

**EXHIBIT “H”
WELL & PUMP INFORMATION
(WILLOW SPRINGS)**

06/20/2012

S. A. CAMP PUMP COMPANY

PUMP TEST REPORT

GRIMMWAY WILLOW SPRINGS DW176 PE221

CUSTOMER : GRIMMWAY FARMS
WELL # : DW176 PE221 WILLOW SPRINGS
METER : ENGINE
LEGAL :
LOCATION : 11/2 MILE SOUTH OF BACKUS AND 1/2 MILE EAST OF WILLOW
SPRINGS RD
TEST DATE : 06/20/2012

EQUIPMENT

GEARHEAD DERAN HP 450 Ratio 1 : 1 R.P.M. 1760 Serial C202007
Frame: Type:
Pump : PEERLESS Type: Oil Lube Turbine

TEST RESULTS

Standing Water Level below Surface of Ground	GA-100.0	349 FT
Draw Down From Standing to Pumping Level		141 FT
Pumping Water Level	GA-39.0	490 FT
Discharge Head Above Ground	GA-50.0	115.5 FT
TOTAL LIFT		605.5 FT
WATER PUMPED		1271 GPM.
Yield of Well (G.P.M. per foot Draw Down)		9 GPM/FT
GEARHEAD R.P.M.		1770 R.P.M
OVERALL PLANT EFFICIENCY		%
Acre Foot in 24 Hours		5.62
Kilowatt Input to Motor		
Kilowatt Hours/Acre Foot Pumped		
Average Cost per KW		
Cost Per Acre Foot		

OFF APPROXIMATELY 400 TO 500 GPM CUSTOMERS FLOW METER 1200
GPM

ID: 101/4 82.50
SCALE: 15.40
AIRLINE: 580

TEST ENGINEER T COKER

S . A . C A M P P U M P C O M P A N Y

09/01/2012 10:20 am

Page: 2

P U M P T E S T F I L E R E P O R T

GRIMMWAY WILLOW SPRINGS DW176 PE221

Name	GRIMMWAY FARMS	!PUMP DATA INSTALLATION DATE 09/14/2004
Well	DW176 PE221 WILLOW SPRINGS	!PUMP SETTING 580
Meter	ENGINE	!AIRLINE 580
Legal		!CT&S SIZE 10 X 3 X 115/16
Location	11/2 MILE SOUTH OF BACKUS AND	!BOWLS 8 STAGES 14RJMC A8 GOULD
	1/2 MILE EAST OF WILLOW	!WELL DEPTH 16 TO 1086
	SPRINGS RD	!

GEARHEAD DERAN

HP 450

Ratio 1 : 1

R.P.M. 1760 Serial C202007

Frame

Type

Pump PEERLESS

Type Oil Lube Turbine

DATE	06/19/06	08/01/08	08/26/09	09/07/09	07/27/10	08/10/11	06/20/12
STANDING WATER	358'	384'	372'	349'	381'	393'	349'
DRAW DOWN	157'	138'	139'	127'	148'	132'	141'
PUMPING WATER	515'	522'	511'	476'	529'	525'	490'
DISCHARGE HEAD	27.7'	30'	27.7'	69.3'	62.4'	115.5'	115.5'
TOTAL LIFT	542.7'	552'	538.7'	545.3'	591.4'	640.5'	605.5'
G.P.M.	1815	1609	1485	1683	1625	1238	1271
GPM/FT	11.6	11.7	10.7	13.3	11	9.4	9
H.P./RPM	RPM	RPM	RPM	RPM	RPM	RPM	RPM
EFF.	1770	1770	1770	1770	1770	1770	1770
AC FT IN 24 HRS	8.02	7.11	6.56	7.44	7.18	5.47	5.62
KW TO MOTOR							
KW HOURS							
PER AC FT							
COST							
PER AC/FT							

GRIMMWAY WILLOW SPRINGS DW176 PB221

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|PUMP DATA INSTALLATION DATE 09/14/2004
|PUMP SETTING 580
|AIRLINE      580
|CT&S SIZE    10 X 3 X 115/16
|BOWLS        8 STAGES 14RJMC A8 GOULD
|WELL DEPTH   16 TO 1086
|
|
|-----

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HP 450	Ratio 1 : 1	R.P.M.	1760	Serial C202007
Type	Pump PEERLESS		Type Oil Lube	Turbine

[illegible]

11/21/2009

S . A . C A M P P U M P C O M P A N Y

Page: 3

P u m p E s t i m a t e C a l c u l a t i o n s

GRIMMWAY WILLOW SPRINGS DW176 PE221

CUSTOMER: GRIMMWAY FARMS

WELL # : DW179 PE189

METER : ENGINE

LEGAL :

LOCATION: 11/2 MILES SOUTH OF BACKUS AND 1/2 MILE EAST OF WILLOW
SPRINGS RDGEAR HEAD DERAN HP 450 RATIO 1 : 1 R.P.M. 1770 SERIAL C202007
FRAME TYPE: PUMP: PEERLESS TYPE: Oil Lube Turbine

8 STAGES 14"RJA8-C 9 GOULDS

G.P.M.	LAB HEAD	B HP	BOWL EFF.	FIELD HEAD	FIELD INPUT HP	FIELD EFF.
2200	536.0	374.1	82.0%	440	393.8	62.1 %
2000	608.0	372.3	85.0%	530	391.9	68.3 %
1800	672.0	373.3	84.3%	610	392.9	70.6 %
1600	720.0	361.5	83.0%	670	380.5	71.1 %
1400	752.0	343.3	80.0%	710	361.4	69.5 %

DATE OF LAST WORK: 09/14/2004

PUMP SETTING: 580 ft.

AIRLINE: 580 ft.

C.T.S. 0580-10" X 3" X 115/16"

BOWLS: 8 STAGES 14"RJA8-C 9 GOULDS

WELL INFORMATION:

16 TO 1086

ORIGINAL

File with DWR

Get new number

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

Page 1 of 1

Owner's Well No.

No. e003177

Date Work Began 06/03/03, Ended 07/28/03

Local Permit Agency Kern County Health

Permit No. EH-1676

Permit Date 06/03/03

DWR USE ONLY — DO NOT FILL IN	
STATE WELL NO./STATION NO.	
LATITUDE	LONGITUDE
APN/TRS/OTHER	

ORIENTATION ()			GEOLOGIC LOG	
			XX VERTICAL	HORIZONTAL
			DRILLING METHOD	Direct Rotary
			FLUID	Bentonite
			DESCRIPTION	
			Describe material, grain size, color, etc.	
DEPTH FROM SURFACE	FL	TO FL		
0	10		Fine to coarse sand	
10	20		Fine to coarse sand w/red silt	
20	32		Fine to coarse sand w/gravel	
32	52		Fine to coarse sand	
52	62		Fine to coarse sand w/gravel-1"	
62	113		Fine to coarse sand w/3/8-3/4 gravel	
113	155		Fine to coarse sand	
155	209		Fine to med. sand	
209	219		Fine to coarse sand w/gravel	
219	347		Fine to med. sand	
347	443		Fine to coarse sand	
443	475		Fine to med. sand w/gravel lenses	
475	485		Fine to coarse sand	
485	495		Fine to med. sand w/clay lenses	
495	525		Sandy clay	
525	540		Fine to coarse sand	
540	580		Sand & clay lenses	
580	590		Sandy clay	
590	610		Fine to coarse sand	
610	620		Red clay	
620	680		Sand and clay lenses	
680	695		Fine to med. sand	
690	720		90% clay 10% fine sand	
720	750		Fine to med. sand w/clay lenses	
750	805		Fine sand and clay	
805	830		Fine to coarse sand w/red clay	
830	950		Red clay w/ fine sand lenses	
950	960		Fine sand	
960	1005		Brown clay w/fine sand	

