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BEFORE THE DEPARTMENT
OF NATURAL RESOURCES AND CONSERVATION
OF THE STATE OF MONTANA

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IN THE MATTER OF THE APPLICATION)
FOR BENEFICIAL WATER USE PERMIT) FINAL ORDER
NO. 42666-g41F BY RICHARD MACMILLAN)

* * * * *

The time period for filing exceptions to the Hearing Examiner's Proposal for Decision has expired. Timely exceptions were received from Objectors William and Helen Thexton. For the reasons stated below, and after having given the objections full consideration, the Department accepts and adopts the Findings of Fact and Conclusions of Law of the Hearing Examiner as contained in the February 28, 1986 Revised Proposal for Decision except as expressly modified herein, and incorporates them herein by reference.

NOTICE OF ERRATUM

The volume amount granted to the Applicant in the July 20, 1984 Final Order in this matter was amended in the February 28, 1986 Revised Proposal for Decision to reflect the amended flow rate which has been granted. Due to typographic error, the amended volume incorrectly appeared in the Revised Proposal as "784.43 acre-feet", instead of 748.43 acre-feet. The Department hereby corrects the transposition and issues the Final Order with the correct figure. See Final Order, p. 22.

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RESPONSES TO EXCEPTIONS

The Department hereby responds to the exceptions made by the Objectors to the Proposal for Decision in this matter.

Objectors' Exception 1: The Objectors except to Department's "apparent determination of" the Objectors' water rights in Conclusion of Law 6. The Objectors contend that the Department does not have the power to determine the extent of the Objectors' prior rights, since these rights "have been filed and are of record and a determination by the Department is out of the scope of its jurisdiction."

As Conclusion of Law 6 discusses, the Department is not purporting to make a final determination on the extent of the Objectors' water use rights. Final determination of the extent and ownership of water rights which vested prior to 1973 is solely within the province of the water court (MCA Title 3, Part 7, Chapter 5) and its adjudication system, as set forth in MCA Title 85, Part 2, Chapter 2. Rather, the Department has reviewed the Objectors' water rights for the purpose of making a determination on water availability.

Since an appropriator does not obtain any rights through grant of a provisional permit which are not contingent upon final determination of existing rights, the Department is not usurping the water court's jurisdiction by making preliminary administrative findings on existing rights, in this case for the purpose of determining the amount of water available for appropriation, in the process of performing its mandated function of granting or denying beneficial water use permits.

It has been stated with reference to the authority of the state government, ". . . No powers will be implied other than those necessary for effective exercise and discharge of the powers and duties expressly conferred." State ex rel. Dragstedt v. State Board of Education, 103 Mont. 336, 338 (1936). See also Guillot v. State Highway Commission, 102 Mont. 149 (1936).

Conversely, however, the Department does have the implied powers necessary for its "effective exercise and discharge of the powers and duties expressly conferred." Id. Since the Department is charged with a statutory duty to administer the Water Use Act and has been delegated the power to issue water use permits, it follows that the Department is empowered to make such initial determinations on extent of prior appropriations as are needed to allow it to reach the decisions on adverse affect and water availability required by MCA § 85-2-311.

In the present matter, total withdrawals from the geothermal aquifer which is the source for uses by the Objectors and proposed uses by the Applicant have been limited to 500 gpm, on the basis of the scientific information currently available on the aquifer.¹ The Applicant's requested appropriation exceeds

¹ There appears to be water available to the full amount the Applicant has requested, MCA § 85-2-311(a)(ii). However, on the basis of expert testimony, withdrawals have been limited to the probable maximum sustained yield of the aquifer. See May 4, 1984 Proposal for Decision, Findings of Fact 15, 16, and 20, Conclusion of Law 12; February 28, 1986 Revised Proposal for Decision, Finding of Fact 4.

this figure. Therefore, in order to determine how much of the Applicant's requested amount can be granted, it is necessary to determine the extent of senior appropriation needs out of the total available water.

It is the Objectors' contention that the Department must accept the Objectors' water rights as filed and permitted. The Objectors argue that their rights are protected by Article IX, Section 3(1) of the 1972 Constitution, and by their filing of a Statement of Claim for Existing Water Rights (SB76) in the ongoing adjudication process.

Article IX, Section 3(1) of the Montana Constitution states, "All existing rights to the use of any waters for any useful or beneficial purpose are hereby recognized and confirmed." Since the Objectors' use of the hot springs was in existence at the time the Constitution was enacted, they argue that such use rights are protected. However, the Department has never challenged the existence of the Objectors' claimed use right. The record clearly indicates that the Objectors have made varying uses of their claimed right for a great number of years. July 20, 1984 Final Order, Response to Applicant's Exception 3.

If the Objectors are contending that the Constitution protects their use right as they claim it to be, obviously such an argument is refuted by the ongoing adjudication process: claims of existing rights are afforded only prima facie status (MCA § 85-2-227), and may be challenged through the objection

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and hearing process. See MCA Title 85, Chapter 2, Part 2.

Clearly no objection or hearing processes would be necessary if the rights were automatically protected as claimed.

The Objectors further contend that their use rights must be recognized as claimed because they have been filed in accordance with the adjudication process and granted as claimed in the temporary preliminary decree. However, their SB76 Claim constitutes only prima facie evidence of its content, and this status is not altered until issuance of the final decree. See MCA § 85-2-227. Prima facie evidence can be contradicted and overcome by other evidence. MCA § 26-1-102(6) (1985). See Marshall v. Minischmidt, 148 Mont. 263, 419 P.2d 186 (1966) and See Vidal v. Kensler, 100 Mont. 592, 51 P.2d 235 (1935). As the Department has previously stated:

The filings under SB76 are not terribly dissimilar to those required to invoke the doctrine of relation back under pre-1973 statutory law. Such notices were also prima facie, yet their introduction into evidence did not discharge a party's burden of proof of the extent of the right. . . . The Department cannot accept carte blanche statements made in notices of appropriation and SB76 filings based exclusively thereon, when the overwhelming weight of the evidence in the record is clearly to the contrary.

In the Matter of the Application for Beneficial Water Use Permit No. 51282-s410 and Application for Change of Appropriation Water Right No. G139972-410 by Ben Lund Farms, Inc., November 8, 1984 Proposal for Decision (Final Order, January 21, 1985).

In the present matter, the Objectors' testimony repeatedly contradicted their own SB76 Claim for the hot springs. For example, their testimony clearly indicates that their hot pool has never been developed as a commercial enterprise, even though their SB76 Claim claimed commercial pre-1973 uses. See July 20, 1984 Final Order, Response to Applicant's Exception 4; February 28, 1986 Revised Proposal for Decision, Finding of Fact 10. The claimed use is for a hot pool, but the Objectors' primary use of the water has been for sewage treatment. See July 20, 1984 Final Order, Footnote 1; February 26, 1986 Revised Proposal for Decision, Finding of Fact 10. Since these facts are not relevant except to the validity of the Objectors' SB76 Claim, a fact which the Department agrees cannot be decided in this forum, the Department has forborne from addressing them. See February 28, 1986 Proposal for Decision, footnote 1.

However, of importance to the present matter, the Objectors also testified to patterns of water use which depart significantly from their SB76 Claim. The claimed flow rate is 40 gpm, but testimony and data makes it clear that the Objectors have not been getting this flow rate for many years, and subsequently have developed a pattern of using much less flow. See February 28, 1986 Revised Proposal for Decision, Finding of Fact 7.

Additionally, the Objectors have testified that they use the water all the time (in fact, that is one of the bases of their present appeal), whereas a comparison of the SB76 claimed flow rate with the claimed volume clearly indicates part-time use. (At the claimed flow-rate of 40 gpm, the claimed 10 acre-feet volume

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will be reached after 1,358 hours, or 56½ days of constant use. See July 20, 1984 Final Order, Response to Applicant's Exception 3.) The Objectors cannot have it both ways. Either they are using the claimed 40 gpm part-time or they are using a lesser flow full time, up to the claimed volume.

In the face of the conflicting evidence, the Department has chosen to proceed on the basis of testimony for purposes of making its determination here, since the testimony is internally consistent regarding the Objectors' uses of water, and since it includes actual flow data. In addition, the Objectors' method of operation, as viewed at the site visit preceding the February 28, 1986 portion of the hearing, supports the testimony concerning the Objectors' patterns of use.

The testimony of the Objectors and of the expert witnesses, as well as the site visit, indicate that the Objectors use the flow from the hot springs constantly, and that there is no way to shut off the spring flow. Since the Department's July 20, 1984 Final Order was based on the understanding that the Objectors made part-time use of the springs and could shut off the flow completely, the portion of the decision based on this incomplete information was revised and allowance was made for full time use by the Objectors. Compare July 10, 1984 Final Order, Response to Applicant's Exception 3; February 28, 1986 Revised Proposal for Decision, Conclusion of Law 7.

However, the Objectors contend that they are entitled to their full claimed flow rate of 40 gpm, as well as to full time use. The Objectors point out that the Department protected the full

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amount of their SB76 Claim and of their Certificate of Water Right prior to the Revised Proposal for Decision. This is correct. However, the decision to protect 70 gpm was based on the information available at the time, which since has been clarified by the additional evidence presented at the February 6 and 7, 1986 portion of the hearing, just as the full time use was clarified.

The complete record makes it clear that the Objectors are not now using 40 gpm from the hot springs, nor have they done so in the recent past. The last known recording of a 40 gpm flow rate was in 1962 or 1963. Since then, the amount of water coming from the springs has been decreasing, whether from natural causes or from the Objectors' own increased use of the geothermal aquifer is not known. See February 28, 1986 Revised Proposal for Decision, Findings of Fact 7 and 8, Conclusion of Law 14.

Working on the basis of an attempt to maximize beneficial use of the geothermal aquifer (see MCA 85-2-101(3)), the Department has determined that the Applicant should be entitled to make use of the water not being used by the Objectors. This amount includes those portions of flow which the record indicates that the Objectors are not now, and have not been, using. This determination has been made only for the purpose of quantifying the Applicant's right and ensuring that the Objectors' actual uses can be met.

Contrary to the Objectors' contentions, the Department has not made a determination that a portion of the Objectors' rights has been abandoned. There is no statement in the February 28, 1986

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Revised Proposal for Decision which suggests that the Objectors are not entitled to make full use of their Claim and Certificate rights.

What the Department has stated is that the Applicant should be able to use the water in the absence of use by the Objectors: the Objectors should not be entitled to play dog in the manger because they hope to be able to use the additional flow at some unknown point in the future. The Objectors' own testimony makes it clear that they have been planning to develop the springs for the last 50 or so years, but that the development so far has failed to materialize.

As the Revised Proposal indicates, the Objectors have protection for the incremental amount of flow in the priority system. At such time as they use 40 gpm from the hot springs, or 30 gpm from their laundry well, they are entitled to "call" the Applicant for the additional flow.² The Applicant should only be required to protect the Objectors' actual uses, however, so until such time as the Objectors make further use of their Claim or Certificate rights, he is entitled to use the 464 gpm flow granted to him in the Revised Proposal for Decision.

² According to the Objectors' testimony, they might develop the hot springs so that they can get a flow rate of 40 gpm. If they wish to proceed with their improvements, acting on the assumption that their SB76 Claim will not be modified at final decree, they are entitled to do so. However, any development made on the basis of their SB76 Claim will also have to meet the other parameters of the right as claimed, including that of limiting total appropriations to their claimed 10 acre-feet volume.

Objectors' Exception 2: The Objectors except to the statement in Conclusion of Law 7 that the flow rate of the hot springs has been declining. The exception states, "There is no evidence that the 40 gallons per minute is not available at the point of diversion, even though it may not be flowing at 40 gpm in its present state."

The Objectors are confusing flow rate with water availability. There is substantial evidence in the record to indicate that the flow rate of the springs--that is, the surface manifestation of the geothermal aquifer--has been declining. (See Finding of Fact 7.) As the Proposal for Decision clearly indicates, this does not mean that the water is not present at the location, only that, for whatever reason, less of it is emerging through the hot springs outlet. (See Finding of Fact 8.)

Objectors' Exception 3: The Objectors except to the Hearing Examiner's "determination . . . that the maximum flow rate of the 'laundry well' should be reduced to 16 gpm" (Conclusion of Law 9.) The Objectors state that the Department can modify or revoke the Permit only as provided in MCA § 85-2-314, after giving the Objectors notice and a chance to respond.

Conclusion of Law 9 does not state that the Department is determining through this matter that the flow rate of the laundry well should be reduced to 16 gpm. Rather, it states that the record shows the maximum flow rate which the Objectors have been using is 16 gpm.

