: ZIP:
ATTENTION: ERICA VANAVER PHONE:

DATA TURNAROUND INFORMATION

FAX: 48 hrs. DAYS *
HARD COPY: DAYS *
EDD: DAYS *
* TO BE APPROVED BY CHEMTECH
** NORMAL TURNAROUND TIME - 14 DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ NYS ASP "B"
☑ NJ REDUCED ☐ NYS ASP "A"
☐ NJ CLP ☐ EDD
☐ EDD FORMAT:

ANALYSIS: TCL VOA 624

PRESERVATIVES

CHEMTECH SAMPLE ID	SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	A 1	2	3	4	5	6	7	8	9	COMMENTS (← Specify Preservatives: A – HCl, B – HNO_3, C – H_2SO_4, D – NaOH, E – ICE, F – Other)
1. 11940	HN-72	AQ		X	1/12/00	1505	2	X									PPM RANGE TCE
2.																	
3.																	
4.																	
5.																	
6.																	
7.																	
8.																	

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY/SAMPLER:	DATE/TIME:	RECEIVED BY:
1. [signature]	01/12/00	1. Fed Ex
RELINQUISHED BY: 2. Fed Ex	DATE/TIME: 1/13/00 1000	RECEIVED BY: 2. [signature]
RELINQUISHED BY: 3.	DATE/TIME: 1/13/00 1000	RECEIVED FOR LAB BY: 3. Sunny Patel

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non-Compliant ☐ Temp. of Cooler 4/6
Comments: please fax results to Meg at 215 441-8544

Page 1 of 1 Shipment Complete: Yes ____ No ____

Ver. 9-99 WHITE – CHEMTECH COPY FOR RETURN TO CLIENT YELLOW – CHEMTECH COPY PINK – SAMPLER COPY

22528

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
HN-72

Lab Name: CHEMTECH Contract: FOSTER WHEELER

Project No.: L6571 Site: NAWC WA Location: JACKSONVILLE R Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O11940

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: A0920.D

Level: (low/med) Date Received: 1/13/00

% Moisture: not dec. 0 Date Analyzed: 1/14/00

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 5.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
74-87-3	Chloromethane	5	U
75-01-4	Vinyl Chloride	5	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	5	U
75-35-4	1,1-Dichloroethene	5	U
67-64-1	Acetone	5	U
75-15-0	Carbon Disulfide	5	U
75-09-2	Methylene Chloride	14	U
156-60-5	trans-1,2-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
67-66-3	Chloroform	16	
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	260	
71-43-2	Benzene	5	U
107-06-2	1,2-Dichloroethane	5	U
79-01-6	Trichloroethene	2800	E
78-87-5	1,2-Dichloropropane	5	U
75-27-4	Bromodichloromethane	5	U
10061-02-6	t-1,3-Dichloropropene	5	U
108-88-3	Toluene	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-00-5	1,1,2-Trichloroethane	25	
127-18-4	Tetrachloroethene	29	
124-48-1	Dibromochloromethane	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethyl Benzene	5	U
95-47-6	o-Xylene	5	U
1330-20-7	m/p-Xylenes	5	
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
156-59-2	cis-1,2-Dichloroethene	5	U
78-93-3	2-Butanone	45	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
HN-72

Lab Name: CHEMTECH Contract: FOSTER WHEELER

Project No.: L6571 Site: NAWC WA Location: JACKSONVILLE R Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O11940

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: A0920.D

Level: (low/med) Date Received: 1/13/00

% Moisture: not dec. 0 Date Analyzed: 1/14/00

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 5.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
108-10-1	4-Methyl-2-Pentanone	290	U
591-78-6	2-Hexanone	40	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
HN-72DL

Lab Name: CHEMTECH Contract: FOSTER WHEELER

Project No.: L6571 Site: NAWC WA Location: JACKSONVILLE R Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O11940DL

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: A0934.D

Level: (low/med) Date Received: 1/13/00

% Moisture: not dec. 0 Date Analyzed: 1/17/00

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 500.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
74-87-3	Chloromethane	500	UD
75-01-4	Vinyl Chloride	500	UD
74-83-9	Bromomethane	1000	UD
75-00-3	Chloroethane	500	UD
75-35-4	1,1-Dichloroethene	500	UD
67-64-1	Acetone	500	UD
75-15-0	Carbon Disulfide	500	UD
75-09-2	Methylene Chloride	1400	UD
156-60-5	trans-1,2-Dichloroethene	500	UD
75-34-3	1,1-Dichloroethane	500	UD
67-66-3	Chloroform	500	UD
71-55-6	1,1,1-Trichloroethane	500	UD
56-23-5	Carbon Tetrachloride	500	UD
71-43-2	Benzene	500	UD
107-06-2	1;2-Dichloroethane	500	UD
79-01-6	Trichloroethene	9000	D
78-87-5	1,2-Dichloropropane	500	UD
75-27-4	Bromodichloromethane	500	UD
10061-02-6	t-1,3-Dichloropropene	500	UD
108-88-3	Toluene	500	UD
10061-01-5	cis-1,3-Dichloropropene	500	UD
79-00-5	1,1,2-Trichloroethane	500	UD
127-18-4	Tetrachloroethene	500	UD
124-48-1	Dibromochloromethane	500	UD
108-90-7	Chlorobenzene	500	UD
100-41-4	Ethyl Benzene	500	UD
95-47-6	o-Xylene	500	UD
1330-20-7	m/p-Xylenes	500	UD
100-42-5	Styrene	500	UD
75-25-2	Bromoform	500	UD
79-34-5	1,1,2,2-Tetrachloroethane	500	UD
156-59-2	cis-1,2-Dichloroethene	500	UD
78-93-3	2-Butanone	4500	UD

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
HN-72DL

Lab Name: CHEMTECH Contract: FOSTER WHEELER

Project No.: L6571 Site: NAWC WA Location: JACKSONVILLE R Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O11940DL

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: A0934.D

Level: (low/med) Date Received: 1/13/00

% Moisture: not dec. 0 Date Analyzed: 1/17/00

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 500.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
108-10-1	4-Methyl-2-Pentanone	29000	UD
591-78-6	2-Hexanone	4000	UD

CHEMTECH
CHAIN OF CUSTODY RECORD

☐ 110 Route 4, Englewood, NJ 07631, (201) 567-6868, Fax (201) 567-1333

Please check one:
☒ 205 Campus Plaza 1, Edison, NJ 08837, (732) 225-4111, Fax (732) 225-4110

☐ 515 Route 9 South, Barnegat, NJ 08005, (609) 698-0199, Fax (609) 698-0910

CHEMTECH JOB NO.: L6859NJ

CHEMTECH QUOTE NO.:

CLIENT INFORMATION

REPORT TO BE SENT TO:

COMPANY: FOSTER WHEELER

ADDRESS: ONE OXFORD VALLEY SUITE 200

CITY: LANGHORNE STATE: PA ZIP: 19047

ATTENTION: JIM IRBY

PHONE: 215 702-4000 FAX: 215-702-4045

PROJECT INFORMATION

PROJECT NAME: NAWC WARMINSTER

PROJECT NO.: 1284-J018-0209

PROJECT MANAGER: JIM IRBY

LOCATION: JACKSONVILLE RD

PHONE: 215 441-8512 FAX: 215-441-8544

BILLING INFORMATION

BILL TO: LANGHORNE PO #:

ADDRESS: OFFICE

CITY: STATE: ZIP:

ATTENTION: ERICA VANAVOR PHONE:

DATA TURNAROUND INFORMATION

FAX: 24 hrs ** DAYS *

HARD COPY: DAYS *

EDD: DAYS *

* TO BE APPROVED BY CHEMTECH

** NORMAL TURNAROUND TIME - 14 DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP

☐ RESULTS + QC ☐ NYS ASP "B"

☒ NJ REDUCED ☐ NYS ASP "A"

☐ NJ CLP ☐ EDD

☐ EDD FORMAT:

ANALYSIS

1 TCL VOA 624 2 3 4 5 6 7 8 9

PRESERVATIVES

E

COMMENTS

4 – Specify Preservatives
A – HCl B – HNO_3
C – H_2SO_4 D – NaOH
E – ICE F – Other

CHEMTECH SAMPLE ID	SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	1	2	3	4	5	6	7	8	9	COMMENTS
1.	HN-71	AQ		X	2-4/00	1040	2	X									
2.	HN-72	AQ		X	2-4-00	1210	2	X									
3.																	
4.																	
5.																	
6.																	
7.																	
8.																	

NO PRESERVATIVE

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:
1.	2-4-00	1. FED EX
RELINQUISHED BY: 2. FED EX	DATE/TIME: 2/4/00 1000	RECEIVED BY: 2.
RELINQUISHED BY: 3.	DATE/TIME: 2/7/00 10	RECEIVED FOR LAB BY: 3.

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non-Compliant ☐ Temp. of Cooler 2-7

Comments: FAX RESULTS TO: E VANAVOR 215-441-8544 CJOBLON 215-702-4045

Page 1 of 1 Shipment Complete: Yes ___ No ___

WHITE – CHEMTECH COPY FOR RETURN TO CLIENT YELLOW – CHEMTECH COPY PINK – SAMPLER COPY

28197

FEB 09 2000 14:47 908 225 5185 PAGE.02

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

HN-71

Lab Name: CHEMTECH Contract: FOSTER WHEELER ENV.

Project No.: L6859NJ Site: NAWC WA Location: JACKSONVILLE Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O13429

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: A2165.D

Level: (low/med) Date Received: 2/7/00

% Moisture: not dec. 100 Date Analyzed: 2/8/00

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
74-87-3	Chloromethane	1.1	U
75-01-4	Vinyl Chloride	1	U
74-83-9	Bromomethane	0.6	U
75-00-3	Chloroethane	0.7	U
75-35-4	1,1-Dichloroethene	0.4	U
67-64-1	Acetone	2.4	U
75-15-0	Carbon Disulfide	0.3	U
75-09-2	Methylene Chloride	0.4	U
156-60-5	trans-1,2-Dichloroethene	0.4	U
75-34-3	1,1-Dichloroethane	0.2	U
67-66-3	Chloroform	1	
71-55-6	1,1,1-Trichloroethane	0.4	
56-23-5	Carbon Tetrachloride	0.3	U
71-43-2	Benzene	0.3	U
107-06-2	1,2-Dichloroethane	0.3	U
79-01-6	Trichloroethene	52	
78-87-5	1,2-Dichloropropane	0.4	U
75-27-4	Bromodichloromethane	0.3	U
10061-02-6	t-1,3-Dichloropropene	0.2	U
108-88-3	Toluene	0.3	U
10061-01-5	cis-1,3-Dichloropropene	0.3	U
79-00-5	1,1,2-Trichloroethane	0.3	U
127-18-4	Tetrachloroethene	13	
124-48-1	Dibromochloromethane	0.3	U
108-90-7	Chlorobenzene	0.2	U
100-41-4	Ethyl Benzene	0.4	U
95-47-6	o-Xylene	0.5	U
1330-20-7	m/p-Xylenes	0.4	U
100-42-5	Styrene	0.2	U
75-25-2	Bromoform	0.3	U
79-34-5	1,1,2,2-Tetrachloroethane	0.3	U
156-59-2	cis-1,2-Dichloroethene	0.3	U
78-93-3	2-Butanone	2.8	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

HN-71

Lab Name: CHEMTECH Contract: FOSTER WHEELER ENV.

Project No.: L6859NJ Site: NAWC WA Location: JACKSONVILLE Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O13429

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: A2165.D

Level: (low/med) Date Received: 2/7/00

% Moisture: not dec. 100 Date Analyzed: 2/8/00

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
108-10-1	4-Methyl-2-Pentanone	1.4	U
591-78-6	2-Hexanone	1	U

FORM I VOA

3/90

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

HN-72

Lab Name: CHEMTECH Contract: FOSTER WHEELER ENV.

Project No.: L6859NJ Site: NAWC WA Location: JACKSONVILLE Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O13430

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: A2161.D

Level: (low/med) Date Received: 2/7/00

% Moisture: not dec. 100 Date Analyzed: 2/8/00

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 5.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
74-87-3	Chloromethane	5.5	U
75-01-4	Vinyl Chloride	5.2	U
74-83-9	Bromomethane	3.1	U
75-00-3	Chloroethane	3.7	U
75-35-4	1,1-Dichloroethene	7.3	
67-64-1	Acetone	12	U
75-15-0	Carbon Disulfide	1.6	U
75-09-2	Methylene Chloride	1.8	U
156-60-5	trans-1,2-Dichloroethene	2.2	U
75-34-3	1,1-Dichloroethane	1.1	U
67-66-3	Chloroform	40	
71-55-6	1,1,1-Trichloroethane	1.6	U
56-23-5	Carbon Tetrachloride	1300	E
71-43-2	Benzene	4.9	
107-06-2	1,2-Dichloroethane	1.6	U
79-01-6	Trichloroethene	6100	E
78-87-5	1,2-Dichloropropane	2	U
75-27-4	Bromodichloromethane	1.4	U
10061-02-6	t-1,3-Dichloropropene	1.2	U
108-88-3	Toluene	1.3	U
10061-01-5	cis-1,3-Dichloropropene	1.5	U
79-00-5	1,1,2-Trichloroethane	95	
127-18-4	Tetrachloroethene	220	
124-48-1	Dibromochloromethane	1.4	U
108-90-7	Chlorobenzene	1.2	U
100-41-4	Ethyl Benzene	2.1	U
95-47-6	o-Xylene	2.3	U
1330-20-7	m/p-Xylenes	2	U
100-42-5	Styrene	0.8	U
75-25-2	Bromoform	1.7	U
79-34-5	1,1,2,2-Tetrachloroethane	1.3	U
156-59-2	cis-1,2-Dichloroethene	19	
78-93-3	2-Butanone	14	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

HN-72

Lab Name: CHEMTECH Contract: FOSTER WHEELER ENV.

Project No.: L6859NJ Site: NAWC WA Location: JACKSONVILLE Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O13430

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: A2161.D

Level: (low/med) Date Received: 2/7/00

% Moisture: not dec. 100 Date Analyzed: 2/8/00

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 5.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
108-10-1	4-Methyl-2-Pentanone	7	U
591-78-6	2-Hexanone	4.9	U

FORM I VOA 3/90

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

HN-72DL

Lab Name: CHEMTECH Contract: FOSTER WHEELER ENV.

Project No.: L6859NJ Site: NAWC WA Location: JACKSONVILLE Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O13430DL

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: A2166.D

Level: (low/med) Date Received: 2/7/00

% Moisture: not dec. 100 Date Analyzed: 2/8/00

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 500.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
74-87-3	Chloromethane	550	UD
75-01-4	Vinyl Chloride	520	UD
74-83-9	Bromomethane	310	UD
75-00-3	Chloroethane	370	UD
75-35-4	1,1-Dichloroethene	210	UD
67-64-1	Acetone	1200	UD
75-15-0	Carbon Disulfide	160	UD
75-09-2	Methylene Chloride	180	UD
156-60-5	trans-1,2-Dichloroethene	220	UD
75-34-3	1,1-Dichloroethane	110	UD
67-66-3	Chloroform	130	UD
71-55-6	1,1,1-Trichloroethane	160	UD
56-23-5	Carbon Tetrachloride	890	D
71-43-2	Benzene	140	UD
107-06-2	1,2-Dichloroethane	160	UD
79-01-6	Trichloroethene	40000	D
78-87-5	1,2-Dichloropropane	200	UD
75-27-4	Bromodichloromethane	140	UD
10061-02-6	t-1,3-Dichloropropene	120	UD
108-88-3	Toluene	130	UD
10061-01-5	cis-1,3-Dichloropropene	150	UD
79-00-5	1,1,2-Trichloroethane	170	UD
127-18-4	Tetrachloroethene	140	UD
124-48-1	Dibromochloromethane	140	UD
108-90-7	Chlorobenzene	120	UD
100-41-4	Ethyl Benzene	210	UD
95-47-6	o-Xylene	230	UD
1330-20-7	m/p-Xylenes	200	UD
100-42-5	Styrene	77	UD
75-25-2	Bromoform	170	UD
79-34-5	1,1,2,2-Tetrachloroethane	130	UD
156-59-2	cis-1,2-Dichloroethene	140	UD
78-93-3	2-Butanone	1400	UD

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

HN-72DL

Lab Name: CHEMTECH Contract: FOSTER WHEELER ENV.

Project No.: L6859NJ Site: NAWC WA Location: JACKSONVILLE Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O13430DL

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: A2166.D

Level: (low/med) Date Received: 2/7/00

% Moisture: not dec. 100 Date Analyzed: 2/8/00

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 500.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
108-10-1	4-Methyl-2-Pentanone	700	UD
591-78-6	2-Hexanone	490	UD

CHEMTECH

CHAIN OF CUSTODY RECORD

[redacted] 110 F[redacted] Englewood, NJ 07631 (201) 567-6868 Fax (201) 567-1333

[redacted] 205 C[redacted] Plaz[redacted] Edison, NJ 08837 (732) 225-4111 Fax (732) 225-4110

[redacted] Route [redacted] South Barnegat, NJ 08005 (609) 698-0199 Fax (609) 698-0910

CHEMTECH JOB NO.: L 6665 NJ

CHEMTECH QUOTE NO.:

CLIENT INFORMATION

REPORT TO BE SENT TO:

COMPANY: FOSTER WHEELER

ADDRESS: ONE OXFORD VALLEY SUITE 200

CITY: LANGHORNE STATE: PA ZIP: 19047

ATTENTION: JIM IRLEY

PHONE: (215) 702 4000 FAX: - 4045

PROJECT INFORMATION

PROJECT NAME: NAWC WARMINSTER

PROJECT NO.: 1284. 1018. 0209. 00000

PROJECT MANAGER: JIM IRLEY

LOCATION: JACKSONVILLE RD

PHONE: (215) 702 441-8512 FAX: - 8544

BILLING INFORMATION

BILL TO: Langhorne PO #:

ADDRESS: Office

CITY: STATE: ZIP:

ATTENTION: ERICA VANAVER PHONE:

DATA TURNAROUND INFORMATION

FAX: 48 hrs. DAYS *

HARD COPY: DAYS *

EDD: DAYS *

* TO BE APPROVED BY CHEMTECH

** NORMAL TURNAROUND TIME - 14 DAYS

DATA DELIVERABLE INFORMATION

- ☐ RESULTS ONLY
- ☐ RESULTS + QC
- ☐ NJ REDUCED
- ☐ NJ CLP
- ☐ EDD FORMAT:
- ☐ USEPA CLP
- ☐ NYS ASP "B"
- ☐ NYS ASP "A"
- ☐ EDD

ANALYSIS

1 TCL VOA 624 2 3 4 5 6 7 8 9

CHEMTECH SAMPLE ID	SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	PRESERVATIVES 1	2	3	4	5	6	7	8	9	COMMENTS
								E									← Specify Preservatives A – HCl B – HNO_3 C – H_2SO_4 D – NaOH E – ICE F – Other
1.	HN-73	AQ		X	1/20/00	1505	2	X									< 100 ppb TCE
2.																	
3.																	
4.																	
5.																	
6.																	
7.																	
8.																	

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:
1. [signature]	1/21/00 0945	1. Sunny Bailey
RELINQUISHED BY: 2. FedEx.	DATE/TIME:	RECEIVED BY: 2.
RELINQUISHED BY: 3.	DATE/TIME: 01/21/00 0941	RECEIVED FOR LAB BY: 3. [signature]

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non-Compliant ☐ Temp. of Cooler 3.9

Comments: please fax results to Meg at (215) 441-8544

Page 1 of 1

Shipment Complete: Yes ____ No ____

Ver. 9-99

WHITE – CHEMTECH COPY FOR RETURN TO CLIENT YELLOW – CHEMTECH COPY PINK – SAMPLER COPY

22531

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
HN-73

Lab Name: CHEMTECH Contract: FOSTER WHEELER ENVIRONMENTAL

Project No.: L6665 Site: NAWC WA Location: JACKSONVILLE R Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O12470

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C1070.D

Level: (low/med) Date Received: 1/21/00

% Moisture: not dec. 100 Date Analyzed: 1/24/00

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CAS No.	Compound	Concentration Units: (ug/L or ug/Kg) ug/L	Q
74-87-3	Chloromethane	1	U
75-01-4	Vinyl Chloride	1	U
74-83-9	Bromomethane	2	U
75-00-3	Chloroethane	1	U
75-35-4	1,1-Dichloroethene	1	U
67-64-1	Acetone	1	U
75-15-0	Carbon Disulfide	1	U
75-09-2	Methylene Chloride	3	U
156-60-5	trans-1,2-Dichloroethene	1	U
75-34-3	1,1-Dichloroethane	1	U
67-66-3	Chloroform	1	U
71-55-6	1,1,1-Trichloroethane	1	U
56-23-5	Carbon Tetrachloride	1	U
71-43-2	Benzene	1	U
107-06-2	1,2-Dichloroethane	1	U
79-01-6	Trichloroethene	18	
78-87-5	1,2-Dichloropropane	1	U
75-27-4	Bromodichloromethane	1	U
10061-02-6	t-1,3-Dichloropropene	1	U
108-88-3	Toluene	1	U
10061-01-5	cis-1,3-Dichloropropene	1	U
79-00-5	1,1,2-Trichloroethane	1	U
127-18-4	Tetrachloroethene	1	U
124-48-1	Dibromochloromethane	1	U
108-90-7	Chlorobenzene	1	U
100-41-4	Ethyl Benzene	1	U
95-47-6	o-Xylene	1	U
1330-20-7	m/p-Xylenes	1	U
100-42-5	Styrene	1	U
75-25-2	Bromoform	1	U
79-34-5	1,1,2,2-Tetrachloroethane	1	U
156-59-2	cis-1,2-Dichloroethene	1	U
78-93-3	2-Butanone	9	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.
HN-73

Lab Name: CHEMTECH Contract: FOSTER WHEELER ENVIRONMENTAL

Project No.: L6665 Site: NAWC WA Location: JACKSONVILLE R Group: 5970-VOA

Matrix: (soil/water) WATER Lab Sample ID: O12470

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: C1070.D

Level: (low/med) Date Received: 1/21/00

% Moisture: not dec. 100 Date Analyzed: 1/24/00

GC Column: DB624 ID: 0.53 (mm) Dilution Factor: 1.0

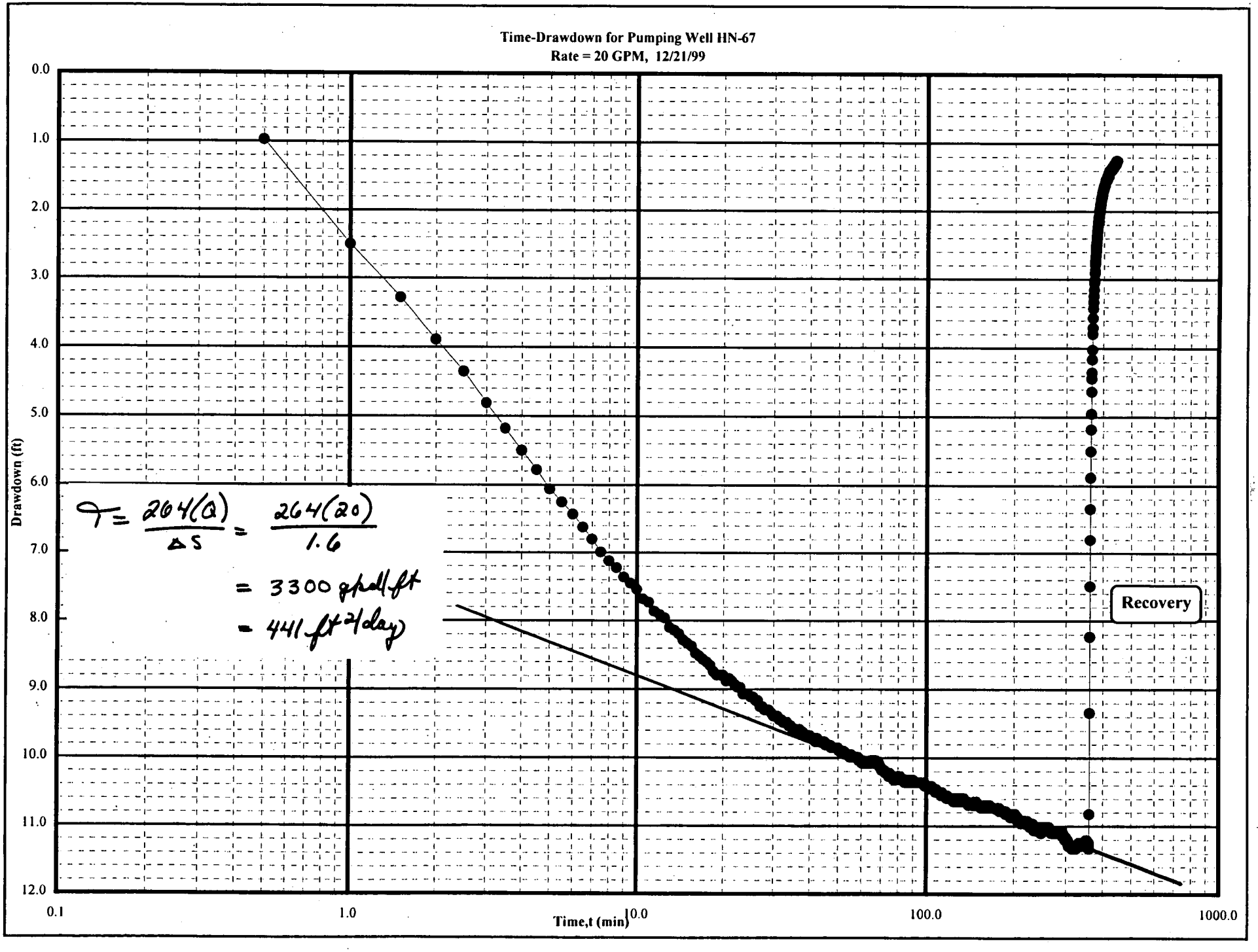
Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

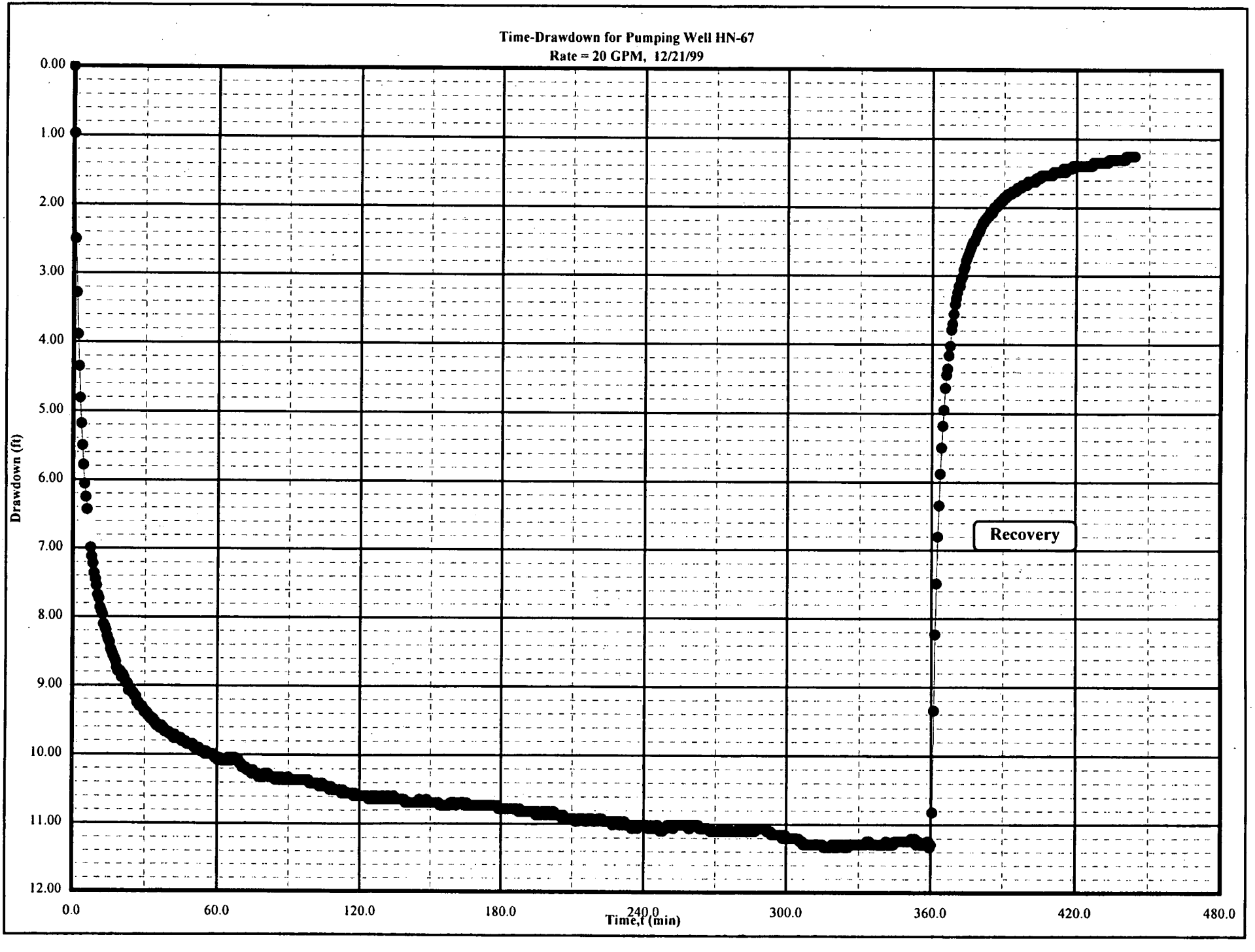
Concentration Units: (ug/L or ug/Kg) ug/L

CAS No.	Compound		Q
108-10-1	4-Methyl-2-Pentanone	58	U
591-78-6	2-Hexanone	8	U

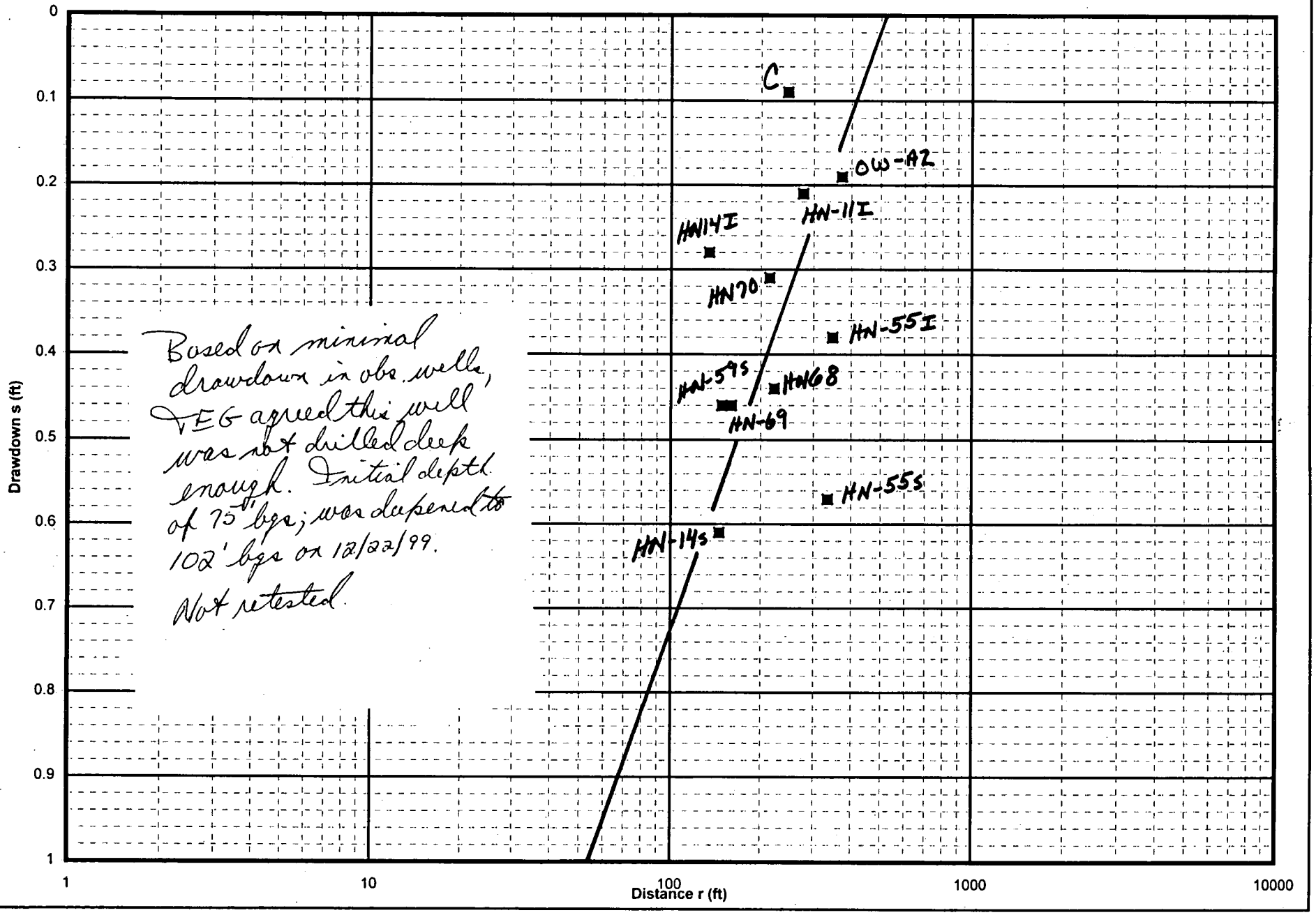
APPENDIX C

Drawdown/Recovery Graphs
and
Yield Test Data Records


Time-Drawdown for Pumping Well HN-67
Rate = 20 GPM, 12/21/99
Drawdown (ft)
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
11.0
12.0
0.1
1.0
10.0
100.0
1000.0
Time,t (min)
Recovery
T = 264(Q)/ΔS = 264(20)/1.6
= 3300 gpd/ft
= 441 ft²/day


Time-Drawdown for Pumping Well HN-67
Rate = 20 GPM, 12/21/99
Drawdown (ft)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00
11.00
12.00
0.0
60.0
120.0
180.0
240.0
300.0
360.0
420.0
480.0
Time,t (min)
Recovery

Distance-Drawdown Plot
Yield Test at HN-67, Dec. 21, 1999
6 Hour Test at 20 gpm



Based on minimal drawdown in obs. wells, TEG agreed this well was not drilled deep enough. Initial depth of 75' bgs; was deepened to 102' bgs on 12/22/99. Not retested.

Yield Test at Area A:HN-67 12/21/99		
6 hour test at 20 GPM		
Well	Distance (r)	Max. DD (ft)
HN-14I	134	0.28
HN-14S	145	0.61
HN-59S	148	0.46
HN-69	159	0.46
HN70	214	0.31
HN68	222	0.44
C	246	0.09
HN-11I	277	0.21
HN-55S	335	0.57
HN-55I	347	0.38
OW-A2	372	0.19

...ENTAL CORPORATION

PUMPING TEST DATA

Date(s) of Test: 12-20-99
Client: USNAVY
Project: WARMINSTER
Remarks:

Well ID: HN67
Measuring Point: TOC
Elevation:
Distance from Pumping Well (r, feet): —
Pumping Rate (Q): 20 GPM

SHEET 1 of 3

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t', min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	SPECIFIC CAPACITY (Q/s, gpm/ft)	REMARKS
12-20	850	I			11.31				FID
	855	I			11.31				20 gpm
	0900	0			11.90				
		0.5			~~[illegible]~~				
	901	1.0			14.85				
		1.5			14.65				
	902	2.0			15.45				
		2.5			15.75	3.85	1.29	2(2.5 min)	
	903	3.0			16.50				
		3.5			16.94				
	904	4.0			17.15				
		4.5			17.41				
	905	5.0			17.58				
	906	6			17.96				
	907	7			18.29				20.5 gpm
	908	8			18.56				
	909	9			18.80				
	910	10			18.98				
	912	12			19.30				
	914	14			19.39				
	916	16			19.62				20 gpm
	918	18			19.83				
	920	20			19.97				
	922	22			20.12				
	924	24			20.26				20 gpm
	926	26			20.39				
	928	28			20.51				
	930	30			20.62				
	935	35			20.70				20 gpm
	940	40			20.88				
	945	45			21.03				SAMPLE HN67 0935 GC
	950	50			21.11				ionization GC
	955	55			21.21				20 gpm
	1000	60			21.28				
	1030	90			21.36				
	1100	120			21.46				
					21.91				HN67 1130 GC 20 gpm

21.91

16.80 90 feet 5.25 max

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET 2 of 3

Date(s) of Test: 12-20-99

Client:

Project:

Remarks:

Well ID: HN67

Measuring Point:

Elevation:

Distance from Pumping Well (r, feet):

Pumping Rate (Q):

DATE	TIME (24-hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t', min)	[illegible]	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	[illegible]	SCALE RECEIVED (s, ft)	REMARKS
	1130	150			22.03				HN67 1130
	1200	180			22.10				
	1230	210			22.21				GC sample HN67 1230
	1300	240			22.32				
	1330	270			22.40				GC sample HN67 1330
	1400	300			22.51				
	1430	330			22.5[illegible]				GC sample HN67 1420
	1500	360	0		22.61				GC sample HN67 1455
			0.5		22.63				LAB sample HN6701
	1501		1.0		20.02				FID sample
			1.5		19.40				
	1502		2.0		18.64				
			2.5		17.93				
	1503		3.0		17.30				
			3.5		16.98				
	1504		4.0		16.61				
			4.5		16.22				
	1505		5.0		15.[illegible]				
	1506		6		15.70				
	1507		7		15.25				
	1508		8		15.01				
	1509		9		14.81				
	1510		10		14.56				
	1512		12		14.27				
	1514		14		14.04				
	1516		16		13.84				
	1518		18		13.68				
	1520		20		13.55				
	1522		22		13.42				
	1524		24		13.35				
	1526		26		13.24				
	1528		28		13.17				
	1530		30		13.11				
	1535		35		13.05				
	1540		40		12.88				
	1545		45		12.81				

11.31' 22.32'

43.5% 19.7%

Oppm

Oppm

Oppm

Oppm

0 1455

Fid oppm

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET 3 of 3

Date(s) of Test: 12-20-99
Client:
Project:
Remarks:

Well ID: HN67
Measuring Point:
Elevation:
Distance from Pumping Well (r, feet):
Pumping Rate (Q):

		1550	58		12.74				
		1555	59		12.70				
		1600	60		12.66				
		~~1540~~		1'	~~12.88~~				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

Date(s) of Test: 12-20-99
Client:
Project:
Remarks:

Well ID: HN 90 70
Measuring Point:
Elevation:
Distance from Pumping Well (r, feet):
Pumping Rate (Q):

SHEET 1 of 1

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t', min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
	817				12.32				
	827				12.33				
	917	17			12.40				
	941	41			12.43				
	1000	120			12.48				
	1116	136			12.51				
	12:10				12.57				
	13				12.61				
	1407				12.63				
	1506				12.67				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

Date(s) of Test: 12-20 98
Client: _____
Project: _____
Remarks: _____

Well ID: HN 11I
Measuring Point: _____ Elevation: _____
Distance from Pumping Well (r, feet): _____
Pumping Rate (Q): _____

SHEET 1 of 1

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t', min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
					25.38				
	830				25.39				
	903	3			25.39				
	931	31			25.40				
	950	50			25.29				
	1106	126			25.48				
	1304				25.58				
	1325				25.61				
	1414				25.60				
	1533				25.68				
	1610				25.61				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET 1 of 1

Date(s) of Test: 12-20-99

Client:

Project:

Remarks:

Well ID: HN69

Measuring Point:

Elevation:

Distance from Pumping Well (r, feet):

Pumping Rate (Q):

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t', min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC RECOVERY (s_r, ft)	REMARKS
	815				18.80				
	835				18.80				
	916	16			18.85				
	939	39			18.95				
	958	58			18.97				
	114	134			19.10				
	12:10				19.14				
	12:04				19.19				
	12:05				19.20				
	1513				19.20				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

Date(s) of Test: 12-20-99

Client:

Project:

Remarks:

Well ID: HN 68

Measuring Point:

Elevation:

Distance from Pumping Well (r, feet):

Pumping Rate (Q):

SHEET 1 of 1

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t', min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
	816				18.66				
	835				18.68				
	917	17			18.71				
	940	40			18.79				
	959	59			18.81				
	1115	135			18.88				
	12:11				18.94				
	13:02				18.99				
	14:06				19.10				
	15:10				19.04				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET 1 of 1

Date(s) of Test: 12-20-99

Client: _____

Project: _____

Remarks: _____

Well ID: HN558

Measuring Point: _____ Elevation: _____

Distance from Pumping Well (r, feet): _____

Pumping Rate (Q): _____

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t, min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
	810	I			23.40				
	832	I			23.40				
	907	7			23.41				
	934	34			23.49				
	953	53			23.54				
	1108	128			23.71				
	1209				23.81				
	1320				23.90				
	1412				23.97				
	1511				24.10				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

Date(s) of Test: 12-20-99
Client: _____
Project: _____
Remarks: _____

Well ID: HN 55 I
Measuring Point: _____ Elevation: _____
Distance from Pumping Well (r, feet): _____
Pumping Rate (Q): _____

SHEET 1 of 1

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t', min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
	810	I			24.80				
	832	I			24.81				
	907		7		24.84				
	935		35		24.91				
	954		54		24.93				
	1110		130		25.04				
	1200				25.10				
	1327				25.16				
	1413				25.18				
	1527				25.17				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

Date(s) of Test: 12-20-99

Client:

Project:

Remarks:

Well ID: WRCE

Measuring Point:

Elevation:

Distance from Pumping Well (r, feet):

Pumping Rate (Q):

SHEET 1 of 1

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t', min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
	0.03	I	0		18.12				
	826	F			18.78				
	800		0		18.69				
	927		27		18.14				
	948		48		18.15				
	1102				18.70				
	1200				18.78				
	1320				18.80				
	1419				18.81				
	1598				18.84				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

Date(s) of Test: 12-20-99
Client:
Project:
Remarks:

Well ID: OW A2
Measuring Point:
Elevation:
Distance from Pumping Well (r, feet): 372'
Pumping Rate (Q):

SHEET 1 of 1

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t, min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
	805	I			20.14				
	827	I			20.16				
	901		1		20.17				
	930		30		20.26				
	949		49		20.18				
	1104				20.20				
	1200				20.26				
	1326				20.32				
	1418				20.33				
	1540				20.46				

FOSTER WHEELER ENVIR NMENTAL CORPORATION

PUMPING TEST DATA

Date(s) of Test: 12-20-99

Client:

Project:

Remarks:

Well ID: HN 59S

Measuring Point:

Elevation:

Distance from Pumping Well (r, feet): 148'

Pumping Rate (Q):

SHEET 1 of 1

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t', min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
	810	I			18.44				
	835	I			18.43				
	911		11		18.52				
	937		37		18.62				
	957		57		18.67				
	1112				18.79				
	1209				18.84				
	1314				18.87				
	1410				18.90				
	1511				18.91				

18.43 18.90

48.60 47.50

FOSTER WHEELER ENVIRONMENTAL CORPORATION
PUMPING TEST DATA

Date(s) of Test: 12-20-99
Client:
Project:
Remarks:

Well ID: HN 59I
Measuring Point: Elevation:
Distance from Pumping Well (r, feet):
Pumping Rate (Q):

SHEET 1 of 1

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t, min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
	810	I			25.84				
	834	F			25.79				
	910		10		25.71				
	937		37		25.68				
	956		56		25.62				
	1111				25.50				
	1208				25.38				
	1317				25.26				
	1407				25.16				
	1515				25.05				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET 1 of 1

Date(s) of Test: 12-20-99

Client:

Project:

Remarks:

Well ID: HN 14S

Measuring Point:

Elevation:

Distance from Pumping Well (r, feet):

Pumping Rate (Q):

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t', min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
	820	E			11.96				
	840	E			11.96				
	922		22		12.11				
	945		45		12.24				
	1003		63		12.30				
	1120				12.47				
	12:16				12.50				
	13:03				12.52				
	14:03				12.57				
	1500				12.59				
	1545				12.31				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

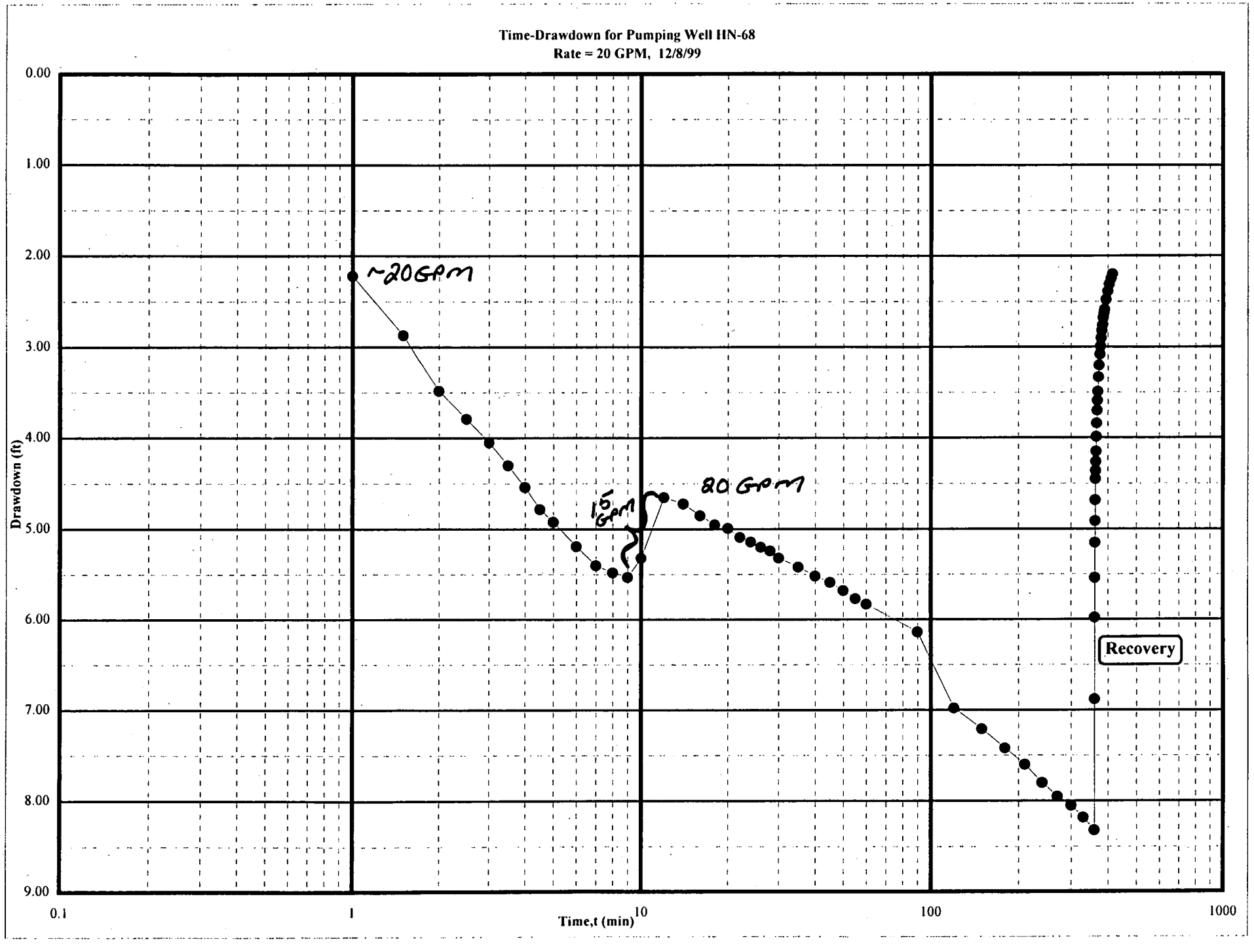
PUMPING TEST DATA

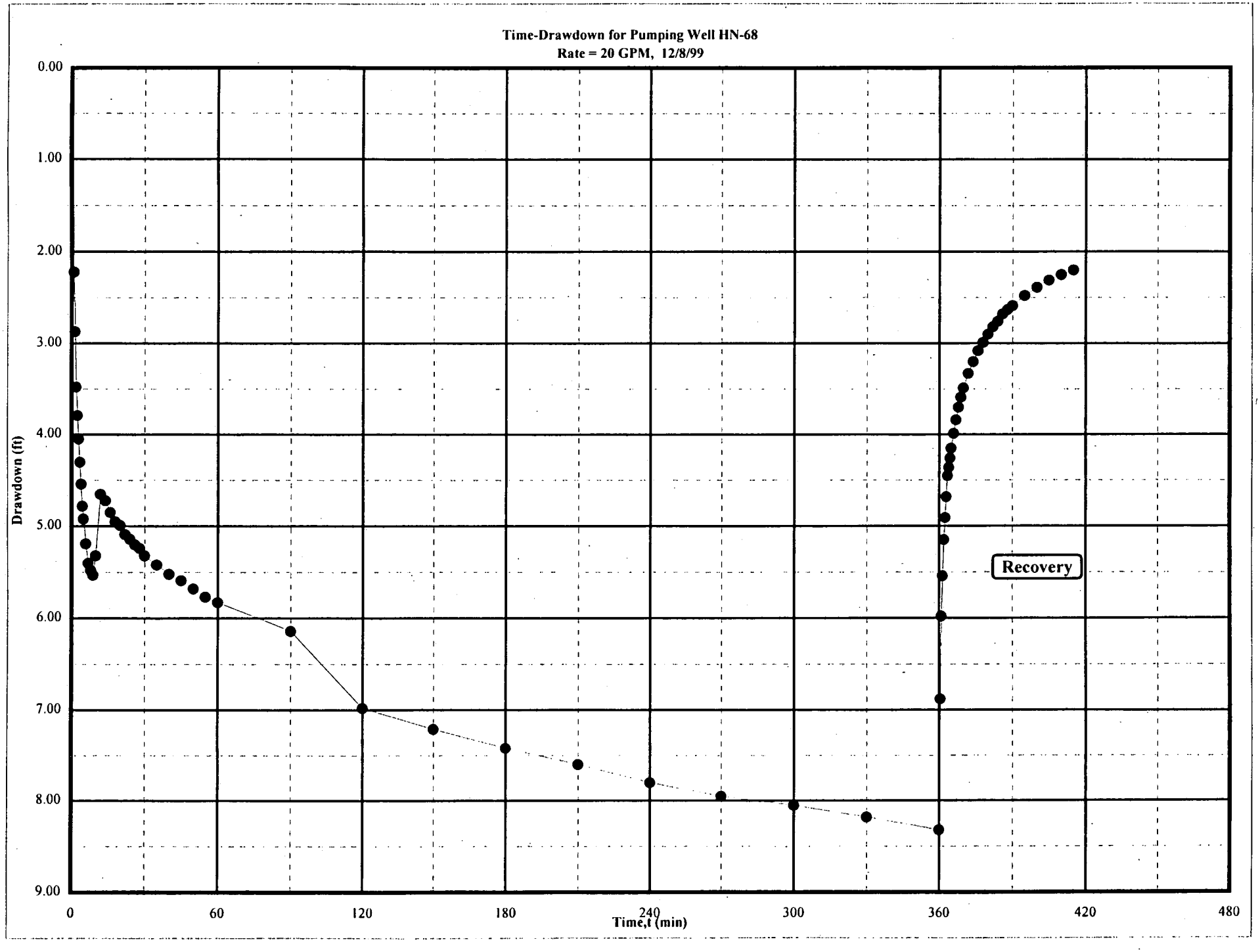
Date(s) of Test: 6-20-99
Client:
Project:
Remarks:

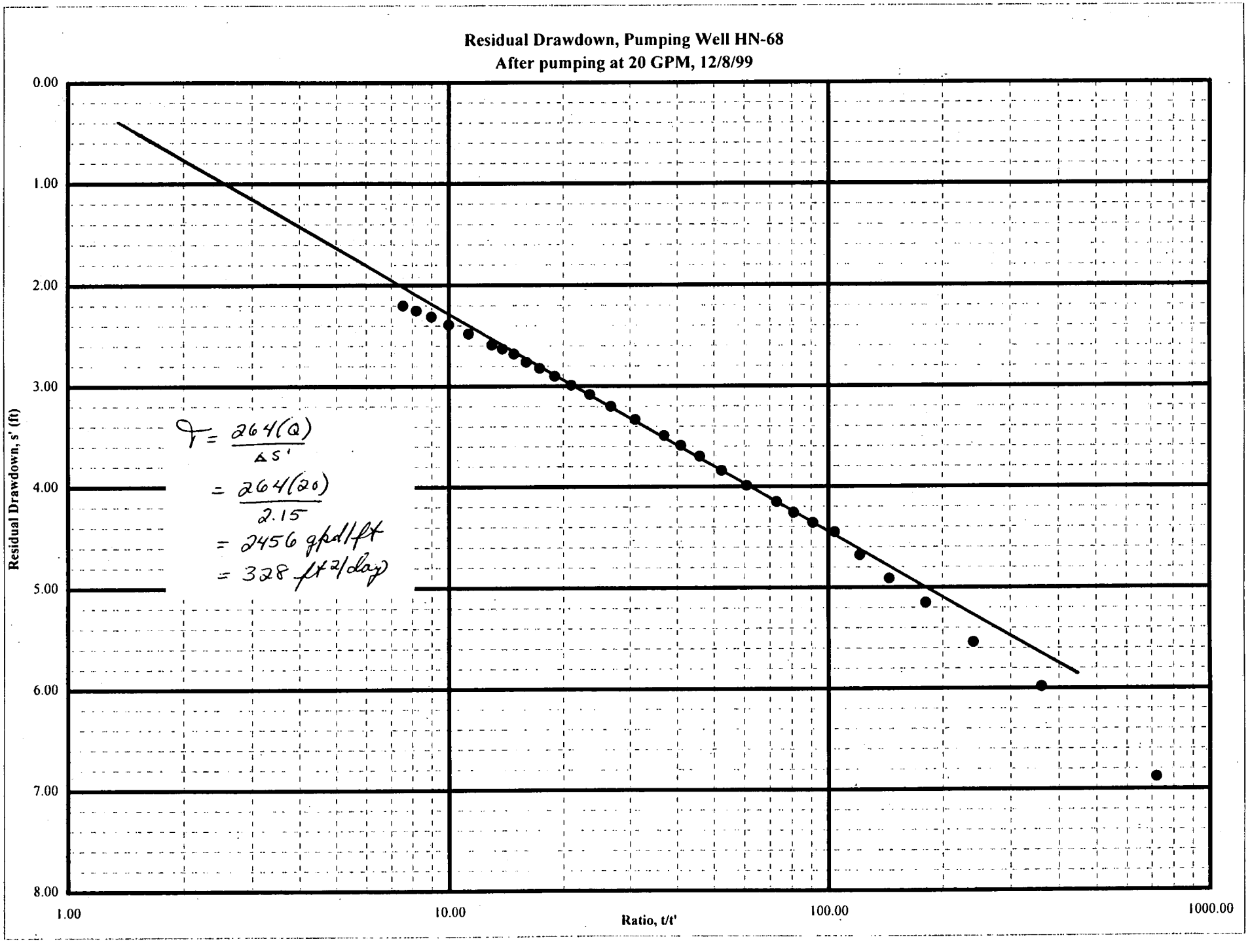
Well ID: 14N 14I
Measuring Point:
Elevation:
Distance from Pumping Well (r, feet): 734'
Pumping Rate (Q):

SHEET 1 of 1

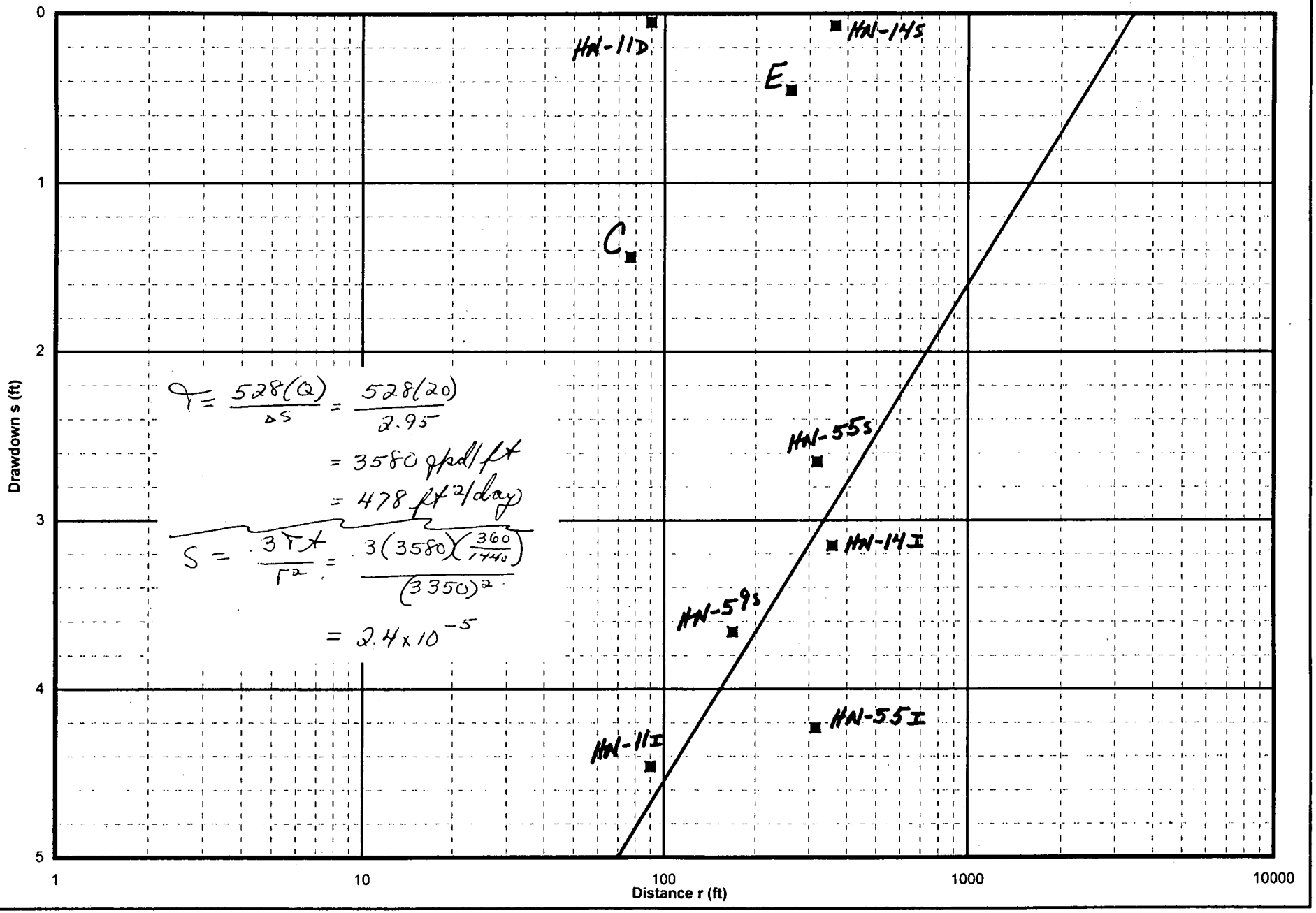
DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t, min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
	820	I			12.83				
	839	I			12.62				
	921		21		12.69				
	944		44		12.75				
	1002		62		12.79				
	1119				12.87				
	12:15				12.91				
	13:03				12.94	1.28			
	14:03				12.98				
	1502				13.00				
	1540				13.00				


Time-Drawdown for Pumping Well HN-68
Rate = 20 GPM, 12/8/99
Drawdown (ft)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
0.1
1
10
100
1000
Time,t (min)
~20GPM
15 GPM
20 GPM
Recovery


Time-Drawdown for Pumping Well HN-68
Rate = 20 GPM, 12/8/99
Drawdown (ft)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
0
60
120
180
240
300
360
420
480
Time,t (min)
Recovery


Residual Drawdown, Pumping Well HN-68
After pumping at 20 GPM, 12/8/99
Residual Drawdown, s' (ft)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
1.00
10.00
100.00
1000.00
Ratio, t/t'
T = 264(Q) / Δs'
= 264(20) / 2.15
= 2456 gpd/ft
= 328 ft²/day

Distance-Drawdown Plot
Yield Test at HN-68, Dec. 8, 1999
Rate = 20 gpm



$$T = \frac{528(Q)}{\Delta s} = \frac{528(20)}{2.95}$$

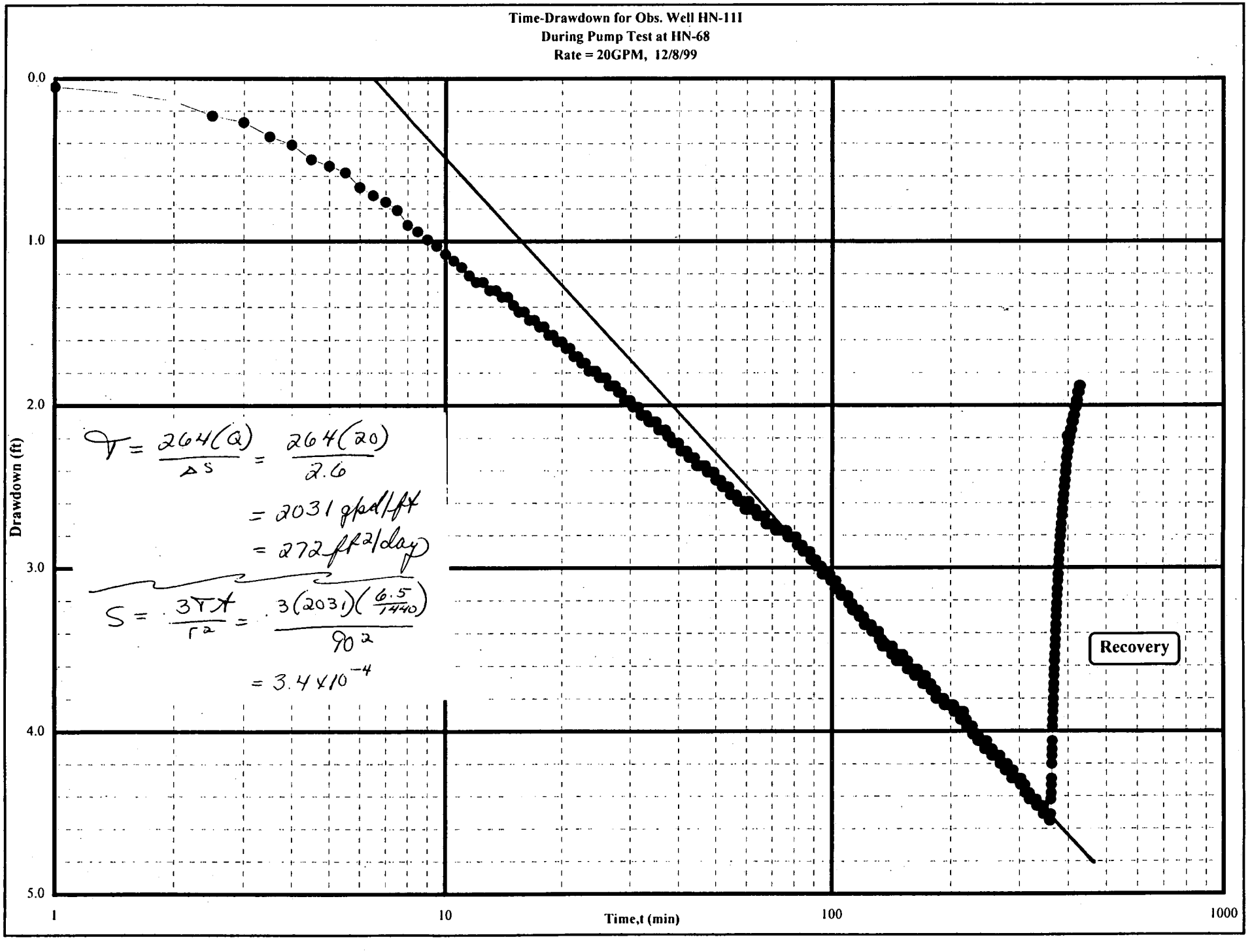
$$= 3580 \text{ gpd/ft}$$

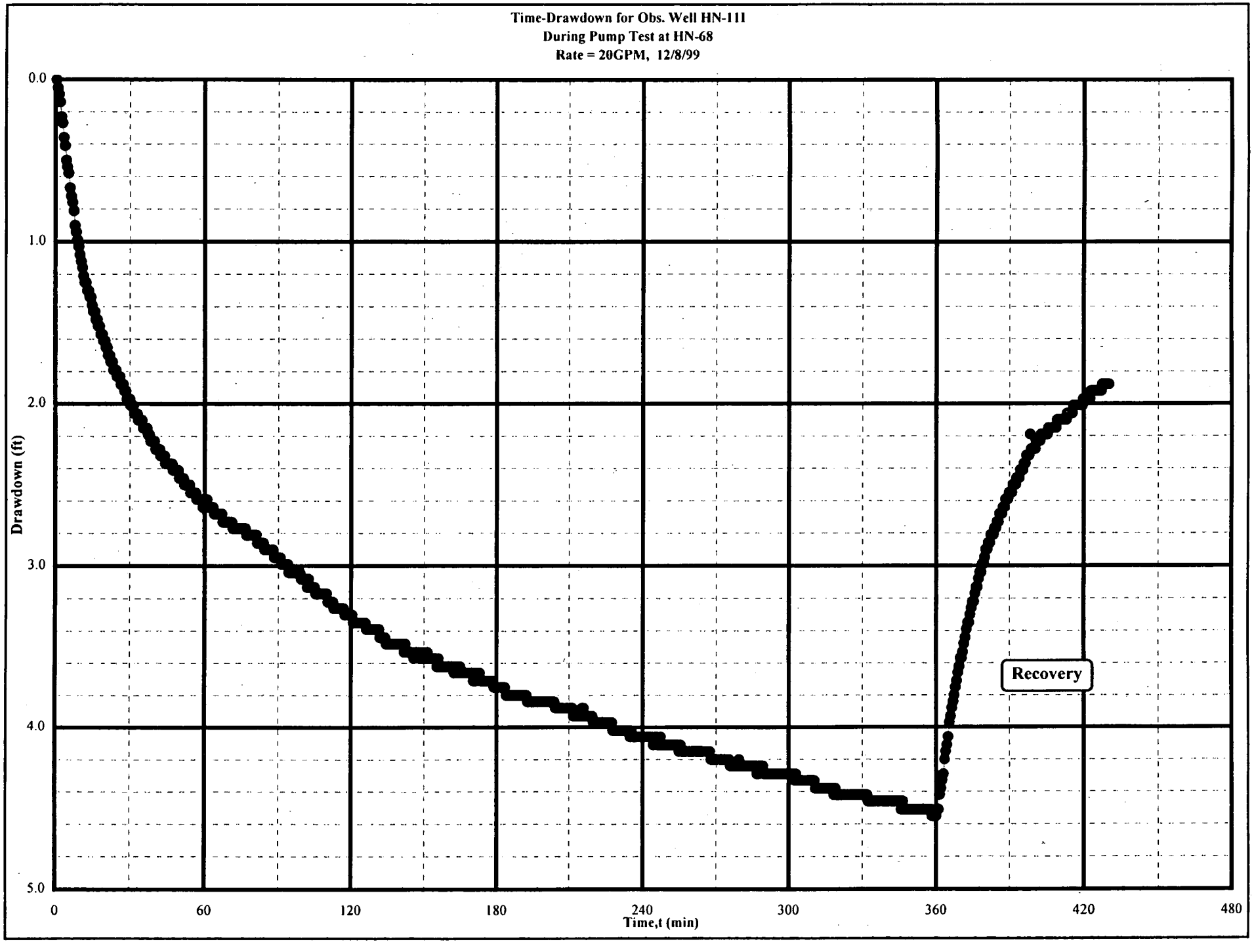
$$= 478 \text{ ft}^2/\text{day}$$

$$S = \frac{3Tt}{r^2} = \frac{3(3580)\left(\frac{360}{1440}\right)}{(3350)^2}$$

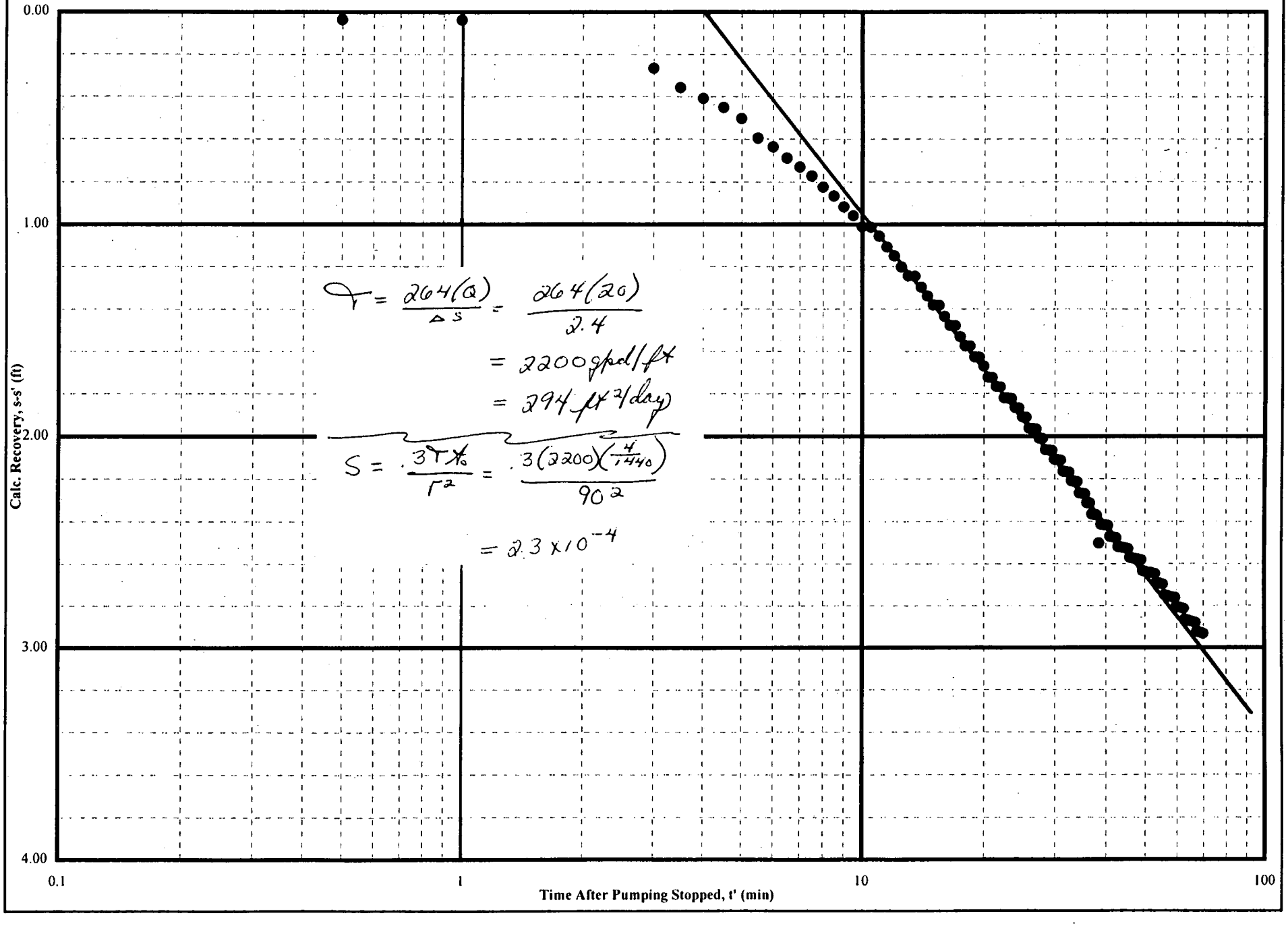
$$= 2.4 \times 10^{-5}$$

Yield Test at Area A:HN-68 12/8/9		
Well	**Distance (r)**	**Max. DD (ft)**
C	76.8	1.44
HN-11D	90	0.05
HN-11I	90	4.46
HN-59S	168.3	3.66
E	261.5	0.45
HN-55I	315.5	4.23
HN-55S	318.3	2.65
HN-14I	357.5	3.15
HN-14S	364.5	0.07


Time-Drawdown for Obs. Well HN-11I
During Pump Test at HN-68
Rate = 20GPM, 12/8/99
Drawdown (ft)
0.0
1.0
2.0
3.0
4.0
5.0
1
10
100
1000
Time,t (min)
Recovery
$T = \frac{264(Q)}{\Delta s} = \frac{264(20)}{2.6}$
$= 2031$ gpd/ft
$= 272$ ft²/day
$S = \frac{3Tt}{r^2} = \frac{3(2031)(\frac{6.5}{1440})}{90^2}$
$= 3.4 \times 10^{-4}$


Time-Drawdown for Obs. Well HN-111
During Pump Test at HN-68
Rate = 20GPM, 12/8/99
Drawdown (ft)
0.0
1.0
2.0
3.0
4.0
5.0
0
60
120
180
240
300
360
420
480
Time,t (min)
Recovery

Calculated Recovery Plot for Observation Well HN-111
Yield Test at HN-68, 12/8/99



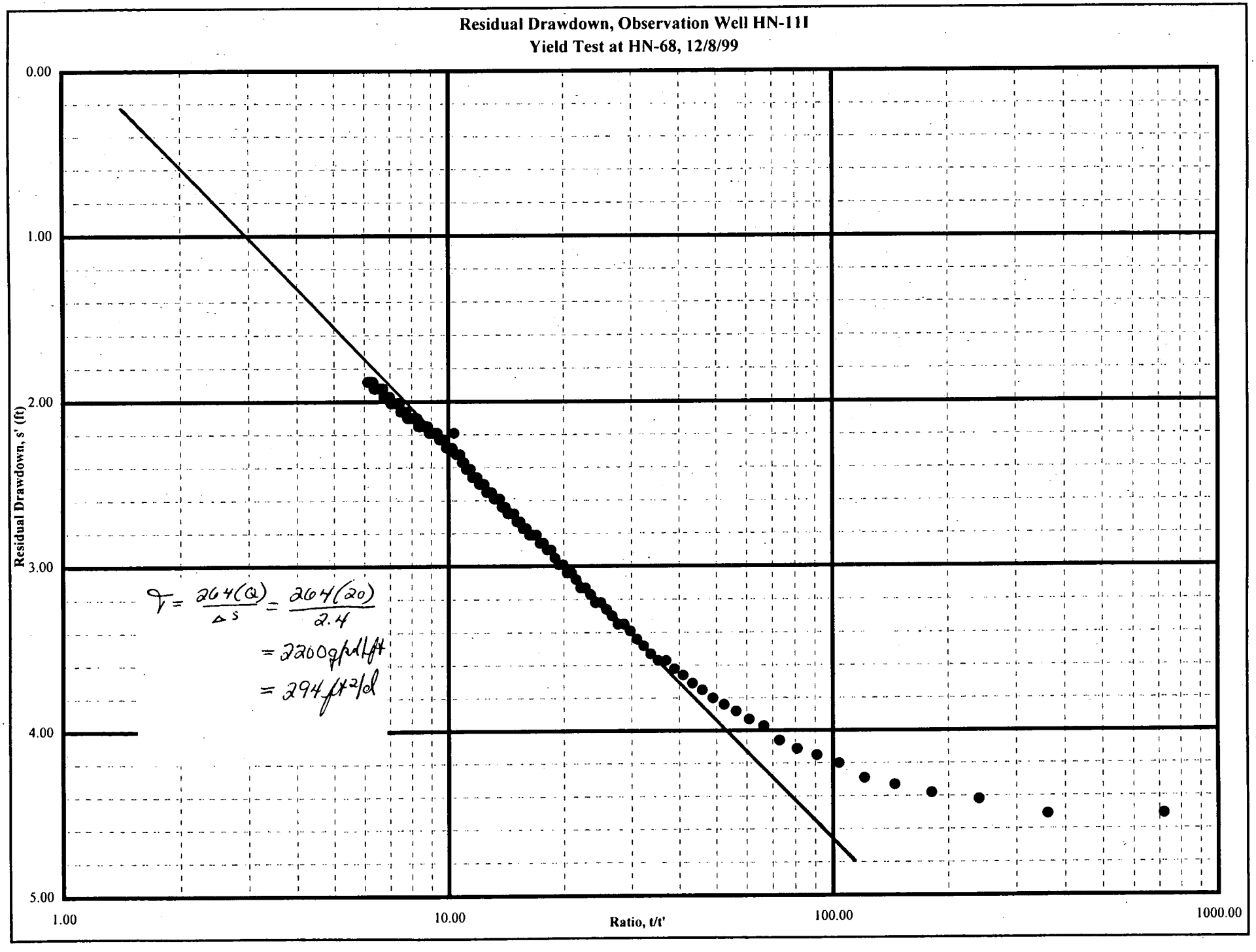
$$T = \frac{264(Q)}{\Delta s} = \frac{264(20)}{2.4}$$

$$= 2200 \text{ gpd/ft}$$

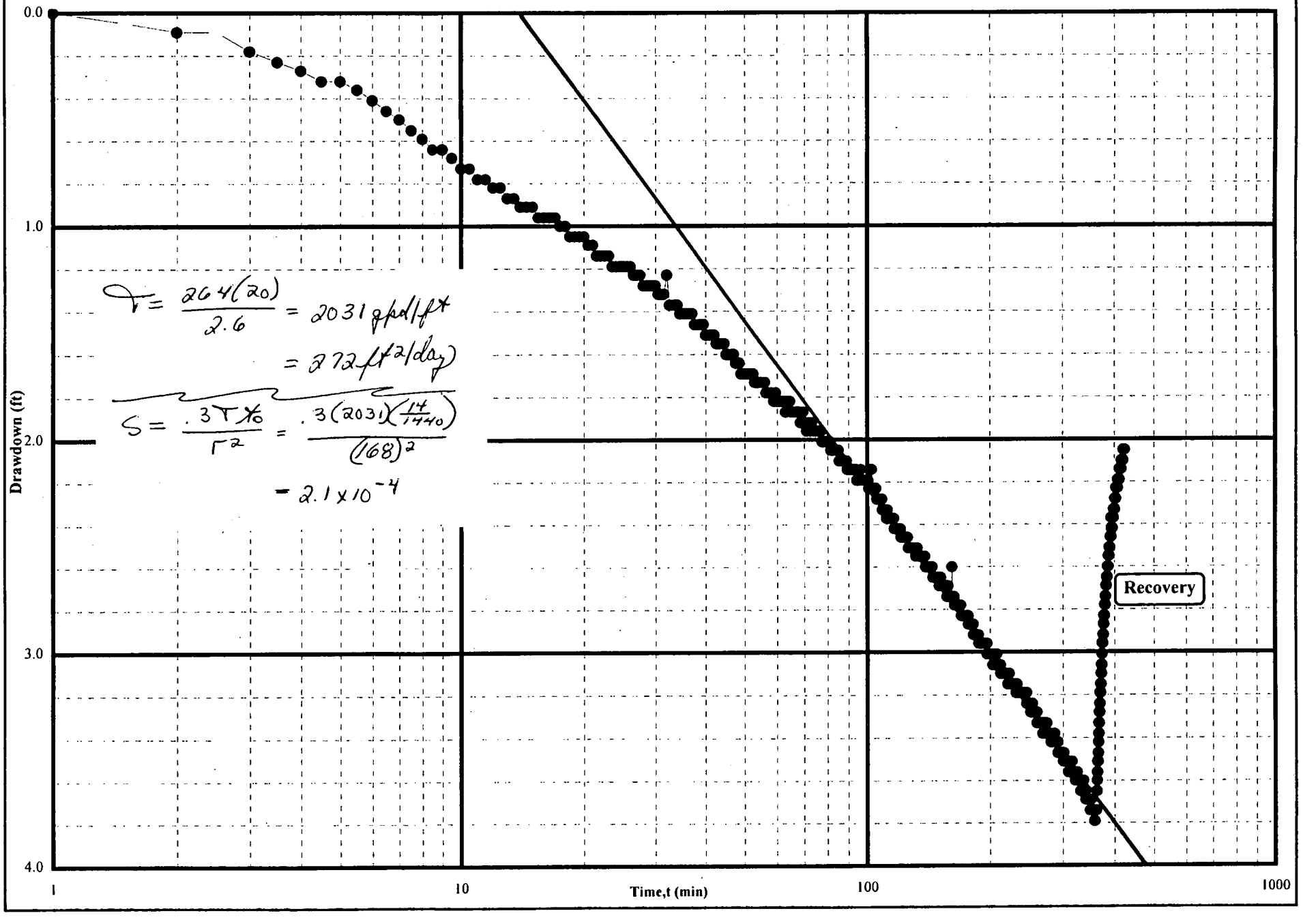
$$= 294 \text{ ft}^2/\text{day}$$

$$S = \frac{3Tt_0}{r^2} = \frac{3(2200)\left(\frac{4}{1440}\right)}{90^2}$$

$$= 2.3 \times 10^{-4}$$


Residual Drawdown, Observation Well HN-11I
Yield Test at HN-68, 12/8/99
Residual Drawdown, s' (ft)
0.00
1.00
2.00
3.00
4.00
5.00
1.00
10.00
100.00
1000.00
Ratio, t/t'
T = 264(Q)/Δs = 264(20)/2.4
= 2200 gpd/ft
= 294 ft²/d

Time-Drawdown for Obs. Well HN-59s
During Pump Test at HN-68
Rate = 20GPM, 12/8/99

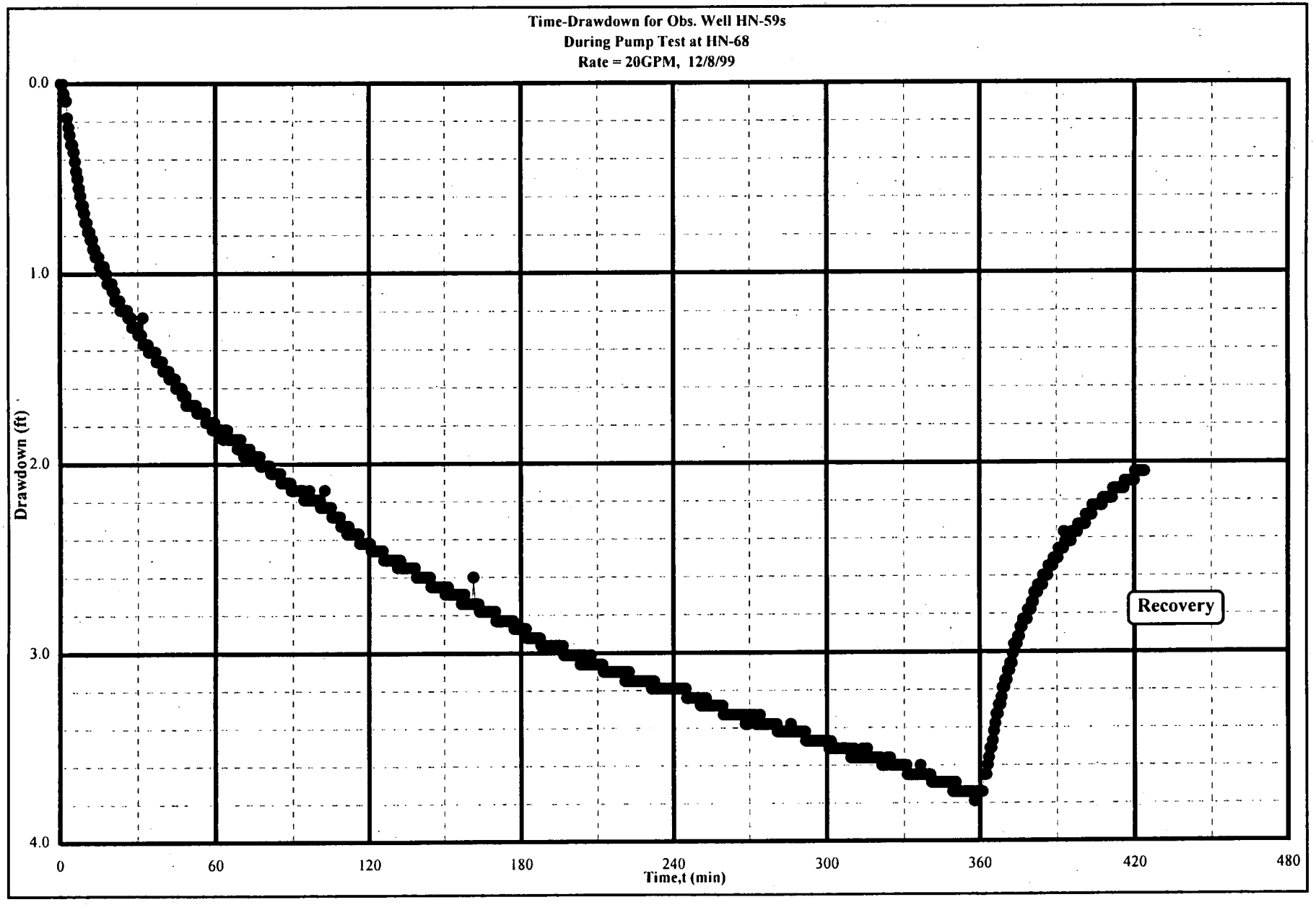


$$T = \frac{264(20)}{2.6} = 2031 \text{ gpd/ft}$$

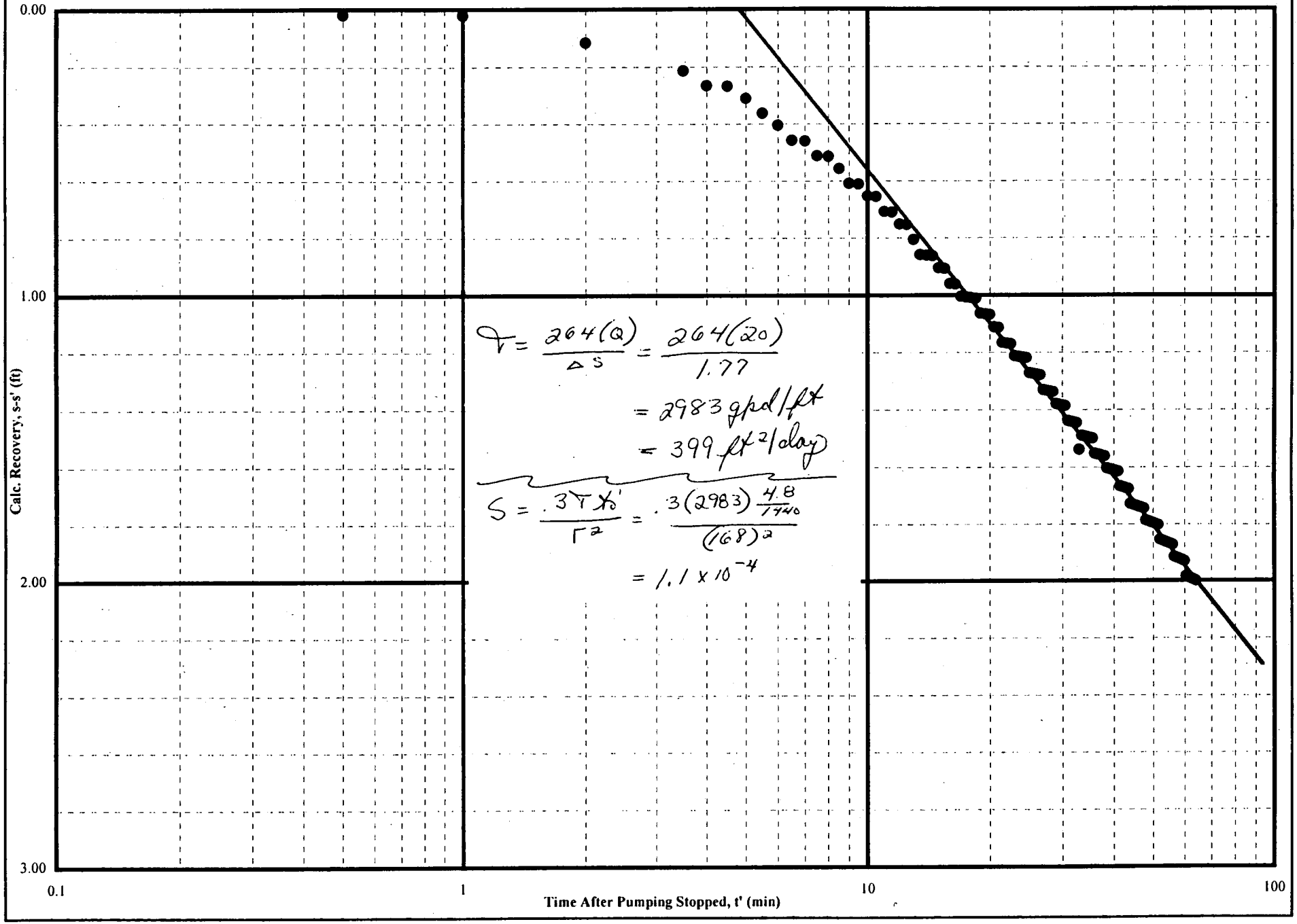
$$= 272 \text{ ft}^2/\text{day}$$

$$S = \frac{.3 T t_0}{r^2} = \frac{.3(2031)\left(\frac{14}{1440}\right)}{(168)^2}$$

$$= 2.1 \times 10^{-4}$$


Time-Drawdown for Obs. Well HN-59s
During Pump Test at HN-68
Rate = 20GPM, 12/8/99
Drawdown (ft)
0.0
1.0
2.0
3.0
4.0
0
60
120
180
240
300
360
420
480
Time,t (min)
Recovery

Calculated Recovery Plot for Observation Well HN-59s
Yield Test at HN-68, 12/8/99



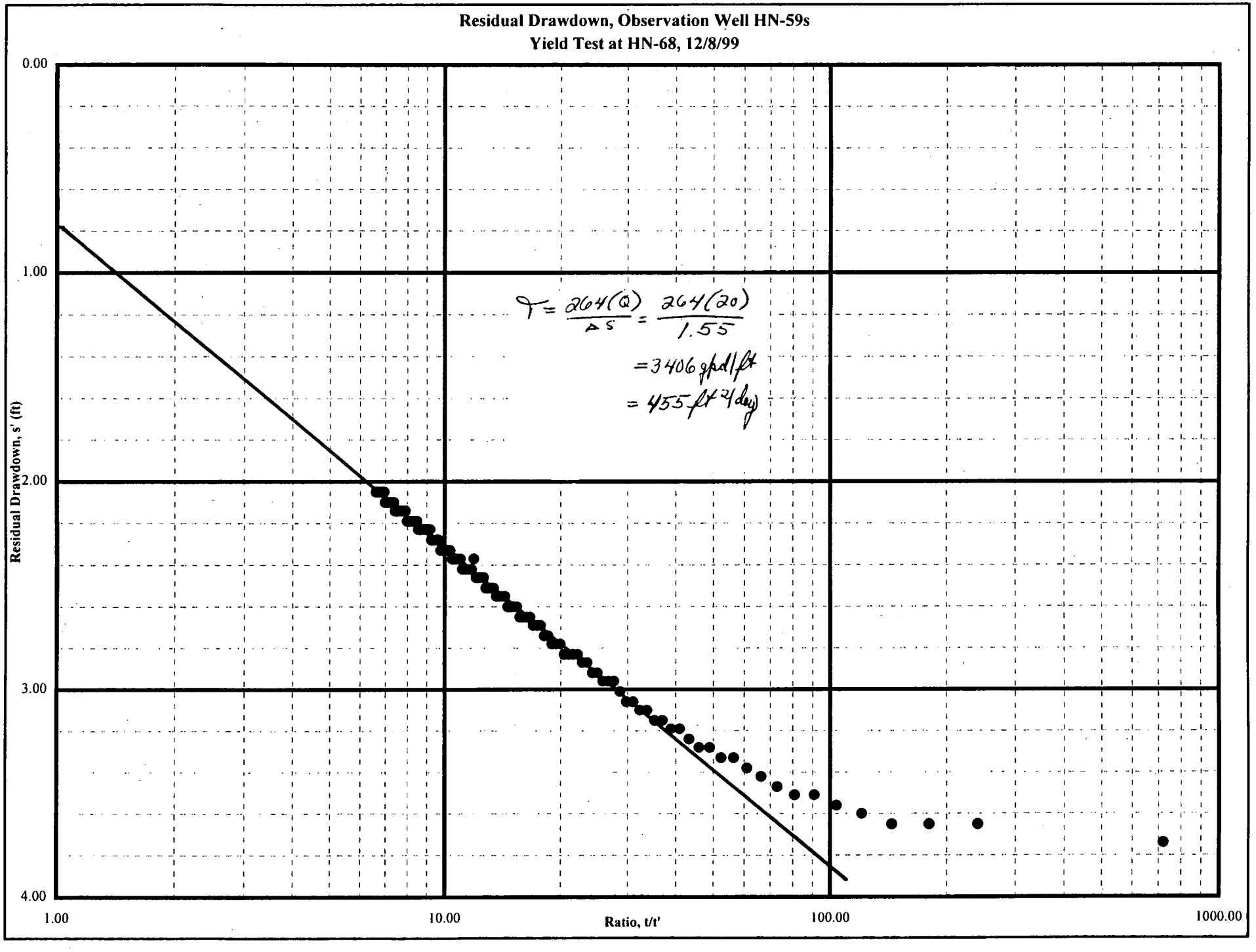
$$T = \frac{264(Q)}{\Delta s} = \frac{264(20)}{1.77}$$

$$= 2983 \text{ gpd/ft}$$

$$= 399 \text{ ft}^2/\text{day}$$

$$S = \frac{.3 T x_0'}{r^2} = \frac{.3(2983)\frac{4.8}{1440}}{(168)^2}$$

$$= 1.1 \times 10^{-4}$$


Residual Drawdown, Observation Well HN-59s
Yield Test at HN-68, 12/8/99
0.00
1.00
2.00
3.00
4.00
Residual Drawdown, s' (ft)
1.00
10.00
100.00
1000.00
Ratio, t/t'
T = 264(Q)/Δs = 264(20)/1.55
= 3406 gpd/ft
= 455 ft²/day

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET 1 of 3

Date(s) of Test: 12/8/99
Client: NAVY
Project: AREA A OFF-SITE
Remarks:

Well ID: HN-68
Measuring Point: TOC
Elevation:
Distance from Pumping Well (r, feet): —
Pumping Rate (Q): 20

FID 2hrs

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t', min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	Flow Rate	REMARKS
12/8	0759				21.81					
	0818				21.93					
	0832	0			21.93					
		.5			23.01					
	0833	1			24.05				20 gpm	
		1.5			24.70					
	0834	2			25.31					
		2.5			25.62					
	0835	3			25.95					
		3.5			26.13				24 gpm	
	0836	4			26.37					
	0836.5	4.5			26.61					
	0837.0	5			26.75					
	0838	6			27.02					
	0839	7			27.23					
	0840	8			27.31					
	0841	9			27.36					
	0842	10			27.15				Slow pump rate	
	0844	12			26.99				15 gpm	
	0846	14			26.95				Bump 20 gpm	
	0848	16			26.88					
	0850	18			26.78				20 gpm	
	0852	20			26.82					
	0854	22			26.92					
	0856	24			26.97					
	0858	26			27.03					
	0900	28			27.07				20 gpm	
	0902	30			27.15					
	0907	35			27.25					
	0912	40			27.35					
	0917	45			27.42					
	0922	50			27.51					
	0927	55			27.60				18-20 gpm	
	0932	60			27.66					0940 - FID 12 ppm Headspace
	1002	90			27.97					
	1032	120			28.21				20 gpm	

FOSTER WHEELER ENVIRONMENTAL CORPORATION
PUMPING TEST DATA

SHEET 2 of 3

Date(s) of Test: 12/8/99
Client: USNAVY
Project: WAREWINSTOR
Remarks:

Well ID: HN-68
Measuring Point:
Elevation:
Distance from Pumping Well (r, feet):
Pumping Rate (Q):

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t, min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
12.8	1102	150			29.04				RATE = 20 gpm
	1132	180			29.25				SAMPLE @ 1110 FID=4.5 ppm
	1202	210			29.43				WATER: CLEAR,
	1232	240			29.63				20 GPM. TOOK GC SAMPLE
	1302	270			29.78				"
	1332	300			29.88				1320 SAMPLE FID=22 ppm
	1402	330			30.01				20 gpm
	1432	360	0		30.15				1430 LAB/GC FID SAMPLED 1430=28 ppm
			0.5		29.71				WATER: CLEAR
	1433		1.0		27.81				STOP PUMPING @ 1432
			1.5		27.37				
	1434		2.0		26.98				
			2.5		26.74				
	1435		3.0		26.51				
			3.5		26.32				
	1436		4.0		26.19				
			4.5		26.09				
	1437		5.0		25.98				
	1438		6		25.82				
	1439		7		25.67				
	1440		8		25.53				
	1441		9		25.42				
	1442		10		25.32				
	1444		12		25.16				
	1446		14		25.03				
	1448		16		24.91				
	1450		18		24.82				
	1452		20		24.73				
	1454		22		24.65				
	1456		24		24.59				
	1458		26		24.51				
	1500		28		24.46				
	1502		30		24.42				
	1507		35		24.31				
	1512		40		24.22				
	1517		45		24.14				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET 3 of 3

Date(s) of Test: 12/8/99
Client: US NAVY
Project: WARMINSTER
Remarks:

Well ID: HN 68
Measuring Point:
Elevation:
Distance from Pumping Well (r, feet):
Pumping Rate (Q):

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t, min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
		1522	50	?	24.08				
		1527	55		24.03				
		1532	60		23.98				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET ___ of ___

Date(s) of Test: 12/8/99

Client: _____

Project: _____

Remarks: _____

Well ID: H21-11I *

Measuring Point: _____ Elevation: _____

Distance from Pumping Well (r, feet): 90'

Pumping Rate (Q): _____

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t', min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
12/8/99	0758	0			24.15				To Well 26.5'
12/8/99	0818	0			24.20				T- Well 63.5'
12/8/99	0840	10			30.18				90.0
12/8/99	0857				31.09				
12/8/99	0933				31.90				
	1004				32.50				
	1103				32.81				
	1207				33.20				
	1312				33.45				
	1402				33.66				
	1438				33.09				
	1454				32.03				
	1510				31.48				
	1526				32.23				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET ___ of ___

Date(s) of Test: 12/8/99

Client: _____

Project: _____

Remarks: _____

Well ID: HN-59s *

Measuring Point: _____ Elevation: _____

Distance from Pumping Well (r, feet): 168.31

Pumping Rate (Q): _____

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t', min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
12/8/99	0805	0			21.51				
12/8/99	0825	0			21.59				
12/8/99	0832	2			21.45				
12/8/99	0845	15			22.44				
12/8/99	0850				22.38				
12/8/99	0904				22.91				
12/8/99	0909				23.00				
	0941				23.46				
	0945				23.50				
	1011				23.75				
	1014				23.78				
	1109				24.40				
	1113				24.36				
	~~[illegible]~~				~~[illegible]~~				
	1213				24.70				
	1218				24.72				
	1318				25.00				
	1322				25.02				
	1408				25.22				
	1412				25.23				
	1433				25.25				
	1448				24.43				
	1501				24.05				
	1505			23.98	~~[illegible]~~				
	1517				23.76				
	1520				23.72				

68.2 − 21.51

60.0 25.25

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

Date(s) of Test: 12/8/99
Client:
Project:
Remarks:

Well ID: OW-A2 *
Measuring Point:
Elevation:
Distance from Pumping Well (r, feet): 149'
Pumping Rate (Q):