CONTINUED PAGE 2

TOTAL DEPTH OF BORING 1205 (Feet)

TOTAL DEPTH OF COMPLETED WELL 1168 (Feet)

Diamond Farming WELL OWNER

Name DC Duncan Trust/Michael Duncan

Mailing Address P.O. Box 179

Arvin, California 93203

CITY

STATE

ZIP

Address 1 mile South of Backus Rd. on Willow Springs

City Rosamond

County Kern

APN Book 346 Page 031 Parcel 08

Township 10N Range 13W Section 29

Latitude

Longitude

LOCATION SKETCH

ACTIVITY ()

XX NEW WELL

MODIFICATION/REPAIR

Deepen

Other (Specify)

DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES ()

WATER SUPPLY

Domestic

Irrigation

Public

Industrial

MONITORING

TEST WELL

CATHODIC PROTECTION

HEAT EXCHANGE

DIRECT PUSH

INJECTION

VAPOR EXTRACTION

SPARGING

REMEDIATION

OTHER (SPECIFY)

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 327 (FL) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL 327 (FL) & DATE MEASURED 07/28/03

ESTIMATED YIELD 513 (GPM) & TEST TYPE Pump

TEST LENGTH 9 (Hrs.) TOTAL DRAWDOWN 65 (FL)

* May not be representative of a well's long-term yield. PL 392'

DEPTH FROM SURFACE			BORE-HOLE DIA. (inches)	CASING (S)				DEPTH FROM SURFACE	ANNULAR MATERIAL			
FL	TO	FL		TYPE ()	MATERIAL / GRADE	INTERNAL DIAMETER (inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (inches)	FL	TO	FL	TYPE
0	388		26	X	A53B	15.375	.312		0	50		10-sack
388	528		26	X	MS-WRS	15.125	.375	.060	50	300		1/4x10
528	568		26	X	A53B	15.375	.312	.060	300	580		6x12
568	608		26	X	A53B	15.375	.312	.040	580	1000		8x16
608	936		26	X	A53B	15.375	.312	.060	1000	1170		6x12
936	1016		26	X	A53B	15.375	.312	.040				

ATTACHMENTS ()

- ☐ Geologic Log
☐ Well Construction Diagram
☒ Geophysical Log(s)
☐ Soil/Water Chemical Analyses
☐ Other

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 Rottman Drilling Co.

(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

46471 N Division ST., Lancaster, CA 93535

ADDRESS

CITY

STATE

ZIP

Signed Larry W. Rottman, President 08/01/03 316599

WELL DRILLER/AUTHORIZED REPRESENTATIVE

DATE SIGNED

C-57 LICENSE NUMBER

ORIGINAL

File with DWR

Get new number

STATE OF CALIFORNIA

WELL COMPLETION REPORT

Refer to Instruction Pamphlet

Page 2 of 2

No. e003177

Owner's Well No.

