BEFORE THE DEPARTMENT OF WATER RESOURCES

OF THE STATE OF IDAHO

IN THE MATTER OF APPLICATIONS TO APPROPRIATE WATER NOS. 65-13912, 65-13913, AND 65-13986 IN THE NAME OF CAROL LYNN MACGREGOR	)))))	**FINAL ORDER**

On April 21 and 22, 2005, and on May 4 and 5, 2005, Peter Anderson, a hearing officer appointed by the Director of the Idaho Department of Water Resources ("Director" or "Department" or "IDWR"), conducted a hearing in response to a protest filed against applications for permits to appropriate water nos. 65-13912, 65-13913, and 65-13986. On August 19, 2005, the hearing officer issued a *Recommended Decision and Order* ("Recommended Order"). Finding of Fact No. 33 stated the following:

> Dr. MacGregor did not provide sufficient details of the proposed design, construction and operation of the hot water spa and irrigation project to allow the water resource impact of the Applications to be evaluated. The primary reason for this failure is her inability to drill and test a geothermal well to determine how much geothermal water she can obtain from the proposed wells and the temperature of that water.

Recommended Order at 20.

Conclusions of Law nos. 1 through 5 of the Recommended Order stated the following:

> 1. When considering a water right application Idaho Code § 42-203A(5) provides, in part, that:
>
> > The director of the department of water resources shall find and determine from the evidence presented to what use or uses the water sought to be appropriated can be and are intended to be applied
>
> The Idaho Supreme Court has expanded on this, stating:
>
> > In all cases the plans should be sufficient to generally apprise the public of the efficacy of the proposed use in the planned facility, and of its potential impact.
>
> *Shokal v. Dunn*, 109 Idaho 330, 340 (1985).
>
> 2. In the present case Dr. MacGregor has not submitted plans sufficient to generally apprise the public of the efficacy of the proposed use and of its potential impact. This failure, in large part, results from Dr. MacGregor's inability to drill and test the aquifer near Belvidere Hot Springs. Dr. MacGregor cannot be expected to design a project, which is completely dependent upon the amount and quality of the geothermal water available to her, when she is not allowed to determine that amount and quality.

IDWR did not allow Dr. MacGregor to make this determination, largely as a result of concerns raised by the Pancheris and rejected in Finding of Fact No. 47. By not allowing Dr. MacGregor to drill and test a geothermal test well, IDWR effectively made it impossible for Dr. MacGregor to satisfy her burden of proof in this matter.

3. This matter should be remanded to Dr. MacGregor to conduct further tests and studies to determine the availability of both geothermal and cold water at her proposed points of diversion pursuant to the Director's authority under Idaho Code § 42-1805. It is in the public interest to allow this testing to go forward without granting the Applications pursuant to IDAPA 37.03.09.045.01.d

4. Water supplies are variable. A party applying for a permit is not required to show that the proposed use will never interfere with an existing water use. Occasional impacts on senior water rights are resolved by the application of the priority system. Constant unavoidable impacts, however, will prevent the issuance of a permit and/or subsequent license. IDWR determines whether there is a reasonable probability that the applicant will find sufficient water to complete the proposed water use without continuously interfering with senior water rights.

5. Upon completion of that testing an additional hearing should be held pursuant to IDAPA 37.01.01.720.02.c. in which Dr. MacGregor would submit plans detailing: 1) the precise quantity of water she intends to appropriate, the basis for that quantity, and the source; 2) the quantities to be withdrawn at each proposed point of diversion and the plans for construction of each point of diversion; 3) Dr. MacGregor's use of any overlapping or existing water rights in conjunction with the Applications; 4) actual and theoretical results from pump testing to demonstrate the impact, if any, on existing rights; and 5) Dr. MacGregor's plans for disposing of waste water from her proposed project and the impact of such disposal on the directly affected public water resource in the area.

Recommended Order at 28-30.

In his Recommended Order, the hearing officer recommended the following:

Based upon these Findings of Fact and Conclusions of Law the Applications are REMANDED to the Applicant, Dr. Carol MacGregor, for further investigation as described in Conclusion of Law Nos. 1-5. A further hearing shall be held in this matter to consider the results of such investigation

Recommended Order at 30.

Duane and Darwin Pancheri ("Pancheris") filed exceptions to the Recommended Order.

ANALYSIS

On a case-specific basis, the Department disallows or approves an application for a drilling permit for a test well and a request to pump from the test well prior to approval of an application to appropriate water. When allowed, the Department approves the drilling permits

and proposed testing pursuant to the Director's authority to explore and quantify the water resources of the State of Idaho pursuant to Idaho Code § 42-1805.

The Department denied the request of Carol MacGregor ("MacGregor") for a drilling permit for a test well on November 12, 2003. A person aggrieved by the Department's refusal to issue a drilling permit for a test well may request a hearing under Idaho Code § 42-1701A within fifteen (15) days of the refusal. MacGregor did not timely request a hearing.

In his Recommended Order, the hearing officer resurrected the issue of whether the Department should have approved the drilling permit for a test well. However, the hearing officer was charged with the responsibility of determining whether MacGregor's application satisfied the criteria contained in Idaho Code § 42-203A that the Director must analyze when considering an application to appropriate water. The hearing officer held that MacGregor did not submit sufficient evidence regarding reduction in the quantity of water available to other water rights, sufficiency of water supply, the local public interest, and perhaps whether the application to appropriate water was speculative. The hearing officer then determined that the reason for these deficiencies was that the Department did not grant the application for a drilling permit for a test well and remanded the applications for permits to appropriate water back to MacGregor for further investigation. The hearing officer erroneously held that the Department should issue the drilling permit for a test well to MacGregor so she can prospectively satisfy her burden of proof. In so ruling, the hearing officer exceeded his charge and authority, which was to consider, based on the evidence presented at the hearing, whether MacGregor's applications should be approved, approved with conditions, or denied. The hearing officer did not properly apply Idaho Code § 42-203A, and his decision remanding the applications for permits to appropriate water back to MacGregor for further investigation is vacated by this final order.

After reviewing the hearing evidence, the Director determines that the hearing officer failed to consider important evidence and did not give proper weight to evidence presented at the hearing. In addition, the Director determines that the hearing officer applied a standard of proof for the criteria required by Idaho Code § 42-203A that exceeded the requirements necessary. The following analysis examines the additional evidence and standard of proof that the hearing officer should have considered.

Pancheris' Water Rights

In order for the Department to analyze the sufficiency of the available water supply for appropriation and the potential for injury to existing water rights, the extent of the existing water rights must be examined.

Water Right No. 65-12891 (Laura and Duane Pancheri's Domicile)

Water right license no. 65-12891 authorizes diversion of low-temperature geothermal surface water from a spring complex known as Belvidere Hot Springs for heating and domestic use on property owned by Laura and Duane Pancheri at a rate of 0.44 cubic feet per second (cfs) up to an annual volume of 51.3 acre-feet. A gravity system diverts approximately 75 gallons per minute (gpm), equivalent to 0.17 cfs, for heating three homes and a shop, and also provides

water to a swimming pool. Low-temperature geothermal surface water is diverted year-round at the 75 gpm rate.

The continuous diversion of low-temperature geothermal surface water at the rate of 75 gpm equates to a volume of approximately one-third of an acre-foot per day. In approximately 155 days, or about five months of continuously diverting water at the rate of 75 gpm, diversion of low-temperature geothermal surface water to the Laura and Duane Pancheri domicile location exceeds the maximum annual volume of 51.3 acre-feet authorized by water right no. 65-12891.

Water right license no. 65-12891 contains the following condition:

> The maximum diversion volume is defined as the maximum allowable volume of water that may be diverted annually from the source under this right. The use of water confirmed by this right is limited to the amount which can actually be beneficially used. The maximum diversion volume may be adjusted to more accurately describe the beneficial use or to implement accepted standards of diversion and use efficiency.

The above condition was routinely included in water right licenses in the late 1980s and early 1990s in the event that more efficient systems would reduce the annual volume of water required to accomplish the beneficial use authorized. If a more restrictive efficiency standard than the standard in place at the time of licensing was implemented, the Department reserved the ability to reduce the upper limit on the annual diverted volume allowed based on the new efficiency standard. The Department could not have legally provided for increasing the limitation on annual diverted volume, since an increase would constitute an enlargement in use subsequent to the extent of the developed beneficial use on which the license was based. Therefore, the annual volume of water diverted under water right no. 65-12891 is limited to 51.3 acre-feet. Any volume of water diverted in excess of 51.3 acre-feet is not authorized and should be available for delivery to a junior appropriator.