The Objectors argue that the fact that the laundry well is not being protected to the "full extent of its permitted quantity" as a practical matter amounts to modification of the Permit. However, as discussed supra in response to Objectors' Exception 1, the 16 gpm figure is being used for the purpose of determining the maximum flow rate to grant the Applicant while ensuring the Objectors can continue their pattern of use. If the Objectors begin utilizing the full amount of their senior rights, they are entitled, as senior appropriators, to call the Applicant for the additional gpm providing that they have ceased using those of their own rights which are from the geothermal aquifer but junior in priority to the Applicant.

Objectors' Exception 4: The Objectors except to the Conclusion of Law 10 that 464 gpm is available for appropriation by the Applicant, on the basis that the Conclusion does not recognize the "70 gpm senior right of the Objectors."

Response to this Exception is made in the Response to Objectors' Exception 1.

Objectors' Exception 5: The Objectors except to Conclusion of Law 11, specifically the portion which concludes that the laundry well would not be adversely affected, despite the probable loss of water temperature. The exception states, ". . . Since there is no determination as to how much the temperature would drop, the record does not support the conclusion that the laundry well would not be damaged."

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It is true that there is no evidence which indicates exactly how much the temperature may drop in the laundry well. In fact, the record in this matter indicates that very little is known with any degree of certainty about any aspect of the geothermal aquifer in question. The usual difficulty encountered in attempts to define the characteristics of an underground aquifer, that it is impossible to tell with any degree of certainty exactly what lies below the ground, here is enhanced by the fact that the aquifer in question is geothermal water which has its own set of unexplored characteristics.

Hydrology, especially when dealing with groundwater, is not an exact science, nor is it always possible to accurately project the effects and interactions that a proposed appropriation will create. Obviously, if the Department was required to achieve absolute certainty concerning the existence of permit criteria and the absence of adverse affect, no water permits would ever be issued. The Department therefore cannot deal in certainties, but must rely on the best available information to determine whether there is substantial credible evidence that the criteria for issuance of a permit will be met. See MCA § 85-2-311 (1985). See generally Worden v. Alexander, 108 Mont. 208, 90 P.2d 160 (1939).

In the present matter, the Department has looked at the scientific tests, hypotheses, and projections presented on the record, and has attempted to evaluate the foreseeable effects of the Applicant's proposed project. On the issue of possible temperature loss in the laundry well, the record shows testimony

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by Dr. Sonderegger that there would be "some" temperature loss over a long period of time, and testimony by Dr. Juncal that the well level and temperature would have to decline substantially before there would be an impact on the Objectors' uses.

(See Findings of Fact 13 and 14.) This testimony is substantiated by the limited number of temperature readings available (See May 4, 1984 Proposal for Decision, Finding of Fact 11). No contradictory evidence was presented by the Objectors' expert witness.

Therefore, there is substantial credible evidence in the record to support a conclusion that the Objectors' laundry well temperature will not be adversely affected. (See also MCA § 85-2-401, which states in part, "priority of appropriation does not include the right to prevent changes by later appropriators in the condition of water occurrence . . . if the prior appropriator can reasonably exercise his water right under the changed conditions.")

Objectors' Exception 6: The Objectors except to Conclusion of Law 12, on the basis that the right to a particular means of diversion is protected.

Among other case law, the Objectors cite Cate v. Hargrove, 41 State Rep. 697, 680 P.2d 952 (1984), for the language that junior appropriators take their rights "with constructive notice of the conditions existing at the time of their appropriations." At 700. However, a review of Cate shows that the cited language is used in the context of imposing constructive notice on junior appropriators of the existence of

senior water rights, not on the means of diversion of those rights. When the Court does discuss means of diversion in Cate, it states, "We will not impose upon a downstream senior appropriator an affirmative duty to maintain a dam and headgate for the benefit of upstream junior water users. If there had been a finding that operation of the dam injured appellants' interests, our decision might be otherwise." (Emphasis added.) Cate at 702.

The Objectors also cite State ex rel. Crowley v. District Court, 108 Mont. 89, 88 P.2d 23 (1939) for the proposition that an appropriator's means of diversion must be protected, and that subsequent appropriators are chargeable with "knowledge of the . . . existing diversion systems of prior appropriators." Crowley at 97.

In Crowley, the Court found the diversion in question to be a reasonable one, and therefore protected. However, the issue in Crowley was whether absolute efficiency was required of a means of diversion, or only reasonable efficiency, and the Court based its decision that the prior appropriator's means of diversion was protected on a finding that the means of diversion were reasonably efficient.

Crowley is replete with language indicating that an appropriator is required to employ "reasonably economical means, so as to prevent unnecessary waste." Crowley at 103.

(Citations omitted.) The Court cites language from Doherty v. Pratt which says:

The rule as to reasonable and economical use of the water applies as well to methods of diversion . . . An appropriator has no right to run water into a swamp and cause the loss of two-thirds of a stream simply because he is following the lines of least resistance. Such a method of diversion would not be an economical use of the water providing another reasonable method, under all the circumstances, could be devised to avoid such loss, even though it occasioned some additional expense to the appropriator. It is as much the province and duty of the trial court to determine whether the means adopted for diversion are reasonable and economical under all the facts of the case as it is to determine the amount of water required by the appropriator at the place of use. (Emphasis added.)

Crowley at 103-104.

As discussed in the February 28, 1986 Revised Proposal for Decision, several recent cases have found that priority of appropriation does not give the appropriator a right to retain an inefficient, wasteful means of diversion. See Conclusion of Law 14. In a recent Montana case, Department of Natural Resources and Conservation v. Crumpled Horn, presiding Judge W.W. Lessley emphasized the state's policy of maximizing the use of state waters, and wrote, ". . . There are limits; prior is not prior in the absolute sense that the most inefficient means of diversion will receive absolute autonomy. The word 'reasonable' is the benchmark of all water controversies." (May 16, 1978 Memorandum to Crumpled Horn.)

The Department has reviewed the facts in this matter and has found, for the purposes of determining whether water is available in the source for use by the Applicant, that the Objectors' means

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of diversion (or lack thereof) from the springs is not reasonable. See February 28, 1986 Revised Proposal for Decision, Conclusion of Law 14.

The Objectors have raised secondary issues in Exception 6, dealing with disrepair of the means of diversion and with the Objectors' right to change their point of diversion.

The Objectors cite Osnes Livestock Co. v. Warren, St. Onge v. Blakely, and Bailey v. Tintinger (citations omitted) to support their contention that a water user doesn't lose a water right or portion thereof "merely because the means of diversion are in disrepair or while the owners are suffering some disabilities." It is not necessary to reach this issue here (see Response to Objectors' Exception 1).

However, the Department notes, for the purpose of making a fuller response, that the most recent case discussing abandonment, 79 Ranch, Inc. v. Pitsch, 40 State Rep. 981, 666 P.2d 215 (1983), indicates that a lengthy period of nonuse will raise a rebuttable presumption of abandonment, and states, "To rebut the presumption of abandonment, there must be established some fact or condition excusing long periods of nonuse, not merely expressions of desire or hope." Pitsch at 985. See also Goon v. Proctor, 27 Mont. 526 (1903). In the present matter, the Objectors have failed to use a portion of their water rights for many years. While the Department cannot say that the Objectors have abandoned that portion of their rights, the fact does provide substantial credible evidence that the water is available for use by the Applicant.

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The Objectors also contend that they should have the right to obtain water by using a reasonable means of diversion, and to change their point of diversion by complying with the criteria of MCA § 85-2-402. No response is necessary, since the Objectors have the legal right to do either or both as long as they comply with the statutory requirements of the Montana Water Use Act (MCA Title 85). See generally Castillo v. Kunneman, 197 Mont. 190 (1982).

Objectors' Exception 7: The Objectors except to Conclusion of Law 13 "which indicates that the objectors' (sic) can reasonably use their water rights under the changed conditions." Conclusion of Law 13 does not come to that conclusion, but rather discusses interpretation of the statutory language of MCA § 85-2-401.

Exception 7 continues, "It is clear that continued pumping as proposed by applicant, will adversely affect the prior existing rights of the Thextons." However, the record in this matter does not support this contention. As discussed in both the initial Proposal for Decision and the Revised Proposal for Decision, there is substantial credible evidence that the Applicant's proposed project will not adversely affect the water rights of the Objectors. (See May 3, 1984 Proposal for Decision, Conclusion of Law 11; February 28, 1986 Revised Proposal for Decision, Conclusions of Law 11 and 12.)

The record shows that the Objectors' means of diversion may be affected; however, as discussed supra, an unreasonable means of diversion is not a right which the Objectors are entitled to protect.

An additional issue raised in Objectors' Exception 7, as well as being mentioned in other of the exceptions, is the Objectors' contention that they have no obligation to expend funds to improve their means of diversion, since the cost of any change in their means of diversion should be borne by the Applicant. To support this contention, the Objectors cite language from Salt Lake City v. Gardner, 39 Utah 30, 114 P. 147 as quoted in Crowley, supra, which suggests that the cost of any change must fall on "the subsequent appropriator."

Whether or not this view was ever the prevailing one in Montana is placed in some doubt by the other language in Crowley, and by the previously quoted language from Doherty v. Pratt which suggests that an appropriator must make reasonable and economical use of water, if possible, even though changing to a reasonable diversion method might occasion "some additional expense" to the appropriator.

More recently, certainly, courts have used a balancing approach, taking into account such factors as the reasonableness of the existing means of diversion, the cost of replacing it, the reasonable "economic reach" of the parties, and the necessity of maximizing beneficial use of the water. City of Colorado Springs v. Bender, Alamosa-La Jara Water Users Protection Association v. Gould, Doherty v. Pratt, Wayman v. Murray City Corporation. (Citations at Conclusion of Law 14, February 28, 1986 Revised Proposal for Decision.) See also Crumpled Horn, supra, wherein the court denied recovery for adverse affect on the basis that

the diversion structure (well) was fully depreciated. (May 17, 1978 Interlocutory Findings of Fact and Conclusions of Law, Finding of Fact 6.)

In the present matter, the record indicates that the Objectors should be able to install a reasonable means of diversion without much additional expense. (See Finding of Fact 8, Conclusion of Law 15.) However, most likely this question will only arise if the Objectors find themselves unable to obtain their senior water rights. In such a situation, the Objectors would have to install a reasonable means of diversion prior to any action being taken against the Applicant (or, in the alternative, prove that they would not be able to obtain their senior water right in whole or in part even through a reasonable means of diversion). See February 28, 1986 Revised Proposal for Decision, Conclusion of Law 15.

Objectors' Exception 8: The Objectors except to Conclusion of Law 14. That portion of the exception based on the issues raised in Objectors' Exception 6 has been adequately discussed in the Response to Exception 6. The Objectors additionally take exception to "the conclusion that the court require the applicant to share the expense." The Objectors argue that the Department has the authority to require the Applicant to pay the expenses of providing the Objectors with a reasonable means of diversion, and that it should do so.

To be accurate, expense-sharing is discussed in Conclusion of Law 15, not 14, and the discussion does not conclude that the court will require the Applicant to share the expense. Rather,

it states that such an outcome is one possible result of a determination made on the basis of balancing different elements of the specific fact situation.

The Department can require an Applicant to pay certain costs to ensure that a prior appropriator will not be adversely affected, and has done so in the past. See In the Matter of the Application for Beneficial Water Use Permit No. 25170-q41B by East Bench Grain and Machinery, Inc., Proposal for Decision, April 22, 1982 (Final Order, March 28, 1983), wherein the Department required the applicant for a new use permit to pay the cost of deepening the well of a senior appropriator who otherwise would be adversely affected.

However, this condition was based on a specific finding that the senior appropriator's means of diversion was reasonable. See East Bench, Conclusion of Law 7. In the present matter, there has been a specific finding that the senior appropriator's means of diversion is not reasonable. See February 28, 1986 Revised Proposal for Decision, Conclusion of Law 14; Response to Objectors' Exception 6, supra. The case of Boz-Lew Builders v. Smith, 174, Mont. 448 (1977), cited by the Objectors, also deals with harm caused to a reasonable means of diversion, and therefore is not applicable when discussing cost allocation in the present matter.

It is premature for the Department to require the Applicant to provide the Objectors with a new means of diversion at this point in time, since there is no way of knowing if, or to what extent, the Objectors' means of diversion may be affected. The

Objectors clearly would have to cease their own junior uses of geothermal water before any determination that the Applicant's appropriation was affecting the Objectors' diversions could be made. Information on whatever specific fact situation may arise is needed before any protective permit condition can be designed and implemented, or any cost allocation can be made.

The Objectors have taken exception to the alternative discussed at the February 1986 hearing, that the Applicant would provide water to the Objectors (February 28, 1986 Revised Proposal for Decision, Finding of Fact 11 and Permit Condition 6), on the basis that "whether the parties can interact in this fashion is certainly in question at this point." Therefore, Permit Condition 6 has been removed from the Final Order in this matter.

