

STATE OF IDAHO  
DEPARTMENT OF WATER RESOURCES  
BENEFICIAL USE FIELD REPORT

**A. GENERAL INFORMATION**

Permit No: 25-14378

Exam Date: 2/16/2016

1. Current Owner: IDAHO FALLS SCHOOL DISTRICT #91  
690 JOHN ADAMS PKWY  
IDAHO FALLS ID 83401  
(208)525-7500

2. Accompanied by: Kevin Klinger

Phone No: 208 525 7585 ext 50286

Relationship to Permit Holder: Director of Operations for Idaho Falls School District 91.

**3. SOURCE****TRIBUTARY**

GROUND WATER

**B. OVERLAP REVIEW**

1. Other water rights with the same place of use: Drinking water supplied by City of Idaho Falls  
2. Other water rights with the same point of diversion: None

**C. DIVERSION AND DELIVERY SYSTEM****1. LOCATION OF POINT(S) OF DIVERSION:**

GROUND WATER

SW1/4SE1/4

Sec. 17, Twp 02N, Rge 38E, B.M.

BONNEVILLE County

Method of Determination: GPS and ArcMap

2.

**PLACE OF USE:** HEATING

| Twp Rge Sec | NE |    |    |    | NW |    |    |    | SW |    |    |    | SE |    |    |    | Totals |
|-------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--------|
| 02N 38E 17  | NE | NW | SW | SE | NE | NW | SW | SE | NE | NW | SW | SE | NE | NW | SW | SE |        |
|             |    |    |    |    |    |    |    |    |    |    |    |    |    |    | X  |    |        |

**PLACE OF USE:** COOLING

| Twp Rge Sec | NE |    |    |    | NW |    |    |    | SW |    |    |    | SE |    |    |    | Totals |
|-------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--------|
| 02N 38E 17  | NE | NW | SW | SE | NE | NW | SW | SE | NE | NW | SW | SE | NE | NW | SW | SE |        |
|             |    |    |    |    |    |    |    |    |    |    |    |    |    |    | X  |    |        |

Method of Determination: GPS and ArcMap

3. ☐ Delivery System Diagram Attached (required). Indicate all major components and distances between components. Indicate weir size/pipe as applicable.
- ☒ Map Attached Showing Location(s) of point(s) of diversion and place(s) of use (required). Scale must be 1:24,000 or greater.
- ☒ Aerial Photo Attached (required for irrigation of 10+ acres).
- ☒ Photo of Diversion and System Attached

#### D. FLOW MEASUREMENTS

During the examination the system would cycle on and off. However, the Director of Operations for the School District did not have the ability to enable the system to full capacity, so no direct measurement could be taken.

The Director of Operations also did not have records of the pump's horse power, so no theoretical discharge could be calculated.

The Director of Operations said that the well driller, Jody Denning Drilling, installed the pump and tested its discharge. The discharge reported by the well driller was 480 gallons/minute.

#### E. FLOW CALCULATIONS

☐ Additional Computation Sheets Attached

480 gallons/minute / 448.83 gallons/minute/cfs = 1.07 cfs

## F. VOLUME CALCULATIONS

The diversion well does not run on a set schedule. Instead, a "Generalized Schedule" was provided by Bill O'Donnell of Quantum Group Engineering with the application for permit. The Director of Operations for the School District acknowledged that the Generalized Schedule was accurate. Below, the Generalized Schedule was used to calculate the water right's annual volume, with some noted assumptions.

There are six distinct operating periods throughout the year: warm-up on occupied mornings in the winter; occupied days in the winter; winter holidays, weekends, and nights; early and late winter days; spring and fall occupied days; spring and fall nights.

The Generalized Schedule included summers; however, the Director of Operations said that the system does not operate in the summer. The consultant's Generalized Schedule made no distinction for late-starts or early releases, so none are made in this review. It is assumed that the well runs at 300 gpm when it is running (per bullet 5 in the Generalized Schedule), except for winter mornings, when it runs at maximum capacity. The school year schedule use for this volume calculation is based on the 2015 – 2016 school year, which was a leap year.

In the Generalized Schedule, winter is defined as late November, December, January, and early February. An assumption was made that this is a 13 week period, including the final two weeks in November, the 31 days each in December and January (totaling 8.86 weeks), and the first 15 days in February (2.14 weeks).

