

RECEIVED

DEC 18 2009

DEPARTMENT OF  
WATER RESOURCESSTATE OF IDAHO  
DEPARTMENT OF WATER RESOURCESREQUEST FOR EXTENSION OF TIME  
TO PROVIDE ADDITIONAL TIME IN WHICH TO SUBMIT PROOF OF  
BENEFICIAL USE FOR A WATER RIGHT PERMIT

The Idaho Department of Water Resources will consider this form as a request that the permit holder(s) be granted an additional period of time under the provisions of Section 42-204, Idaho Code in which to complete development of a water right and file proof or beneficial use of water. There is a **FILING FEE** of **\$50.00** to be included with this form when filed with IDWR.

Permit No. 37-8205 Date Proof is Due: December 30, 2009Name(s) of Permit Holder: Sun Valley Land and Minerals, Inc.Address: P.O. Box 1959 City Sun Valley State ID Zip 83301Telephone No. (208) 726-4113 Email: \_\_\_\_\_

Describe what work has been completed toward the development of this water right:  
(This must be filled out! If no work has been completed, show "none".)

Have developed 3 wells and pumps, snowmelting system, and heated spa/pool  
facility, as set forth in the Beneficial Use Field Report for Permit 37-8205  
dated October 16, 2009 and submitted to IDWR.

Costing \$ >\$100,000

The permit holder(s) has been unable to complete the remainder of the work for the following reasons:

See attached statement

Permit holder(s) request an extension to December 30, 20 13.

Chad E. Brachy power of attorney 12/11/09  
(Signature) If other than permit holder, Power of Attorney must be supplied. (Date)

## ACTION OF THE DEPARTMENT OF WATER RESOURCES

IT IS HEREBY ORDERED that the above request for extension of time be

SEE DENIAL ORDER 12/30/09

Signed this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

ATTACHMENT FOR REQUEST FOR  
EXTENSION OF TIME 37-8205

- Permit Holder timely submitted its Beneficial Use Field Report ("BU Report") for Permit 37-8205 on or about October 16, 2009.
- Permit Holder received a Preliminary Order Rejecting Beneficial Use Field Report and Voiding Application for Amendment of Permit dated November 24, 2009 by letter dated November 30, 2009 ("Preliminary Order").
- Said Preliminary Order provided Permit Holder with an additional 30 days to submit an acceptable Beneficial Use Field Report and Proof of Beneficial Use Statement, to December 30, 2009.
- Per the Preliminary Order, the Primary BU Report was found to be not acceptable in that the report failed to provide required information with respect to increase in potential consumptive use of water and appropriate mitigation. See BU Report at pg.5.
- Preliminary Memoranda addressing Consumptive Use and Historical Use Estimations are attached hereto as Exhibit A.
- Permit Holder is unable to address pending mitigation of the potential consumptive use due to pending litigation in the SRBA Court with respect to its other water rights which could be used for mitigation – to wit – Right Nos. 37-22128 and 37-4368B. Said rights were objected to on November 15, 2007 and have been and continue to be the subject of ongoing litigation. It is anticipated that these subcases may be finally adjudicated within the next year. Department policy precludes action on proposed transfers related to rights with pending objections in the SRBA, thus precluding use of said rights for mitigation.
- Pursuant to I.C. §42-204(1), the time for completing the permit examination shall be extended by the Department so that the amount of time lost by such delay caused by litigation is added to the time for each action required.
- As a result of the foregoing, Permit Holder hereby requests that the Department extend by not less than 2 years and up to 3 years, the time in which Permit Holder is required to submit its Beneficial Use Field Report and Proof of Beneficial Use Statement.



PRELIMINARY

## Technical Memorandum

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DATE: December 7, 2009  
TO: Idaho Department of Water Resources  
FROM: Charles G. Brockway, P.E.  
SUBJECT: Supplemental Information for Beneficial Use Report on Permit 37-8205:  
Consumptive Use of Outdoor Heated Pond and Mitigation Requirement

### PRELIMINARY

Application for permit 37-8205 was filed in March 1985, seeking geothermal groundwater for heating and recreational purposes in a contemplated residential and commercial development. In the original permit application, likely water uses were outlined in general without a diversion volume or consumptive use quantification. IDWR approved the permit as a non-consumptive, and added the following language as a condition:

*Use of water under this right shall be non-consumptive. If use is found to be consumptive in the future, the consumption must be replaced or the user of the water must cease diversion until a plan of replacement is implemented.*

Department staff has interpreted this condition to mean that the consumptive use of the heated pond must be estimated, and any consumptive use occurring under permit 37-8205 must be mitigated in order for a license to be granted.

