SUMMARY REPORT
DRILLING, WELL CONSTRUCTION,
AND AQUIFER TESTING
STONEGATE WATER SUPPLY TEST WELL
SAN BENITO COUNTY, CALIFORNIA

For:

Schaaf and Wheeler

April 2010

GEOCONSULTANTS, INC.
Hydrogeology ▪ Ground-Water Exploration & Development ▪ Ground-Water Resources Management ▪
1450 Koll Circle, Suite 114, San Jose, California 95112-4612
Phone: (408) 453-2541 Fax: (408) 453-2543
www.geo-consultants.com

Project G729-04B
April 22, 2010

Mr. Charles Hardy, P.E.
Schaaf and Wheeler
100 North Winchester Blvd., Suite 200
Santa Clara, CA 95050

RE: SUMMARY REPORT
DRILLING, WELL CONSTRUCTION, AND AQUIFER TESTING
STONEGATE WATER SUPPLY TEST WELL
SAN BENITO COUNTY, CALIFORNIA

Dear Mr. Hardy:

In accordance with your Agreement for Professional Services dated January 14, 2010, we have completed our evaluation of the construction and testing of the test well at the subject site. The following report contains a chronological description of the construction operations as well as our analysis of the aquifer test results.

It has been a pleasure working with you on this project. If you have any questions, please contact us at your convenience.

Sincerely,

GEOCONSULTANTS, INC.

Jeremy C. Wire
Hydrogeologist, HG-93

Copies: Addressee (2)

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SUMMARY REPORT

DRILLING, WELL CONSTRUCTION, AND AQUIFER TESTING

STONEGATE WATER SUPPLY TEST WELL

SAN BENITO COUNTY, CALIFORNIA

INTRODUCTION

This report summarizes the drilling, well construction, and aquifer testing of a test well for the Stonegate residential development in San Benito County, California. The test well is located southeast of the intersection of Bolado and Southside Roads. The Site Plan, Figure 1, shows the approximate location. The test well drilling, construction, and test pumping were performed by Guardino Well Drilling, Inc. of Morgan Hill, California.

The scope of services for this project in accordance with your Agreement for Professional Services dated January 14, 2010, included the following specific items:

1. evaluate the test hole drilling results including formation samples and geophysical logs;
2. provide laboratory sieve analysis of selected formation samples;
3. prepare a proposed well construction diagram for the production well;
4. observe well construction activities at critical times including the installation of casing and screens, gravel pack, and cement seal;
5. observe and analyze pumping test data to establish a “safe” sustained yield for the production well;
6. evaluate potential environmental impacts on nearby wells;

7. and prepare a well-completion “as-built” report.

WELL CONSTRUCTION

The construction of the test well was begun on January 28, 2010, and was completed on February 15, 2010. The San Benito County Water District Domestic-Multiple Connection Well Permit is included in Appendix A as Figure A-1. Details of the test well construction are shown on Figure 4.

Pilot Hole Drilling

The pilot hole drilling operation consisted of completing an 8½-inch diameter borehole to a depth of 450 feet utilizing the mud-rotary drilling method. This was accomplished by February 2, 2010. Once the drill stem was removed from the hole, resistivity, spontaneous potential, and gamma-ray logs were performed by Welenco of Bakersfield, California, to confirm subsurface conditions in the borehole as a basis for screen placement locations. A copy of the logs is presented on Figure 2.

Sieve analyses of selected formation samples within potential production zones were performed to aid in screen slot size determination. Graphical representations are presented in Appendix B, Figures B-1 through B-4.

Based on the lithology, geophysical logs, and the sieve analyses, it was decided that the total depth of the test well casing should be 360 feet. The potential production zones selected for screening were located from 160 to 200 and 220 to 360 feet in depth.

Installation of Casing, Gravel Pack, and Sanitary Seal

Following the analysis of the pilot hole, the upper 60 feet was reamed to 32 inches in diameter to facilitate installation of a 24-inch diameter steel conductor casing. An 11-sack sand cement slurry was installed in the annular space from 60 feet to the surface on February 3, 2010. Additionally, the pilot hole below a depth of 360 feet was filled with cement. Once the cement had set, the borehole was reamed to a diameter of 20 inches to a depth of 360 feet. A caliper log was performed in the borehole and is presented on Figure 3.

Because of minor debris in the bottom of the hole, the well was completed with 10-inch diameter SDR-17 PVC casing to a depth of 353 feet. 0.032-inch slot 10-inch diameter SDR-17 PVC well screen was placed from 153 to 193 and 213 to 353 feet in depth, and a plastic cap was fitted to the bottom of the screened section.

The gravel pack, consisting of roughly 12 cubic yards of No. 8 sand from Silica Resources, Inc., was inserted in the annular space following the installation of the casing and screens. The gravel extended from 122 feet to 353 feet in depth. Two feet of bentonite pellets were placed above the gravel pack, and roughly 10 cubic yards of 11-sack cement slurry was tremied into the annular space above the bentonite from 120 feet to the ground surface on February 15, 2010. Figure 4 presents the as-built diagram of the well. The contractor's Well Completion Report is included in Appendix A, Figure A-2.

AQUIFER TESTING

Well development operations, consisting of swabbing, bailing, surging, and pumping, were performed in accordance with the specifications between February 18 and March 9, 2010. Several attempts were made at initiating a long-term aquifer test. During the first test, a yield of 150 gallons per minute (gpm) was maintained for 4.5 hours before the pumping rate had to be decreased to avoid drawing down the pumping level to the pump intake of 200 feet in depth. The second attempt maintained a pumping rate of 100 gpm for over seven hours before the pumping level reached the pump intake.

Based on our analysis of the aborted aquifer tests, it was decided to treat the well with a combination of “Mud-Nox” from Cotey Chemical, and “Thin-It” from Western Hydro in an attempt to counteract the deep invasion of the drilling fluid into the primary production zones. After the chemical solution had remained in the well for several days, the pump was lowered to a depth of 340 feet and a four-hour constant rate pumping test was performed to determine if the chemical treatment had improved the yield. In this test, the pumping rate of 100 gpm resulted in less than half the drawdown of the earlier test at the same rate. Since the chemical treatment had produced positive improvement, we recommended that the treatment be repeated before attempting a final long-term test.

Constant Rate Test

Following the second chemical treatment, a long-term sustained yield test was begun on April 6, 2010, to determine such well and aquifer properties as

specific capacity, transmissivity, and “safe yield”. A totalizing meter coupled to the discharge pipe was used to monitor the yield, and the water levels during the drawdown and recovery segments of the test were measured by use of a sounder. The summary information obtained from the test is included in Appendix C.

During the test, the discharge was maintained at an average constant rate of 120.00 gpm from a pump setting of roughly 340 feet in depth. Water level measurements were made at selected intervals in the pumping well. Following the pump shut off, water levels during the recovery period were measured for over 41 hours.

The water level at the start of the constant rate test was measured at 63.80 feet. At the conclusion of pumping the water level had declined to a depth of 335.00 feet or 271.20 feet of drawdown (Figure C-2). 120 minutes after pump shutdown, the water level had recovered to a depth of 213.60 feet (Figure C-3), roughly a 45 percent recovery. 41.75 hours after pump shutdown, the water level had recovered to a depth of 100.40 feet, roughly a 63 percent recovery.

Well Capacity and Aquifer Properties

Coefficients of transmissivity (T) were calculated from the drawdown and recovery curves for the test well (Figures C-2 and C-3) by means of the following formula (Sterrett, 2007):

$$\mathbf{T = \frac{264Q}{\Delta s}} \;;$$

where **Q** is the pumping rate (gpm), and **Δs** is the change in drawdown in feet per log cycle in the straight-line portion of the curve. As shown below, the

transmissivities of the formation ranged from 451 to 266 gallons per day per foot of saturated section (gpd/ft).

$$\mathbf{T = \frac{(264)(120.00\ gpm)}{70.2\ ft} = 451\ gpd/ft \quad \text{from the drawdown curve;}}$$

$$\mathbf{T = \frac{(264)(120.00\ gpm)}{119.0\ ft} = 266\ gpd/ft \quad \text{from the recovery curve.}}$$

The specific capacity of the well, in gallons per minute per foot of drawdown (gpm/ft), is generally obtained by dividing the discharge by the total drawdown observed during the total pumping cycle as shown below. However, since a sharp increase in drawdown was observed after 720 minutes of pumping, only the initial pumping period was used for the calculation.

$$\mathbf{Specific\ Capacity = \frac{Pumping\ Rate\ (gpm)}{Drawdown\ (feet)} = \frac{Q}{s}\ ;}$$

where **Q** is the discharge (gpm) and **s** is the total drawdown (feet) during the first 720 minutes of pumping. Therefore, the 12-hour specific capacity for the test well was as follows:

$$\mathbf{\frac{Q}{s} = \frac{120.00\ gpm}{77.20} = 1.55\ gpm/ft}$$

"Safe" Yield

The maximum available drawdown for the test well is defined as the distance from the static water level to the top of the first screen at 153 feet in depth. Therefore, the maximum available drawdown for the test well is 89 feet as follows:

$$\textbf{Available Drawdown} = (153.00 \text{ feet} - 63.80 \text{ feet}) = 89.20 \text{ feet}$$

Using this maximum available drawdown, a short-term “safe” yield for a pumping period of 12 hours or less such as for “peak demand” purposes, is calculated as follows:

$$Q = (89.20 \text{ ft})\,(1.55 \text{ gpm/ft}) = 138.26 \text{ gpm}$$

However, the significant increase in drawdown after 720 minutes (12 hours) of pumping is apparently caused by the presence of a discharge barrier of some sort. Examples of such features might be buried faults, formational changes, or clay aquitards. In addition, to be conservative in long-term planning for water supply and to account for seasonal fluctuations in the water table and lengthy periods of drought, we recommend that two-thirds of the maximum drawdown should be considered to be the available drawdown. Therefore, a long-term “safe” yield is calculated using two-thirds of the maximum drawdown as follows:

$$Q = 2/3(89.20 \text{ ft})\,(1.55 \text{ gpm/ft}) = 92.18 \text{ gpm}$$

Based on our evaluation of the aquifer testing, the optimum long-term operational mode for the test well should be at a pumping rate of 92 gpm for a maximum pumping cycle of no more than 12 hours. The well should then be allowed to recover for an appropriate amount of time until at least a 90 percent recovery has been reached before the next pumping cycle begins.

