

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
BENEFICIAL USE FIELD REPORT

A Beneficial Use Field Report is prepared by a water right examiner as the result of an examination to clearly confirm and establish the extent of the beneficial use of water established in connection with a permit during the development period authorized by the permit and any extensions of time previously approved.

A. GENERAL INFORMATIONPermit No. 63-336801. Owner Steven M PfliegerPhone No. (208) 880-3056Current address 5111 S Happy Valley Rd, Nampa, ID 836862. Examiner's name Cody Parker & Allen BradburyEXAM DATE 8/8/20183. Accompanied by Permit holder

Email _____

Address _____

Relationship to permit holder _____

Phone No. _____

4. Source Groundwater

tributary to _____

B. OVERLAP REVIEW1. Other water rights with the same place of use Nampa & Meridian Irrigation District2. Other water rights with the same source and point of diversion none**C. DIVERSION AND DELIVERY SYSTEM**

1. Point(s) of Diversion:

Ident. No.	Gov't Lot	¼	¼	¼	Sec	Twp	Rge	County	Method of Determination/Remarks
			SE	SE	12	02N	02W	Canyon	GPS and PLSS mapping

2. Place(s) of Use:

Method of determination aerial imagery and observation from site visit

Twp	Rge	Sec	NE				NW				SW				SE				Totals
			NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	
02N	02W	12																7.8	7.8

3. **Delivery System Diagram:** Indicate all major components and distances between components. Indicate weir size/ditch size/pipe diameter (inside), as applicable. Use the space provided or ☒ see attached.

Scale: 1" = _____

- ☒ Copy of USGS Quadrangle attached showing location(s) of point(s) of diversion and place(s) of use (**required**)
☒ Aerial photo attached (required for irrigation of 10+ acres)
☐ Photo of diversion and system attached

4.

Well or Diversion Identification No.*	Motor Make	Hp	Motor Serial No.	Pump Make	Pump Serial No. or Discharge Size
D0064383	Franklin	3		Franklin	2-inch, open discharge

*Code to correspond with no. on map and aerial photo

D. FLOW MEASUREMENTS

1.

Measurement Equipment	Type	Make	Model No.	Serial No.	Size	Calib. Date
Bucket test						

2. **Measurements:** _____

Bucket Method: Average time to fill 5-gallon bucket: 3.8 sec, 3.9 sec, 5.2 sec. = avg. of 4.3 sec or 69.8 gpm

E. NARRATIVE/REMARKS/COMMENTS

The field exam was completed by Cody Parker and Allen Bradbury on August 8, 2018 accompanied by the permit holders, Steven Pflieger and his wife.

The point of diversion is an 6" well with metal tag no.D0064383. The well is located at N 43° 31' 14.2" by W 116° 30' 56.8" in the SESE of Sec. 12, T02N, R02W, B.M. A 3.0 hp Franklin pump diverts water from the well through a 2" outlet to a 6" gated pipe. According to the permit holder the pump sits at 55 feet within the well casing.

We used the theoretical computation for flow rate to estimate system capacity. We were give the horsepower rating of 3 hp on the pump and the estimated pump set depth of 55 feet below ground surface. The well log noted a static water level of 40 feet. For small pumping systems (<10 hp) 10 feet are subtracted from the lift of the pump set. Using an estimated 70% efficiency for the pump yielded $(8.8) \times (3.0) \times (0.7) / (45 + (2.31 \times 0)) = 0.41$ cfs or 184.3 gpm.

Franklin Electric's submersible FPS Series pump curves for a 3 hp 4" high capacity (90 gpm) pump indicate this pump should be operating in the range of 71 to 90 gpm when pressurized to 20 to 30 psi at a depth of 40 feet. This indicates the pump was originally designed to meet the needs of the proposed rate of 0.20 cfs (89.8 gpm). Pump information was provided by the landowners invoice from Davis Well and Pump LLC dated 11/6/2013 and pump curves and tables downloaded from the manufacturer's website.