It is possible that costs may be imposed upon the Applicant in the event that the Objectors are unable to obtain their senior water rights by means of a reasonable means of diversion. This could be done as a modification to the Permit, or conceivably as part of a private contractual agreement, depending upon the fact situation. See MCA § 85-2-314 (1985).

Based upon the Findings of Fact and Conclusions of Law, and all files and records in this matter, the Department makes the following:

FINAL ORDER

Subject to the terms, conditions, restrictions, and limitations specified below, Application for Beneficial Water Use Permit No. 42666-g41F is hereby granted to Richard MacMillan to

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appropriate 464 gpm up to 748.43 acre-feet per year, for power generation, heating, and greenhouse use in the NE $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 28, Township 5 South, Range 1 West, Madison County, Montana. The source of supply is a geothermal groundwater aquifer, to be diverted by means of a pump from a well located in the NE $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 28, Township 5 South, Range 1 West, Madison County, Montana. The period of use is January 1 to December 31, inclusive, of each year. The priority date of this Permit shall be March 17, 1982 at 2:30 p.m.

This Permit is issued subject to the following express terms, conditions, restrictions and limitations:

1. This Permit is subject to all prior existing water rights in the source of supply, and to any final determination of such rights as provided by Montana law.

2. The Permittee shall not withdraw more water than is reasonably required for the purposes described herein. At all times when the water is not reasonably required for these purposes, the Permittee shall allow the waters to remain in the source of supply.

3. Nothing herein shall be construed to affect or reduce the Permittee's liability for damages which may be caused by the exercise of this Permit, nor does the Department, in issuing this Permit, acknowledge any liability for damages caused by the exercise of this Permit, even if such damage is a necessary and unavoidable consequence of the same.

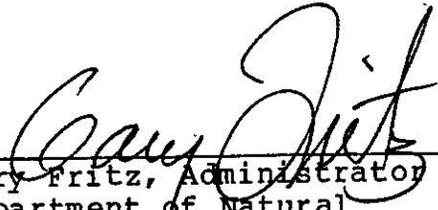
4. The Permittee shall monitor and keep a written record of the flow rate, volume, and pressure of all waters withdrawn, and shall submit these records to the Department upon request.

5. The Permittee shall avoid thermal pollution of other waters caused by surface discharge of geothermal water, and to this end shall comply with all applicable state discharge laws and requirements. The Permit is subject to MCA § 85-2-505, which requires that all wells be constructed so that they do not allow water to be wasted or to contaminate other water supplies or sources, and that all flowing wells be so capped or equipped with valves that the flow of water can be stopped when the water is not being put to beneficial use.

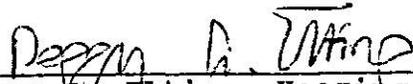
NOTICE

The Department's Final Order may be appealed in accordance with the Montana Administrative Procedure Act by filing a petition in the appropriate court within thirty (30) days after service of the Final Order.

DONE this 31st day of March, 1986.



Gary Fritz, Administrator
Department of Natural
Resources and Conservation
1520 E. 6th Avenue
Helena, Montana 59620
(406) 444 - 6605



Peggy A. Elting, Hearing Examiner
Department of Natural Resources
and Conservation
1520 E. 6th Avenue
Helena, Montana 59620
(406) 444 - 6612

AFFIDAVIT OF SERVICE
MAILING

STATE OF MONTANA)
) ss.
County of Lewis & Clark)

Sally Martinez, an employee of the Montana Department of Natural Resources and Conservation, being duly sworn on oath, deposes and says that on March 31, 1986, she deposited in the United States mail, first class mail, a Final Order by the Department on the Application by Richard MacMillan, Application No. 42666-g41F, for an Application for Beneficial Water Use Permit, addressed to each of the following persons or agencies:

1. Richard MacMillan, Box 761, Ennis, MT 59729
2. John P. Scully, Esq., 222 East Main, #301, Bozeman, MT
3. William & Helen Thexton, Box 641, Ennis, MT 59729
4. Michael Nash, Montana Bank Building, 211 West Main, Bozeman, MT 59715
5. Sarah J. Zimmer, Esq., P.O. Box 1330, Bozeman, MT 59715
6. Dr. John Sonderegger, c/o Montana Bureau of Mines & Geology, Montana College of Mineral Science & Technology, Butte, MT 59701
7. Scott Compton, Manager, Water Rights Bureau Field Office, Bozeman, MT 59715 (inter-departmental mail)
8. Peggy A. Elting, Hearing Examiner (hand-deliver)
9. Gary Fritz, Administrator, Water Resources Division (hand-deliver)

DEPARTMENT OF NATURAL RESOURCES AND
CONSERVATION

by Sally Martinez

STATE OF MONTANA)
) ss.
County of Lewis & Clark)

On this 31ST day of MARCH, 1986, before me, a Notary Public in and for said state, personally appeared Sally Martinez, known to me to be the Hearings Recorder of the Department that executed this instrument or the persons who executed the instrument on behalf of said Department, and acknowledged to me that such Department 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.

John P. Olson
Notary Public for the State of Montana
Residing at Helena, Montana
My Commission expires 12/31/87

CASE #42666

Objectors William and Helen Thexton appeared personally and by and through their counsel, Sarah Zimmer and Michael Nash.

Dr. Darrel Dunn, a professional geohydrologist, appeared as a witness for the Objectors.

Leon Thexton, grandson to Helen and William Thexton, appeared as a witness for the Objectors.

Lois Yenny appeared on her own behalf, as a person who might be affected by the decision. She is not a party in this matter.

Dr. John Sonderegger of the Montana College of Mineral Science and Technology appeared at the hearing.

Scott Compton, Field Manager of the Bozeman Water Rights Bureau Field Office, appeared as a staff expert for the Department of Natural Resources and Conservation (hereafter, the "Department").

PRELIMINARY MATTERS

After having given the additional information full consideration, the Hearings Examiner incorporates by reference the Findings of Fact and Conclusions of Law as contained in the May 4, 1984 Proposal for Decision into the present Proposal for Decision, except as expressly modified herein.

Secondly, the Hearings Examiner hereby affirms the inclusion of Dr. John Sonderegger's February 6 and 7, 1986 testimony in the record in this matter, and denies Applicant's objection to the inclusion of the testimony.

CASE # 42666²-

Counsel for the Applicant objected that Dr. Sonderegger should not be allowed to testify, since it was unclear as to his position in this matter. Dr. Sonderegger had appeared as an expert witness at the April 27, 1983 hearing in this matter upon the request of the Bozeman Water Rights Bureau Field Office. Prior to the February 6, 1986 reopening of the Hearing, the Objectors notified Dr. Sonderegger of the new hearing. He testified that he decided to attend the February 6 and 7, 1986 sessions because of his previous involvement in the matter and knowledge of the area as a geothermal resource. The Objectors called upon Dr. Sonderegger to testify; however, Dr. Sonderegger testified that he had not been paid to appear as a witness, and that he has not advised any party in this matter except for providing advice to all parties during his previous study of the area. He testified that his concern in the present matter is "on the behalf of the Department of Natural Resources because they dragged me into this thing once before, and also simply to see that you get both sides of the picture."

The Hearing Examiner allowed Dr. Sonderegger to testify, and hereby affirms the inclusion of his testimony, in the interests of obtaining the most complete record possible. In the December 4, 1985 Order issued by Judge Gary on the ongoing appeal in this matter, the Court specifically stated that it wants "all parties to be satisfied that the maximum amount of information was on the table at the time of the primary decision. Since the Court has a very limited review, it is doubly important to the Court that the initial hearing level have every possible pertinent fact."

In addition to the Court's clear instruction to obtain the largest possible amount of information for the record, the Hearing Examiner has also taken into account Dr. Sonderegger's familiarity with the geothermal resource in question and the current and proposed uses of the resource, as well as the fact that Dr. Sonderegger's testimony at the initial hearing in this matter was central to the decision.

As a disinterested witness, Dr. Sonderegger appears to be an ideal person to make comments on the newly-presented geohydrology evidence. However, since his testimony was based on listening to the oral presentations of the parties' expert witnesses and not on actual review of the data, Dr. Sonderegger's testimony is accepted for the limited purpose of providing general information about the geothermal aquifer and of adding some weight to certain projections of how the aquifer may act. Since Dr. Sonderegger's most recent testimony is not pivotal to the decision in this matter (although his testimony at the previous hearing forms an important part of the record), no party is injured by the inclusion of his February 6 and 7 testimony in the record, nor does it appear necessary to further define his position at the hearing.

Thirdly, counsel for the Objectors objected to the testimony of Russell Juncal on the basis that it violated a 1984 agreement between the Applicant and the Objectors wherein the Objectors allowed monitoring of their wells and spring in return for being furnished copies of all recorded data and "all written analysis of conclusions of the experts making such tests. . . ." (See Objectors' Exhibit 16R.)

Mr. Juncal testified that the only written reports he had made, apart from a report submitted to the Department concerning the geothermal system (a public document), was a "professional interpretation" of the data for the benefit of his employer, the Thermal Power Company of San Francisco, which concerned a recommendation for financial investment purposes rather than an analysis of the aquifer.

Whether or not such a document falls within the scope of the Applicant-Objector contract is irrelevant, however, since Mr. Juncal testified that all of the data upon which he based his testimony before the Department had been provided to the Objectors. Therefore, the Objectors' objection to his testimony thereby is overruled. No harm or undue surprise can be found where testimony covers material already in the possession of the other party.

EXHIBITS

The Applicant offered two exhibits for inclusion in the record:

Applicant's Exhibit 1R (R will be used to designate exhibits offered at the reopened hearing) is a photocopy of a well log report of a well belonging to Alex and Lois Yenny. (Report received by the Department on August 30, 1977.)

Applicant's Exhibit 2R is a photocopy of a well log report on a well drilled in May, 1983 for William Thexton. The well is 125 feet deep, with a measured temperature of 100° F.

Applicant's Exhibits 1R and 2R were accepted into the record without objection.

The Objectors offered 16 exhibits for inclusion in the record:

Objectors' Exhibit 1R is a sketch which shows the layout of the Thexton wells, springs, and places of use. It was accepted into the record for the limited purpose of showing the general location of things referred to in testimony, and not for the purpose of showing exact distances and sizes, nor of substantiating the Objectors' water rights.

Objectors' Exhibit 2R is a photocopy of a five-page letter to Michael Nash from Darrel Dunn, dated March 12, 1985. The letter reports on information obtained from the pump test run on the MacMillan well and the concurrent monitoring of the Objectors' points of diversion. The report refers to attachments (offered as Objectors' Exhibits 3R through 14R).

Objectors' Exhibit 3R is a photocopy of a graph showing measurements of the flow from the Objectors' main spring. The measurements begin prior to commencement of the MacMillan pump test and continue through mid-December, 1984.

Objectors' Exhibit 4R shows the decline of the spring as plotted on semi-logarithmic paper.

Objectors' Exhibit 5R is a photocopy of a graph showing temperature measurements made of the main spring from October 1 until past the middle of November, 1984.

Objectors' Exhibit 6R is a photocopy of a graph showing measurements of the flow from a flume which taps springs in the hillside to the north of the main spring and the pool building. Measurements were made from the last day of September until mid-December, 1984.

Objectors' Exhibit 7R is a photocopy of a graph showing water level measurements made in the laundry, or wash house, well from the first week in October to the last week in November, 1984.

Objectors' Exhibit 8R is a photocopy of a graph showing water level measurements of the TX-12 well made from mid-October until the last week of November, 1984.

Objectors' Exhibit 9R is a photocopy of a graph showing the decline of the water level in TX-12, as plotted on semi-logarithmic paper.

Objectors' Exhibit 10R is a photocopy of a graph showing measurements of pressure at the well head on TX-11 (measurements must be divided by approximately $2 \frac{1}{3}$ to get pounds per square inch.)

Objectors' Exhibit 11R is a photocopy of a graph showing water level measurements in a cooler well of the Objectors located near the Yenny property.

Objectors' Exhibit 12R is a photocopy of a graph showing water level measurements taken at the Yenny domestic well. All measurements were taken by Leon Thexton.

Objectors' Exhibit 13R is a photocopy of a graph of water levels in the MacMillan well during the pumping test. The graph was based on data supplied to Dr. Dunn by the Thextons, who apparently received it from the Applicant.

Objectors' Exhibit 14R is a photocopy of a graph showing a "step test analysis" of the pump test data from the Applicant's well, based on data from a table supplied to Dr. Dunn by "the people who were conducting the test." The analytical procedure used is described in Groundwater, by Birsay and Summers.

Objectors' Exhibit 15R is a letter to the Hearing Examiner from Dr. John Sonderegger, dated July 24, 1984 (received July 26, 1984, subsequent to issuance of the Final Order). In the letter Dr. Sonderegger clarifies several points. (See Findings of Fact.)