Date Work Began 06/03/03, Ended 07/28/03

Local Permit Agency Kern County Health

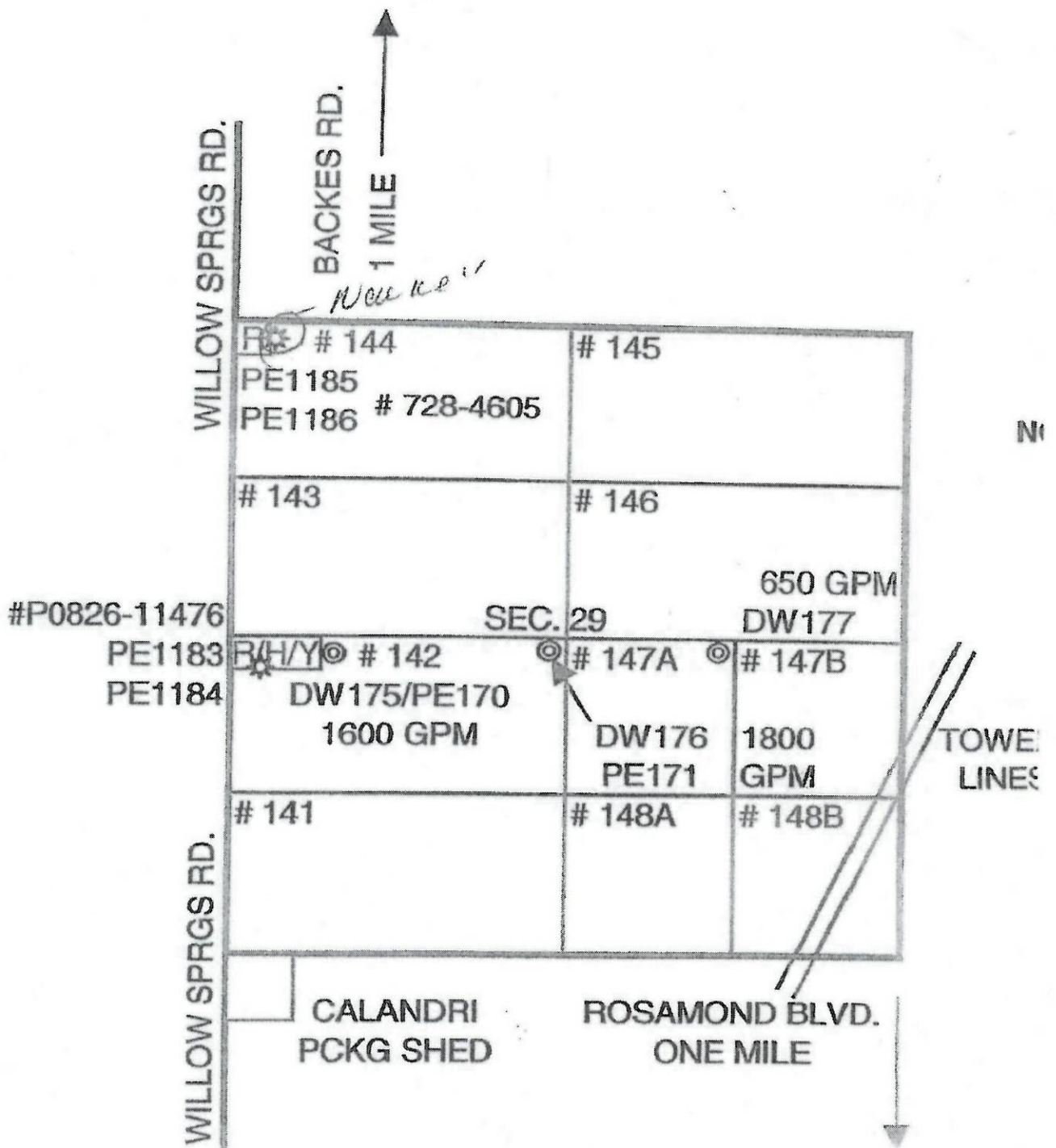
Permit No. EH-1676 Permit Date 06/03/03

DWR USE ONLY - DO NOT FILL IN	
STATE WELL NO./STATION NO.	
LATITUDE	LONGITUDE
APN/TRS/OTHER	

GEOLOGIC LOG		WELL OWNER	
ORIENTATION ()	XX VERTICAL _____ HORIZONTAL _____ ANGLE _____ (SPECIFY)	Name	DC Duncan Trust/Michael Duncan
DEPTH FROM SURFACE	DRILLING METHOD Direct Rotary FLUID Bentonite	Mailing Address	P.O. Box 179
FL to FL	DESCRIPTION Describe material, grain size, color, etc.	Arvin, California 93203	CITY STATE ZIP
1005:1015	Sandy clay	WELL LOCATION	
1015:1030	Fine to coarse sand w/clay lenses	Address	1 mile South of Backus Rd. on Willow Spring
1030:1105	Fine to coarse sand w/gravel lenses	City	Rosamond
1105:1130	Fine to coarse sand - hard	County	Kern
1130:1150	Fine to coarse sand	APN Book	346 Page 031 Parcel 08
1150:1205	Fine to coarse sand - cemented	Township	10N Range 13W Section 29
		Latitude	Longitude
		LOCATION SKETCH	
		NORTH	
		WEST	
		SOUTH	
		EAST	
		Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.	
		ACTIVITY ()	
		XX NEW WELL	
		MODIFICATION/REPAIR	
		Deepen _____	
		Other (Specify) _____	
		DESTROY (Describe Procedures and Materials Under 'GEOLOGIC LOG')	
		PLANNED USES ()	
		WATER SUPPLY	
		Domestic _____ Public _____	
		XX Irrigation _____ Industrial _____	
		MONITORING _____	
		TEST WELL _____	
		CATHODIC PROTECTION _____	
		HEAT EXCHANGE _____	
		DIRECT PUSH _____	
		INJECTION _____	
		VAPOR EXTRACTION _____	
		SPARGING _____	
		REMEDICATION _____	
		OTHER (SPECIFY) _____	
TOTAL DEPTH OF BORING 1205 (Feet)		WATER LEVEL & YIELD OF COMPLETED WELL	
TOTAL DEPTH OF COMPLETED WELL 1168 (Feet)		DEPTH TO FIRST WATER 327 (FL) BELOW SURFACE	
		DEPTH OF STATIC WATER LEVEL 327 (FL) & DATE MEASURED 07/28/03	
		ESTIMATED YIELD 513 (GPM) & TEST TYPE Pump	
		TEST LENGTH 9 (Hrs.) TOTAL DRAWDOWN 65 (FL)	
		* May not be representative of a well's long-term yield. PL 392'	

DEPTH FROM SURFACE	BORE-HOLE DIA. (Inches)	CASING (S)						DEPTH FROM SURFACE	ANNULAR MATERIAL				
		TYPE ()				MATERIAL / GRADE	INTERNAL DIAMETER (Inches)		GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)	TYPE		
FL to FL		BLANK	SCREEN	CON-DUCTOR	FILL PIPE								
1016:1146	26	x				MS-WRS	15.125	.375	.060				
1146:1168	26	x				A53B	15.375	.312					

ATTACHMENTS ()	CERTIFICATION STATEMENT
☐ Geologic Log ☐ Well Construction Diagram ☒ Geophysical Log(s) ☐ Soil/Water Chemical Analyses ☐ Other _____	I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief. NAME <u>Rottman Drilling Co.</u> (PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED) 46471 N Division ST., Lancaster, CA 93535 ADDRESS _____ CITY _____ STATE _____ ZIP _____ Signed <u>[Signature]</u> DATE SIGNED <u>08/01/03</u> C.S.T. LICENSE NUMBER <u>316599</u> WELL DRILLER/AUTHORIZED REPRESENTATIVE



ORIGINAL

File with DWR

Get new number

STATE OF CALIFORNIA
WELL COMPLETION REPORT

Refer to Instruction Pamphlet

No. e007286

Page 2 of 2

Owner's Well No.

Date Work Began 08/19/03 Ended 09/24/03

Local Permit Agency Kern

Permit No. EH-1778

Permit Date 08/15/03

OWNER USE ONLY - DO NOT FILL IN

STATE WELL NO./STATION NO.

LATITUDE

LONGITUDE

APN/TRS/OTHER

GEOLOGIC LOG

ORIENTATION (°) ☒ VERTICAL ☐ HORIZONTAL ANGLE (SPECIFY)

DRILLING METHOD

Direct Rotary FLUID Bentonite

DESCRIPTION

Describe material, grain size, color, etc.

DEPTH FROM SURFACE	FL	to	FL	DESCRIPTION
788	841			Fine to med. sand w/volcanic rock
841	863			Fine to med. sand w/some coarse sand
863	883			Fine to coarse sand
883	915			Fine to med. sand
915	937			Fine to med. sand with some coarse sand
937	957			Fine to coarse sand
957	1075			Fine to coarse sand
1075	1087			Fine to med. sand w/clay lenses
1087	1139			Fine to med. cemented sand

Name DC Duncan Trust/Michael Duncan/Agent Diamond Falls

Mailing Address P.O. Box 179

Arvin, California 93203

CITY STATE ZIP

Address 3/4 Mile E. of Willow Springs Rd

City Rosamond

County Kern

APN Book 346 Page 031 Parcel 11

Township 10N Range 13W Section 29

Latitude DEG. MIN. SEC. NORTH Longitude DEG. MIN. SEC. WEST

LOCATION SKETCH

NORTH

WEST

SOUTH

WEST

EAST

WEST

EAST

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Bureaus, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (°)

☒ NEW WELL

MODIFICATION/REPAIR

☐ Deepen☐ Other (Specify)

DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (°)

WATER SUPPLY

☒ Domestic ☐ Public☒ Irrigation ☐ IndustrialMONITORING ☐TEST WELL ☐CATHODIC PROTECTION ☐HEAT EXCHANGE ☐DIRECT PUSH ☐INJECTION ☐VAPOR EXTRACTION ☐SPARGING ☐REMEDIATION ☐OTHER (SPECIFY) ☐

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER 301 (FL) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL 301 (FL) & DATE MEASURED 09/24/03

ESTIMATED YIELD 2030 (GPM) & TEST TYPE Pump

TEST LENGTH 8 (Hrs.) TOTAL DRAWDOWN 127 (FL)

* May not be representative of a well's long-term yield. PL 428'

TOTAL DEPTH OF BORING 1139 (Feet)

TOTAL DEPTH OF COMPLETED WELL 1048 (Feet)

DEPTH FROM SURFACE			BORE-HOLE DIA. (Inches)	CASING (S)					DEPTH FROM SURFACE			ANNULAR MATERIAL					
				TYPE (S)				MATERIAL / GRADE				INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)	TYPE		
FL	to	FL	BLANK	SCREEN	CON- DUCTOR	FILL PIPE									FL	to	FL
750	830		26	XX			A53B	15.380	.312	.080							
830	950		26	XX			MS WRS	15.125	.375	.060							
950	1048		26	XX			A53B	15.380	.312	.080							
0	60				XX		PVC	3"	Sch40								

ATTACHMENTS (°)

☐ Geologic Log☐ Well Construction Diagram☒ Geophysical Log(s)☐ Soil/Water Chemical Analyses☒ Other map

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 Rottman Drilling Co.