Potential Impacts of Pumping

There are two old 12-inch diameter wells of unknown construction located about 400 feet southwest of the test well, as shown on the Site Plan, Figure 1. Measured total depths are 80 feet for the well closest to the test well, and 150 feet for the farthest to the southwest. Static water levels were measured at 23.60 feet in depth and 30.90 feet in depth in the two wells, respectively, prior to the start of the pumping tests. Periodic measurements during the test period revealed no changes in water levels in these wells. The very low transmissivity (T) values observed during the test, indicate that the radius of drawdown around the Stonegate test well is very limited, and there should be no impact from pumping on the nearest existing active wells, which are at least 600 feet distant.

WATER QUALITY

During the 24-hour pumping test, water samples were obtained by Bolsa Analytical of Hollister, California for analysis. Their analytical report will be submitted under a separate cover. The analysis will be performed in accordance with the

California Department of Public Health Initial Water Quality Monitoring Requirements for Small Community Water Systems.

VIDEO LOG

On February 23, 2010, a video log was performed on the test well by Welenco of Bakersfield, California. The log confirms that the well was constructed in substantial conformance with the specifications. A small hole was found in the screened section at a depth of roughly 347 feet, but this does not appear to impact the overall production capabilities. A copy of the video report is included as Figure 5.

LIMITATIONS

Geoconsultants, Inc. provides its findings, recommendations, specifications, and professional advice after preparing such information in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the field of hydrogeology. This acknowledgment is in lieu of all warranties either express or implied.

Environmental changes, either naturally occurring or artificially induced, may cause the quality and/or quantity of water produced to change with time. Therefore, we do not guarantee continued production or consistent mineral quality of ground water from any well in the future.

SELECTED REFERENCES

Sterrett, R. J., Ph.D., R.G., 2007, Groundwater and wells: New Brighton, Minnesota, Johnson Screens, 812 p.

Geoconsultants, Inc., 2009, Summary of findings regarding geological and geophysical survey for water well location, Graniterock property, Tres Pinos, San Benito County, California: Report prepared for Schaaf and Wheeler, Project No. G729-04a, 3 p.

LEGEND

- Stonegate Water Supply Test Well
- Monitoring Well

N

250 0 250 500 FT.

SCALE

SITE PLAN

GEOCONSULTANTS, INC.
Hydrogeology ▪ Ground-Water Exploration & Development ▪
Ground-Water Resources Management ▪
1450 Koll Circle, Suite 114
San Jose, California 95112
Phone: (408) 453-2541 Fax: (408) 453-2543

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FIGURE 1

welenco

5201 Woodmere Drive, Bakersfield, CA 93313-- www.welenco.com--(800) 445-9914
California Contractor's License No. 722373

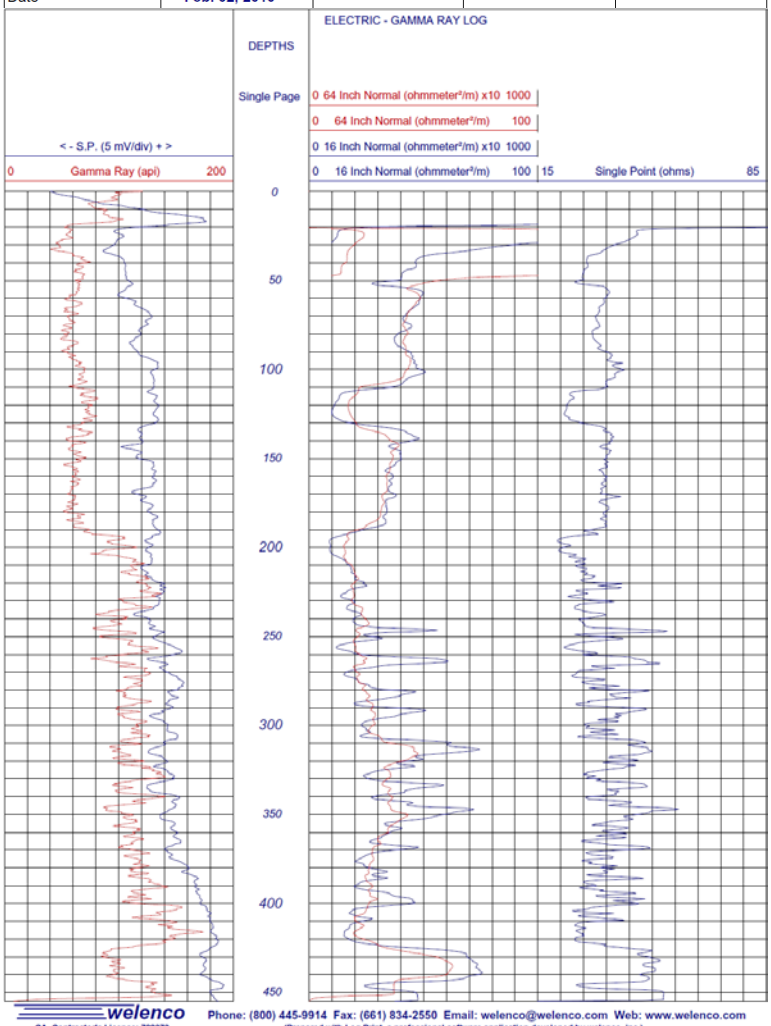
ELECTRIC - GAMMA RAY LOG

FILING NO.	
COMPANY	Guardino Well Drilling Inc.
WELL	Stonegate Test Well
FIELD	Tres Pinos
STATE	California COUNTY San Benito
LOCATION:	In field by 381 Bolado Rd.
OTHER SERVICES:	None
JOB NO.	13026

SEC: 21 TWP: 13S RGE: 6E LAT.: 36° 47' 8.2" LONG.: 121° 19' 21.9" MERIDIAN.: Mt. Diablo

Permanent Datum: Ground Level, Elev. 455 Ft. Elev.: K.B. ____ Ft.
Log Measured From: Ground Level, 0 Ft. Above Perm. Datum D.F. ____ Ft.
Drilling Measured From: Ground Level G.L. 455 Ft.

Run	One			
Date	Feb. 02, 2010			



welenco
CA. Contractor's License: 722373
Phone: (800) 445-9914 Fax: (661) 834-2550 Email: welenco@welenco.com Web: www.welenco.com
(Prepared with Log Print, a professional software application developed by welenco, Inc.)

ELECTRICAL LOGS

GEOCONSULTANTS, INC.
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FIGURE 2

welenco

5201 Woodmere Drive, Bakersfield, CA 93313-- www.welenco.com--(800) 445-9914
California Contractor's License No. 722373

3-ARM CALIPER LOG

FILING NO.

COMPANY Guardino Well Drilling

WELL Stonegate Test Well

FIELD Tres Pinos

STATE California COUNTY San Benito

LOCATION:
In field by 381 Bolado Rd.

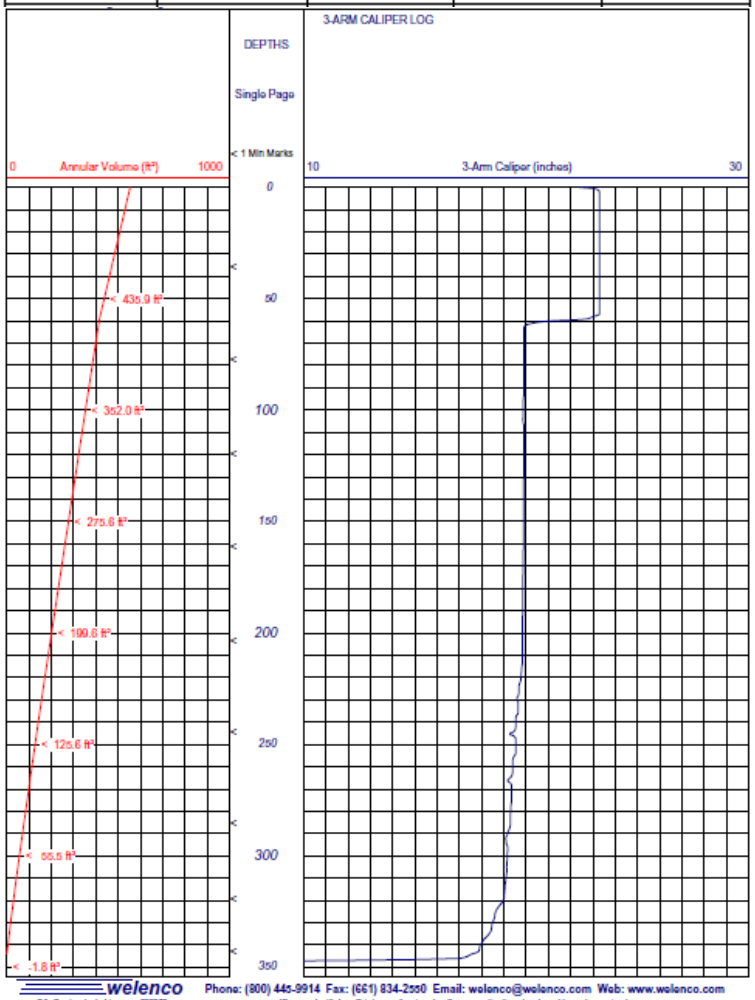
OTHER SERVICES:
None

JOB NO.
12297

SEC: 21 TWP: 13S RGE: 6E LAT.: 36° 47' 8.2" LONG.: 121° 19' 21.9" MERIDIAN.: Mt. Diablo

Permanent Datum: Ground Level , Elev. 455 Ft. Elev.: K.B. ____ Ft.
Log Measured From: Ground Level , 0 Ft. Above Perm. Datum D.F. ____ Ft.
Drilling Measured From: Ground Level G.L. 455 Ft.