SHEET ___ of ___

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t, min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
12/8/99	0753	0			31.73				To well 14' (caution)
12/8/99	0813	20			31.84				To well 13
12/8/99	0857	74			31.98				122
12/8/99	0954				32.06				
12/8/99	0929				32.25				149
	1002				32.41				
	1101				31.51				
	1207				30.75				
	1310				30.29				
	1400				30.05				
	1441				29.92				
	1456				29.86				
	1512				29.80				
	1529				29.75				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

Date(s) of Test: 12/8/99

Client:

Project:

Remarks:

Well ID: E *

Measuring Point:

Elevation:

Distance from Pumping Well (r, feet): 261.5'

Pumping Rate (Q):

SHEET ___ of ___

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t, min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
12/8/99	0751	0			22.47				To Fence = 200' (Pipes)
12/8/99	0815	0			22.44				To Well = 61.5'
12/8/99	0836	6			22.55				
12/8/99	0852				22.60				261.5'
12/8/99	0928				22.71				
	1001				22.80				
	1100				22.90				
	1204				22.95				
	1308				22.99				
	1358			22.99	~~22.90~~				
	1442				22.99				
	1457				23.00				
	1513				22.98				
	1530				22.96				

13

0330

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET ___ of ___

Date(s) of Test: 12/8/99

Client: _____

Project: _____

Remarks: _____

Well ID: HN-59I

Measuring Point: _____ Elevation: _____

Distance from Pumping Well (r, feet): 168.3'

Pumping Rate (Q): _____

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t', min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
12/8/99	0804	0			37.55				
12/8/99	0813				37.47				
12/8/99	0831	1			37.40				
12/8/99	0833	3			37.40				
12/8/99	0844	14			37.36				
12/8/99	0849				37.37				
12/8/99	0903				37.26				
12/8/99	0908				37.25				
12/8/99	0940				37.10				
	0945				37.08				
	1009				36.97				
	1015			36.95	[illegible]				
	1108				36.73				
	1114				36.70				
	1213			36.52	[illegible]				
	1218				36.50				
	1317				36.29				
	1321				36.27				
	1407				36.12				
	1412				36.12				
	1434				36.04				
	1449			35.99	[illegible]				
	1500				35.97				
	1506			35.92	[illegible]				
	1516				35.80				
	1521				35.57				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET ___ of ___

Date(s) of Test: 12/8/99
Client: _____
Project: _____
Remarks: _____

Well ID: HN-145
Measuring Point: _____ Elevation: _____
Distance from Pumping Well (r, feet): 364.5'
Pumping Rate (Q): _____

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t', min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
12/8/99	0807	0			15.02				
12/8/99	0827	0			15.02				163.5
12/8/99	0847	17			15.03				
12/8/99	0906				15.01				
	0943				15.05				+201
	1013				15.04				
	1112				15.05				
	1216				15.05				
	1320				15.05				
	1420				15.04				
	1432				15.05				364.5
	1446				15.05				
	1502				15.06				
	1518				15.05				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET ___ of ___

Date(s) of Test: 12/8/99

Client: _____

Project: _____

Remarks: _____

Well ID: HN-14I

Measuring Point: _____ Elevation: _____

Distance from Pumping Well (r, feet): 357.51

Pumping Rate (Q): _____

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t', min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
12/8/99	0806	0			15.66				
12/8/99	0828	0			15.70				
12/8/99	0847	17			16.15				
12/8/99	0905				16.61				156.5
	0945				17.13				
	1012				17.40				+201
	1117				17.91				
	1215				18.37				
	1319				18.56				357.5
	1410				18.78				
	1432				18.85				
	1446				18.52				
	1503				18.05				
	1519				17.80				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET ___ of ___

Date(s) of Test: 12/8/99

Client: _____

Project: _____

Remarks: _____

Well ID: HN-11D

Measuring Point: _____ Elevation: _____

Distance from Pumping Well (r, feet): 90'

Pumping Rate (Q): _____

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t', min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
12/8/99	0756	0			1.13				To Wall 26.5'
12/8/99	0817	0			1.15				to well 63.5'
12/8/99	0839	[illegible]			1.12				
12/8/99	0856				1.12				90.0
12/8/99	0930								
12/8/99	0932				1.15				
	1003				1.15				
	1102				1.16				
	1206				1.20				
	1311				1.19				
	1401				1.19				
	1439				1.20				
	1455				1.22				
	1511				1.22				
	1527				1.25				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET ___ of ___

Date(s) of Test: 12/8/99

Client: _____

Project: _____

Remarks: _____

Well ID: C

Measuring Point: _____ Elevation: _____

Distance from Pumping Well (r, feet): 76.8 ft

Pumping Rate (Q): _____

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t', min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
12/8/99	0759	0			26.00				To wall 15.3 ft (Pipes)
12/8/99	0819	0			26.62				To well 61.5 ft
12/8/99	0841	11			26.02				
12/8/99	0859				26.06				76.8 ft
12/8/99	0934				26.15				
	1005				26.24				
	1104				26.42				
	1209				26.53				
	1317				26.83				
	1403				27.46				
	1438				27.10				
	1457				27.15				
	1510				27.15				
	1525				27.15				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET ___ of ___

Date(s) of Test: 12/8/99

Client: _____

Project: _____

Remarks: _____

Well ID: HN-55s

Measuring Point: _____ Elevation: _____

Distance from Pumping Well (r, feet): 318.31

Pumping Rate (Q): _____

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t', min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
12/8/99	0802	0			26.45				To wall +22' (light to)
12/8/99	0821	0			26.45				+234.8'
12/8/99	0843	13			26.46				256.8
12/8/99	0902				27.01				
12/8/99	0939				27.45				
	1008				27.90				
	1107				28.29				
	1211				38.62				
									To well +61.51
	1315				28.87				
	1405			29.04					318.3
	1436				29.10				
	1450				28.73				
	1507				28.44				
	1523				28.30				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET ___ of ___

Date(s) of Test: 12/8/99

Client: _____

Project: _____

Remarks: _____

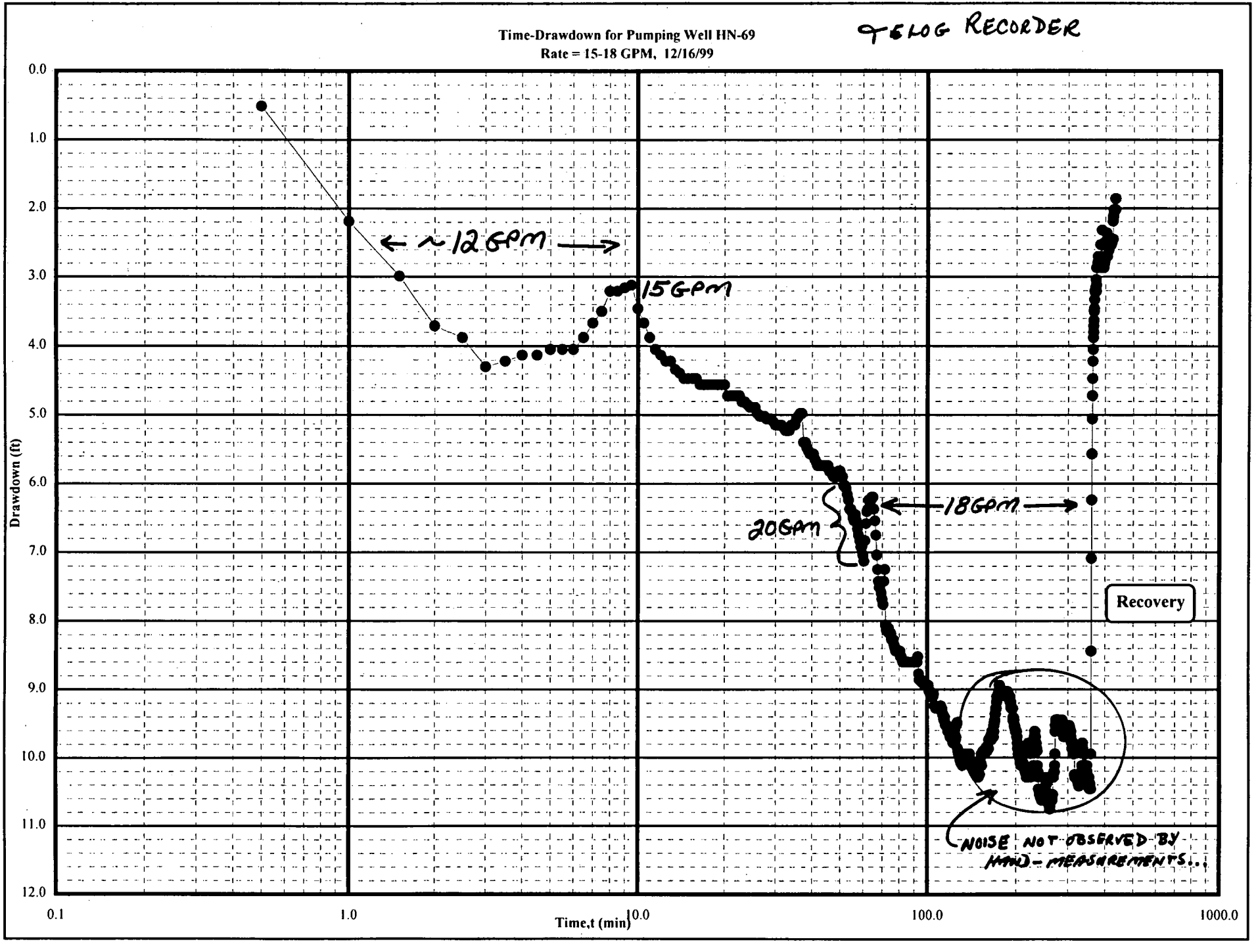
Well ID: HN-55I

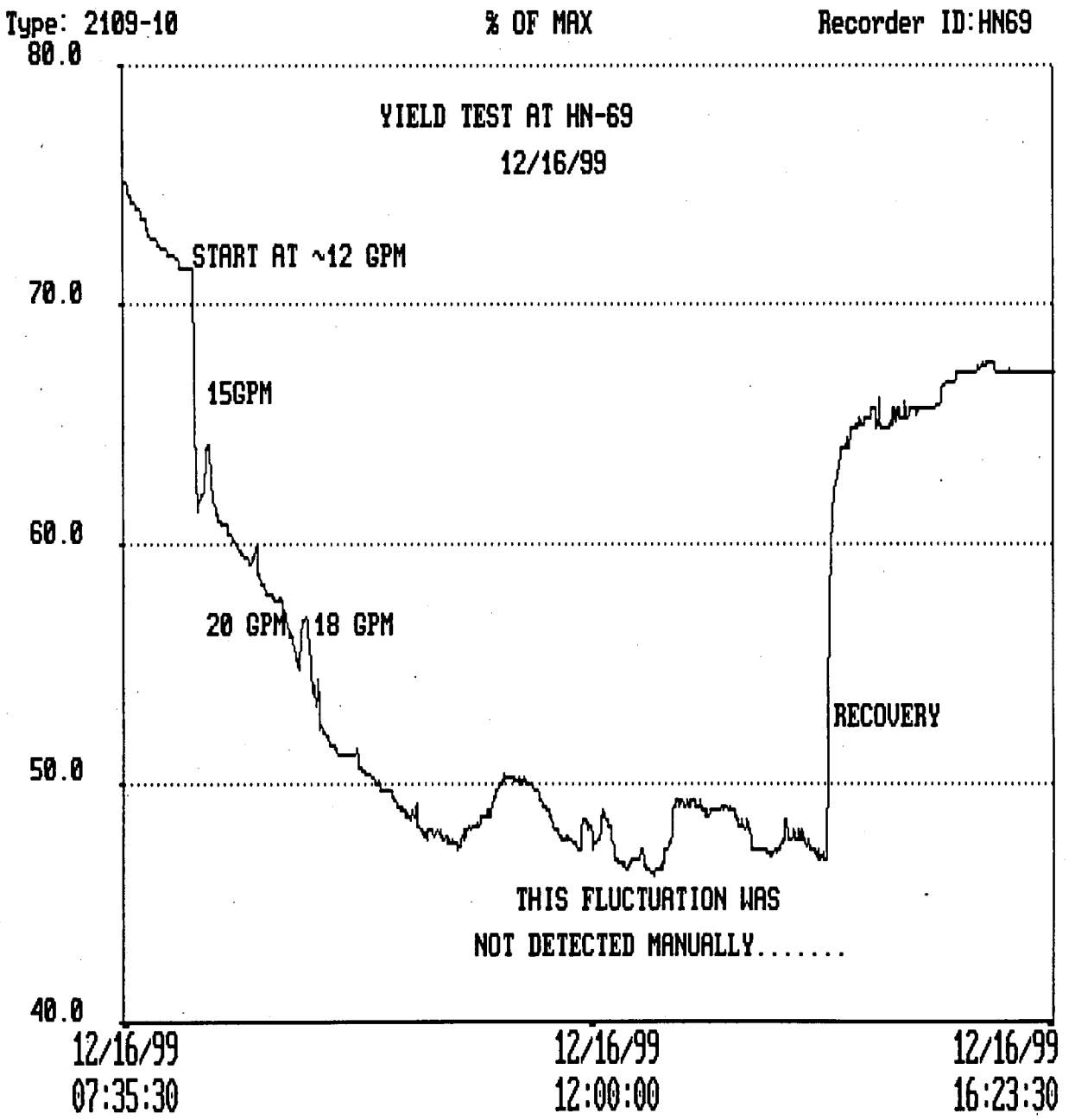
Measuring Point: _____ Elevation: _____

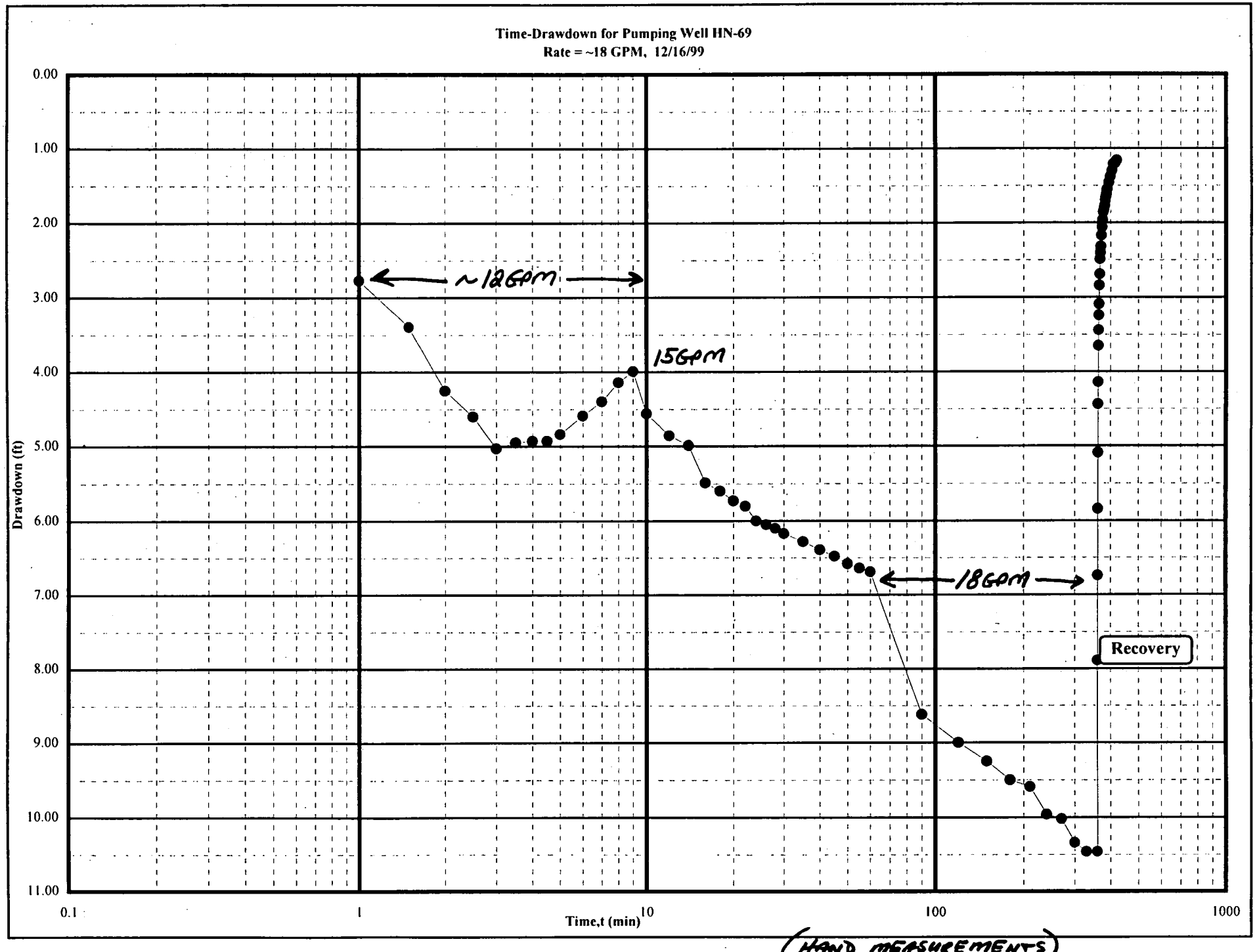
Distance from Pumping Well (r, feet): 315.5'

Pumping Rate (Q): _____

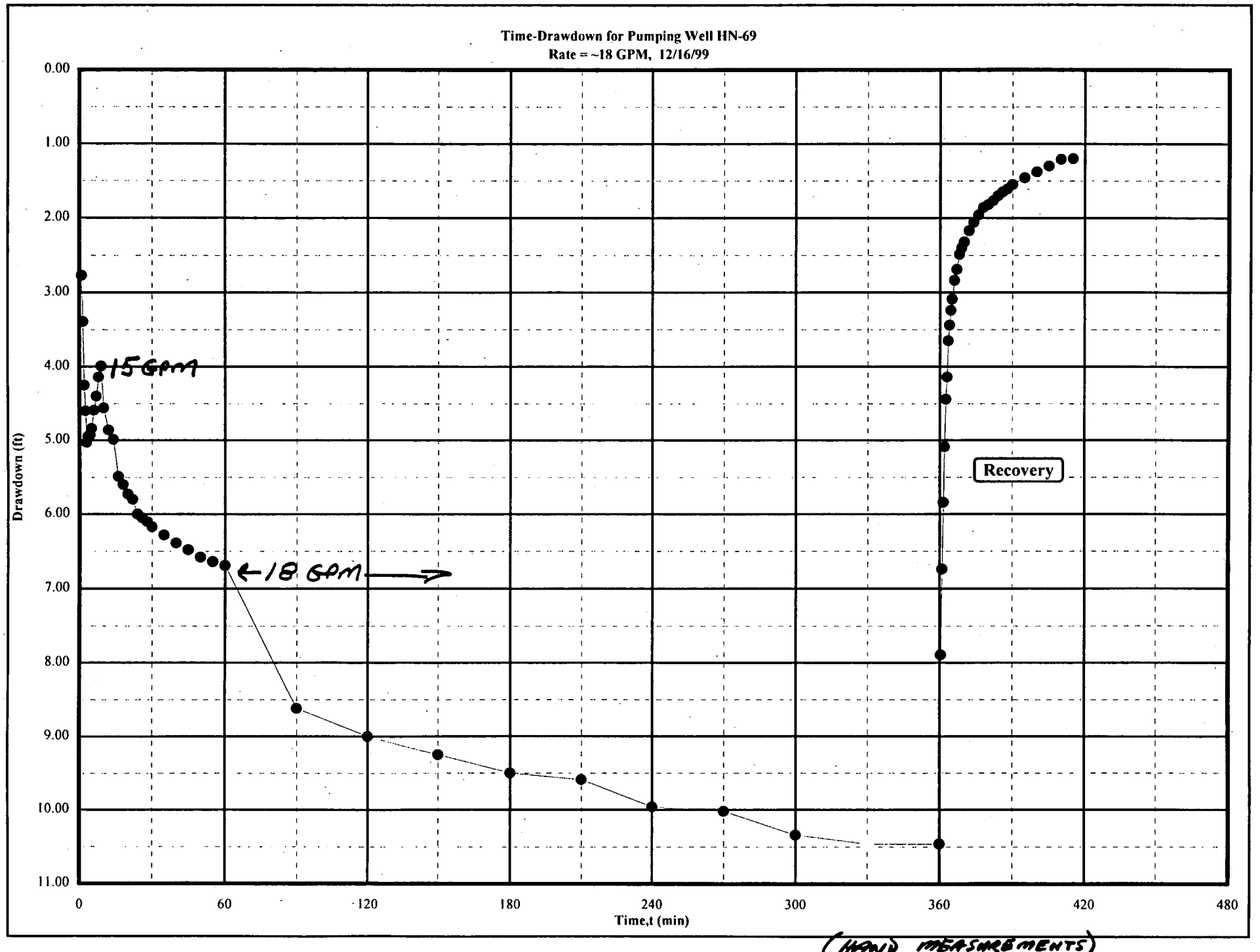
DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t, min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC RECOVERY (s-s', ft)	REMARKS
12/8/99	0801	0			28.00				
12/8/99	0820	0			28.02				+22
12/8/99	0842	12			29.29				+232
12/8/99	0901				29.50				To Wall 254'
12/8/99	0939				30.42				
	1007				30.70				
	1106				31.33				To well 61.5'
	1210				31.72				
	1315				32.03				
	1405			32.25	~~31.07~~				315.5'
	1436				31.80				
	1451				30.87				
	1508				30.44				
	1523				30.22				


Time-Drawdown for Pumping Well HN-69
Rate = 15-18 GPM, 12/16/99
TELOG RECORDER
Drawdown (ft)
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
11.0
12.0
0.1
1.0
10.0
100.0
1000.0
Time,t (min)
~12GPM
15GPM
20GPM
18GPM
Recovery
NOISE NOT OBSERVED BY HAND-MEASUREMENTS..

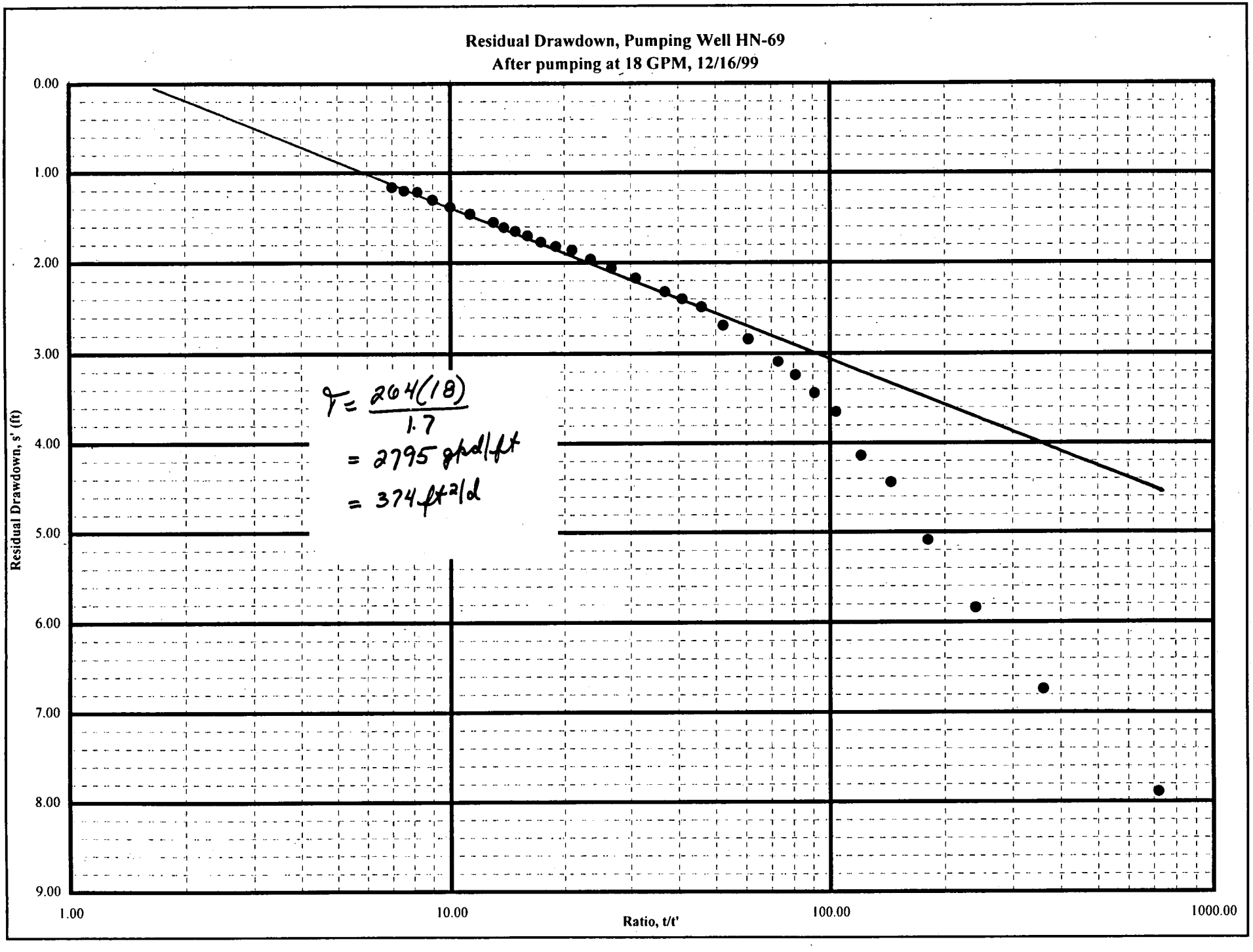

Type: 2109-10
% OF MAX
Recorder ID:HN69
80.0
70.0
60.0
50.0
40.0
YIELD TEST AT HN-69
12/16/99
START AT ~12 GPM
15GPM
20 GPM
18 GPM
RECOVERY
THIS FLUCTUATION WAS
NOT DETECTED MANUALLY.....
12/16/99
07:35:30
12/16/99
12:00:00
12/16/99
16:23:30

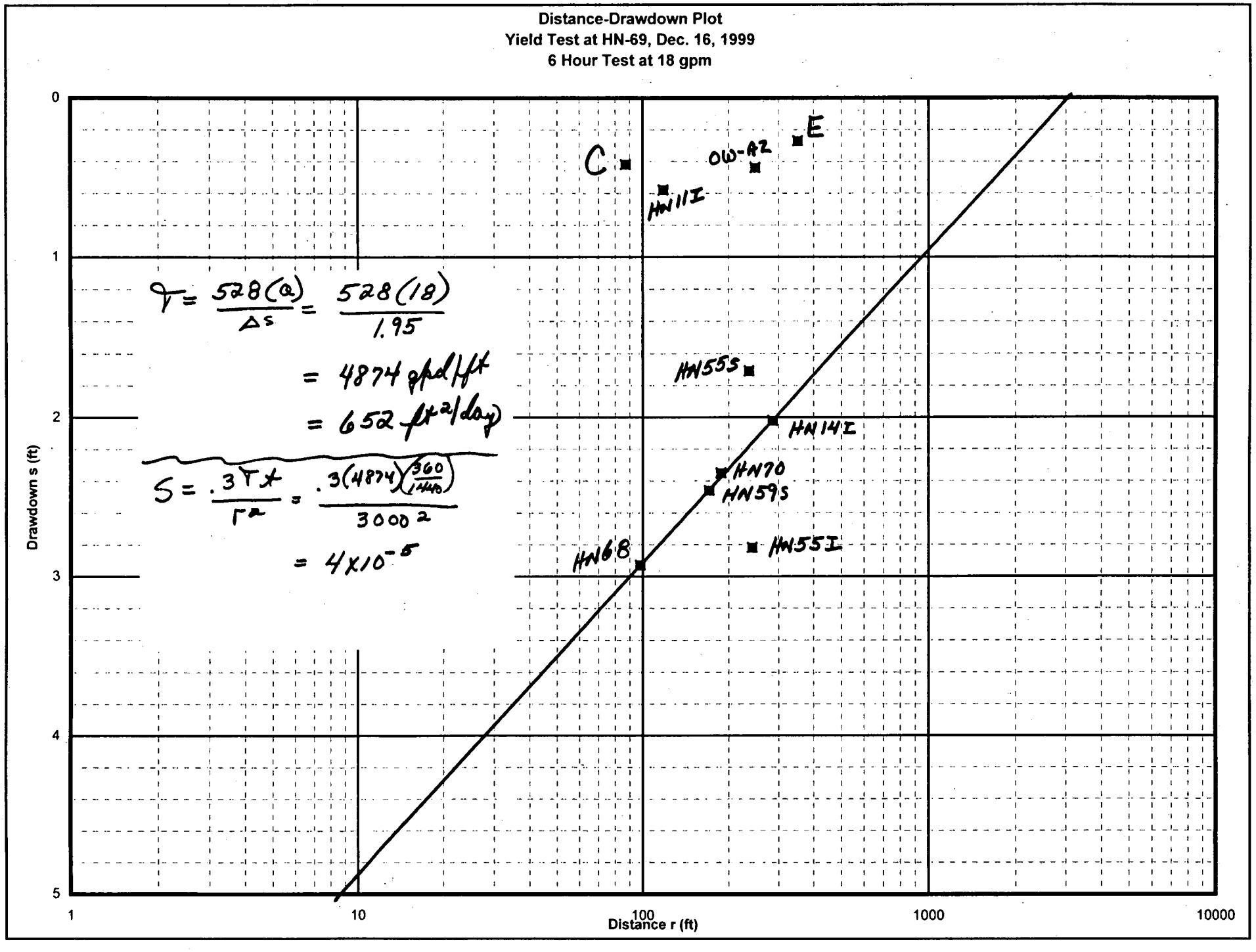


(HAND MEASUREMENTS)

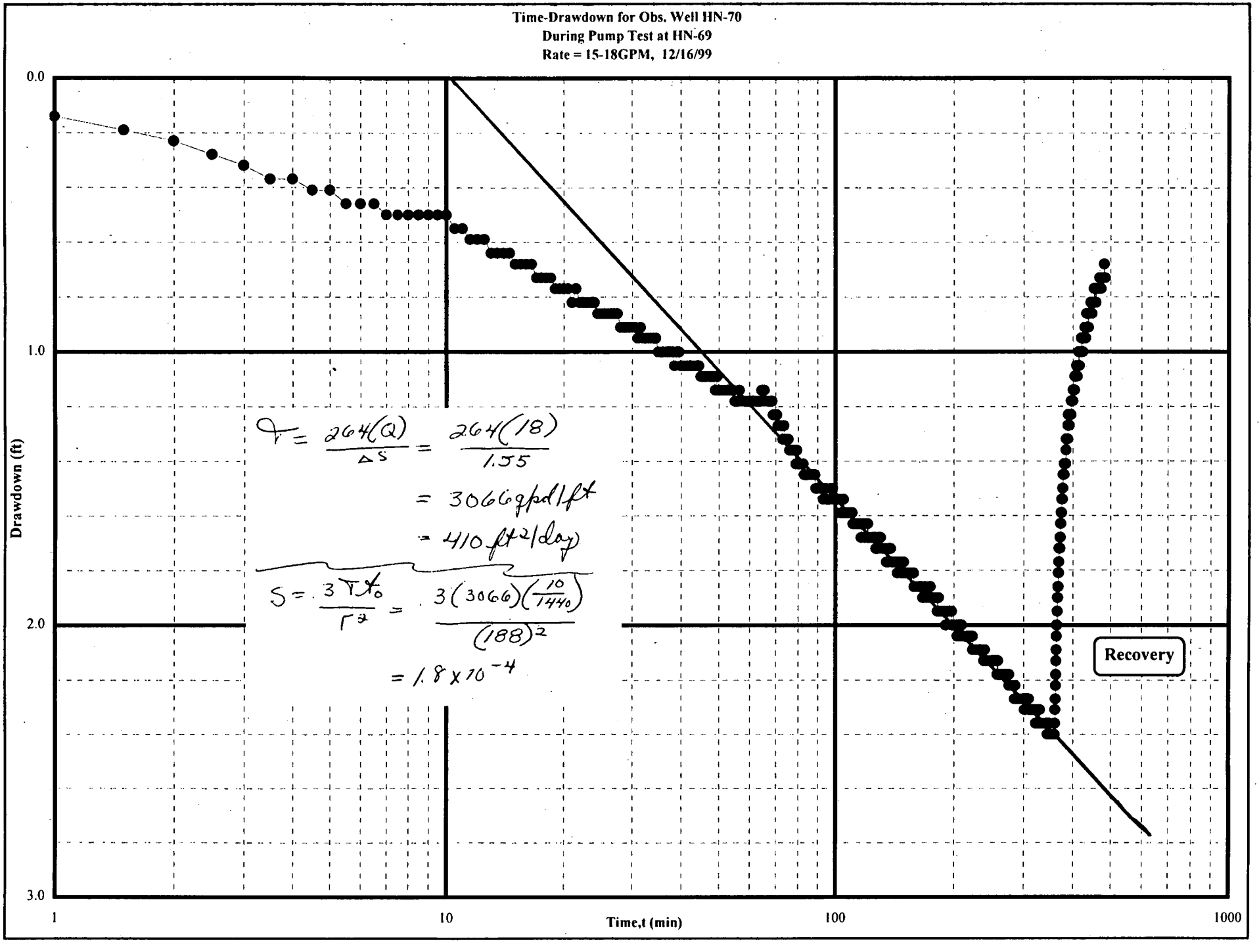


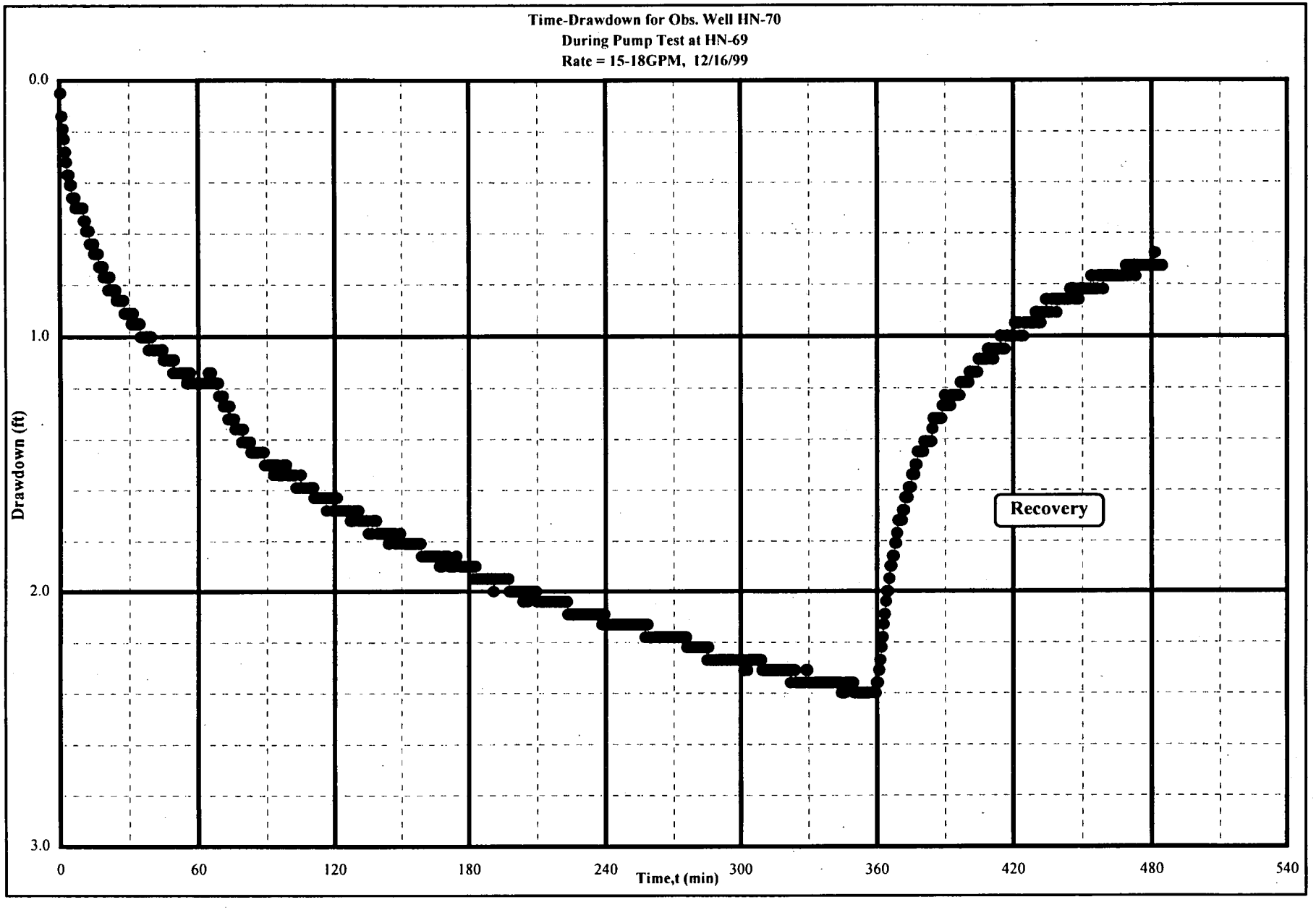
(HAND MEASUREMENTS)


Residual Drawdown, Pumping Well HN-69
After pumping at 18 GPM, 12/16/99
Residual Drawdown, s' (ft)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
1.00
10.00
100.00
1000.00
Ratio, t/t'
T = 264(18) / 1.7
= 2795 gpd/ft
= 374 ft²/d

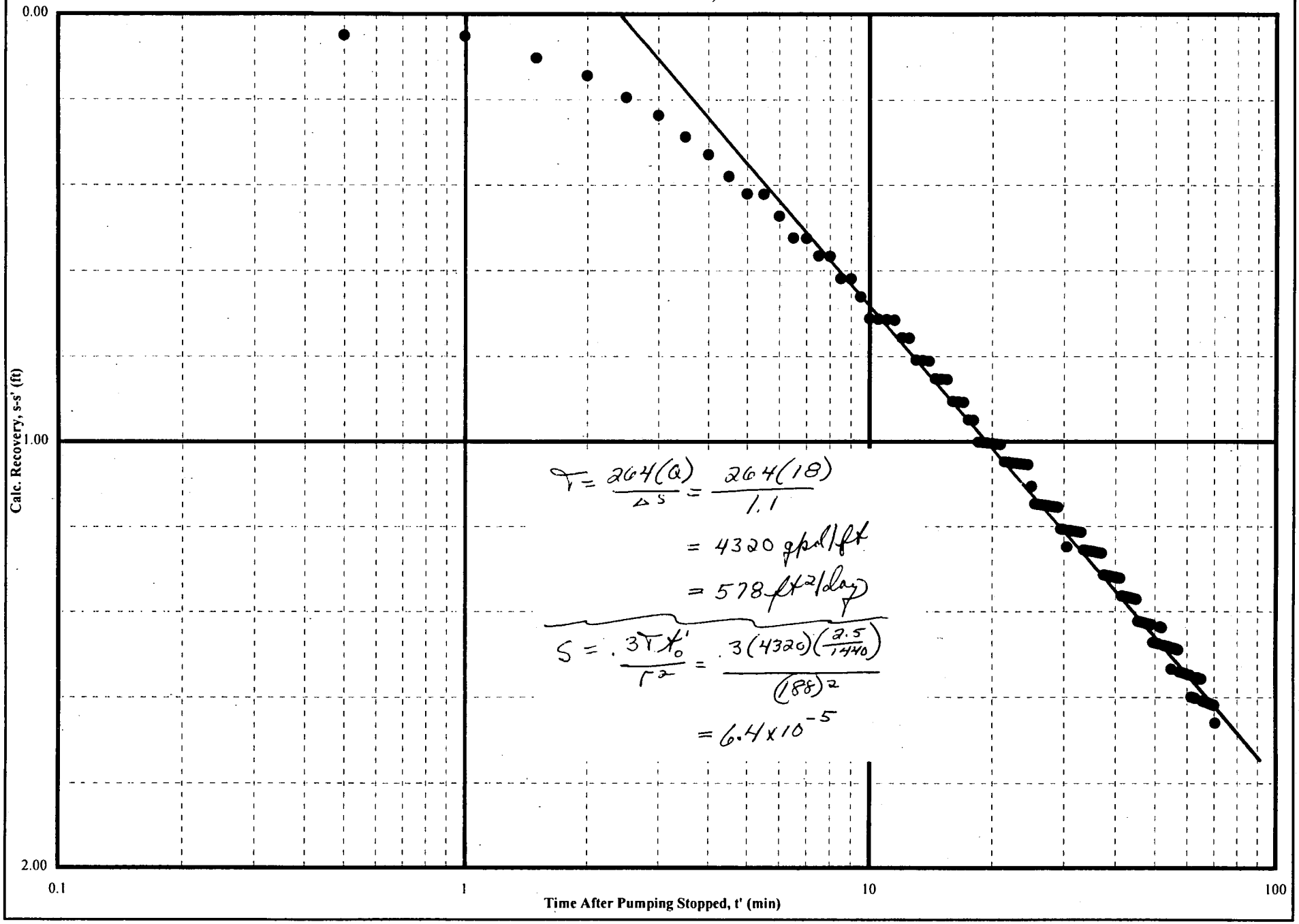

Distance-Drawdown Plot
Yield Test at HN-69, Dec. 16, 1999
6 Hour Test at 18 gpm
Drawdown s (ft)
Distance r (ft)
0
1
2
3
4
5
1
10
100
1000
10000
C
E
OW-A2
HN11I
HN55S
HN14I
HN70
HN59S
HN55I
HN68
$T = \frac{528(Q)}{\Delta s} = \frac{528(18)}{1.95}$
$= 4874$ gpd/ft
$= 652$ ft²/day
$S = \frac{.3Tt}{r^2} = \frac{.3(4874)(\frac{360}{1440})}{3000^2}$
$= 4 \times 10^{-5}$

Yield Test at Area A:HN-69 12/16/99		
Well	**Distance (r)**	**Max. DD (ft)**
C	87	0.42
HN68	98	2.93
HN-11I	118	0.58
HN-59S	171	2.46
HN70	188	2.35
HN-55S	236	1.71
HN-55I	242	2.82
OW-A2	248	0.44
HN-14I	286	2.02
E	351	0.27


Time-Drawdown for Obs. Well HN-70
During Pump Test at HN-69
Rate = 15-18GPM, 12/16/99
0.0
1.0
2.0
3.0
Drawdown (ft)
1
10
100
1000
Time,t (min)
Recovery
$T = \frac{264(Q)}{\Delta s} = \frac{264(18)}{1.55}$
$= 3066 gpd/ft$
$= 410 ft^2/day$
$S = \frac{3 T t_0}{r^2} = \frac{3(3066)\left(\frac{10}{1440}\right)}{(188)^2}$
$= 1.8 \times 10^{-4}$


Time-Drawdown for Obs. Well HN-70
During Pump Test at HN-69
Rate = 15-18GPM, 12/16/99
Drawdown (ft)
0.0
1.0
2.0
3.0
0
60
120
180
240
300
360
420
480
540
Time,t (min)
Recovery

Calculated Recovery Plot for Observati n Well HN-70
Yield Test at HN-69, 12/16/99



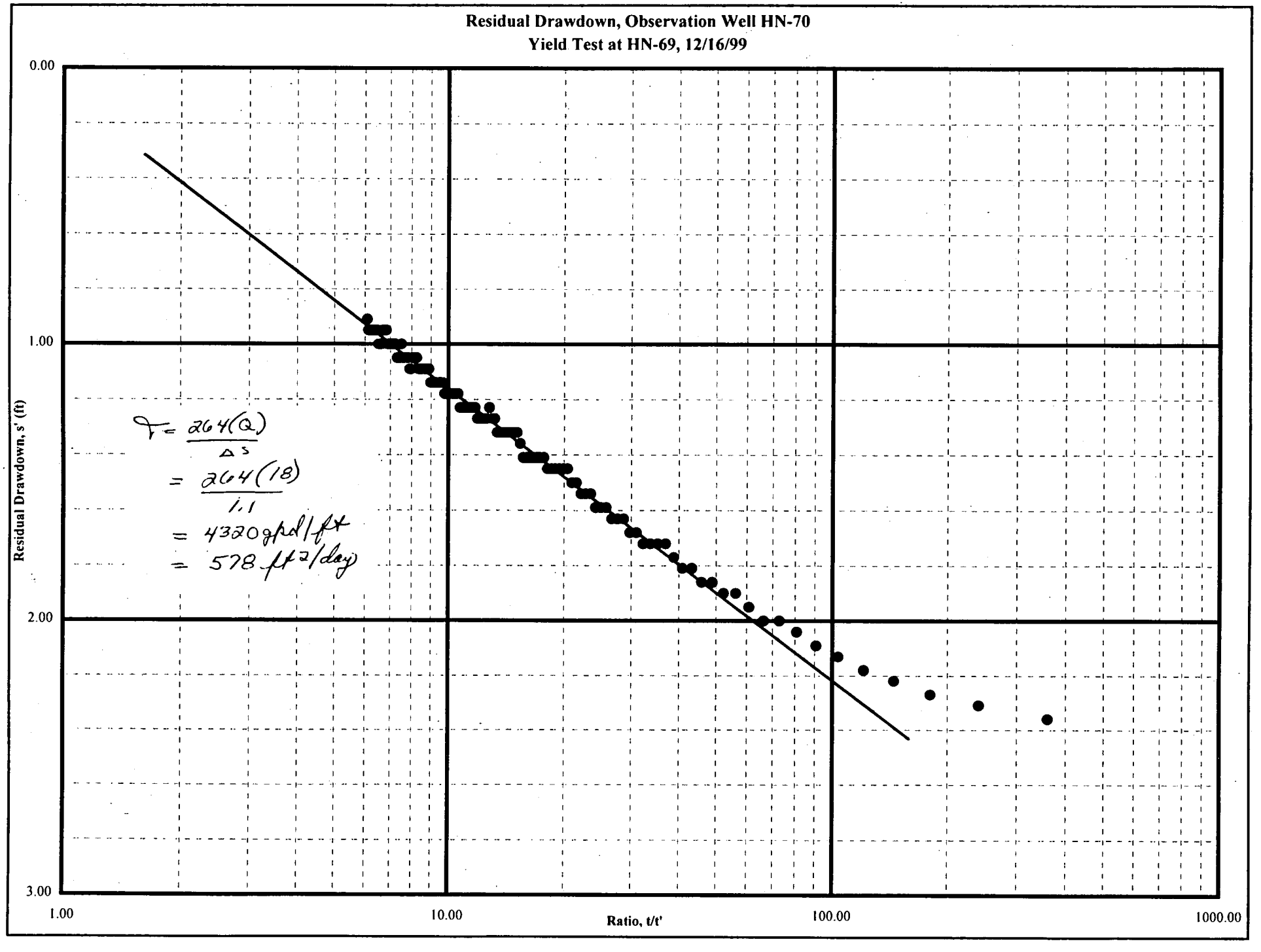
$$T = \frac{264(Q)}{\Delta s} = \frac{264(18)}{1.1}$$

