

MTS CONSULTANTS

December 9, 2005

Mr. Robert Hintgen
County of San Diego
Department of Planning and Land Use
5201 Ruffin Road, Suite B
San Diego, CA 92123-1666

Re: Results of Pump Test, TPM 20747

Dear Mr. Hintgen:

In accordance with the Test Plan approved by you, Exhibit 1, we have performed a constant rate pump test on March 24, 2005 of a newly installed well at the location shown in Exhibit 2.

Pump Test Results

The well was outfitted with a temporary submersible pump. The total depth of the well was 760 feet, and the static water level at the time of the test was 77 feet below the ground surface (bgs). Depth to water was measured using an electronic water level probe. Measurement of the discharge was performed using an in-line flow meter and was verified occasionally with a calibrated bucket. The water discharged from the well was directed north into an existing swale.

A twelve-hour constant-discharge pump test was performed on March 24 and 25, 2005. The well was tested at a constant rate of 10 gallons per minute (gpm). After twelve hours of pumping at 10 gpm, the water level dropped from 77 feet to 93.8 feet. Thus, the total drawdown in the well during pumping was 16.8 feet.

After turning the pump off, the recovery was monitored at one-minute intervals for the first ten minutes and at five-minute intervals thereafter. The water level after 120 minutes (two hours) was 78.7 feet, representing a recovery of 90%. The water level after three hours was 77.7 feet, representing 96% recovery.

The numerical data of the test are tabulated in Exhibit 3. Plots of the drawdown and recovery data from the 10 gpm constant discharge pump test are presented in Exhibit 4.

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Conclusions

Based upon the work performed during this pump test, I have reached the following conclusions:

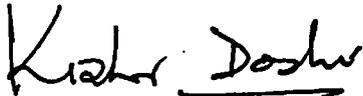
1. In its present configuration, the well drilled at the project site can safely produce water at a constant rate in excess of 3 gpm for an indefinite amount of time.
2. Production at rates up to 10 gpm can be sustained for short durations without causing damage to the pump or rapid drawdown.
3. This well meets the County standards for a production well for a minor subdivision as specified in the Ordinance No. 7994.

The services performed on this project were carried out in a manner consistent with the level of skill and care ordinarily exercised by members of the profession currently practicing in the same locality and under similar conditions. No other representation, express or implied, and no warranty or guarantee are included or intended in this report.

It should be noted that the findings of this report are representative of the conditions at the time of investigation. However, changes in the conditions at the property could occur with time and the findings herein may accordingly be invalidated, wholly or in part.

Please feel free to contact me if you have any questions regarding the pump test or analysis of the results.

Sincerely,



Kishor Doshi, R.C.E. C 21141
Expires 09/30/07

Enclosures: Exhibit 1 - TPM 20747, Pumping Test Approval
Exhibit 2 - Well Location
Exhibit 3 - Constant Rate Test Data
Exhibit 4 - Drawdown and Recovery Plots

GARY L. PRYOR
DIRECTOR



County of San Diego

DEPARTMENT OF PLANNING AND LAND USE

5201 RUFFIN ROAD, SUITE B, SAN DIEGO, CALIFORNIA 92123-1666
INFORMATION (858) 694-2960
TOLL FREE (800) 411-0017

SAN MARCOS OFFICE
338 VIA VERA CRUZ - SUITE 201
SAN MARCOS, CA 92069-2620
(760) 471-0730

EL CAJON OFFICE
200 EAST MAIN ST. - SIXTH FLOOR
EL CAJON, CA 92020-3912
(619) 441-4030

March ²⁴~~14~~, 2005

Kishor Doshi, Ph.D.
MTS Consultants
P.O. Box 2108
La Jolla, CA 92038

RE: TPM20747; LOG NO. 03-14-036; PUMPING TEST APPROVAL

Dear Dr. Doshi:

You submitted a pumping test plan on March 11, 2005 outlining the approach to the testing of one well located on proposed lot #2 of the project site.

The pumping test plan meets the requirements outlined in Section 67.703 of the County Groundwater Ordinance and the County Standards for Site Specific Hydrogeologic Investigations. Therefore, the pumping test plan is approved.

If you have any questions or need additional information, please contact me at (858) 694-3712.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert Hingtgen".