Permit No. 65-13332 (Joan and Darwin Pancheri Domicile)

Joan and Darwin Pancheri hold water right permit no. 65-13332, which authorizes diversion of low-temperature geothermal surface water from the Belvidere Hot Springs to heat a home and a shop. Permit no. 65-13332 authorizes development and beneficial use of up to 0.10 cfs for heating purposes, although Joan and Darwin Pancheri divert low-temperature geothermal surface water under the permit from October to May at the rate of 17 gpm, which equates to approximately 0.04 cfs. Because the permit has not been licensed, the limitation on the annual volume of low-temperature geothermal surface water that can be diverted has not been determined.

Total Low-Temperature Geothermal Water Diverted by Pancheris

The combined total, equaling 92 gpm, of measured rate of flow diverted by Laura and Duane Pancheri (75 gpm) and Joan and Darwin Pancheri (17 gpm), or 0.21 cfs, is the maximum amount of low-temperature geothermal water that has historically been diverted.

Standard of Review

The preponderance of evidence is the standard for the burden of proof borne by an applicant. The applicant must prove it is more likely than not that the criteria of Idaho Code § 42-203A will be satisfied.

Sufficiency of Low-Temperature Geothermal Water Supply

Surface Water – Application to Appropriate Water No. 65-13912

Representatives for MacGregor and the Pancheris attempted to measure the total amount of surface water discharged through the Belvidere Hot Springs. Based on their measurements, the representatives for MacGregor and the Pancheris estimated that the springs discharge at least 150 gpm of low-temperature geothermal surface water. However, the diffuse nature of the spring flows, unmeasured underflow, and the fact that the total rate of surface water diverted by the Pancheris (92 gpm or 0.21 cfs) is significantly less than the available rate of supply, support approval for development of a flow rate of 224 gpm, or 0.50 cfs. The flow rate of 224 gpm is within the reasonable range of flow from the springs that could be fully available for appropriation after satisfying the existing water rights during at least some portions of an annual time period.

Ground Water – Application to Appropriate Water No. 65-13913

During the hearing, Jill Haizlip, an expert witness for MacGregor, testified, based on water chemistry and her experience, that Belvidere Hot Springs is a surface expression of a larger geothermal resource underlying the area of Cascade, Idaho to the north, and Cabarton, Idaho to the south. In contrast, Sherl Chapman, an expert witness for Pancheris, testified that Belvidere Hot Springs is a small, isolated, low-temperature geothermal resource. Chapman based his conclusions on his unsucessful test wells drilled south and north of Belvidere Hot Springs. The wells drilled by Chapman did not exceed a depth of three hundred feet. Three hundred feet is a relatively shallow well depth when seeking to develop low-temperature geothermal ground water.

The Director determines in this order that there is sufficient likelihood of adequate low-temperature geothermal ground water available for appropriation underlying the well locations proposed by MacGregor in the quantities sought to be appropriated.

Sufficiency of Low-Temperature Geothermal Water Supply to Accomplish the Beneficial Use

Exhibit 30 is a Department administrator's memorandum pertaining to the "Rate of Flow for Heating Use." The memorandum is dated September 8, 1980. On September 28, 1992, the Department issued a more recent administrator's memorandum addressing the subject of "Rate of Flow for Heating Use." The most recent administrator's memorandum is identified as Administrator's Memorandum No. 23. The memorandum refers to attachments titled "Method for Estimating Residential Space Heating Load" and "Method for Estimating Rates of Flow for

Geothermal Heating Systems." The attachments and the computational methods therein are "guidelines . . . intended to assist with computation of reasonable rates of flow of geothermal water for heating purposes." The guidelines "are designed to provide straightforward initial estimates for evaluation of applications for permit and are not to be used for engineering design."

Exhibit 19 is a conceptual design drawing of the spa at final build out. MacGregor testified that the spa would be built in phases. During the first phase, MacGregor would construct a 2,000 square foot lodge and soaking pool, fence and landscape the spa property, and obtain the necessary permits.

During the hearing, Terry Scanlan, an expert witness for MacGregor, testified there would be sufficient low-temperature geothermal surface water to supply the necessary water to the spa. The testimony of Terry Scanlan is interpreted as a statement that the low-temperature geothermal water is sufficient to satisfy the initial needs of the spa, at least for phase one.

MacGregor did not offer into the record any computational evidence about the exact quantities of low-temperature geothermal water needed for the first, second, or third and final phases of the project. There is evidence about the quantities of low-temperature geothermal water necessary to heat the Pancheris' dwellings and shops, and to fill the Laura and Duane Pancheri pool with suitable water for swimming. The necessary rate of flow is somewhere between 17 gpm for the Joan and Darwin Pancheri home and shop to 75 gpm for Duane Pancheri's three homes, shop, and swimming pool. The remainder of 58 gallons per minute of low-temperature geothermal water available year-round from Belvidere Hot Springs, based on measurements supporting an estimated availability of at least 150 gpm, is sufficient low-temperature geothermal water to heat a 2,000 square-foot lodge and fill a soaking pool.

At the hearing, MacGregor testified that, during phase two, she would construct an additional wing to the original lodge, a swimming pool, several individual soaking tubs, and two or three individual small buildings for overnight lodging. A comparison of the approximate size and use of water for these additional features is still within the range of flows demonstrated by the somewhat similar Pancheri use of low-temperature geothermal water.

The third phase would include another wing on the lodge, as well as up to ten more individual lodging buildings and associated amenities. The estimated size of the improvements in phase three may or may not result in use of low-temperature geothermal surface water exceeding the range of flows demonstrated by the somewhat similar Pancheri use of low-temperature geothermal water.

The ultimate design for use of low-temperature geothermal water in the buildings and associated hot water soaking pools or swimming pools must be justified by computations completed according to Administrator's Memorandum No. 23, and other engineering methodologies, to determine the temperatures and quantities of low-temperature geothermal water necessary to provide for heating of the proposed buildings and to maintain sufficient temperature and pass through of hot water to the proposed pools. These computations must be submitted to the Department for approval following the testing of wells drilled under water right permit no. 65-13913.

Injury

Impacts of Well Construction

During the hearing, Jill Haizlip and Terry Scanlan both testified that well construction at the proposed locations would not impact the discharge of Belvidere Hot Springs. Jill Haizlip's testimony was particularly convincing. She has been employed in the exploitation of low-temperature geothermal resources for at least two decades. She has extensive experience in analyzing the production capacity of geothermal aquifers associated with geothermal springs. She has observed or participated in the drilling of wells into or near geothermal spring complexes and testified that the construction has not negatively impacted spring discharge. She also testified that the possibility of negative impacts resulting from drilling near Belvidere Hot Springs is extremely remote. The testimony of Terry Scanlan corroborated her testimony.

While Sherl Chapman also has extensive experience in the development of low-temperature geothermal resources, he could only give one example of possible negative impact resulting from well construction. The example was increased turbidity in a low-temperature geothermal spring located near Challis, Idaho, attributed to drilling in close proximity to the spring. There was no evidence that the drilling resulted in any permanent reduction in spring discharge.

The Director determines in this order that construction of the proposed wells will not reduce the quantity of low-temperature geothermal water available to Pancheris.

Impacts of Production

The expert witnesses disagreed about the extent of impact that production of low-temperature geothermal ground water from the proposed wells would have on Belvidere Hot Springs. The low-temperature geothermal aquifer is under hydrogeologic pressure. The hydrogeologic pressure forces water to the surface at the location of Belvidere Hot Springs. It is possible that any increased production from the ground water source supplying Belvidere Hot Springs may reduce the surface flow of the springs. The amount of impact, if any, cannot be determined without drilling a well and testing production. Production from the proposed wells cannot be allowed to injure Pancheris' water rights on an ongoing basis.

Ground Water Considerations to Prevent Injury

Prior to diversion of water pursuant to approval of application for permit to appropriate water no. 65-13913, the Department must approve a plan for well production and spring discharge testing. The Department and Pancheris must be able to participate in the testing. Based on the results of the tests, the Department will either: (1) disallow diversion and use of low-temperature geothermal ground water under the permit; or (2) limit the diversion rate and volume of low-temperature geothermal ground water diverted by MacGregor to prevent reductions in the temperature or amount of water Pancheris are authorized to divert; or (3) require direct delivery of water from MacGregor's wells to Pancheris, at no cost to Pancheris, to

replace reductions in the temperature or quantity of low-temperature geothermal surface water diverted by Pancheris.