Finally, we measured the flowrate by conducting a bucket test of the system. The landowners elevated the 6" gated pipe slightly downhill but enough to allow a 5 gallon bucket to collect the open discharge of water. Fill times were recorded as 3.8, 3.9, and 5.2 seconds for an average of 4.3 seconds. Dividing 300 by 4.3 resulted in a calculated flow of 69.8 gpm or 0.16 cfs.

The system is operating significantly less efficiently than the theoretical computation indicated. An incorrect pump depth could be one explanation given that the depth of the well is 110 feet there is ample room for the pump to be set lower which would result in significantly less output. However, the physical discharge from the system of 69.8 gpm is operating close to the ranges predicted by Franklin's pump curves. The supplemental groundwater permit originally proposed to cover 10 acres, however at the time of the field exam there was a total of 7.8 acres of irrigation developed. The irrigation rate should be licensed for the Beneficial Use Standard of $(0.02 \text{ cfs/acre} \times 7.8 \text{ acres})$ of 0.16 cfs. The groundwater is supplemental to overlapping surface rights. The surface water from the canal is diverted into 8" pvc mainline which is turned into 6" gated pipe to irrigate fields when water is available.

Has the permit holder met all conditions of permit approval, including any mitigation requirements and/or measuring device installation requirements? ☒ Yes ☐ No If no, what must be done to meet the permit requirements?

Based on compliance with current IDWR practices/policy the following changes were made to conditions to reflect the change from a permit to a license. Conditions 26A and 046 associated with drilling were removed. Former supplemental conditions numbers 065 & 104 were updated to the current supplemental condition standard, 943. R65 changed to conditions R6I and WB7. Condition 004 was retained on license since a portion of the POU within the parcel is not specifically owned by permit holder per 2/13/2018 Canyon Co. parcel data.

Also, condition 12I was updated to 103 per current IDWR practices/policy.

BENEFICIAL USE FIELD REPORT**63-33680 Pflieger****FLOW CALCULATIONS****Horsepower Method**

$$Q = \frac{(8.8) \times (HP) \times E}{TDH}$$

Est. Pump Set 55 ft minus 10' = 45 ft

HP =	E =	H =	PSI =	Q =	Q =
3.0	70.0%	45	0	0.41	184.32
				cfs	gpm

$$= \frac{(8.8) \times (3.0) \times (.70)}{(45 + (2.31 \times 0))} = 0.41 \text{ cfs}$$

For small pumping systems (<10 hp) 10 feet are subtracted from the lift of the pump set.

Bucket Method

Meas. 1	3.8
Meas. 2	3.9
Meas. 3	5.2
Avg.	4.3
GPM	69.8

69.8 0.16 cfs

Pump Curves

Franklin Electric's submersible FPS Series pump curves for a 3 hp 4" high capacity (90 gpm) pump indicate this pump should be operating in the range of 71 to 90 gpm when pressurized to 20 to 30 psi at a depth of 40 feet. This indicates the pump was originally designed to meet the needs of the proposed rate of 0.20 cfs (89.8 gpm).

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Application Rate	0.02 cfs/acre
Acres Developed	7.8 acres irrigation developed
Diversion Rate	0.16 cfs

VOLUME CALCULATIONS

VI.R = (Acres Irrigated) x (Irrigation Requirement)

Vir	acres	irr. Req.
35.1	7.8	4.5

VD.R = [Diversion Rate (cfs)] x (Days in Irrigation Season) x 1.9835

Vdr	rate	days	
82.5	0.16	260	1.9835

V = Smaller of VI.R. and VD.R.