Date	Feb. 09, 2010			
Type Of Log	Caliper			
Run	One			



welenco
CA. Contractor's License: 722373
Phone: (800) 445-9914 Fax: (661) 834-2550 Email: welenco@welenco.com Web: www.welenco.com
(Prepared with Log Print, a professional software application developed by welenco, inc.)

CALIPER LOG

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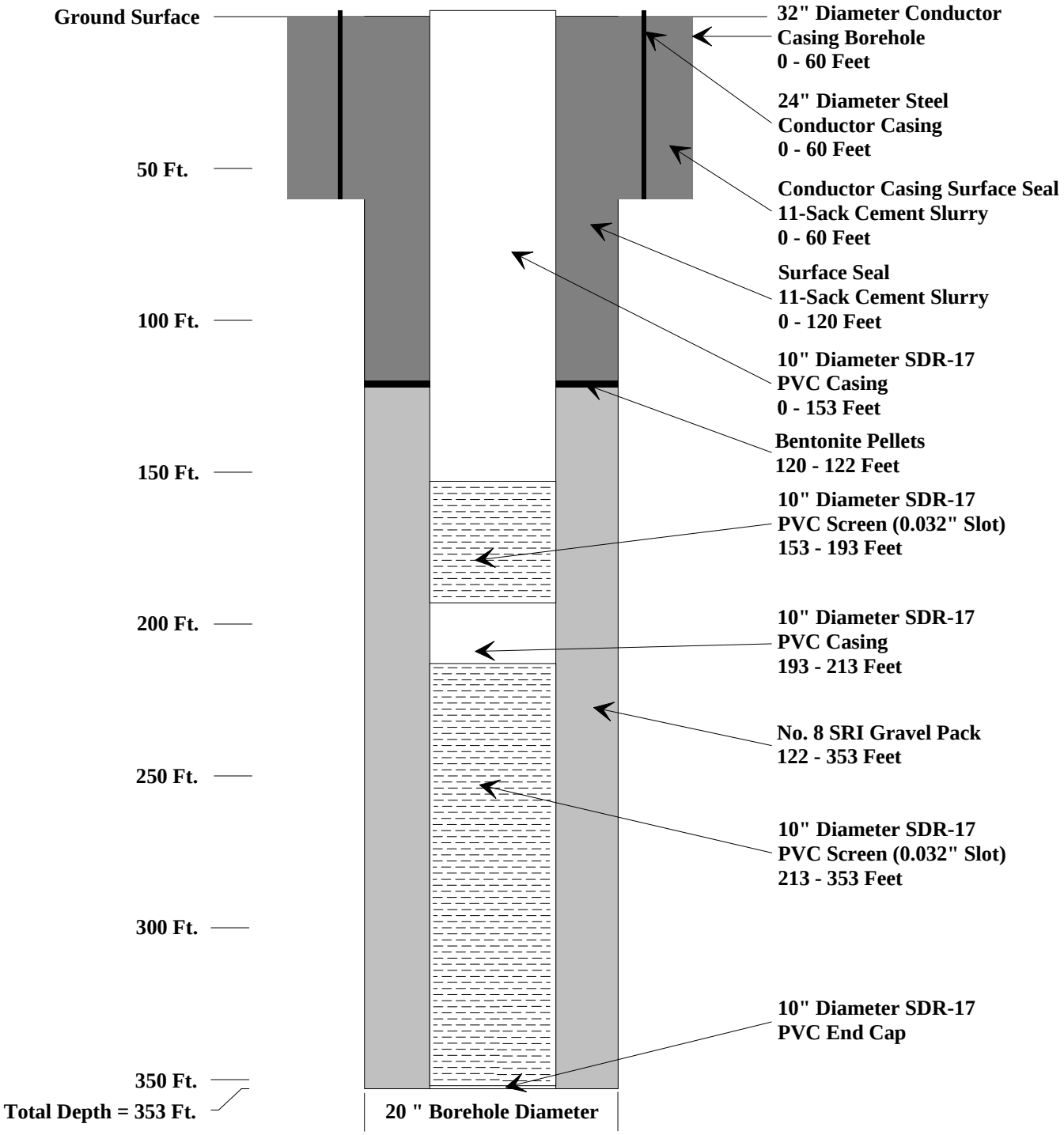
FIGURE 3

STONEGATE WATER SUPPLY TEST WELL
CONSTRUCTION DIAGRAM



GEOCONSULTANTS, INC.
G729-04B 04/10 FIGURE 4

Wellbore Video Report

welenco
5201 Woodmere Drive Bakersfield, CA. 93313
Phone: (800) 445-9914 Fax: (661) 834-8100 Web: www.welenco.com

Company: Guardino Well Drilling Inc. Invoice No: 13076 Run No.: 1
Address: Well Number: StonegateTest Well
City: State: CA Zip: Survey Date: Feb 23, 2010
Requested By: Augie P.O.: Well Owner:
Copy To: Camera: CCV Color Flip Camera - Long L.H.
Reason For Survey: General Inspection Zero Datum: Top of Casing
Operator: David Jackson Lat.: 36° 47' 8.2" Long.: 121° 19' 21.9" Sec: 21 Twp: 13S Rge: 6E
Location: in the field south of 331 Bolado Road. Depth: 350' Van: L-11
Csg I.D. @ Surface: 9.5" I.D. Ref: Measured Casing Buildup: None

(NOTE: Latitude and Longitude values determined using a recreational GPS accurate to about +/- 45'. SEC, TWP and RGE then determined using the TRS conversion program, accuracy not guaranteed.)

SELECTED WELLBORE SNAPSHOTS	TRUE DEPTHS (SideScan - Feet)	WELLBORE / CASING INFORMATION
0' 155' (See Other Side)	0'	Recording Starts - Zeroed on SideScan Lens
	155'	Perforations, Top Of Slots
	172'	Sideview, Sidescan Slots
	175'	Sideview, Sidescan Slots
172' 175'	192'	Sideview, Sidescan Slots, Top of Blank Section
	214'	Sideview, Sidescan Joint
	215'	Sideview, Sidescan Slots, Top of Second Perforated Zone
192' (See Other Side) 214'	232'	Sideview, Sidescan Slots
	234'	Sideview, Sidescan Joint
	235'	Sideview, Sidescan Slots
215' (See Other Side) 232' (See Other Side)	252'	Sideview, Sidescan Slots
	254'	Sideview, Sidescan Joint
234' 235' (See Other Side)		
252' (See Other Side) 254'		

Page No. 1 **Notes:**

STONEGATE WATER SUPPLY TEST WELL
VIDEO LOG

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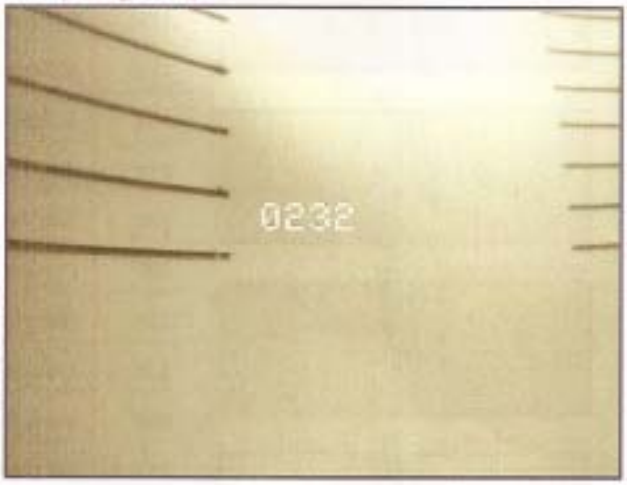
FIGURE 5

155' (Enlargement)

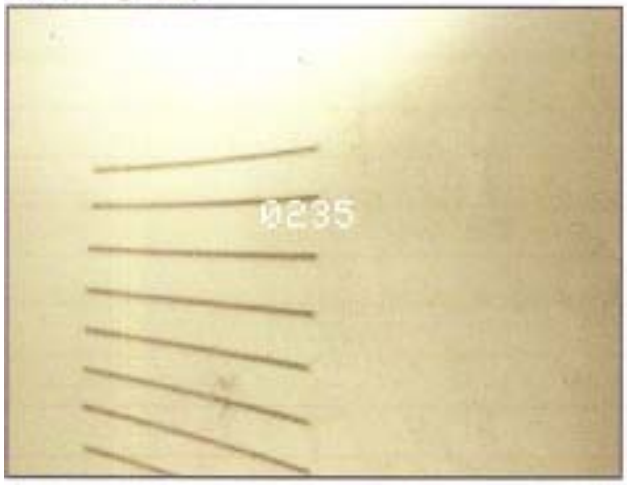
192' (Enlargement)

215' (Enlargement)