The pond to which the geothermal water is directed is one of several ponds authorized under water rights 37-2446 and 37-4369 from Deer Creek. These rights were the subject of an extensive review by IDWR and transfer approval in 2003, which allowed restructuring of the pond system upstream of the on-stream embankment, and also allowed impoundments to take place off stream. Both the storage impoundment volume and associated consumptive and seepage losses are fully covered by the Deer Creek water rights. Therefore, only the additional evaporative losses which would be induced by the introduction of heated water into the 1.17-acre pond and maintenance of the pond temperature at the target 85F should require mitigation. An analysis was performed to estimate the evaporative losses from a heated pond. Average monthly climatological conditions as described in the beneficial use exam were used.

Analysis of evaporation from an open water surface is generally approached from the standpoint of either an energy balance or a mass balance. The development of equations for both approaches is complex and is fully explained in references such as Bras (1990). In the energy balance approach, evaporative losses are assumed to be a function of net longwave and shortwave radiation, and advection and storage effects are neglected. In

EXHIBIT A

the mass balance approach, the Dalton Law model is assumed, wherein evaporative losses are proportional to the vapor pressure gradient between the ambient air and the water surface:

$$E = [c + f(u)](e_s - e_z)$$

This is the form most widely used for development of empirical approaches to estimate evaporation, whether from heated or unheated sources. The  $f(u)$  term is a function of wind velocity,  $u$ , and may take various empirical forms. The constant,  $c$ , is needed since evaporation does not equal zero when the wind ceases to blow. The major assumption inherent in the mass-balance approach is that a saturated air zone exists over the water surface, and the temperature of that zone is the water temperature. Thus, the water temperature is used to determine  $e_s$ , whereas the ambient air temperature (typically measured at a point 2 meters above the surface) is used to determine  $e_z$ . The equation can be used to estimate evaporation for any combination of pond temperature and air temperature.

Many empirical approaches using the above equation form have been developed, under a variety of conditions and assumptions. Helfrich (1982) compiled and evaluated 10 such evaporation equations, standardizing them to wind velocity at 2 meters and converting to SI units. Bras (1990) provides a listing and description of each. Several of these equations were directly derived for heated ponds, i.e. cooling pond applications. Four of the most directly applicable equations were used and the calculations are shown on the attached spreadsheets.

Two cases were examined: 1) Without pond heating, the pond temperature was assumed to vary from 40F in the wintertime to 60F in the summertime; and 2) With a heated pond, the temperature was assumed to be constant at 85F. Under condition 2, the average of the four equations was 35.7 inches/year, which compares favorably with the NOAA evaporation atlas and Allen & Robison (2007) for shallow ponds. Under condition 2, the average of the four equations was 199.1 inches, more than a 5-fold increase. Although this seems quite high, as a check other approaches were cursorily investigated and gave similar results. Scott McClure, P.E. a mechanical engineer versed in thermodynamics and owner of McClure Engineering in Twin Falls, was also consulted and verified that the evaporation calculation was reasonable.

Total consumptive use for the 1.17-acre pond is computed as follows:

|             |                  |
|-------------|------------------|
| Unheated:   | 3.48 ac-ft/year  |
| Heated:     | 19.41 ac-ft/year |
| Difference: | 15.93 ac-ft/year |

Mitigation Source

Water right 37-22128 is a geothermal right from groundwater, recommended in the SRBA for 40 afa for heating and 24 afa for recreation. This right is unrestricted as to consumptive use, and therefore should be available to provide consumptive mitigation volume. However, the right has been objected to in the SRBA, the objectors claiming that the right should not exist.