02N02W12

Process	Basin Sequence	Draft	Owner	Source	Use	NENE	NWNE	SWNE	SENE	NENW	SWNW	NWSW	SESW	NWSE	NWSE	SWSE	SESE	Total Acres
Water Right	63-11175	N	MC ALISTER, BARBARA E; MC ALISTER, WALTER DEEN	GROUND WATER								X						
Water Right	63-18501	N	HENRICKSON, LEVI; HENRICKSON, MILDRED V	GROUND WATER									X					
Water Right	63-19884	N	ELLIS, BESSIE L; ELLIS, HARRY R	GROUND WATER					X									
Water Right	63-19885	N	ELLIS, BESSIE L; ELLIS, HARRY R	GROUND WATER					X									
Water Right	63-19886	N	ELLIS, BESSIE L; ELLIS, HARRY R	GROUND WATER					X									
Water Right	63-19994	N	SCOTT, CONSTANCE; SCOTT, HAROLD D	GROUND WATER											X			
Water Right	63-20847	N	MC ALISTER, BARBARA E; MC ALISTER, WALTER DEEN	GROUND WATER								X						
Water Right	63-20930	N	EASTER, HOWARD; EASTER, SHIRLEY	GROUND WATER					X									
Water Right	63-20981	N	HODGE, ROBERT D; HODGE, TRELIS J	GROUND WATER					X									
Water Right	63-20997	N	KRAJNIK, LYNN; KRAJNIK, MILDRED	GROUND WATER						X								
Water Right	63-21060	N	FISHER, CYNTHIA J; FISHER, ROBERT A	GROUND WATER		X												
Water Right	63-21233	N	TAGUE, BONNIE D; TAGUE, JOSEPH L	GROUND WATER		X												
Water Right	63-21867	N	HENRICKSON, LINDA; HENRICKSON, TIM	GROUND WATER														
Water Right	63-23001	N	DRAHN, KEITH; DRAHN, MARY; HALL, KEVIN E; WOOD II, WILLIAM E; WOOD, CANDY M	GROUND WATER									X					
Water Right	63-27508	N	LEWIS, DICK; LEWIS, JUNE	GROUND WATER											X			
Water Right	63-28198	N	MARKUS, LLOYD E	GROUND WATER								X						X
Water Right	63-28234	N	OKI, STEVEN K	GROUND WATER				X										
Water Right	63-28732	N	JENSEN, RAYMOND; JENSEN, TERESA	GROUND WATER		X												
Water Right	63-28732	N	RAMSEY, THOMAS; RAMSEY, ZOLA	GROUND WATER										X				
Water Right	63-30196	N	SOUTHSIDE UNITED METHODIST CHURCH INC	GROUND WATER									X					
Water Right	63-32315	N	KRAJNIK, LYNN; KRAJNIK, MILDRED; MANSFIELD PARK HOMEOWNERS ASSN INC	GROUND WATER						X								
Water Right	63-32986	N	KRAJNIK, LYNN; KRAJNIK, MILDRED	GROUND WATER						X								
Water Right	63-32987	N	KRAJNIK, LYNN; KRAJNIK, MILDRED; MANSFIELD PARK HOMEOWNERS ASSN INC	GROUND WATER						X								
Water Right	63-33167	N	ELLIS, WARREN L; HENRICKSON, LEVI; HENRICKSON, MILDRED V	GROUND WATER						X						X		
Water Right	63-33168	N	ELLIS, WARREN L; HENRICKSON, LEVI; HENRICKSON, MILDRED V; NAMPA SCHOOL DISTRICT #131	GROUND WATER									X					
Water Permit	63-33680	N	PFLEGER, STEVEN M	GROUND WATER													X	
Water Right	63-33680	Y	PFLEGER, STEVEN M	GROUND WATER														X
Water Permit	63-33750	N	SCOTT, CONSTANCE; SCOTT, HAROLD D	GROUND WATER														
Water Right	63-8480	N	MURRAY, LOIS ANN; MURRAY, THOMAS P	GROUND WATER													X	
Water Right	63-20931	N	EASTER, HOWARD; EASTER, SHIRLEY	UNNAMED DRAIN					X									

Overlap; different well

Overlap Analysis for Permit No. 63-33680 POU

[illegible]

Overlap; groundwater is supplemental to surface water
Overlap; no municipal water is used for irrigation
Overlap; groundwater irrigation district
Overlap; different use

Overlap; groundwater is supplemental to surface water

Overlap; no municipal water is used for irrigation

Overlap; groundwater irrigation district

Overlap: different use

Right No. 63-33680

Beneficial Use Field Report

WRA Allen Bradbury

System Diagram





Figure 1. Well tag
#D0064383.