Objectors' Exhibit 16R is a copy of an agreement between the Applicant and the Objectors, wherein the Objectors grant the Applicant permission to monitor the Objectors' points of diversion during two "step" tests and a pump test on the condition that Applicant's resulting data and written analyses will be provided to the Objectors. (See Preliminary Matters, supra.)

Objectors' Exhibit 1R was objected to, and therefore admitted into the record only for the limited purposes specified. Objectors' Exhibits 15R and 16R were accepted into the record without objection.

Objectors' Exhibits 2R through 14R were objected to by counsel for the Applicant on the basis that the report and the graphs are hearsay, due to the fact that the data being analyzed was collected by someone other than Dr. Dunn. However, the applicable rule of evidence is that the Hearing Examiner will admit all evidence which possesses probative value, including hearsay, if it is the type of evidence commonly relied upon by reasonably prudent persons in the conduct of their serious affairs. Emphasis added. (See Administrative Rule of Montana 36.12.221(1). In a contested case water rights hearing, the

common law and statutory rules of evidence apply only upon stipulation of all parties to the hearing. Counsel for the Objectors did not so stipulate.) See MCA § 85-2-121 (1985).

Dr. Dunn testified that the data collection was reasonably reliable; although he did not supervise all of the data collection, he instructed Leon Thexton in the methods of taking the measurements, and did periodic measurements of his own which he testified correspond "reasonably well" with the data collected by Leon Thexton and the Applicant. Dr. Dunn stated that, in his professional opinion, his own involvement served as an adequate check.

Since the data was evidence relied upon by Dr. Dunn in the conduct of his tests, it will be admitted into the record. The objections to Objectors' Exhibits 2R through 14R hereby are overruled, and the Exhibits are admitted into the record. The source of the data and the methods of collection are a question of probative value and of the weight which should be given to the evidence, not of its admissibility.

The Hearing Examiner is cognizant of the fact that data collected by untrained persons is likely to be less accurate than that collected by experts, and has taken that into consideration. However, the data has been checked to some degree, and has been utilized by both parties in this matter to obtain their projections concerning characteristics and responses of the geothermal aquifer.

The Hearing Examiner, having reviewed the record in this matter and being advised in the premises, does hereby make the following proposed Findings of Fact, Conclusions of Law, and Order.

FINDINGS OF FACT

1. The Department has jurisdiction over the subject matter herein and the parties hereto, whether they appeared at the hearing or not.

2. As Dr. Sonderegger points out in his July 24, 1984 letter (Objectors' Exhibit 15R), the initial Proposal for Decision incorrectly identified him as a witness for the Applicant. Therefore, the record in this matter hereby is corrected to indicate that Dr. John Sonderegger appeared at the April 27, 1983 hearing in this matter as an expert witness for the Department.

Dr. Sonderegger also states that the TX-11 well is 575 feet deep, rather than 875.5 feet as stated in Finding of Fact 10 in the May 4, 1984 Proposal. It is true that 875.5 feet is incorrect. However, the reported depth of the well appears to be 625.5 feet (see Table 6, Objectors' Exhibit 5) rather than 575 feet. Test measurements have been taken at a depth of 608 feet. (Table 6, Objectors' Exhibit 5.) Therefore, Finding of Fact 10 hereby is corrected to read, "The well has a reported depth of 625.5 feet."

Thirdly, Dr. Sonderegger states in his letter that the portion of Finding of Fact 19 in the May 4, 1984 Proposal which states that "Dr. Sonderegger estimates that a 16 foot decline in

the water level of TX-12 would occur after Applicant's well was pumped for one year at 385 gpm. . . and that eventually TX-12 would cease to flow if pumping occurs at two or three times the natural flow rate", has been taken out of context. He states that TX-12 ceased to flow within 24 hours of the start up of pumping at the Applicant's well.

The initial portion of the sentence is correct; Dr. Sonderegger did project a 16 foot decline under such circumstances (see Applicant's Exhibit 5). He also testified that "under a pump condition, eventually, first of all, TX-12 would cease to flow. . . That's pumping at, say, two or three times the natural flow rate." (Transcript, page 52.) However, Figure 2 of Applicant's Exhibit 5 does indicate that the water level dropped below ground level within a few hours after pumping of the Applicant's well began. Therefore, for clarity, the phrase "and that eventually TX-12 would cease to flow if pumping occurs at two or three times the initial flow rate" hereby is stricken from Finding of Fact 20 in the May 4, 1984 Proposal.

3. The record in this matter indicates that the source geothermal aquifer is fairly large in terms of geothermal aquifers, and is a good site for geothermal development. (Testimony of Dr. Darrel Dunn, Dr. Russell Juncal, Dr. John Sonderegger.) Dr. Dunn testified that the aquifer in question is "one of the better sites in Montana for geothermal water supply."

4. A total withdrawal rate of 500 gallons per minute (hereafter, "gpm") from the geothermal aquifer appears likely to provide a sustained yield. (Testimony of Dr. Juncal; May 4, 1984

Proposal for Decision, Finding of Fact 20, Conclusion of Law 12.) Dr. Sonderegger noted that the limit can be accurately determined only through actual development and monitoring of the aquifer. (Testimony of Dr. Sonderegger at February 6, 1986 hearing; Objectors' Exhibit 15R.) Dr. Juncal testified that 500 gpm is a "very safe estimate" of the aquifer's sustained yield capabilities, and that the limit could prove to be much higher, based on the extent of "surface manifestations" of the geothermal source.

5. The record indicates that all of the points of discharge in the immediate area of the Applicant and Objector properties are interconnected. (Testimony of Dr. Dunn, Dr. Juncal, and Dr. Sonderegger.) Discharge from any of the points of diversion, especially by means of pumping, will lower the pressure within the geothermal aquifer and thereby will have an effect on the other points of diversion. (Testimony of Dr. Juncal, Dr. Sonderegger.)

The Applicant's well and TX-12 are located in bedrock, while the springs and the shallow wells are located in valley fill (alluvial) sediments: Dr. Sonderegger testified that the lowering of artesian pressure in the geothermal aquifer could cause compaction of the valley fill materials and lower production in the springs and shallower wells. (Testimony of Dr. Sonderegger at February 6, 1986 hearing.) Dr. Juncal testified that he believes some compaction potentially could occur under a

long pumping scenario, but that it probably would not happen because the alluvial materials are coarse and not given to compaction.

6. The testimony and the evidence in the record indicate that extended pumping of the Applicant's well would cause the Objector's main spring, as it presently occurs, to stop flowing. (Testimony of Dr. Dunn, Dr. Juncal, Dr. Sonderegger, Helen Thexton, and Leon Thexton. Objectors' Exhibits 2R, 3R, 4R.)

Testimony and evidence suggests that the "flume" water which is collected by an infiltration pipe north of the main spring also would eventually stop flowing (testimony of Drs. Dunn and Sonderegger, Objectors' Exhibit 6R), although the flow rate at the flume did not drop as low as the flow rate of the main spring during the pump test (testimony of Dr. Juncal), and recovered more quickly than the main spring (testimony of Dr. Dunn).

The flow rate of the main spring was measured as 4.9 gpm in September, 5.5 gpm in October, and approximately .18 gpm in November at the end of the test. It recovered to about one-half of the pre-test rate after two weeks. (Testimony of Dr. Dunn.) Dr. Dunn testified that springs usually recover after pumping has been going on for a while and then ceases, and could possibly sustain a repeated pattern of drawdown and recovery; however, a spring might not recover if the pumping changes the source aquifer.

7. Variations in recovery of flow rate may also be due to natural slow recovery, natural seasonal declines in flow rate, or other water uses in the area. (Objectors' Exhibit 2R, page 2.) Springs are susceptible to natural fluctuations in flow rate and temperature (testimony of Dr. Juncal), as can be seen from the conflicting information contained in literature about the Thexton hot springs. In example, Helen Thexton testified that she and her father had measured the flow of the main spring at 40 gpm in 1962 or 1963. Bob Leonard reported a flow of 20 gpm around the time of 1977-1979 (testimony of Dr. Dunn), while current flow measurements range from about 12 gpm downward. Objectors' Exhibit 3R indicates that Dr. Dunn's initial (pre-pump test) flow measurement of the main spring shows a flow lower than the flows initially experienced during the pump test.

8. Springs occur where the pressure surface of the aquifer intersects the ground surface. (Testimony of Dr. Juncal.) The flow of a spring is proportional to the amount of water "in storage" at a higher elevation than the spring: as the water table in the aquifer is lowered, the output of the spring decreases. (Testimony of Dr. Dunn, Dr. Sonderegger.) In the present instance, the flow in the main spring declined as the Applicant's well was pumped, and would probably cease during extended pumping (Finding of Fact 5, supra.)

However, water will still be available at some lower elevation. Water was still flowing from the springs north of the main spring when flow at the main spring was almost nil, and was

coming up through the floor of the pool for a total amount of about 8.5 gpm. (Testimony of Dr. Juncal; Objectors' Exhibit 2R, page 2.) Dr. Juncal testified that spring flow may be obtained from a place lower on the hill even though a higher orifice might go completely dry, and that therefore the flow can be enhanced to provide the Objectors with sufficient water for their uses by collecting water from a point lower on the slope, sinking a collector pipe deeper, or by putting in a shallow (30 feet or less deep) well.

9. The record in this matter indicates that the springs will experience some loss of temperature if extended pumping of the aquifer occurs. The temperature of the main spring dropped from 162° F. prior to the pump test to 142° on November 2, 1984.

(Testimony of Dr. Dunn, Objectors' Exhibit 5R.) Dr. Dunn's measurements were taken at the hottest part of the spring, while it is unclear where the other measurements were taken. There is a loss of about 10°F between the spring and the outlet into the pool, most likely caused by dissipation of heat as the water flowed through cooler materials. (Testimony of Dr. Dunn.)

It is not clear from the record whether the temperature decline is the result of cold water being induced into the spring due to the Applicant's pumping (testimony of Dr. Sonderegger, Dr. Dunn's stated interpretation of Objectors' Exhibit 2R), or of increased heat dissipation resulting from reduced flows coming in contact with cooler materials (testimony of Dr. Juncal). It is also not clear to what extent natural fluctuations in temperature

and weather conditions may be responsible for the test results. (Testimony of Dr. Dunn, Dr. Juncal.) Dr. Dunn testified that it is probably not possible to predict how the temperature will act on the basis of projections such as those made on the flow rates.

10. The Objectors have filed a Statement of Claim for Existing Water Rights for the springs, claiming 40 gpm up to 10 acre-feet per year for commercial uses between January 1 and December 31 of each year. However, the record in this matter indicates that the Objectors have not been using the springs for commercial purposes. (See July 19, 1984 Final Order, response to Applicant's Exception 4.) At the February 6, 1986 hearing, Helen Thexton testified that they did not have people use the pool because it is "in construction. . . So we are not in business, as far as the pool."

Testimony and the February 6, 1986 site visit indicate that currently the primary use being made of the hot springs is supplying water to the sewer lagoon which services the Objectors' trailer court. The spring flow drains through an outlet in the bottom of the pool and is piped over to the sewer lagoon. (Testimony of Helen Thexton, Leon Thexton.) Helen Thexton testified that the sewage lagoon has been in operation for about 17 years, but that she did not file on the use since it is a secondary use of the springs after the pool. (See also July 19, 1984 Final Order, footnote 1.)

11. Mr. MacMillan testified that he would agree to make sure the Objectors had sufficient water at sufficient temperature for the use of their swimming pool, in the event that there is a decline in pressure that makes it difficult to fill the pool.

12. The record in this matter indicates that the well known as the "wash house" well or the "laundry" well would experience some drawdown as the result of extended pumping of the Applicant's well. Dr. Dunn testified that the water level declined at a steady rate during the pump test, then showed a rapid initial recovery after the test ended, with recovery eventually slowing down. (See Objectors' Exhibit 7R.)

However, pumping of Applicant's well apparently would not result in any substantial lowering of the water level in the laundry well. The total drawdown which occurred during the pump test was approximately nine feet (see Objectors' Exhibit 7R). Dr. Juncal stated that extrapolation of the data to around one year indicates that only about four more feet of drawdown would occur. He testified that the drawdown should not impair use of the well, since the pump is set "substantially lower" in the well.

13. The temperature of the laundry well probably would be reduced by an unknown amount. Dr. Sonderegger testified that there is a cold water component in the valley fill materials. When the pressure from the geothermal aquifer is reduced through pumping or other causes, the pressure of the cold water aquifer will remain the same, resulting in altered proportions of cold and hot water entering the well. (Testimony of Dr. Sonderegger.) Dr. Juncal testified that it is true that pressure decline could cause inflow of the cooler aquifer, but stated that he did not know how the well casing was screened and therefore was not sure how readily the cooler aquifer can enter the laundry well.