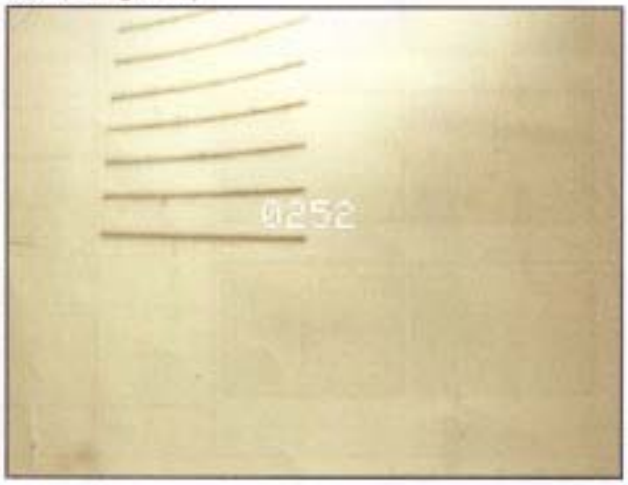
232' (Enlargement)



235' (Enlargement)



252' (Enlargement)



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STONEGATE WATER SUPPLY TEST WELL
VIDEO LOG

GEOCONSULTANTS, INC.
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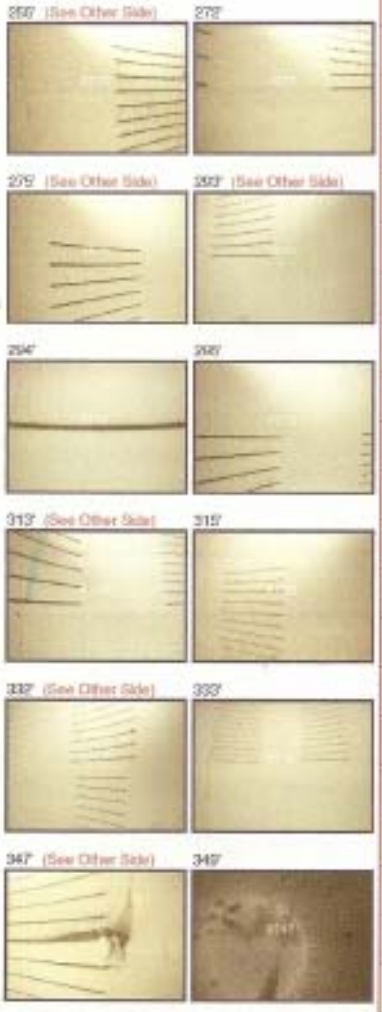
FIGURE 5

Wellbore Video Report

welenco
9201 Woodmere Drive Bakersfield, CA. 93313
Phone: (800) 445-9914 Fax: (661) 834-8100 Web: www.welenco.com

Company: Guardino Well Drilling Inc. Invoice No: 13076 Run No.: 1
Address: Well Number: StonegateTest Well
City: State: CA Zip: Survey Date: Feb 23, 2010
Requested By: Augie P.O.: Well Owner:
Copy To: Camera: CCV Color Flip Camera - Long L.H.
Reason For Survey: General Inspection Zero Datum: Top of Casing
Operator: David Jackson Lat.: 36° 47' 8.2" Long.: 121° 19' 21.9" Sec: 21 Twp: 13S Rge: 6E
Location: in the field south of 381 Bolado Road. Depth: 350' Van: L-11
Csg I.D. @ Surface: 9.5" I.D. Ref: Measured Casing Buildup: None
(NOTE: Latitude and Longitude values determined using a recreational GPS accurate to about +/- 40', SEC, TWP and RGE then determined using the TRS conversion program, accuracy not guaranteed)

SELECTED WELLBORE SNAPSHOTS	TRUE DEPTHS (SideScan - Feet)	WELLBORE / CASING INFORMATION
255' (See Other Side) 272'	255'	Sideview, Sidescan Slots
	272'	Sideview, Sidescan Slots
	275'	Sideview, Sidescan Slots
	293'	Sideview, Sidescan Slots
275' (See Other Side) 293' (See Other Side)	294'	Sideview, Sidescan Joint
	295'	Sideview, Sidescan Slots
	313'	Sideview, Sidescan Slots
294' 295'	315'	Sideview, Sidescan Slots
	332'	Sideview, Sidescan Slots
	333'	Sideview, Sidescan Slots
	347'	Sideview, Sidescan Slots, Review Video
313' (See Other Side) 315'	349'	Downview, Fill @ 350
332' (See Other Side) 333'		
347' (See Other Side) 349'		



Page No. 3 Notes:

STONEGATE WATER SUPPLY TEST WELL
VIDEO LOG

GEOCONSULTANTS, INC.
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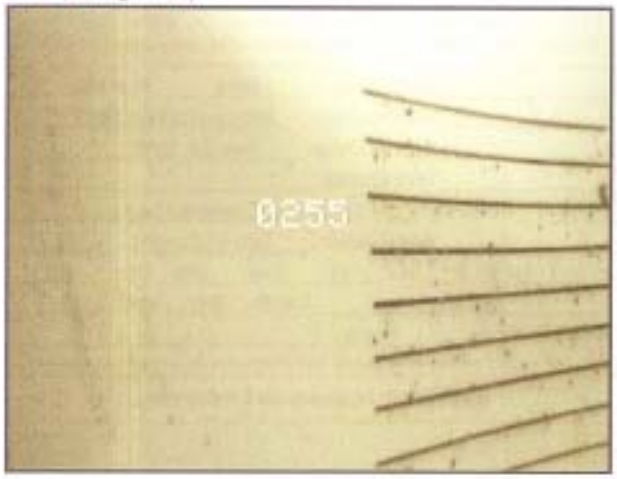
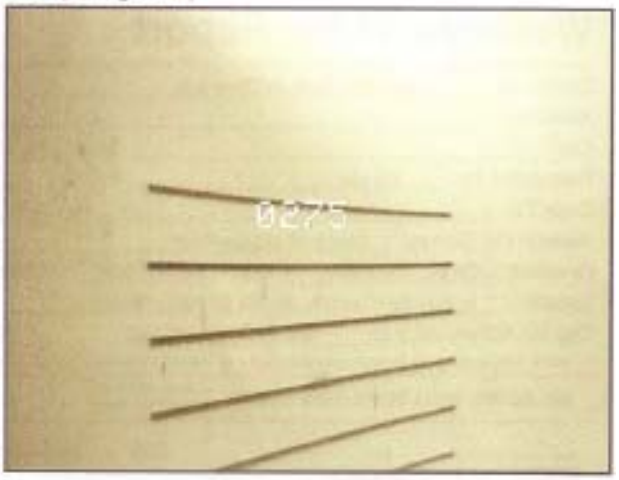
FIGURE 5

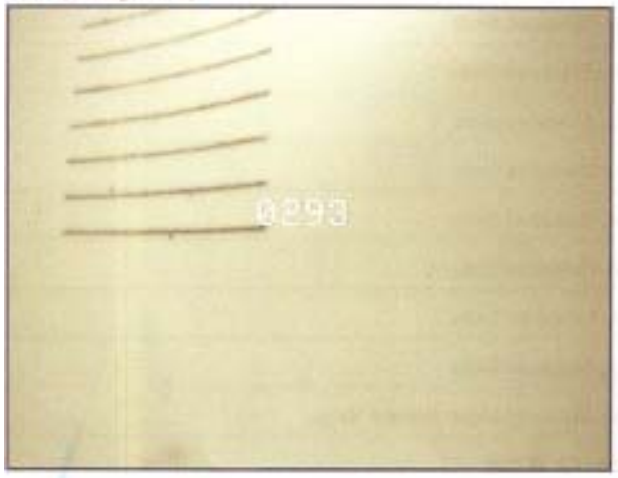
255' (Enlargement)



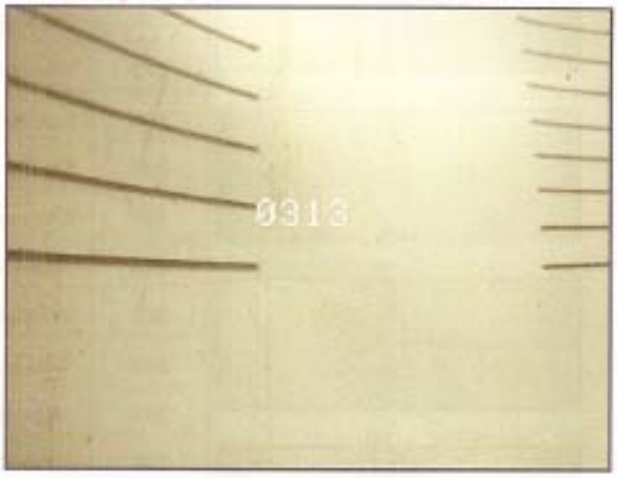
275' (Enlargement)



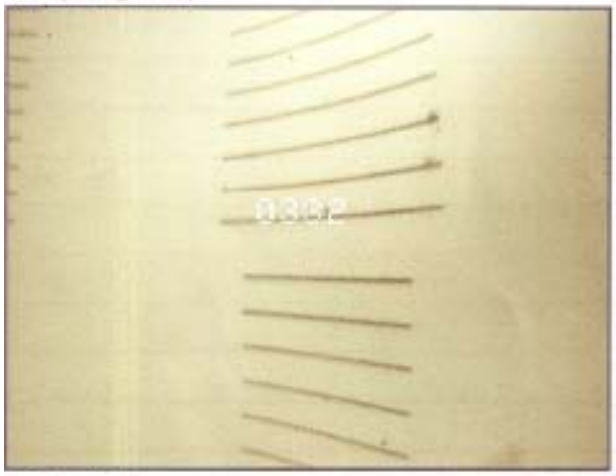
293' (Enlargement)