# EVAPORATIVE LOSS IN HEATED OUTDOOR POOL

Four applicable methods as compiled by Helfrich et al. (1982), reported and discussed in Bras (1990)  
CGB 12/7/09

Pond temperature 9999 deg C (9999 = natural flow temp)  
a 2500 J/g a,b are coeffs in Le equation:  
b 2.386 J/g-C Le = a - bT  
rho 1.00E+06 g/m^3 rho = density of water  
es = saturation vapor pressure at pond surface temperature  
ea = vapor pressure of ambient air

| Month     | Days | Avg air temp [C] | Avg RH (%) | Avg Wind (m/s) | Pond sfc temp [C] | Le [J/g] | es (mb) | ea (mb) | Est. pond temp (natural flow) |      |  |
|-----------|------|------------------|------------|----------------|-------------------|----------|---------|---------|-------------------------------|------|--|
|           |      |                  |            |                |                   |          |         |         | F                             | C    |  |
| January   | 31   | -7.1             | 74         | 1.8            | 4.4               | 2489     | 8.4     | 2.6     | 40                            | 4.4  |  |
| February  | 28   | -4.4             | 68         | 2.1            | 4.4               | 2489     | 8.4     | 3.0     | 40                            | 4.4  |  |
| March     | 31   | -0.6             | 58         | 2.6            | 4.4               | 2489     | 8.4     | 3.4     | 40                            | 4.4  |  |
| April     | 30   | 5.9              | 52         | 3.0            | 7.2               | 2483     | 10.2    | 4.8     | 45                            | 7.2  |  |
| May       | 31   | 10.9             | 49         | 3.4            | 10.0              | 2476     | 12.3    | 6.4     | 50                            | 10.0 |  |
| June      | 30   | 14.9             | 47         | 3.4            | 12.8              | 2470     | 14.8    | 7.9     | 55                            | 12.8 |  |
| July      | 31   | 19.7             | 38         | 3.6            | 15.6              | 2463     | 17.7    | 8.6     | 60                            | 15.6 |  |
| August    | 31   | 18.9             | 38         | 3.5            | 15.6              | 2463     | 17.7    | 8.3     | 60                            | 15.6 |  |
| September | 30   | 13.7             | 45         | 3.4            | 12.8              | 2470     | 14.8    | 7.0     | 55                            | 12.8 |  |
| October   | 31   | 8.1              | 52         | 2.9            | 7.2               | 2483     | 10.2    | 5.6     | 45                            | 7.2  |  |
| November  | 30   | 0.6              | 67         | 2.0            | 4.4               | 2489     | 8.4     | 4.2     | 40                            | 4.4  |  |
| December  | 31   | -5.4             | 74         | 1.7            | 4.4               | 2489     | 8.4     | 3.0     | 40                            | 4.4  |  |