Surface Water Considerations to Prevent Injury

Prior to diversion of water pursuant to approval of application for permit to appropriate water no. 65-13912, the Department must approve plans and specifications for spring diversion. The plans and specifications must provide for direct delivery, at no cost to Pancheris, of low-temperature geothermal water authorized by Pancheris' water rights to replace reductions in the temperature or quantity of low-temperature geothermal surface water, if any, diverted by Pancheris.

Speculation

At the hearing, the protestants established that a change in land zoning is not approved and that an application for a change in zoning is not actively pending. Pursuit of local zoning authorization is one factor in determining whether an application is speculatively filed. A disapproval by a local governing body could justify finding that the application is speculative. However, evidence of money expended, studies completed, and measurements conducted are all evidence of good faith intent to complete the development under the water right permits. The Director determines that MacGregor has not speculatively filed her water right applications.

Local Public Interest and Conservation of Water

Idaho Code § 42-202B defines the local public interest as "the interests that the people in the area directly affected by a proposed water use have in the effects of such use on the public water resource." Idaho Code § 42-233 requires that the heat value of low-temperature geothermal ground water be beneficially used prior to the water being used for other purposes. The Director is also charged with protecting artesian pressures for low-temperature geothermal aquifers. Idaho Code § 42-226. Over diversion or waste of low-temperature geothermal water is not in the local public interest and does not conserve the water resources of the State of Idaho.

The local public interest and the ethics of conservation demand that any use of low-temperature geothermal ground water satisfy minimum standards of efficiency in extracting the heat value of the water. As a result, after drilling of wells authorized by approval of application for permit to appropriate water no. 65-13913, MacGregor must provide detailed designs for use of low-temperature geothermal water in the buildings and associated hot water soaking pools or swimming pools. The designs must be based on computations using recognized engineering methodologies that determine the temperatures and quantities of low-temperature geothermal water necessary to provide for heating the spa buildings and to maintain sufficient temperature and pass through of hot water to the proposed pools.

The Director, having reviewed the exceptions filed by the Pancheris, and the record created at the hearing, determines that MacGregor satisfied her burden of proof for applications for permits to appropriate water nos. 65-13912, 65-13913, and 65-13986, and that the applications should be approved with conditions.

PROCEDURAL HISTORY

McGregor filed three applications for permits to appropriate water, numbered by the Department as 65-13912, 65-13913, and 65-13986. MacGregor filed applications for permits to appropriate water no. 65-13912 and no. 65-13913 on August 2, 1999. Notice of the applications was published in The Long Valley Advocate on or about December 13 and 22, 1999. The Pancheris timely protested applications for permit no. 65-13912 and no. 65-13913. Pancheris protested the applications to protect their senior water rights.

MacGregor filed application for permit to appropriate water no. 65-13986 on October 25, 2000. Notice of the application was published in The Long Valley Advocate on or about December 6 and 13, 2000. Pancheris timely protested application for permit no. 65-13986 on the basis that the application, if approved, could cause injury to their existing water rights.

In January 2001, representatives for the parties began jointly measuring low-temperature geothermal water emitting and diverted from Belvidere Hot Springs. Representatives for the parties measured: (1) low-temperature geothermal water diverted by Duane and Darwin Pancheri; (2) water beneficially used at various locations by Duane and Darwin Pancheri; and (3) undiverted spring discharge collected in open channels from Belvidere Hot Springs. The measurements continued at least until February of 2005 (See Exhibit 37).

In January 2003, MacGregor submitted a proposal to the Department to construct a geothermal test well near Belvidere Hot Springs. Both MacGregor and Pancheris submitted information, respectively, in support of and in opposition to the geothermal test well proposal (*see* Applicant's Exhibit 40). On November 12, 2003, the Department denied the low-temperature geothermal test well proposal stating:

> <u>The Department will not consider approval of a drilling permit at the proposed location until the following has occurred:</u>
>
> > Application for permit # 65-13913 is approved, and a drilling permit can be considered
> >
> > OR
> >
> > An agreement to compensate for possible damages is executed by the applicant and protestant.

Exhibit 200 (emphasis in original). No evidence was submitted indicating that MacGregor requested a hearing after the Department denied her application for permit to construct a test well.

On April 21 and 22, 2005, and on May 4 and 5, 2005, the hearing officer conducted a hearing for the contested case. Exhibits offered by MacGregor and admitted as part of the record are as follows:

Exhibit 2 - Notice of Protest to Application No. 65-13912, filed in the name of Duane and Darwin Pancheri;

Exhibit 6 - Notice of Protest to Application for Permit No. 65-13986;

Exhibit 7 - Application for Permit No. 65-13978;

Exhibit 8 - Notice of Protest to Application for Permit No. 65-13978;

Exhibit 9 - Partial Decree for Water Right No. 65-01973;

Exhibit 10 - Partial Decree for Water Right No. 65-01972;

Exhibit 11 - Idaho Department of Water Resources file for Water Right No. 65-12891, specifically including

- Water Right License No. 65-12891
- Application for Amendment (For Licensing Purposes)
- Assignment of Permit
- Permit for Water Right No. 65-12891
- Application for Permit No. 65-12891
- Topographic map showing the point of diversion and place of use
- Photocopy of public notice of application for permit
- Affidavit of publication
- Inter-Department Memo dated September 15, 1998
- Handwritten notes re: new address for Darwin and Joan Pancheri
- Correspondence from Steve Lester to Darwin Pancheri dated August 17, 1998
- Correspondence from Sharla Curtis to Duane and Darwin Pancheri dated January 12, 1992
- Correspondence from Sharla Curtis to Duane and Darwin Pancheri dated October 15, 1991
- License Review checklist
- Conversation Memorandum dated August 7, 1991, by Jan Shurte detailing conversation with Duane Pancheri
- Idaho Department of Water Resources Staff Analysis Sheet for Beneficial Use Report
- Beneficial Use Field Report
- Conversation Memorandum dated October 19, 1988
- Proof of Beneficial Use Analysis Sheet
- Proof of Beneficial Use
- Permit Approval Notice
- Idaho Department of Water Resources Appropriation Application Analysis Sheet
- Correspondence from "The Advocate" regarding publication

- Conversation Memorandum dated May 15, 1989
- Conversation Memorandum dated October 19, 1988;

Exhibit 12 - Idaho Department of Water Resources file for Application for Permit No. 65-13332, specifically including

- Permit No. 65-13332
- Application for Permit No. 65-13332 (including map)
- Affidavit of Publication
- Inter-Department Memo dated September 15, 1998
- Handwritten Notes dated September 8, 1998, re: Darwin and Joan Pancheri
- Correspondence from Steve Lester to Darwin Pancheri dated August 27, 1998
- Correspondence from Nina Shields to Darwin and Joan Pancheri dated October 29, 1991
- Proof of Beneficial Use
- Analysis Sheet for Proof of Beneficial Use
- Permit Approval Notice
- Application for Permit Review Sheet
- Appropriation Application Analysis Sheet
- Conversation Memorandum dated July 1, 1991
- Beneficial Use Field Report
- Conversation Memorandum dated October 18, 1988;

Exhibit 13 - Idaho Department of Water Resources File for Permit No. 65-13458, specifically including

- Water Right Permit No. 65-13458
- Application for Permit
- Comment dated June 22, 1993, Re: Overlap
- Map
- Inter-Department Memo dated September 15, 1998
- Handwritten note
- Handwritten note re: Darwin and Joan Pancheri mailing address
- August 17, 1998 correspondence from Steve Lester to Darwin Pancheri re: Licensing
- Proof of Beneficial Use
- Beneficial Use Field Report
- Maps

- Well Inspection Form
- Analysis Sheet for Proof of Beneficial Use
- Proof Acknowledgement Letter dated September 9, 1996
- Proof Due Notice dated July 31, 1996
- Permit Approval Notice dated October 19, 1993
- Application for Permit State Office Review
- Water Right Profile Report
- Appropriation Application Analysis Sheet
- Affidavit of Publication
- Application for Permit;