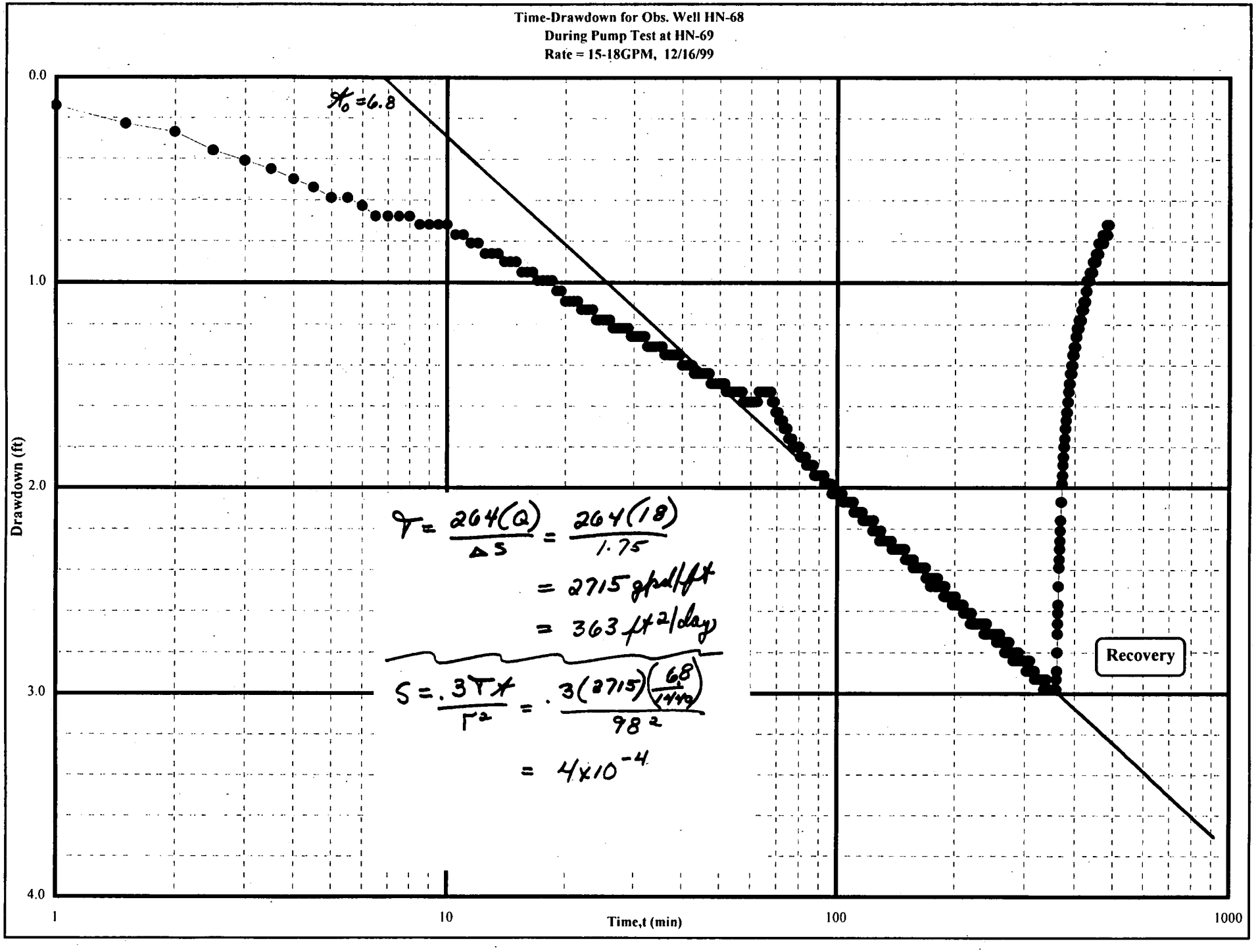
$$= 4320 \text{ gpd/ft}$$

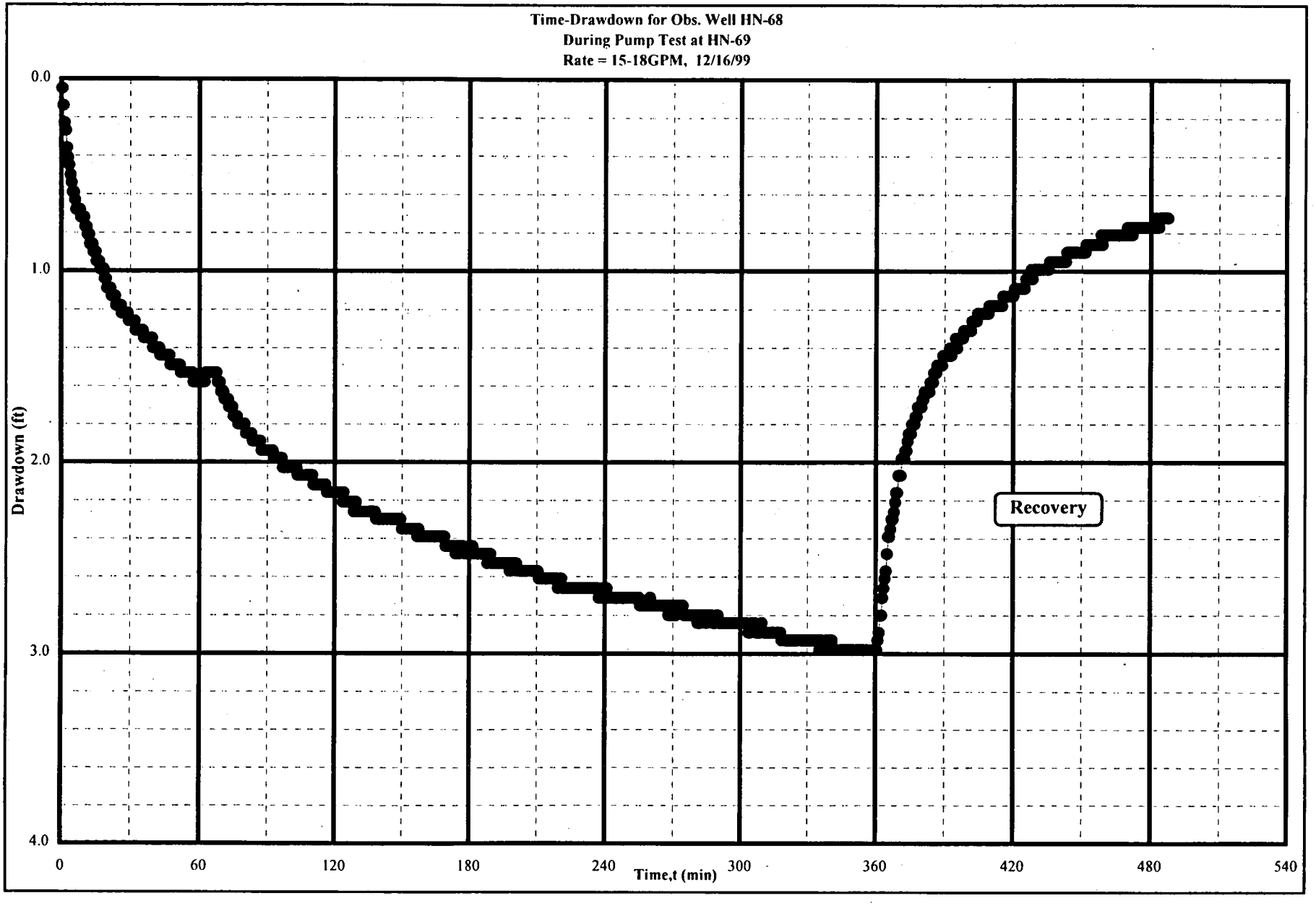
$$= 578 \text{ ft}^2/\text{day}$$

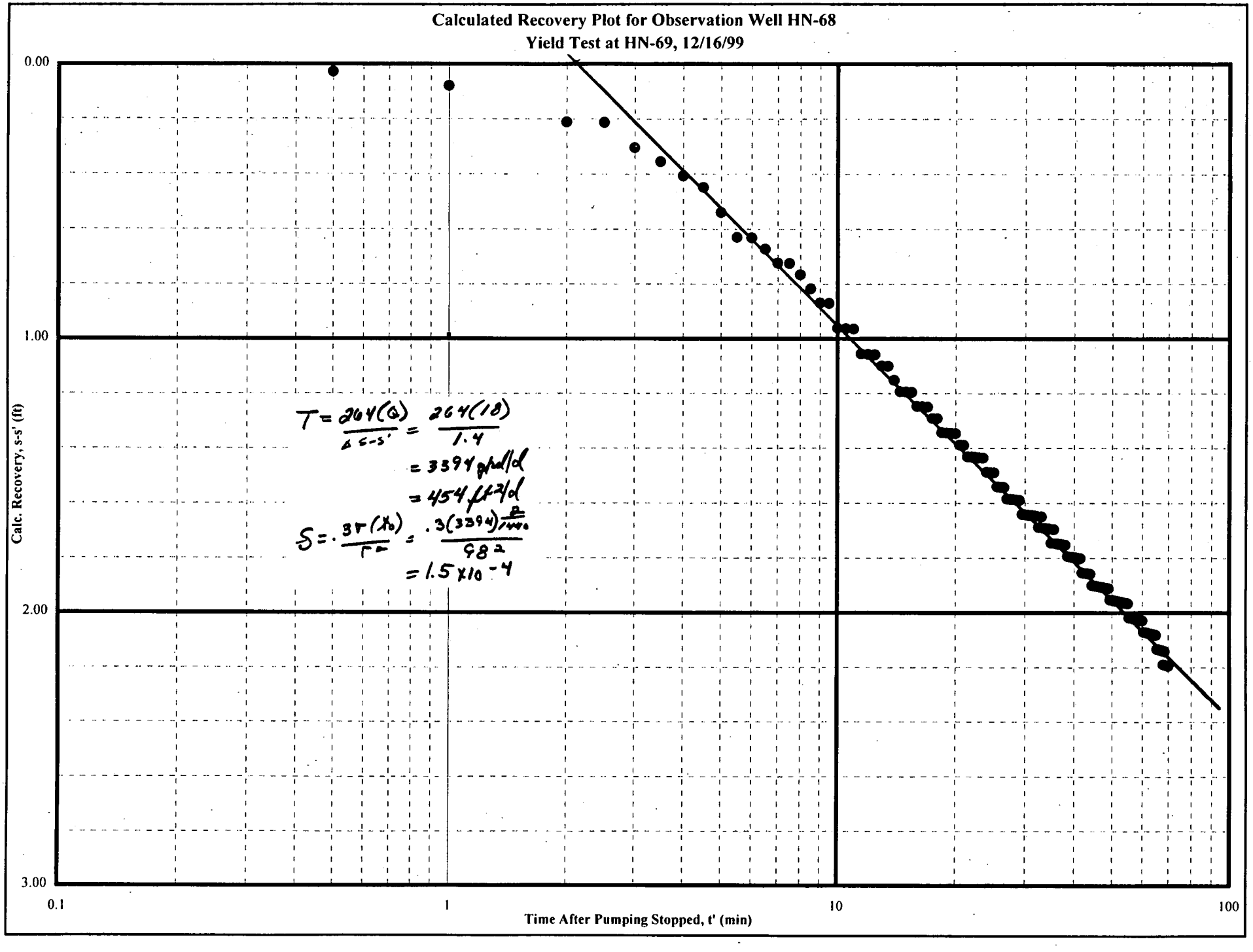
$$S = \frac{.3 T t_o'}{r^2} = \frac{.3(4320)\left(\frac{2.5}{1440}\right)}{(188)^2}$$

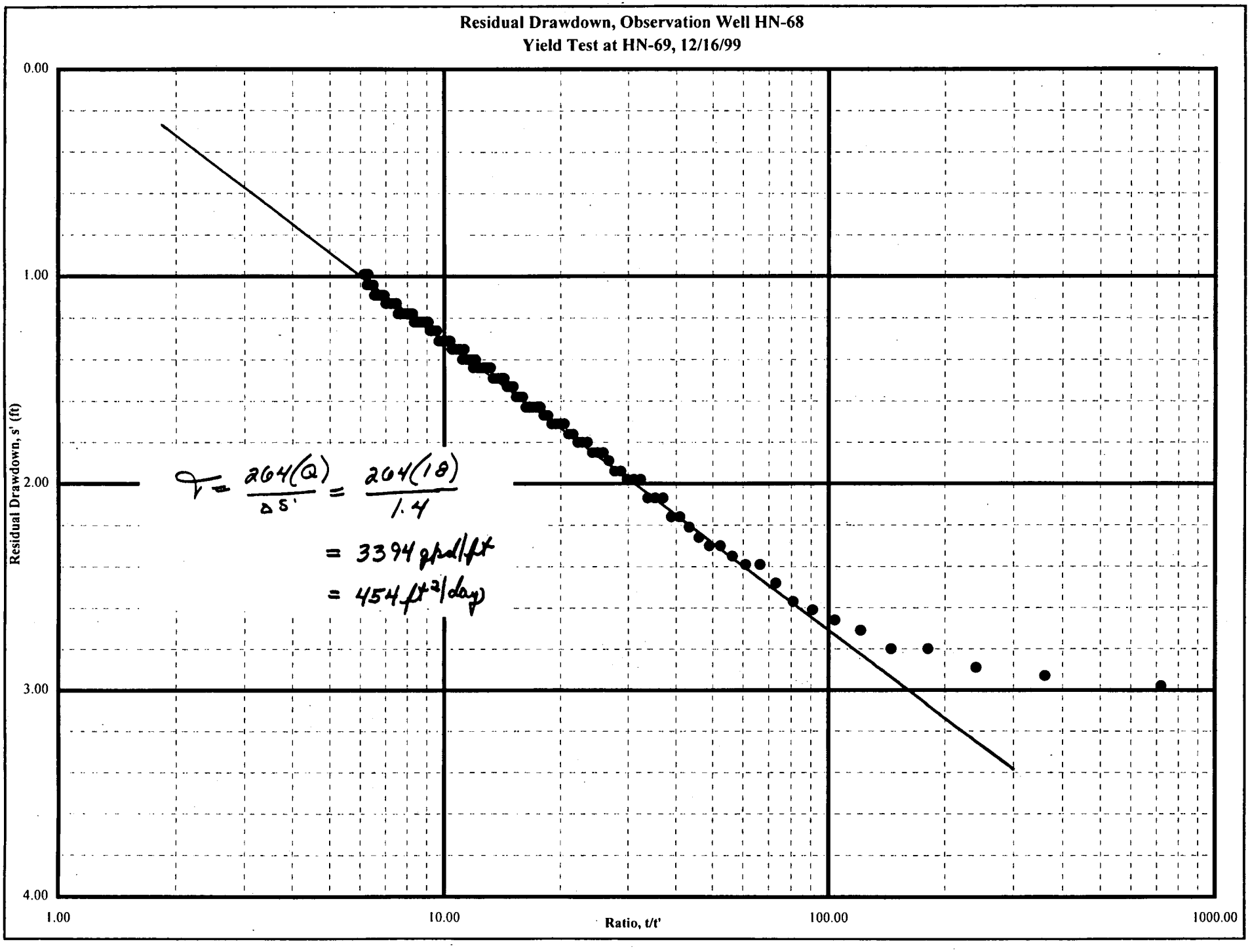
$$= 6.4 \times 10^{-5}$$


Residual Drawdown, Observation Well HN-70
Yield Test at HN-69, 12/16/99
0.00
1.00
2.00
3.00
Residual Drawdown, s' (ft)
1.00
10.00
100.00
1000.00
Ratio, t/t'
T = 264(Q) / Δs
= 264(18) / 1.1
= 4320 gpd/ft
= 578 ft²/day


Time-Drawdown for Obs. Well HN-68
During Pump Test at HN-69
Rate = 15-18GPM, 12/16/99
Drawdown (ft)
0.0
1.0
2.0
3.0
4.0
Time,t (min)
1
10
100
1000
$s_o = 6.8$
Recovery
$T = \frac{264(Q)}{\Delta s} = \frac{264(18)}{1.75}$
$= 2715$ gpd/ft
$= 363$ ft²/day
$S = \frac{.3Tt}{r^2} = \frac{.3(2715)\left(\frac{68}{1440}\right)}{98^2}$
$= 4 \times 10^{-4}$


Time-Drawdown for Obs. Well HN-68
During Pump Test at HN-69
Rate = 15-18GPM, 12/16/99
Drawdown (ft)
0.0
1.0
2.0
3.0
4.0
0
60
120
180
240
300
360
420
480
540
Time,t (min)
Recovery


Calculated Recovery Plot for Observation Well HN-68
Yield Test at HN-69, 12/16/99
0.00
1.00
2.00
3.00
Calc. Recovery, s-s' (ft)
0.1
1
10
100
Time After Pumping Stopped, t' (min)
T = 264(Q) / Δs-s' = 264(18) / 1.4
= 3394 gpd/d
= 454 ft²/d
S = .3T(t₀) / r² = .3(3394) / 98²
= 1.5 x 10⁻⁴


Residual Drawdown, Observation Well HN-68
Yield Test at HN-69, 12/16/99
0.00
1.00
2.00
3.00
4.00
Residual Drawdown, s' (ft)
1.00
10.00
100.00
1000.00
Ratio, t/t'
T = 264(Q)/Δs' = 264(18)/1.4
= 3394 gpd/ft
= 454 ft²/day

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET 1 of 3

Date(s) of Test: 12-16-99
Client: US NAVY
Project:
Remarks:

Well ID: HN 69 pumping well
Measuring Point: Elevation:
Distance from Pumping Well (r, feet):
Pumping Rate (Q):

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t', min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	FLOW RATE (gpm) / REMARKS
12-16	815	0			18.21				INT: 18.21'
		0.5	1471	1	14.71				INT: 18.21
	816	1.0			20.98				START FLOW @ 10gpm
		1.5			21.66				(16 gpm @ 816)
	817	2.0			22.46				(13 gpm @ 818)
		2.5			23.21				LOWER RATE
	818	3.0			23.24	23.24			14 → 13 gpm
		3.5			23.16	23.16			13 → 10 gpm
	819	4.0			23.14				
		4.5			23.14				
	820	5.0			23.05				
	21	6			22.88				
	22	7			23.61				
	23	8			23.35				12 gpm WATER COMING UP
	24	9			23.20				
	25	10			23.77				12 → 15 gpm
	27	12			23.07				
	29	14			23.20				
	31	16			23.70				15 gpm
	33	18			23.81				
	35	20			23.94				
	37	22			24.01				15 gpm
	39	24			24.21				
	41	26			24.26	6.05			
	43	28			24.31				
	45	30			24.38				0815 GC- HN690845
	50	35			24.49				15 gpm
	55	40			24.60				
	900	45			24.69				
	905	50			24.79				DECREASE RATE: LEVEL RAISED
	910	55			24.85				
	915	60			24.90				15 → 18 gpm (93% DRW = 24.25)
	945	90			24.93				SAMPLES GC HN691000
	1015	120			27.21				
	1045	150			27.46				18 gpm
	1115	180			27.71				HN691100 GC

0 Samples/hr

ppm
812
813

FID - 0ppm

20gpm

1000 FID 0ppm

FID 0 ppm

AVAILABLE 1/3 DRAWDOWN 38'

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET 2 of 3

Date(s) of Test: 12·16·99

Client:

Project:

Remarks:

Well ID: HN69

Measuring Point: Elevation:

Distance from Pumping Well (r, feet):

Pumping Rate (Q):

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t', min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
	1145	210			27.80'				HN69 1145 FID: 2.0ppm
	1215	240			28.17'				18gpm
	1245	270			28.23'				SAMPLE GC HN69 1245 FID-0ppm
	1315	300			28.55'				
	1345	330			28.67'				SAMPLE GC HN69 1345 FID 0ppm
	1415	360			~~28.67~~	STOP			18gpm
		0			28.67				SAMPLE LAB: HN6901
			0.5						1405 GC: HN69 1405 FID: ppm
			1.0						
			1.5						
			2.0						
			2.5						
			3.0						
			3.5						
			4.0						
			4.5						
			5.0						
			6						
			7						
			8						
			9						
			10						
			12						
			14						
			16						
			18						
			20						
			22						416.8%
			24						28.67'
			26						71.6%
			28						18.21'
			30						
			35						
			40						54.7
			45						24.70'
			50						

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET 2 of 3

Date(s) of Test: 12-16-99
Client: US NAVY
Project: WARWINGTON
Remarks:

Well ID: HN69
Measuring Point: Elevation:
Distance from Pumping Well (r, feet):
Pumping Rate (Q):

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t', min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
	1415		0		28.67				RECOVERY
			0.5		26.10				
	1416		1.0		24.95				SAMPLE @ 1405 [LAB = HN6901 ; GC = HN6901405 ; FID = ppm] 2 VOC/HCL 1 VOC
			1.5		24.05				
	1417		2.0		23.30				
			2.5		22.65				
	1418		3.0		22.35				
			3.5		21.86				
	1419		4.0		21.65				
			4.5		21.45				
	1420		5.0		21.30				
	1421		6		21.05				
	1422		7		20.90				
	1423		8		20.70				
	1424		9		20.61				
	1425		10		20.53				
	1427		12		20.38				
	1429		14		20.27				
	1431		16		20.17				
	1433		18		20.07				
	1435		20		20.03				
	1437		22		19.95				
	1439		24		19.91				
	1441		26		19.86				
	1443		28		19.82				
	1445		30		19.76				
	1450		35		19.67				
	1455		40		19.59				
	1500		45		19.51				
	1505		50		19.42				
	1510		55		19.41				
	1515		60		19.37				
				STOP					

Began at 0815

FOSTER WHEELER ENVIRONMENTAL CORPORATION
PUMPING TEST DATA

SHEET ___ of ___

Date(s) of Test: 12/16/99
Client: _____
Project: _____
Remarks: _____

Well ID: Well E
Measuring Point: _____ Elevation: _____
Distance from Pumping Well (r, feet): _____
Pumping Rate (Q): _____

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t, min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
I	0749	TBC			17.33				
I	0806				17.31				
	0815				17.33				
	0830				17.33				
	0844				17.35				
	1013				17.47				
	1115				17.50				
	1223				17.52				
	1311				17.60				STOP PUMPING @ 1415
	1415				17.66				
	1433				17.66				
	1453				17.65				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET ___ of ___

Date(s) of Test: 12/16/99
Client: _____
Project: _____
Remarks: _____

Well ID: OW A2
Measuring Point: _____ Elevation: _____
Distance from Pumping Well (r, feet): _____
Pumping Rate (Q): _____

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t, min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
I	0750	TBC			18.16				
I	0807				18.17				
	0816				18.16				
	0831				18.16				
	0845				18.16				
	1014				18.23				
	1115				18.30				
	1224				18.41				
	311				18.49				
	1416				18.58				
	1437				18.61				
	1455				18.62				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET ___ of ___

Date(s) of Test: 12/16/99

Client: _____

Project: _____

Remarks: _____

Well ID: HN-11D

Measuring Point: _____ Elevation: _____

Distance from Pumping Well (r, feet): _____

Pumping Rate (Q): _____

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t, min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
I	0751	TBC			-1.0				
I	0808				-1.0				
	0817				-1.0				
	0832				-1.0	0			
	0846				-1.0				
	1015				-2.0				
	1116				-2.0				
	1235		-(0.25)	(0.25)	[illegible]				
	1313			-(0.25)	[illegible]				
	1417				0				
	1435				0				
	1455				0				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET ___ of ___

Date(s) of Test: 12/16/99

Client: _____

Project: _____

Remarks: _____

Well ID: HN-11I

Measuring Point: _____ Elevation: _____

Distance from Pumping Well (r, feet): _____

Pumping Rate (Q): _____

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t', min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
I	0751	TBC			26.54				
I	0809	↓			26.61				
	0818				24.79				
	0832				25.19				
	0847				25.45				
	1016				26.36				
	1117				26.64				
	1215				26.[illegible]				
	1312				27.0[illegible]				
	1418				27.19				
	1436				26.61				
	1458				26.6[illegible]				

Telog too deep....

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

Date(s) of Test: 12/16/99
Client: _____
Project: _____
Remarks: _____

Well ID: Well C
Measuring Point: _____ Elevation: _____
Distance from Pumping Well (r, feet): _____
Pumping Rate (Q): _____

SHEET ___ of ___

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t, min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
F	0703	TBC			23.74				
F	0810				23.71				
	0819				23.70				
	0833				23.70				
	0848				23.70				
	1017				23.74				
	1117				23.80				
	1216				23.96				
	1313				25.78				
	1419				24.09				
	1437				24.12				
	1459				24.11				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET ___ of ___

Date(s) of Test: 12/16/99

Client: _____

Project: _____

Remarks: _____

Well ID: HN-55I

Measuring Point: _____ Elevation: _____

Distance from Pumping Well (r, feet): _____

Pumping Rate (Q): _____

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t, min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
I	0750	TBC			[illegible]				
I	0745				24.24				
I	0802				24.28				
	0831				24.81				
	0834				25.20				
	[illegible]				[illegible]				
	0857			35.50	[illegible]				
	1018				26.35				
	1119				26.60				
	1238				26.50				
	1315				26.47				
	1431				26.71				
	1441				25.88				
	1502				25.50				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET ___ of ___

Date(s) of Test: 12/16/99

Client: _____

Project: _____

Remarks: _____

Well ID: HN-555

Measuring Point: _____ Elevation: _____

Distance from Pumping Well (r, feet): _____

Pumping Rate (Q): _____

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t, min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
I	0747	TBC			22.88				
I	0801				22.89				
	0821				23.00				
	0835				23.21				
	0852				23.42				
	1019				24.00				
	1120				24.24				
	1228				24.40				
	1316				24.57				
	1420				24.60				
	1442				24.21				
	1503				23.98				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET ___ of ___

Date(s) of Test: 12/16/99

Client: _____

Project: _____

Remarks: _____

Well ID: HN-59I

Measuring Point: _____ Elevation: _____

Distance from Pumping Well (r, feet): _____

Pumping Rate (Q): _____

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t, min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
I	0741	TBC			31.80				
I	0754				31.72				
	0824				31.61				
	0838				31.57				
	0855				31.51				
	1021				31.21				
	1122				30.99				
	1230				30.78				
	1318				30.66				
	1424				30.47				
	1444				30.41				
	1505				30.37				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET ___ of ___

Date(s) of Test: 12/16/99
Client: _____
Project: _____
Remarks: _____

Well ID: HN-59S
Measuring Point: _____ Elevation: _____
Distance from Pumping Well (r, feet): _____
Pumping Rate (Q): _____

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t, min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
I	0730	TBC			13.00				
I	0758				17.99				
	0823				18.38				
	0837				18.73				
	0856				19.00				
	1022				19.73				
	1121				19.99				
	1231				20.11				
	1318				20.24				
	1425				19.99				
	1446				19.41				
	1507				19.16				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET ___ of ___

Date(s) of Test: 12/16/99

Client: _____

Project: _____

Remarks: _____

Well ID: MN-14I

Measuring Point: _____ Elevation: _____

Distance from Pumping Well (r, feet): _____

Pumping Rate (Q): _____

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t, min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
I	0733	TBC			12.27				
I	0750				12.33				
	~~0800~~				~~12.37~~				
	0826				12.45				
	0840				12.72				
	0902				12.99				
	1024				13.63				
	1123				13.87				
	1233				14.03				
	1319				14.16				
	1427				14.07				
	1445				13.61				
	1516				13.32				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET ___ of ___

Date(s) of Test: 12/16/99

Client: _____

Project: _____

Remarks: _____

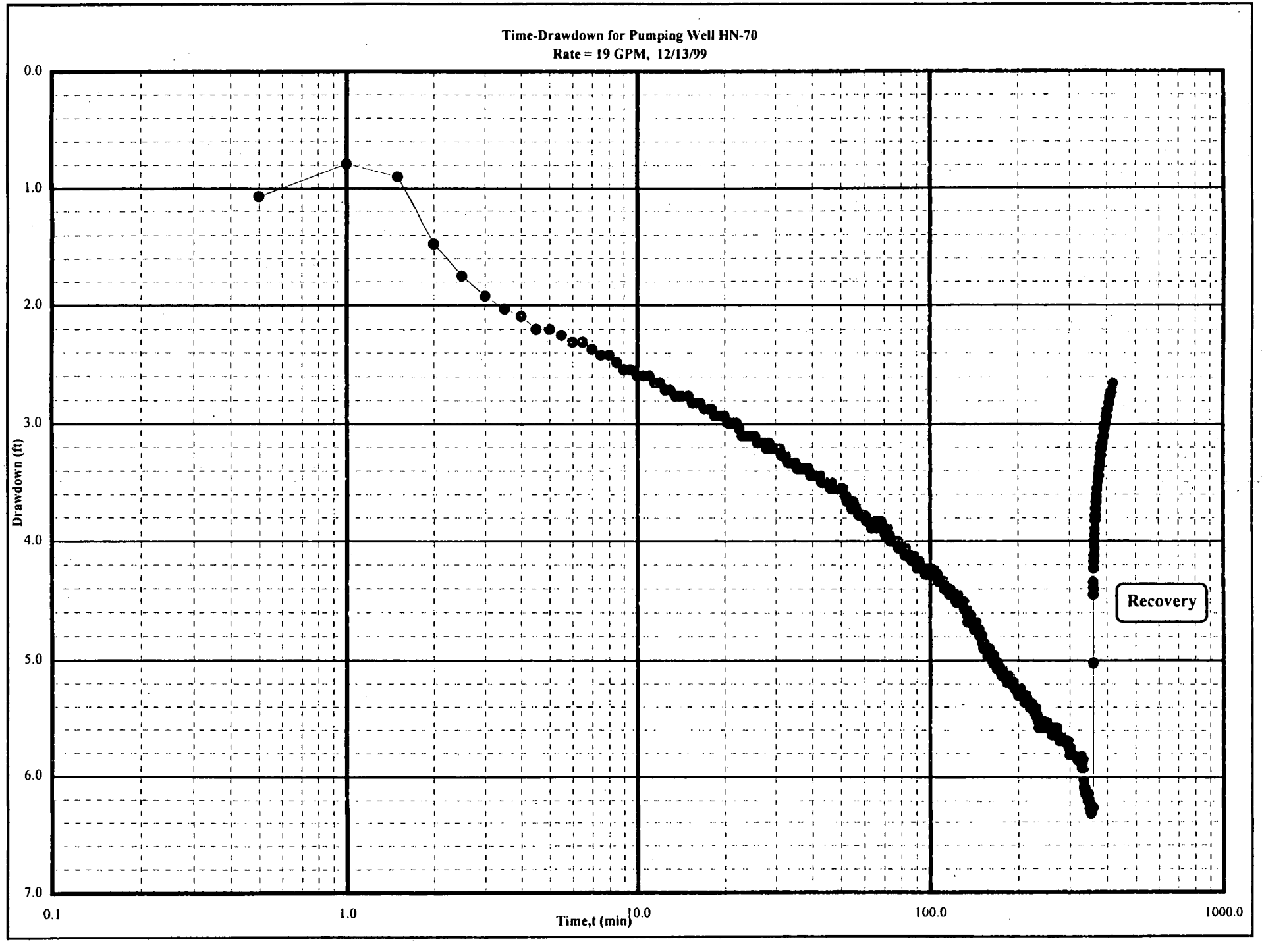
Well ID: HN - 145

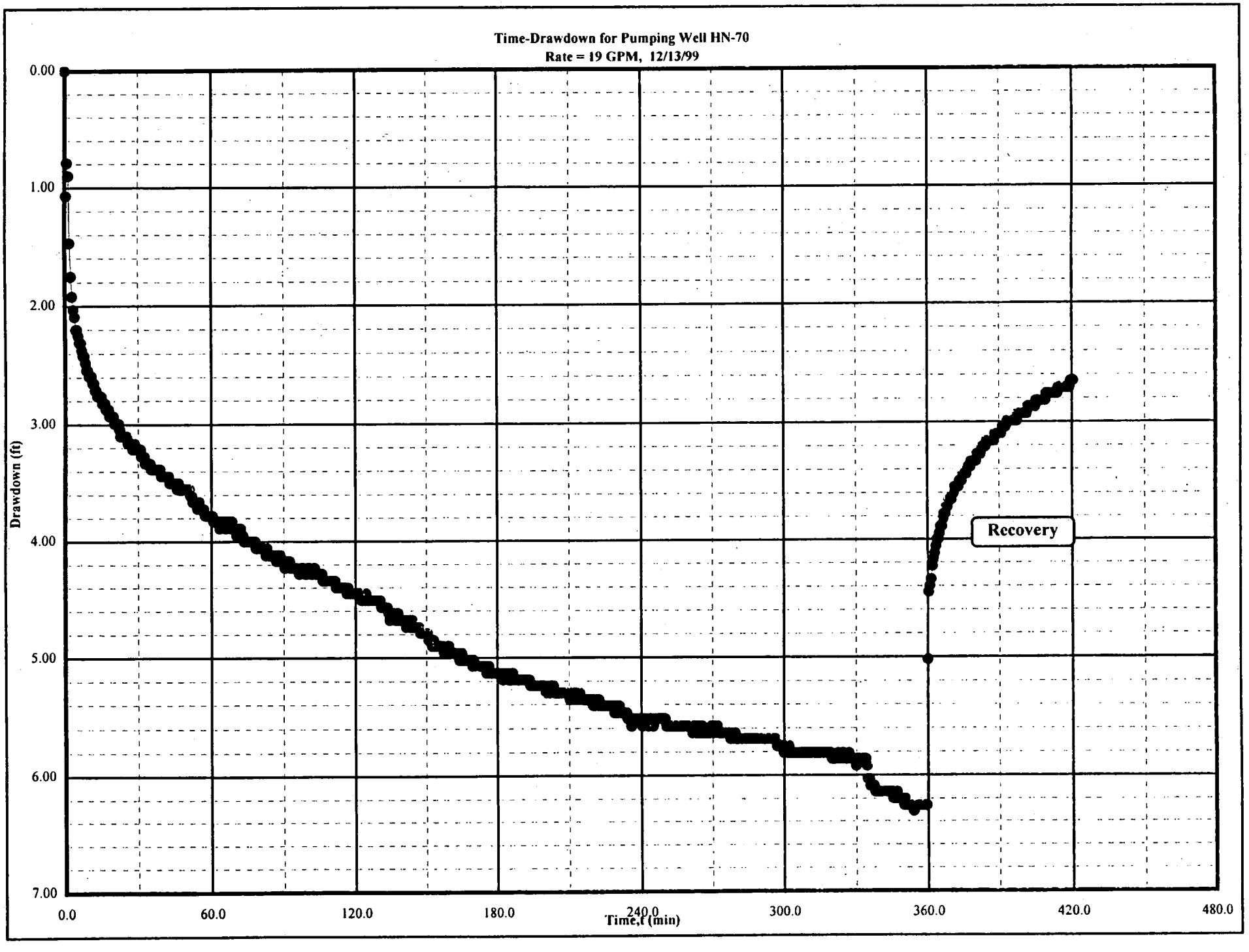
Measuring Point: _____ Elevation: _____

Distance from Pumping Well (r, feet): _____

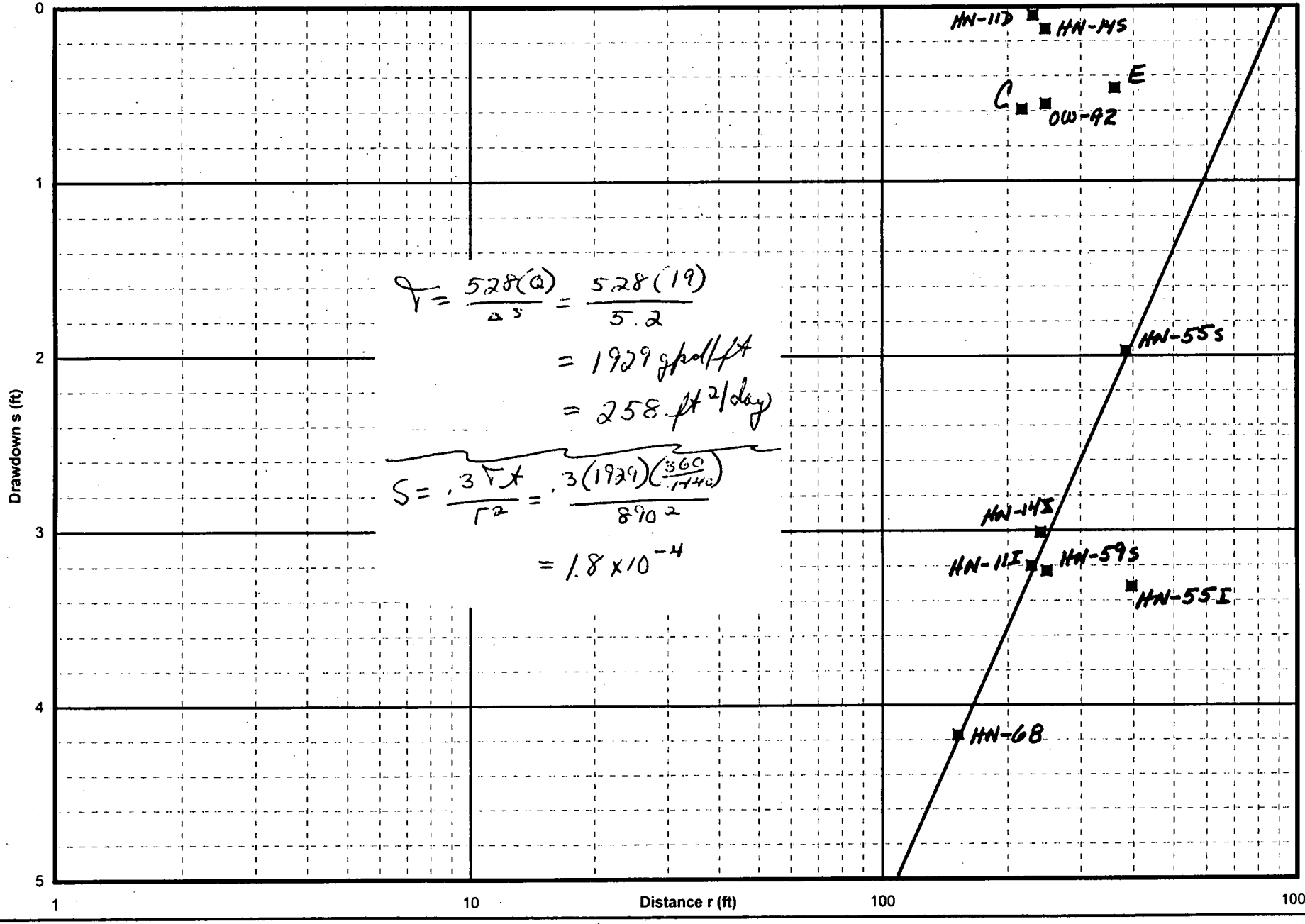
Pumping Rate (Q): _____

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t, min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
I	07.36	TBC			12.09				
I	0757				12.05				
	0825				12.05				
	0839				12.06				
	0904				12.05				
	1024				12.05				
	1123				12.05				
	1232				12.05				
	1320				12.01				
	1428				12.04				
	1449				12.03				
	1511				12.04				


Time-Drawdown for Pumping Well HN-70
Rate = 19 GPM, 12/13/99
Drawdown (ft)
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
0.1
1.0
10.0
100.0
1000.0
Time,t (min)
Recovery


Time-Drawdown for Pumping Well HN-70
Rate = 19 GPM, 12/13/99
Drawdown (ft)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.0
60.0
120.0
180.0
240.0
300.0
360.0
420.0
480.0
Time, t (min)
Recovery

Distance-Drawdown Plot
Yield Test at HN-70, Dec. 13, 1999
6 Hour Test at 19 gpm



$$T = \frac{528(Q)}{\Delta s} = \frac{5.28(19)}{5.2}$$

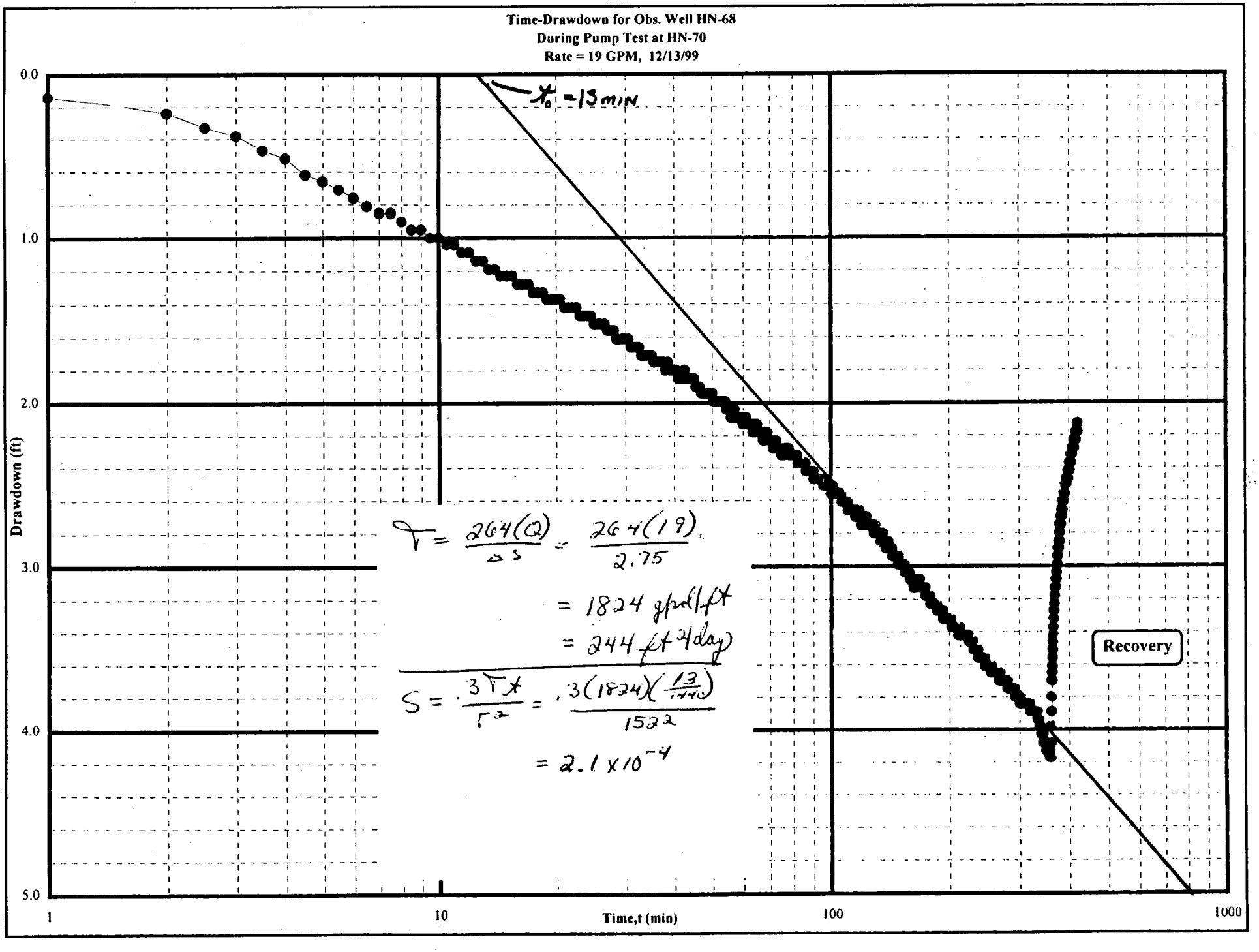
$$= 1929 \text{ gpd/ft}$$

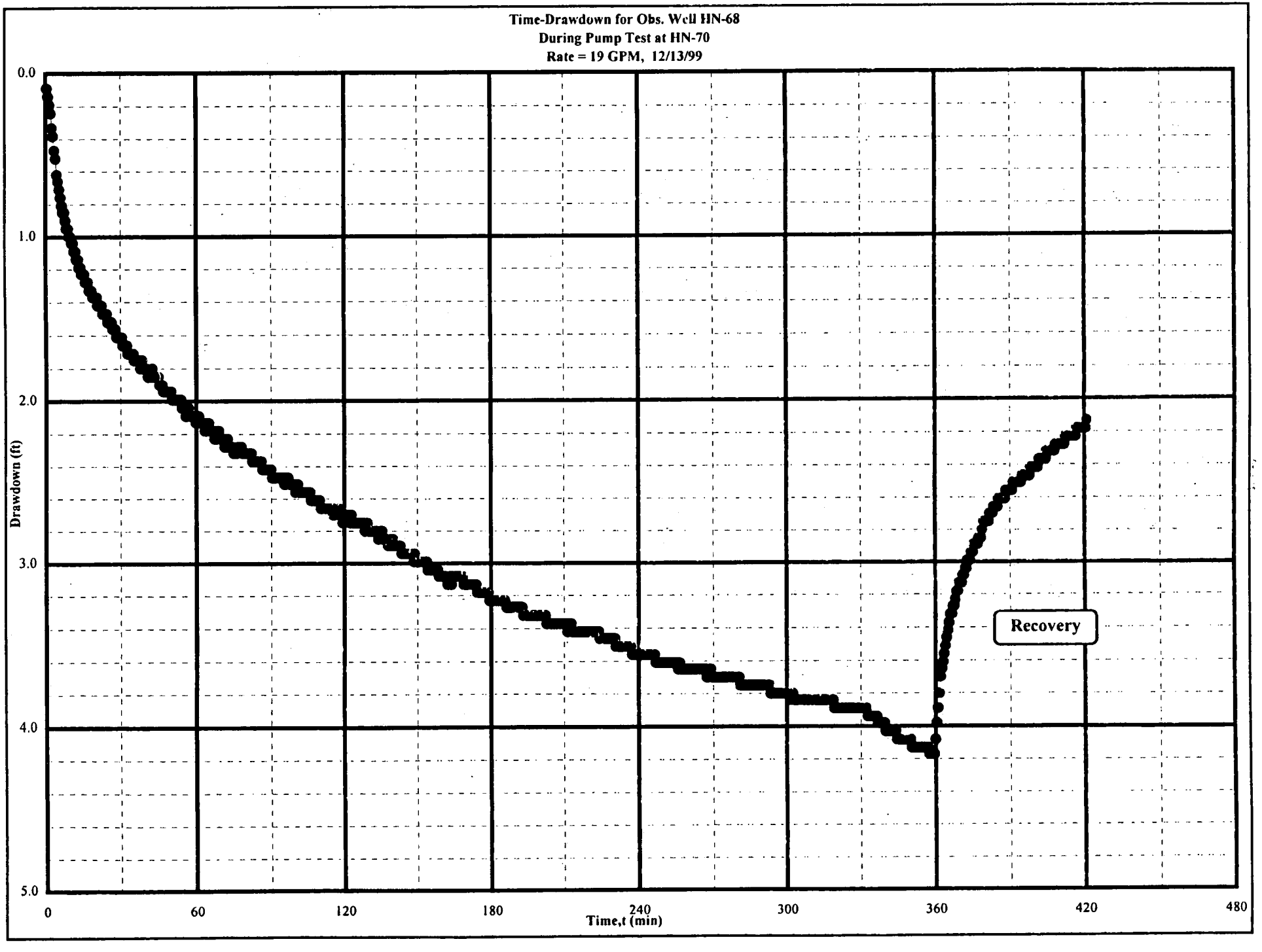
$$= 258 \text{ ft}^2/\text{day}$$

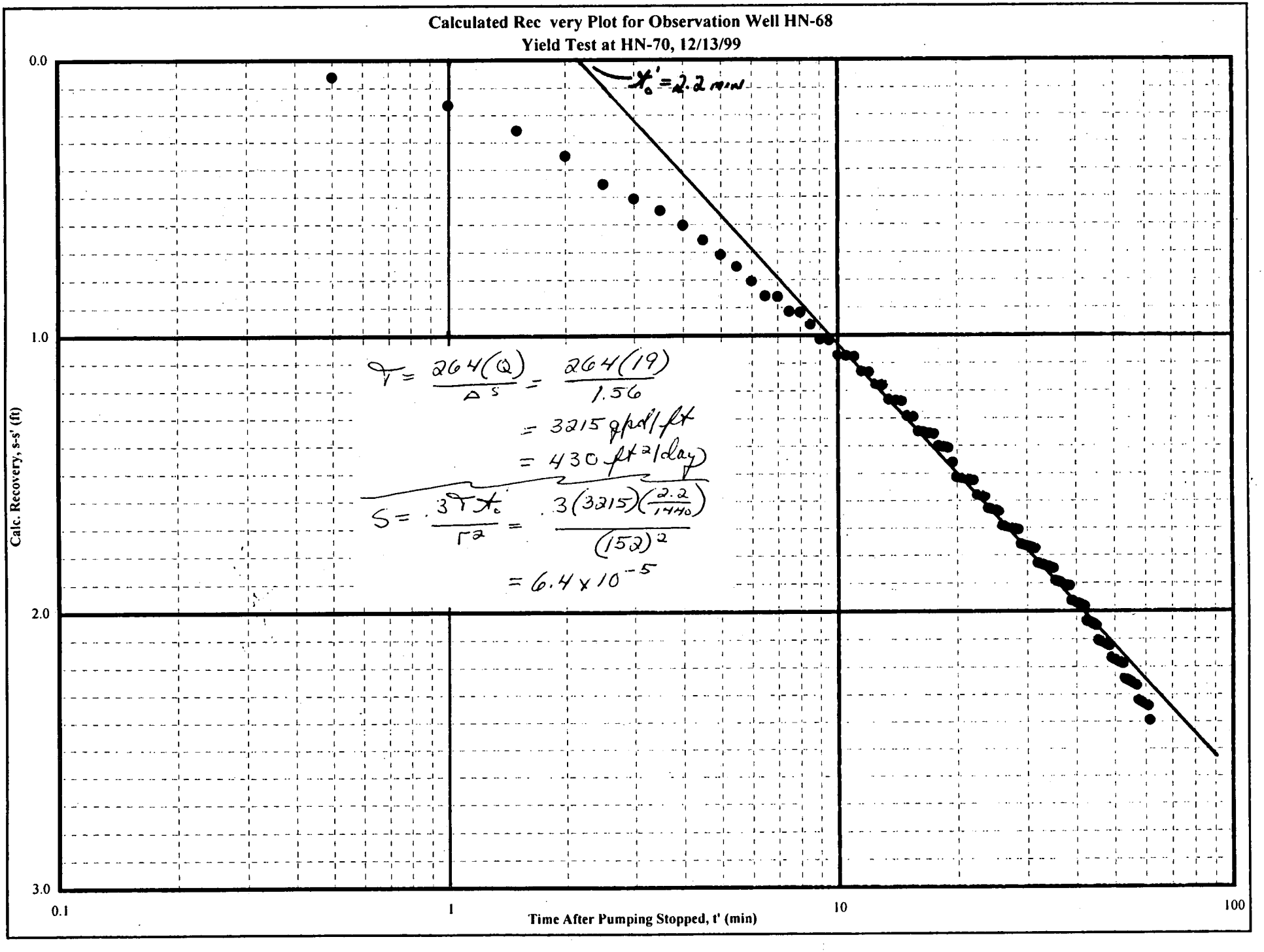
$$S = \frac{.3Tt}{r^2} = \frac{.3(1929)\left(\frac{360}{1440}\right)}{890^2}$$