### Occupied Winter Mornings – Warm Up

13 winter weeks \* 5 days/week occupied = 65 occupied days – 5 days for Thanksgiving break – 10 days for Christmas break – 1 day for Presidents Day = 49 occupied days during the winter \* 2 hours/day (6am – 8am) = 98 hours/winter \* 60 minutes/hour = 5880 minutes/winter \* 480 gallons/minute (max of system) = 2,822,400 gallons/winter mornings / 325850 gallons/AF = 8.66 AF. The assumption was made that the pump runs for the entire two hour warm up period.

### Occupied Winter Days

Class is in session from 8 am – 2:50 pm, which was rounded up to 3 pm in this calculation, for a total of seven hours/day. 49 occupied days \* 7 hours/day = 343 hours of occupied time during the winter \* 2/3 of time spent running (assumed, see below) = 228.67 hours/winter running \* 60 minutes/hour = 13720 minutes/winter \* 300 gpm (per generalized schedule) = 4,116,000 gallons/winter / 325,850 gallons/AF = 12.63 AF during occupied winter days.

The assumption was made that the generalized schedule's "much of the occupied day" meant 2/3 of the time. Further, during the site visit the system seemed to run about 2/3 of the time.

### Winter Nights, Weekends, and Holidays

16 holiday days (5 for Thanksgiving + 10 for Christmas + 1 for Presidents Day) \* 24 hours/day = 384 holiday hours

13 weeks \* 2 weekend days/week = 26 weekend days \* 24 hours/day = 624 weekend hours

49 nights of occupied days \* 15 hours/occupied night (3 pm – 6 am) = 735 hours of nights of occupied days

384 + 624 + 735 = 1743 hours of winter nights, weekends, and holidays \* 60 minutes/hour = 104,580 minutes \* 16.67% of the time that the system runs (assumption, see below) = 17,433.5 minutes that system runs \* 300 gpm = 5,230,050 gallons / 325,850 gallons/AF = 16.05 AF.

16.67% of an hour is 10 minutes. The consultant states that the system will run a vague "number of times" during the above timeframe. The Director of Operations said that the system would likely run once an hour, for ten minutes a cycle, on the coldest of nights. The school is allowed to cool down at night and over the weekend (hence the intensive warm up period in the mornings), and the building's insulation is very efficient.

### Early and Late Winter

The Generalized Schedule reads "Early and late winter, well pump will be on and off throughout the day and be off at night." It is assumed that "early and late winter" includes four additional weeks on either side of the 13 week winter. Each day and night are assumed to be 12 hours. No distinction is made between occupied day and weekend or holiday days. Finally, with the well cycling "on and off," it is assumed to run 20% of the time.

8 weeks \* 7 days/week \* 12 hours day = 672 hours \* .2 = 134.4 hours \* 60 minutes/hour = 8064 minutes \* 300 gallons/minute = 2,419,200 gallons / 325,850 gallons/AF = 7.42 AF used in the early and late winter.

### Spring and Fall Occupied Days

The Generalized Schedule reads "Spring and fall the well pump will cycle a few times during the occupied day and not at night." It does not define spring and fall, so it is assumed to be the remainder of the school year outside of winter and early and late winter. That includes one day in August, 21 days in September, 13 days in October, 8 days in March, 21 days in April, 21 days in May, and 3 days in June, for a total of 88 occupied days. "A few times" is assumed to mean once per hour, for ten minutes (similar to Winter Nights, Weekends, and Holidays).

88 occupied days \* 7 hours/occupied day = 616 hours \* 60 minutes/hour = 36,960 minutes \* 16.67% of the time that the

system runs = 6161.2 minutes that the system runs \* 300 gpm = 1,848,360 gallons / 325,850 gallons/AF = 5.67 AF

#### Spring and Fall Nights

The generalized schedule contradicts itself, in one sentence saying that the system will not cycle on at night, and in the next saying that it may start and run a few times during nights. Because the system is non-consumptive, it is assumed that the well does run at night, and again for 10 minutes once each hour. The night is assumed to be 12 hours, and no distinction is made between weekend nights, holiday nights, and occupied-day nights. Therefore, there is one night in August, 30 nights in September, 19 nights in October, 17 nights in March, 30 nights in April, 31 nights in May, and two nights in June, totaling 130 nights.