| Kohler (1954) |            |          |        | Meyer (1942) |          |        |       | Brady et al. (1969) |          |        |       | Ryan and Harteman (1973) |          |        |       | Average |
|---------------|------------|----------|--------|--------------|----------|--------|-------|---------------------|----------|--------|-------|--------------------------|----------|--------|-------|---------|
| Month         | Qe [W/m^2] | E [m/s]  | [cm/d] | Qe [W/m^2]   | E [m/s]  | [cm/d] | [in]  | Qe [W/m^2]          | E [m/s]  | [cm/d] | [in]  | Qe [W/m^2]               | E [m/s]  | [cm/d] | [in]  | [in]    |
| January       | 39.6       | 1.59E-08 | 0.05   | 68.7         | 2.76E-08 | 0.09   | 2.91  | 49.2                | 1.98E-08 | 0.07   | 2.08  | 32.7                     | 1.31E-08 | 0.04   | 1.39  | 2.01    |
| February      | 41.8       | 1.68E-08 | 0.06   | 67.3         | 2.71E-08 | 0.09   | 2.58  | 48.6                | 1.95E-08 | 0.07   | 1.86  | 34.6                     | 1.39E-08 | 0.05   | 1.32  | 1.84    |
| March         | 49.7       | 2.00E-08 | 0.07   | 68.9         | 2.77E-08 | 0.09   | 2.92  | 51.8                | 2.08E-08 | 0.07   | 2.19  | 41.1                     | 1.65E-08 | 0.06   | 1.74  | 2.24    |
| April         | 60.6       | 2.44E-08 | 0.08   | 78.2         | 3.15E-08 | 0.11   | 3.22  | 61.0                | 2.46E-08 | 0.08   | 2.51  | 50.1                     | 2.02E-08 | 0.07   | 2.06  | 2.57    |
| May           | 74.9       | 3.02E-08 | 0.10   | 90.4         | 3.65E-08 | 0.12   | 3.85  | 73.8                | 2.98E-08 | 0.10   | 3.14  | 61.9                     | 2.50E-08 | 0.09   | 2.64  | 3.20    |
| June          | 89.0       | 3.60E-08 | 0.12   | 106.7        | 4.32E-08 | 0.15   | 4.41  | 87.6                | 3.55E-08 | 0.12   | 3.62  | 73.6                     | 2.98E-08 | 0.10   | 3.04  | 3.69    |
| July          | 123.0      | 5.00E-08 | 0.17   | 143.8        | 5.84E-08 | 0.20   | 6.16  | 120.7               | 4.90E-08 | 0.17   | 5.17  | 101.7                    | 4.13E-08 | 0.14   | 4.35  | 5.24    |
| August        | 124.3      | 5.05E-08 | 0.17   | 147.1        | 5.97E-08 | 0.20   | 6.30  | 122.1               | 4.96E-08 | 0.17   | 5.23  | 102.8                    | 4.17E-08 | 0.14   | 4.40  | 5.31    |
| September     | 97.8       | 3.98E-08 | 0.13   | 118.9        | 4.81E-08 | 0.16   | 4.91  | 96.5                | 3.91E-08 | 0.13   | 3.99  | 80.9                     | 3.27E-08 | 0.11   | 3.34  | 4.07    |
| October       | 49.7       | 2.00E-08 | 0.07   | 65.8         | 2.65E-08 | 0.09   | 2.79  | 50.5                | 2.04E-08 | 0.07   | 2.15  | 41.1                     | 1.66E-08 | 0.06   | 1.75  | 2.20    |
| November      | 31.4       | 1.28E-08 | 0.04   | 51.4         | 2.06E-08 | 0.07   | 2.11  | 37.0                | 1.49E-08 | 0.05   | 1.52  | 26.0                     | 1.04E-08 | 0.04   | 1.07  | 1.49    |
| December      | 35.3       | 1.42E-08 | 0.05   | 63.3         | 2.54E-08 | 0.09   | 2.68  | 45.2                | 1.82E-08 | 0.06   | 1.92  | 29.1                     | 1.17E-08 | 0.04   | 1.23  | 1.83    |
|               |            |          | Total  |              |          | Total  | 44.82 |                     |          | Total  | 35.38 |                          |          | Total  | 28.33 | 35.70   |

Average evaporation from the four methods: 35.70 inches

# EVAPORATIVE LOSS IN HEATED OUTDOOR POOL

Four applicable methods as compiled by Helfrich et al. (1982), reported and discussed in Bras (1990)  
CGB 12/7/09