Exhibit 16 - Warranty Deed from Tom Nicholson to Carol Lynn MacGregor;

Exhibit 17A - Photographs, as follows

(1) Belvidere Hot Springs and Darwin Pancheri home
(2) Belvidere Hot Springs looking northeast
(3) Belvidere Hot Springs looking east
(4) Belvidere Hot Springs looking west
(5) Outflow from Belvidere Hot Springs looking east
(6) Hottest pool in Belvidere Hot Springs looking northeast
(7) Belvidere Hot Springs looking northeast
(8) Temporary fence east of Belvidere Hot Springs
(9) Unused ditch south of Belvidere Hot Springs
(10) Moore's Creek
(11) Moore's Creek
(12) Moore's Creek
(13) Moore's Creek
(14) Moore's Creek
(15) Duane Pancheri structure
(16) Duane Pancheri water drain
(17) Duane Pancheri flow meter;

Exhibit 18 - Location Map of MacGregor Property;

Exhibit 19 - Drawing of MacGregor Project;

Exhibit 20 - Correspondence from Terry M. Scanlan to Carol Lynn MacGregor dated June 6, 2000, re: Drilling Cost Estimate for Geothermal Exploration Well;

Exhibit 21 - Financial Assurance Document;

Exhibit 22 - Agreement for Specifications and Locations for Flow Meters;

Exhibit 24 - Letter from Sherl Chapman to Scott Campbell dated May 20, 2003;

Exhibit 25 - Letter from Sherl Chapman to Scott Campbell dated October 1, 2003;

Exhibit 30 - Administrator's Memorandum dated September 8, 1980, re: Rate of Flow for Heating Use;

Exhibit 33 - Geological Report dated February 14, 2005;

Exhibit 34A - Illustrative Exhibit drawn by Jill Haizlip;

Exhibit 34B - Illustrative Exhibit drawn by Jill Haizlip;

Exhibit 37 - Correspondence from Terry M. Scanlan to Julie Klein Fischer re: Monitoring Update – Belvidere Hot Springs;

Exhibit 38 - Correspondence from Terry M. Scanlan to Jo Beeman dated July 1, 1999, Re: MacGregor – Belvidere and Raspberry Ranches;

Exhibit 40 - Correspondence from Terry M. Scanlan to Rob Whitney dated September 2, 2003, re: MacGregor Test Well Proposal;

Exhibit 42 - Illustrative Exhibit drawn by Terry Scanlan;

Exhibit 43 - St. Marie, et al., *Examination and Evaluation of Geothermal Sites in the State of Idaho with Emphasis Given to Potential for Electrical Generation or Direct Use*, Idaho Water Resources Research Institute, September 2002; and

Exhibit 45 - Correspondence from John Westra to Josephine Beeman and Scott L. Campbell dated November 12, 2003.

Exhibits offered by the Pancheris and admitted as part of the record are as follows:

Exhibit 101 - Merle W. Wells, *Heat from the Earth's Surface. Early Development of Western Geothermal Resources*, reprinted from *Journal of the West*, Vol. X, Number 1;

Exhibit 102 - Arthur A. Hart, "Idaho Yesterdays: Indians Used Warm Springs," *The Idaho Statesman*, at 12;

Exhibit 103 - N.S. Nokkentved, "Report: Water Pumping Reduces Bruneau Hot Springs," *The Times-News*;

Exhibit 104 - Charles Berenbrock, *Effects of Well Discharges on Hydraulic Heads in Spring Discharges from the Geothermal Aquifer System in the Bruneau Area, Owhyee County, Southwestern Idaho*. USGS Water-Resources Investigations Report 93-4001, Boise, Idaho;

Exhibit 105 - Will L. Burnham and Spencer H. Wood, *Field Guide Boise Geothermal System, Idaho*, 38th Annual Meeting, Rocky Mountain Section, The Geological Society of America;

Exhibit 106 - Kenneth W. Neely, *Production, Temperature and Water Level Data for the Four Heating Systems in the Boise Front Low Temperature Geothermal Resource Area, 1977-1997*, Idaho Department of Water Resources Planning and Policy Division, Technical Services Bureau, Ground Water Monitoring Section, Open File Report;

Exhibit 107 - Kenneth W. Neely, *Production History for the State of Idaho Capitol Mall Geothermal System 1983-1994*, Idaho Department of Water Resources;

Exhibit 109 - Christian R. Petrich, *Investigation of Hydrogeologic Conditions and Ground Water Flow in the Boise Front Geothermal Aquifer (Executive Summary)*, Idaho Water Resources Research Institute, Research Report IWRRI 2003-07;

Exhibit 110 - Well log notes from Clements well;

Exhibit 111 - Notes from Larry Hellhake Well No. GEO-1, Well No. 2, and Spring, Roystone Hot Springs;

Exhibit 112 - Lithologic log and temperature gradient, Well No. GEO-1, Roystone Hot Springs;

Exhibit 113 - Ground Temperature Contours, Roystone Hot Springs;

Exhibit 114 - Ken Neely, *Semi-Annual Review of the Monitoring Data for the Boise Front Geothermal System*, January – June 2003, Idaho Department of Water Resources;

Exhibit 115 - *Geothermal Resources of Utah – An Overview*, Geo-Heat Center Quarterly Bulletin, Vol. 25, No. 4, at 2;

Exhibit 116 - *Crystal Hot Springs – Salt Lake County*, Geo-Heat Center Quarterly Bulletin, Vol. 25, No. 4, at 26;

Exhibit 125 - Photograph of Duane Pancheri's shop interior;

Exhibit 126 - Photograph of back of Duane Pancheri's shop;

Exhibit 127 - Photograph of back of Duane Pancheri's shop;

Exhibit 128 - Photograph of back of Duane Pancheri's swimming pool;

Exhibit 129 - Photograph of back of Duane Pancheri's home and guest house;

Exhibit 130 - Photograph of back of Duane Pancheri's yard;

Exhibit 131 - Photograph of back of Duane Pancheri's home and guest house;

Exhibit 132 - Photograph of back of Duane Pancheri's yard;

Exhibit 133 - Photograph of lane to Duane Pancheri's homes looking west;

Exhibit 134 - Photograph of Duane Pancheri's shop;

Exhibit 135 - Photograph of Duane Pancheri's laborer's house;

Exhibit 137 - Photograph of Duane Pancheri's laborer's house;

Exhibit 138 - Photograph of discharge from Duane Pancheri's pool into creek;

Exhibit 143 - Photograph of Darwin Pancheri's shop;

Exhibit 144 - Photograph of Darwin Pancheri's home and shop;

Exhibit 145 - Photograph of Darwin Pancheri's pump sump and flow meter;

Exhibit 146 - Photograph of Darwin Pancheri's pump sump;

Exhibit 147 - Photograph of Belvidere Hot Springs on the Pancheris' Property;

Exhibit 148 - Photograph of Darwin Pancheri's pump sump;

Exhibit 149 - Photograph of sprinkler and Belvidere Hot Springs;

Exhibit 150 - Photograph of laying hot water lines under Darwin Pancheri's shop;

Exhibit 151 - Photograph of discharge from Darwin Pancheri's pump sump;

Exhibit 153 - Photograph of overflow discharge from Duane Pancheri's laborer's house;

Exhibit 154 - Photograph of discharge into Duane Pancheri's pool;

Exhibit 155 - Photograph of Belvidere Hot Springs;

Exhibit 157 - Photograph of Belvidere Hot Springs flowing east;

Exhibit 160 - Photograph of Belvidere Hot Springs discharge area near weir site; and

Exhibit 162 - Photograph of the Pancheris' and MacGregor's Property near Belvidere Hot Springs.

The Department, on its own initiative, admitted the following exhibits:

Exhibit 200 - IDWR Staff Memorandum dated January 27, 2005; and

Exhibit 201 - Applications for Extensions of Time to Avoid Forfeiture for Water Rights Nos. 65-1972 and 65-1973.

MacGregor called the following witnesses:

Duane Pancheri;

Darwin Pancheri;

Carol Lynn MacGregor;

Terry Scanlan; and

Jill Haizlip.

Pancheris called the following witnesses:

Duane Pancheri;

Darwin Pancheri; and

Sherl Chapman.

John Westra, Manager of the Western Region of the Department, also testified at the hearing. The hearing officer called Westra as a witness to testify regarding a Department staff memorandum he authored about the applications.