14. The Objectors have been issued a Certificate of Water Right for 30 gpm for domestic uses between January 1 and December 31, inclusive, of each year, for the laundry well. The priority date is October 11, 1973. The well is used to operate washing machines and showers for the Objectors' trailer court, and also is used to space heat the laundry building and to provide hot water at an outdoor hydrant. (See May 4, 1984 Proposal for Decision, Finding of Fact 11; testimony of Dr. Juncal.) Dr. Juncal testified that the pump currently being utilized in the laundry well is a three-quarter horsepower Myers jet pump, capable of producing a maximum of 16 gpm.

15. The record in this matter indicates that the well known as TX-12 would cease flowing, and the water level would drop below the well head, as the result of extended pumping of the Applicant's well. Dr. Dunn testified that the well ceased flowing shortly after the pump test began, and that the water level declined throughout the pump test. The total decline in water level was approximately 12 feet. (Objectors' Exhibit 8R.) TX-12 experienced rapid recovery after the end of the pump test, with nearly complete recovery occurring within a few days. (Testimony of Dr. Dunn, Objectors' Exhibit 8R.)

Dr. Dunn testified that a very crude extrapolation of Objectors' Exhibit 9R would suggest that TX-12 would experience a drawdown of about 14 feet after two years of pumping by the Applicant. However, Dr. Sonderegger testified that the behavior of the well toward the end of the test pumping, as shown by the data, may indicate a boundary condition. Dr. Sonderegger

hypothesized that a "barrier" had been encountered in the aquifer, possibly as the result of TX-12's probable location very near the end of the major fracture zone in the bedrock, which will result in drawdown becoming more severe over time.

16. The Objectors have been issued a Certificate of Water Right for 99.5 gpm up to 2.55 acre-feet per year for geothermal and heating uses between January 1 and December 31, inclusive, of each year. Testimony at the February 6, 1986 hearing indicates that the water is being used to heat two mobile homes and one other building (testimony of Dr. Dunn), however, the water was also being used intermittently to fill the pool and for use in the sewer lagoon at the time of the April 27, 1983 hearing in this matter. (See May 4, 1984 Proposal for Decision, Finding of Fact 9.) The priority date of the Certificate is January 17, 1983.

TX-12 has a 6-inch casing, with a shallow 8 inch outer casing which was installed to keep sands and gravels out of the way while the well was drilled. (Testimony of Dr. Sonderegger.) Dr. Dunn testified that it might be possible to pump TX-12. Dr. Sonderegger testified that the well would have to be modified in order to be able to use a pump, since it is not feasible to pump TX-12 with the size of casing which is in there.

17. The record in this matter indicates that the well known as TX-11 would experience loss of pressure as the result of extended pumping of the Applicant's well. (See Objectors' Exhibit 10R). However, some uncertainty is cast upon the data

from TX-11, since more than one pressure gauge was used during the test period. (Testimony of Dr. Dunn.) Dr. Dunn testified that, as a general matter, TX-11 appears to have sustained a decline similar to that of the other wells.

18. The Objectors have been issued a Certificate of Water Right for 8 gpm up to 12.9 acre-feet per year for recreational uses between January 1 and December 31, inclusive, of each year. At the time of the April 27, 1983 hearing in this matter, water from TX-11 was being used to fill the pool. (May 4, 1984 Proposal for Decision, Finding of Fact 10.) The priority date for the Certificate is May 17, 1982.

19. The Objectors have another well, referred to at the hearing as the "cool water" well. The Objectors have been issued a Certificate of Water Right for the well, for 50 gpm up to 1.72 acre-feet per year for domestic and commercial uses between January 1 and December 31, inclusive, of each year. The priority date for the Certificate is September 12, 1984.

Dr. Dunn testified that the cool water well experienced some decline during the pump test, but not as marked as that experienced in "features that are closer to the pumping well." (See Objectors' Exhibit 2R, page 4; 11R.) Objectors' Exhibit 11R indicates that drawdown in the well was only about one foot.

20. The Yenny well apparently experienced some drawdown and temperature loss during the pump test. Lois Yenny testified that the water level declined about seven feet during the pump test. However, the measurements taken by Leon Thexton indicate a decline in water level of only two feet. (See Objectors' Exhibit

12R.) Dr. Juncal testified that the Yenny well appears to experience natural fluctuations, as indicated by the fact that the water level was "lower now" than during the pump test. Dr. Juncal stated that there is a natural decline in the water table in that area "once the irrigation ditch there is turned off."

Mrs. Yenny testified that the water temperature in their well went down between eight and twelve degrees during the pump test. No evidence in the record suggests how much of the temperature decline is due to natural fluctuation. However, it is clear that the Objectors' cool water well, which is located about 50 feet from the Yenny well, has significantly more effect on the Yenny well than does the Applicant's well: Mrs. Yenny testified that the Yenny water turned brown and dropped 50 degrees in temperature immediately after the Objectors started pumping their cool water well.

21. The Applicant's well apparently was free-flowed, step-tested at various pumping rates, and then subjected to a long-term pump test wherein it was pumped for 23½ days. (Objectors' Exhibit 2R, page 1, based on records received from the Applicant.) During the last phase, the well was pumped nearly continually at a constant rate of 375 gpm. (Testimony of Dr. Juncal, Objectors' Exhibit 2R.)

During the pump test, the Applicant's well experienced a drawdown in excess of 220 feet, since it went from free-flowing (positive water level) to a depth of about 220 feet. The water level declined rapidly at first, then more slowly. (Testimony of Dr. Dunn based on data furnished by the Applicant, Objectors' Exhibit 13R.)

The temperature of the applicant's well did not fluctuate during the pump test. Dr. Juncal testified that the temperature reached 194° F within 30 minutes after pumping started, and remained at that temperature throughout the pump test. According to Dr. Dunn, the temperature "remained fairly constant at about 192 degrees Fahrenheit." (Objectors' Exhibit 2R, page 1.)

Based upon the foregoing Findings of Fact and upon the record in this matter, the Hearing Examiner makes the following:

PROPOSED CONCLUSIONS OF LAW

1. The Department has jurisdiction over the subject matter herein, and all the parties hereto.

2. The Department gave proper notice of the hearing, and all relevant substantive and procedural requirements of law or rule have been fulfilled, therefore the matter was properly before the Hearing Examiner.

3. Conclusions of Law 1 through 10, and 13 of the May 4, 1984 Proposal are incorporated herein by reference. That part of Conclusion of Law 12 which states, "Withdrawals of geothermal water greater than the sustained yield of the geothermal aquifer will work adverse affect to beneficial water uses by appropriators from the aquifer" is incorporated. The remainder of Conclusion of Law 12 hereby is amended to read, "The evidence available in the record suggests that 500 gpm is a reasonable limit to place on the amount of water which can be withdrawn from the geothermal aquifer in this matter, in order to ensure that thermal loss does not occur in the geothermal resource."

Those portions of Conclusions of Law 11 which are not modified or rejected by the Conclusions of Law and discussion which follow below are incorporated herein by reference.

4. Apart from the hot springs and the laundry well, all of the Objectors' water rights are junior in priority to the Applicant's well. Information concerning the junior uses and the effect of Applicant's pumping upon them is irrelevant for purposes of the present matter, except to the extent that it helps to define the characteristics of the source aquifer and to delineate water availability.

5. The record in this matter shows that the Applicant's well and the Objectors' wells and springs are all interconnected. Withdrawal from one of the points of diversion changes the pressure in the source aquifer, and consequently affects the other points of diversion to a lesser or greater extent. (See Findings of Fact 4, 7.)

Pumping by the Applicant clearly will affect the Objectors' wells and springs: the pivotal question in this matter is whether the effects of the Applicant's pumping will adversely affect the Objectors' senior water rights to the extent that they cannot reasonably be exercised under the changed conditions. See MCA § 85-2-311(1) (1985), MCA § 85-2-401(1) (1985). To answer this question requires discussion of two interrelated issues: (1) whether, according to the available evidence, the Objectors' prior water rights will be adversely affected, and (2) whether the Objectors' senior water rights can reasonably be exercised

under the changed conditions. The first issue has to do with protection of senior uses, while the second deals with the means of diversion for those uses.

6. The Department of Natural Resources and Conservation does not have the jurisdiction to make final determinations on the existence and extent of claimed use rights. That is within the purview of the Water Court and its adjudication process.

Nevertheless, the Department is empowered to make preliminary determinations on those matters for the purpose of carrying out its mandated duties, with the proviso that such determinations lack the res judicata level of finality of decisions made in the adjudication process and are subject to such decisions. see generally In the Matter of the Application for Beneficial Water Use Permit Nos. 26722-s76LJ, 26723-s76LJ and 26718-s76LJ by Meadow Lake Country Club Estates; and In the Matter of the Application for Change of Appropriation Water Right Nos. 26719-c76LJ and 26720-c76LJ by Meadow Lake Country Club Estates, (Proposal for Decision, August 25, 1981); and In the Matter of the Application for Change of Appropriation Water Right Nos. G-05081 and G-05083 by Neil W. Moldenhauer, Final Order, March 20, 1984).

This does not mean that a Departmental decision can alter existing water rights; rather, a decision concerning such water rights is made in a situation such as the present matter for the purpose of determining the extent of the prior rights which must be protected. There is little point in slavishly adhering to the

parameters of a paper right, when evidence shows that the actual use of the right is different. If the right is later determined through adjudication or legal process to differ from the Department's stated understanding of that right, junior appropriations must make way for the right, pro tonto.

7. In the present matter it is important to make a preliminary determination of the Objectors' senior water rights in order to ensure that they are protected, but also so that a decision can be made on the amount of water which can be granted to the Applicant.

The Objectors have claimed an 1865 right of 40 gpm up to 10 acre-feet per year from hot springs located in the SE $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 28, Township 5 South, Range 1 West, Madison County, Montana. However, testimony at the February 6, 1986 hearing indicates that the flow rate of the springs has been declining since the time it was measured at 40 gpm about 1962 or 1963. (See Finding of Fact 8.) The flow rate from the springs was measured at 20 gpm in the late 1970's, and at approximately 12 gpm prior to the beginning of the Applicant's pump test.

Applying the self-evident logic that an appropriator cannot claim a senior water use right for more water than he is able to obtain from the diversion which is the basis of his claim (to hold otherwise would allow junior rights to be bootstrapped into senior priority dates), the Objectors' senior use rights in the hot springs can be protected only to the extent of the flow which they are actually receiving, up to 40 gpm. Therefore, the flow right from the hot springs which is to be protected vis-à-vis the Applicant's appropriation is approximately 20 gpm.

The record in this matter does not give much information as to how much fluctuation can be expected in the hot springs flow rate. However, the flow rate for the springs was measured at 20 gpm as late as 1977 to 1979. In view of the uncertainty of the available data, and the lack of knowledge concerning the reasons for the recent fluctuations in flow, it appears reasonable to provide some leeway to cover possible flow recovery in the springs.

Testimony by Leon Thexton at the February 6, 1986 hearing made it clear that the springs could not be turned off as the Hearing Examiner had assumed on the basis of testimony at the April 27, 1983 hearing. (See July 19, 1984 Final Order, response to Applicant's Exception 3.) Therefore, the hot springs flow must be allowed for on a continuous basis rather than on the periodic basis allowed for in the July 19, 1984 Final Order in this matter.¹

¹ Although the use of the spring water for filling the hot pool arguably is not frequent enough to allow for continuous use, the record in this matter indicates that the hot spring water is used on a continuous basis in the Objectors' sewage lagoon. That this use is (1) a beneficial use of geothermal water (see MCA § 85-2-102(2)(a) (1985), and (2) a use which is covered by the Objectors' Statement of Claim for Existing Water Rights on the hot springs, has been assumed *arguendo* for purposes of this matter, since no probative evidence is present in the record as to the first, and since the second must be determined in the adjudication process.

9. The Objectors have been issued a Certificate of Water Right for 30 gpm for domestic uses from what has been designated as the "laundry" well, with a priority date of October 11, 1973. However, uncontradicted testimony at the hearing indicates that the maximum flow rate which the Objectors are using from the well is 16 gpm.

10. As discussed in the May 4, 1984 Proposal for Decision, withdrawals of geothermal water greater than the sustained yield of the geothermal aquifer will work adverse affect to the beneficial uses of the Objectors and the Applicant. The evidence available from the complete record in this matter suggests that 500 gpm is a reasonable estimate of the maximum amount of water which can be withdrawn from the geothermal aquifer in this matter without incurring thermal loss to the geothermal aquifer. According the Objectors 36 gpm of senior rights (20 gpm at the hot springs plus 16 gpm at the laundry well), 464 gpm is available for appropriation by the Applicant.