Figure 1. Well head
with 3 hp pump set
at 55 feet and 2"
outlet pipe.



Figure 3. Output from well, calculated at 69.8 from bucket test.



Figure 4. 8-inch pipeline from canal, looking east at irrigated point of use.



Figure 2. Shows 8" pipeline from canal, looking west towards source from canal.



Figure 6. Field irrigated by primary surface water right and supplemental groundwater.



Figure 7. The northwest field was planted and irrigated but most of the seed washed away leaving sparse vegetative growth.



Figure 8. Looking south from well.

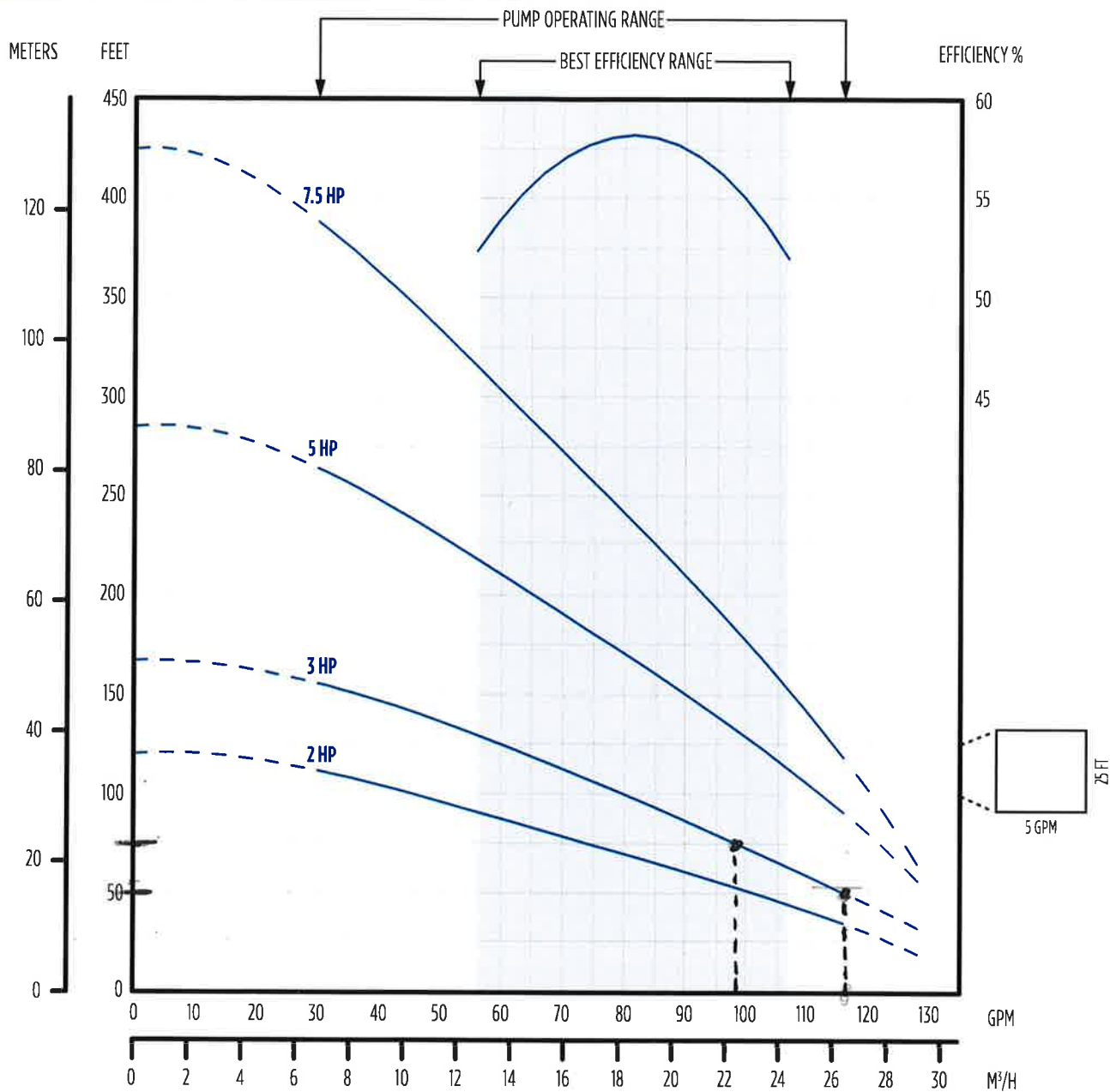
SUBMERSIBLE PUMPS

4" HIGH CAPACITY



PERFORMANCE

90 GPM



4" HIGH CAPACITY PUMPS - 90 GPM

PERFORMANCE

HP	PSI	Depth to Pumping Water Level (Lift) in Feet. Shaded Areas Indicate Most Efficient Performance																	Shut-Off (ft)
		20	40	60	80	100	120	140	160	180	200	250	300	350	400	450	500		
2	0		113	92	67	48												120	
	10	110	88	64	45														
	20	84	61	40															
	30	58	35																
	40																		
	50																		
60																			
Shut-off PSI		43	35	26	17	9													
3	0			110	96	79	64	49									167		
	10		108	93	76	61	46												
	20	106	90	74	59	43													
	30	88	71	57	39														
	40	69	55	35															
	50	53	30																
60																			
Shut-off PSI		64	55	46	38	29	20	12											
5	0					113	106	96	85	74	64	41					285		
	10				112	104	94	83	72	63	55								
	20			111	103	92	81	71	62	53	44								
	30		110	101	91	80	69	60	52	42									
	40	100	100	89	78	68	59	51	40										
	50	98	87	76	66	58	49	38											
	60	85	75	65	56	48	35												
	70	73	63	55	46	33													
	80	62	54	45	30														
	90	53	43																