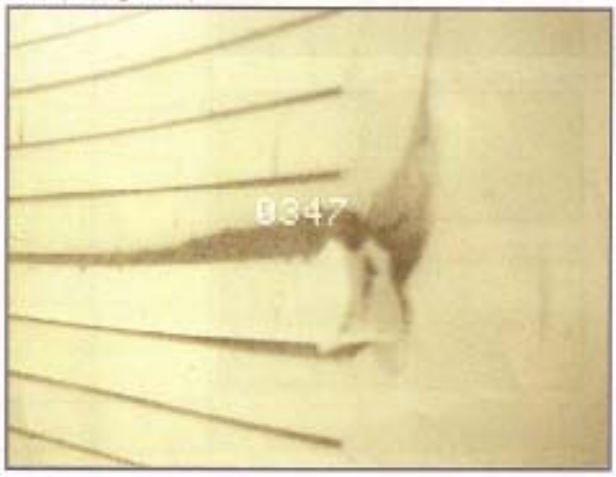
313' (Enlargement)



332' (Enlargement)



347' (Enlargement)



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STONEGATE WATER SUPPLY TEST WELL
VIDEO LOG

GEOCONSULTANTS, INC.
G729-04B 04/10
FIGURE 5

APPENDIX A

SAN BENITO COUNTY
481 Fourth Street
Hollister, CA 95023

SAN BENITO COUNTY WATER DISTRICT
30 Mansfield Road
Hollister, CA 95023

DOMESTIC - MULTIPLE CONNECTION WELL PERMIT

WP - 09- 039 PERMIT NUMBER	LATITUDE
Bolado Road, Tres Pinos SITE LOCATION	LONGITUDE
022-25-0-004 ASSESSOR'S PARCEL NUMBER	664960 - Exp 02/28/2011 DRILLER'S LICENSE NUMBER
Graniterock NAME OF OWNER	Guardino Well Drilling NAME OF DRILLER
350 Technology Drive OWNER'S ADDRESS	4825 Croy Road DRILLER ADDRESS
Watsonville, CA 95076 CITY, STATE ZIP	Morgan Hill, Ca 95037 CITY, STATE ZIP
831-768-2073 OWNER'S PHONE	Augie Guardino: 408-779-5904 Ext.20 DRILLER'S PHONE NO.

SPECIAL CONDITIONS:

12 / 18 / 2009
DATE ISSUED

12 / 18 / 2010
EXPIRATION DATE or
12 MONTHS FROM DATE OF ISSUE UNLESS EXTENDED

ISSUED BY

	DATE	INITIALS
SEAL INSPECTION:		

COMMENTS:

Total Well Depth = ft. Borehole Diameter = in. Type Casing =

Casing Diameter = in. Seal Width = in. Seal Depth = ft. Filter Pack = ft.

Screened Interval = ft. ft. of Tremmie Pipe Used.

Other:

GEOCONSULTANTS, INC.
G729-04B 04/10
FIGURE A-1

File Original with DWR

State of California

Well Completion Report

Refer to Instruction Pamphlet

No. e0105905

Page 1 of 1

Owner's Well Number Test Well

Date Work Began 01/28/2010 Date Work Ended

Local Permit Agency San Benito County Water District

Permit Number WP-09-039 Permit Date 12/18/09

DWR Use Only – Do Not Fill In

State Well Number/Site Number

N W

Latitude Longitude

APN/TRS/Other

Geologic Log

Orientation ⦿ Vertical ○ Horizontal ○ Angle Specify

Drilling Method Direct Rotary Drilling Fluid Bentonite mud

Depth from Surface Feet	to Feet	Description Describe material, grain size, color, etc
0	8	Topsoil and loamy sand
8	42	Gravel and sand
42	120	Cemented gravel and cobbles
120	130	Sandy conglomerate
130	138	Brown clay
138	198	Gravel
198	247	Brown clay
247	250	Gravel
250	261	Clay
261	270	Gravel
270	281	Clay
281	283	Gravel
283	291	Clay
291	299	Gravel
299	305	Clay
305	355	Gravel and sand with clay streaks
355	422	Sandstone
422	460	Fractured multicolored bluestone

Total Depth of Boring 460 Feet

Total Depth of Completed Well 353 Feet

Well Owner

Name Stonegate County Service Area

Mailing Address 3220 Southside Road

City Hollister State CA Zip 95023

Well Location

Address Bolado Road

City Tres Pinos County San Benito

Latitude 36 Deg. 47 Min. 8 Sec. N Longitude 121 Deg. 19 Min. 22 Sec. W

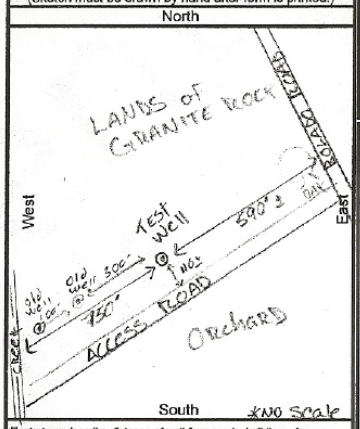
Datum Decimal Lat. Decimal Long.

APN Book 022 Page 25 Parcel 0-004

Township 13S Range 6E Section 21

Location Sketch

(Sketch must be drawn by hand after form is printed.)



Illustrate or describe distance of well from roads, buildings, fences, rivers, etc. and attach a map. Use additional paper if necessary. Please be accurate and complete.

Activity

⦿ New Well
○ Modification/Repair
○ Deepen
○ Other
○ Destroy
Describe procedures and materials under "GEOLOGIC LOG"

Planned Uses

○ Water Supply
☐ Domestic ☐ Public
☐ Irrigation ☐ Industrial
○ Cathodic Protection
○ Dewatering
○ Heat Exchange
○ Injection
○ Monitoring
○ Remediation
○ Sparging
⦿ Test Well
○ Vapor Extraction
○ Other

Water Level and Yield of Completed Well

Depth to first water 15 (Feet below surface)

Depth to Static Water Level 66 (Feet) Date Measured 02/19/2010

Estimated Yield * 92 (GPM) Test Type Air Lift

Test Length 40.0 (Hours) Total Drawdown – – – (Feet)

*May not be representative of a well's long term yield.

Casings

Depth from Surface Feet	to Feet	Borehole Diameter (Inches)	Type	Material	Wall Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size if Any (Inches)
0	60	32	Conductor	Low Carbon Steel	.250	24.25		
0	60	24	Blank	PVCF480	SDR17	10.75		
60	153	20	Blank	PVCF480	SDR17	10.75		
153	193	20	Screen	PVCF480	SDR17	10.75	factory	0.032
193	213	20	Blank	PVCF480	SDR17	10.75		
213	353	20	Screen	PVCF480	SDR17	10.75	factory	0.032

Annular Material

Depth from Surface Feet	to Feet	Fill	Description
0	60	Cement	11 sack
0	120	Cement	11 sack
120	122	Bentonite	3/8" hole plug
122	360	Filter Pack	#8 sand
360	460	Cement	11 sack

Attachments

☐ Geologic Log
☑ Well Construction Diagram
☑ Geophysical Log(s)
☐ Soil/Water Chemical Analyses
☑ Other 3 Arm Caliper Log

Attach additional information, if it exists.

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name GUARDINO WELL DRILLING, INC.
Person, Firm or Corporation

4825 Crow Road Morgan Hill CA 95037
Address City State Zip

Signed 4/22/2010 664960
C-57 Licensed Water Well Contractor Date Signed C-57 License Number

DWR 188 REV. 1/2006

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

GEOCONSULTANTS, INC.

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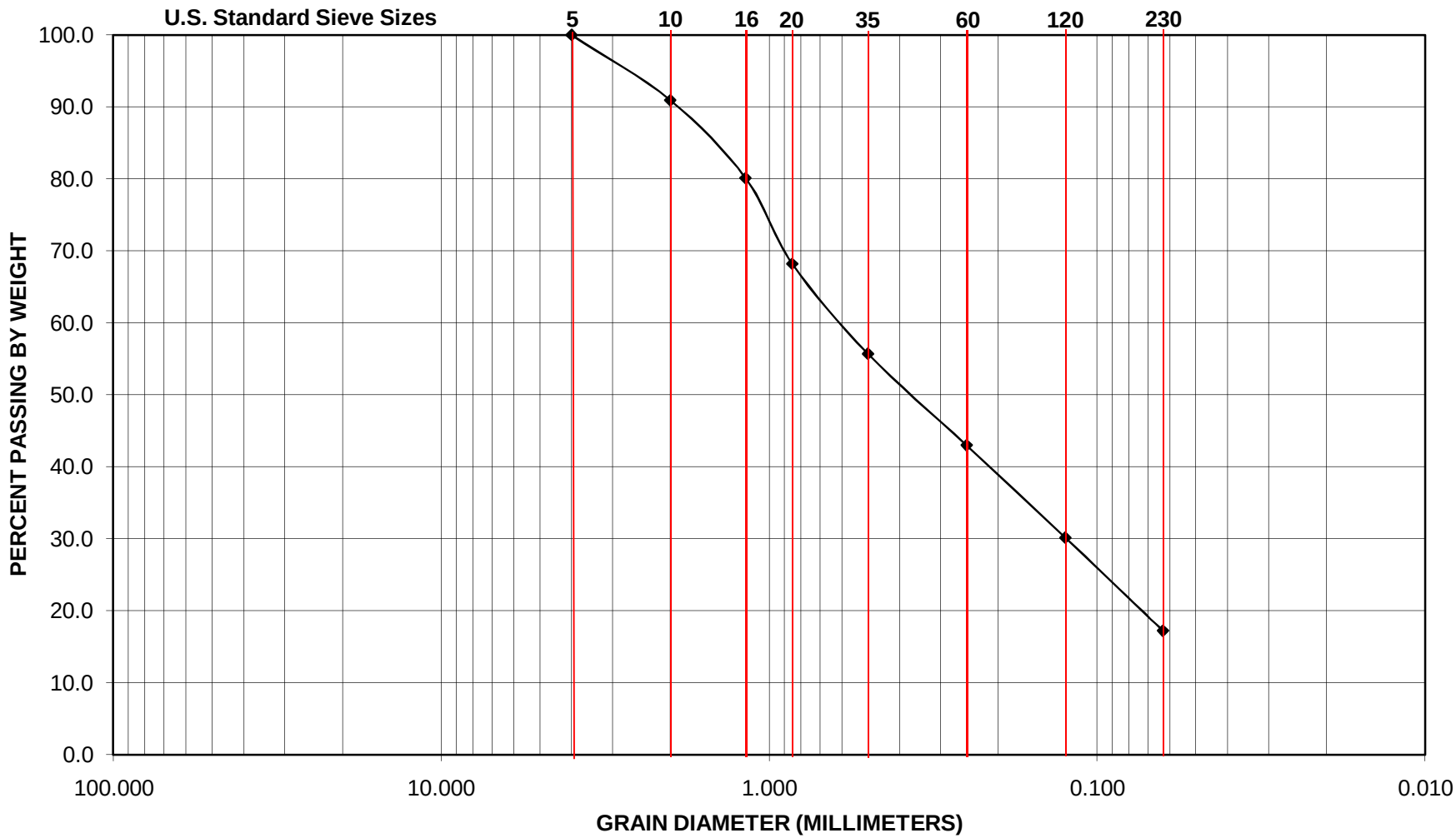
FIGURE A-2