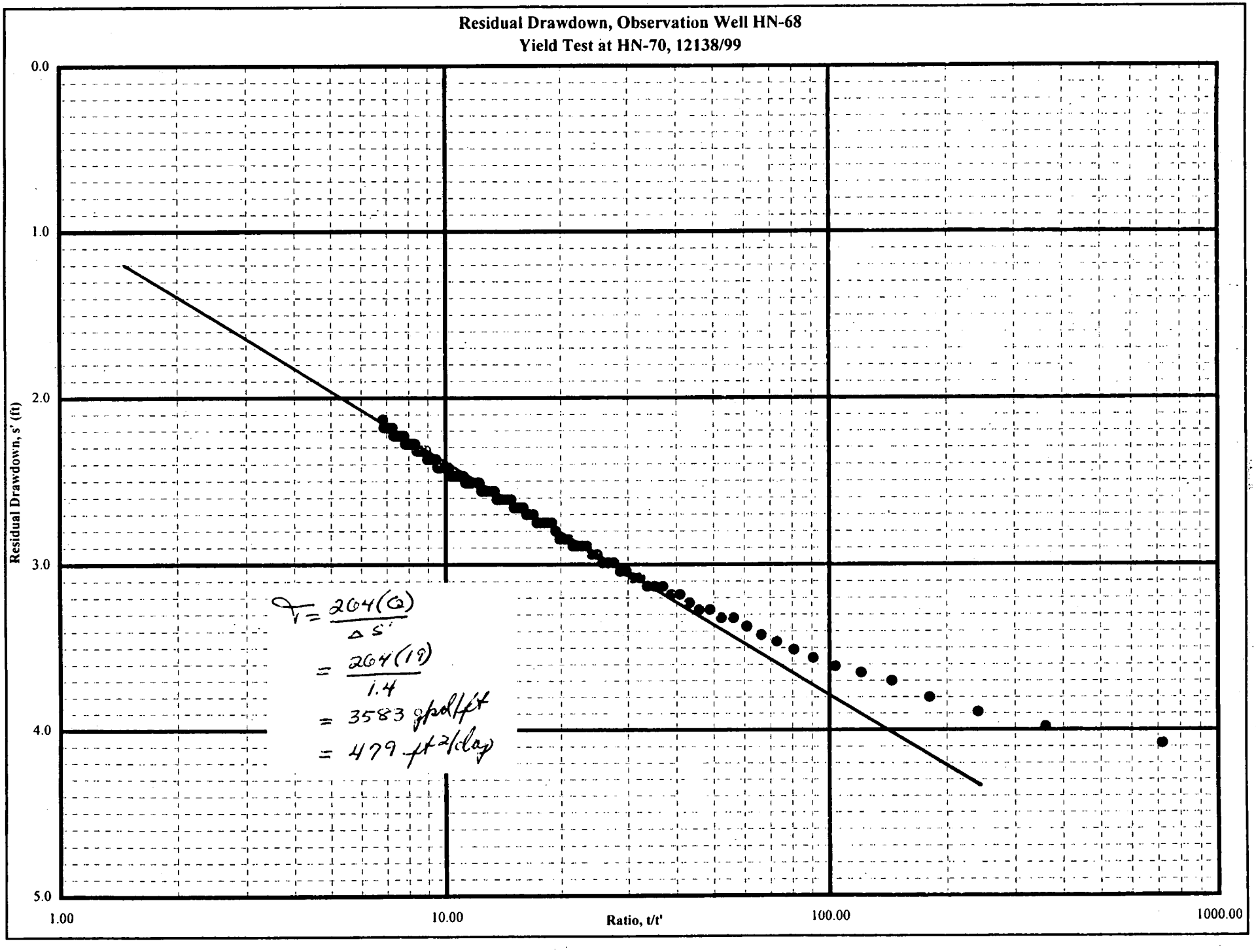
$$= 1.8 \times 10^{-4}$$

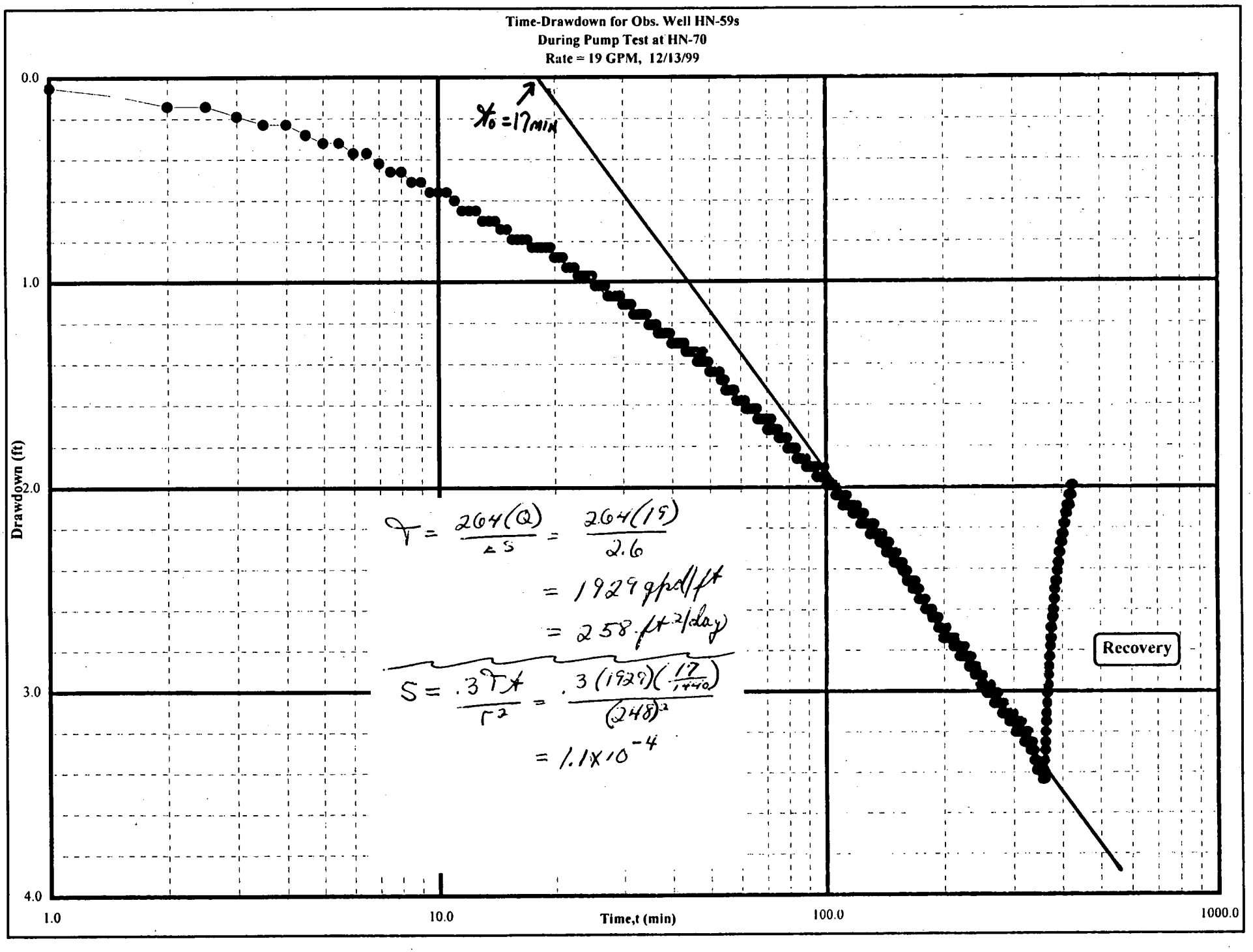
Yield Test at Area A:HN-70 12/13/99		
Well	**Distance (r)**	**Max. DD (ft)**
HN68	152	4.17
C	216	0.59
HN-11I	228	3.2
HN-11D	230	0.05
HN-14I	240	3.01
HN-14S	246	0.13
OW-A2	246	0.56
HN-59S	248	3.23
E	360	0.47
HN-55S	384	1.97
HN-55I	396	3.32

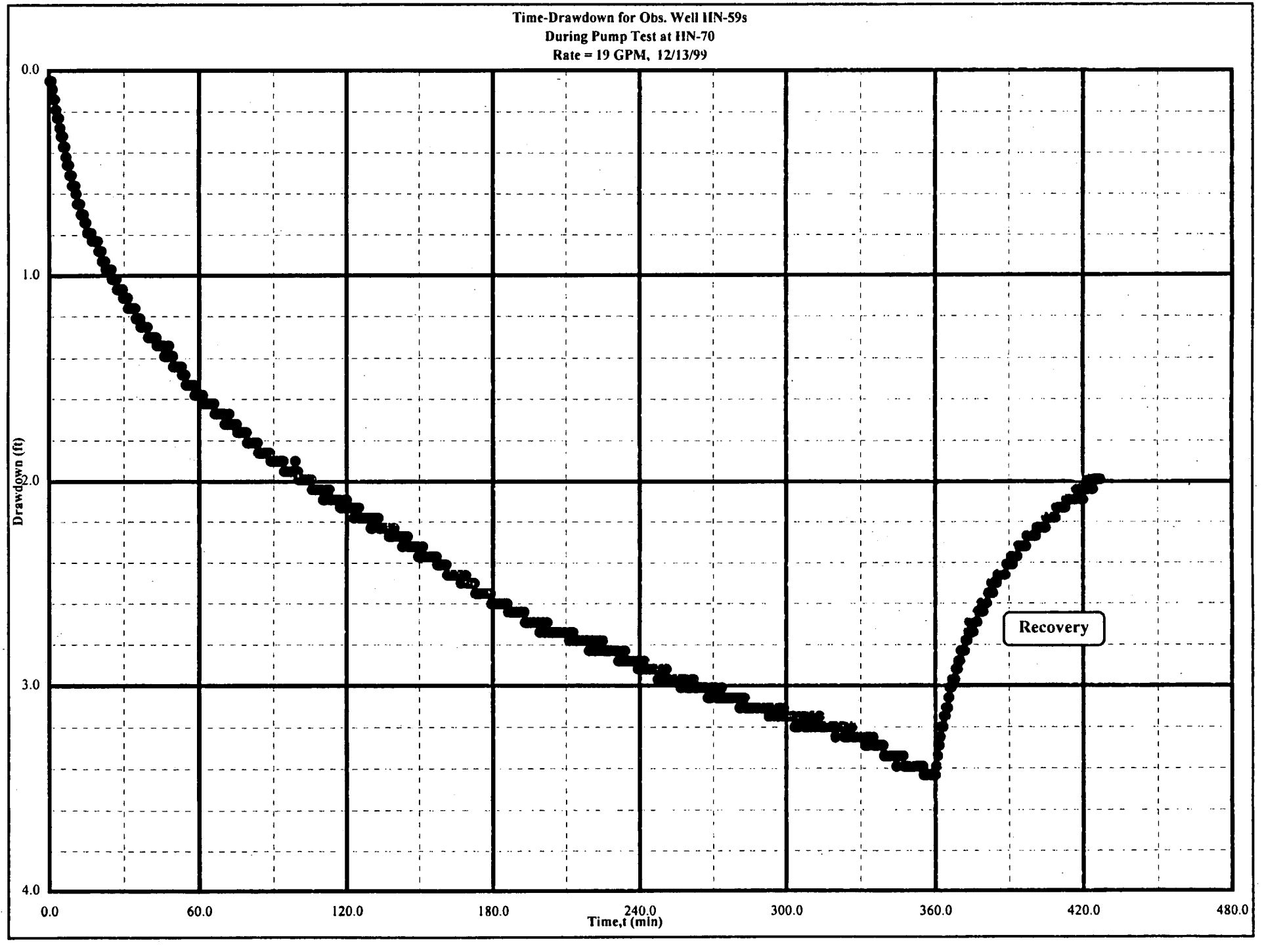

Time-Drawdown for Obs. Well HN-68
During Pump Test at HN-70
Rate = 19 GPM, 12/13/99
Drawdown (ft)
0.0
1.0
2.0
3.0
4.0
5.0
1
10
100
1000
Time,t (min)
t_0 = 13 min
Recovery
$T = \frac{264(Q)}{\Delta s} = \frac{264(19)}{2.75}$
= 1824 gpd/ft
= 244 ft²/day
$S = \frac{3Tt}{r^2} = \frac{3(1824)(\frac{13}{1440})}{1522}$
$= 2.1 \times 10^{-4}$

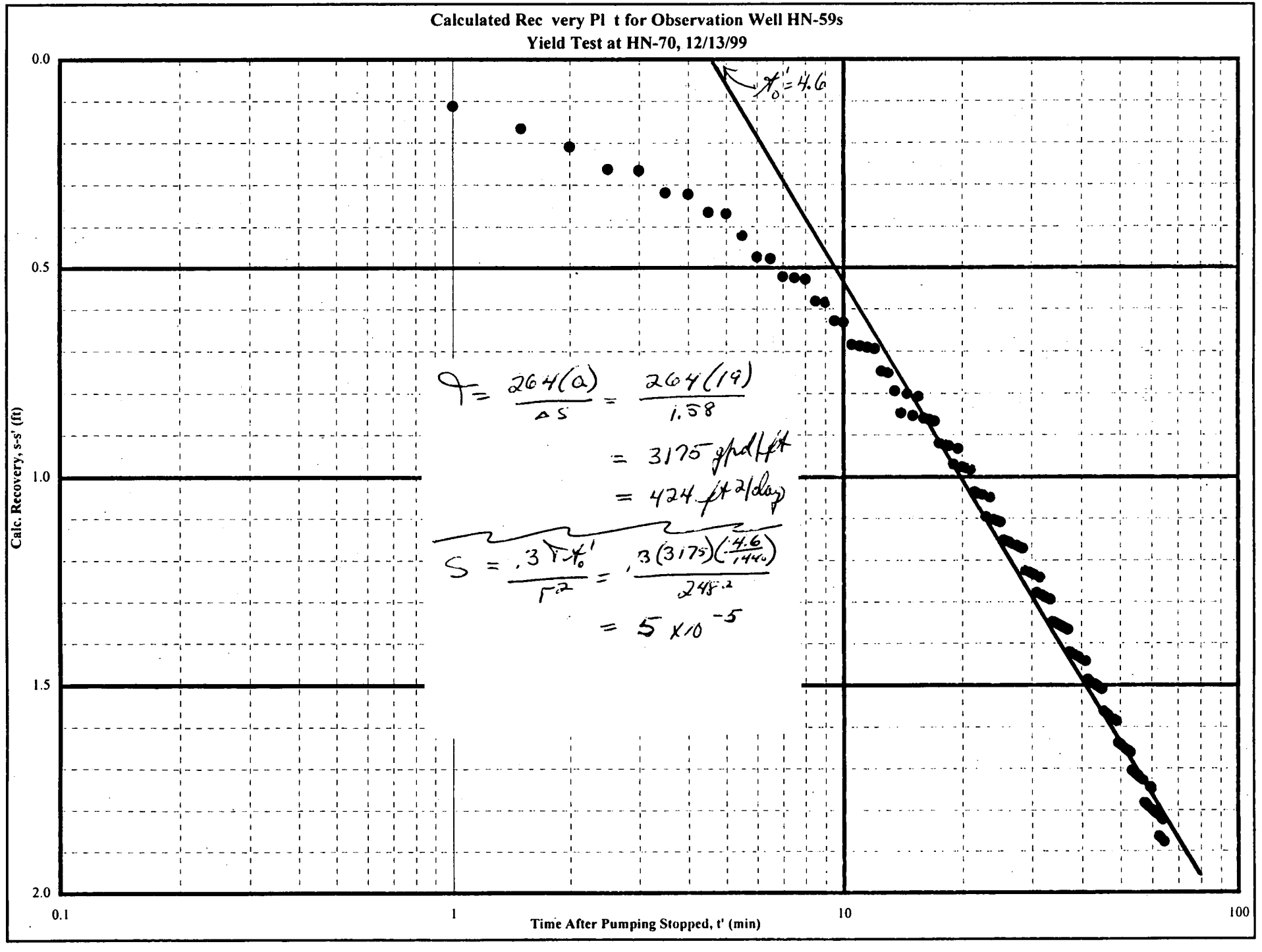

Time-Drawdown for Obs. Well HN-68
During Pump Test at HN-70
Rate = 19 GPM, 12/13/99
Drawdown (ft)
0.0
1.0
2.0
3.0
4.0
5.0
0
60
120
180
240
300
360
420
480
Time,t (min)
Recovery

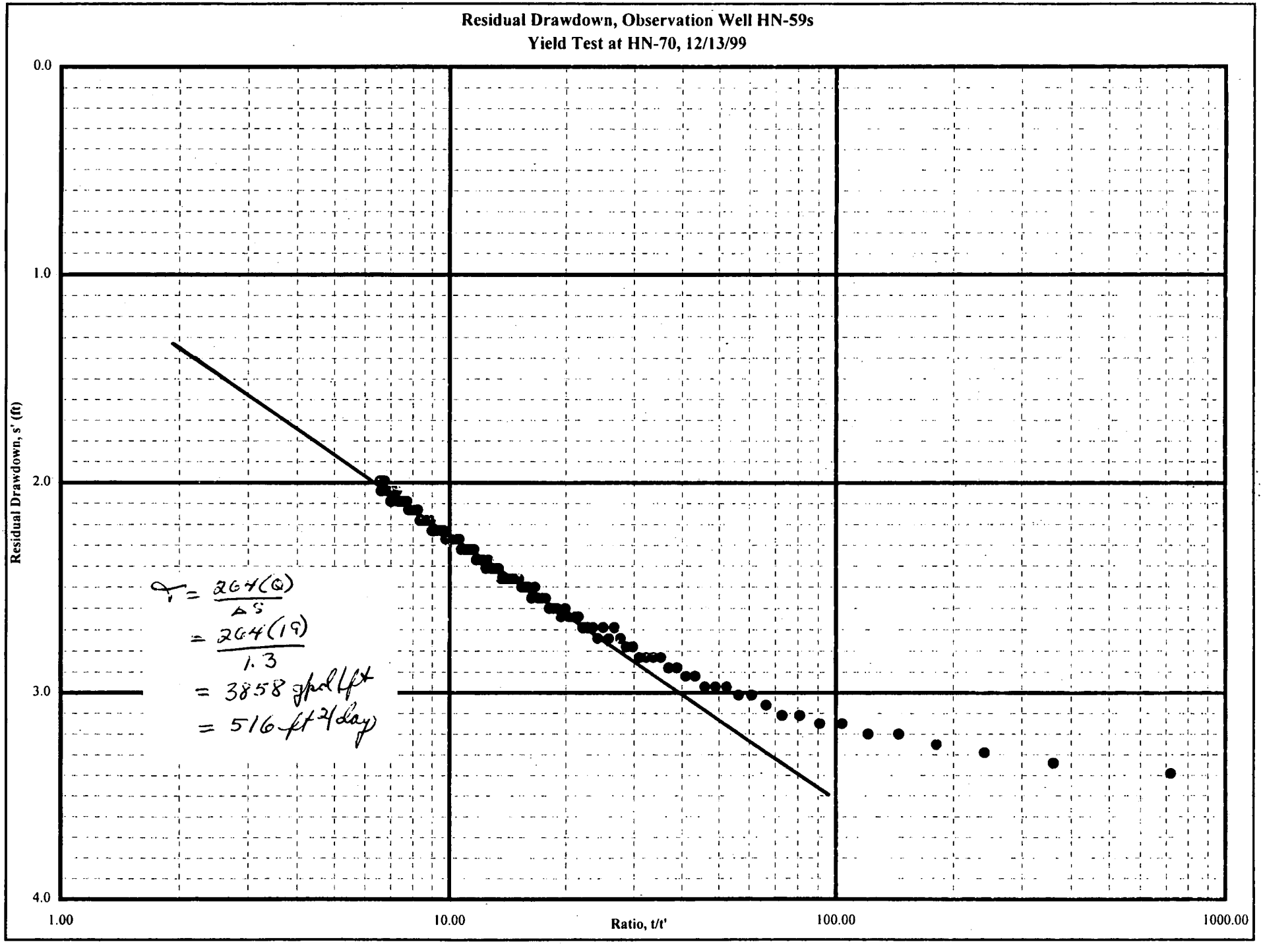

Calculated Rec very Plot for Observation Well HN-68
Yield Test at HN-70, 12/13/99
$t_o' = 2.2$ min
$T = \frac{264(Q)}{\Delta s} = \frac{264(19)}{1.56}$
$= 3215$ gpd/ft
$= 430$ ft²/day
$S = \frac{3Tt_o'}{r^2} = \frac{3(3215)(\frac{2.2}{1440})}{(152)^2}$
$= 6.4 \times 10^{-5}$
Calc. Recovery, s-s' (ft)
0.0
1.0
2.0
3.0
0.1
1
10
100
Time After Pumping Stopped, t' (min)

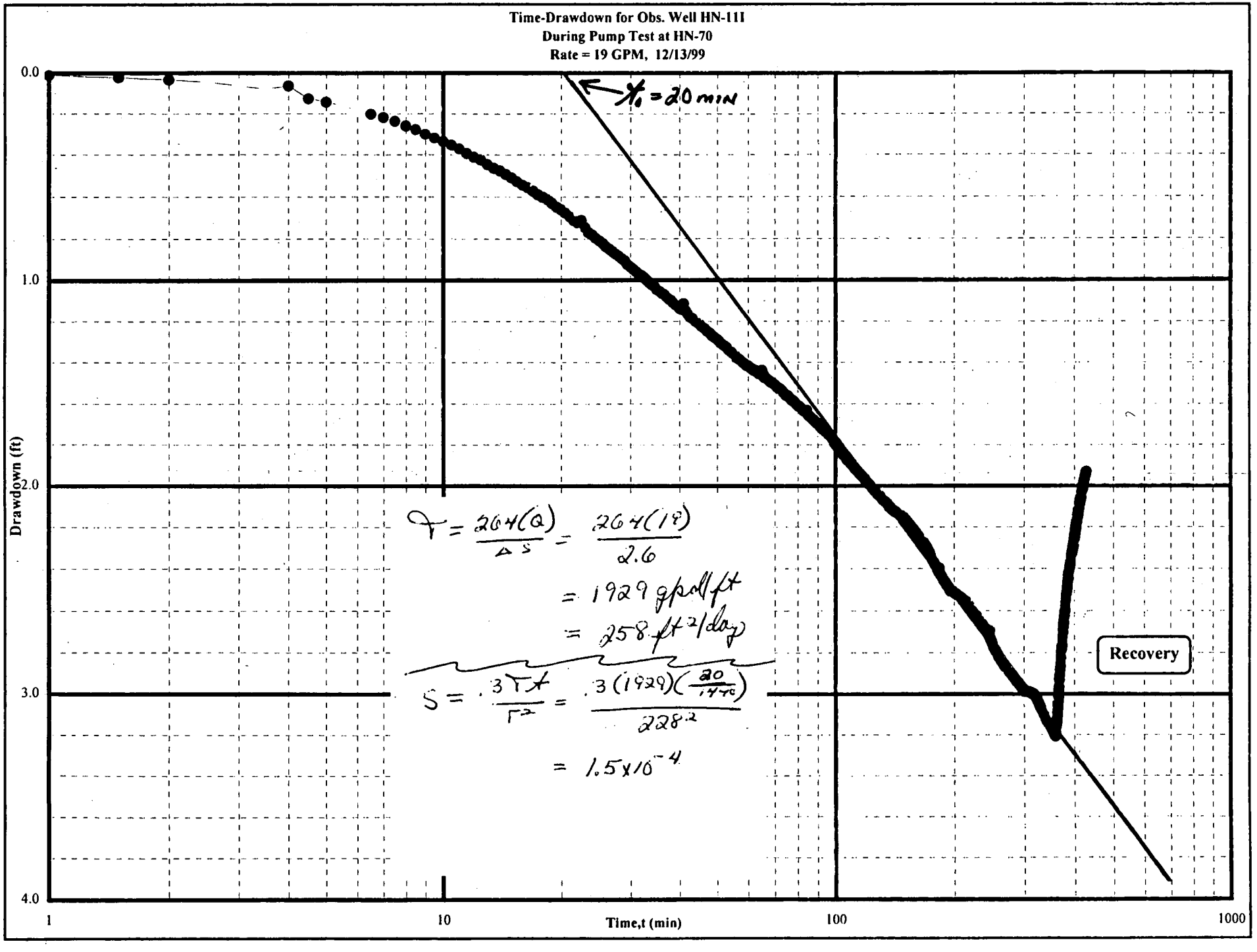

Residual Drawdown, Observation Well HN-68
Yield Test at HN-70, 12138/99
Residual Drawdown, s' (ft)
0.0
1.0
2.0
3.0
4.0
5.0
1.00
10.00
100.00
1000.00
Ratio, t/t'
T = 264(Q) / Δs'
= 264(19) / 1.4
= 3583 gpd/ft
= 479 ft²/day

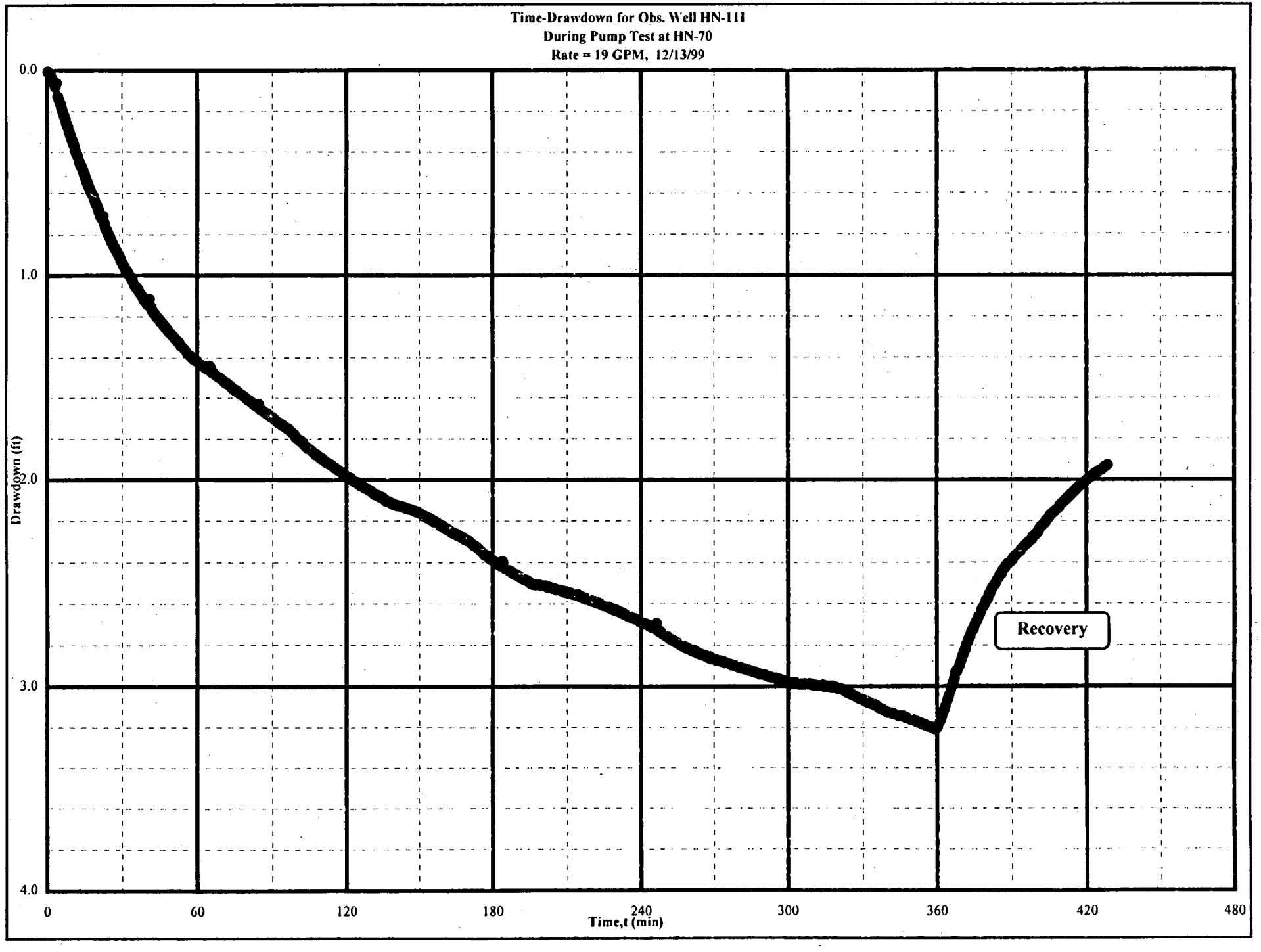

Time-Drawdown for Obs. Well HN-59s
During Pump Test at HN-70
Rate = 19 GPM, 12/13/99
Drawdown (ft)
0.0
1.0
2.0
3.0
4.0
1.0
10.0
100.0
1000.0
Time,t (min)
$t_0 = 17$ min
Recovery
$T = \frac{264(Q)}{\Delta s} = \frac{264(19)}{2.6}$
$= 1929$ gpd/ft
$= 258$ ft²/day
$S = \frac{.3Tt}{r^2} = \frac{.3(1929)(\frac{17}{1440})}{(248)^2}$
$= 1.1 \times 10^{-4}$


Time-Drawdown for Obs. Well HN-59s
During Pump Test at HN-70
Rate = 19 GPM, 12/13/99
Drawdown (ft)
0.0
1.0
2.0
3.0
4.0
0.0
60.0
120.0
180.0
240.0
300.0
360.0
420.0
480.0
Time,t (min)
Recovery

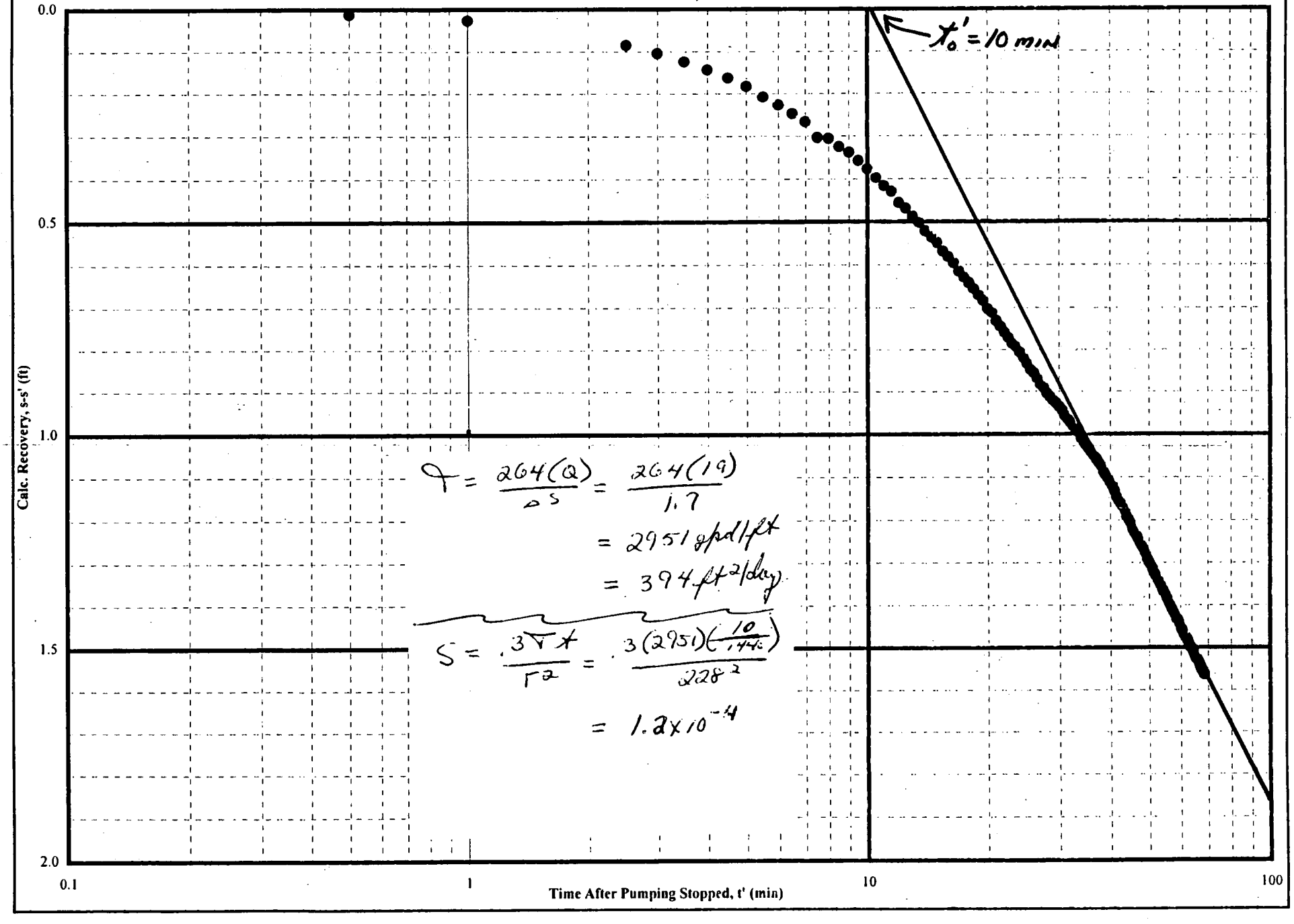

Calculated Rec very Pl t for Observation Well HN-59s
Yield Test at HN-70, 12/13/99
0.0
0.5
1.0
1.5
2.0
Calc. Recovery, s-s' (ft)
0.1
1
10
100
Time After Pumping Stopped, t' (min)
$t_0' = 4.6$
$T = \frac{264(Q)}{\Delta s} = \frac{264(19)}{1.58}$
$= 3175$ gpd/ft
$= 424$ ft²/day
$S = \frac{.3 T t_0'}{r^2} = \frac{.3(3175)(\frac{4.6}{1440})}{248^2}$
$= 5 \times 10^{-5}$


Residual Drawdown, Observation Well HN-59s
Yield Test at HN-70, 12/13/99
0.0
1.0
2.0
3.0
4.0
Residual Drawdown, s' (ft)
1.00
10.00
100.00
1000.00
Ratio, t/t'
T = 264(Q)/Δs
= 264(19)/1.3
= 3858 gpd/ft
= 516 ft²/day


Time-Drawdown for Obs. Well HN-11I
During Pump Test at HN-70
Rate = 19 GPM, 12/13/99
Drawdown (ft)
0.0
1.0
2.0
3.0
4.0
1
10
100
1000
Time,t (min)
t_0 = 20 min
Recovery
$T = \frac{264(Q)}{\Delta s} = \frac{264(19)}{2.6}$
= 1929 gpd/ft
= 258 ft²/day
$S = \frac{.3Tt}{r^2} = \frac{.3(1929)(\frac{20}{1440})}{228^2}$
= 1.5×10^{-4}


Time-Drawdown for Obs. Well HN-111
During Pump Test at HN-70
Rate = 19 GPM, 12/13/99
Drawdown (ft)
0.0
1.0
2.0
3.0
4.0
0
60
120
180
240
300
360
420
480
Time,t (min)
Recovery

Calculated Recovery Plot for Observation Well HN-111
Yield Test at HN-70, 12/13/99



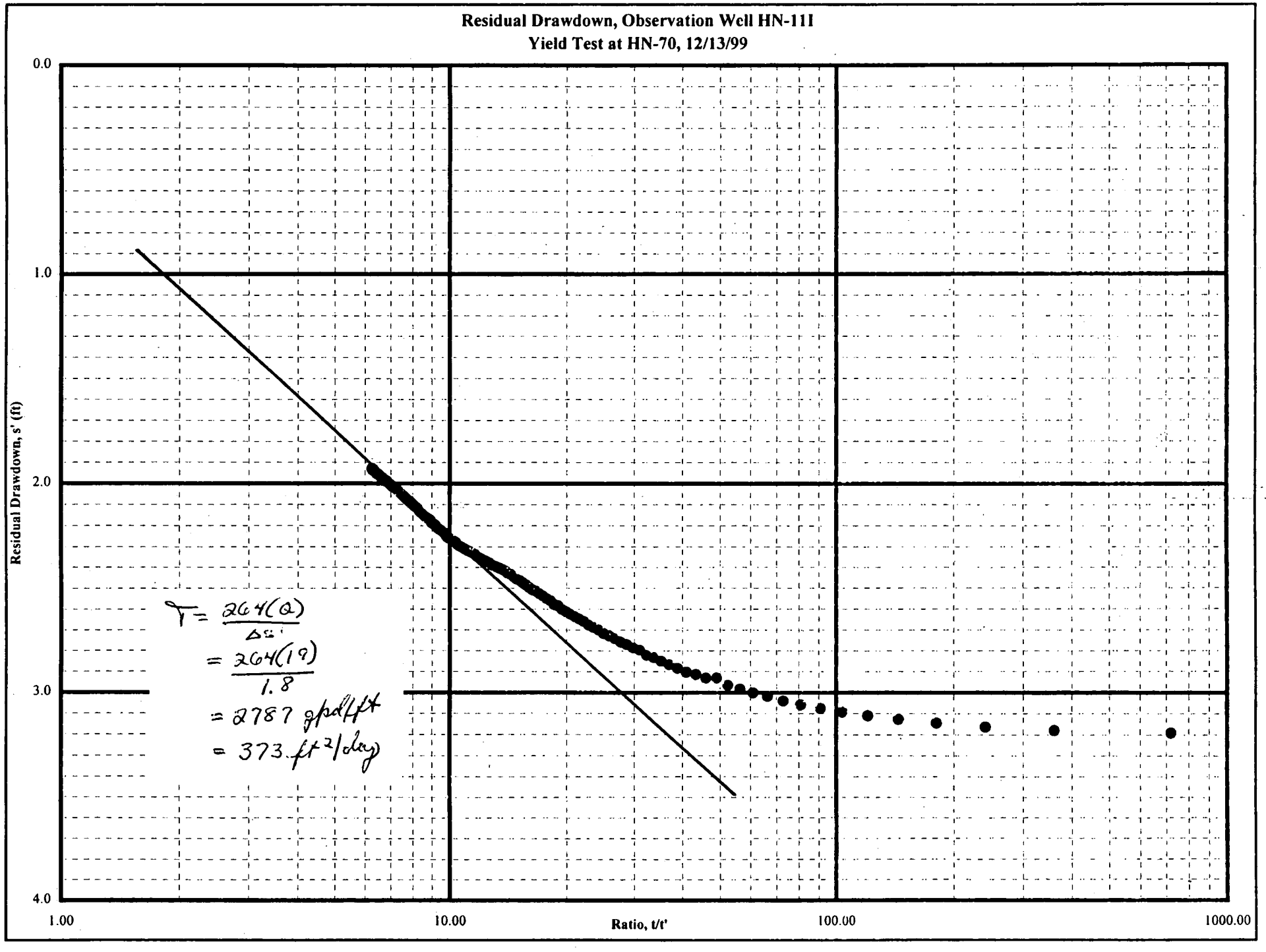
$$T = \frac{264(Q)}{\Delta s} = \frac{264(19)}{1.7}$$

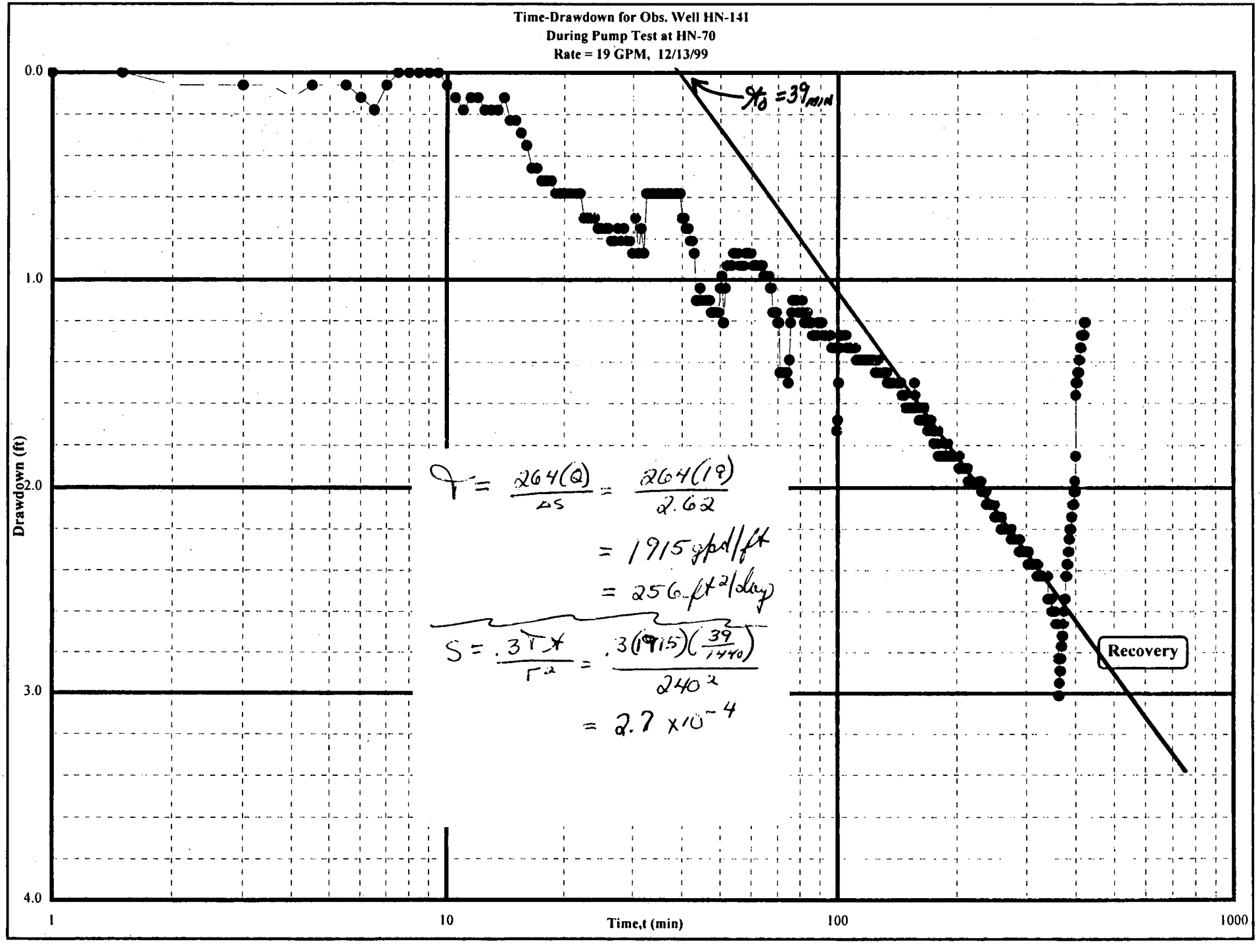
$$= 2951 \text{ gpd/ft}$$

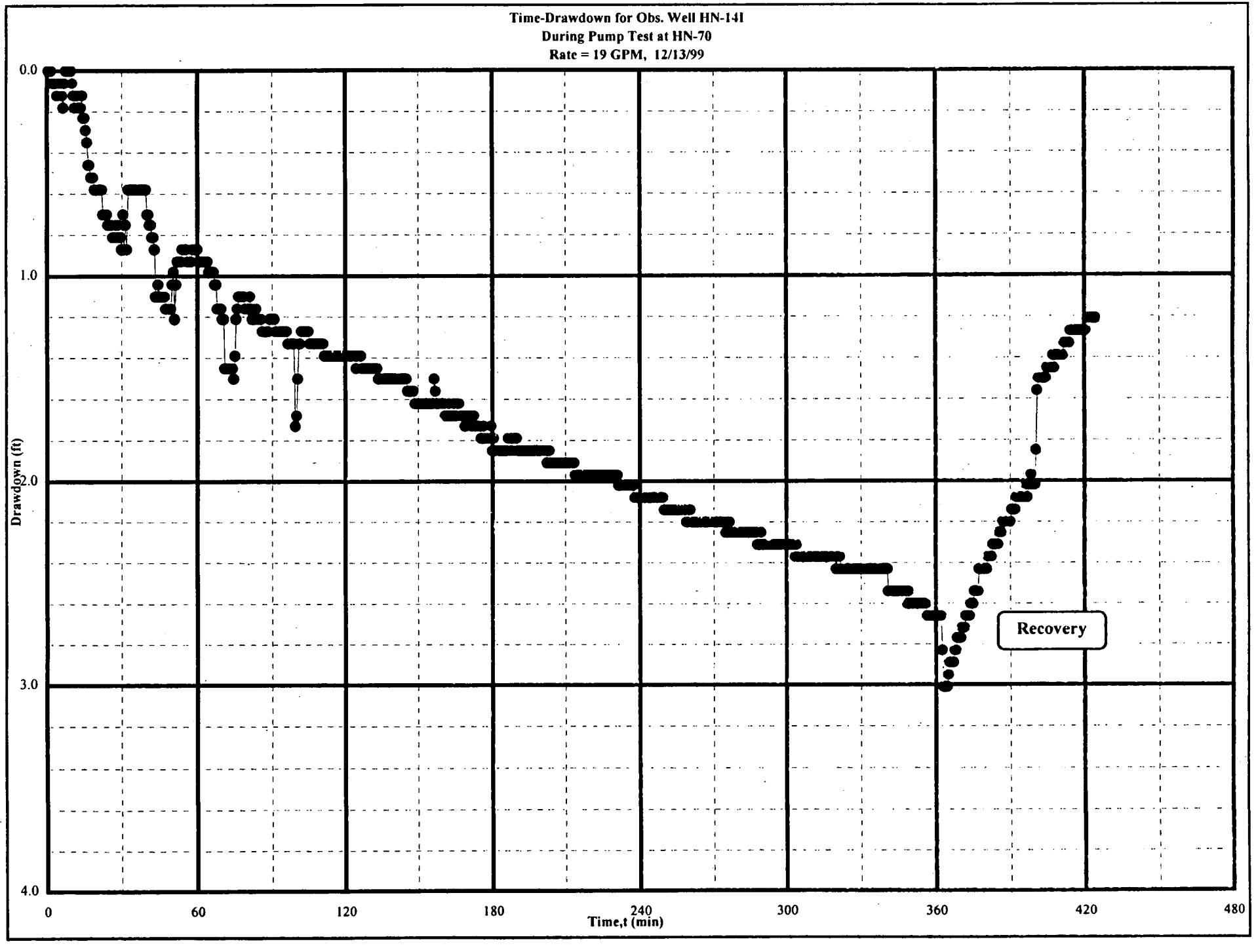
$$= 394 \text{ ft}^2/\text{day}$$

$$S = \frac{.3Tt}{r^2} = \frac{.3(2951)\left(\frac{10}{1440}\right)}{228^2}$$

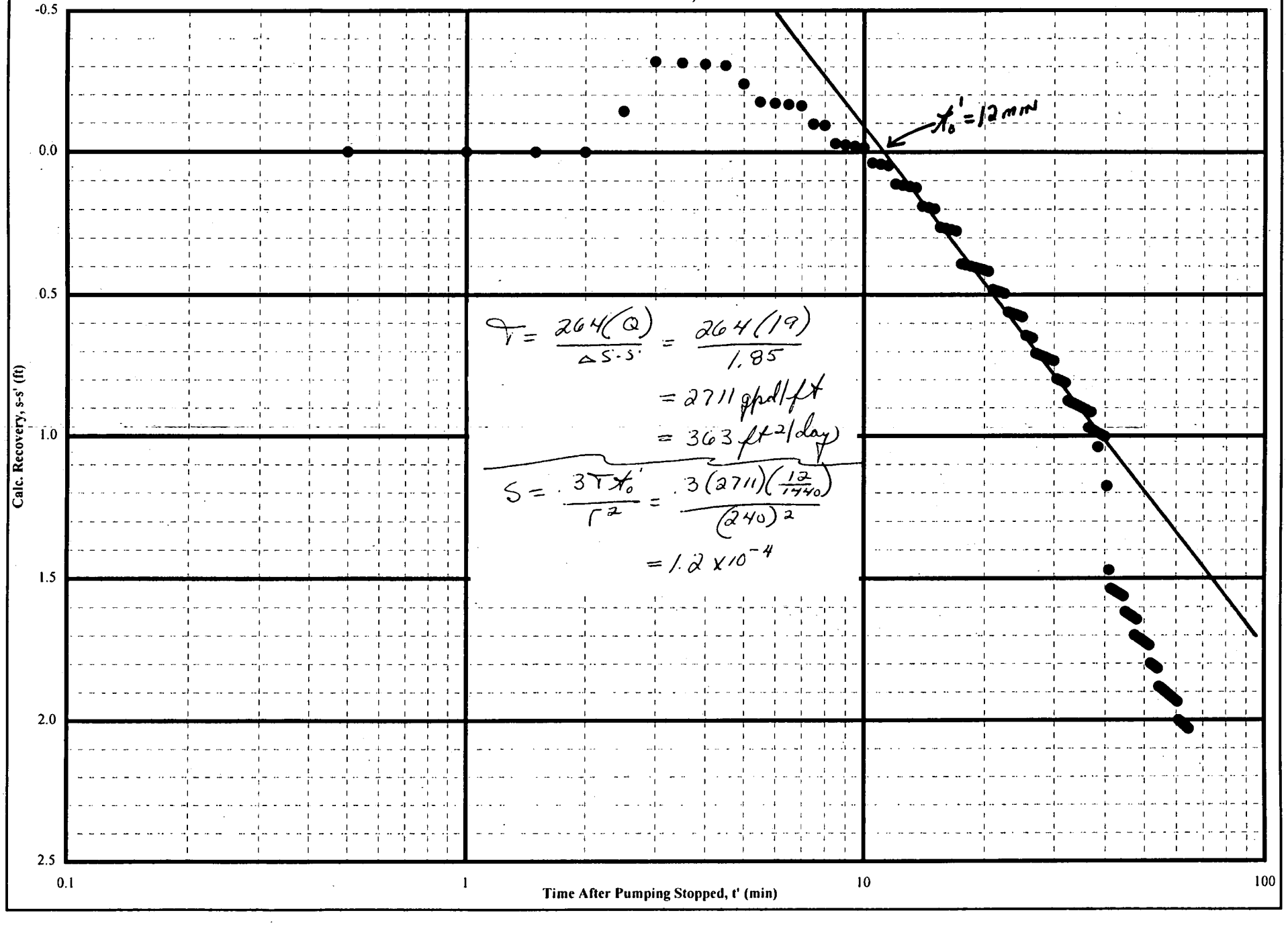
$$= 1.2 \times 10^{-4}$$


Residual Drawdown, Observation Well HN-11I
Yield Test at HN-70, 12/13/99
0.0
1.0
2.0
3.0
4.0
Residual Drawdown, s' (ft)
1.00
10.00
100.00
1000.00
Ratio, t/t'
T = 264(Q) / Δs'
= 264(19) / 1.8
= 2787 gpd/ft
= 373 ft²/day