(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

46471 N Division, Lancaster, CA 93535

ADDRESS

CITY

STATE

ZIP

Signed [Signature]

10-7-03

316599

WELL DRILLER AUTHORIZED REPRESENTATIVE

DATE SIGNED

C-57 LICENSE NUMBER

File Original with DWR

Page 1 of 2

Owner's Well Number DW245

Date Work Began 02/13/2008

Date Work Ended 4/9/2008

Local Permit Agency Kern County Environmental Health Department

Permit Number WP10961

Permit Date 2/13/08

State of California Well Completion Report

Refer to Instruction Pamphlet
No. e070285

DWR Use Only - Do Not Fill In

State Well Number/Site Number _____

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	10	Fine to medium sand with 5% clay
10	62	Fine to coarse sand with traces of clay
62	72	50% clay, 50% sand
72	94	Fine to coarse sand
94	136	30% - 30% fine to medium sand
136	166	Fine to coarse sand
166	175	Fine to medium sand
175	215	Brown clay with traces of white clay
215	235	60% fine sand, 40% brown clay
235	255	Hard brown clay
255	265	Brown clay with traces of white clay
265	285	Brown clay with traces of medium sand
285	315	50% brown clay, 50% fine to medium sand
315	365	Brown clay with traces of sand
365	395	Hard brown clay with traces of sand
395	415	Brown clay
415	495	Brown clay with fine to medium sand
495	531	Fine to coarse sand with traces of clay
531	551	Fine to coarse sand
551	572	Fine to coarse sand with traces of clay
572	592	Fine to coarse sand
592	604	Brown clay, fine to coarse sand, gravel
604	614	20% hard clay, 80% sand and gravel
614	645	60% sand, 40% clay
645	655	Fine to coarse sand
655	687	Cemented sand with traces of clay
687	740	25% brown clay, 25% blue clay, 50% sand

Total Depth of Boring 1014 Feet

Total Depth of Completed Well 960 Feet

Well Owner

Name Lapis Land Company, LLC

Mailing Address PO Box 179

City Arvin State CA Zip 93203

Well Location

Address West 102 1/2 Street & Hamilton Road

City Willow Springs County Kern

Latitude 34 54 1 N Longitude 118 18 48 W

Datum WGS84 Decimal Lat. 34.900278 Decimal Long. 118.313333

APN Book 358 Page 052 Parcel 01

Township 9N Range 14W Section 01

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

North

West 102 1/2 Street

Willow Springs Road

Hamilton Road

South

1200'

100'

1/4 section line

1-mile

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 196 (Feet below surface)

Depth to Static _____

Water Level 196 (Feet) Date Measured 04/09/2008

Estimated Yield * 170 (GPM) Test Type Constant Rate

Test Length 5.0 (Hours) Total Drawdown 492 (Feet)

*May not be representative of a well's long term yield. PL 688 (Feet)

Casings								Annular Material			
Depth from Surface Feet to Feet	Borehole Diameter (Inches)	Type	Material	Wall Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size if Any (Inches)	Depth from Surface Feet to Feet	Fill	Description	
0	400	26	Solid	A53B	.312	16		0	50	Cement	10-sack
400	600	26	Perforated	A53B	.312	16	Milled Slots	50	1,014	Gravel	1/4 x 10
600	640	26	Solid	A53B	.312	16					
640	960	26	Perforated	A53B	.312	16	Milled Slots				

Attachments

☐ Geologic Log

☐ Well Construction Diagram

☐ Geophysical Log(s)

☐ Soil/Water Chemical Analyses

☐ Other

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 Rottman Drilling Co

Person, Firm or Corporation

46471 N. Division Street Lancaster CA 93535

Signed *[Signature]* City 6/12/08 State 316599 Zip

C-57 Licensed Water Well Contractor Date Signed C-57 License Number

*The free Adobe Reader may be used to view and complete this form. However, software must be purchased to complete, save, and reuse a saved form.

File Original with DWR

Page 2 of 2

Owner's Well Number DW245

Date Work Began 02/13/2008

Local Permit Agency Kern County Environmental Health Department

Permit Number WP10961

Permit Date 2/13/08

State of California

Well Completion Report

Refer to Instruction Pamphlet

No. 0070286

DWR Use Only - Do Not Fill In

State Well Number/Site Number

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
740 770	60% sand, 40% clay (boulders at 750')
770 810	Fine to medium sand with some clay
810 853	60% fine to coarse sand, 40% clay
853 863	Fine to coarse sand with boulders
863 873	Fine to coarse sand with some small gravel
873 903	Fine to coarse sand with some small gravel and traces of clay
903 915	Fine to coarse sand with some small gravel
915 955	Fine to coarse sand
955 994	Fine to medium sand with some clay
994 1,014	Fine to medium hard sand

Well Owner

Name Lapis Land Company, LLC

Mailing Address PO Box 179

City Arvin State CA Zip 93203

Well Location

Address West 102 1/2 Street & Hamilton Road

City Willow Springs County Kern

Latitude 34 54 1 N Longitude 118 18 48 W
Dec. Min. Sec. Dec. Min. Sec.

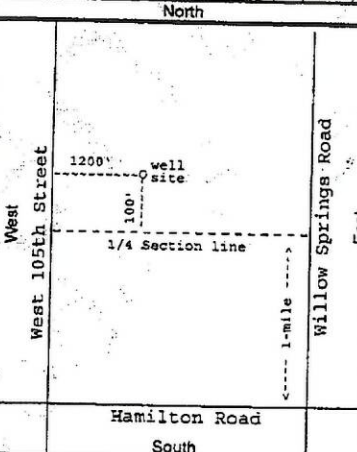
Datum WGS84 Decimal Lat. 34.900278 Decimal Long. 118.313333

APN Book 358 Page 052 Parcel 01

Township 9N Range 14W Section 01

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

Total Depth of Boring 1014 Feet

Total Depth of Completed Well 960 Feet

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)
0 400	26	Solid	A53B	.312	16		
400 600	26	Perforated	A53B	.312	16	Milled Slots	0.080
600 840	26	Solid	A53B	.312	16		
840 960	26	Perforated	A53B	.312	16	Milled Slots	0.080

Annular Material

Depth from Surface Feet to Feet	Fill	Description
0 50	Cement	10-sack
50 1,014	Gravel	1/4 x 10

Attachments

- ☐ Geologic Log
☐ Well Construction Diagram
☐ Geophysical Log(s)
☐ Soil/Water Chemical Analyses
☐ Other

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 Rottman Drilling Co

Person, Firm or Corporation

46471 N. Division Street

Lancaster

CA

93535

Signed

Address

City

State

Zip

C-57 Licensed Water Well Contractor

Date Signed

C-57 License Number

06/20/2012

S. A. CAMP PUMP COMPANY

PUMP TEST REPORT

GRIMMWAY WILLOW SPRINGS DW226PE1266

CUSTOMER : GRIMMWAY FARMS
WELL # : DW226 PE1266 WILLOW SPRINGS
METER : 3416M00665
LEGAL :
LOCATION : 1 MILE SOUTH OF BACKUS RD ON EAST SIDE OF WILLOW SPRINGS
TEST DATE : 06/20/2012

EQUIPMENT

Motor: U.S. HP:100 Volts:480 R.P.M.:1800 Serial No:6069801
Frame: 404TP Type: RUSI
Pump : PEERLESS Type: Oil Lube Turbine