11. The record indicates that the Objectors' uses of their laundry well most likely will not be adversely affected. The laundry well is pumped, and the pump is set deep enough in the well that it apparently can withstand a much more severe drawdown of the water level than occurred during the pump test. (See Finding of Fact 12.) There is no indication that the flow rate of the laundry well was, or would be, affected by the Applicant's pumping. There is a slight possibility that the Applicant's pumping could cause compaction of the valley fill materials in which the laundry well is located, thereby lowering production of

the well, but other testimony indicates that the valley fill materials are coarse and not given to compaction. (See Finding of Fact 5.)

The temperature of the water in the laundry well will be lowered by some unknown amount. (See Finding of Fact 13.) However, there is no indication that the Objectors would not be able to accomplish their present uses of the water at a lower temperature, since data indicates that the water is quite hot, but none of the present uses require unusually hot water. (See Finding of Fact 14; May 4, 1984 Proposal for Decision, Finding of Fact 11.)

12. The record indicates that the Objectors' present means of utilizing their hot springs will be adversely affected by the pumping of Applicant's well. (See Findings of Fact 7, 9.) However, MCA § 85-2-311 criteria require proof that the water rights of a prior appropriator will not be adversely affected. (Emphasis added.) As discussed below, the water rights of a prior appropriator do not include the right to a particular means of diversion if it is unreasonable.

Any permit issued in this matter can be conditioned to ensure that the Objectors' water rights in the hot springs will not be adversely affected if they utilize a reasonable means of diversion. See In the Matter of the Application for Beneficial Water Use Permit No. 25170-g41B by East Bench Grain and Machinery, Inc. (Proposal for Decision, April 22, 1982).

13. Another question that must be answered is whether or not the Objectors can reasonably exercise their prior water rights (as delineated above) under the changed conditions. MCA § 85-2-401. The Department has interpreted this statute to be a codification of the common law requirement of reasonably efficient uses, rather than as a restriction on the assertion of property interests based on some index of what constitutes a reasonable loss of exercise of water rights. "The statute requires that the conditions can only change in a manner that allows one to reasonably exercise his 'rights.' The right itself cannot be 'reasonably abridged' to accommodate the changed condition." In the Matter of the Application for Change of Appropriation Water Rights Nos. 36294-c41A, 36295-c41A, 36296-c41A, 36297-c41A, 36298-c41A, 36299-c41A, 36300-c41A and 36301-c41A by Beaverhead Partnership (Proposal for Decision, February 11, 1985, appeal pending), at 126. "In effect, the statute merely codifies the common law rule that a senior appropriator cannot insist upon a convenient manner of fulfilling his purpose where the effect thereof is to deny water to another." In re Beaverhead, at 127.

14. In the present matter, the Objectors historically have made use of their hot water springs by capturing the natural artesian flow. In order to maintain the flow, they need what amounts to control of the entire geothermal aquifer so that they can maintain sufficient pressure in the aquifer to keep the hot springs flowing.

No information in the record suggests that there is a shortage of water in the aquifer. (See Findings of Fact 3, 4, and 8.) Rather, the record indicates that the Objectors have made management decisions based on their exclusive (until recent years) use of the aquifer, and have chosen to work around the problems of declining spring flow, likely caused in part by interference from their increasing number of wells, rather than develop the springs which have provided a convenient and easy means of diversion.

To hold that an appropriator is entitled to maintenance of artesian pressure against any subsequent appropriators would be to allow a single appropriator or a limited number of appropriators to control an entire aquifer simply to make their own means of diversion easier. Both case law and statutes inveigh against such a result.

At his own point of diversion on a natural water course, each diverter must establish some reasonable means of effectuating his diversion. He is not entitled to command the whole or a substantial flow of the stream merely to facilitate his taking the fraction of the whole flow to which he is entitled. Schodde v. Twin Falls Land & Co., 224 U.S. 107, 92 S. Ct. 470, 56 L.Ed 686. This principle applied to diversion of underflow or underground water means that priority of appropriation does not give a right to an inefficient means of diversion, such as a well which reaches such a shallow depth into the available water supply that a shortage would occur to such senior even though diversion by others did not deplete the stream below where there would be an adequate supply for the senior's lawful demand.

City of Colorado Springs v. Bender, 148 Colo. 458, 366 P.2d 552 (1961), at 555. See also Alamosa-LaJara Water Users Protection Association v. Gould, 674 P.2d 914 (1983); Wayman v. Murray City Corporation, 23 Utah 2d 97, 458 P.2d 861 (1969); Doherty v. Pratt, 34 Nev. 343, 124 P.574 (1912).

The principle that no appropriator should be allowed to "command the source" simply so that he may have a convenient method of diversion, such as artesian flow, also is consistent with the State of Montana's stated policy of maximizing the beneficial use of water. MCA § 85-2-101(3).

Therefore, while the Objectors' senior use from the hot springs is a protectible right as against the Applicant, the Objectors' means of diversion is not protectible.

15. The Applicant must ensure that the Objectors are able to make full use of 20 gpm of geothermal water at their hot pool, in order that the Objectors' water rights will not be adversely affected. The Applicant has testified that, in the event that there is a decline in pressure such as to make it difficult for the Objectors to fill their pool, he would agree to make sure that the Objectors have sufficient water at sufficient temperature for the use of their pool. Suggestions have included running a line from the Applicant's well for the Objectors, or having the Applicant dig a shallow well for the Objectors. However, this is an issue which will only arise if the Objectors cannot obtain their water rights by utilizing a reasonable means of diversion.

The Applicant should not be required to provide the Objectors with water if they can obtain water by diverting through reasonable means. Therefore, the Objectors must attempt to obtain enough flow to cover their senior right by installing a reasonable means of diversion prior to any requirement being imposed on the Applicant to provide water, or to any modification of the Applicant's Permit. Suggestions made at the hearing for enhancing flow from the hot springs included collecting the flow lower on the slope, sinking a collector pipe, or putting in a shallow well. (See Finding of Fact 8.) A court conceivably could require the Applicant to share the expense, depending on such factors as the reasonableness of the senior appropriators' means of diversion, the extent of the adverse affect, the reasonable "economic reach" of the parties, and the necessity of maximizing beneficial use of water. See City of Colorado Springs v. Bender, 148 Colo. 458, 366 P.2d 552 (1961); Alamosa-LaJara Water Users Protection Association v. Gould, 674 P.2d 914 (1983); and Wayman v. Murray City Corporation, 23 Utah 2d 97, 458 P.2d 861 (1969). Alternatively, it could be decided to have Applicant run a pipe from his well over the Objectors' property.

WHEREFORE, based upon the proposed Findings of Fact and Conclusions of Law, and upon those Findings of Fact and Conclusions of Law incorporated herein from the May 4, 1984 Proposal for Decision and any modifications to them specified in the July 19, 1984 Final Order in this matter, the Hearing Examiner makes the following:

PROPOSED ORDER

Subject to the terms, conditions, restrictions, and limitations specified below, Application for Beneficial Water Use Permit No. 42666-g41F is hereby granted to Richard MacMillan to appropriate 464 gpm up to 784.43 acre-feet per year, for power generation, heating, and greenhouse use in the NE¼NW¼SE¼ of Section 28, Township 5 South, Range 1 West, Madison County, Montana. The source of supply is a geothermal groundwater aquifer, to be diverted by means of a pump from a well located in the NE¼NW¼SE¼ of Section 28, Township 5 South, Range 1 West, Madison County, Montana. The period of use is January 1 to December 31, inclusive, of each year. The priority date of this permit shall be March 17, 1982 at 2:30 p.m.

This Permit is issued subject to the following express terms, conditions, restrictions and limitations:

1. This Permit is subject to all prior existing water rights in the source of supply, and to any final determination of such rights as provided by Montana law.

2. The Permittee shall not withdraw more water than is reasonably required for the purposes described herein. At all times when the water is not reasonably required for these purposes, the Permittee shall allow the waters to remain in the source of supply.

3. Nothing herein shall be construed to affect or reduce the Permittee's liability for damages which may be caused by the exercise of this Permit, nor does the Department, in issuing this

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Permit, acknowledge any liability for damages caused by the exercise of this Permit, even if such damage is a necessary and unavoidable consequence of the same.

4. The Permittee shall monitor and keep a written record of the flow rate, volume, and pressure of all waters withdrawn, and shall submit these records to the Department upon request.

5. The Permittee shall avoid thermal pollution of other groundwater caused by surface discharge of geothermal water, and to this end shall comply with all applicable state discharge laws and requirements. The Permit is subject to MCA § 85-2-505, which requires that all wells be constructed so that they do not allow water to be wasted or to contaminate other water supplies or sources, and that all flowing wells be so capped or equipped with valves that the flow of water can be stopped when the water is not being put to beneficial use.

6. If, as the result of Applicant's pumping, the Objectors cannot obtain sufficient geothermal water to fill their senior hot springs use right by utilizing a reasonably efficient means of diversion, the Applicant shall provide sufficient water at sufficient temperature to enable the Objectors to make use of the right.

NOTICE

This proposal is a recommendation, not a final decision. All parties are urged to review carefully the terms of the proposed permit, including the legal land descriptions. Any party adversely affected by the Proposal for Decision may file

exceptions thereto with the Hearing Examiner (1520 E. 6th Ave., Helena, MT 59620); the exceptions must be filed within 20 days after the proposal is served upon the party. MCA § 2-4-623.

Exceptions must specifically set forth the precise portions of the proposed decision to which exception is taken, the reason for the exception, and authorities upon which the exception relies. No final decision shall be made until after the expiration of the time period for filing exceptions, and the due consideration of any exceptions which have been timely filed. Any adversely affected party has the right to present briefs and oral arguments before the Water Resources Administrator, but these requests must be made in writing within 20 days after service of the proposal upon the party. MCA § 2-4-621(1). Oral arguments held pursuant to such a request will be scheduled for the locale where the contested case hearing in this matter was held, unless the party asking for oral argument requests a different location at the time the exception is filed.

DONE this 28th day of February, 1986.

Peggy A. Elting
Peggy A. Elting, Hearing Examiner
Department of Natural Resources
and Conservation
1520 E. 6th Avenue
Helena, Montana 59620
(406) 444 - 6612

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AFFIDAVIT OF SERVICE
MAILING

STATE OF MONTANA)
) ss.
County of Lewis & Clark)

Donna K. Elser, an employee of the Montana Department of Natural Resources and Conservation, being duly sworn on oath, deposes and says that on February 28, 1986, she deposited in the United States mail, first class, postage prepaid, a REVISED PROPOSAL FOR DECISION, an order by the Department on the Application by RICHARD MACMILLAN, Application No. 42666-g41F, an Application for Beneficial Water Use Permit, addressed to each of the following persons or agencies:

1. Richard MacMillan, Box 761, Ennis, MT 59729
2. John P. Scully, Esq., 222 East Main, No. 301, Bozeman, MT 59715
3. William & Helen Thexton, Box 641, Ennis, MT 59729
4. Michael Nash, Montana Bank Building, 211 West Main, Bozeman, MT 59715
5. Sarah J. Zimmer, Esq., P.O. Box 1330, Bozeman, MT 59715
6. Dr. John Sonderegger, c/o Montana Bureau of Mines & Geology, Montana College of Mineral Science and Technology, Butte, MT 59701
7. Scott Compton, Manager, Water Rights Bureau Field Office, Bozeman, MT 59715 (inter-departmental mail)
8. Peggy A. Elting, Hearing Examiner (hand deliver)
9. Gary Fritz, Administrator, Water Resources Division (hand deliver)

DEPARTMENT OF NATURAL RESOURCES AND
CONSERVATION

by Donna K. Elser

STATE OF MONTANA)
) ss.
County of Lewis & Clark)

On this 28th day of February, 1986, before me, a Notary Public in and for said state, personally appeared Donna Elser, known to me to be the Hearings Recorder of the Department that executed this instrument or the persons who executed the instrument on behalf of said Department, and acknowledged to me that such Department executed the same.

CASE # 42666

Indef

BEFORE THE DEPARTMENT
OF NATURAL RESOURCES AND CONSERVATION
OF THE STATE OF MONTANA

* * * * *

IN THE MATTER OF THE APPLICATION)
FOR BENEFICIAL WATER USE PERMIT) FINAL ORDER
NO. 42666-g41F BY RICHARD MACMILLAN)

* * * * *

The time period for filing exceptions to the Hearing Examiner's Proposal for Decision has expired. Timely exceptions were received from Applicant Richard MacMillan (hereafter, "Applicant"), and Objectors William and Helen Thexton (hereafter, "Objectors"). For the reasons stated below, and after having given the objections full consideration, the Department accepts and adopts the Findings of Fact and Conclusions of Law of the Hearing Examiner as contained in the May 3, 1984 Proposal for Decision except as expressly modified herein, and incorporates them herein by reference.

RESPONSE TO EXCEPTIONS

The Department hereby responds to the exceptions made by the Applicant and Objectors to the Proposal for Decision in this matter; since the Applicant is the proponent of the Order, his exceptions will be responded to first.