Robert Hingtgen
Planner II

CC: Kvaas Ramona Associates, LLC, 8812 La Mesa Blvd., La Mesa, CA 91941
Flores Bishop, Project Manager, DPLU, M.S. O650
Ken Brazell, Project Manager, DPW, M.S. O336
Susan Porter, Planning Manager, DPLU, M.S. O650
Glenn Russell, Planning Manager, DPLU, M.S. O650
File

Exhibit 1 (1/2)

MTS CONSULTANTS

March 10, 2005

Mr. Robert Hintgen
County of San Diego
Department of Planning and Land Use
3201 Ruffin Road, Suite B
San Diego, CA 92123-1666

Re: Proposed Pump Test Plan, TPM 20747

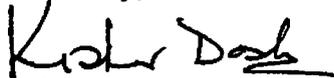
Dear Mr. Hintgen:

Based on the stipulation to perform a well test in the scoping letter dated September 15, 2004, and recent conversations with you, we have prepared this pump test plan for your review. A map showing the well location is enclosed for your information.

A constant-rate pump test will be performed on a well to be installed on the proposed Parcel No. 2 of the property, in accordance with the requirements outlined in the San Diego County Groundwater Ordinance # 7994. The test will be conducted pursuant to Section 4.3.3 of the County Standards for Site Specific Hydrogeologic investigations; accordingly, the specific capacity of the well will be calculated during the test. The pumping well will be outfitted with a temporary submersible pump and tested at a minimum rate of 3 gallons per minute. Flow will be measured with an in-line flow meter throughout the duration of the test and water depth measured with a pressure transducer and/or an electric water level meter. Water levels will be monitored for up to 12 hours after termination of production or until at least 90% of the total draw down has recovered. The water will be discharged at a minimum distance of 100 feet away from the pumping well during the test. We will attempt to obtain permission from the property owners within 1,000 feet from the pumping well to allow us to monitor water levels in their wells during the same period. Data from production and from any monitoring wells will be plotted on semi-log graphs to estimate transmissivity and predict draw down after one year.

I would appreciate your assistance and welcome any suggestions in this matter.

Sincerely,


Kishor Doshi

Enclosure

Exhibit 1 (2/2)