TEST RESULTS

Standing Water Level below Surface of Ground	GA-99.0	360 FT
Draw Down From Standing to Pumping Level		33 FT
Pumping Water Level	GA-85.0	393 FT
Discharge Head Above Ground		4 FT
TOTAL LIFT		397 FT
WATER PUMPED		555 GPM.
Yield of Well (G.P.M. per foot Draw Down)		16.8 GPM/FT
HORSEPOWER INPUT TO MOTOR		81.4 H.P.
OVERALL PLANT EFFICIENCY		68.4 %
Acre Foot in 24 Hours		2.45
Kilowatt Input to Motor		60.72
Kilowatt Hours/Acre Foot Pumped		594.22
Average Cost per KW		
Cost Per Acre Foot		

REVS: 47/60.2 OKAY
KH: 21.60
K: 1
ID: 81/4 53.40
SCALE: 10.40
AIRLINE: 589

TEST ENGINEER TROYCE COKE

S . A . C A M P P U M P C O M P A N Y

09/01/2012 09:22 am

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P U M P T E S T F I L E R E P O R T

GRIMMWAY WILLOW SPRINGS DW226PE1266

Name GRIMMWAY FARMS
 Well DW226 PE1266 WILLOW SPRINGS
 Meter 3416M00665
 Legal
 Location 1 MILE SOUTH OF BACKUS RD ON
 EAST SIDE OF WILLOW SPRINGS

 |PUMP DATA INSTALLATION DATE 10/11/2003
 |PUMP SETTING 580
 |AIRLINE 580 280 GAL. 300 STAINLESS
 |CT&S SIZE 8 X 21/2 X 111/16
 |BOWLS 12 STAGES 10 JKLA10 FLOWAY
 |WELL DEPTH 16 TO 1168
BLANK 388 PERFORATIONS 780

Motor U.S. HP 100 Volts 480 R.P.M. 1800 Serial 6069801
 Frame 404TP Type RUSI Pump PEERLESS Type Oil Lube Turbine

DATE	09/14/05	06/19/06	07/21/06	09/27/07	08/01/08	09/26/09	07/17/10	08/10/11
STANDING								
WATER	360'	367'	369.5'	370'	383'	393'	393'	402'
DRAW DOWN	51'	60'	66.4'	57'	60'	78'	62'	65'
PUMPING								
WATER	411'	427'	435.9'	427'	443'	471'	455'	467'
DISCHARGE								
HEAD	5'	5'	5.3'	6.9'	9.2'	9'	3'	9.2'
TOTAL								
LIFT	416'	432'	441.2'	433.9'	452.2'	480'	458'	476.2'
G.P.M.	495	495	456	482	440	487	518	497
GPM/FT	9.7	8.3	6.9	8.5	7.3	6.2	8.4	7.6
H.P./RPM	RPM	80.7	82.2	78.1	81.2	81.3	82	83.5
EFF.	1770	66.9	61.8	67.6	61.9	72.6	73.1	71.5
AC FT IN								
24 HRS	2.19	2.19	2.02	2.13	1.94	2.15	2.29	2.20
KW TO								
MOTOR		60.20	61.32	58.26	60.58	60.65	61.17	62.29
KW HOURS								
PER AC FT		660.5	730.3	656.4	747.6	676.3	641.3	680.6
COST								
PER AC/FT			102.25					

S . A . C A M P P U M P C O M P A N Y

06/28/2008

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P u m p E s t i m a t e C a l c u l a t i o n s

GRIMMWAY WILLOW SPRINGS DW226PE1266

CUSTOMER: GRIMMWAY FARMS

WELL # : DW226 PE1266

METER : 3416M-006657

LEGAL :

LOCATION: 1 MILE SOUTH OF BACKUS RD ON WEST SIDE OF WILLOW SPRINGS

MOTOR U.S. HP 100 VOLTS 480 R.P.M. 1770 SERIAL 6069801
 FRAME 404TP TYPE: RUSI PUMP: PEERLESS TYPE: Oil Lube Turbine

12 STAGES 10"JKLA12 FLOWAY

G.P.M.	LAB HEAD	B HP	BOWL EFF.	FIELD HEAD	FIELD INPUT HP	FIELD EFF.
700	336.0	87.3	75.0%	300	91.9	57.7 %
600	444.0	91.2	81.0%	410	96.0	64.7 %
500	528.0	89.4	82.0%	500	94.1	67.1 %
400	588.0	83.3	79.0%	570	87.7	65.7 %
300	636.0	76.9	70.0%	620	80.9	58.1 %

DATE OF LAST WORK: 10/11/2003

PUMP SETTING: 580 ft.

AIRLINE: 580 ft.

C.T.S. 0580-08" X 21/2" X 111/16"

BOWLS: 12 STAGES 10"JKLA12 FLOWAY

WELL INFORMATION:

16 TO 1168 DRILLED 2003

388 BLANK PERFORATIONS 780

S. A. CAMP PUMP COMPANY

06/20/2012

PUMP TEST REPORT

GRIMMWAY WILLOW SPRINGS DW227 PE260

CUSTOMER : GRIMMWAY FARMS
WELL # : DW227 PE260 WILLOW SPRINGS
METER : ENGINE
LEGAL :
LOCATION : 1 1/2 MILE SOUTH OF BACKUS AND 3/4 MILE EAST OF WILLOW
SPRINGS RD
TEST DATE : 06/20/2012

EQUIPMENT

GEARHEAD DERAN HP 500 Ratio 5 : 6 R.P.M. 1760 Serial B803001
Frame: Type:
Pump : J-LINE Type: Oil Lube Turbine

TEST RESULTS

Standing Water Level below Surface of Ground	GA-107.0	297 FT
Draw Down From Standing to Pumping Level		67 FT
Pumping Water Level	GA-78.0	364 FT
Discharge Head Above Ground	GA-100.0	231 FT
TOTAL LIFT		595 FT
WATER PUMPED		2063 GPM.
Yield of Well (G.P.M. per foot Draw Down)		30.8 GPM/FT
GEARHEAD R.P.M.		1770 R.P.M
OVERALL PLANT EFFICIENCY		%
Acre Foot in 24 Hours		9.12
Kilowatt Input to Motor		
Kilowatt Hours/Acre Foot Pumped		
Average Cost per KW		
Cost Per Acre Foot		

OKAY

ID: 101/4 82.50
SCALE: 25
AIRLINE: 544

TEST ENGINEER T COKER

GRIMMWAY WILLOW SPRINGS DW227 PE260

```

PUMP DATA INSTALLATION DATE 10/24/2003
PUMP SETTING 560
AIRLINE          544
CT&S SIZE        10 X 3 X 115/16
BOWLS            14 STAGES 12DHCA14
WELL DEPTH       16 TO 1048 DRILLRD 2003
BLANK 400 PERFORATIONS 648

```

DATE	08/10/11	06/20/12
STANDING WATER	357'	297'
DRAW DOWN	60'	67'
PUMPING WATER	417'	364'
DISCHARGE HEAD	254.1'	231'
TOTAL LIFT	671.1'	595'
G.P.M.	2013	2063
GPM/FT	33.6	30.8
H.P./RPM	RPM	RPM
EFF.	1770	1770
AC FT IN 24 HRS	8.90	9.12
KW TO MOTOR		
KW HOURS PER AC FT		
COST PER AC/FT		