Applicant's Exception 1: The contents of Finding of Fact Number 23 consist of a recitation of legal documentation which is within the Hearing Examiner's purview, but on which there was no testimony so as to establish it as a finding of fact.

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As Applicant notes in his exception, the material which is included in Finding of Fact Number 23 is within the Hearing Examiner's purview and may be noticed by her. See K. DAVIS, ADMINISTRATIVE LAW TREATISE, ch. 15 (2d ed. 1980) on judicial and official notice. See also Montana Administrative Procedures Act § 2-4-612(6), which states:

Notice may be taken of judicially cognizable facts. In addition, notice may be taken of generally recognized technical or scientific facts within the agency's specialized knowledge. Parties shall be notified either before or during the hearing or by reference in preliminary reports or otherwise of the material noticed, including any staff memoranda or data. They shall be afforded an opportunity to contest the material so noticed. (Emphasis added).

The statutory language does not specify a requirement that the facts which are being noticed must have been presented in testimony, but only that the parties shall have notice of such facts and have an opportunity to contest them. Since the statute requires that the parties be notified of material noticed, the contents of Finding of Fact Number 23 properly were included in the Proposal for Decision. The Applicant was afforded an opportunity to contest the noticed material, as evidenced by his use of the opportunity to enter exceptions to object to the inclusion of the material.

Although no objection was made to the substance of Finding of Fact Number 23, it may be noted that no party is thereby prejudiced, since the material was not used to decide any issue. See Conclusion of Law Number 14.

Applicant's Exception 2: Objection is made to Conclusion or Law Number 10 that "geothermal uses are protected by Montana statute under the definition of 'quality'". Further objection is made upon the basis that nothing within the statutes provides protection for thermal content in the beneficial use of water and in appropriators' right to make reasonable use of their water rights.

In response to the first part of the exception, Applicant should note that the Conclusion of Law Number 10 does not state that geothermal uses are statutorily protected under the definition of "quality". The Water Use Act does not define the term "quality" or use it to delineate the characteristics of which a water right is compounded, nor does the conclusion state that it does. Rather, the term "quality" is used in the Conclusion of Law as an example of a characteristic of water which has been found to be protectible where such characteristic is necessary to the use for which the water was appropriated: although nothing in the statutory language specifically protects "quality", the courts nonetheless have found it to be protected where a certain level of quality must be maintained to keep the water suitable for drinking. Atchison v. Peterson, 87 U.S. 507 (1874). The Department has followed this reasoning in denying permit applications where the proposed appropriation would impair the quality of the water to the extent that prior appropriators could not reasonably continue their beneficial use thereof. See, e.g., In the Matter of the Application for Beneficial Water Use Permit No. 9357-s40A by Reuben Pitsch, Proposal for Decision (1978), Final Order (1983).

To reiterate the discussion contained in Conclusion of Law Number 10, the characteristic "thermal content" is another characteristic which is not specifically protected in statutory language, but which is integral to certain uses of water. An appropriator who is using water for a purpose which depends on the fact that the water is "pre-heated" will lose the use or some part thereof if the water temperature is significantly affected. In order to continue his water use, such an appropriator might be forced to artificially replace the natural heat of the water, thereby incurring additional labor and expenses to install or replace equipment and to provide an alternative heat source. Forcing a prior appropriator to eliminate or completely change his pattern of water use falls beyond the pale, when the statute allows changes by later appropriators only if "the prior appropriator can reasonably exercise his water right under the changed conditions. "M.C.A. § 85-2-401(1). The determination of whether a prior appropriation can reasonably exercise his water right is one which must be made on the basis of the specific circumstances of each case.

It seems surprising that the Applicant has chosen to take the stance that the thermal content of water is not, and should not be, a protectible condition of water occurrence. Such an argument is a two-edged sword. Applicant's own future water uses are heat-dependent, and would not be feasible if the geothermal aquifer cooled significantly. If the Department were to make determinations on future applications for water from the aquifer

solely on the basis of water availability, many uses might be granted if the applicants could show the presence of sufficient unappropriated water. It is clear from the expert testimony on the present matter that such withdrawals would have significant effects on the temperature of the aquifer. Such effects would impinge upon the Applicant's proposed uses as surely as they would upon the Objectors' present uses. Protecting the temperature of the aquifer, on the other hand, benefits the Applicant as well as the Objectors.

As to the remainder of the exception, Applicant's argument that the legislative history (or lack thereof) on protection of geothermal indicates legislative disinterest in protecting the temperature of such resources is not compelling. Applicant has not supported the allegation with any specific examples of such legislation, or of legislative discussion upon the issue. Therefore, it is sufficient to note that legislation on any given issue may fail to be introduced or fail to pass for a myriad of reasons, political or otherwise, unconnected with its inherent value or with legislative intent.

Applicant's Exception 3: Objection is made to inclusion of findings of fact in Conclusion of Law Number 11, and to the conclusion that the Objectors have senior water use rights amounting to 70 gallons per minute (gpm).

In response to the first part of the exception, all of the determinations required by M.C.A. § 85-2-311 on permit criteria

actually are "mixed questions of law and fact, and require the application of general standards of law to varying factual situations." In the Matter of the Application for Beneficial Water Use Permit No. 12016-s41G by Don L. Brown, Final Order (1984) (appeal pending). The facts included in the Conclusion were set forth properly as Findings of Fact, and are merely reiterated in the Conclusion as part of the discussion of the reasoning used to reach the conclusion. Applicant's further argument that "recognition of TXII and TX12 junior rights should be maintained in Conclusion of Law No. 11" is moot, since the Conclusion clearly states, "The Objectors' water rights to the TX-11 and TX-12 wells are junior to those of the Applicant...". Proposal, p. 20.

Applicant's contention that the record does not allow for a conclusion that the Objectors have shown protectible geothermal uses for 70 gpm is only partially supported by the record in this matter. While it is true that an objector has the burden of production of proof on the issue of whether he has an existing water use right, that burden is discharged "where the evidence and all proper inferences therefrom, viewed in a light most favorable to the objector, are sufficient to allow a reasonable mind to conclude that an existing right exists." In re Brown at 10.

In the present instance, the Objectors submitted a Statement of Claim for Existing Water Rights for 40 gpm up to 10 acre-feet of hot springs water for a pool, claiming an 1865 use right and attaching a 1963 Declaration of Vested Groundwater Rights for

this use. The Objectors also submitted a 1973 Certificate of Water Right for 30 gpm of groundwater for domestic purposes. These documents, in conjunction with testimony as to water use, are sufficient to allow for a conclusion that the Objectors have existing water use rights.

After an objector has established the existence of a water right, it is then up to the applicant to show that, "for all practical purposes, there is still unappropriated water available not withstanding the senior rights and the attendant pattern of need... Therefore, the burden of production in this regard is on the applicant. At all times the burden of persuasion is on the applicant, See M.C.A. 85-2-311". In re Brown at 12.

On the basis of the record in the present matter, it is not possible to say that the Applicant has discharged these burdens to the extent of showing that the Objectors' 30 gpm "wash house" water right is non-existent or that their pattern of use is such that the water is available for use by the Applicant part of the time.

The testimony does not bear out the Applicant's contention that the water from the wash house well is used only "sporadically". It is true that Mrs. Thexton testified that "there are periods....when people aren't there". (Transcript, p. 95). However, there was also testimony that the well was used for showers, for washing machines, for a hydrant to supply outside water to the trailer court, for use in space heating the

wash house, and for general purposes ("washing cars and stuff". Transcript, p. 114). The Objectors testified that all of the water was used.

Fluctuations in use of the water do not prove that the water is not being utilized; almost any beneficial water use, from domestic use through irrigation and industrial uses, has a "stop and start" pattern wherein not all of the water is being used all of the time. The Objectors' "pattern of need" in this instance is pervasive enough to foreclose finding that "for all practical purposes, there is still unappropriated water available" in regard to the 30 gpm from the wash house well. In addition, the major uses of the water - running hot showers and washing machines for the trailer court, and heating the wash house - are of such a nature that they utilize the heat element of the geothermal aquifer, and therefore are entitled to protection of the "condition of water occurrence", as discussed previously.

Applicant also objects to recognition of a 40 gpm water use right for the Objectors' hot pool. Applicant's arguments concerning testimony that the pool is not commercial, that it was vacant for 20 years, and that the temperature of the water in it necessitates a cooling period are not persuasive evidence that the Objectors are not entitled to such a water right. The Applicant has proffered no arguments as to why such facts should alter the Objectors' water right, and therefore no specific response is possible. It seems likely that the Applicant is arguing that the right has been abandoned; however, even assuming

arguendo that the Department has jurisdiction to make such a determination, the limited evidence on the record in this matter does not rise to the level needed to support such a finding. See, for example, 79 Ranch, Inc. v. Pitsch, 40 State Rep. 981, ___ Mont. ___, 666 P.2d 215 (1983).

However, Applicant's argument that the evidence in this matter shows the Objectors have proved only periodic or "partial" usage of the 40 gpm portion of their water use rights is entitled to much more weight.

The Objectors' Statement of Claims for Existing Water Rights on the hot springs indicates that the Objectors claim 40 gpm up to 10 acre-feet of water per annum for use in a hot pool. At the claimed flow rate of 40 gpm, the claimed volume of 10 acre-feet will be reached after 1358 hours, or 56½ days. Therefore, the Objectors are utilizing their 40 gpm approximately 15½% of the time.

This "part-time" pattern of use is also substantiated by the Objectors' testimony on their use of the hot pool. The testimony indicates that up to three days are spent in filling the pool (Transcript, p. 90), and that there is then a period of 7 to 9 days between the time the pool has reached capacity and the time it is drained for cleaning and refilling. (Transcript, pp. 105, 116). Periods of time when the pool is filled and used are interspersed with periods when the pool is not being used.

(Transcript, pp. 88, 103, 119, 124).¹

Since the Objectors are appropriating water for the hot pool only part of the time, the 40 gpm is available for appropriation by the Applicant during the periods of Objectors' nonuse. Therefore, pursuant to the Department's power to modify Conclusions of Law in the Final Order, Conclusion of Law Number 11 is hereby modified to read in part, "The Objectors have rights, senior to those of the Applicant, for the hot springs and the wash house well; a maximum combined total of 70 gpm during those periods when the Objectors are filling their hot pool."²

¹ The Objectors testified that they also use water from the hot springs in a sewer lagoon which services the trailer court. Assuming arguendo that use of geothermal water for this purpose is a beneficial water use, and that the Objectors have not abandoned the attendant water right by failing to file a claim for it, the use does not enlarge or extend the claimed right for the hot springs. The Objectors testified that the sewer lagoon use "would come under the water right for the spring... We have made an application for the springs and it's just a continued use of it". (Transcript, p. 101). Therefore, the Statement of Claim for the hot springs reflects the total uses for hot pool and sewage treatment purposes, and incorporates them in the claimed flow rate of 40 gpm and volume of 10 acre-feet per annum.

² Since the allowable volume in this matter has been based upon the flow rate, such an increase as discussed for the flow rate also leads to an increase in the volume amount which the Applicant may appropriate. The volume amount has been determined by calculating the total volume reached by withdrawing the maximum sustained yield capacity of 500 gpm from the aquifer on a constant basis (806.5 acre-feet), then subtracting the amount of water which will be withdrawn by the Objectors through exercise of their senior rights, allowing for the full claimed 10 acre-feet of their "hot pool" right and the 48.4 acre-feet volume corresponding to the 30 gpm flow rate of their "wash house well" right.

M.C.A. § 2-4-621(3). The remaining references made in the conclusion to the 70 gpm flow rate are discussing the protection of the senior water use rights; since the Objectors have up to 70 gpm of senior water rights, their maximum flow rate correctly is taken into account in determining the extent of the protectible senior interest.

The Applicant suggests that a condition be included in the Final Order that allows for an increase in the Applicant's water right if the Objectors' claimed rights are reduced in the adjudication process. The Applicant's suggestion entails shifting his own burdens of production and persuasion on the question of unappropriated water and use patterns to the court system and whatever parties are involved in the adjudication of this particular right. It also involves bootstrapping rights which are determined at some future date into Applicant's earlier priority date. Such a permit condition also would tend to vitiate Montana's attempts to create dependable records of water use rights, since Applicant's water use right in effect would remain open-ended until adjudication is finalized, and current and future beneficial use rights to the water in question therefore would be in doubt. However, if the adjudication process indeed results in a reduction of Objectors' claimed water use rights, the Applicant certainly is entitled to apply for the "freed" water amounts at that time.

Applicant's Exception 4: Applicant objects to the "conclusion or law or fact on page 21 'that the historical use of the hot pool has been for commercial recreation'". Applicant has misquoted the language of the conclusion, which states: "The Objectors and their predecessors have made use of the geothermal water for maintaining a hot pool for personal and commercial recreation....".