130 nights \* 12 hours/night = 1560 hours \* 60 minutes/hour = 93,600 minutes \* 16.67% of the time that the system runs = 15,603 minutes \* 300 gallons/minute = 4,680,936 gallons / 325,850 gallons/AF = 14.37 AF.

In sum, 8.66 AF + 12.63 AF + 16.05 AF + 7.42 AF + 5.67 AF + 14.37 AF = 64.8 AF

#### G. NARRATIVE/REMARKS/COMMENTS

Water is diverted to a heat exchanger, where it couples with a closed-loop heating and cooling system inside of the school. After leaving the heat exchanger, water is injected back into the ground.

Have conditions of permit approval been met? ☐ Yes ☐ No

#### H. RECOMMENDATIONS

##### 1. Recommended Amounts

| <u>BENEFICIAL USE</u> | <u>PERIOD OF USE</u> | <u>DIVERSION RATE</u> | <u>ANNUAL VOLUME</u> |
|-----------------------|----------------------|-----------------------|----------------------|
| HEATING               | 01/01 to 12/31       | 1.070 CFS             | 64.80 AF             |
| COOLING               | 01/01 to 12/31       | 1.070 CFS             | 64.80 AF             |
| <u>Totals:</u>        |                      | 1.070 CFS             | 64.80 AF             |

##### 2. Recommended Amendments

☐ Change P.D. as reflected above ☐ Add P.D. as reflected above ☒ X None

☐ Change P.U. as reflected above ☐ Add P.U. as reflected above ☐ Other

#### I. AUTHENTICATION

Field Examiner's Name Cooper Fritz Date 2/11/2015

Reviewer James Cefalo Date 6/20/16

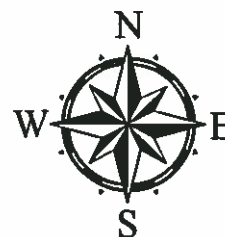
# 25-14378 POD, Injection Well, and POU at Licensing



2015 Imagery

**Legend**

- Point of Diversion
- Injection\_Well
- Place of Use
- Township/Range
- Sections
- QQ



0 0.02 0.04 0.08 Miles



Point of Diversion



Injection Well



Data Provided by  
Bill O'Donnell, P.E.  
Quantum Group Engineering, PC  
543 W. 19<sup>th</sup>  
PO Box 51353  
Idaho Falls, ID 83402  
(208) 523-8068 Fax (208) 524-8235

- 1) Well pump will need to pump a maximum of 600gpm during morning warm up during cold wintertime conditions (late November, December, January, and mid February), or from about 6am to 8am and then run much of the occupied day at 300gpm, Monday through Friday. Once class is over for the day and over the weekend and holidays, the well pump will be off and will start and run a number of times throughout the night and weekend, at 300gpm.
- 2) Early and late winter, well pump will be on and off throughout the day and be off at night.
- 3) Spring and fall the well pump will cycle a few times during the occupied day and not at night. Once class is over for the day and over the weekend the well pump will be off and may start and run a few times throughout the night.
- 4) Summer the well pump will be off and would only run if there is special a school activity and the school is occupied.
- 5) Well pump is controlled by a variable speed drive that speeds the pump up and down depending on the heating or cooling demand. When running it will spend the majority of its run time at minimum speed or about 300gpm. It will be off for a majority of the year (winter/summer).
- 6) This is non-consumptive use and well water may be cooled to about 42F in winter (at 600 gpm) and heated to about 60F in summer when the pump is running at 300gpm (building will be heating dominant).

"Generalized Schedule"