398±

398±

Parcel 1⁰⁰⁰

Parcel 2

PROPOSED OPEN SPACE EASEMENT FOR FIRE BUFFER PURPOSES

PROPOSED OPEN SPACE EASEMENT FOR BIOLOGICAL PURPOSES

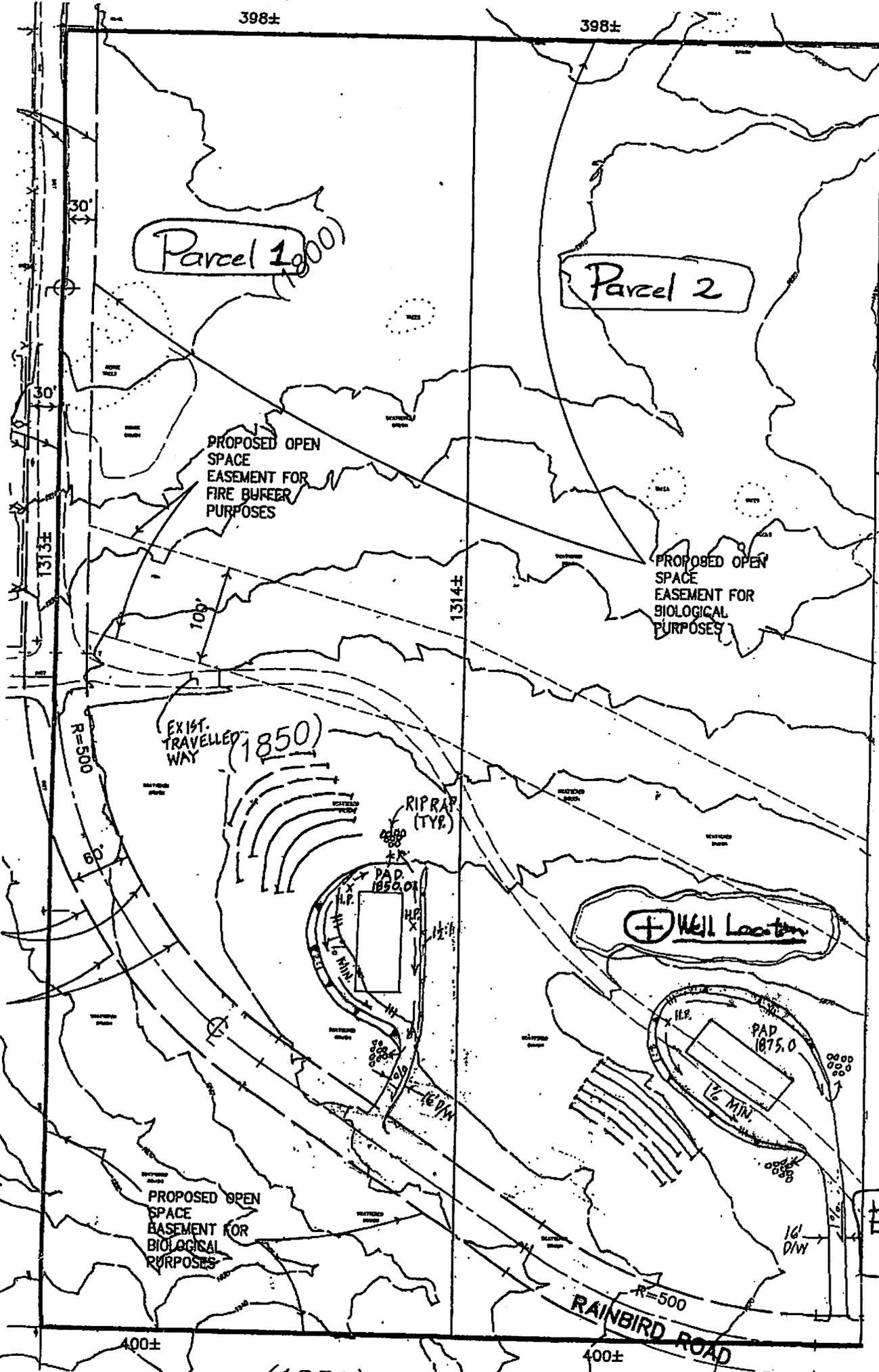
EXIST. TRAVELLED WAY (1850)

RIPRAP (TYE)

Well Location

PROPOSED OPEN SPACE BASEMENT FOR BIOLOGICAL PURPOSES

Exhibit 2



Constant Rate Test Data - TPM 20747

Date	Time	Time Since	Time Since	t/t'	Water Level	Draw-down	Discharge
		Start of Pumping	Pumping Stopped		Below Top of Casing		
		(t, min.)	(t', min.)		(feet)	(feet)	(gpm)
3/24/2005	12.00 Noon	0			77.0	0.0	10
3/24/2005	12.01	1			78.1	1.1	10
3/24/2005	12.02	2			78.2	1.2	10
3/24/2005	12.03	3			78.2	1.2	10
3/24/2005	12.04	4			78.3	1.3	10
3/24/2005	12.05	5			78.4	1.4	10
3/24/2005	12.06	6			78.6	1.6	10
3/24/2005	12.07	7			78.7	1.7	10
3/24/2005	12.08	8			78.9	1.9	10
3/24/2005	12.09	9			78.9	1.9	10
3/24/2005	12.10	10			78.9	1.9	10
3/24/2005	12.11	11			78.9	1.9	10
3/24/2005	12.12	12			78.9	1.9	10
3/24/2005	12.13	13			78.9	1.9	10
3/24/2005	12.14	14			78.9	1.9	10
3/24/2005	12.15	15			78.9	1.9	10
3/24/2005	12.16	16			79.0	2.0	10
3/24/2005	12.17	17			79.1	2.1	10
3/24/2005	12.18	18			79.1	2.1	10
3/24/2005	12.19	19			79.1	2.1	10
3/24/2005	12.20	20			79.2	2.2	10
3/24/2005	12.21	21			79.2	2.2	10
3/24/2005	12.22	22			79.2	2.2	10
3/24/2005	12.23	23			79.3	2.3	10
3/24/2005	12.24	24			79.4	2.4	10
3/24/2005	12.25	25			79.4	2.4	10
3/24/2005	12.26	26			79.5	2.5	10
3/24/2005	12.27	27			79.5	2.5	10
3/24/2005	12.28	28			79.6	2.6	10
3/24/2005	12.29	29			79.6	2.6	10
3/24/2005	12.30	30			79.6	2.6	10
3/24/2005	12.35	35			79.9	2.9	10