On August 19, 2005, the hearing officer issued *Recommended Decision and Order*. On September 6, 2005, Pancheris filed *Petition for Reconsideration*. On September 16, 2005, the hearing officer denied the petition. On September 30, 2005, Pancheris filed *Exceptions to Recommended Decision and Order*.

The Director, having reviewed the files, the testimony, and the exhibits, finds, concludes, and orders as follows:

FINDINGS OF FACT

1. Application for permit no. 65-13912 seeks to appropriate low-temperature geothermal surface water as follows:

Source -	Belvidere Hot Springs
Point of Diversion -	NESENE[1], Section 13, T13N, R3E
Use -	Heating and Commercial
Quantity -	0.50 cfs
Period of Use -	1/1 to 12/31
Place of Use -	SENE and NESE, Section 13, T13N, R3E; Lot 2 (SWNW) SENW, NESW, and Lot 3 (NWSW), Section 18, T13N, R4E.

2. Application for permit no. 65-13913 seeks to appropriate low-temperature geothermal and cold ground water as follows:

Source -	Ground water
Points of Diversion -	SENE, Section 13, T13N, R3E (up to three wells)
Use -	Heating and Commercial
Quantity -	2.0 cfs
Period of Use -	1/1 to 12/31
Place of Use -	SENE and NESE, Section 13, T13N, R3E; Lot 2 (SWNW) SENW, NESW, and Lot 3 (NWSW), Section 18, T13N, R4E.

The "remarks" section of application no. 65-13913 states that "two low-temperature geothermal wells and one cold water well are currently anticipated."

3. Application for permit no. 65-13986 seeks to appropriate ground water as follows:

Source -	Ground water
Point of Diversion -	NESE, Section 13, T13N, R3E
Use -	Irrigation of 132 acres
Quantity -	2.0 cfs
Period of Use -	4/15 to 10/31

[1] In this decision, the public land survey numeric descriptor "1/4" is assumed to follow each two alpha character public land survey locator when the numeric descriptor is missing. For instance, in this example, the full description would be the NE1/4 SE1/4 NE1/4, Section 13, Township 13 North, Range 3 East, Boise Meridian.

Place of Use - SENE and NESW, Section 13, T13N, R3E; Lot 2 (SWNW), SENW, NESW, and Lot 3 (NWSW), Section 18, T13N, R4E.

4. Application for permit no. 65-13986 states:

> This water right will be supplemental to 65-1979. The application contemplates sharing one cold water well in the SENE Sec 13 with pending application for Permit No 65-13913. Diversion rate in combination with 65-13913 will not exceed 2.00 cfs. This application also proposes using spent low-temperature geothermal fluids diverted under 65-13913 for irrigation, provided that the heat value is utilized prior to irrigation.

Water Uses Proposed by Application Nos. 65-13912, 65-13913, and 65-13986

Hot Water Spa

5. MacGregor owns approximately 1,100 acres of real property in Valley County, Idaho. The property, known as Raspberry Ranch, is a working cattle ranch managed by MacGregor.

6. A low-temperature geothermal water spring complex, known as Belvidere Hot Springs, is located partially on Raspberry Ranch and partially on property located north of Raspberry Ranch, which is owned by Joan and Darwin Pancheri. The McGregor portion of Belvidere Hot Springs is located in the SENE, Section 13, T13N, R3E and will be referred to hereafter as the "MacGregor-Belvidere Hot Springs." The MacGregor-Belvidere Hot Springs flow to the northeast across MacGregor's north property boundary and onto property owned by Joan and Darwin Pancheri.

7. MacGregor proposes to develop a hot water spa on a portion of Raspberry Ranch using water from the MacGregor-Belvidere Hot Springs (application for permit no. 65-13912). In addition, McGregor proposes to drill two wells seeking to appropriate additional low-temperature geothermal ground water and a third well to appropriate cold ground water for use in the spa (application for permit no. 65-13913).

8. After completion, the hot water spa would include a lodge, hot baths, and individual lodging units referred to as "casitas." Exhibit 19 depicts the general concept of the project.

9. The spa would be built in three phases. During the first phase, MacGregor would construct a 2,000 square-foot lodge with massage facilities, a large hot water soaking pool, a driveway, and one parking area. MacGregor would also landscape the property (bushes and trees). Approximately 30 acres of land would be fenced off. There would be no overnight guest accommodations in the first phase. MacGregor estimates the first phase of the spa project will cost $300,000.

10. During the second phase, MacGregor would construct a swimming pool, several individual soaking tubs, two or three "casitas," and an additional wing to the original lodge, with more therapy rooms, showers, linen rooms, and cleaning supply spaces. After phase two, the spa

would include approximately five bathrooms and shower rooms, and each casita would have a bathroom with a shower. MacGregor estimates the second phase of her project will cost $400,000.

11. During the third and final phase, MacGregor would construct another wing on the lodge and up to ten more "casitas," for a total of twelve, with associated amenities. MacGregor estimates the third phase of her project will cost $2.3 million. The total cost for the completed health spa is estimated to be $3.0 million.

Proposed Appropriation of Low-Temperature Geothermal Water

Low-Temperature Geothermal Surface Water

12. Application for permit no. 65-13912 proposes the diversion of 0.50 cfs of low-temperature geothermal surface water directly from the MacGregor-Belvidere Hot Springs. MacGregor proposes to construct an infiltration gallery in a west-to-east direction through the MacGregor-Belvidere Hot Springs. The infiltration gallery would collect water from the hot springs, and the water would flow from the infiltration gallery to a pump sump. Water would then be lifted by the pumps and conveyed to the hot water spa where it would be used for heating and commercial purposes.

Low-Temperature Geothermal Ground Water

13. Application for permit no. 65-13913 proposes diversion of 2.0 cfs of low-temperature geothermal ground water from two wells. Two, redundant, low-temperature geothermal wells are proposed: one 200 feet to the south of the MacGregor-Belvidere Hot Springs, and one 450 feet southeast of the MacGregor-Belvidere Hot Springs.

14. The size of the facility MacGregor is able to construct is directly dependent upon the quantity, location, and temperature of low-temperature geothermal water she is able to obtain under applications for permit no. 65-13912 and no. 65-13913.

Proposed Appropriation of Cold Ground Water

Cold Ground Water for Spa

15. In addition to the two, low-temperature geothermal wells described in Finding 13, application for permit no. 65-13913 also proposes construction of a cold water well several hundred feet southeast of the MacGregor-Belvidere Hot Springs. The low-temperature geothermal and cold ground water would be conveyed in pipes of indeterminate size to the hot water spa, where it would be used for heating and mixed for commercial purposes such as bathing. The amount of cold ground water withdrawn would depend upon the temperature of the low-temperature geothermal water diverted.

Irrigation Project

16. Application for permit no. 65-13986 received very little attention during the hearing. Although there is some indication in the record that the proposed place of use is currently dry pasture, there is also evidence in the record that water right no. 65-1979 has the same place of use as that proposed by application for permit no. 65-13986. *See* Exhibit No. 38, Figure 2 and application for permit no. 65-13986, remarks ("This water right will be supplemental to 65-01979").

17. The remarks section of application for permit no. 65-13986 also contains the following statement:

> The application contemplates sharing one cold water well in the SENE Sec 13 with pending application for permit 65-13913. Diversion rate in combination with 65-13913 will not exceed 2.0 cfs. This application also proposes using spent low-temperature geothermal fluids diverted under 65-13913 for irrigation, provided that the heat value is utilized prior to irrigation.

The configuration of the diversion works for water right permit no. 65-13986, if the associated application is approved, will be dependent upon the configuration of the diversion works proposed as part of application for permit no. 65-13913.

18. Application for permit no. 65-13986 proposes to divert 2.0 cfs of ground water from a well located approximately 2,000 feet south of the MacGregor-Belvidere Hot Springs for the irrigation of 132 acres of pasture. This quantity is within the maximum diversion rate limitation of 1.0 cfs for every 50 irrigated acres set forth in Idaho Code § 42-202(6).

Project Financing

19. MacGregor owns Raspberry Ranch without debt. In addition, she owns a ranch in Emmett Idaho, and a home in Boise, both of which are free of liens. Those properties, if mortgaged, could provide monies in excess of the total estimated cost to develop all phases of MacGregor's spa project. In addition, MacGregor derives income from other sources, primarily private investments. If needed, MacGregor could finance the full development of her spa and related water rights, at an estimated cost of $3 million. MacGregor could complete the entire hot water spa project within five years.