100		41																	
Shut-off PSI		115	106	97	89	80	71	63	54	45	37	15							
7.5	0						116	112	107	101	94	76	60	46		425			
	10					115	111	108	100	93	86	68	54	38					
	20				115	110	105	99	92	85	77	61	47						
	30			114	109	104	98	91	83	76	70	55	40						
	40		113	109	103	96	90	82	75	69	62	49							
	50	113	108	102	95	88	81	74	68	61	56	41							
	60	107	101	94	87	80	73	67	61	55	50	31							
	70	100	93	86	79	72	66	60	54	49	42								
	80	92	85	78	71	65	59	53	48	41	33								
	90	84	77	70	64	58	53	47	40	31									
	100	76	69	63	57	52	46	39											
	110	68	62	56	51	45	38												
	120	61	55	50	44	36													
	130	55	49	43	35														
	140	48	42	33															
	150		41	32															
160																			
Shut-off PSI		175	167	158	149	141	132	123	115	106	97	76	54	32					

HP	PSI	20	40	60	80	100	120	140	160	180	200	240	280	320	360	400	440	480	500	550	600	Shut-Off (ft)
10	0					122	119	116	113	109	106	99	91	83	75	65	54	42	35	11		565
	10				122	119	116	112	109	106	102	95	87	78	69	59	48	34	25			
	20			121	118	115	112	108	105	101	98	90	82	73	64	53	40	24	13			
	30		121	118	115	111	108	104	101	97	94	86	77	68	57	46	31	11				
	40	120	117	114	111	107	104	100	97	93	89	81	72	62	51	38	21					
	50	117	114	110	107	103	100	96	92	88	84	76	66	56	44	29	7					
	60	113	110	106	103	99	96	92	88	84	79	70	60	49	35	18						
	70	109	106	102	99	95	91	87	83	79	74	65	54	41	26	2						
	80	105	102	98	94	91	87	82	78	74	69	59	47	33	14							
Shut-off PSI		236	227	219	210	201	193	184	175	167	158	141	123	106	89	71	54	37	28	6		

NOTES: Performance shown does not include friction loss in the drop pipe. All performance data is based on rated motor nameplate voltage. Performance shown is based on a pump without check valve.