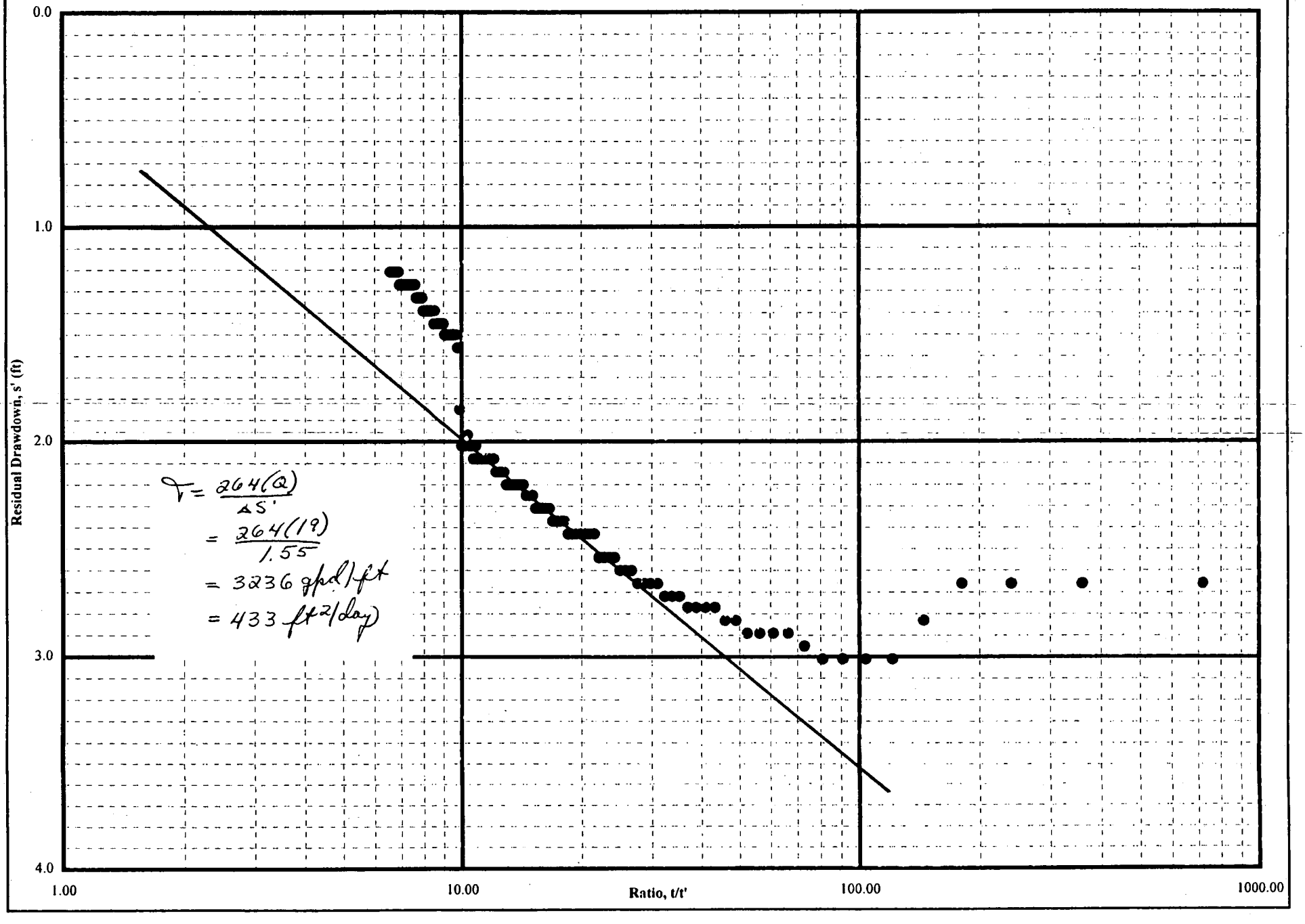

Time-Drawdown for Obs. Well HN-141
During Pump Test at HN-70
Rate = 19 GPM, 12/13/99
0.0
1.0
2.0
3.0
4.0
Drawdown (ft)
1
10
100
1000
Time,t (min)
Recovery
$t_0 = 39$ min
$T = \frac{264(Q)}{\Delta s} = \frac{264(19)}{2.62}$
$= 1915$ gpd/ft
$= 256$ ft²/day
$S = \frac{.3Tt}{r^2} = \frac{.3(1915)\left(\frac{39}{1440}\right)}{240^2}$
$= 2.7 \times 10^{-4}$


Time-Drawdown for Obs. Well HN-14I
During Pump Test at HN-70
Rate = 19 GPM, 12/13/99
Drawdown (ft)
0.0
1.0
2.0
3.0
4.0
0
60
120
180
240
300
360
420
480
Time,t (min)
Recovery

Calculated Recovery Plot for Observation Well HN-14I
Yield Test at HN-70, 12/13/99



Residual Drawdown, Observation Well HN-14I
Yield Test at HN-70, 12/13/99



FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET 1 of 2

Date(s) of Test: 12-13-99
Client: US NAVY
Project: WARMINSTER
Remarks:

Well ID: HN 70
Measuring Point: TOC
Elevation:
Distance from Pumping Well (r, feet): —
Pumping Rate (Q): ~19 gpm

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t', min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	meter 129758 Flow rate/gpm REMARKS	Fid 2hrs ppm
12/13	0930	0			15.22				INTDTW:	
		0.5			17.33	2.08			INTDTW:	
		1.0			16.98	1.76			ice in water	
		1.5			17.51				meter	
		2.0			17.58	2.36			closed ~22gpm(est)	
		2.5			17.72	2.50				
		3.0			17.80	2.58				
		3.5			17.89	2.67				
		4.0			17.96	2.76				
		4.5			18.02	2.80				
		5.0			18.07	2.85				
		6.0			18.14	2.92				
		7			18.19	2.97				
		8			18.24	3.02				
		9			18.29	3.07				
	0940	10			18.35	3.13				
		12			18.44	3.22			20gpm meter	
		14			18.50	3.28			19.5gpm meter	
		16			18.56	3.34				
		18			18.61	3.39				
	0950	20			18.68	3.46				0ppm
		22			18.72	3.50				
		24			18.76	3.54				
		26			18.80	3.58				
		28			18.84	3.62				
	1000	30			18.88	3.66			124830 $\frac{572}{30}$=19gpm	
		35			18.98	3.76			19.5gpm meter	
		40			19.03	3.83				
		45			19.12	3.90				
		50			19.15	3.93				
		55			19.25	4.03				
	1030	60			19.33	4.11			130400 $\frac{1142}{60}$=19gpm	ppm
	1040	70			19.44	4.22			19.5gpm	
	1050	80			19.53	4.36				
	1100	90			19.67	4.45				
12/13	1130	120			19.91	4.69			131600 $\frac{2342}{120}$=19.5	ppm

GC sampler 1hr

GC

GC

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET 2 of 2

Date(s) of Test: 12/13/99
Client: Navy
Project: Warminster
Remarks:

Well ID: HN70
Measuring Point:
Elevation:
Distance from Pumping Well (r, feet):
Pumping Rate (Q):

SWL 15.22

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t', min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
12/13	1155	45			20.11	4.89			20 gpm meter
	1230	90			20.45	5.23		G/FID 0 ppm	133600-129258 = 5342/180 = 20 gpm 19.5 gpm note
	1300	210			20.61	5.39			
	1330	240			20.74	5.57		G/FID 0 ppm	133400-129258 4642/240 = 19.5 19.5 gpm
	1400	270			20.86	5.64			
	1430	300			20.92	5.75			135100-129258 5842/300 = 19.5 19 gpm
	1515	345			21.29	6.07			
	1529	359			21.37	6.15			
	1530		Off						
	1530.5	0.5			20.30				136225 00
	1531	1			19.86				
		1.5			19.81				
		2			19.71				
		2.5			19.67				
		3			19.63				
		3.5			19.58				
		4			19.54				
		4.5			19.50				
	1535	5			19.47				
		6			19.41				
		7			19.37				
		8			19.33				
		9			19.30				
	1540	10			19.25				
		12			19.19				
		14			19.11				
		16			19.06				
		18			19.03				
	1548	21			18.97				
	1550	22			18.93				
	1554	24			18.89				
	1556	26			18.85				
	1558	28			18.82				
	1600	30			18.78				
	1605	35			18.72				
	1610	40			18.66				
	1615	45			18.60				
	1620	50			18.55				
	1625	55			18.44				

HN-70	15.22'	88.5	20.97'	78.3
HN-68	23.87'	82.9	26.48'	77.4
HN-59S	22.35'	66.4	25.55'	59.5
HN-14I	16.42'	46.6	19.25'	41.7
HN-11I	29.80'	82.8	32.80'	30.9

Start 0930

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET ___ of ___

Date(s) of Test: 12/13/99
Client: _____
Project: _____
Remarks: _____

Well ID: 82S
Measuring Point: _____ Elevation: _____
Distance from Pumping Well (r, feet): _____
Pumping Rate (Q): _____

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t, min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
12/13/99	0846				10.55				
	0907	0			10.50				
	0930	0			10.43				
	0948	18			10.42				
	1006	36			10.42				
	1030	60			10.44				
	1050				10.42				
	1131	TBP			10.40				
	1230				10.41				
	1331				10.42				
	1437				10.45				
	1531				10.43	-0.12			
	1553				10.42				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET 1 of 1

Date(s) of Test: 12/13/99
Client:
Project:
Remarks:

Well ID: Well E
Measuring Point:
Elevation:
Distance from Pumping Well (r, feet):
Pumping Rate (Q):

22.95

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t', min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
12/13/99	0851	0			22.96				
	0909	0			22.95	0			
	0932	2			22.95	0			
	0950	30			22.97	0.02			
	1009	39			22.98	0.03			
	1033	63			23.01	0.06			
	1052				23.03	0.09			
	1133	TBP			23.09	0.14			
	1232				23.17	0.22			
	1334				23.25	0.30			
	1439				23.33	0.38			
	1534				23.42	0.47			
	1556			23.41	~~23.41~~				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET 1 of 1

Date(s) of Test: 12/13/99
Client:
Project:
Remarks:

Well ID: HN-11D
Measuring Point:
Elevation:
Distance from Pumping Well (r, feet):
Pumping Rate (Q):

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t', min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
12/13/99	0854	8			1.10				
	0912	8			1.10				
	0934	4			1.11				
	0952	22			1.10				
	1011	41			1.10				
	1035	65			1.09				
	1054				1.09				
	1135				1.07				
	1234	TBD			1.08				
	1336				1.10				
	1442				1.10	0			
	1537				1.15	2.25			
	1559				1.14				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET 1 of 1

Date(s) of Test: 12/13/99
Client:
Project:
Remarks:

Well ID: HN-11I
Measuring Point:
Elevation:
Distance from Pumping Well (r, feet):
Pumping Rate (Q):

29.80

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t', min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
12/13/99	0855	0			29.82				
	0912	0			29.80	0			
	0935	5			29.92	0.12			
	0953	23			30.57	0.77			
	1017	42			30.99	0.19			
	1036	66			31.29	1.49			
	1054				31.46	1.66			
	1135	180			30.83?	2.03?			
	1234				32.25	2.45			
	1337				32.55	2.75			
	1442				32.80	3.00			
	1538				32.78				
	1600			32.42	Est.				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET 1 of 1

Date(s) of Test: 12/13/99
Client:
Project:
Remarks:

Well ID: OW-A2
Measuring Point:
Elevation:
Distance from Pumping Well (r, feet):
Pumping Rate (Q):

3/47

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t, min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
12/13/99	0353	0			31.47				
	0311	0			31.47	0			
	0933	3			31.47	0			
	0951	21			31.48	0.01			
	1010	40			31.51	0.03			
	1034	64			31.54	0.07			
	1053				31.55	0.08			
	1134				31.63	0.16			
	1233	180			31.71	0.24			
	1335				31.81	0.34			
	1447				31.95	0.48			
	1536				32.03	0.56			
	1557				32.04				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET 1 of 1

Date(s) of Test: 12/13/99
Client:
Project:
Remarks:

Well ID: Well C
Measuring Point:
Elevation:
Distance from Pumping Well (r, feet):
Pumping Rate (Q):

26.98

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t', min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
12/13/99	0857	0			26.98				
	0914	0			26.98	0			
	0935	5			26.99	0.01			
	0954	24			26.99	0.01			
	1013	43			27.00	0.02			
	1036	66			27.04	0.06			
	1055				27.05	0.07			
	1136	160			27.13	0.15			
	1235				27.24	0.26			
	1338				27.35	0.37			
	1443				27.47	0.49			
	1539				27.57	0.59			
	1601				27.60				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET 1 of 1

Date(s) of Test: 12/13/99
Client:
Project:
Remarks:

Well ID: HN-55I
Measuring Point:
Elevation:
Distance from Pumping Well (r, feet):
Pumping Rate (Q):

28.84

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t, min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
12/13/99	0858	0			28.85				
	0915	0			28.84	0			
	0938	8			29.39	0.55			
	0956	26			30.00	1.16			
	1015	45			30.33	1.49			
	1039	69			30.44	1.60			
	1058				30.83	1.99			
	1138	TBD			31.15	2.31			
	1238				31.60	2.76			
	1340				31.93	3.09			
	1447				32.16	3.32			
	1541				31.70				
	1604				31.20				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET 1 of 1

Date(s) of Test: 12/13/99
Client:
Project:
Remarks:

Well ID: HN-555
Measuring Point:
Elevation:
Distance from Pumping Well (r, feet):
Pumping Rate (Q):

2723

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t', min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
12/13/99	0859	0			27.24				
	0916	0			27.23	0			
	0923	3			27.36	0.13			
	0956	26			27.68	0.45			
	1015	45			27.90	0.67			
	1040	70			28.09	0.85			
	1059				28.21	0.98			
	1139				28.45	1.22			
	1239	155			28.75	1.52			
	1340				29.01	1.78			
	1447				29.20	1.97			
	1542				29.17	1.			
	1605				28.91				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

Date(s) of Test: 12/13/99
Client:
Project:
Remarks:

Well ID: MW-59S
Measuring Point:
Elevation:
Distance from Pumping Well (r, feet):
Pumping Rate (Q):

SHEET 1 of 1

22.35

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t', min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
12/13/99	0913	0			23.37				
	0918	0			23.35	0			
	0940	10			23.93	0.58			
	0946	16			23.12	0.77			
	0959	29			23.44	1.09			
	1004	34			23.34	0.99			
	1012	48			23.76	1.41			
	1023	53			23.82	1.47			
	1043	72			24.05	1.70			
	1048				24.10	1.75			
	1103	TBD			24.35	1.90			
	1109				24.30	1.95			
1141	~~[illegible]~~				24.55	2.20			
	1146				24.58	2.23			
	1241				24.99	2.64			
	1248				25.04	2.69			
	1343				25.31	2.96			
	1348				25.33	2.98			
	1449				25.55	3.20			
	1455				25.58	3.23			
	1544				25.09				
	1550				24.94				
	1607				24.66				
	1616				~~24.49~~	24.59			

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET 1 of 1

Date(s) of Test: 12/13/99
Client:
Project:
Remarks:

Well ID: HN-59I
Measuring Point: Elevation:
Distance from Pumping Well (r, feet):
Pumping Rate (Q):

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t, min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
12/13/99	0901	0			26.21				
	0918	0			26.12	0			
	0939	9			26.12				
	~~[illegible]~~								
	0947	17			26.13				
	0958	28			26.13				
	1005	35			26.13				
	1017	47			26.14				
	1023	53			26.13				
	1041	71			26.12				
	1048				26.11				
	1100				26.11				
	111	TBD			26.10				
	1140				26.11				
	1147				26.11				
	1240				26.11				
	1248				26.11				
	1342				26.11				
	1349				26.11				
	1449				26.11				
	1456				26.11	-0.05			
	1543				26.12				
	1551				26.12				
	1606				26.12				
	1619				26.12				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET 1 of 1

Date(s) of Test: 12/13/99

Client:

Project:

Remarks:

Well ID: HN-14I

Measuring Point:

Elevation:

Distance from Pumping Well (r, feet):

Pumping Rate (Q):

16.42

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t', min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
12/13/99	0903	0			16.42				
	0920	0			16.42	0			
	0942	12			16.74	0.32			
	1000	30			17.21	0.79			
	1019	49			17.51	1.09			
	1043	73			17.80	1.38			
	1104				18.00	1.58			
	1142	TOP			18.28	1.78			
	1243				18.69	2.27			
	1344				19.00	2.58			
	1451				19.25	2.83			
	1546				19.02				
	1609				18.62				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET 1 of 1

Date(s) of Test: 12/13/99
Client:
Project:
Remarks:

Well ID: HN-145
Measuring Point: Elevation:
Distance from Pumping Well (r, feet):
Pumping Rate (Q):

DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t', min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
12/13/99		0	0904		14.38				
		0	0920		14.39	0			
	0942	12			14.40	0.01			
	1001	31			14.40				
	1019	49			14.40				
	1044	74			14.41				
	1105				14.40	0.01			
	1143	181			14.41	0.02			
	1243				14.44	0.05			
	1343				14.48	0.09			
	1451				14.50	0.10			
	1546				14.52	0.13			
	1609				14.54				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

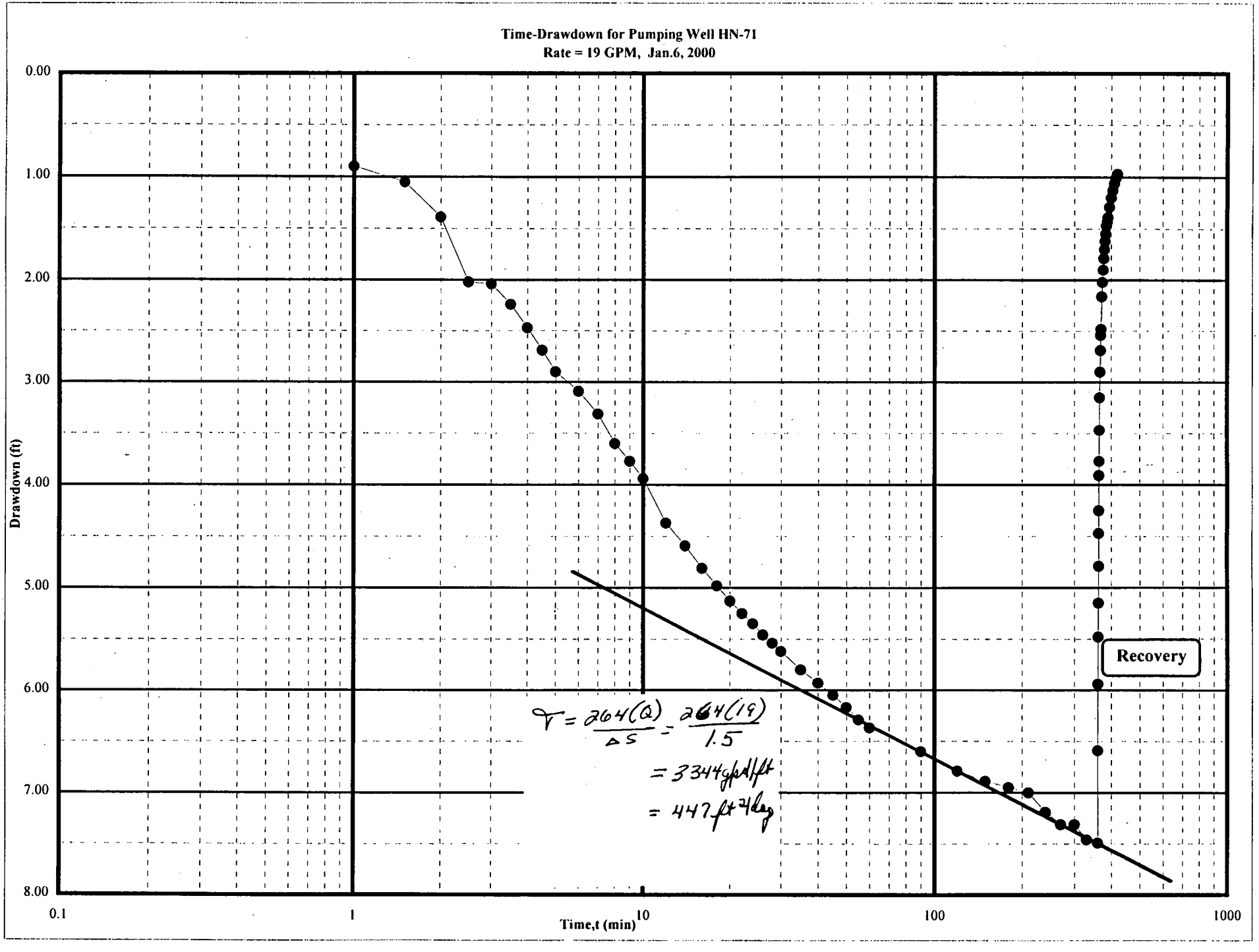
SHEET 1 of 1

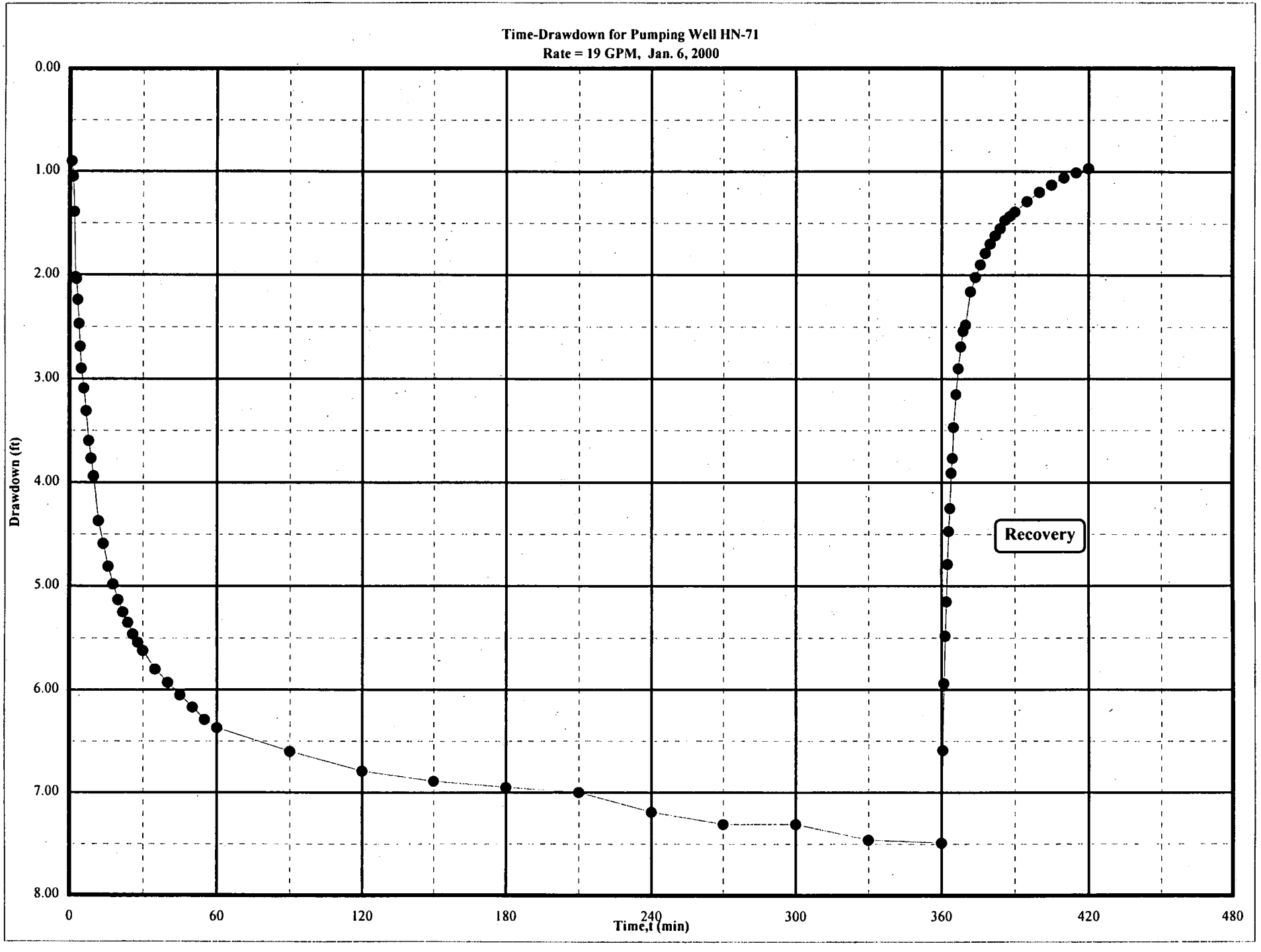
Date(s) of Test: 12/13/99
Client:
Project:
Remarks:

Well ID: HN-68
Measuring Point:
Elevation:
Distance from Pumping Well (r, feet):
Pumping Rate (Q):

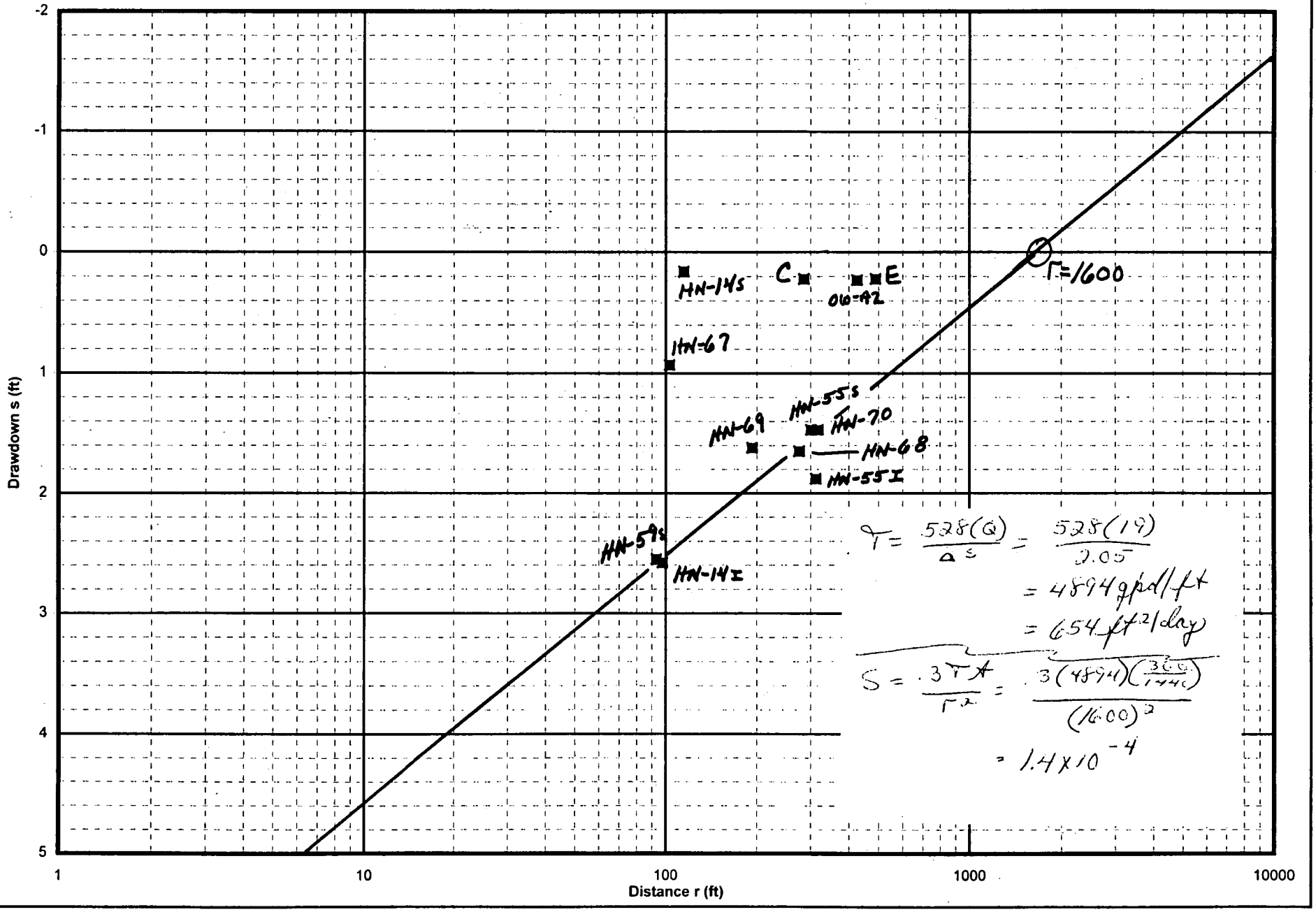
DATE	TIME (24hr)	TIME SINCE PUMP START (t, min)	TIME SINCE PUMP STOP (t', min)	t/t'	MEASURED DEPTH TO WATER (ft)	DRAWDOWN (s, ft)	RESIDUAL DRAWDOWN (s', ft)	CALC. RECOVERY (s-s', ft)	REMARKS
12/13/99									
		0	Mined						
		0							
	0946	16			23.87				
	1002	32			24.35				
	1021	51			24.62				
	1046	76			24.95				
	1107				25.13				
	1145				25.45				
	1246	TOP			25.91				
	1346				26.24				
	1454				26.48				
	1548				26.43				
	1612				25.01				

check level in AM


Time-Drawdown for Pumping Well HN-71
Rate = 19 GPM, Jan.6, 2000
Drawdown (ft)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
0.1
1
10
100
1000
Time,t (min)
Recovery
T = 264(Q)/ΔS = 264(19)/1.5
= 3344 gpd/ft
= 447 ft²/day


Time-Drawdown for Pumping Well HN-71
Rate = 19 GPM, Jan. 6, 2000
Drawdown (ft)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
0
60
120
180
240
300
360
420
480
Time,t (min)
Recovery

Distance-Drawdown Plot
Yield Test at HN-71, Jan. 6, 2000
6 Hour Test at 19 gpm



$$T = \frac{528(Q)}{\Delta s} = \frac{528(19)}{2.05}$$

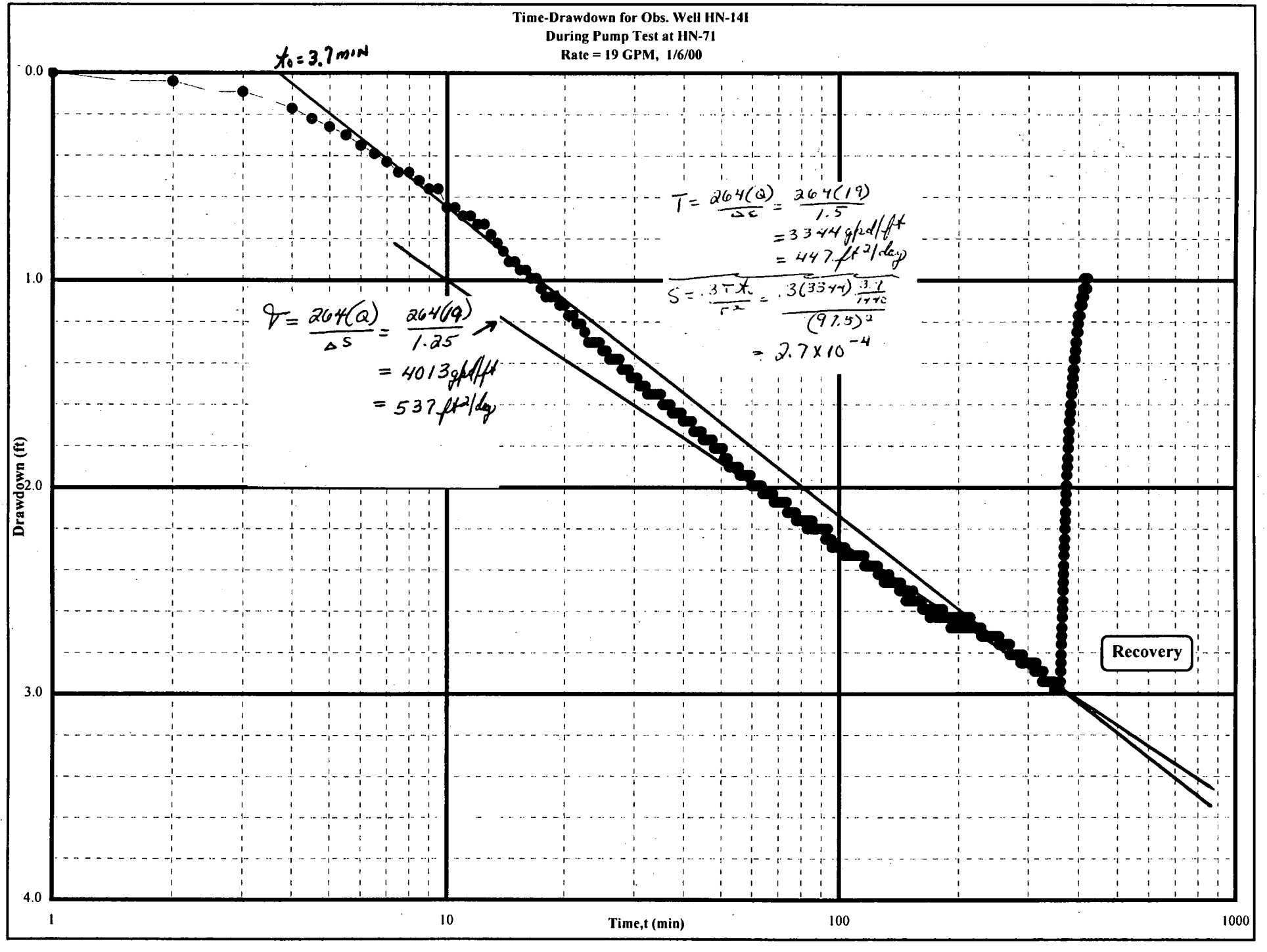
$$= 4894 \text{ gpd/ft}$$

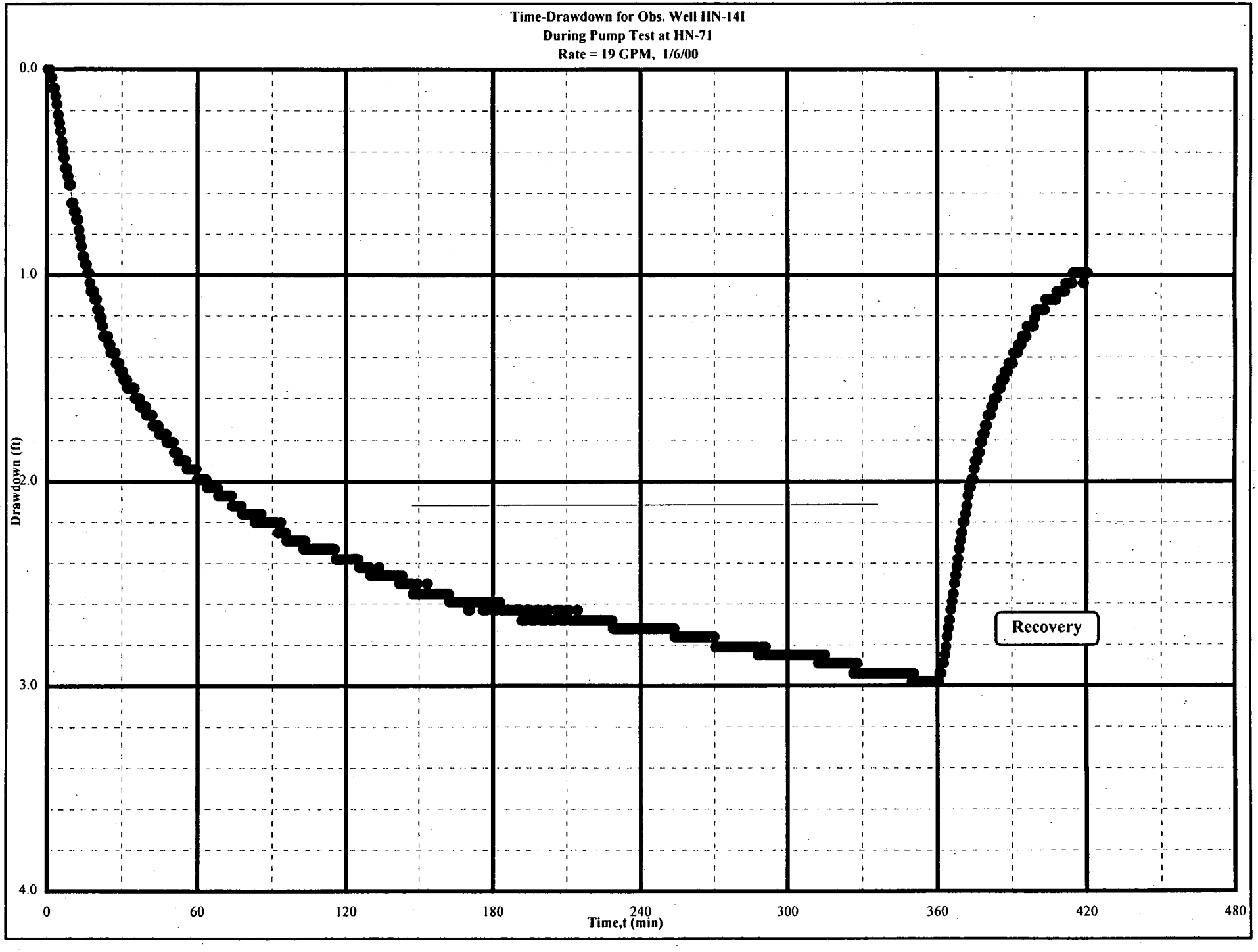
$$= 654 \text{ ft}^2/\text{day}$$

$$S = \frac{3Tt}{r^2} = \frac{3(4894)\left(\frac{360}{1440}\right)}{(1600)^2}$$

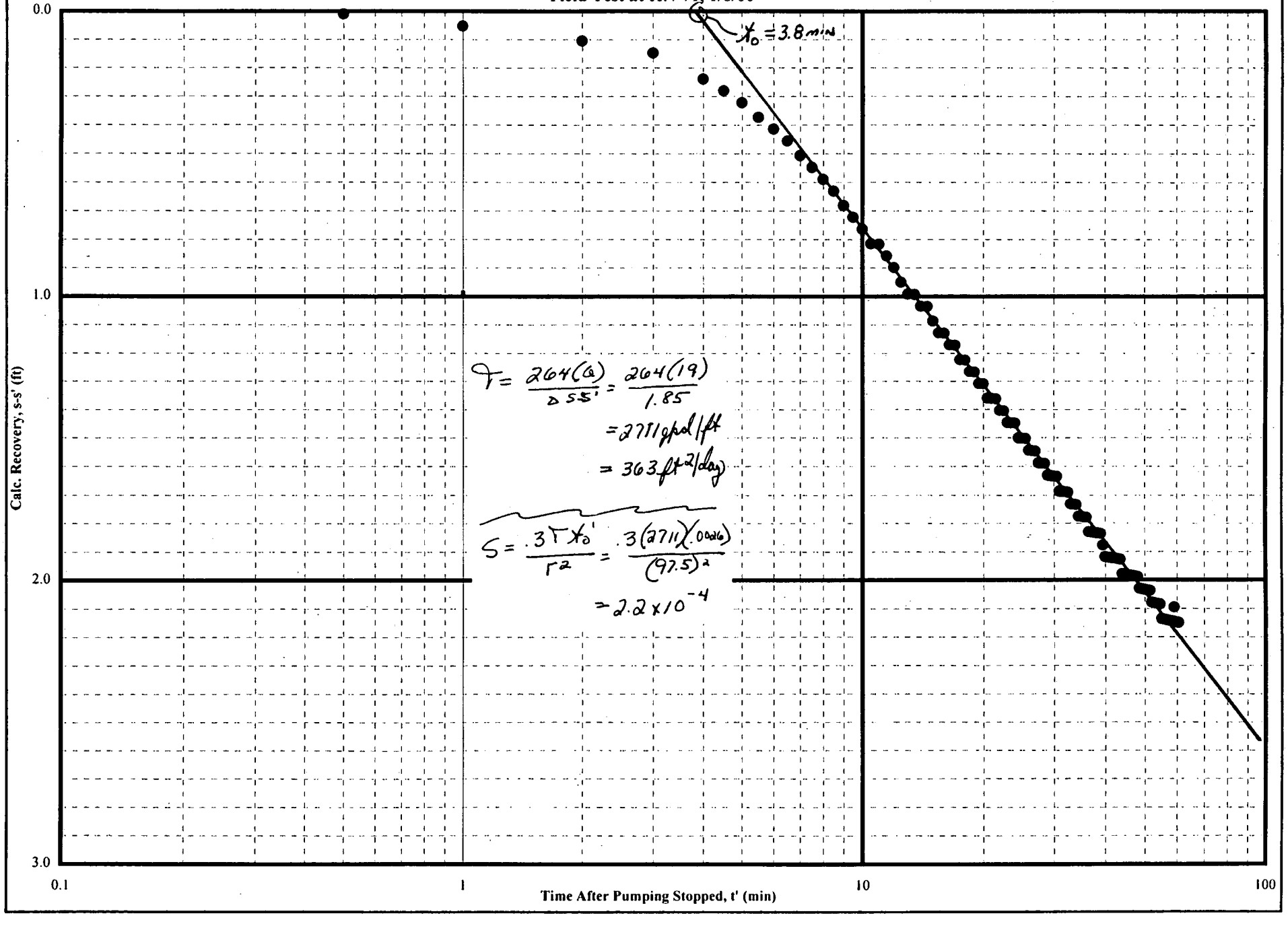
$$= 1.4 \times 10^{-4}$$

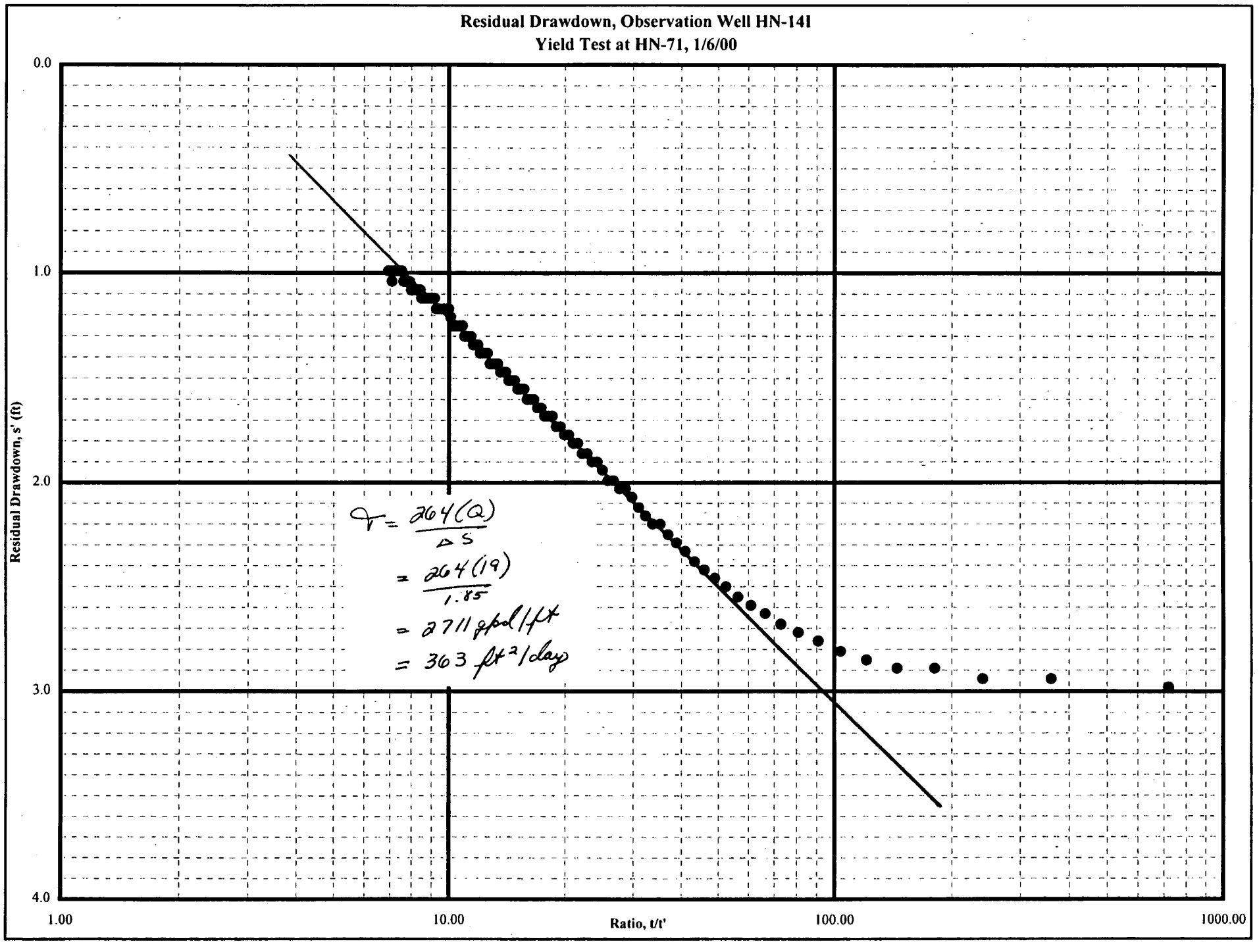
Yield Test at Area A:HN-71 1/6/2000		
Well	**Distance (r)**	**Max. DD (ft)**
HN-59S	93	2.55
HN-14I	97.5	2.58
HN-67	103	0.93
HN-14s	115	0.16
HN-69	193	1.62
HN68	275	1.65
C	285	0.22
HN-55S	301	1.47
HN-55I	312	1.88
HN70	317	1.47
HN-11I	330	
OW-A2	425	0.23
E	488	0.22

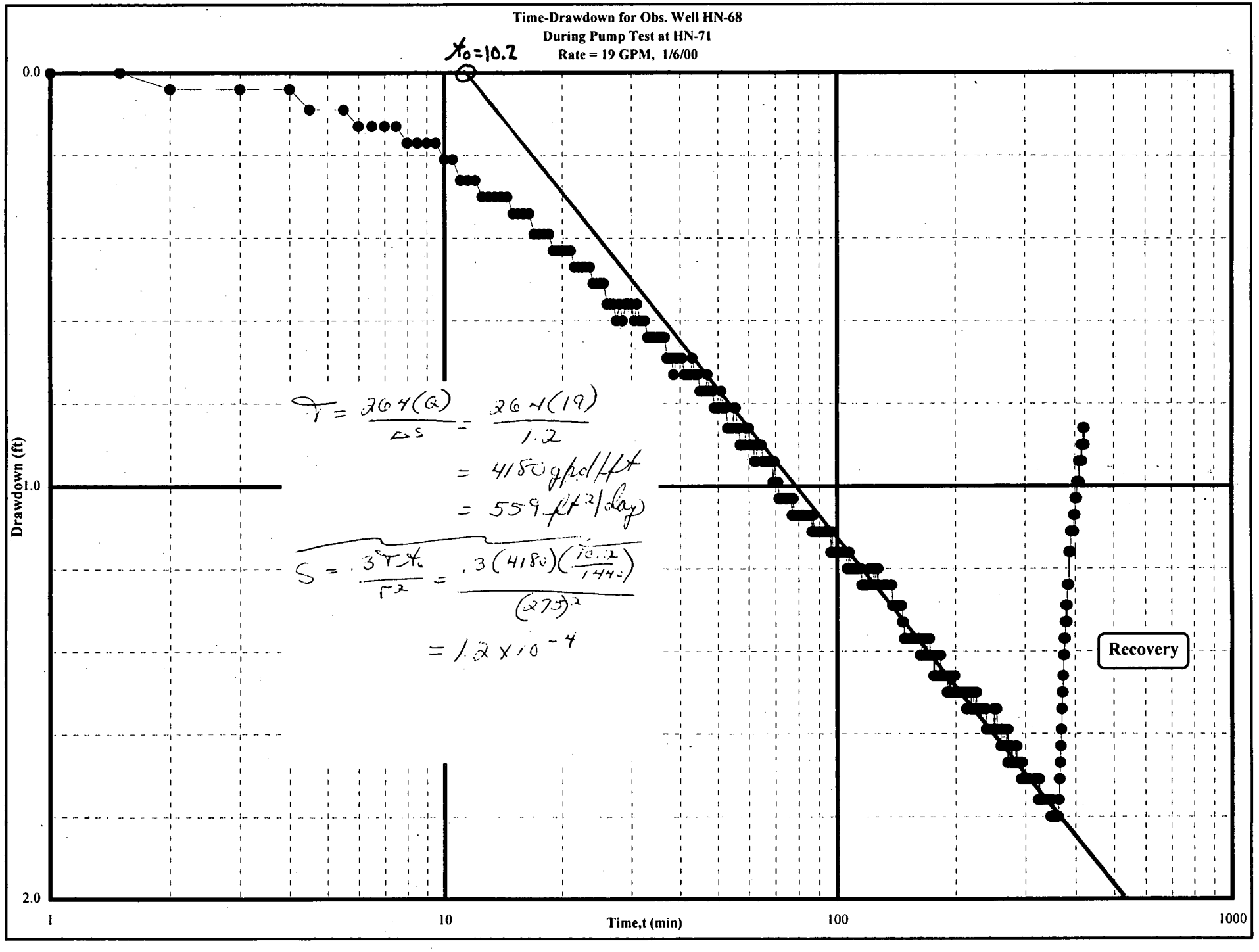

Time-Drawdown for Obs. Well HN-14I
During Pump Test at HN-71
Rate = 19 GPM, 1/6/00
$t_0 = 3.7$ min
$T = \frac{264(Q)}{\Delta s} = \frac{264(19)}{1.5}$
$= 3344$ gpd/ft
$= 447$ ft²/day
$S = \frac{.3 T t_0}{r^2} = \frac{.3(3344)\frac{3.7}{1440}}{(97.5)^2}$
$= 2.7 \times 10^{-4}$
$T = \frac{264(Q)}{\Delta s} = \frac{264(19)}{1.25}$
$= 4013$ gpd/ft
$= 537$ ft²/day
Recovery
Drawdown (ft)
0.0
1.0
2.0
3.0
4.0
1
10
100
1000
Time,t (min)