# Idaho Falls School District 91 Calendar 2015-2016

Adopted 12/10/2014

Updated 9/17/2015

| July                                                                                    | Key to Abbreviations                                                                                                                                                                                                                                                                                                                                                           | January                                                                                                                                                                                                                                                                                        |
|-----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| M T W TH F<br>1 2 3<br>6 7 8 9 10<br>13 14 15 16 17<br>20 21 22 23 24<br>27 28 29 30 31 | K = Kindergarten<br>Pre-K = Preschool<br>ES = Elementary Schools<br>MS = Middle Schools<br>HS = High Schools<br>Access 2.0 = Assessment for Comp. and Comm. for ELL<br>IRI = Idaho Reading Indicator<br>ISAT 2.0 = Idaho Standardized Achievement Test<br>PT Conferences = Parent/Teacher Conferences<br>PSAT = Pre Scholastic Aptitude Test<br>SAT = Scholastic Aptitude Test | M T W TH F<br>1 Dec 21 - Jan 1 Christmas Vacation - No School<br>4 5 6 7 8<br>11 12 13 14 15<br>18 19 20 21 22<br>25 26 27 28 29                                                                                                                                                               |
| August                                                                                  | 21 Teacher Workday - No School<br>24 - 28 Teacher Inservice/Workdays - No School<br>26 Elementary Back-to-School Night<br>Late Start Monday                                                                                                                                                                                                                                    | February                                                                                                                                                                                                                                                                                       |
| M T W TH F<br>3 4 5 6 7<br>10 11 12 13 14<br>17 18 19 20 21<br>24 25 26 27 28<br>31     | 31 First Day of School K through 9th Grade & Emerson<br>31 MS & HS Back-to-School Night<br>1 First Day of School Grades 10-12<br>3 First Day of School Pre-K<br>7 Labor Day - No School<br>IRI Assessment Aug. 17 - Sept. 25<br>STAR Assessment Sept. 1 - Sept. 30                                                                                                             | M T W TH F<br>1 2 3 4 5<br>8 9 10 11 12<br>15 16 17 18 19<br>22 23 24 25 26<br>29                                                                                                                                                                                                              |
| September                                                                               |                                                                                                                                                                                                                                                                                                                                                                                | March                                                                                                                                                                                                                                                                                          |
| M T W TH F<br>1 2 3 4<br>7 8 9 10 11<br>14 15 16 17 18<br>21 22 23 24 25<br>28 29 30    |                                                                                                                                                                                                                                                                                                                                                                                | M T W TH F<br>4 End of 2nd Trimester<br>7 Teacher Workday - No School<br>10 Early Dismissal Grades 1-6 for ES PT Conf. - No School K & Pre-K<br>11 ES PT Conferences - No School ES<br>21-25 Spring Break - No School<br>ISAT 2.0 Assessment Mar. 28 - May 20<br>IRI Assessment Apr. 4 - May 2 |
| October                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                | April                                                                                                                                                                                                                                                                                          |
| M T W TH F<br>1 2<br>5 6 7 8 9<br>12 13 14 15 16<br>19 20 21 22 23<br>26 27 28 29 30    | 2 State & District Inservice - No School<br>14 PSAT Assessment - Grade 10                                                                                                                                                                                                                                                                                                      | M T W TH F<br>1<br>4 5 6 7 8<br>11 12 13 14 15<br>18 19 20 21 22<br>25 26 27 28 29                                                                                                                                                                                                             |
| November                                                                                |                                                                                                                                                                                                                                                                                                                                                                                | May                                                                                                                                                                                                                                                                                            |
| M T W TH F<br>2 3 4 5 6<br>9 10 11 12 13<br>16 17 18 19 20<br>23 24 25 26 27<br>30      | 20 End of 1st Trimester<br>23 Teacher Workday - No School<br>24-27 Thanksgiving Holiday - No School                                                                                                                                                                                                                                                                            | M T W TH F<br>2 3 4 5 6<br>9 10 11 12 13<br>16 17 18 19 20<br>23 24 25 26 27<br>30 31                                                                                                                                                                                                          |
| December                                                                                |                                                                                                                                                                                                                                                                                                                                                                                | June                                                                                                                                                                                                                                                                                           |
| M T W TH F<br>1 2 3 4<br>7 8 9 10 11<br>14 15 16 17 18<br>21 22 23 24 25<br>28 29 30 31 | 3 Early Dismissal Grades 1-6 for ES PT Conferences - No School K & Pre-K<br>4 ES PT Conferences - No School ES<br>Dec 21 - Jan 1 Christmas Vacation - No School                                                                                                                                                                                                                | M T W TH F<br>1 2 3<br>6 7 8 9 10<br>13 14 15 16 17<br>20 21 22 23 24<br>27 28 29 30                                                                                                                                                                                                           |