APPENDIX B

SIEVE ANALYSIS
180 FEET
STONEGATE WATER SUPPLY TEST WELL
SAN BENITO COUNTY, CALIFORNIA



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G729-04B 02/10
FIGURE B-1

SIEVE ANALYSIS
200 FEET
STONEGATE WATER SUPPLY TEST WELL
SAN BENITO COUNTY, CALIFORNIA

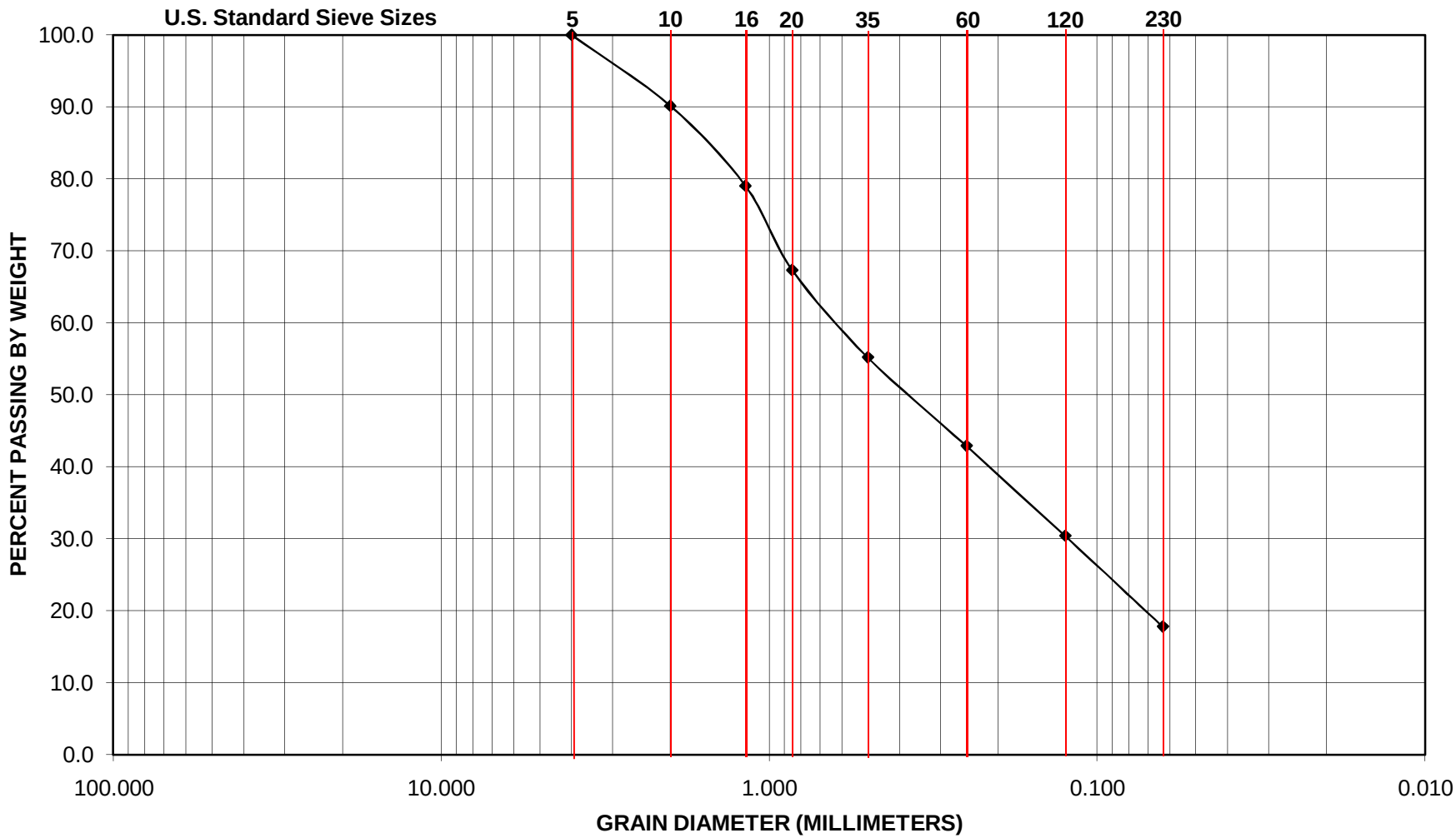

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FIGURE B-2

SIEVE ANALYSIS
220 FEET
STONEGATE WATER SUPPLY TEST WELL
SAN BENITO COUNTY, CALIFORNIA

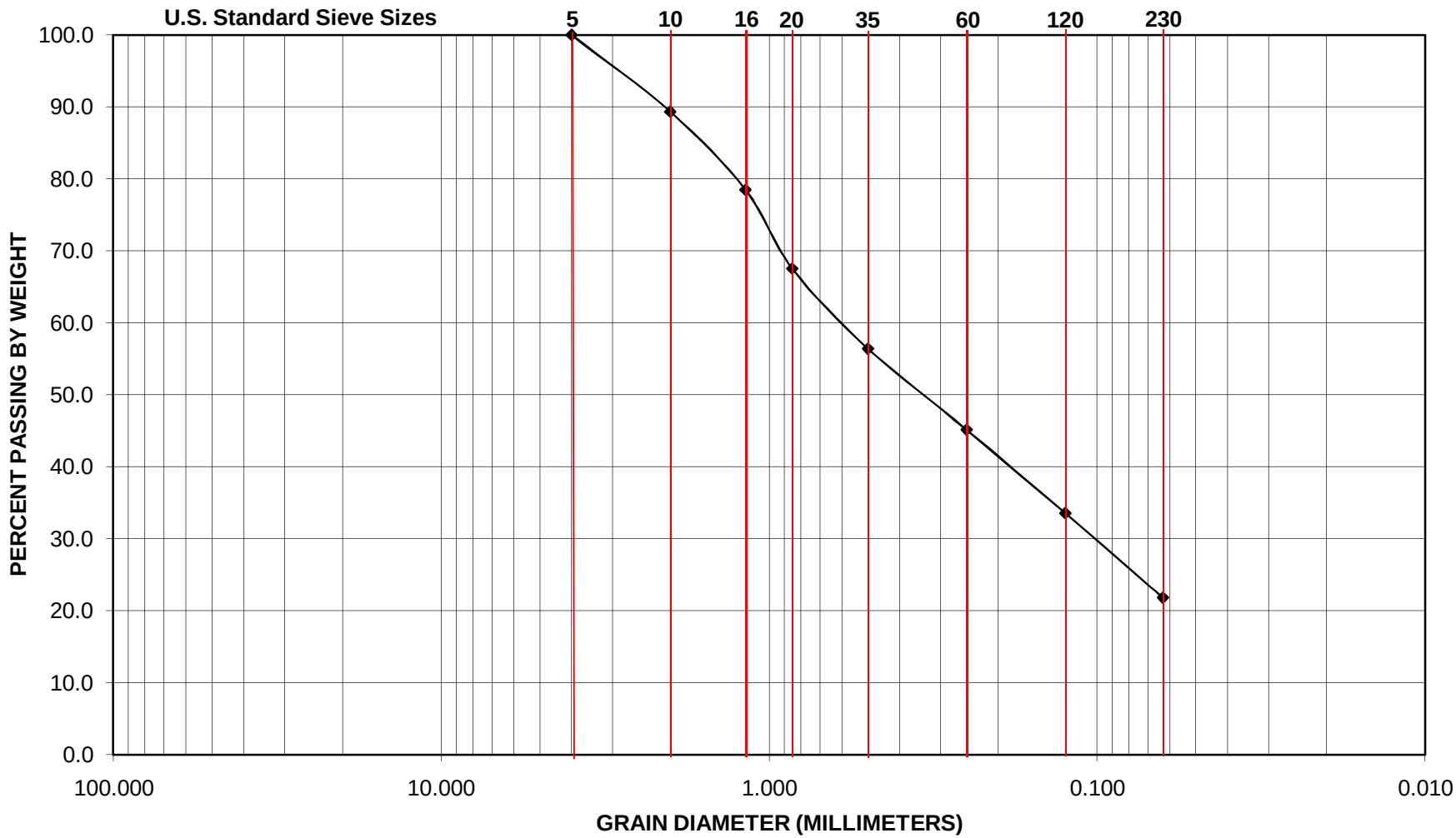

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FIGURE B-3

SIEVE ANALYSIS
240 FEET
STONEGATE WATER SUPPLY TEST WELL
SAN BENITO COUNTY, CALIFORNIA

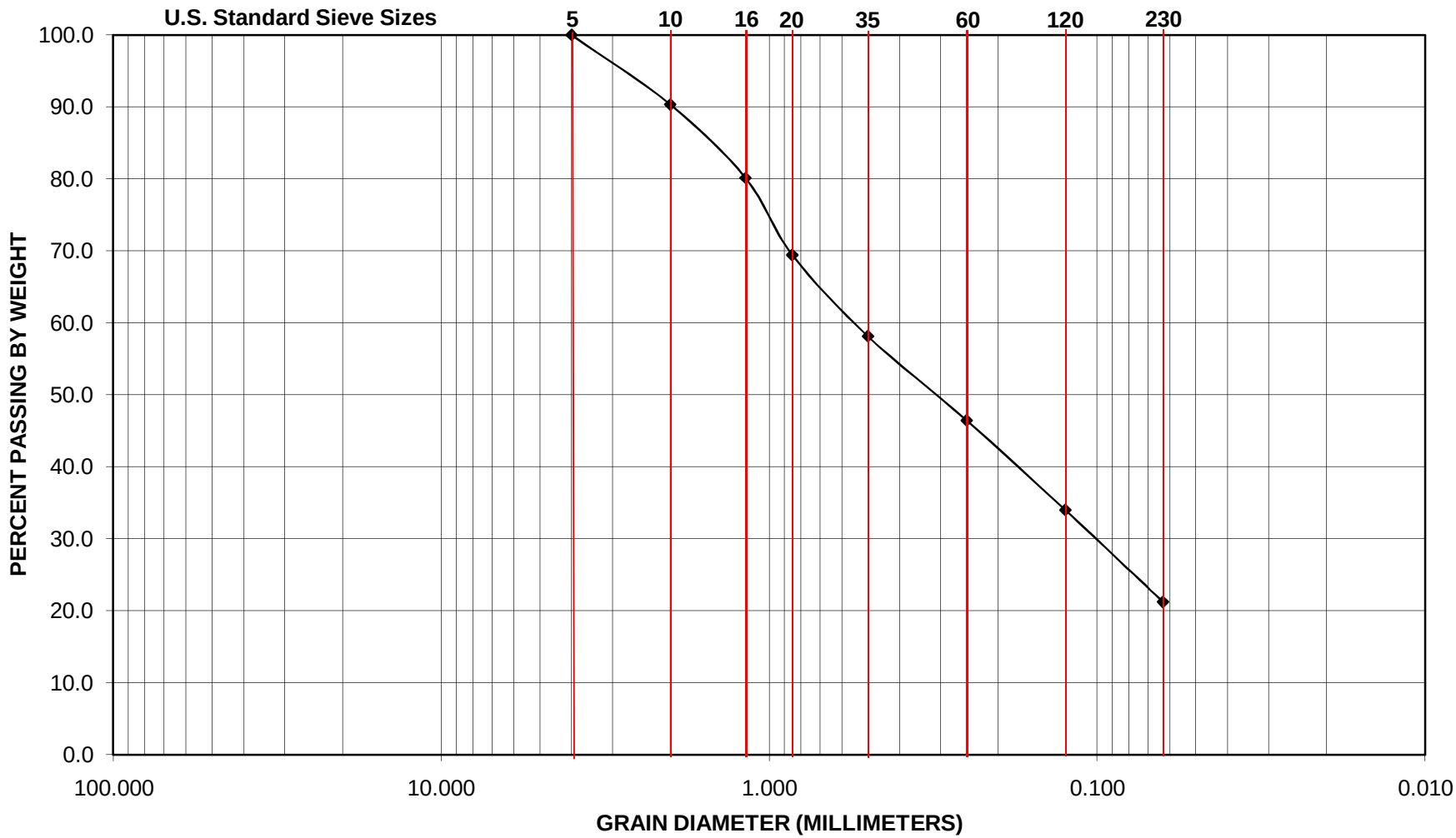

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FIGURE B-4

APPENDIX C

LONG-TERM PUMPING TEST
STONEGATE WATER SUPPLY TEST WELL
SAN BENITO COUNTY, CALIFORNIA
April 6 - 9, 2010

DRAWDOWN

TIME	ELAPSED TIME (MINUTES)	RECOVERY TIME (MINUTES)	RATIO (ELAPSED TIME TO RECOVERY TIME)	PUMPING RATE (GPM)	DEPTH TO WATER (FEET)	TOTAL DRAWDOWN (FEET)
13:00:00	0.00			120.00	63.80	0.00
13:00:15	0.25			120.00	66.70	2.90
13:00:30	0.50			120.00	69.20	5.40
13:00:45	0.75			120.00	72.50	8.70
13:01:00	1.00			120.00	75.70	11.90
13:02:00	2.00			120.00	78.40	14.60
13:03:00	3.00			120.00	81.20	17.40
13:04:00	4.00			120.00	84.50	20.70
13:05:00	5.00			120.00	87.70	23.90
13:06:00	6.00			120.00	89.20	25.40
13:07:00	7.00			120.00	90.20	26.40
13:08:00	8.00			120.00	90.60	26.80
13:09:00	9.00			120.00	91.40	27.60
13:10:00	10.00			120.00	91.70	27.90
13:12:00	12.00			120.00	92.00	28.20
13:14:00	14.00			120.00	92.30	28.50
13:16:00	16.00			120.00	92.70	28.90
13:18:00	18.00			120.00	93.00	29.20