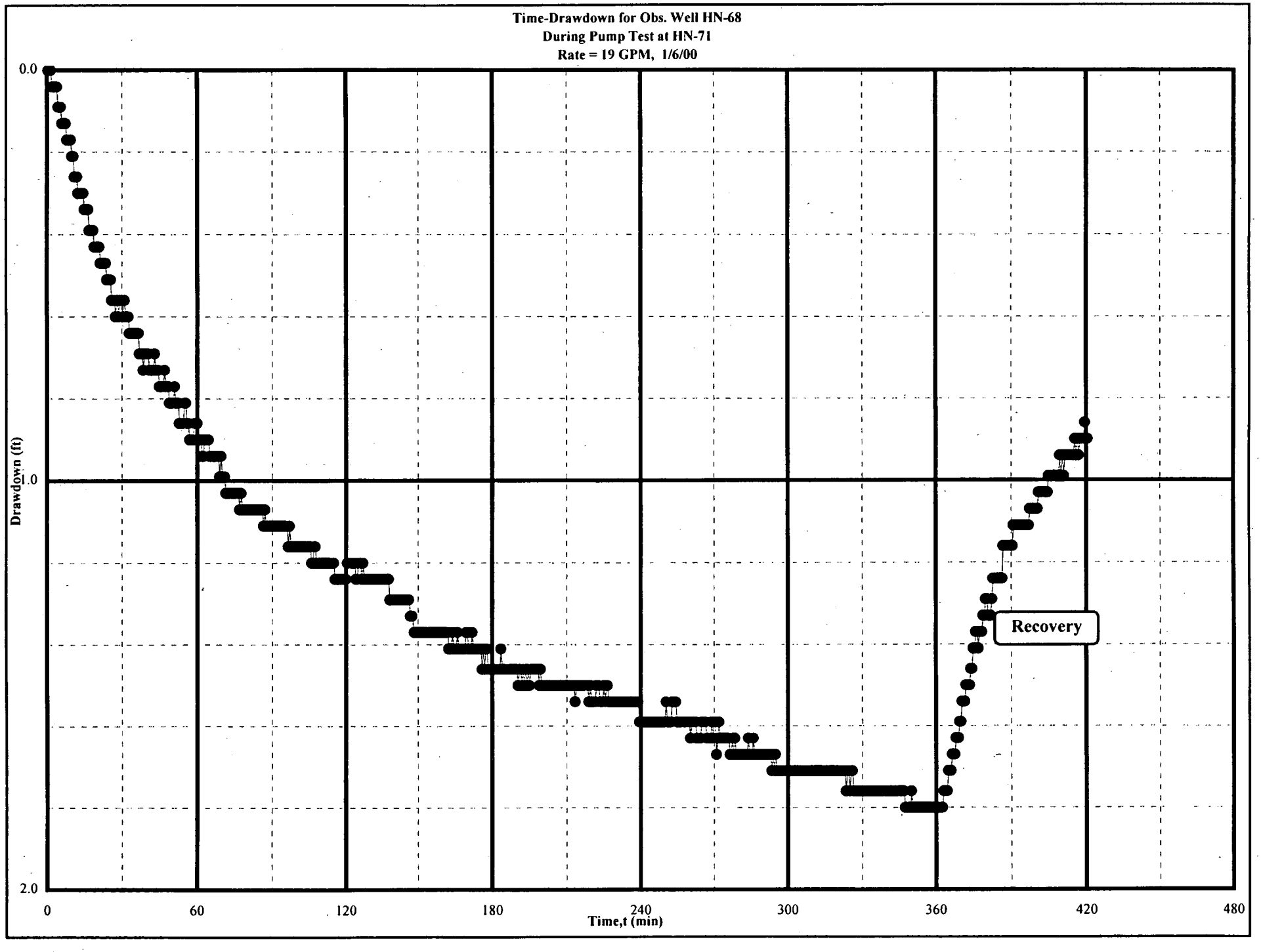

Time-Drawdown for Obs. Well HN-14I
During Pump Test at HN-71
Rate = 19 GPM, 1/6/00
Drawdown (ft)
0.0
1.0
2.0
3.0
4.0
0
60
120
180
240
300
360
420
480
Time,t (min)
Recovery

Calculated Recovery Plot for Observation Well HN-14I
Yield Test at HN-71, 1/6/00



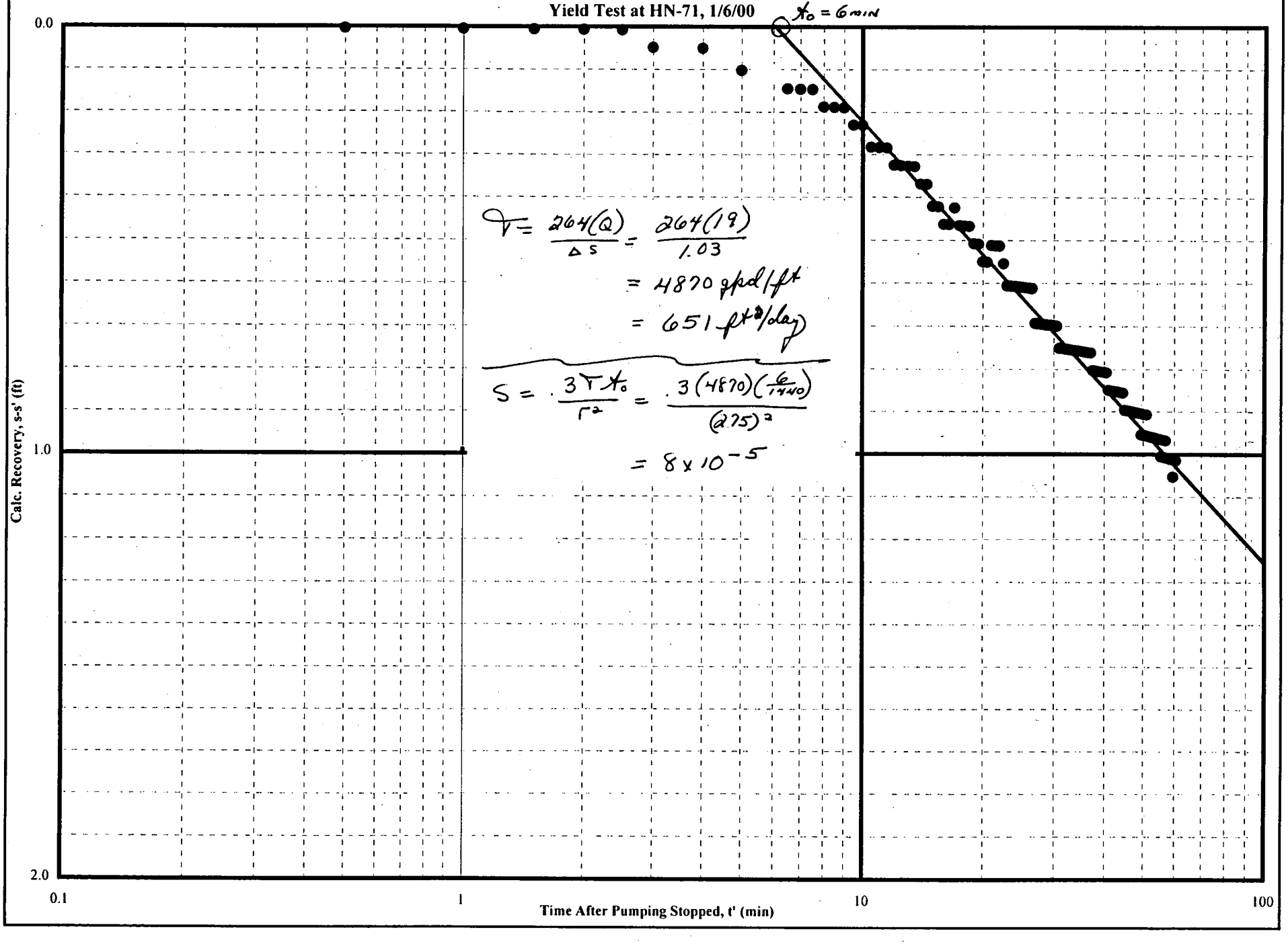

Residual Drawdown, Observation Well HN-141
Yield Test at HN-71, 1/6/00
Residual Drawdown, s' (ft)
0.0
1.0
2.0
3.0
4.0
1.00
10.00
100.00
1000.00
Ratio, t/t'
T = 264(Q) / Δs
= 264(19) / 1.85
= 2711 gpd/ft
= 363 ft²/day

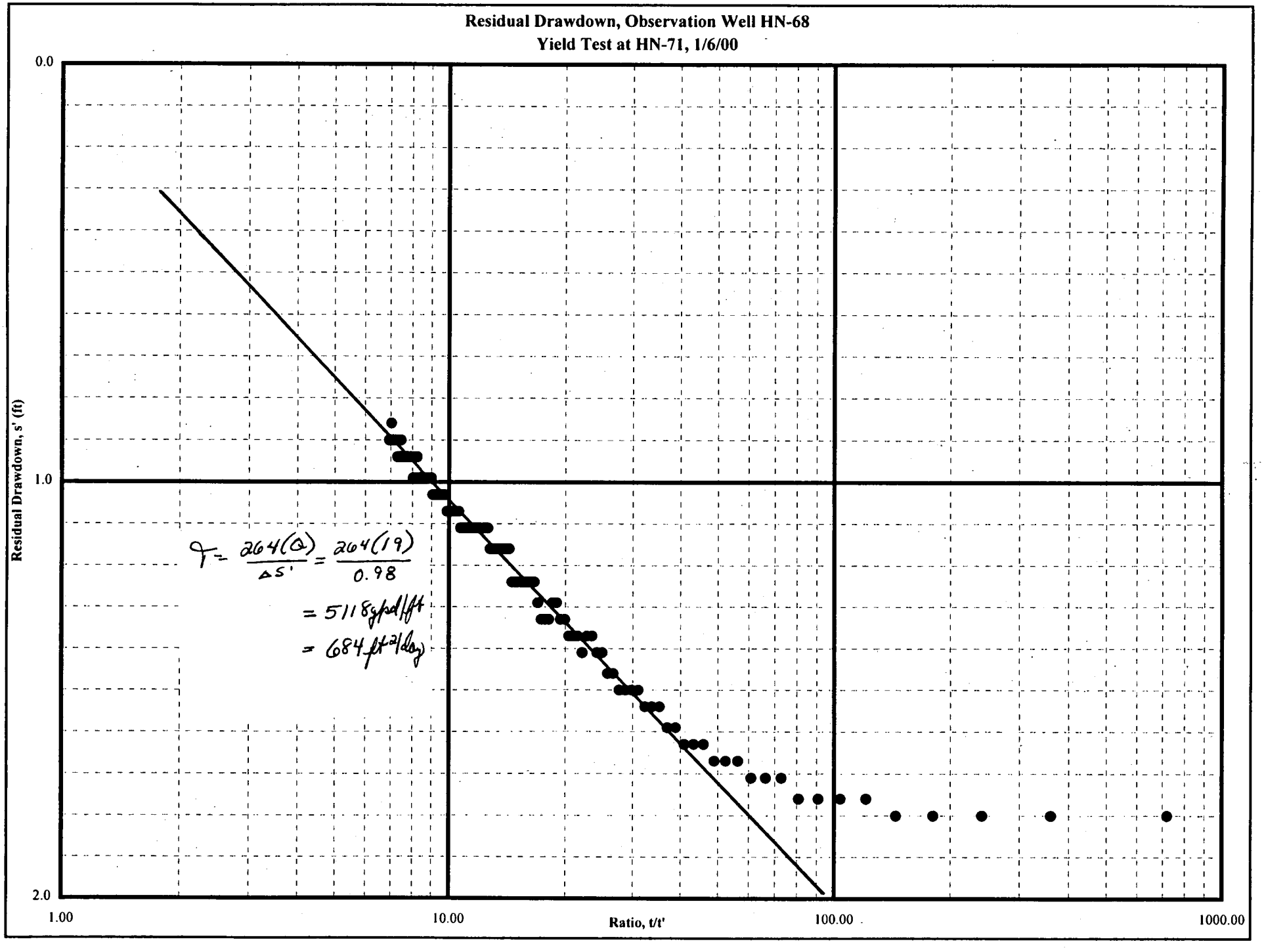

Time-Drawdown for Obs. Well HN-68
During Pump Test at HN-71
Rate = 19 GPM, 1/6/00
$t_0 = 10.2$
0.0
1.0
2.0
Drawdown (ft)
1
10
100
1000
Time,t (min)
Recovery
$T = \frac{264(Q)}{\Delta s} = \frac{264(19)}{1.2}$
$= 4180$ gpd/ft
$= 559$ ft²/day
$S = \frac{.3 T t_0}{r^2} = \frac{.3(4180)(\frac{10.2}{1440})}{(275)^2}$
$= 1.2 \times 10^{-4}$


Time-Drawdown for Obs. Well HN-68
During Pump Test at HN-71
Rate = 19 GPM, 1/6/00
0.0
1.0
2.0
Drawdown (ft)
0
60
120
180
240
300
360
420
480
Time,t (min)
Recovery

Calculated Recovery Plot for Observation Well HN-68

Yield Test at HN-71, 1/6/00




Residual Drawdown, Observation Well HN-68
Yield Test at HN-71, 1/6/00
0.0
1.0
2.0
Residual Drawdown, s' (ft)
1.00
10.00
100.00
1000.00
Ratio, t/t'
$T = \frac{264(Q)}{\Delta s'} = \frac{264(19)}{0.98}$
= 5118 gpd/ft
= 684 ft²/day

FOSTER WHEELER ENVIRONMENTAL CORPORATION
PUMPING TEST DATA

SHEET 1 of 3

Date(s) of Test: 1-6-00
Client: USNAVY
Project: WARMINSTER - OFFSITE AREA A
Remarks:

Well ID: HN71
Measuring Point: TOC
Elevation:
Distance from Pumping Well (r, feet):
Pumping Rate (Q): 19.5 GPM

									TELOC @ 30% 16" 0.0 ppm
		0			19.62				START @ 20:25 ppm
		0			19.64				@ 923 19.61
	0930	0			19.64	19.61			
		0.5			19.70				
		1.0			20.51				
		1.5			20.60				
		2.0			21.00				
		2.5			21.63				
		3.0			21.65				
		3.5			21.85				
		4.0			22.08				
		4.5			22.30				
	0935	5.0			22.51				
		6			22.70				
		7			22.92				
		8			23.21				
		9			23.38				
	0940	10			23.55				19.5 gpm - FULL THROTTLE
	0942	12			23.98				
	0944	14			24.20				
	0946	16			24.42				20 gpm
	0948	18			24.59				
	0950	20			24.74				19.5 gpm
		22			24.86				
		24			24.96				
		26			25.07				
		28			25.15				
	1000	30			25.23				Sample HN71 @ 1000
	1005	35			25.41				FID: 0 ppm
	1010	40			25.54				19.5 gpm
	1015	45			25.66				
	1020	50			25.78				19.5 gpm
	1025	55			25.90				
	1030	60			25.98				
	1100	90			26.21				Sample HN71 1100 @ 1100
	1130	120			26.40				FID: 0 ppm

FOSTER WHEELER ENVIRONMENTAL CORPORATION
PUMPING TEST DATA

SHEET 2 of 3

Date(s) of Test: 1-600
Client:
Project:
Remarks:

Well ID: HN71
Measuring Point:
Elevation:
Distance from Pumping Well (r, feet):
Pumping Rate (Q):

	1200	150			26.50				SAMPLE HN71 1200 0 1200
	1230	180			26.56				FID 0 ppm
	1300	210			26.61				SAMPLE HN71 1300 0 1300
	1330	240			26.51				FID 0 ppm
	1400	270			26.92				SAMPLE HN71 1400 0 1400
	1430	300			26.97				FID 0 ppm
	1500	330			27.02				SAMPLE HN71 1500 0 1500
	1530	360			27.10	27.10			FID 0 ppm
	1530	360	0		26.20				
			0.5		25.55				SAMPLE HN71 1525 0 1525
			1.0		25.09				FID 0 ppm
			1.5		24.76				LAB SAMPLE HN71 0 1525
			2.0		24.40				
			2.5		24.05				STOP PUMP @ 1530
			3.0		23.80				
			3.5		23.52				
			4.0		23.30				
			4.5		23.09				
	1535		5.0		23.05				
			6		22.76				
			7		22.51				
			8		22.30				
			9		22.15				
	1540		10		22.01				
			12		21.77				
			14		21.63				
			16		21.51				
			18		21.40				
	1550		20		21.31				
			22		21.23				
			24		21.16				
			26		21.08				
			28		21.04				
	1600		30		21.00				
	1605		35		20.90				
	1610		40		20.81				

19 ppm

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET 3 of 3

Date(s) of Test: 1-6-00

Client:

Project:

Remarks:

Well ID: HN71

Measuring Point:

Elevation:

Distance from Pumping Well (r, feet):

Pumping Rate (Q):

	1615		45		20.74			
	1620		50		20.67			
	1625		55		20.62			
	1630		60		20.58			

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET ___ of ___

Date(s) of Test: 1/6/00
Client: _____
Project: _____
Remarks: _____

Well ID: Well E
Measuring Point: _____ Elevation: _____
Distance from Pumping Well (r, feet): _____
Pumping Rate (Q): _____

	316				20.64				
	816				20.64				
	938				20.64				
	954				20.62				
	1016				20.64				
	1149				20.70				
	1259				20.80				
	1348				20.79				
	1445				20.83				
	543				20.86				
	1604				20.85				
	1625				20.85				

FOSTER WHEELER ENVIR NMENTAL CORPORATION

PUMPING TEST DATA

OWA2

SHEET ___ of ___

Date(s) of Test: 1/6/00
Client: _____
Project: _____
Remarks: _____

Well ID: ~~#~~ OWA2
Measuring Point: _____ Elevation: _____
Distance from Pumping Well (r, feet): _____
Pumping Rate (Q): _____

	898	I			25.85				
	831				25.89				
	955				25.85				
	1017				25.86				
	1147				25.86				
	1258				25.93				
	1347				25.97				
	1444				26.01				
	1543				26.07				
	1603				26.10				
	1623				26.08				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET ___ of ___

Date(s) of Test: 1/6/00
Client: ___
Project: ___
Remarks: ___

Well ID: HN 11D
Measuring Point: ___
Elevation: ___
Distance from Pumping Well (r, feet): ___
Pumping Rate (Q): ___

	819				0.80				
	932				0.80				
	956				0.80				
	1019				0.80				
	1146				0.80				
	1255				0.80				
	1346				0.80				
	1443				0.80				
	1542				0.80				
	1602				0.80				
	1622				0.80				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET ___ of ___

1/6/00

Well ID: Well C

Measuring Point: _____ Elevation: _____

Distance from Pumping Well (r, feet): _____

Pumping Rate (Q): _____

	821				25.45				
	934				25.40				
	958				25.40				
	1020				25.38				
	1144				25.37				
	1253				25.51				
	1345				25.49				
	1441				25.56				
	1540				25.60				
	1601				25.68				
	1620				25.62				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET ___ of ___

Date(s) of Test: 1/6/00
Client: ___
Project: ___
Remarks: ___

Well ID: HN 55S
Measuring Point: ___ Elevation: ___
Distance from Pumping Well (r, feet): ___
Pumping Rate (Q): ___

	823				25.11				
	936				25.13				
	1000				25.51				
	1022				25.72				
	1142				26.14				
	1250				26.37				
	1311				26.45				
	1439				26.57				
	1538				26.59				
	1559				26.25				
	1618				26.08				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET ___ of ___

Date(s) of Test: 1/6/00
Client: ___
Project: ___
Remarks: ___

Well ID: HN 55 I
Measuring Point: ___ Elevation: ___
Distance from Pumping Well (r, feet): ___
Pumping Rate (Q): ___

	824	I			26.07				
	937				26.30				
	1001				26.99				
	1023				27.26				
	1143				27.73				
	1251				27.95				
	1341				~~28.15~~ 28.07				
	1430				28.18				
	1539				27.94				
	1558				27.38				
	1618				27.11				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET ___ of ___

Date of Test: 1/6/00
Client:
Project:
Location:

Well ID: HN 595
Measuring Point: _____ Elevation: _____
Distance from Pumping Well (r, feet): _____
Pumping Rate (Q): _____

827	I			19.43				
840				21.16				
1003				22.24				
1026				22.16				
1140				23.15				
1246				23.33				
1339				23.46				
1430				23.60				
1536				21.95				
1556				20.82				
1615				20.50				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET 1 of 1

Date(s) of Test: 1/6/00
Client:
Project:
Recorder:

Well ID: HN59I
Measuring Point:
Elevation:
Distance from Pumping Well (r, feet):
Pumping Rate (Q):

	826	I			29.79				
	939				29.58				
	1002				29.52				
	1025				29.47				
	1140				29.28				
	1247				29.08				
	1337				29.06				
	1437				28.95				
	1537				28.85				
	1557				28.80				
	1616				28.76				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET ___ of ___

Date(s) of Test: 1/6/00
Client: ___
Project: ___
Remarks: ___

Well ID: HN 69
Measuring Point: ___ Elevation: ___
Distance from Pumping Well (r, feet): ___
Pumping Rate (Q): ___

	803							
	828	I			20.16			
	942				20.43			
	1005				20.89			
	1028				21.16			
	1139				21.56			
	1244				21.80			
	1337				21.89			
	1435				22.02			
	1535				22.01			
	~~1558~~				~~[illegible]~~			
	1555				22.50			
	1614				21.21			

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET ___ of ___

Date(s) of Test: 1/6/00
Client: ___
Project: ___
Remarks: ___

Well ID: HN 68
Measuring Point: ___ Elevation: ___
Distance from Pumping Well (r, feet): ___
Pumping Rate (Q): ___

	803	I			19.95			
	829	I			19.93			
	944				20.16			
	1006				20.61			
	1029				20.88			
	1138				21.24			
	1242				21.45			
	1336				21.56			
	1434				21.68			
	1531				21.75			
	1532				21.28			
	1618				20.99			

19.95 21.75
74.7% 70.5%

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET ___ of ___

Date(s) of Test: 1/6/00

Client: _____

Project: _____

Remarks: _____

Well ID: HN 70

Measuring Point: _____ Elevation: _____

Distance from Pumping Well (r, feet): _____

Pumping Rate (Q): _____

1/6/00	804	I			13.50				
	830	I			13.52				
	945				13.80				
	1007				14.17				
	1030				14.36				
	1137				14.64				
	1239				14.89				
	1335				14.98				
	1433				15.11				
	1533				15.17				
	1551				14.89				
	1611				14.53				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET ___ of ___

Date(s) of Test: 1/6/00
Client: _____
Project: _____
Remarks: _____

Well ID: HN67
Measuring Point: _____ Elevation: _____
Distance from Pumping Well (r, feet): _____
Pumping Rate (Q): _____

	807	I			13.89				
	833	I			13.87				
	947				14.18				
	1009				14.42				
	1032				14.55				
	1136				14.72				
	1237				14.85				
	1333				14.90				
	1432				14.98				
	1532				15.03				
	1549				14.64				
	1610				14.46				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET ___ of ___

Date(s) of Test: 1/6/00
Client: ___
Project: ___
Remarks: ___

Well ID: HN 14I
Measuring Point: ___ Elevation: ___
Distance from Pumping Well (r, feet): ___
Pumping Rate (Q): ___

	809				13.60				
	834	I			13.58				
	948				14.69				
	1010				15.34				
	1033				15.66				
	1135				16.05				
	1235				16.20				
	1332				16.34				
	1431				16.49				
	1531				16.58				
	1548				15.36				
	1608				14.78				
								13.60'	15.58
								79.5%	72.6%

FOSTER WHEELER ENVIRONMENTAL CORPORATION

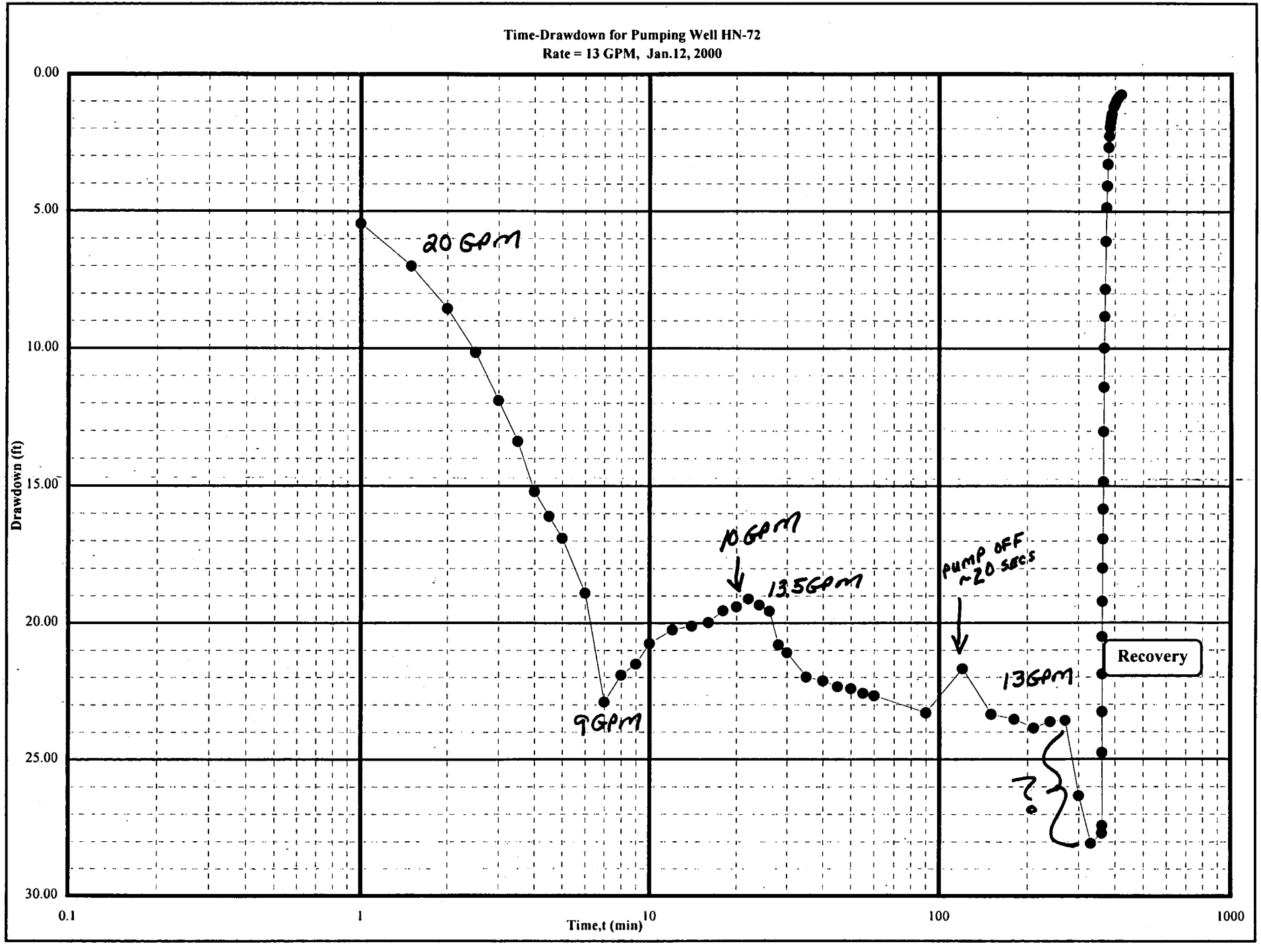
PUMPING TEST DATA

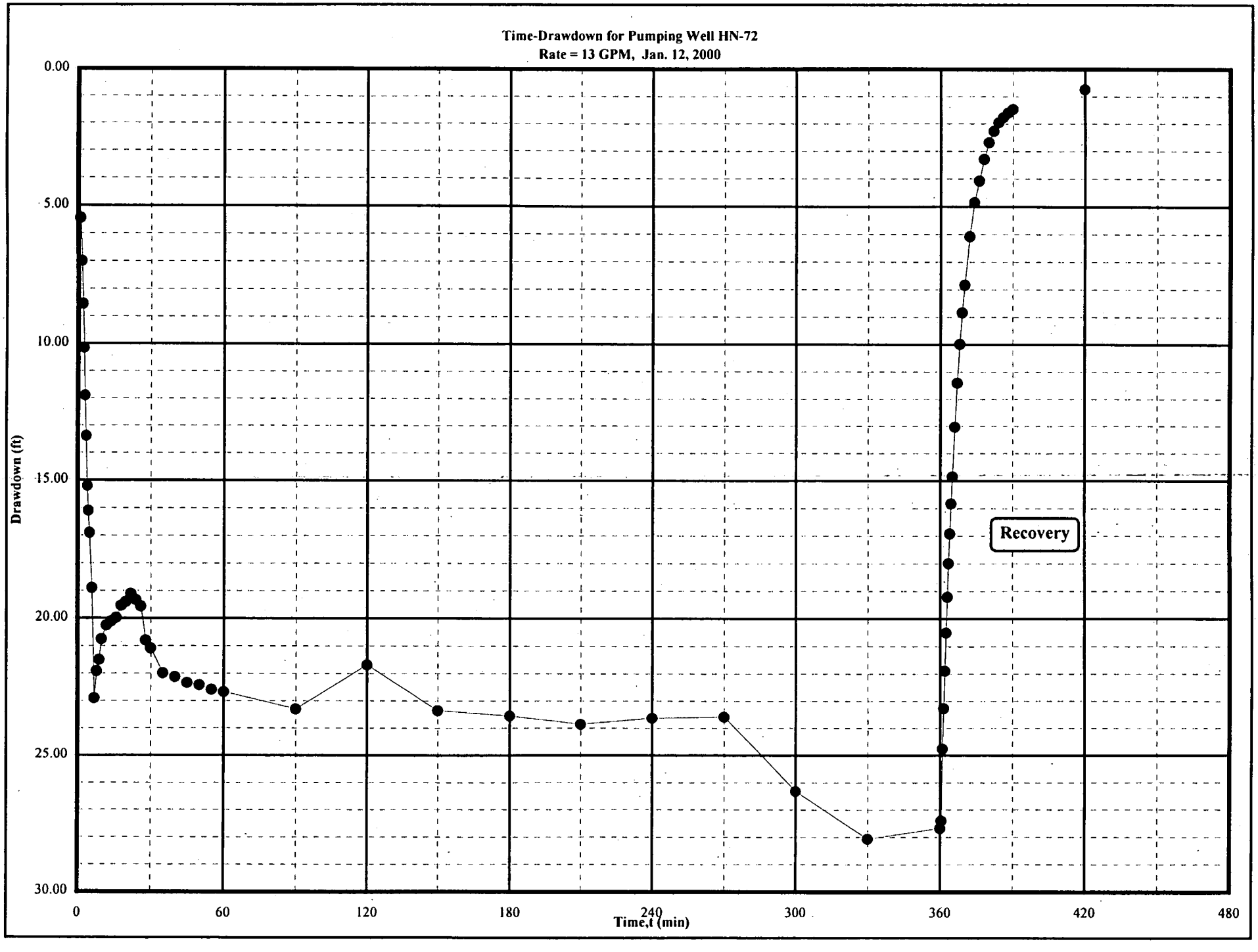
SHEET ___ of ___

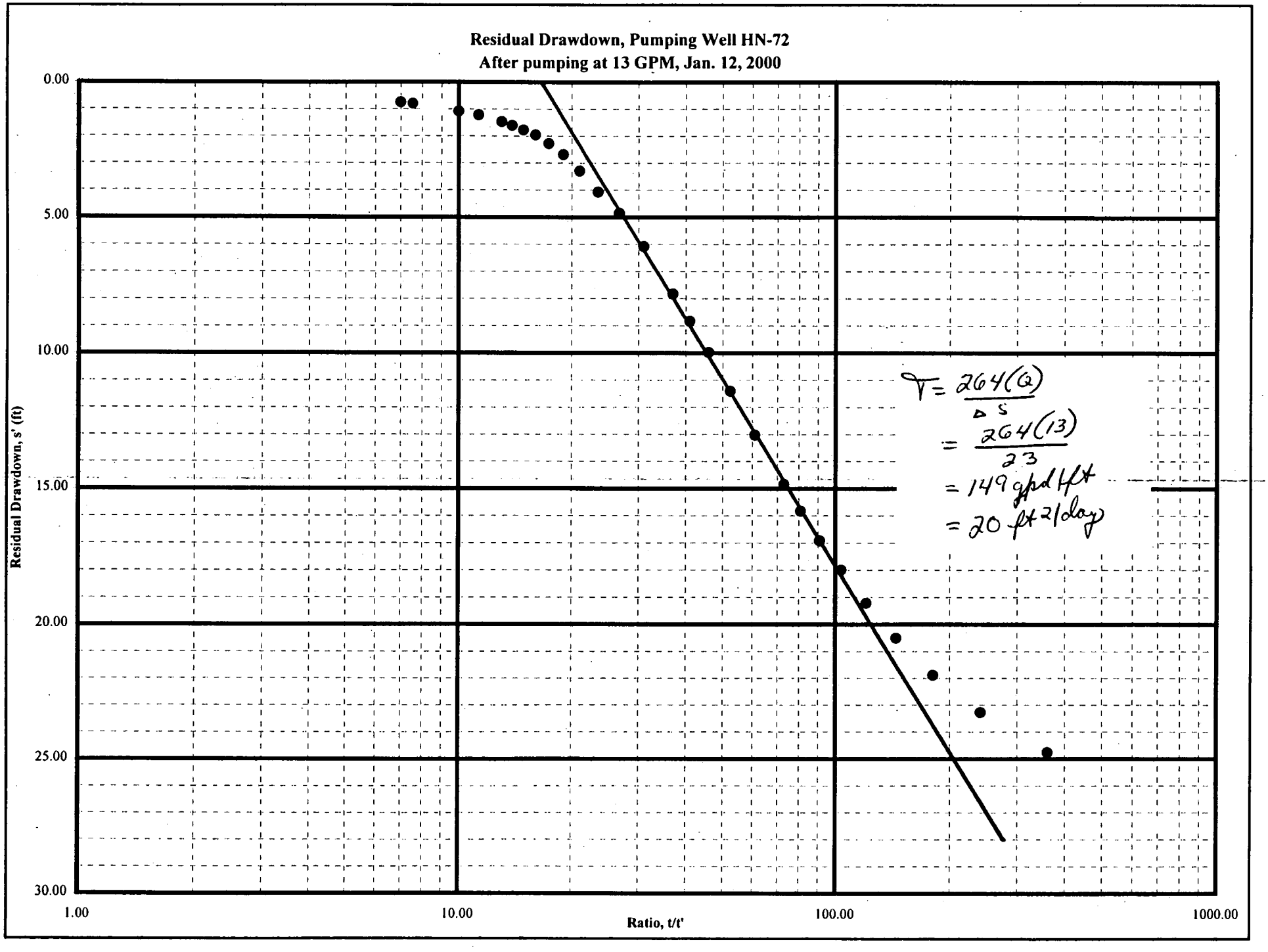
Date(s) of Test: 1/6/00
Client: _____
Project: _____
Remarks: _____

Well ID: HN 14S
Measuring Point: _____ Elevation: _____
Distance from Pumping Well (r, feet): _____
Pumping Rate (Q): _____

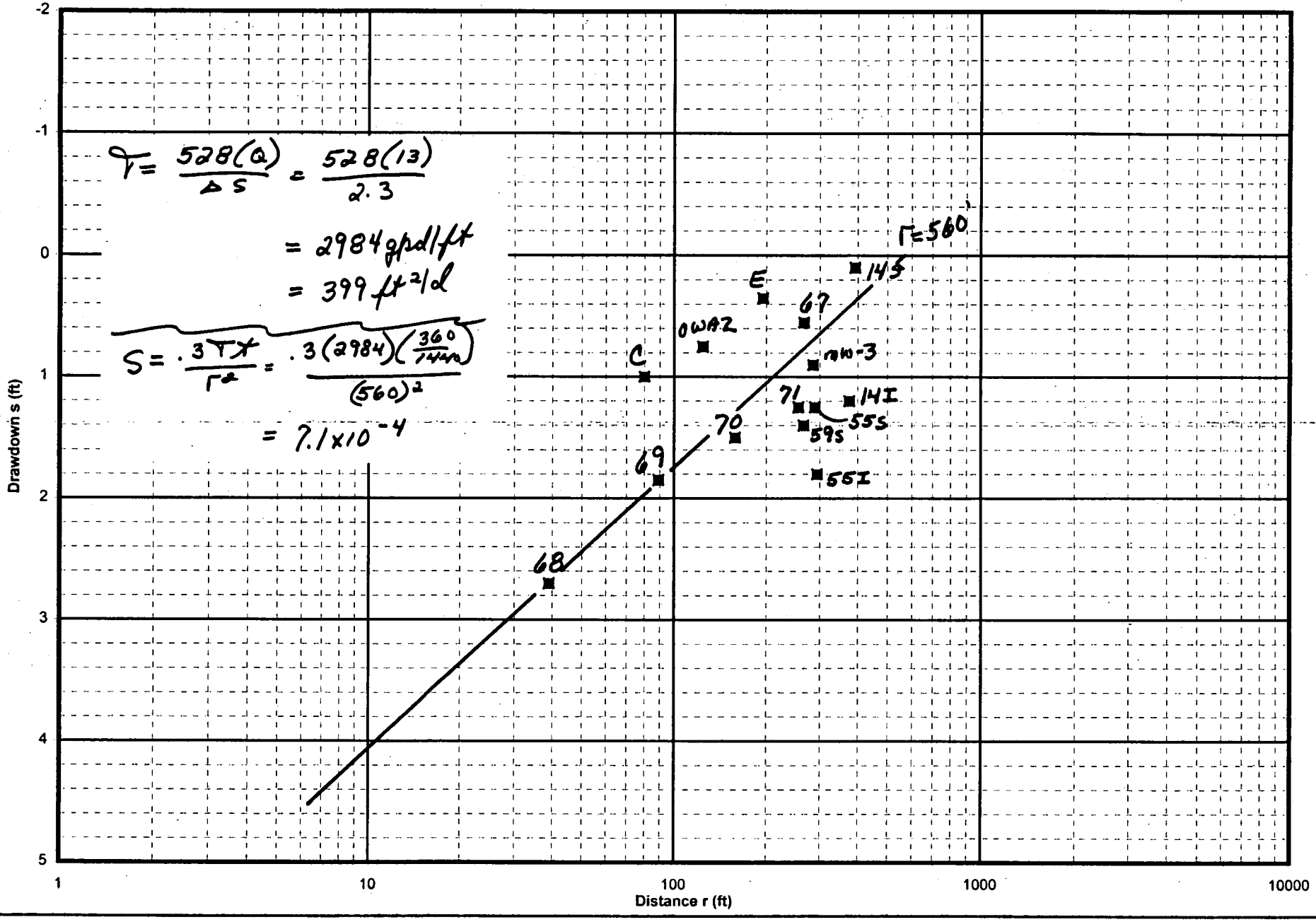
	810	I			13.47				
	835	I			13.45				
	949				13.45				
	1011				13.51				
	1034				13.54				
	1134				13.56				
	1232				13.59				
	1331				13.57				
	1430				13.60				
	1530				13.61				
	1547				13.56				
	1600				13.52				


Time-Drawdown for Pumping Well HN-72
Rate = 13 GPM, Jan.12, 2000
Drawdown (ft)
0.00
5.00
10.00
15.00
20.00
25.00
30.00
0.1
1
10
100
1000
Time,t (min)
20 GPM
9GPM
10 GPM
13.5GPM
pump off ~20 secs
13GPM
?
Recovery


Time-Drawdown for Pumping Well HN-72
Rate = 13 GPM, Jan. 12, 2000
Drawdown (ft)
0.00
5.00
10.00
15.00
20.00
25.00
30.00
0
60
120
180
240
300
360
420
480
Time,t (min)
Recovery


Residual Drawdown, Pumping Well HN-72
After pumping at 13 GPM, Jan. 12, 2000
Residual Drawdown, s' (ft)
0.00
5.00
10.00
15.00
20.00
25.00
30.00
1.00
10.00
100.00
1000.00
Ratio, t/t'
T = 264(Q)/Δs
= 264(13)/23
= 149 gpd/ft
= 20 ft²/day

Distance-Drawdown Plot
Yield Test at HN-72, Jan. 12, 2000
6 Hour Test at ~13 gpm



$$T = \frac{528(Q)}{\Delta s} = \frac{528(13)}{2.3}$$

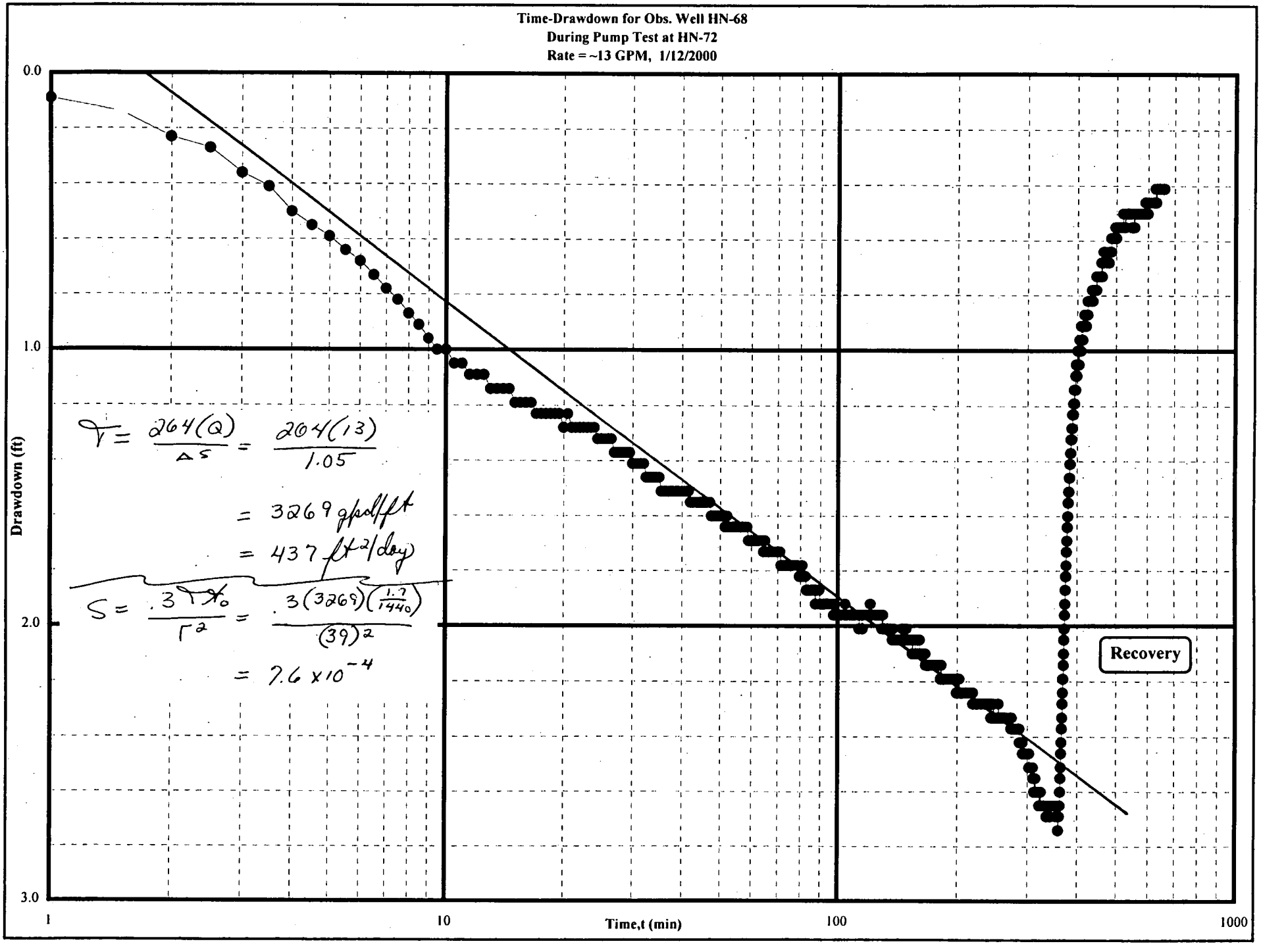
$$= 2984 \text{ gpd/ft}$$

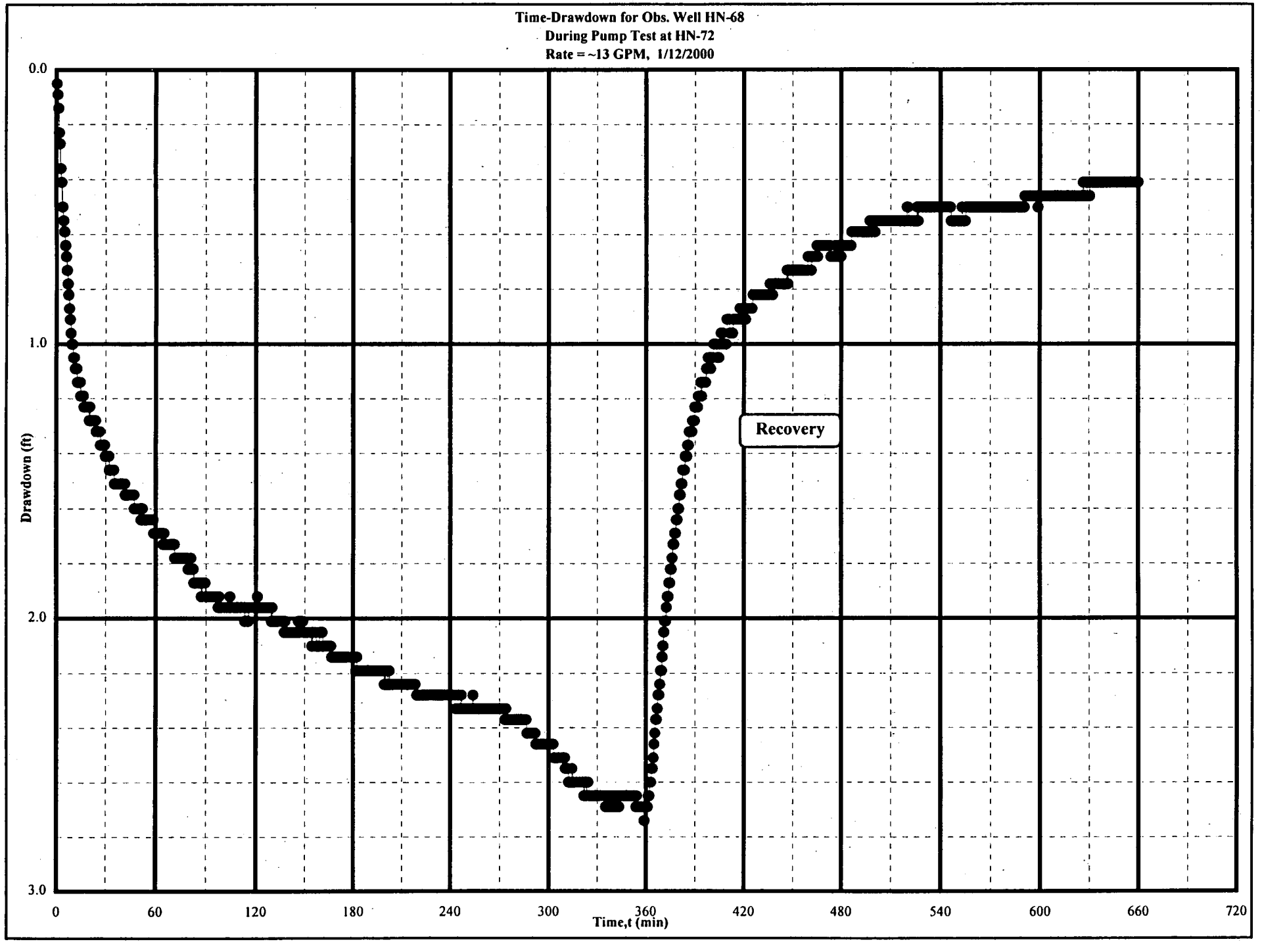
$$= 399 \text{ ft}^2/\text{d}$$

$$S = \frac{.3Tt}{r^2} = \frac{.3(2984)\left(\frac{360}{1440}\right)}{(560)^2}$$

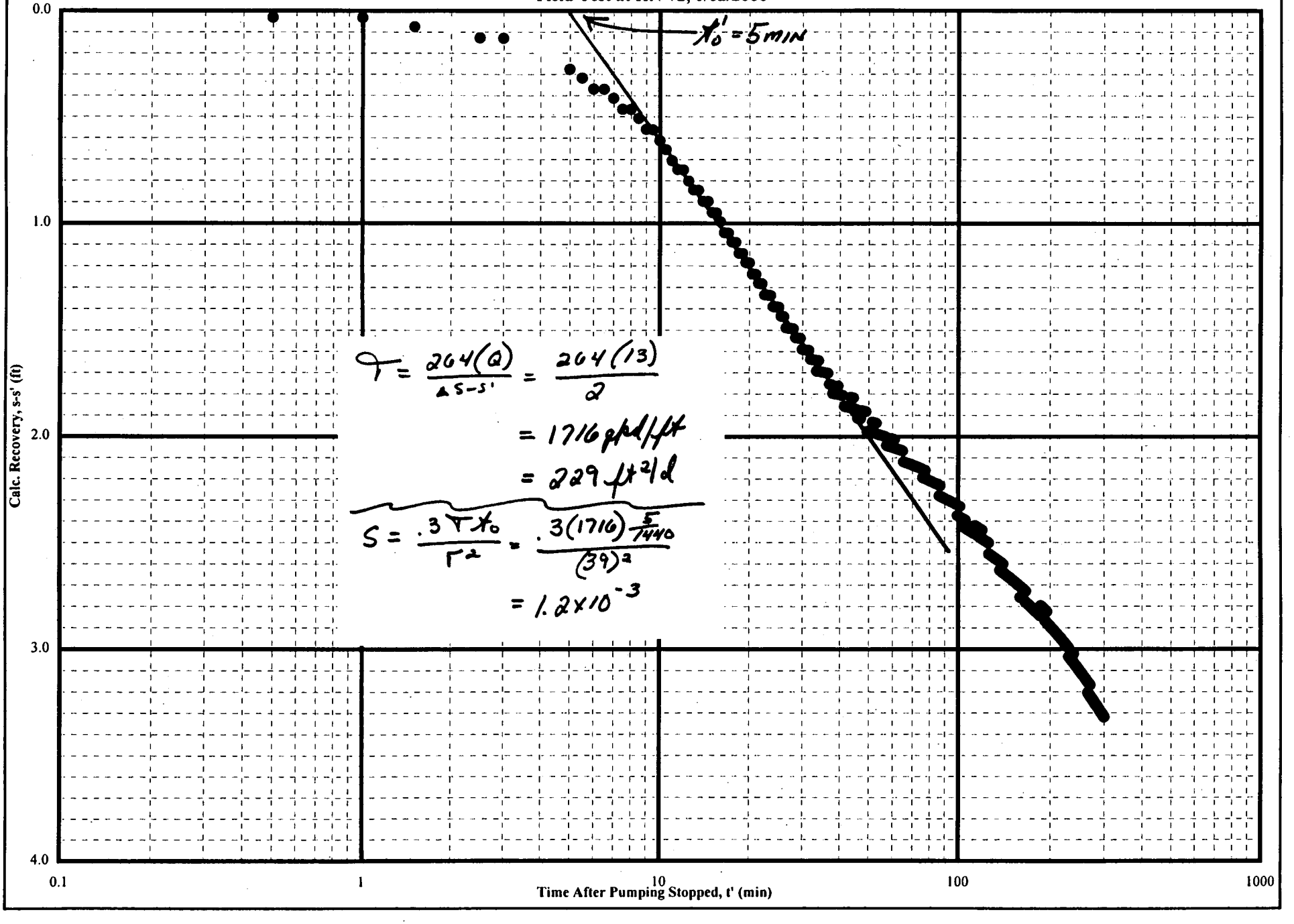
$$= 7.1 \times 10^{-4}$$

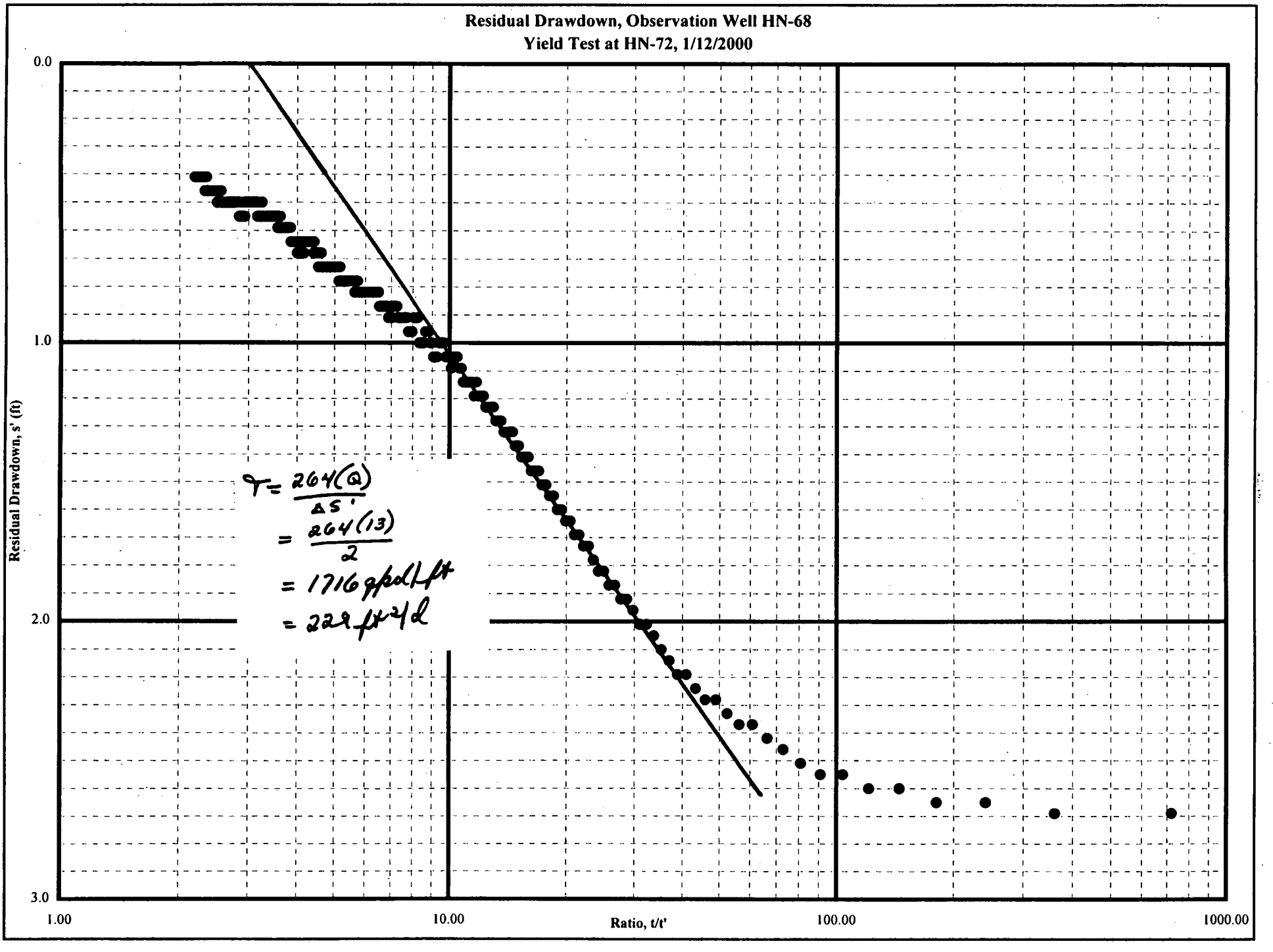
Yield Test at Area A:HN-72 1/12/2000		
Well	**Distance (r)**	**Max. DD (ft)**
HN68	39	2.70
HN-11I	44	8.00
C	80	1.00
HN-69	89	1.85
OW-A2	124	0.75
HN70	158	1.50
E	195	0.35
HN71	255	1.25
HN-59S	265	1.40
HN-67	266	0.55
MW-3	285	0.90
HN-55S	289	1.25
HN-55I	294	1.80
HN-14I	375	1.20
HN-14s	392	0.10