PUMP TEST FILE REPORT

GRIMMWAY WILLOW SPRINGS DW227 PE260

Name	GRIMMWAY FARMS
Well	DW227 PE260 WILLOW SPRINGS
Meter	ENGINE
Legal	
Location	11/2 MILE SOUTH OF BACKUS AND 3/4 MILE EAST OF WILLOW SPRINGS RD

```

-----|
|PUMP DATA INSTALLATION DATE 10/24/2003      |
|PUMP SETTING 560                             |
|AIRLINE          544                          |
|CT&S SIZE        10 X 3 X 115/16              |
|BOWLS            14 STAGES 12DHHCA14         |
|WELL DEPTH       16 TO 1048 DRILLRD 2003     |
|          BLANK 400 PERFORATIONS 648         |
|                                                |
|-----|

```

GEARHEAD DERAN
Frame

HP 500
Type

Ratio 5 : 6
Pump J-LINE

R.P.M. 1760 Serial B803001
Type Oil Lube Turbine

[illegible]

1AC FT IN								
124 HRS		10.39	10.46	10.03	10.14	10.03	9.66	9.30
1-----								
1KW TO								
1MOTOR								
1-----								
1KW HOURS								
1PER AC FT								
1-----								
1COST								
1PER AC/FT								
1-----								

06/28/2008

S . A . C A M P P U M P C O M P A N Y

Page: 3

P u m p E s t i m a t e C a l c u l a t i o n s

GRIMMWAY WILLOW SPRINGS DW227 PE260

CUSTOMER: GRIMMWAY FARMS

WELL # : DW227 PE260

METER : ENGINE

LEGAL :

LOCATION: 11/2 MILES SOUTH OF BACKUS RD AND 3/4 MILE EAST OF WILLOW
SPRINGS RDGEAR HEAD DERAN HP 500 RATIO 5 : 6 R.P.M. 1770 SERIAL B803001
FRAME TYPE: PUMP: J-LINE TYPE: Oil Lube Turbine

14 STAGES 12"DHA14-C 9 GOULD

G.P.M.	LAB	HEAD	B HP	BOWL	EFF.	FIELD	HEAD	INPUT HP	FIELD	EFF.
2200	714.0	494.3	82.0%	630	520.3	67.3 %				
2120	742.0	495.0	82.0%	660	521.1	67.8 %				
2000	770.0	484.9	82.0%	690	510.4	68.3 %				
1920	784.0	474.2	82.0%	710	499.2	69.0 %				
1800	805.0	468.0	80.0%	740	492.6	68.3 %				

DATE OF LAST WORK: 10/24/2003

PUMP SETTING: 560 ft.

AIRLINE: 560 ft.

C.T.S. 0560-10" X 3" X 115/16"

BOWLS: 14 STAGES 12"DHA14-C 9 GOULD

WELL INFORMATION:

16 TO 1044 DRILLED 2003

BLANK 400 PERFORATIONS 644

File Original with DWR

State of California

Well Completion Report

Refer to Instruction Pamphlet

No. e037838

Page 1 of 2

Owner's Well Number

Date Work Began 12/12/2005

Date Work Ended 1/12/2006

Local Permit Agency Kern County Environmental Health Department

Permit Number

Permit Date 12/27/05

DWR Use Only - Do Not Fill In

State Well Number/Site Number

Latitude

Longitude

APN/TRS/Other

Geologic Log

Orientation ☒ Vertical ☐ Horizontal ☐ Angle Specify

Drilling Method Direct Rotary

Drilling Fluid Bentonite mud

Depth from Surface

Description

Feet to Feet

Describe material, grain size, color, etc.

0	10	Fine to coarse sand
10	20	Fine to coarse sand w/traces of clay
20	40	Fine to coarse sand
40	62	Fine to medium sand
62	123	Fine to coarse sand
123	155	Medium to coarse sand
155	165	Medium to coarse sand w/traces of clay
165	300	Fine to coarse sand
300	310	Fine to medium sand w/traces of clay
310	332	Fine to coarse sand
332	355	Fine to medium sand
355	458	Fine to coarse sand
458	480	Medium to coarse sand
480	490	80% fine to coarse sand, 20% brown clay
490	510	80% brown clay, 20% fine to medium sand
510	520	50% fine to coarse sand, 50% brown clay
520	525	95% brown clay, 5% fine sand
525	535	70% fine to medium sand, 30% brown clay
535	544	70% fine to coarse sand, 30% brown clay
544	550	50% brown clay with sand lenses
550	560	Fine to coarse sand
560	670	Fine to coarse sand (light cementing)
670	700	80% fine to medium sand, 20% brown clay
700	730	Fine to coarse sand w/traces of clay
730	740	60% fine to medium sand, 40% brown clay
740	745	Fine to coarse sand (cemented)
745	750	70% fine to medium sand, 30% brown clay
750	770	90% fine to medium sand, 10% brown clay

----- continued page 2 -----

Total Depth of Boring 1248 Feet

Total Depth of Completed Well 1240 Feet

Well Owner

Name D.C. Duncan Family Trust

Mailing Address PO Box 179

City Arvin State CA Zip 93203

Well Location

Address East of Willow Springs Rd., South of Backus Rd. AMENDED

City Willow Springs County Kern

Latitude Longitude W

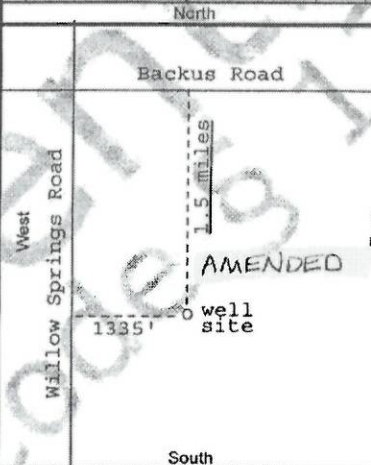
Datum Decimal Lat. Decimal Long.

APN Book 0346 Page 031 Parcel 008

Township 10N Range 13W Section 29

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 324 (Feet below surface)

Depth to Static Water Level 324 (Feet) Date Measured 01/12/2006

Estimated Yield * 1,800 (GPM) Test Type Constant Rate

Test Length 8.5 (Hours) Total Drawdown 132 (Feet)

*May not be representative of a well's long term yield. PL 456 (Feet)

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	440	26	Blank	A53B	.312	16	
440	560	26	Screen	A53B	.312	16	Milled Slots
560	580	26	Screen	A53B	.312	16	Milled Slots
580	680	26	Screen	MS-WRS	XXHD	16	Wire Wrap
680	1080	26	Screen	A53B	.312	16	Milled Slots

Annular Material

Depth from Surface Feet to Feet	Fill	Description
0	50	Cement
50	1,248	Filter Pack
		10-sack
		1/4 x 10

Attachments

- ☐ Geologic Log
☐ Well Construction Diagram
☒ Geophysical Log(s)
☒ Soil/Water Chemical Analyses
☐ Other

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 Rottman Drilling Co.

Person, Firm or Corporation

46471 N. Division Street

Lancaster

CA

93535

Signed

Address

City

State

Zip

C-57 Licensed Water Well Contractor

Date Signed 3/2/06

316599

C-57 License Number

Refer to Instruction Pamphlet
No. e037839

Owner's Well Number _____

Date Work Began 12/12/2005 Date Work Ended 1/12/2006

Local Permit Agency Kern County Environmental Health Department

Permit Number _____ Permit Date 12/27/05

DWR Use Only ~ Do Not Fill In

State Well Number/Site Number													
Latitude				N	Longitude				W				
APN/TRS/Other													

[illegible]

Well Owner

Name D.C. Duncan Family Trust

Mailing Address PO Box 179

City Arvin State CA Zip 93203

Well Location

Address East of Willow Springs Rd., South of Backus Rd.