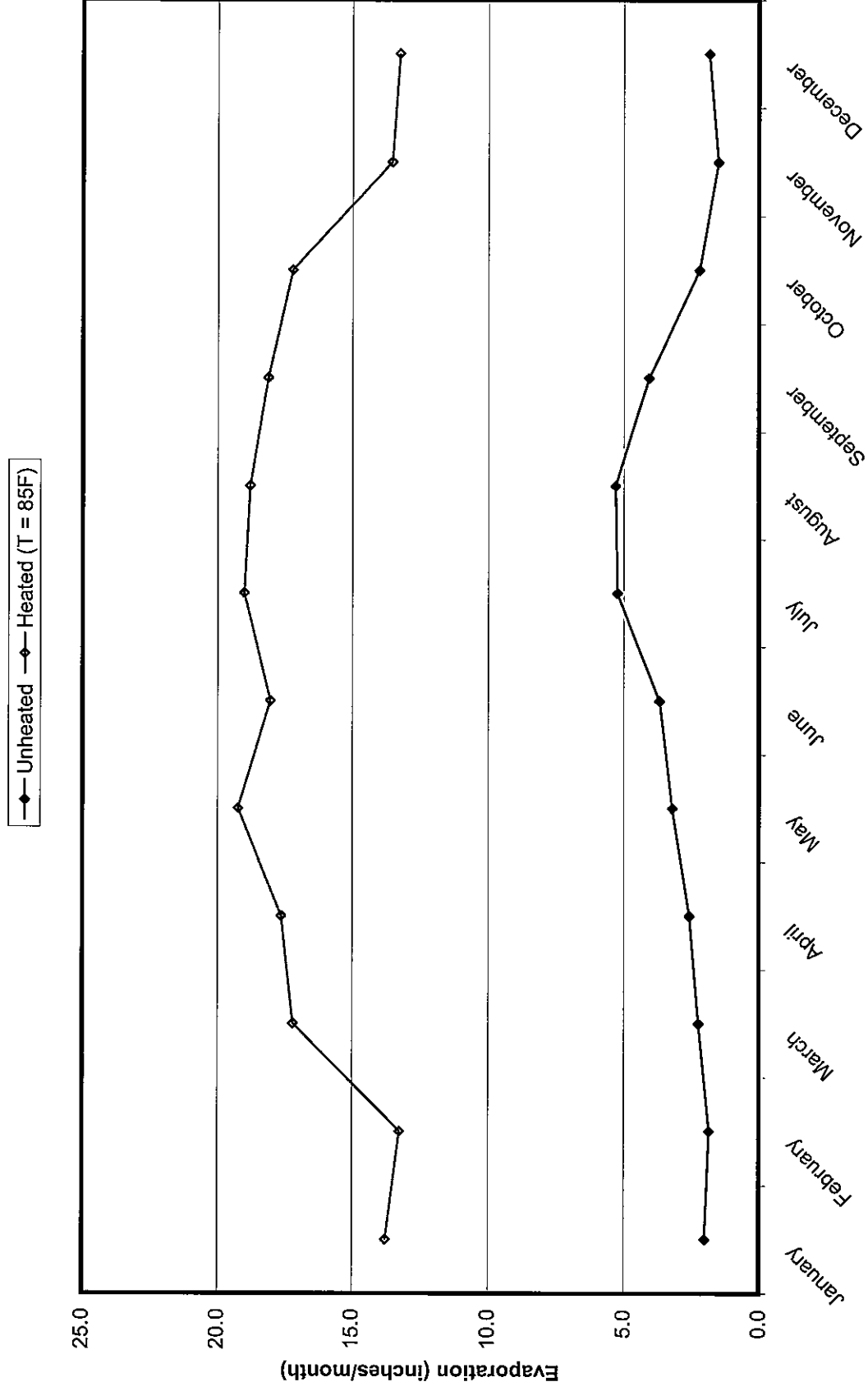
Pond temperature 29.44 deg C (9999 = same as air)  
a 2500 J/g a,b are coeffs in Le equation:  
b 2,386 J/g-C Le = a - bT  
rho 1.00E+06 g/m^3 rho = density of water  
es = saturation vapor pressure at pond surface temperature  
ea = vapor pressure of ambient air

| Month     | Days | Avg air temp [C] | Avg RH (%) | Avg Wind (m/s) | Pond sfc temp [C] | Le [J/g] | es (mb) | ea (mb) |
|-----------|------|------------------|------------|----------------|-------------------|----------|---------|---------|
| January   | 31   | -7.1             | 74         | 1.8            | 29.4              | 2430     | 41.1    | 2.6     |
| February  | 28   | -4.4             | 68         | 2.1            | 29.4              | 2430     | 41.1    | 3.0     |
| March     | 31   | -0.6             | 58         | 2.6            | 29.4              | 2430     | 41.1    | 3.4     |
| April     | 30   | 5.9              | 52         | 3.0            | 29.4              | 2430     | 41.1    | 4.8     |
| May       | 31   | 10.9             | 49         | 3.4            | 29.4              | 2430     | 41.1    | 6.4     |
| June      | 30   | 14.9             | 47         | 3.4            | 29.4              | 2430     | 41.1    | 7.9     |
| July      | 31   | 19.7             | 38         | 3.6            | 29.4              | 2430     | 41.1    | 8.6     |
| August    | 31   | 18.9             | 38         | 3.5            | 29.4              | 2430     | 41.1    | 8.3     |
| September | 30   | 13.7             | 45         | 3.4            | 29.4              | 2430     | 41.1    | 7.0     |
| October   | 31   | 8.1              | 52         | 2.9            | 29.4              | 2430     | 41.1    | 5.6     |
| November  | 30   | 0.6              | 67         | 2.0            | 29.4              | 2430     | 41.1    | 4.2     |
| December  | 31   | -5.4             | 74         | 1.7            | 29.4              | 2430     | 41.1    | 3.0     |