Time-Drawdown for Obs. Well HN-68
During Pump Test at HN-72
Rate = ~13 GPM, 1/12/2000
Drawdown (ft)
0.0
1.0
2.0
3.0
1
10
100
1000
Time,t (min)
Recovery
$T = \frac{264(Q)}{\Delta s} = \frac{264(13)}{1.05}$
$= 3269$ gpd/ft
$= 437$ ft²/day
$S = \frac{.3 T t_0}{r^2} = \frac{.3(3269)\left(\frac{1.7}{1440}\right)}{(39)^2}$
$= 7.6 \times 10^{-4}$

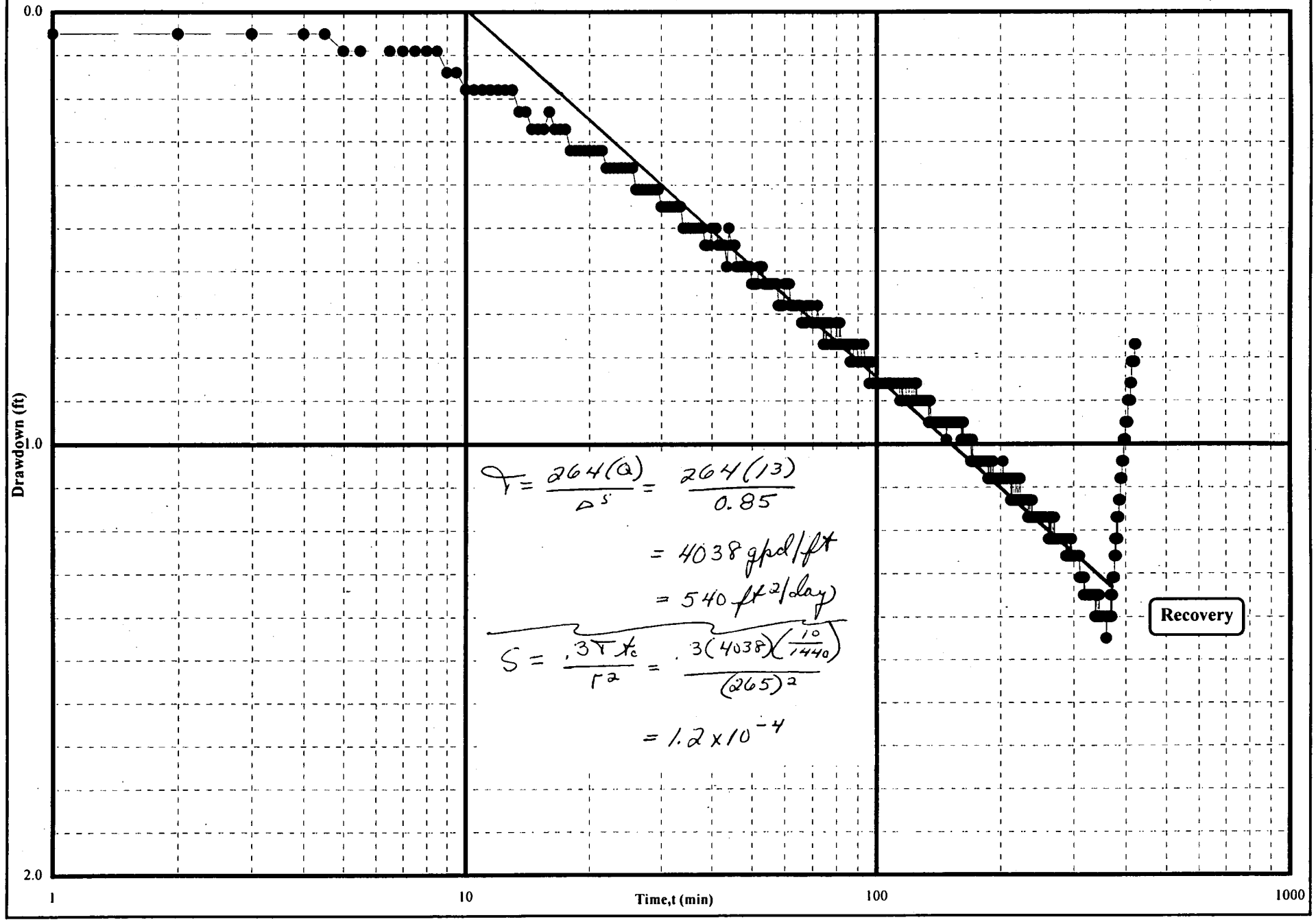

Time-Drawdown for Obs. Well HN-68
During Pump Test at HN-72
Rate = ~13 GPM, 1/12/2000
Drawdown (ft)
0.0
1.0
2.0
3.0
Recovery
0
60
120
180
240
300
360
420
480
540
600
660
720
Time,t (min)

Calculated Recovery Plot for Observation Well HN-68
Yield Test at HN-72, 1/12/2000




Residual Drawdown, Observation Well HN-68
Yield Test at HN-72, 1/12/2000
0.0
1.0
2.0
3.0
Residual Drawdown, s' (ft)
1.00
10.00
100.00
1000.00
Ratio, t/t'
T = 264(Q) / Δs'
= 264(13) / 2
= 1716 gpd/ft
= 229 ft²/d

Time-Drawdown for Obs. Well HN-59s
During Pump Test at HN-72
Rate = ~13 GPM, 1/12/2000



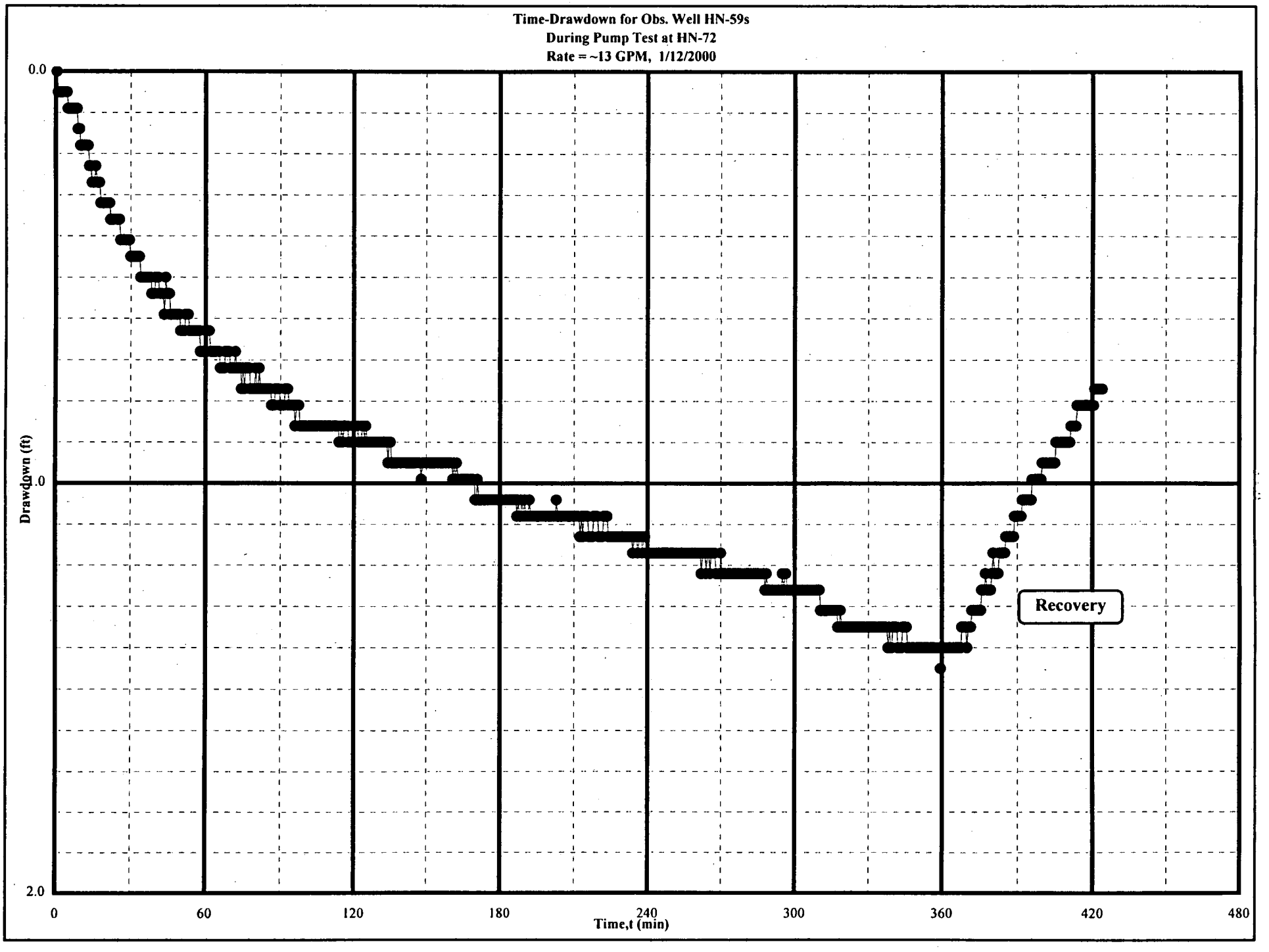
$$T = \frac{264(Q)}{\Delta s} = \frac{264(13)}{0.85}$$

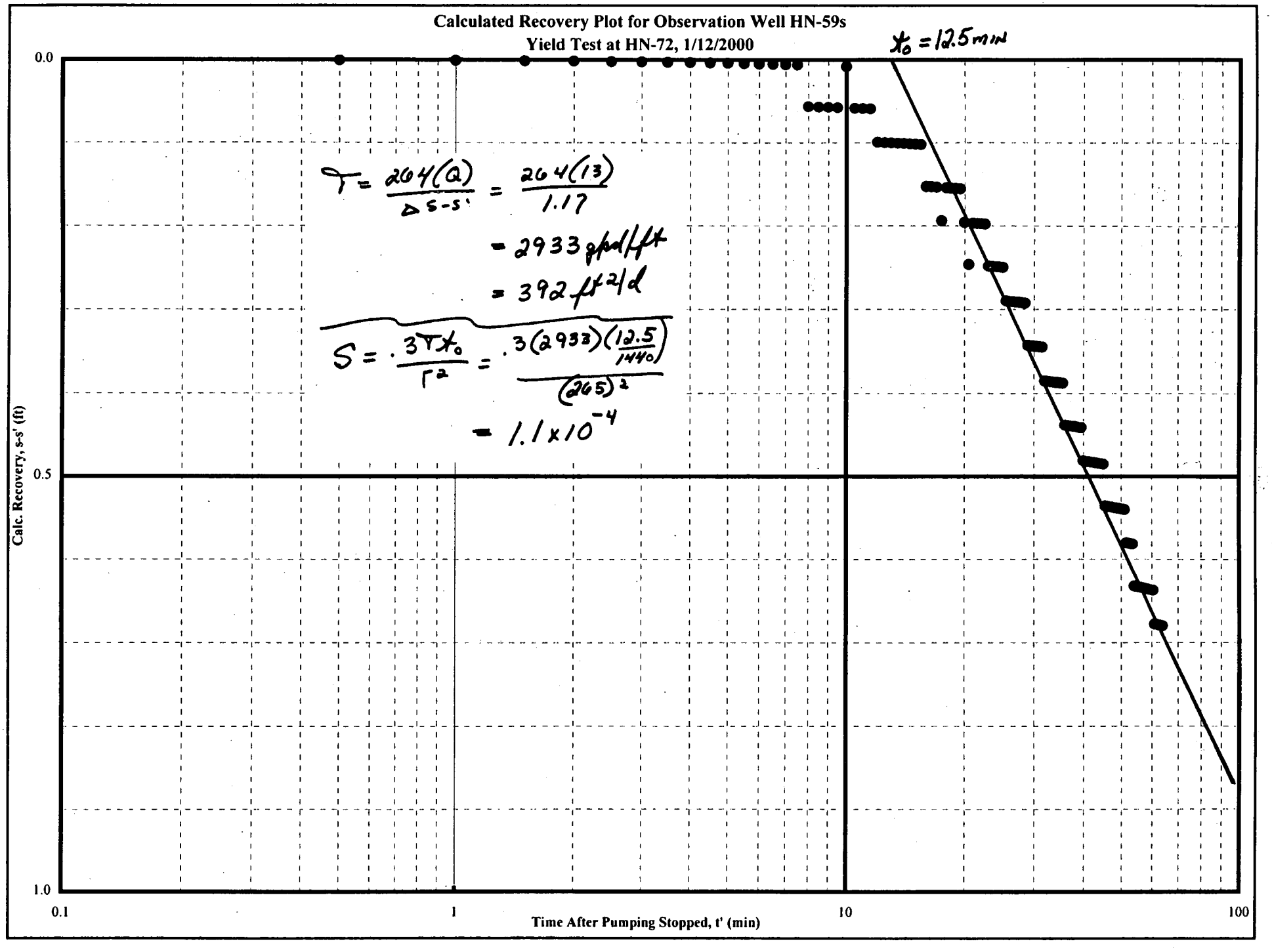
$$= 4038 \text{ gpd/ft}$$

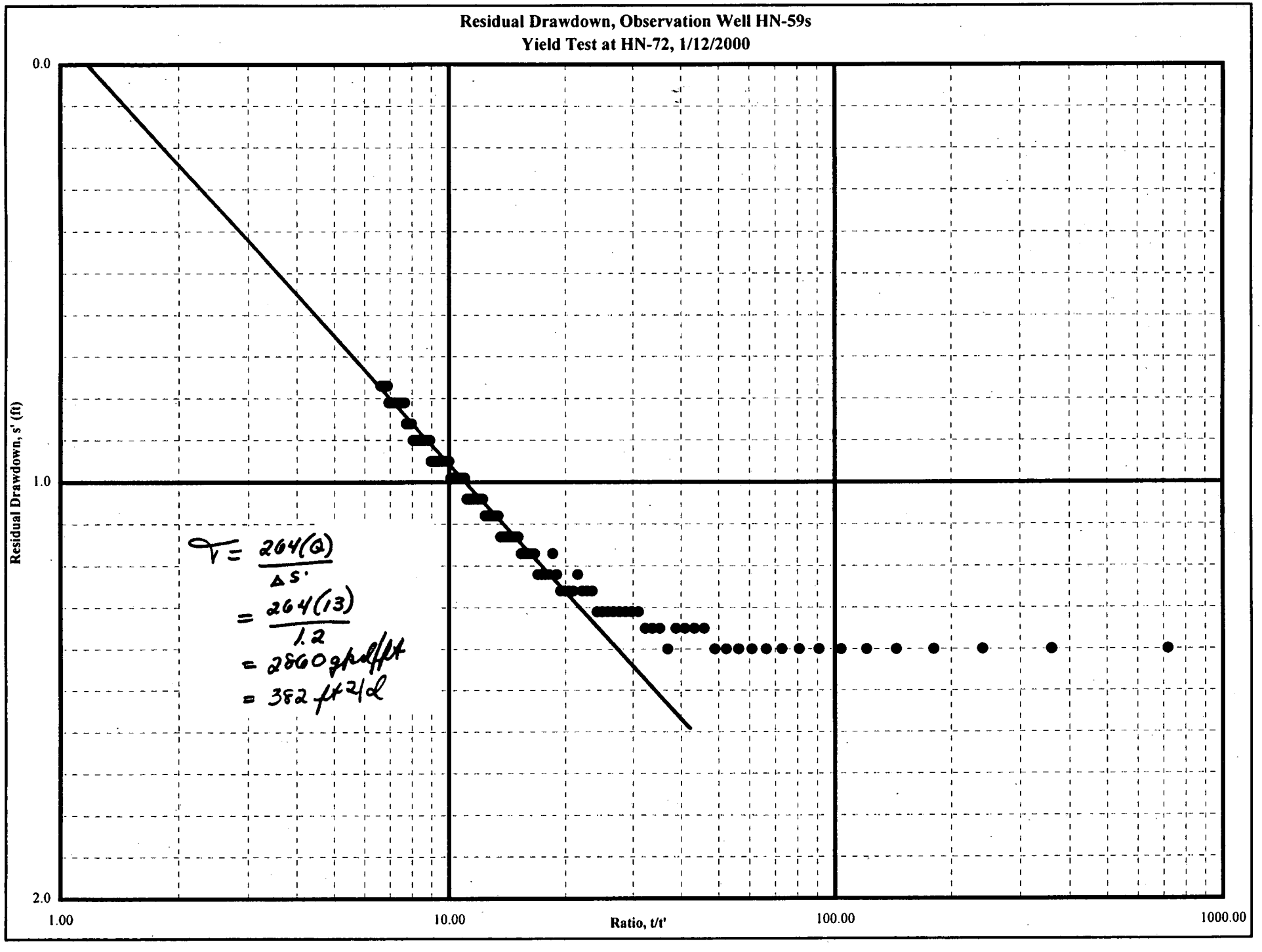
$$= 540 \text{ ft}^2/\text{day}$$

$$S = \frac{.3 T t_c}{r^2} = \frac{.3(4038)\left(\frac{10}{1440}\right)}{(265)^2}$$

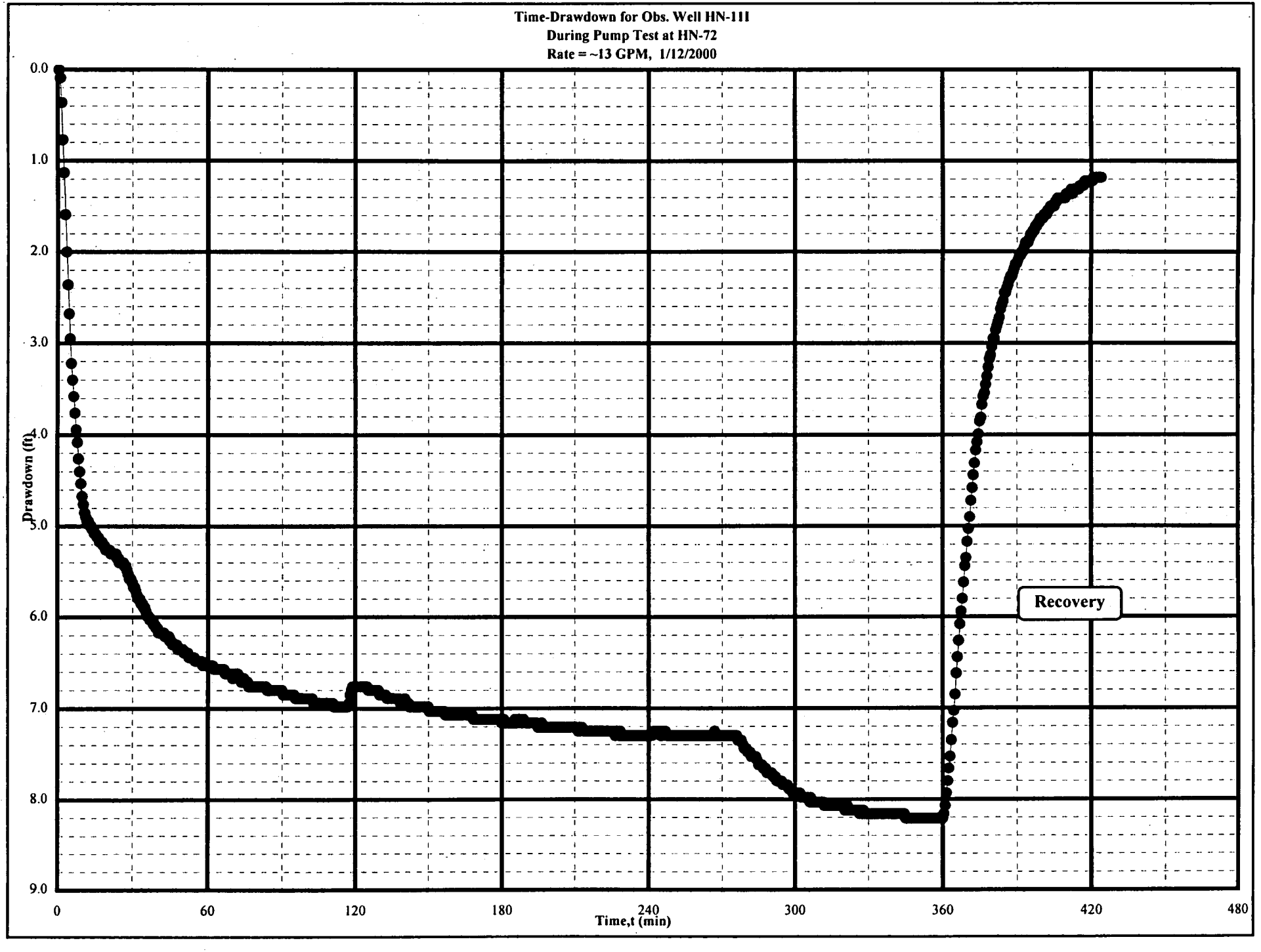
$$= 1.2 \times 10^{-4}$$


Time-Drawdown for Obs. Well HN-59s
During Pump Test at HN-72
Rate = ~13 GPM, 1/12/2000
0.0
1.0
2.0
Drawdown (ft)
0
60
120
180
240
300
360
420
480
Time,t (min)
Recovery

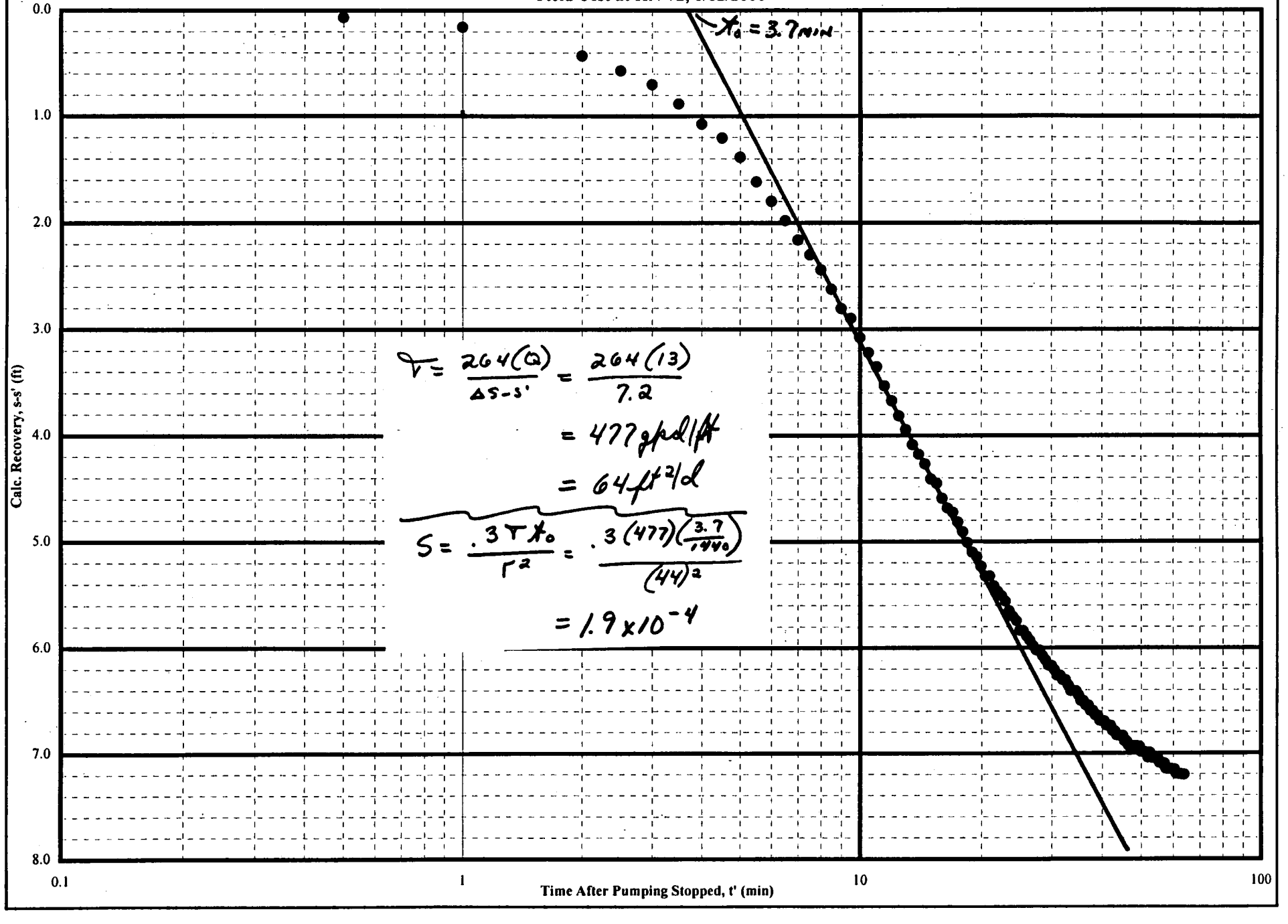

Calculated Recovery Plot for Observation Well HN-59s
Yield Test at HN-72, 1/12/2000
$t_0 = 12.5$ min
$T = \frac{264(Q)}{\Delta s\text{-}s'} = \frac{264(13)}{1.17}$
$= 2933$ gpd/ft
$= 392$ ft²/d
$S = \frac{.3 T t_0}{r^2} = \frac{.3(2933)(\frac{12.5}{1440})}{(265)^2}$
$= 1.1 \times 10^{-4}$
0.0
0.5
1.0
Calc. Recovery, s-s' (ft)
0.1
1
10
100
Time After Pumping Stopped, t' (min)


Residual Drawdown, Observation Well HN-59s
Yield Test at HN-72, 1/12/2000
0.0
1.0
2.0
Residual Drawdown, s' (ft)
1.00
10.00
100.00
1000.00
Ratio, t/t'
T = 264(Q) / Δs'
= 264(13) / 1.2
= 2860 gpd/ft
= 382 ft²/d

Time-Drawdown for Obs. Well HN-11I
During Pump Test at HN-72
Rate = ~13 GPM, 1/12/2000
Drawdown (ft)
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
1
10
100
1000
Time,t (min)
Recovery


Time-Drawdown for Obs. Well HN-111
During Pump Test at HN-72
Rate = ~13 GPM, 1/12/2000
Drawdown (ft)
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
0
60
120
180
240
300
360
420
480
Time,t (min)
Recovery

Calculated Recovery Plot for Observation Well HN-111
Yield Test at HN-72, 1/12/2000



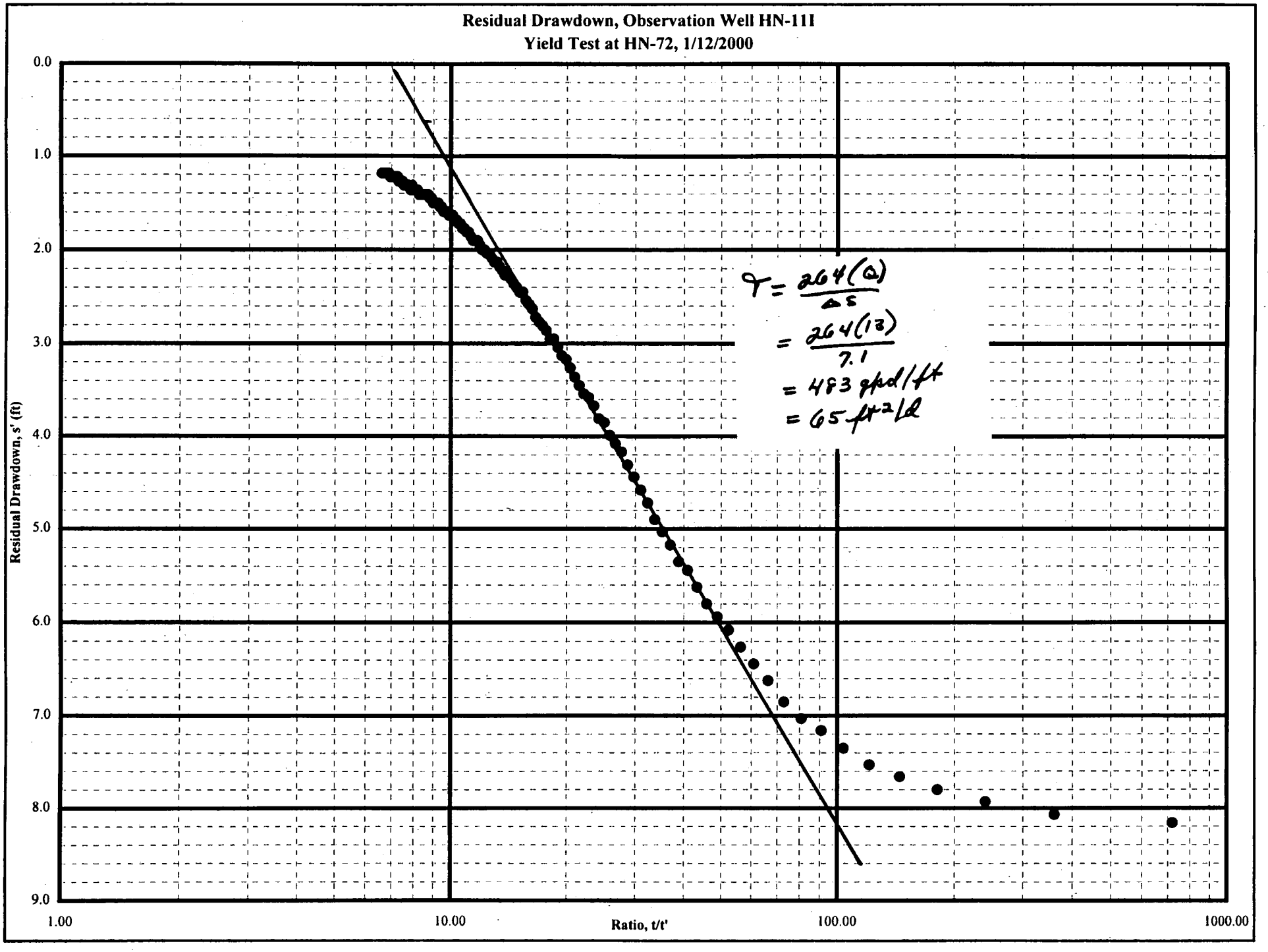
$$T = \frac{264(Q)}{\Delta s - s'} = \frac{264(13)}{7.2}$$

$$= 477 \text{ gpd/ft}$$

$$= 64 \text{ ft}^2/\text{d}$$

$$S = \frac{.3 T t_0}{r^2} = \frac{.3(477)\left(\frac{3.7}{1440}\right)}{(44)^2}$$

$$= 1.9 \times 10^{-4}$$


Residual Drawdown, Observation Well HN-11I
Yield Test at HN-72, 1/12/2000
Residual Drawdown, s' (ft)
0.0
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
1.00
10.00
100.00
1000.00
Ratio, t/t'
T = 264(Q)/Δs
= 264(13)/7.1
= 483 gpd/ft
= 65 ft²/d

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET 1 of 8

Date(s) of Test: 1/12/00
Client: U.S Navy
Project: Warminster
Remarks: PUMPING WELL

Well ID: HN72
Measuring Point: TOC
Elevation:
Distance from Pumping Well (r, feet): —
Pumping Rate (Q): ~13 GPM

	0914	0			23.14				TROLL @ 48% (25' BWS)
	0906	0			23.14				
	0916	0			23.14				STARTED @ 20 gpm - SHOULD BE 10-12 TOO HIGH
		0.5			25.95				
		1.0			28.85				
		1.5			30.40				LOWER TO -
		2.0			31.95				
		2.5			33.55				MAX. DRAWDOWN = 20 ft
		3.0			35.30				TOO HIGH
		3.5			36.78				
		4.0			38.60				LOW FLOW TO 14 gpm
		4.5			39.50				
	915	5.0			42.30				
	916	6			42.30				
		7			—	46.30			
		8			—	45.31			
		9			~~46.30~~	44.90			LOW FLOW TO 9 gpm
	920	10			—	44.15			
		12			~~45.31~~	43.65			
		14			~~44.90~~	43.51			
		16			~~44.15~~	43.38			
		18			~~43.65~~	42.94			
930	928	20			~~45.30~~ 45.51	42.80			10 gpm
	932	22			~~44.90~~ 43.38	42.51			
	934	24			—	~~42.60~~			UP TO 13.5 gpm
	936	26				42.96			
	938	28			49.20				
	940	30			49.48				13.5 gpm
	945	35			45.39				
	950	40			45.52				0950 HN72 GC FID-10 ppm
	955	45			45.74				
	1000	50			45.81				
	1005	55			45.98				
	1010	60			46.07				
	1040	90			46.79				1040 HN72 GC FID 17 ppm
	1110	120			45.08				
	1125				46.42				pump on + off ≈ 20 seconds SLIGHTLY TURBID SOLVENT OD ZR

55

44

47

FOSTER WHEELER ENVIRONMENTAL CORPORATION
PUMPING TEST DATA

SHEET 2 of 3

Date(s) of Test: 1/12/99
Client: U.S Navy
Project: Warminster
Remarks:

Well ID:
Measuring Point: Elevation:
Distance from Pumping Well (r, feet):
Pumping Rate (Q):

	1140	150		46.75				SAMPLE HN72 @ 1140
	1210	180		46.94				CLOSED - FID 10 ppm
	1240	210		47.26				13 gpm
	1310	240		47.03				SAMPLE HN72 @ 1240
	1340	270		46.98				FID 27 ppm
	1410	300		49.72				SAMPLE HN72 @ 1340
	1440	330		51.46				FID 20 ppm
	1510	360		51.08				INC. FLOW 13 gpm - STILL @ 13 gpm
	1510	360	0	51.08				WATER DECLINES AGAIN
			0.5	50.80				1345 48.10
			1.0	48.16				1350 48.02
			1.5	46.67				SAMPLE HN72 @ 1340
			2.0	45.28				FID 20 ppm
			2.5	43.90				11 ppm
			3.0	42.61				
			3.5	41.39				
			4.0	40.32				
			4.5	39.23				
	1515		5.0	38.24				
			6	36.42				
			7	34.80				
			8	33.38				
			9	32.23				
	1520		10	31.23				
			12	29.48				
			14	28.25				
			16	27.47				
			18	26.69				
	1530		20	26.08				
			22	25.67				
			24	25.35				
			26	25.17				
			28	25.00				
	1540		30	24.86				
	1545		35	24.61				
	1550		40	24.48				

MUST HAVE DROPPED BELOW 13. NOW WATER LEVELS DECREASE AGAIN

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET 13 of 13

Date(s) of Test: 1/12/00
Client: U.S Navy
Project: Warminster
Remarks:

Well ID:
Measuring Point:
Elevation:
Distance from Pumping Well (r, feet):
Pumping Rate (Q):

			45		24.74				
			50		24.26				
			55		24.19				
			60		24.14				

304

	GPM	Water lev.
1410	13.5	49.72
1412		49.80
1413.5	13.0	50.85
1414.5		50.89
1415	13.0	50.92
1416		50.94
1417	13.5	50.98
1418		51.01
1419		51.03
1420		51.06
1421		51.08
1422		51.10
1423		51.12
1424	14.0	51.14
1425		51.16
1426		51.18
1430		51.26
1435		51.37
1440		

- HN72

HN72

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET 1 of 1

Date(s) of Test: 1/12/06
Client: U.S Navy
Project: Warminster
Remarks:

Well ID: HN 14 I
Measuring Point: TOC
Elevation:
Distance from Pumping Well (r, feet): 375
Pumping Rate (Q): 13 GPM

835	2			13.20				
838	I			13.20				
929				13.30				
942				13.45				
959				13.60				
1115				13.95				
1236				14.05				
1313				14.15				
1334				14.30				
1514				14.40				
1529				14.30				
1547				14.10				

FOSTER WHEELER ENVIR NMENTAL CORPORATION

PUMPING TEST DATA

SHEET 1 of 1

Date(s) of Test: 1/12/00
Client: U.S Navy
Project: Warminster
Remarks:

Well ID: HNG7
Measuring Point: TOC
Elevation:
Distance from Pumping Well (r, feet): 266
Pumping Rate (Q): 13 GPM

	833	I			13.30'				
	840	I			13.26				
	903				13.30				
	941				13.40				
	958				13.40				
	1117				13.50				
	1225				13.55				
	1315				13.60				
	1433				13.70				
	1513				13.75				
	1530				13.70				
	1548				13.85				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET 1 of 1

Date(s) of Test: _____
Client: _____
Project: _____
Remarks: _____

Well ID: HN 30
Measuring Point: TOC
Elevation: _____
Distance from Pumping Well (r, feet): 158
Pumping Rate (Q): 13 GPM

831	I			13.30				
842	I			13.15				
921				13.50				
940				13.70				
957				13.90				
1118				14.10				
1223				14.30				
1316				14.40				
1430				14.60				
1511				14.70				
1531				14.30				
1530				14.60				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET 1 of 1

Date(s) of Test: _____
Client: _____
Project: _____
Recorder: _____

Well ID: HN 68
Measuring Point: TOC
Elevation: _____
Distance from Pumping Well (r, feet): 39'
Pumping Rate (Q): 13 GPM

830	F			19.60				
843	F			19.60				
920				20.55				
939				21.00				
956				21.20				
1119				21.60				
1222				21.80				
1317				21.90				
1428				22.20				
1511				22.30				
1532				21.10				
1551				20.65				

72.4% ~~27~~ 66.7%
19.60' 22.20

HN71

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET 1 of 1

Date(s) of Test: 1-12-00
Client:
Project:
Remarks:

Well ID: HN71
Measuring Point: TOC
Elevation:
Distance from Pumping Well (r, feet): 255'
Pumping Rate (Q): 13 GPM

[redacted]									
	836	I			19.20				
	837	2			19.20				
	925				19.40				
	943				19.60				
	1001				19.70				
	1106				20.10				
	1227				20.10				
	1314				20.20				
	1435				20.35				
	1515				20.45				
	1528				20.30				
	1546				20.15				

HN72

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET 1 of 1

Date(s) of Test: 1/12/00
Client: U.S Navy
Project: Warminster
Remarks:

Well ID: HN 145
Measuring Point: TOC
Elevation:
Distance from Pumping Well (r, feet): 392
Pumping Rate (Q): 13 GPM

834	I			12.85				
838	I			12.80				
924				12.80				
942				12.80				
1000				12.80				
1113				12.85				
1226				12.80				
1313				12.80				
1436				12.80				
1514				12.90				
1529				12.85				
1547				12.85				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET 1 of 1

Date(s) of Test: _____
Client: _____
Project: _____
Remarks: _____

Well ID: HN 69
Measuring Point: TOC
Elevation: _____
Distance from Pumping Well (r, feet): 89'
Pumping Rate (Q): 13 GPM

828	I			19.80				
845	I			19.75				
919				20.10				
938				20.75				
955				20.70				
1120				20.95				
1221				21.20				
1318				21.30				
1436				21.30				
1512				21.60				
1533				21.50				
1551				20.80				

FOSTER WHEELER ENVIRONMENTAL C RPORATION HN72

PUMPING TEST DATA

SHEET 1 of 1

[redacted]100
[redacted]
[redacted]ster

Well ID: HN59[redacted] S
Measuring Point: TOC Elevation:
Distance from Pumping Well (r, feet): 265
Pumping Rate (Q): 13 Gpm

826	I			19.00					
846	II			19.00					
918				19.15					
934				19.40 ~~20.35~~					
954				19.60					
1121				19.95					
1220				20.10					
1319				20.20					
1423				20.30					
1516				20.40					
1534				20.15					
1553				19.90					

73.6% 70.5%
19.0' 20.40

HN72

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET 1 of 1

Well ID: HN55I

Measuring Point: TOC

Elevation:

Distance from Pumping Well (r, feet): 294

Pumping Rate (Q): 13GPM

[illegible]	I			25.70				
850	I			25.70				
915				25.90				
934				26.40				
952				26.60				
1126				27.00				
1218				27.20				
1322				27.30				
1417				27.50				
1517				[illegible]	[illegible] 27.45			
1539				26.90				
1567				26.70				

FOSTER WHEELER ENVIRONMENTAL CORPORATION HN72

PUMPING TEST DATA

SHEET 1 of 1

Date(s) of Test: 1/12/00
Client: U.S Navy
Project: Warminster
Remarks:

Well ID: HN555
Measuring Point: TOC
Elevation:
Distance from Pumping Well (r, feet): 289
Pumping Rate (Q): 13 GPM

	823	I				24.55			
	849	I				24.65			
	916	6				25.15			
	935					24.95			
	952					26.10			
	1125					25.40			
	1218					25.50			
	1321					25.60			
	1421					25.75			
	1517					25.85			
	1538					25.65			
	1557					25.50			

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET 1 of 1

Date(s) of Test: _____
Client: _____
Project: _____
Remarks: _____

Well ID: MW3
Measuring Point: TOC
Elevation: _____
Distance from Pumping Well (r, feet): 285
Pumping Rate (Q): 13 GPM

	831	I			24.45				
	850	I			25.00				
	914				25.50				
	934				25.60				
	951				25.70				
	1127				25.95				
	1217				26.50				
	1323				26.20				
	1416				26.30				
	1519				26.40				
	1539				26.35				
	1552				26.25				

HN72

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET 1 of 1

Date(s) of Test: 1-12-00
Client:
Project:
Resource:

Well ID: Well C
Measuring Point: TOC
Elevation:
Distance from Pumping Well (r, feet): 80
Pumping Rate (Q): 13 GPM

	819	I			24.55				
	852	I			24.55				
	913				~~24.60~~	25.00			
	932				24.60				
	949				24.60				
	1128				24.90				
	1215				25.00				
	1324				25.20				
	1414				25.35				
	1521				25.55				
	1542				25.55				
	1600				25.55				

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET 1 of 1

Date(s) of Test: 1-12-00
Client:
Project:
Remarks:

Well ID: HN 1 I
Measuring Point: TOC
Elevation:
Distance from Pumping Well (r, feet): 44
Pumping Rate (Q): 13 GPM

	817	I			26.16				
	853	I			26.20				
	912				27.70				
	931				31.50				
	948				32.30				
	1129				33.20				
	1215				33.40				
	1325				33.50				
	1413				34.20				
	1527				30.50				
	1602				27.50				
					75.4%	59.3%			
					26.20'	33.50			

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET 1 of 1

Date(s) of Test: 1-12-00
Client:
Project:
Remarks:

Well ID: HN 11D
Measuring Point: TOC
Elevation:
Distance from Pumping Well (r, feet): 39
Pumping Rate (Q): 13 GPM

	816	I			0.00				
	854	I			0.00				
	912	"			0.00				
	931				0.00				
	948				0.00				
	1130				-0.02				
	1214				-0.02				
	1325				-0.01				
	1411				-0.01				
	1523				0				AT SOLPEAK
					0				

HN 72

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

SHEET 1 of 1

Date(s) of Test: 1-12-00
Client:
Project:
Remarks:

Well ID: OWA2
Measuring Point: TOC
Elevation:
Distance from Pumping Well (r, feet): 124'
Pumping Rate (Q): 13 GPM

	914	I			28.55			
	954	I			28.50			
	911				28.60			
	929				28.60			
	947				28.60			
	1131				28.75			
	1213				28.80			
	1326				29.00			
	1410				29.00			
	1534				29.20			
	1542				29.25			
	1605				29.2			

HN72

FOSTER WHEELER ENVIRONMENTAL CORPORATION

PUMPING TEST DATA

Date(s) of Test: 1-12-00
Client:
Project:
Remarks:

Well ID: Well E
Measuring Point: TOC
Elevation:
Distance from Pumping Well (r, feet): 195
Pumping Rate (Q): 13 GPM

SHEET 1 of 1

812	I			21.60					
856	I			21.65					
910	O			21.65					
928				21.70					
946				21.70					
1182				21.80					
1312				~~21.85~~	21.75				
1377				21.80					
1408				81.90					
1575				22.00					
1634				21.95					
1664				21.45					