Existing Water Rights from Belvidere Hot Springs

MacGregor Water Rights

20. MacGregor currently holds two water rights, decreed in the Snake River Basin Adjudication, authorizing beneficial use of water from Belvidere Hot Springs. Water right no. 65-1973 is described as follows:

Priority Date -	May 1, 1901
Source -	Spring

Point of Diversion -	SENE, Section 13, T13N, R3E
Use -	Domestic
Quantity -	0.01 cfs., 13,000 gallons per day, 1.20 acre-feet per year
Season of Use -	1/1 to 12/31
Place of Use -	SENE, Section 13, T13N, R3E.

21. Water right no. 65-1972 is described as follows:

Priority Date -	May 1, 1901
Source -	Spring
Point of Diversion -	SENE, Section 13, T13N, R3E
Use -	Domestic
Quantity -	0.04 cfs., 13,000 gallons per day, 1.20 acre-feet per year
Season of Use -	1/1 to 12/31
Place of Use -	SENE, Section 13, T13N, R3E.

22. These two water rights historically were used at hot baths built directly in the McGregor-Belvidere Hot Springs, but are currently unused and subject to extensions of time to avoid forfeiture pursuant to Idaho Code § 42-222(2). Ex. 201. MacGregor's testimony about these water rights implied that the water rights would be used in the new proposed hot water spa.

Pancheri Water Rights

23. Pancheris developed water uses at two locations with water diverted from Belvidere Hot Springs. One location is a domicile owned by Joan and Darwin Pancheri. The other location is a domicile owned by Laura and Duane Pancheri.

24. Pancheris divert water from Belvidere Hot Springs for use at both locations described in Finding 23 with a single, common, buried infiltration gallery. The infiltration gallery is approximately 40 to 50 feet long and situated 25 to 50 feet north of the MacGregor-Belvidere Hot Springs. The infiltration gallery is higher in elevation than MacGregor's property.

25. The beneficial use at each domicile location is represented by a separate water right. The use at the Laura and Duane Pancheri domicile location is authorized by water right no. 65-12891 licensed to Duane and Darwin Pancheri and is summarized as follows:

Priority Date -	October 19, 1988	
Source of Water -	Spring	
Point(s) of Diversion -	NESENE and SENENE, Section 13, T13N, R3E	
Use(s) -	Heating	0.40 cfs, 47.7 acre-feet per year
	Domestic	0.04 cfs, 3.6 acre-feet per year
Total Quantity -	0.44 cfs, 51.3 acre-feet per year	
Period of Use -	January 1 – December 31	
Place of Use -	SESW, NWSE, and SWSE, Section 18, T13N, R4E.	

26. After collection in the common infiltration gallery, the water flows through pipes by gravity approximately 5,100 horizontal feet, where it heats three homes, a shop, and supplies water for a swimming pool. Water flows through this system year-round at an average rate of approximately 75 gpm (0.17 cfs).

27. Permit no. 65-13332 is held by Darwin and Joan Pancheri, and is summarized as follows:

Priority Date -	July 2, 1991
Source of Water -	Spring
Point(s) of Diversion -	NESENE and SENENE, Section 13, T13N, R3E
Use(s) -	Heating
Total Quantity -	0.10 cfs
Period of Use -	January 1 – December 31
Place of Use -	NENE, Section 13, T13N, R3E.

28. After collection in the common infiltration gallery, the water flows into a pump sump. From the pump sump, the water is pumped 600 to 800 horizontal feet to heat a home and a shop. Water flows through this system generally from mid-October to mid-May at a maximum rate of approximately 17 gpm (0.04 cfs).

29. From mid-October to mid-May, Pancheris jointly divert a maximum total flow rate of 92 gpm. During the remainder of the year, Duane Pancheri's diversion of 75 gpm is the sole diversion under the Pancheri water rights, subject to a volume limitation of 51.3 acre-feet. Subtracting the maximum water diverted by Pancheris from Belvidere Hot Springs (approximately 92 gpm) from the estimated discharge of at least 150 gpm provides an estimated undiverted discharge of at least 58 gpm (0.13 cfs) available for diversion on a continuous basis.

Water Supply

Belvidere Hot Springs and Associated Low-Temperature Geothermal Aquifer

30. Belvidere Hot Springs are located in the NESENE, Section 13, T13N, R3E. The springs discharge from multiple vents in an area of approximately one acre. Based upon measurements taken by representatives of both MacGregor and the Pancheris, the total instantaneous discharge from Belvidere Hot Springs is estimated to be at least 150 gpm. At a flow rate of 150 gpm, Belvidere Hot Springs will annually discharge 241 acre-feet of water. In addition, there are undoubtedly other unmeasured diffuse discharge locations and underflow associated with the Belvidere Hot Spring complex. The temperature of the discharged spring water ranges from 104 degrees to 121 degrees F.

31. The precise geologic structure underlying Belvidere Hot Springs and the total quantity of low-temperature geothermal water beyond the amount of water discharging from the springs is unknown. The best general description of the geology of Belvidere Hot Springs is contained in a 1976 investigation report by Monte D. Wilson, James K. Applegate, Sherl L. Chapman, and Paul R. Donaldson titled "Geothermal Investigation of the Cascade, Idaho Area."

Ex. 40 (Attachment B). This report, authored in part by Sherl Chapman, Pancheris' expert, was also used and cited by the experts for MacGregor. The following general conclusions regarding this area were reached by Wilson et al. in 1976, and continue to be generally accurate:

> 1. Water supplies in the valley are sufficient for all uses now being made. The river and stream system provides adequate water for irrigation of all agricultural land.
>
> 2. The major non-thermal aquifer is the valley fill and alluvium, and it is adequate to supply water for nearly all wells on the valley floor and future ground water development.
>
> 3. The valley fill aquifer contains a large number of artesian zones, most of which are untapped and are capable of supplying fair yields to wells.
>
> 4. The hydrologic parameters, such as the storage coefficient and transmissivity, have not been calculated because of a lack of adequate pumping well data.
>
> 5. Water quality in the cold water system is considered to be poor for domestic purposes because of the high iron and manganese content. Other constituents, however, are within acceptable limits.
>
> 6. Known thermal water occurrences in the valley are related to the geologic structure. Locations of existing hot springs are directly controlled by the presence of fault and fracture patterns.
>
> 7. Both the granitic rocks and valley fill offer potential as reservoirs for thermal water. A significant untapped thermal aquifer may exist at depth in the valley fill.
>
> 8. Quality of the present geothermal resource is good. Samples analyzed show that hot water issuing from springs and wells in the area can be utilized for nearly all uses, including irrigation of crops.
>
> 9. Recharge to both the non-thermal and thermal systems is probably meteoric in origin. Chemical differences in the water are the result of the longer time of travel and heat in the thermal reservoir.

Exhibit 40 (Attachment B at 41-42).

32. Belvidere Hot Springs are a surface expression of a larger geothermal resource underlying the area of Cascade, Idaho to the north, and Cabarton, Idaho to the south. The geothermal aquifer manifests itself with multiple, significant surface discharge points and multiple zones of discharge. The underlying, low-temperature geothermal aquifer is most likely a fault controlled lateral discharge system that discharges to the surface and also laterally into the sediments. Belvidere Hot Springs is not the sole point of discharge from this geothermal aquifer system.

33. The production capacity of the geothermal aquifer system is significantly larger than the surface manifestations of the aquifer at Belvidere Hot Springs. The "feed sources" for

low-temperature geothermal springs will nearly always produce several times more water than the quantity of water emitting from the springs at ground surface.

34. One well proposed by MacGregor would be located about 200 feet south of the nearest vent of the MacGregor-Belvidere Hot Springs. MacGregor intends to intercept a fault trending in a northeastly direction that is expected to yield low-temperature geothermal water.

35. The prior owner of the land where the MacGregor-Belvidere Hot Springs are located retained Boise State University to investigate the geophysical resistivity of lithology underlying areas surrounding the MacGregor-Belvidere Hot Springs. A report describing the resistivity test results is an attachment to Exhibit 40. Resistivity is a measure of the ability of electrical current to travel through the geologic formation. An area of low resistivity is an indicator that low-temperature geothermal water may be present. Measured low resistivity may also indicate other geologic anomalies, however.