City Willow Springs County Kern

Latitude _____ N Longitude _____ W
Deg. Min. Sec. Deg. Min. Sec.

Datum _____ Decimal Lat. _____

APN Book 0346 Page 031 Parcel 003

Township 10N Range 13W Section 29

Location Sketch		Activity
(Sketch must be drawn by hand after form is printed.) North Backus Road West 1.5 miles 0 well site 1335' East South		☒ New Well ☐ Modification/Repair ☐ Deepen ☐ Other _____ ☐ Destroy Describe procedures and materials under "GEOLOGIC LOG"
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.		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	324	(Feet below surface)	
Depth to Static			
Water Level	324	(Feet)	Date Measured 01/12/2006
Estimated Yield *	1,800	(GPM)	Test Type Constant Rate
Test Length	8.5	(Hours)	Total Drawdown 132 (Feet)
*May not be representative of a well's long term yield. PL 456 (Feet)			

[illegible]

Attachments	Certification Statement			
☐ Geologic Log ☐ Well Construction Diagram ☒ Geophysical Log(s) ☒ Soil/Water Chemical Analyses ☐ Other _____	I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief Name <u>Rottman Drilling Co.</u> _____ Person, Firm or Corporation <u>46471 N. Division Street</u> <u>Lancaster</u> <u>CA</u> <u>93535</u> _____ Address City State Zip Signed _____ _____ C-57 Licensed Water Well Contractor Date Signed C-57 License Number			

06/20/2012

S. A. CAMP PUMP COMPANY

PUMP TEST REPORT

GRIMMWAY WILLOW SPRINGS DW230PE1330

CUSTOMER : GRIMMWAY FARMS
WELL # : DW230 PE1330 WILLOW SPRINGS
METER : V349N01617
LEGAL :
LOCATION : 11/2 MILE SOUTH OF BACKUS AND 1/4 MILE EAST OF WILLOW
SPRINGS RD
TEST DATE : 06/20/2012

EQUIPMENT

Motor: U.S. HP:400 Volts:480 R.P.M.:1760 Serial No:P017332156-0003R0005
Frame: 447TPA Type: RU
Pump : LAYNE AND BOWLER Type: Oil Lube Turbine

TEST RESULTS

Standing Water Level below Surface of Ground	GA-109.0	348 FT
Draw Down From Standing to Pumping Level		109 FT
Pumping Water Level	GA-62.0	457 FT
Discharge Head Above Ground	GA-20.0	46.2 FT
TOTAL LIFT		503.2 FT
WATER PUMPED		1485 GPM.
Yield of Well (G.P.M. per foot Draw Down)		13.6 GPM/FT
HORSEPOWER INPUT TO MOTOR		392.5 H.P.
OVERALL PLANT EFFICIENCY		48.1 %
Acre Foot in 24 Hours		6.56
Kilowatt Input to Motor		292.81
Kilowatt Hours/Acre Foot Pumped		1070.85
Average Cost per KW		
Cost Per Acre Foot		

REVS: 34/60.2 OKAY CUSTOMERS FLOW METER SHOWING 2000 GPM
KH: 1.80
K: 80
ID: 101/4 82.50
SCALE: 18
AMPS TURBINE 386 384 387
AIRLINE: 600

TEST ENGINEER TROYCE COKE

S . A . C A M P P U M P C O M P A N Y

09/01/2012 09:54 am

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P U M P T E S T F I L E R E P O R T

GRIMMWAY WILLOW SPRINGS DW230PE1330

Name GRIMMWAY FARMS
 Well DW230 PE1330 WILLOW SPRINGS
 Meter V349N01617
 Legal
 Location 11/2 MILE SOUTH OF BACKUS AND
 1/4 MILE EAST OF WILLOW
 SPRINGS RD

 | PUMP DATA INSTALLATION DATE 03/14/2006 |
 | PUMP SETTING 600 |
 | AIRLINE 300-GAL 300 STAINLESS STEEL |
 | CT&S SIZE 10 X 3 X 115/16 |
 | BOWLS 8 STAGES 14RJMCA8 GOULD |
 | WELL DEPTH 16 TO 1248 DRILLED 2006 |
BLANK 440 PERFORATIONS 808

Motor U.S. HP 400 Volts 480 R.P.M. 1760 Serial P017332156-0003R0005
 Frame 447TPA Type RU Pump LAYNE AND BOWLER Type Oil Lube Turbine

DATE	08/01/08	08/27/09	11/24/09	07/17/10	08/10/11	06/20/12
STANDING						
WATER	360'	346'	343'	383'	38.1'	348'
DRAW DOWN	122'	102'	113'	125'	473.9'	109'
PUMPING						
WATER	482'	448'	456'	508'	512'	457'
DISCHARGE						
HEAD	16.2'	37'	4'	46.2'	64.7'	46.2'
TOTAL						
LIFT	498.2'	485'	460'	554.2'	576.7'	503.2'
G.P.M.	1815	1898	1848	1774	1609	1485
GPM/FT	14.9	18.6	16.4	14.2	3.4	13.6
H.P./RPM	RPM	RPM	389.2	372.9	381.6	392.5
EFF.	1800	1770	55.2	66.6	61.4	48.1
AC FT IN						
24 HRS	8.02	8.39	8.17	7.84	7.11	6.56
KW TO						
MOTOR			290.34	278.18	284.67	292.81
KW HOURS						
PER AC FT			853.2	851.6	960.8	1070.8
COST						
PER AC/FT						

S . A . C A M P P U M P C O M P A N Y

12/02/2009

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P u m p E s t i m a t e C a l c u l a t i o n s

GRIMMWAY WILLOW SPRINGS DW230PE1330

CUSTOMER: GRIMMWAY FARMS

WELL # : WILLOW SPRINGS DW230 PE1330

METER : V349N-016173

LEGAL :

LOCATION: 11/2 MILES SOUTH OF BACKUS AND 1/4 MILE EAST OF WILLOW SPRINGS RD

MOTOR U.S. HP 400 VOLTS 480 R.P.M. 1770 SERIAL P017332156
 FRAME 447TPA TYPE: RU PUMP: LAYNE AND BOWLER TYPE: Oil Lube Turbine

8 STAGES 14"RJA8-C 9 GOULDS

G.P.M.	LAB HEAD	B HP	BOWL EFF.	FIELD HEAD	INPUT HP	FIELD EFF.
2400	448.0	359.5	78.0%	340	390.8	52.7 %
2200	536.0	374.5	82.0%	440	407.1	60.0 %
2000	608.0	372.7	85.0%	530	405.1	66.1 %
1800	672.0	373.7	84.3%	610	406.2	68.3 %
1600	720.0	361.9	83.0%	670	393.4	68.8 %
1400	752.0	343.7	80.0%	710	373.6	67.2 %

DATE OF LAST WORK: 03/14/2006

PUMP SETTING: 600 ft.

AIRLINE: 600 ft.