|           | Kohler (1954)             |            |        |        | Meyer (1942)              |            |        |        | Brady et al. (1969)       |            |        |        | Ryan and Harleman (1973)  |            |        |        | Average         |
|-----------|---------------------------|------------|--------|--------|---------------------------|------------|--------|--------|---------------------------|------------|--------|--------|---------------------------|------------|--------|--------|-----------------|
| Month     | Qe<br>[W/m <sup>2</sup> ] | E<br>[m/s] | [cm/d] | [in]   | Qe<br>[W/m <sup>2</sup> ] | E<br>[m/s] | [cm/d] | [in]   | Qe<br>[W/m <sup>2</sup> ] | E<br>[m/s] | [cm/d] | [in]   | Qe<br>[W/m <sup>2</sup> ] | E<br>[m/s] | [cm/d] | [in]   | Average<br>[in] |
| January   | 264.1                     | 1.09E-07   | 0.37   | 11.46  | 458.4                     | 1.89E-07   | 0.64   | 19.90  | 328.3                     | 1.35E-07   | 0.46   | 14.25  | 218.3                     | 8.98E-08   | 0.31   | 9.47   | 13.77           |
| February  | 293.7                     | 1.21E-07   | 0.41   | 11.51  | 473.2                     | 1.95E-07   | 0.66   | 18.55  | 341.7                     | 1.41E-07   | 0.48   | 13.39  | 242.8                     | 9.99E-08   | 0.34   | 9.52   | 13.24           |
| March     | 372.8                     | 1.53E-07   | 0.52   | 16.18  | 516.5                     | 2.13E-07   | 0.72   | 22.41  | 388.5                     | 1.60E-07   | 0.54   | 16.86  | 308.2                     | 1.27E-07   | 0.43   | 13.37  | 17.21           |
| April     | 407.5                     | 1.68E-07   | 0.57   | 17.12  | 525.7                     | 2.16E-07   | 0.74   | 22.08  | 409.8                     | 1.69E-07   | 0.57   | 17.21  | 336.9                     | 1.39E-07   | 0.47   | 14.15  | 17.64           |
| May       | 441.5                     | 1.82E-07   | 0.62   | 19.16  | 532.8                     | 2.19E-07   | 0.75   | 23.12  | 435.1                     | 1.79E-07   | 0.61   | 18.88  | 365.0                     | 1.50E-07   | 0.51   | 15.84  | 19.25           |
| June      | 428.4                     | 1.76E-07   | 0.60   | 17.99  | 513.6                     | 2.11E-07   | 0.72   | 21.57  | 421.7                     | 1.74E-07   | 0.59   | 17.71  | 354.2                     | 1.46E-07   | 0.50   | 14.87  | 18.04           |
| July      | 440.6                     | 1.81E-07   | 0.62   | 19.12  | 514.8                     | 2.12E-07   | 0.72   | 22.34  | 432.4                     | 1.78E-07   | 0.61   | 18.76  | 364.2                     | 1.50E-07   | 0.51   | 15.81  | 19.01           |
| August    | 434.1                     | 1.79E-07   | 0.61   | 18.84  | 513.6                     | 2.11E-07   | 0.72   | 22.29  | 426.4                     | 1.76E-07   | 0.60   | 18.51  | 358.8                     | 1.48E-07   | 0.50   | 15.57  | 18.80           |
| September | 428.4                     | 1.76E-07   | 0.60   | 17.99  | 520.6                     | 2.14E-07   | 0.73   | 21.86  | 422.8                     | 1.74E-07   | 0.59   | 17.76  | 354.2                     | 1.46E-07   | 0.50   | 14.88  | 18.12           |
| October   | 381.0                     | 1.57E-07   | 0.53   | 16.54  | 504.1                     | 2.07E-07   | 0.71   | 21.88  | 387.5                     | 1.59E-07   | 0.54   | 16.82  | 315.0                     | 1.30E-07   | 0.44   | 13.67  | 17.23           |
| November  | 277.9                     | 1.14E-07   | 0.39   | 11.67  | 454.0                     | 1.87E-07   | 0.64   | 19.07  | 327.2                     | 1.35E-07   | 0.46   | 13.74  | 229.7                     | 9.45E-08   | 0.32   | 9.65   | 13.53           |
| December  | 248.8                     | 1.02E-07   | 0.35   | 10.80  | 446.6                     | 1.84E-07   | 0.63   | 19.38  | 319.3                     | 1.31E-07   | 0.45   | 13.86  | 205.7                     | 8.47E-08   | 0.29   | 8.93   | 13.24           |
|           | Total                     |            |        | 188.38 | Total                     |            |        | 254.45 | Total                     |            |        | 197.76 | Total                     |            |        | 155.73 | 199.08          |