IDAHO DEPARTMENT OF WATER RESOURCES WELL DRILLER'S REPORT

1. WELL TAG NO. D 0064383

Drilling Permit No. 963618-869677 ✓
Water right or injection well # 63-33680

2. OWNER: STEVE PFLEIGER

Name _____
Address 5111 S HAPPY VALLEY
City NAMPA State ID Zip 83686

3. WELL LOCATION:

Twp. 2 North ☒ or South ☐ Rge. 2 East ☐ or West ☒
Sec. 12 1/4 SE 1/4 SE 1/4

Gov't Lot _____ County CANYON
Lat. N43 ° 31.233 (Deg. and Decimal minutes)
Long. W116 ° 30.945 (Deg. and Decimal minutes)
Address of Well Site SAME

(Give at least name of road + Distance to Road or Landmark)
City _____
Lot. _____ Blk. _____ Sub. Name _____

4. USE:

☐ Domestic ☐ Municipal ☐ Monitor ☒ Irrigation ☐ Thermal ☐ Injection
☐ Other _____

5. TYPE OF WORK:

☒ New well ☐ Replacement well ☐ Modify existing well
☐ Abandonment ☐ Other _____

6. DRILL METHOD:

☒ Air Rotary ☐ Mud Rotary ☐ Cable ☐ Other _____

7. SEALING PROCEDURES:

Seal material	From (ft)	To (ft)	Quantity (lbs or ft ³)	Placement method/procedure
BENTONITE 3	0	40	1400#	POUR

8. CASING/LINER:

Diameter (nominal)	From (ft)	To (ft)	Gauge/Schedule	Material	Casing	Liner	Threaded	Welded
8	+2	78	250	STEEL	☒	☐	☐	☒

Was drive shoe used? ☐ Y ☒ N Shoe Depth(s) _____

9. PERFORATIONS/SCREENS:

Perforations ☐ Y ☒ N Method _____

Manufactured screen ☐ Y ☒ N Type _____

Method of installation _____

From (ft)	To (ft)	Slot size	Number/ft	Diameter (nominal)	Material	Gauge or Schedule
-----------	---------	-----------	-----------	--------------------	----------	-------------------

Length of Headpipe _____ Length of Tailpipe _____

Packer ☐ Y ☒ N Type _____

10. FILTER PACK:

Filter Material	From (ft)	To (ft)	Quantity (lbs or ft ³)	Placement method
-----------------	-----------	---------	------------------------------------	------------------

11. FLOWING ARTESIAN:

Flowing Artesian? ☐ Y ☒ N Artesian Pressure (PSIG) _____

Describe control device _____

12. STATIC WATER LEVEL and WELL TESTS:

Depth first water encountered (ft) 40 Static water level (ft) 40

Water temp. (°F) _____ Bottom hole temp. (°F) _____

Describe access port _____

Well test:

Drawdown (feet)	Discharge or yield (gpm)	Test duration (minutes)
NA	100	1 HR

Test method:

Pump	Bailer	Air	Flowing artesian
☐	☐	☒	☐

Water quality test or comments: _____

13. LITHOLOGIC LOG and/or repairs or abandonment:

Bore Dia. (in)	From (ft)	To (ft)	Remarks, lithology or description of repairs or abandonment, water temp.	Water	
				Y	N
12	0	7	TOP SOIL/ HARD PAN		
	7	40	LAVA		
10	40	47	LAVA W /CREVICES	X	
	47	62	LAVA		
	62	66	RED CINDERS	X	
	66	78	LAVA		
8	78	82	LAVA		
	82	85	BROWN CLAY		
	85	102	LAVA W/ CREVICES	X	
	102	110	SAND / GRAVEL	X	

Completed Depth (Measurable): 110'
Date Started: 8-22-13 Date Completed: 8-27-13

14. DRILLER'S CERTIFICATION:

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name DAVIS WELL Co. No. 101

*Principal Driller [Signature] Date 10-1-13

*Driller _____ Date _____

*Operator II _____ Date _____

Operator I _____ Date _____

* Signature of Principal Driller and rig operator are required.