36. The location of the second geothermal well proposed by MacGregor is approximately 450 feet from the MacGregor-Belvidere Hot Springs and is within an area of low resistivity.

37. MacGregor could conduct additional geophysical testing in an attempt to increase the probability of finding low-temperature geothermal water. However, the additional testing would be costly and would not significantly increase the probability of finding low-temperature geothermal ground water. The surest and most cost-effective method of determining the amount and temperature of the low-temperature geothermal ground water available for development by MacGregor is to drill and test a well.

Cold Ground Water

38. The parties agreed there is sufficient cold ground water underlying the proposed cold-water points of diversion to provide the cold ground water MacGregor seeks to appropriate.

Reduction of Water Under Existing Water Rights

Impact of Drilling Wells

39. MacGregor proposes to drill the low-temperature geothermal wells as depicted in Exhibit 40. In general, the wells would be bored with a mud rotary drill through the sediments and unconsolidated materials. The purpose of the mud, or "soap," is to increase the specific gravity of fluid in the drilling column to prevent collapse of the open drill hole.

40. Bentonite soil is a clay that acts as an aquatard or aquaclude to prevent the migration of water. Bentonite is often placed around the annular space of the casing of a well near the ground surface as a seal to prevent downward movements of contaminants or upward migration of artesian water around the well casing. If bentonite is diluted to the proper consistency, well drillers can also use bentonite as a drilling mud to increase the specific gravity of the drilling fluid.

41. Bentonite is not the only mud ingredient that can increase the specific gravity of the drilling fluid. There are other polymers that will increase the specific gravity of the drilling fluid that do not have the sealing property of bentonite.

42. When bentonite is used as a drilling fluid component, some of the bentonite can migrate into the water producing zones encountered while drilling. The migration of bentonite in the water bearing zones is usually minimal, however, and the bentonite fluid is largely recovered when ground water is pumped to develop the well.

43. The risk of plugging the vents and conduits conveying low-temperature geothermal water to Belvidere Hot Springs while drilling with mud, including bentonite, is minimal.

44. After the mud rotary drill bores through the surface overburden, the drill bit will strike granite. Because granite is rock, most often an open well can be drilled in granite without fluid to support the bore hole. As a result, to the extent possible, the proposed well in granite will be bored with an air rotary drill.

45. Many wells have been drilled at various locations in the United States and worldwide near or directly into geothermal spring complexes without causing damage to the vents and conduits that convey geothermal water to surface water springs.

46. The well proposed to be 200 feet away from the nearest MacGregor-Belvidere Hot Springs vent is also located 400 to 500 feet away from the portion of Belvidere Hot Springs providing water to Pancheris' common infiltration gallery.

47. Despite fears expressed by the protestants about the "violent" nature of well drilling, damage to the geologic structure allowing movement of water, referred to in the testimony as a "feed zone," will be very localized. Any damage will be further minimized because Belvidere Hot Springs most likely has multiple "feed zones."

Impacts of Production from Springs and Ground Water

48. Belvidere Hot Springs and any encountered low-temperature geothermal water will be hydraulically connected. Because the low-temperature geothermal aquifer is under pressure, any change in pressure could affect the flow of Belvidere Hot Springs.

49. Increased production from the low-temperature geothermal source may impact the quantity of water flowing at ground surface from Belvidere Hot Springs to satisfy Pancheris' water rights. The degree of impact, if any, will depend on the amount of artesian pressure in the low-temperature geothermal aquifer and whether pumping is required to produce water from the wells. If low-temperature geothermal water must be pumped from the wells, the likelihood of reducing the quantity of water flowing from Belvidere Hot Springs will increase.

Speculation

50. MacGregor dug monitoring holes equipped with standpipes in one of her pastures for purposes of determining the location and size of a septic field for the proposed spa. MacGregor, through her representative, also extensively monitored the production of and use of water from Belvidere Hot Springs to support seeking appropriations of low-temperature geothermal water. These activities demonstrate MacGregor's intent to develop the spa and the water rights required for the spa.

Local Public Interest and Conservation of Water

51. There is a public demand for use of low-temperature geothermal water for soaking and bathing. There is also a public good resulting from heating with low-temperature geothermal water.

52. Irrigation produces growing crops in the arid West. No uses conflicting with the proposed irrigation use of cold ground water were identified.

53. The local public interest is enhanced when water is used efficiently and, as a result, is conserved for other uses.

CONCLUSIONS OF LAW

1. Idaho Code § 42-203A states in pertinent part:

> In all applications whether protested or not protested, where the proposed use is such (a) that it will reduce the quantity of water under existing water rights, or (b) that the water supply itself is insufficient for the purpose for which it is sought to be appropriated, or (c) where it appears to the satisfaction of the director that such application is not made in good faith, is made for delay or speculative purposes, or (d) that the applicant has not sufficient financial resources with which to complete the work involved therein, or (e) that it will conflict with the local public interest as defined in section 42-202B, Idaho Code, or (f) that it is contrary to conservation of water resources within the state of Idaho, or (g) that it will adversely affect the local economy of the watershed or local area within which the source of water for the proposed use originates, in the case where the place of use is outside of the watershed or local area where the source of water originates; the director of the department of water resources may reject such application and refuse issuance of a permit therefor, or may partially approve and grant a permit for a smaller quantity of water than applied for, or may grant a permit upon conditions.

2. The applicant bears the ultimate burden of proof regarding all the factors set forth in Idaho Code § 42-203A.

3. The Idaho Supreme Court stated in *Shokal v. Dunn*, 109 Idaho 330, 340 (1985):

> In all cases the plans should be sufficient to generally apprise the public of the efficacy of the proposed use in the planned facility, and of its potential impact.

Injury

4. Rule 45.01.a of the Water Appropriation Rules defines reduction in "quantity of water available under an existing water right" as injury to the water right. Rule 45.01.i. states that a water right is not injured unless the "water available . . . will be reduced below the amount recorded . . . [by the water right] . . . or the historical amount beneficially used [or needed] by the water right holder under such recorded rights, whichever is less." Rule 45.01.a.iv. states that "[a]n application that would otherwise be denied because of injury to another water right may be approved upon conditions which will mitigate losses of water to the holder of an existing water right, as determined by the director."

5. Drilling of the two low-temperature geothermal wells proposed by application for permit to appropriate water no. 65-13913 will not reduce the quantity of water available to Pancheris' existing water rights.

6. Testing the production of the low-temperature geothermal wells may temporarily reduce the quantity of water available under Pancheris' water rights. The reduction, if any, will not be permanent. MacGregor must conduct the test based on a plan approved by the Department. Pancheris and the Department must have the opportunity to participate in the tests.

7. Following the production tests, the Department can prevent injury to Pancheris' water rights by: (1) disallowing diversion and use of water under the permit; or (2) limiting the diversion rate and volume of water diverted by MacGregor to prevent reductions in the amount of water Pancheris divert; or (3) requiring direct delivery of water from MacGregor's wells, at no cost to Pancheris, to replace reductions in the quantity or temperature of water diverted by Pancheris.

8. Prior to MacGregor's diversion of the surface low-temperature geothermal water from Belvidere Hot Springs, the Department must approve plans and specifications for spring diversion. The plans and specifications must provide for direct water delivery, at no cost to Pancheris, should MacGregor's surface water delivery impact the quantity or temperature of water diverted by Pancheris.

9. Diversion of cold water for irrigation proposed by application for permit no. 65-13986 and for mixing with low-temperature geothermal water by application no. 65-13913 will not injure other water rights.

Sufficiency of Water

10. There is a high likelihood of sufficient unappropriated low-temperature geothermal surface water flowing from Belvidere Hot Springs to provide approximately the 0.5 cfs of flow sought by application for permit no. 65-13912, at least when Pancheri are not diverting water. A comparison of the respective size of the developed Pancheri uses with the size of the uses proposed by MacGregor supports a conclusion that there is sufficient low-temperature geothermal surface water to supply at least two phases of the spa project.

11. Based on information presented at the hearing, sufficient unappropriated low-temperature geothermal ground water is expected to be available to complete the entire spa project at a diversion rate of 2.0 cfs as sought by application for permit no. 65-13913. Because the total use of low-temperature geothermal water must be limited by the purpose sought, the total water use at the time of licensing will be limited to the amount actually needed and beneficially used.