13:20:00	20.00			120.00	93.00	29.20
13:22:00	22.00			120.00	93.20	29.40
13:24:00	24.00			120.00	93.20	29.40
13:26:00	26.00			120.00	93.20	29.40
13:28:00	28.00			120.00	93.60	29.80
13:30:00	30.00			120.00	94.00	30.20
13:35:00	35.00			120.00	94.80	31.00
13:40:00	40.00			120.00	95.80	32.00
13:45:00	45.00			120.00	96.80	33.00
13:50:00	50.00			120.00	97.60	33.80
13:55:00	55.00			120.00	98.20	34.40
14:00:00	60.00			120.00	99.00	35.20
14:05:00	65.00			120.00	99.70	35.90
14:10:00	70.00			120.00	100.40	36.60
14:15:00	75.00			120.00	101.00	37.20
14:20:00	80.00			120.00	101.60	37.80
14:25:00	85.00			120.00	102.20	38.40
14:30:00	90.00			120.00	102.80	39.00
14:35:00	95.00			120.00	103.20	39.40
14:40:00	100.00			120.00	103.80	40.00
14:45:00	105.00			120.00	104.30	40.50
14:50:00	110.00			120.00	104.80	41.00
14:55:00	115.00			120.00	105.20	41.40
15:00:00	120.00			120.00	105.80	42.00
15:30:00	150.00			120.00	108.20	44.40
16:00:00	180.00			120.00	110.40	46.60
16:30:00	210.00			120.00	112.30	48.50
17:00:00	240.00			120.00	114.20	50.40
17:30:00	270.00			120.00	116.00	52.20
18:00:00	300.00			120.00	117.80	54.00
18:30:00	330.00			120.00	119.20	55.40
19:00:00	360.00			120.00	123.00	59.20
21:00:00	480.00			120.00	131.80	68.00
23:00:00	600.00			120.00	135.00	71.20
1:00:00	720.00			120.00	141.00	77.20
3:00:00	840.00			120.00	148.60	84.80
5:00:00	960.00			120.00	161.10	97.30
7:00:00	1080.00			120.00	190.40	126.60
9:00:00	1200.00			120.00	228.20	164.40
11:00:00	1320.00			120.00	259.60	195.80
13:00:00	1440.00			120.00	284.00	220.20
15:00:00	1560.00			120.00	320.80	257.00
15:30:00	1590.00			120.00	335.00	271.20
16:15:00	1635.00			120.00	335.00	271.20