| Start/End Time       | Schools                                              | Start/End Time           | Early Dismissal Schedule                              |
|----------------------|------------------------------------------------------|--------------------------|-------------------------------------------------------|
| <b>Tues - Friday</b> |                                                      | <b>Late Start Monday</b> | <b>(See PreK/Kindergarten Bell Schedules On Back)</b> |
| 8:00 - 2:05          | Bunker, Fox Hollow, Linden Park                      | 9:00 - 2:05              | 1:00 p.m.                                             |
| 8:00 - 2:50          | Erickson                                             | 9:00 - 2:50              | 1:30 p.m.                                             |
| 8:10 - 2:15          | Temple View                                          | 9:10 - 2:15              | 1:10 p.m.                                             |
| 8:20 - 2:25          | Longfellow, Sunnyside, Westside                      | 9:20 - 2:25              | 1:20 p.m.                                             |
| 8:35 - 3:35          | Eagle Rock & Taylorview Middle Schools               | 9:35 - 3:35              | 12:00 p.m.                                            |
| 8:30 - 3:40          | Idaho Falls & Skyline High Schools                   | 9:30 - 3:40              | 12:00 p.m.                                            |
| 8:50 - 3:20          | Compass Academy                                      | 9:50 - 3:20              | 11:40 a.m.                                            |
| 9:00 - 3:05          | Boyes, Bush, Edgemont, Hawthorne                     | 10:00 - 3:05             | 2:00 p.m.                                             |
| 9:00 - 3:30          | Emerson HS (Day)                                     | 10:00 - 3:30             |                                                       |
|                      | Emerson HS (Night) Monday - Thursday, 4:00 - 7:00 PM |                          |                                                       |

|               |                  |         |                                       |
|---------------|------------------|---------|---------------------------------------|
| 1st Trimester | Aug 31 to Nov 20 | 58 Days | First Day of School - August 31, 2015 |
| 2nd Trimester | Nov 30 to Mar 4  | 59 Days |                                       |
| 3rd Trimester | Mar 8 to Jun 3   | 58 Days | Last Day of School - June 3, 2016     |

Early & late winter



## **Dora Erickson Elementary School School Day Schedule 2014-2015**

7:55.....First Bell Rings

8:00.....School Begins (Tardy Bell)

### **Recesses**

1<sup>st</sup> Gr.....12:45 -1:00

2<sup>nd</sup> Gr.....1:15-1:30

3<sup>rd</sup> Gr.....1:30-1:45

4<sup>th</sup> Gr.....1:00- 1:15

5<sup>th</sup> Gr.....10:00-10:15

11:00..... AM Kindg Dismissed

11:50..... PM Kindg Begins

### **Lunch Cafeteria Schedule**

1<sup>st</sup> .....11:00- 11:35

4<sup>th</sup> ..... 11:10-11:45

2<sup>nd</sup> ... ..11:20-11:55

5<sup>th</sup> .....11:30-12:05

3<sup>rd</sup> .....11:40-12:15

6<sup>th</sup> .....11:50-12:25

### **Lunch Recess**

11:15-11:35

11:25-11:45

11:35-11:55

11:45-12:05

11:55-12:15

12:05-12:25

2:50..... School Dismissed



### **Monday- Late Start**

Grades 1-6 and AM Kindg....9:00 am

AM Kindg Dismissed.....11:40 am

PM Kindg Starts.....12:20 pm

School Dismissed.....2:50 pm

IDAHO DEPARTMENT OF WATER RESOURCES  
WELL DRILLER'S REPORT2011 Nov 14  
251. WELL TAG NO. D 0058714

Drilling Permit No. \_\_\_\_\_

Water right or injection well # \_\_\_\_\_

2. OWNER: \_\_\_\_\_

Name Idaho Falls School Dist. #91Address 610 John Adams ParkwayCity Idaho Falls State ID Zip 83401

3. WELL LOCATION:

Twp. 2 North ☒ or South ☐ Rge. 38 East ☒ or West ☐Sec. 17 10 acres 1/4 SW 1/4 SE 1/4Gov't Lot \_\_\_\_\_ County BonnevilleLat. 43° 30.01 (Deg. and Decimal minutes)Long. 112° 00.74 (Deg. and Decimal minutes)Address of Well Site 940 Garfield St.City Idaho Falls

(Give at least name of road or distance to road or landmark)

Lot \_\_\_\_\_ Blk. \_\_\_\_\_ Sub. Name \_\_\_\_\_

4. USE:

☐ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation ☐ Thermal ☐ Injection☒ Other Heat Pump, Geothermal