12. There is sufficient cold ground water for the purposes sought.

Financial Resources

13. MacGregor has sufficient financial resources to complete the project.

Speculation, Delay, and Bad Faith

14. The applications were not filed for speculation, delay, or in bad faith.

Location Public Interest and Conservation of Water

15. Idaho Code § 42-202B defines the local public interest as "the interests that the people in the area directly affected by a proposed water use have in the effects of such use on the public water resource."

16. Idaho Code § 42-233 requires that the heat value of low-temperature geothermal ground water be beneficially used prior to the water being used for other purposes.

17. Idaho Code § 42-226 states, in pertinent part:

> Prior appropriators of underground water shall be protected in the maintenance of reasonable ground water pumping levels as may be established by the director of the department of water resources as herein provided. In determining a reasonable ground water pumping level or levels, the director of the department of water resources shall consider and protect the thermal and/or artesian pressure values for low temperature geothermal resources and for geothermal resource to the extent that he determines such protection is in the public interest.

18. Over diversion or waste of low-temperature geothermal water is not in the local public interest and does not conserve the water resources of the State of Idaho.

19. The local public interest and the ethics of conservation demand that any use of low-temperature geothermal ground water satisfy minimum standards of efficiency from extraction of the heat value of the water. As a result, after drilling of wells authorized by water right permit no. 65-13913, MacGregor must provide detailed designs for use of low-temperature geothermal water in the buildings and associated hot water soaking pools or swimming pools. The designs must be based on computations using recognized engineering methodologies that determine the temperatures and quantities of low-temperature geothermal water necessary to

provide for heating the spa buildings and to maintain sufficient temperature and pass through of hot water to the proposed pools.

20. Irrigation of additional lands with cold water is in the local public interest.

21. The application is in the public interest and will conserve the waters of the State of Idaho provided that the water is used according to designs approved by the Department.

ORDER

IT IS HEREBY ORDERED that application to appropriate water no. 65-13912 is **APPROVED** with the following conditions:

1. Proof of application of water to beneficial use shall be submitted on or before **October 1, 2011.**

2. Subject to all prior water rights.

3. Use of water under this right shall be non-consumptive.

4. Use of water under this right will be regulated by a watermaster with responsibility for the distribution of water among appropriators within a water district. At the time of this approval, this water right is within Water District No. 65.

5. Any initial use of low-temperature geothermal water for commercial purposes must derive a benefit from the heat of the water prior to the water being used for a commercial purpose for which the heat of the water has no value.

6. Prior to construction of diversion works for the surface low-temperature geothermal water from Belvidere Hot Springs, the right holder must submit plans and specifications for the spring diversion to the Department, and the Department must approve the plans and specifications. The plans and specifications must provide for direct water delivery to water rights no. 65-12891 and no. 65-13332, at no cost to the holders of those rights, to replace reductions in the quantity or temperature of water historically diverted under water rights nos. 65-12891 and 65-13332 caused by diversions under permit no. 65-13912.

7. Prior to construction of the diversion works and delivery system and the diversion of water under this right, the right holder shall submit detailed designs to the Department for approval for use of low-temperature geothermal water in heating the spa buildings and associated hot water soaking pools or swimming pools. The designs must be based on computations using recognized engineering methodologies that determine the temperatures and quantities of water necessary to provide the low-temperature geothermal water for heating the spa buildings and to maintain sufficient temperature and pass through of hot water to the proposed pools.

8. Prior to the diversion and use of water under this approval, the right holder shall comply with applicable water quality permitting requirements administered by the Department of Environmental Quality.

9. Prior to diversion of water under this right, the right holder shall install and maintain a measuring device and lockable controlling works of a type acceptable to the Department as part of the diverting works.

10. Project construction shall commence within one year from the date of permit issuance and shall proceed diligently to completion unless it can be shown to the satisfaction of the Director of the Department of Water Resources that delays were due to circumstances over which the permit holder had no control.

IT IS FURTHER ORDERED that application to appropriate water no. 65-13913 is **APPROVED** with the following conditions:

1. Proof of application of water to beneficial use shall be submitted on or before **October 1, 2011.**

2. Subject to all prior water rights.

3. Project construction shall commence within one year from the date of permit issuance and shall proceed diligently to completion unless it can be shown to the satisfaction of the Director of the Department of Water Resources that delays were due to circumstances over which the permit holder had no control.

4. Use of water under this right shall be non-consumptive.

5. Any initial use of low-temperature geothermal water for commercial purposes must derive a benefit from the heat of the water prior to the water being used for a commercial purpose for which the heat of the water has no value.

6. Use of water under this right will be regulated by a watermaster with responsibility for the distribution of water among appropriators within a water district. At the time of this approval, this water right is within Water District No. 65.

7. Prior to construction of the diversion works and delivery system and the diversion of water under this right, other than for conducting the tests described in the following paragraph, the right holder shall submit detailed designs to the Department for approval for use of low-temperature geothermal water in heating the spa buildings and associated hot water soaking pools or swimming pools. The designs must be based on computations using recognized engineering methodologies that determine the temperatures and quantities of water necessary to provide the low-temperature geothermal water for heating the spa buildings and to maintain sufficient temperature and pass through of hot water to the proposed pools.

8. Prior to beneficially using water as authorized by this water right, the right holder shall propose a test to divert water from wells constructed as points of diversion described by this water right. The proposal for the diversion test must be submitted to the Department and to the holders of water rights no. 65-12891 and no. 65-13332 prior to the test. The proposed test must be capable of determining the impact to surface water flow from Belvidere Hot Springs resulting from the diversion of low-temperature geothermal ground water authorized by this water right. The Department must approve the proposed test. The water right holder shall include the Department and the holders of water rights no. 65-12891 and no. 65-13332 as participants in the test to the extent participation is desired by the Department and the holders of water rights no. 65-12891 and no. 65-13332.

9. Following completion of the diversion tests and analysis of the test data, the Department will act on one of the following alternatives: (1) disallow diversion and use of water under the permit; or (2) limit the diversion rate and volume of water diverted by the right holder to prevent reductions in the amount of water historically diverted as authorized by water right nos. 65-12891 and 65-13332; or (3) require direct delivery of water from the right holder's wells, at no cost to the holders of water rights no. 65-12891 and no. 65-13332, to replace reductions in the quantity or temperature of water historically diverted by the holders of rights no. 65-12891 and no. 65-13332 caused by diversions under permit no. 65-13913.

10. Prior to the diversion and use of water under this approval, the right holder shall comply with applicable water quality permitting requirements administered by the Department of Environmental Quality.

11. The right holder shall comply with the drilling permit requirements of Section 42-235, Idaho Code and applicable Well Construction Rules of the Department.

12. After specific notification by the Department, the right holder shall install one or more totalizing flow meters to record the amount of water diverted and shall annually report the amounts of water diverted to the Department as directed.

IT IS FURTHER ORDERED that application to appropriate water no. 65-13986 is **APPROVED** with the following conditions:

1. Proof of application of water to beneficial use shall be submitted on or before **October 1, 2011.**

2. Project construction shall commence within one year from the date of permit issuance and shall proceed diligently to completion unless it can be shown to the satisfaction of the Director of the Department of Water Resources that delays were due to circumstances over which the permit holder had no control.

3. The right holder shall comply with the drilling permit requirements of Section 42-235, Idaho Code and applicable Well Construction Rules of the Department.

4. Diversion and use of water with a temperature greater than 85 degrees Fahrenheit is not authorized under this right.

5. This right when combined with all other rights shall provide no more than 0.02 cfs per acre nor more than 3.0 acre-feet annually per acre at the field headgate for irrigation of the lands authorized.

6. After specific notification by the Department, the right holder shall install a totalizing flow meter to measure the amount of water diverted and shall annually report the amount of water diverted to the Department as directed.

7. The Director retains jurisdiction to require the right holder to provide purchased or leased natural flow or stored water to offset depletion of Lower Snake River flows if needed for salmon migration purposes. The amount of water required to be released into the Snake River or a tributary, if needed for this purpose, will be determined by the Director based upon the reduction in flow caused by the use of water pursuant to this permit.

DATED this 4th day of October 2006.

KARL J. DREHER
Director

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on this 4th day of October, 2006, I mailed a true and correct copy of the foregoing **FINAL ORDER** on the following persons listed below by U.S. mail, postage prepaid and addressed as follows:

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Victoria Wigle

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