LONG-TERM PUMPING TEST
STONEGATE WATER SUPPLY TEST WELL
SAN BENITO COUNTY, CALIFORNIA
April 6 - 9, 2010

RECOVERY

TIME	ELAPSED TIME (MINUTES)	RECOVERY TIME (MINUTES)	RATIO (ELAPSED TIME TO RECOVERY TIME)	PUMPING RATE (GPM)	DEPTH TO WATER (FEET)	TOTAL RECOVERY (FEET)
16:15:15	1635.25	0.25	6541.00		330.00	266.20
16:15:30	1635.50	0.50	3271.00		323.00	259.20
16:15:45	1635.75	0.75	2181.00		306.60	242.80
16:16:00	1636.00	1.00	1636.00		306.20	242.40
16:17:00	1637.00	2.00	818.50		305.00	241.20
16:18:00	1638.00	3.00	546.00		303.00	239.20
16:19:00	1639.00	4.00	409.75		301.20	237.40
16:20:00	1640.00	5.00	328.00		298.80	235.00
16:21:00	1641.00	6.00	273.50		296.80	233.00
16:22:00	1642.00	7.00	234.57		294.60	230.80
16:23:00	1643.00	8.00	205.38		292.40	228.60
16:24:00	1644.00	9.00	182.67		291.00	227.20
16:25:00	1645.00	10.00	164.50		289.80	226.00
16:27:00	1647.00	12.00	137.25		286.40	222.60
16:29:00	1649.00	14.00	117.79		283.80	220.00
16:31:00	1651.00	16.00	103.19		281.30	217.50
16:33:00	1653.00	18.00	91.83		279.00	215.20
16:35:00	1655.00	20.00	82.75		276.20	212.40
16:37:00	1657.00	22.00	75.32		274.60	210.80
16:39:00	1659.00	24.00	69.13		273.40	209.60
16:41:00	1661.00	26.00	63.88		271.80	208.00
16:43:00	1663.00	28.00	59.39		270.00	206.20
16:45:00	1665.00	30.00	55.50		268.70	204.90
16:50:00	1670.00	35.00	47.71		265.80	202.00
16:55:00	1675.00	40.00	41.88		262.50	198.70
17:00:00	1680.00	45.00	37.33		259.80	196.00
17:05:00	1685.00	50.00	33.70		257.00	193.20
17:10:00	1690.00	55.00	30.73		252.00	188.20
17:15:00	1695.00	60.00	28.25		249.80	186.00
17:20:00	1700.00	65.00	26.15		246.40	182.60
17:25:00	1705.00	70.00	24.36		243.00	179.20
17:30:00	1710.00	75.00	22.80		238.80	175.00
17:35:00	1715.00	80.00	21.44		236.40	172.60
17:40:00	1720.00	85.00	20.24		232.10	168.30
17:45:00	1725.00	90.00	19.17		228.40	164.60
17:50:00	1730.00	95.00	18.21		226.50	162.70
17:55:00	1735.00	100.00	17.35		222.80	159.00
18:00:00	1740.00	105.00	16.57		220.20	156.40
18:05:00	1745.00	110.00	15.86		218.30	154.50
18:10:00	1750.00	115.00	15.22		215.80	152.00
18:15:00	1755.00	120.00	14.63		213.60	149.80
12:15:00	2715.00	1080.00	2.51		112.40	48.60
12:00:00	4140.00	2505.00	1.65		100.40	36.60

DRAWDOWN
LONG-TERM PUMPING TEST
STONEGATE WATER SUPPLY TEST WELL

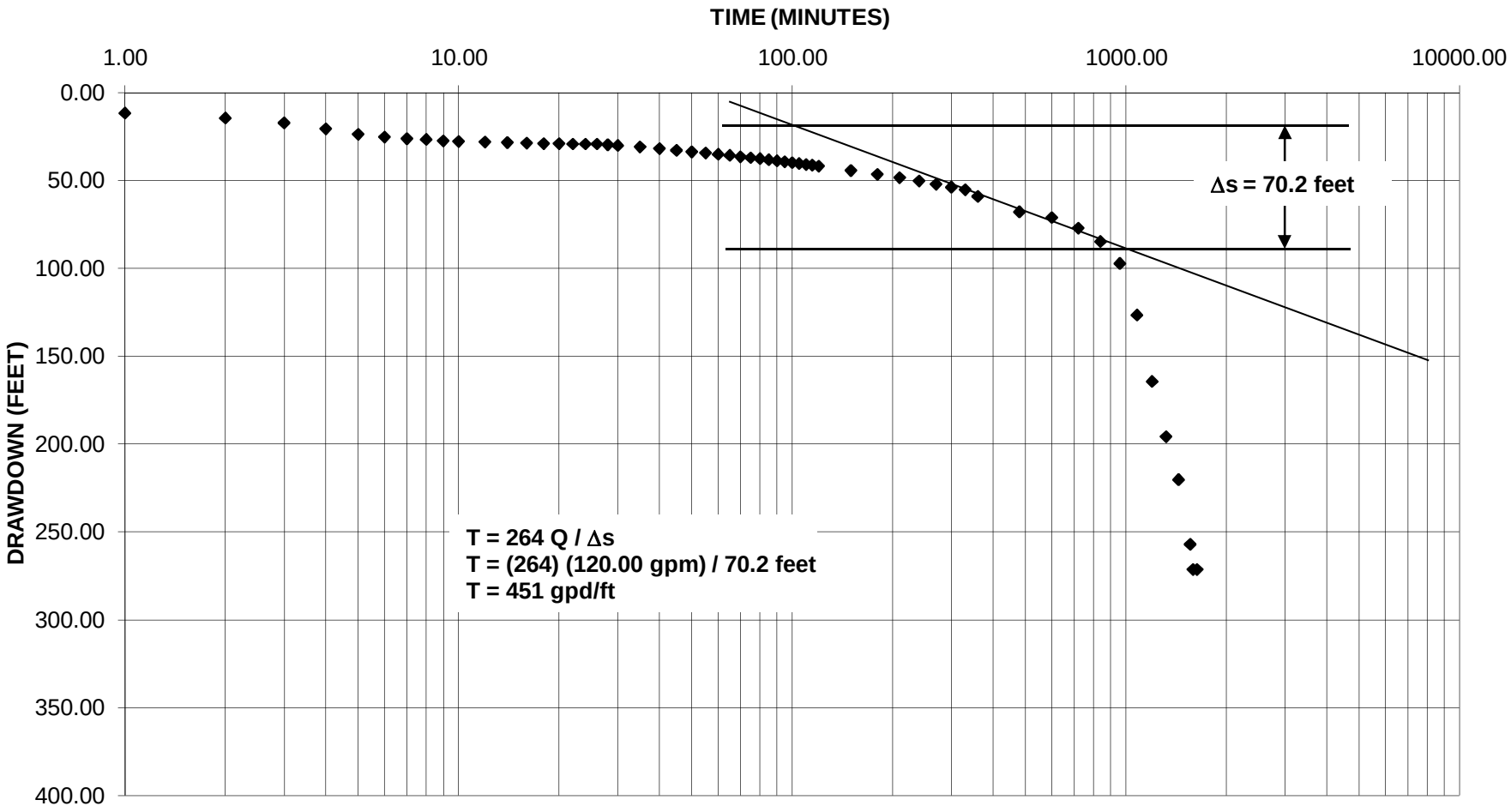

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FIGURE C-2

RECOVERY
LONG-TERM PUMPING TEST
STONEGATE WATER SUPPLY TEST WELL

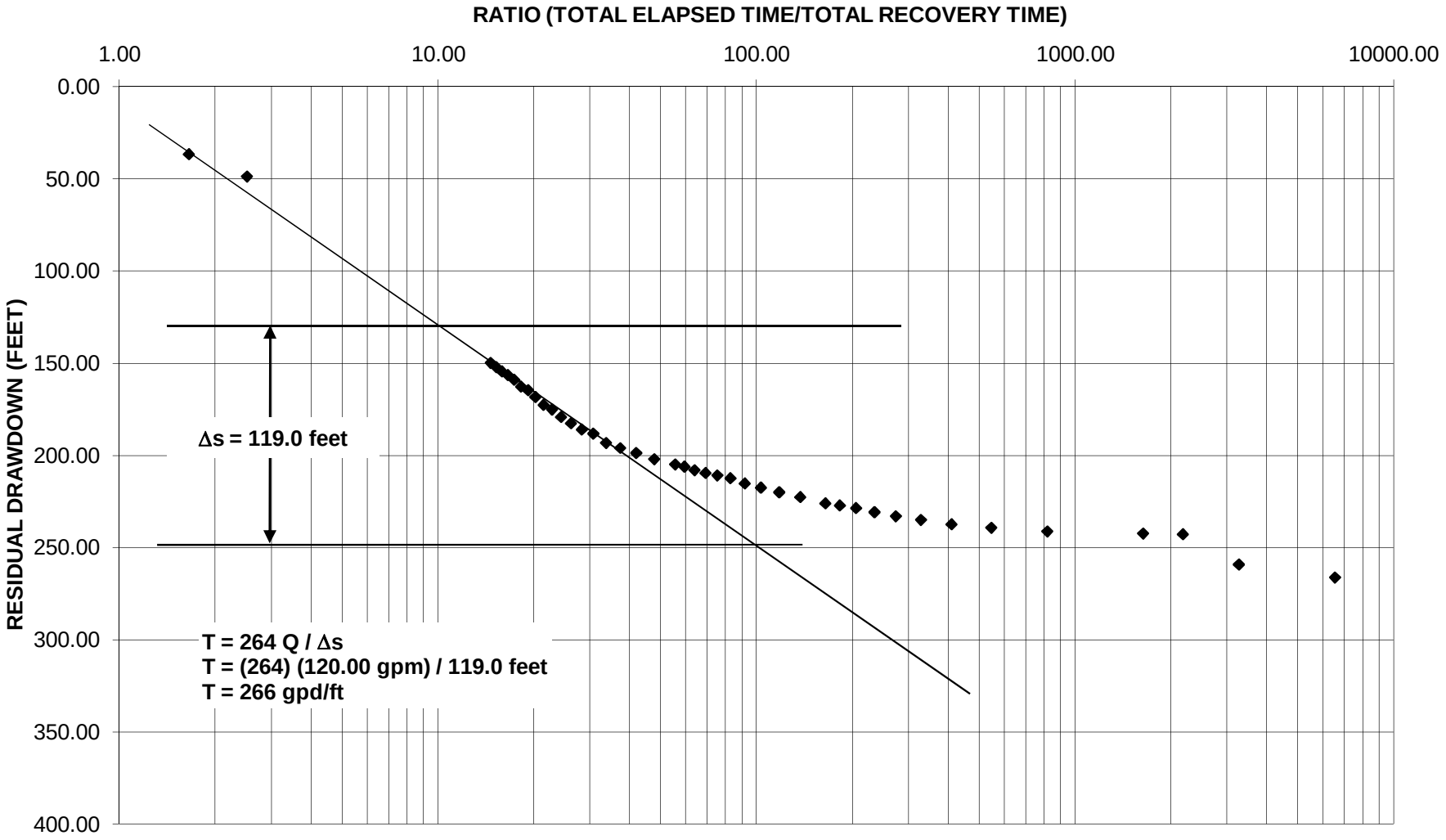

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FIGURE C-3