Constant Rate Test Data - TPM 20747

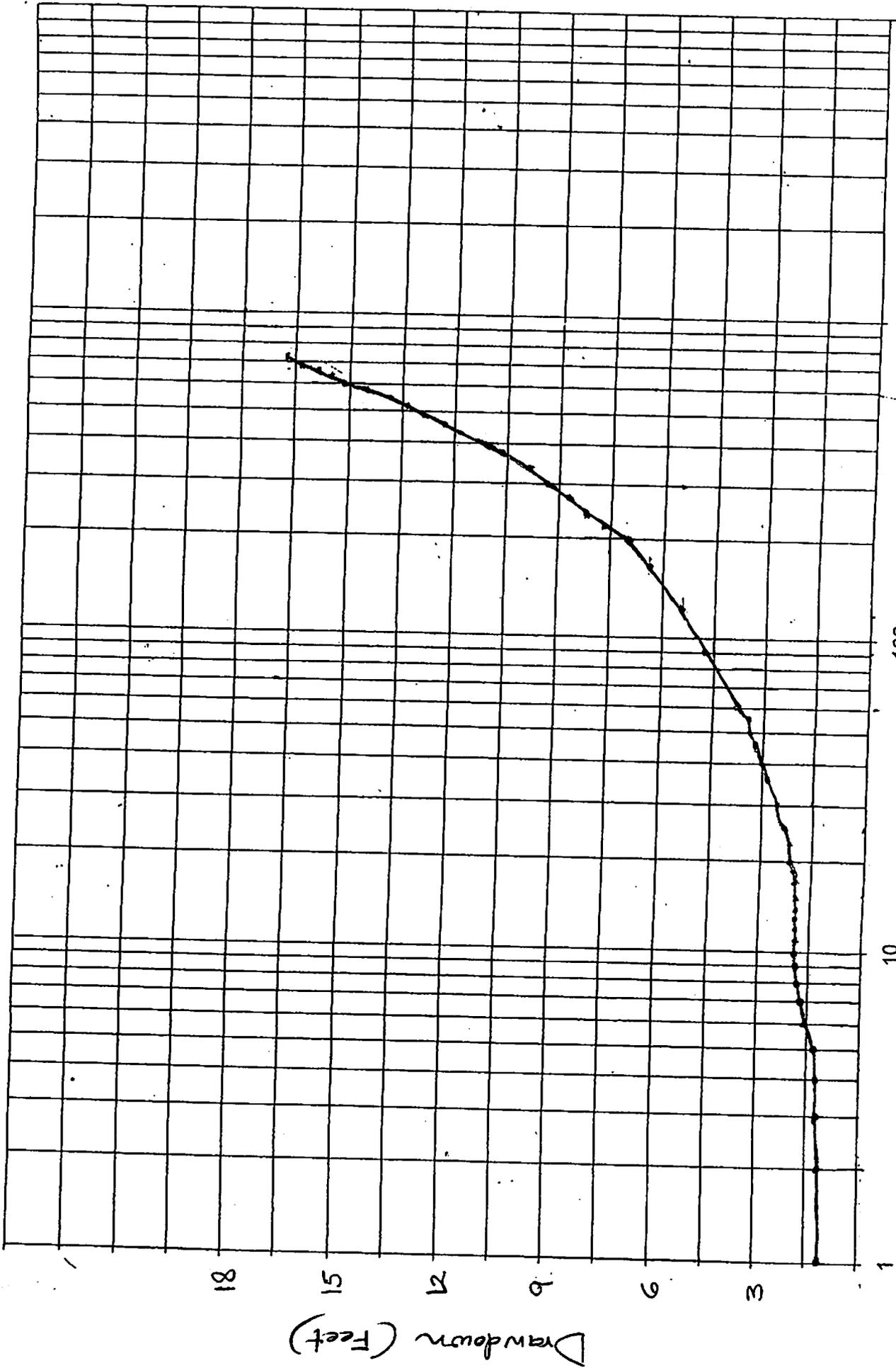
		Time Since	Time Since		Water Level		
		Start of	Pumping		Below Top of	Draw-	Discharge
Date	Time	Pumping	Stopped	t/t'	of Casing	down	Rate
		(t, min.)	(t', min.)		(feet)	(feet)	(gpm)
3/24/2005	12.40	40			80.0	3.0	10
3/24/2005	12.45	45			80.2	3.2	10
3/24/2005	12.50	50			80.4	3.4	10
3/24/2005	12.55	55			80.4	3.4	10
3/24/2005	13.00	60			80.9	3.9	10
3/24/2005	13.30	90			81.8	4.8	10
3/24/2005	14.00	120			82.6	5.6	10
3/24/2005	14.30	150			83.4	6.4	10
3/24/2005	15.00	180			84.0	7.0	10
3/24/2005	15.30	210			84.7	7.7	10
3/24/2005	16.00	240			85.3	8.3	10
3/24/2005	16.30	270			85.8	8.8	10
3/24/2005	17.00	300			86.3	9.3	10
3/24/2005	17.30	330			86.9	9.9	10
3/24/2005	18.00	360			87.7	10.7	10
3/24/2005	18.30	390			88.2	11.2	10
3/24/2005	19.00	420			88.9	11.9	10
3/24/2005	19.30	450			89.3	12.3	10
3/24/2005	20.00	480			89.9	12.9	10
3/24/2005	20.30	510			90.4	13.4	10
3/24/2005	21.00	540			90.9	13.9	10
3/24/2005	21.30	570			91.5	14.5	10
3/24/2005	22.00	600			92.2	15.2	10
3/24/2005	22.30	630			92.5	15.5	10
3/24/2005	23.00	660			92.9	15.9	10
3/24/2005	23.30	690			93.4	16.4	10
3/24/2005	Midnight	720	0		93.8	16.8	10
3/25/2005	0.01	721	1	721.00	86.6	6.5	
3/25/2005	0.02	722	2	361.00	83.5	5.3	
3/25/2005	0.03	723	3	241.00	82.3	5.0	
3/25/2005	0.04	724	4	181.00	82.0	4.9	
3/25/2005	0.05	725	5	145.00	81.9	4.8	