C.T.S. 0600-10" X 3" X 115/16"

BOWLS: 8 STAGES 14"RJA8-C 9 GOULDS

WELL INFORMATION:

16 X 1248 DRILLED 2006

BLANK 440 PERFORATIONS 808

06/20/2012

S. A. CAMP PUMP COMPANY

PUMP TEST REPORT

GRIMMWAY WILLOW SPRINGS DW176 PE221

CUSTOMER : GRIMMWAY FARMS
WELL # : DW176 PE221 WILLOW SPRINGS
METER : ENGINE
LEGAL :
LOCATION : 11/2 MILE SOUTH OF BACKUS AND 1/2 MILE EAST OF WILLOW
SPRINGS RD
TEST DATE : 06/20/2012

EQUIPMENT

GEARHEAD DERAN HP 450 Ratio 1 : 1 R.P.M. 1760 Serial C202007
Frame: Type:
Pump : PEERLESS Type: Oil Lube Turbine

TEST RESULTS

Standing Water Level below Surface of Ground	GA-100.0	349 FT
Draw Down From Standing to Pumping Level		141 FT
Pumping Water Level	GA-39.0	490 FT
Discharge Head Above Ground	GA-50.0	115.5 FT
TOTAL LIFT		605.5 FT
WATER PUMPED		1271 GPM.
Yield of Well (G.P.M. per foot Draw Down)		9 GPM/FT
GEARHEAD R.P.M.		1770 R.P.M
OVERALL PLANT EFFICIENCY		%
Acre Foot in 24 Hours		5.62
Kilowatt Input to Motor		
Kilowatt Hours/Acre Foot Pumped		
Average Cost per KW		
Cost Per Acre Foot		

OFF APPROXIMATELY 400 TO 500 GPM CUSTOMERS FLOW METER 1200
GPM

ID: 101/4 82.50
SCALE: 15.40
AIRLINE: 580

TEST ENGINEER T COKER

S . A . C A M P P U M P C O M P A N Y

09/01/2012 10:20 am

Page: 2

P U M P T E S T F I L E R E P O R T

GRIMMWAY WILLOW SPRINGS DW176 PE221

Name	GRIMMWAY FARMS	PUMP DATA INSTALLATION DATE 09/14/2004
Well	DW176 PE221 WILLOW SPRINGS	PUMP SETTING 580
Meter	ENGINE	AIRLINE 580
Legal		CT&S SIZE 10 X 3 X 115/16
Location	11/2 MILE SOUTH OF BACKUS AND	BOWLS 8 STAGES 14RJMC A8 GOULD
	1/2 MILE EAST OF WILLOW	WELL DEPTH 16 TO 1086
	SPRINGS RD	

GEARHEAD DERAN	HP 450	Ratio 1 : 1	R.P.M. 1760	Serial C202007
Frame	Type	Pump PEERLESS	Type Oil Lube Turbine	

DATE	06/19/06	08/01/08	08/26/09	09/07/09	07/27/10	08/10/11	06/20/12
STANDING							
WATER	358'	384'	372'	349'	381'	393'	349'
DRAW DOWN	157'	138'	139'	127'	148'	132'	141'
PUMPING							
WATER	515'	522'	511'	476'	529'	525'	490'
DISCHARGE							
HEAD	27.7'	30'	27.7'	69.3'	62.4'	115.5'	115.5'
TOTAL							
LIFT	542.7'	552'	538.7'	545.3'	591.4'	640.5'	605.5'
G.P.M.	1815	1609	1485	1683	1625	1238	1271
GPM/FT	11.6	11.7	10.7	13.3	11	9.4	9
H.P./RPM	RPM	RPM	RPM	RPM	RPM	RPM	RPM
EFF.	1770	1770	1770	1770	1770	1770	1770
AC FT IN							
24 HRS	8.02	7.11	6.56	7.44	7.18	5.47	5.62
KW TO							
MOTOR							
KW HOURS							
PER AC FT							
COST							
PER AC/FT							

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P U M P T E S T F I L E R E P O R T

GRIMMWAY WILLOW SPRINGS DW176 PE221

Name GRIMMWAY FARMS
 Well DW176 PE221 WILLOW SPRINGS
 Meter ENGINE
 Legal
 Location 11/2 MILE SOUTH OF BACKUS AND
 1/2 MILE EAST OF WILLOW
 SPRINGS RD

 |PUMP DATA INSTALLATION DATE 09/14/2004
 |PUMP SETTING 580
 |AIRLINE 580
 |CT&S SIZE 10 X 3 X 115/16
 |BOWLS 8 STAGES 14RJMC A8 GOULD
 |WELL DEPTH 16 TO 1086
 |
 |-----

GEARHEAD DERAN

HP 450

Ratio 1 : 1

R.P.M. 1760 Serial C202007

Frame

Type

Pump PEERLESS

Type Oil Lube Turbine

DATE	08/15/01	06/22/02	05/21/03	06/09/03	09/17/03	10/02/04	09/15/05	10/18/05
STANDING								
WATER	307'	314'	297'	310'	319'	351'	354'	349'
DRAW DOWN	101'	84'				160'	134'	122'
PUMPING								
WATER	408'	398'				511'	488'	471'
DISCHARGE								
HEAD	27.7'	27.7'	25.4'	64.7'	23.1'	23.1'	60.1'	46.2'
TOTAL								
LIFT	435.7'	425.7'				534.1'	548.1'	517.2'
G.P.M.	1658	1774	1939	1650	1667	1881	1757	1774
GPM/FT	16.4	21.1				11.8	13.1	14.5
H.P./RPM	RPM	RPM	RPM	RPM	RPM	RPM	RPM	RPM
EFF.	1770	1770	1770	1770	1770	1770	1770	1770
AC FT IN								
24 HRS	7.33	7.84	8.57	7.29	7.37	8.31	7.76	7.84
KW TO								
MOTOR								
KW HOURS								
PER AC FT								
COST								
PER AC/FT								

11/21/2009

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P u m p E s t i m a t e C a l c u l a t i o n s

GRIMMWAY WILLOW SPRINGS DW176 PE221

CUSTOMER: GRIMMWAY FARMS

WELL # : DW179 PE189

METER : ENGINE

LEGAL :

LOCATION: 1 1/2 MILES SOUTH OF BACKUS AND 1/2 MILE EAST OF WILLOW
SPRINGS RD

GEAR HEAD DERAN

HP 450

RATIO 1 : 1

R.P.M. 1770 SERIAL C202007

FRAME

TYPE:

PUMP: PEERLESS TYPE: Oil Lube Turbine

8 STAGES 14"RJA8-C 9 GOULDS

LAB		BOWL		FIELD		FIELD	
G.P.M.	HEAD	B HP	EFF.	HEAD	INPUT HP	EFF.	
2200	536.0	374.1	82.0%	440	393.8	62.1 %	
2000	608.0	372.3	85.0%	530	391.9	68.3 %	
1800	672.0	373.3	84.3%	610	392.9	70.6 %	
1600	720.0	361.5	83.0%	670	380.5	71.1 %	
1400	752.0	343.3	80.0%	710	361.4	69.5 %	

DATE OF LAST WORK: 09/14/2004

PUMP SETTING: 580 ft.

AIRLINE: 580 ft.

C.T.S. 0580-10" X 3" X 115/16"

BOWLS: 8 STAGES 14"RJA8-C 9 GOULDS

WELL INFORMATION:

16 TO 1086