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 Bentonite From (ft) 6' To (ft) 150' Quantity (lbs or ft<sup>3</sup>) 3.8 yd<sup>3</sup> Placement method/procedure Pour

8. CASING/LINER:

| Diameter (nominal) | From (ft) | To (ft) | Gauge/Schedule | Material | Casing                              | Liner                               | Threaded                 | Welded                              |
|--------------------|-----------|---------|----------------|----------|-------------------------------------|-------------------------------------|--------------------------|-------------------------------------|
| 10"                | 42'       | 170'    | .25            | steel    | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 8"                 | 163'      | 263'    | .25            | steel    | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|                    |           |         |                |          | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/>            |
|                    |           |         |                |          | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/>            |

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

9. PERFORATIONS/SCREENS:

Perforations ☒ Y ☐ N Method TorchManufactured screen ☐ Y ☐ N Type \_\_\_\_\_

Method of installation \_\_\_\_\_

| From (ft) | To (ft) | Slot size | Number | Diameter (nominal) | Material | Gauge or Schedule |
|-----------|---------|-----------|--------|--------------------|----------|-------------------|
| 163'      | 263'    | 4x4"      | 200    | 8"                 | steel    |                   |
|           |         |           |        |                    |          |                   |
|           |         |           |        |                    |          |                   |

Length of Headpipe \_\_\_\_\_ Length of Tailpipe \_\_\_\_\_

Packer ☐ Y ☐ N Type \_\_\_\_\_

10. FILTER PACK:

| Filter Material | From (ft) | To (ft) | Quantity (lbs or ft <sup>3</sup> ) | 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) 72' Static water level (ft) 136'

Water temp. (°F) \_\_\_\_\_ Bottom hole temp. (°F) \_\_\_\_\_

Describe access port \_\_\_\_\_

Well test: \_\_\_\_\_ Test method: \_\_\_\_\_

| Drawdown (feet) | Discharge or yield (gpm) | Test duration (minutes) | Pump                                | Basin                    | Air                      | Flowing artesian         |
|-----------------|--------------------------|-------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|
| —               | 480                      | 120                     | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

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 |
| 16"            | 0'        | 4'      | Fill Dirt                                                                |       |   |
|                | 4'        | 70'     | Med. black basalt                                                        |       |   |
|                | 70'       | 80'     | Soft Clay w/cinders                                                      | X     |   |
|                | 80'       | 95'     | Soft brown basalt                                                        |       |   |
|                | 95'       | 135'    | Med. basalt                                                              |       |   |
|                | 135'      | 136'    | Broken                                                                   |       |   |
|                | 136'      | 148'    | Broken basalt, Med.                                                      |       |   |
|                | 148'      | 165'    | 1st returns - Soft drilling basalt                                       |       |   |
|                | 165'      | 170'    | Med broken basalt w/ fractures                                           |       |   |
| 10"            | 170'      | 181'    | Med broken basalt w/ fractures                                           |       |   |
|                | 181'      | 195'    | Med basalt - even drilling                                               |       |   |
|                | 195'      | 213'    | Soft casing (fractured)                                                  |       |   |
|                | 213'      | 217'    | Clay? Soft something - no pressure                                       |       |   |
|                | 217'      | 230'    | Med Basalt - some fractures                                              |       |   |
|                | 230'      | 241'    | Med. Basalt - even drilling                                              |       |   |
|                | 241'      | 243'    | Soft fracture                                                            |       |   |
|                | 243'      | 252'    | Even Med. basalt                                                         |       |   |
|                | 252'      | 253'    | Fracture                                                                 |       |   |
|                | 253'      | 302'    | Hard basalt, small fractures                                             |       |   |

RECEIVED

NOV 19 2012

Department of Water Resources  
Eastern RegionCompleted Depth (Measurable): 263'Date Started: 9/10/12 Date Completed: 9/21/12

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 Idaho Drilling Co. No. 519Principal Driller Idaho Drilling Date \_\_\_\_\_Driller Idaho Drilling Date 10/3/12

Operator II \_\_\_\_\_ Date \_\_\_\_\_

Operator I \_\_\_\_\_ Date \_\_\_\_\_

Signature of Principal Driller and rig operator are required.



Supply Well



Injection Well

Heat  
Exchanger



System