Constant Rate Test Data - TPM 20747

		Time Since	Time Since		Water Level		
		Start of	Pumping		Below Top of	Draw-	Discharge
Date	Time	Pumping	Stopped	t/t'	of Casing	down	Rate
		(t, min.)	(t', min.)		(feet)	(feet)	(gpm)
3/25/2005	0.06	726	6	121.00	81.8	4.8	
3/25/2005	0.07	727	7	103.86	81.7	4.7	
3/25/2005	0.08	728	8	91.00	81.8	4.8	
3/25/2005	0.09	729	9	81.00	81.6	4.6	
3/25/2005	0.10	730	10	73.00	81.5	4.5	
3/25/2005	0.15	735	15	49.00	81.3	4.3	
3/25/2005	0.20	740	20	37.00	81.1	4.1	
3/25/2005	0.25	745	25	29.80	81.0	4.0	
3/25/2005	0.30	750	30	25.00	80.8	3.8	
3/25/2005	0.35	755	35	21.57	80.2	3.2	
3/25/2005	0.40	760	40	19.00	80.5	3.5	
3/25/2005	0.45	765	45	17.00	80.4	3.4	
3/25/2005	0.50	770	50	15.40	80.3	3.3	
3/25/2005	0.55	775	55	14.09	80.2	3.2	
3/25/2005	1.00	780	60	13.00	80.1	3.1	
3/25/2005	1.05	785	65	12.08	80.0	3.0	
3/25/2005	1.10	790	70	11.29	79.9	2.9	
3/25/2005	1.15	795	75	10.60	79.7	2.7	
3/25/2005	1.20	800	80	10.00	79.6	2.6	
3/25/2005	1.25	805	85	9.47	79.5	2.5	
3/25/2005	1.30	810	90	9.00	79.4	2.4	
3/25/2005	1.35	815	95	8.58	79.3	2.3	
3/25/2005	1.40	820	100	8.20	79.2	2.2	
3/25/2005	1.45	825	105	7.86	79.1	2.1	
3/25/2005	1.50	830	110	7.55	78.9	1.9	
3/25/2005	1.55	835	115	7.26	78.8	1.8	
3/25/2005	2.00	840	120	7.00	78.7	1.7	
3/25/2005	2.30	870	150	5.80	78.1	1.1	
3/25/2005	3.00	900	180	5.00	77.7	0.7	
Notes:		1. Pumping started at noon on 3/24/05 and stopped at midnight.					
		1. Pumping stopped midnight of 3/24/05 & recovery observed until 3:00 AM on 3/25/05.					