Average evaporation from the four methods: 199.08 inches

# Monthly Evaporative Water Losses from Heated and Unheated Outdoor Pond





PRELIMINARY

## Technical Memorandum

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DATE: December 3, 2009  
TO: Idaho Department of Water Resources  
FROM: Charles G. Brockway, P.E.  
SUBJECT: Supplemental Information for Beneficial Use Report on Permit 37-8205:  
Estimation of Hypothetical Rate and Volume under Original Proposal

### **PRELIMINARY**

Application for permit 37-8205 was filed in March 1985, seeking geothermal groundwater for heating and recreational purposes in a contemplated residential and commercial development. In the original permit application, likely water uses were outlined in general without quantification. Subsequent letters from the applicant's attorneys clarified the uses and provided some degree of quantification of the uses. No actual development plan or specific information about the facilities themselves was ever submitted to IDWR, based on the information in the file.

At the mandate of the Department, the following analysis is being performed in order to estimate the peak diversion requirement and annual volume requirement for the development that was contemplated by the original permittee. Many assumptions and outright guesses must be made in order to make this hypothetical analysis. The assumptions are believed to be reasonable, but the quantities must be considered approximate. Assumptions are described below, and calculation spreadsheets are attached. The analysis assumed first-use water will be used for each component.

#### **A. Basis of evaluation:**

1. Original permit application
2. March 25, 1985 letter of addendum and clarification of uses
3. January 18, 1993 letter of clarification of uses

#### **B. Space Heating**

- 45 single-family units, each 2,000 s.f. in size, total 90,000 s.f, assume 2-story
- 115 townhouses, each 2,000 s.f. in size, total 230,000 s.f.
- 25,000 s.f. of commercial space, assume similar insulation as the residential units.
- Gym – no size or other information given. Assume weight room, 5 racquetball courts, hot tub areas, saunas, and the indoor pool described below. Estimate 15,000 s.f. total and similar insulation as the residential units.
- R-30 insulation in ceilings, R-16.5 insulation in walls. Use  $e = 0.44$  (better efficiency, but not best).

- Assume same climatic conditions and calculation approach as outlined in beneficial use report for 37-8205
- Monthly heat load analysis using 80% exceedance values for average monthly temperatures to estimate annual volume

Peak flow requirement: 3.29 cfs

Annual volume requirement: 1,020.4 ac-ft

**Alternate plan:** The 1993 clarification letter indicates that the 115 townhomes would be replaced with 10 single-family homes and related outbuildings, and private recreational pools. The 1993 letter also posits that a 3,000 s.f. size for the residences is more realistic. The size of backyard pools is unknown but a reasonable estimate would be 30'x50'. For this alternative scenario the water requirement is as follows:

|                                             |             |             |
|---------------------------------------------|-------------|-------------|
| Peak flow requirement (space heating):      | 1.87 cfs    |             |
| Peak flow requirement (backyard pools):     | 0.45 cfs    |             |
| Total                                       |             | 2.32 cfs    |
| Annual volume requirement (space heating):  | 581.1 ac-ft |             |
| Annual volume requirement (backyard pools): | 273.7 ac-ft |             |
| Total                                       |             | 854.8 ac-ft |