Exhibit 3 (3/3)

Constant Discharge Test @ 10 gpm



Time Since Start of Pumping (min)

Exhibit 4 (1/2)

TPM 20747

Constant Discharge Test - Recovery

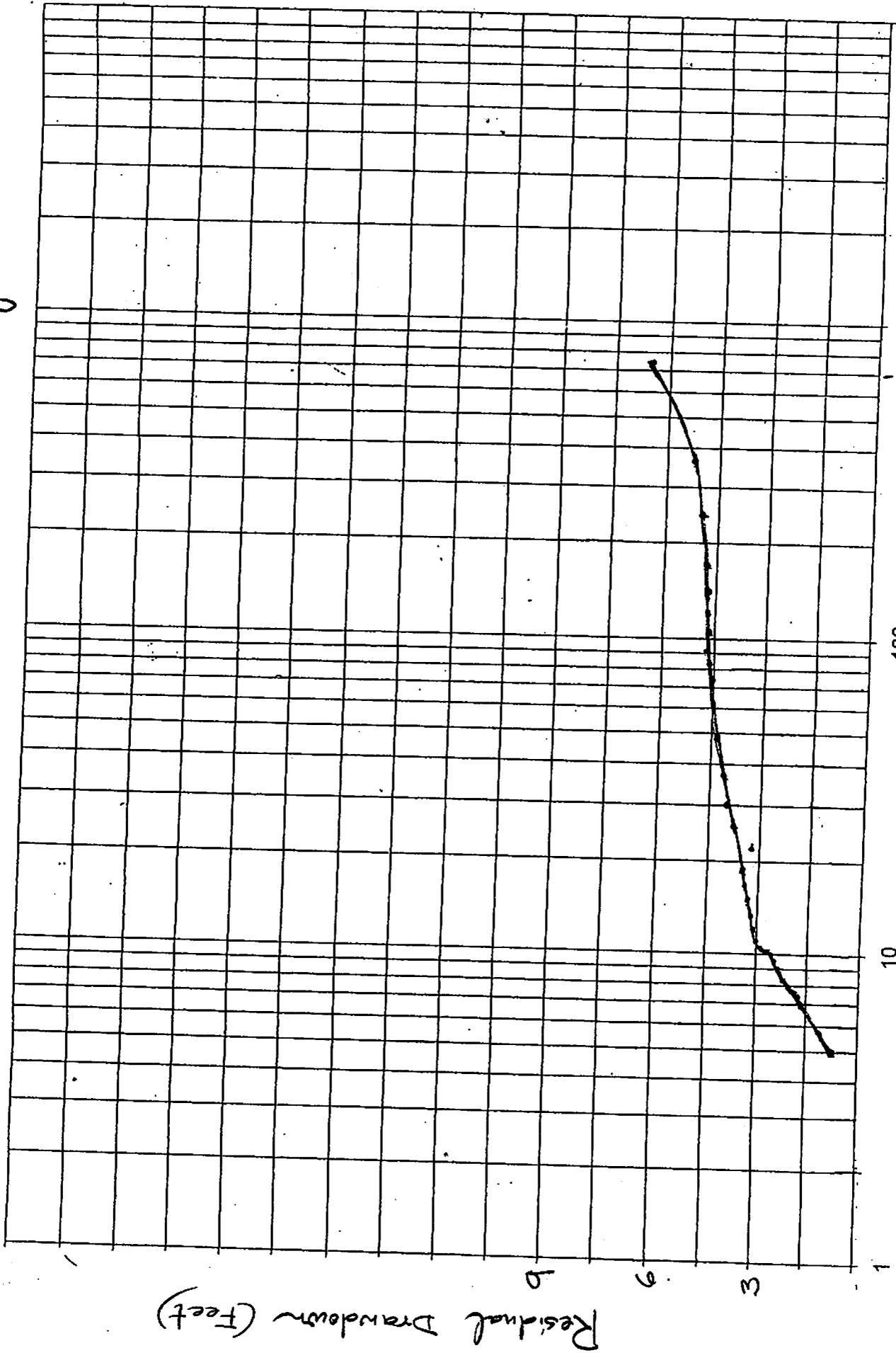


Exhibit 4 (2/2)
TPM 20747