### C. Other Heat Uses

- Greenhouses – no size, number, or other information given
  - Assume 5,000 s.f. total.
  - No insulation on walls or ceiling – typical e-value 1.11
  - Assume same climatic conditions and calculation approach as outlined in beneficial use report for 37-8205
  - Monthly heat load analysis using 80% exceedance values for average monthly temperatures to estimate annual volume

Peak flow requirement: 0.092 cfs

Annual volume requirement: 24.5 ac-ft

- Indoor pool – no size or other information given.
  - There are many possible sizes that may have been contemplated in the original proposal. Standard competition pools are 82 ft x 160 ft, with the water maintained at 77F to 82F year-round. This seems like a reasonable assumption.
  - Assume pool room temperature is 72F and relative humidity is 95%

Peak flow requirement: 0.030 cfs

Annual volume requirement: 21.8 ac-ft (based on continuous flow)

- Snowmelting on sidewalks – no square footage or other information given.
  - Assume the sidewalks would have been located in front of the commercial units, gym, and greenhouses. With 25,000 s.f. of commercial space at an average of 1,500 s.f. per unit, there would be about 17 units, each perhaps with a storefront width of 30 feet for a total sidewalk length of about 500 feet. The gym and greenhouses add perhaps another 300 feet. 800 ft x 6 ft width gives 4,800 s.f. of snowmelting.
  - Assume same climatic conditions and calculation approach as outlined in beneficial use report for 37-8205
  - Assume 151 days per year of system activation (December-March, plus 15 days each in November and April).

Peak flow requirement: 0.10 cfs  
Annual volume requirement: 31.4 ac-ft

#### **D. Summary**

##### ORIGINAL PERMIT APPLICATION (3/25/1985 LETTER)

Total diversion rate: 3.47 CFS  
Total annual volume: 1083.9 AFA

##### ALTERNATE SCENARIO (REVISIONS IN 1/18/1993 LETTER)

Total diversion rate: 2.54 CFS  
Total annual volume: 932.5 AFA

LIMITED POWER OF ATTORNEY

KNOWN ALL MEN BY THESE PRESENT:

I, Sun Valley Land & Mineral - Donna Kelsey, President, hereby nominate and appoint Charles E. Brockway (Brockway Engineering P.L.L.C.) as my attorney-in-fact with full authority to act for and on my behalf to undertake any and all acts or matters pertaining to water right transfers before the Idaho Department of Water Resources for the following water right transactions:

All water right transactions pertaining to Sun Valley Land & Mineral

in Blaine County, Idaho. Additionally, I hereby ratify and confirm any and all such acts on matters as contemplated herein.

My agent is hereby authorized to sign, seal and deliver, as my act in deed, those said instruments of writing that may be necessary or proper to carry into execution and effect the applications, and transfers above-mentioned. Further, I hereby declare that each and every application, transfer, agreement, receipt, or payment which shall be by my said agent given, made or done for the aforesaid purposes shall be as good, valid, and effectual as if they had been signed, sealed, and delivered by me in my own proper person; and I hereby undertake at all times to ratify whatsoever my said agent shall lawfully do or cause to be done in or concerning the said premises by virtue of these present. This Limited Power of Attorney will become void upon approval, denial or withdrawal of the above referenced applications.

Dated this 6 day of April, 2006.

Donna R. Kelsey  
Signature  
\_\_\_\_\_  
Signature

State of California )

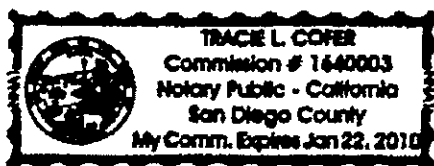
County of San Diego )

ss.

On this 6 Day of April, 2006, before me, a Notary Public in and for said County and State, personally appeared Donna Rae Kelsey, known or identified to me to be the individual whose name and subscription to the within instrument, and acknowledged to me that he executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year in this certificate first above written.

S  
E  
A  
L



Tracie L. Coker  
Notary Public  
In and for said State and County  
Jan. 22 2010  
My Commission Expires