There is sufficient testimony and documentation in the record to show historic use of the water for personal recreation. The "commercial recreation" language was included to reflect the use which the Objectors have claimed in their Statement of Claim for Existing Water Rights. However, Applicant's statement that "there is absent sufficient factual evidence to support commercial recreation usage" is correct.

Although the Objectors testified that their plans are to make the hot pool into a commercial venture, they do not yet charge fees for use of the pool, "because we haven't got it developed." (Transcript, p. 103). Therefore, pursuant to the Department's power to modify Conclusions of Law in its Final Order, Conclusion of Law Number 11 is hereby amended to read, "The Objectors and their predecessors have made use of the geothermal water for maintaining a hot pool for personal recreation, and plan to use the pool for commercial recreation, as well." M.C.A. § 2-4-621(3).

As a practical matter, the Applicant's position vis-à-vis the beneficial water use right in question is not altered, however. If the Objectors' water use is not commercial, they may be

required to file an application for a change of use to commercial. The statutory language of the Water Use Act does not suggest that the adjudication process is meant to provide an alternative to the necessity of obtaining Departmental approval before changing the purpose of use of an appropriation right. M.C.A. § 85-2-402(1). However, recreation has been found to be a beneficial use of water, and the fact that such a use has been incorrectly designated as being "commercial" does not alter the scope of protection for the underlying water use right in this case. See generally M.C.A. § 85-2-102(2).

Applicant's Exceptions 5 and 6 reiterate Applicant's objection to recognition of senior water rights of 70 gpm in the Objectors. The substance of these exceptions has been responded to in discussing Applicant's Exception 3. However, in order to reflect the modification arrived at in the discussion, Conclusion of Law Number 12 hereby is modified to read: "...According the Objectors their 70 gpm of senior rights during those times when the hot pool is being filled, up to a total of 10 acre-feet per year, a minimum of 430 gpm is available for appropriation by the Applicant. During the periods of time after the pool has been filled or, alternatively, after 10 acre-feet per annum has been appropriated by the Objectors, the additional amount of 40 gpm is available to the Applicant."

Applicant's Exception 7 reiterates Applicant's suggestion that the permit in this matter contain a condition allowing for an increase in the amount of Applicant's water right in the eventuality that the adjudication process reduces the Objectors' water rights. This argument also has been addressed previously in the discussion of Applicant's Exception 3.

Objectors' Exception: The Objectors in this matter also have entered an exception to the Proposal for Decision, in the form of a general objection to allowing the Applicant to pump from the geothermal aquifer. The Objectors contend that the evidence shows that pumping of the aquifer "probably will destroy the heating capabilities of the interrelated aquifers over a period of time" and that the "quantity of the source is finite"; they request that the Proposal be modified so as to prohibit pumping by the Applicant, and to limit the Applicant's removal of water from the aquifer to the natural flow.

As a general rule, recharge to geothermal aquifers is quite limited. See Finding of Fact Number 16. However, in the absence of any evidence on the limitations of the aquifer in question, the mere fact that use of water from the aquifer hypothetically may eventually deplete the water source is not sufficient reason for limiting withdrawals of water. Rather, limits must be delineated by determining the quantity of water which can be used beneficially for the purposes for which the water is to be appropriated, while protecting the integral elements of senior water use rights.

The focus of concern in setting limitations on withdrawals of water from the aquifer in this matter is protection of the thermal content of the aquifer, since this is the inherent "condition of water occurrence" which makes possible the Objectors' and Applicant's claimed purposes in appropriating from this particular water source. The testimony was that the aquifer has a sustained (thermal) yield capability of 500 gpm; withdrawals of that quantity should not create any heat loss in the geothermal resource. Therefore, the Proposal for Decision in this matter has limited the total withdrawals from the aquifer to the 500 gpm rate. Withdrawing this amount of water by means of pumping rather than by natural flow should not alter the effects, or lack thereof, of such withdrawals on the geothermal characteristic of the aquifer.

The testimony of Dr. Sonderegger concerning the possible effects which withdrawing 500 gpm from the aquifer may have on the occurrence and temperature of springs and wells in the area has been given due consideration. See Findings of Fact Numbers 19 and 20. Every effort has been made to ensure that the Objectors will be able to reasonably exercise their senior water rights under the foreseeable changes in conditions which Dr. Sonderegger has projected, while allowing maximum beneficial utilization of the water resource pursuant to the expression of legislative intent embodied in the Water Use Act. See M.C.A. § 85-2-101(3).

Therefore, based upon the Findings of Fact and Conclusions of Law, all files and records in this matter, and any modifications specified herein, the Department makes the following:

FINAL ORDER

Subject to the terms, conditions, restrictions, and limitations specified below, Application No. 42666-g41F is hereby granted to Richard MacMillan to appropriate 470 gpm up to 748 acre-feet per annum, from January 1 to December 31 of each year, for power generation, heating, and greenhouse use in the NE $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 28, Township 5 South, Range 1 West, Madison County, Montana. During time periods when the Permittee is on notice that William and Helen Thexton are exercising their senior water use rights to fill their hot pool, the Permittee will reduce his pumping rate to 430 gpm. The source of supply is a geothermal groundwater aquifer. The water will be appropriated by means of a well. The priority date for this Permit shall be 2:30 p.m., March 17, 1982.

This Permit is issued subject to the following express terms, conditions, restrictions, and limitations:

1. This Permit is subject to all prior existing water rights in the source of supply, and to any final determination of such rights as provided by Montana Law.

2. The Permittee shall not withdraw more water than is reasonably required for the purposes described herein. At all times when the water is not reasonably required for these purposes, the Permittee shall allow the waters to remain in the source of supply.

3. The Permittee shall proceed with reasonable diligence in the construction of his appropriative works and in the application of the water to beneficial use.

4. Nothing herein shall be construed to affect or reduce the Permittee's liability for damages which may be caused by the exercise of this Permit, nor does the Department, in issuing this Permit, acknowledge any liability for damages caused by the exercise of this Permit, even if such damage is a necessary and unavoidable consequence of the same.

5. The Permittee shall monitor and keep a written record of the flow rate, volume, and pressure of all waters withdrawn, and shall submit these records to the Department upon request.

6. The Permittee shall avoid thermal pollution of other waters caused by surface discharge of geothermal water, and to this end shall comply with all applicable state discharge laws and requirements. The Permit is subject to MCA § 85-2-505, which requires that all wells be constructed so that they do not allow

water to be wasted or to contaminate other water supplies or sources, and that all flowing wells be so capped or equipped with valves that the flow of water can be stopped when the water is not being put to beneficial use.

DONE this 19th day of July, 1984.

Gary Fritz
Gary Fritz, Administrator
Department of Natural
Resources and Conservation
32 S. Ewing, Helena, MT
(406) 444 - 6605

Peggy A. Elting
Peggy A. Elting, Hearing Examiner
Department of Natural Resources
and Conservation
32 S. Ewing, Helena, MT 59620
(406) 444 - 6612

NOTICE

The Department's Final Order may be appealed in accordance with the Montana Administrative Procedures Act by filing a petition in the appropriate court within thirty (30) days after service of the Final Order.

BEFORE THE DEPARTMENT
OF NATURAL RESOURCES AND CONSERVATION
OF THE STATE OF MONTANA

* * * * *

IN THE MATTER OF THE APPLICATION)
FOR BENEFICIAL WATER USE PERMIT) PROPOSAL FOR DECISION
NO. 42666-g41F BY RICHARD MACMILLAN)

* * * * *

Pursuant to the Montana Water Use Act and to the contested case provisions of the Montana Administrative Procedures Act, the above entitled matter came on for hearing in Bozeman, Montana, on April 27, 1983.

The Applicant, Richard MacMillan, appeared personally and by and through his counsel, John Scully.

Dr. John Sonderegger, of the Montana College of Mineral Science and Technology, appeared as a witness for the Applicant.

Objectors William and Helen Thexton appeared personally and by and through their counsel, James McLean.

Objectors Alex and Lois Yenny attended the hearing, but did not participate.

Scott Compton, Bozeman Area Office Supervisor, and Jan Mack, Bozeman Area Office Water Rights Specialist, appeared as staff witnesses for the Department of Natural Resources and Conservation (hereafter, "Department").

STATEMENT OF THE CASE

The Applicant filed an Application for Beneficial Water Use Permit No. 42666-g41F on March 17, 1982 for 1,000 gallons per

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minute (gpm) up to 1,612 acre-feet per year to be used year round for power generating, heating and a greenhouse. During the hearing, Applicant stated that he is willing to reduce the application amount to "400 to 500 gallons per minute", (Transcript, pp. 64-65). The water is to be withdrawn by means of a pump from a groundwater well in the NE $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 28, Township 5 South, Range 1 West, Madison County, Montana, and used for the stated purposes at the same location. The source of supply is a geothermal groundwater aquifer.

On May 27, 1982, and June 3 and June 10, 1982, the Department caused to be duly published notice of the pertinent portions of Application for Beneficial Water Use Permit No. 42666-g41F by Richard MacMillan, such notice appearing in the Virginia City Madisonian, a newspaper of general circulation in the area.

On June 22, 1982, the Department received a timely objection from William and Helen Thexton, stating generally that granting the Applicant a permit would interfere with their own current and future uses of the geothermal resource, and further stating that only domestic uses of the geothermal water had been intended when they subdivided the land presently owned by themselves and the Applicant.

On July 13, 1982, the Department received a timely objection from Alex and Lois Yenny, stating generally that they also have "thermal water" and that they live less than one-half mile from Applicant's well site.

On July 16, 1982, the Department received an untimely objection from the Madison Valley Hospital Association, alleging that the hospital located in Ennis will be injured if the Thextons' future geothermal uses are affected, on the basis that the Thextons have indicated that they would supply geothermal water to the hospital at some future date.

EXHIBITS

The Applicant offered the following exhibits for admission into the record:

Applicant's Exhibits

1. March 17, 1982 Application for Beneficial Water Use Permit No. 42666-g41F by Richard MacMillan; Interim Permit to Appropriate Water for drilling and test purposes (March 17, 1982), with Exhibit "A" list of conditions, and two copies of a map showing Applicant's geographic location.
2. April 1, 1983 Application for Extension of Time (in which to perfect an appropriation of water), and approval of the request for additional time to perfect (Bozeman Field Office, April 4, 1983).
3. Copy of Report of Drilling, Completion, Logging and Testing of Ennis Geothermal Well prepared for Madison Geothermal Corporation by Energy Services, Inc. (Jan. 6, 1983).
4. Copy of the Ennis Geothermal Well Drilling Plan for Madison County, Montana prepared by Energy Services, Inc.,

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Nov. 24, 1982 (with cover letter dated Nov. 24, 1982 which states plan to begin drilling on Nov. 29, 1982).

5. Copy of Pump Test of MacMillan Well, prepared by J.L. Sonderegger, Montana Bureau of Mines and Geology.
6. Copy of the Feasibility Study for the Ennis Project, done for Mr. MacMillan by Energy Services, Inc. (May 28, 1982).
7. Copy of work order and agreement between Richard MacMillan and Energy Services, Inc. to secure drilling contractor and related supplies to drill a geothermal well on the Richard MacMillan property with a maximum depth of 1000 feet, provide a drilling superintendent, and conduct a flow test upon completion of the well to provide an estimate of production. (Oct. 27, 1982).
8. Copy of drilling agreement between Deseret Drilling Company and Madison Geothermal Corporation.
9. (Withdrawn).
10. Copy of system analysis for proposed geothermal project, with addenda of a copy of the April, 1983 Geothermal Resources Council Bulletin, and photograph.
11. Copy of research paper on equipment used in direct heat projects, by Gene P. Ryan.
12. Copy of notice of sale of real property by William and Helen Thexton to Larry and Janet Herron, and John and Helen Beck (June 28, 1977).
13. Copy of Notice of Purchaser's Interest, giving notice that Larry and Janet Herron and John and Helen Beck have sold

- real property to Richard MacMillan (January 10, 1983).
14. Copy of the By-Laws of the Valley Garden Golf Village Homeowner's Association, with depiction of the development.
 15. Photograph (dated April 23, 1983) of overflow from Thexton hot springs (photo taken by MacMillan).
 16. Photograph of ditch dug from Warm Springs Creek to Morris Creek. (Photo taken by MacMillan, April 23).
 17. Photograph of discharge from the MAC-1 well (artesian flow) taken by MacMillan (April 23, 1983).
 18. Copy of drawing of the Thexton and MacMillan properties, showing location of geothermal wells and of existing and proposed water uses by the parties.

Applicant's Exhibits 1-8 and 10-18 were received into the record without objection; Exhibit 9 was withdrawn.

The Objectors offered the following exhibits for admission into the records:

Objector's Exhibits

1. Objection to Application for Beneficial Water Use Permit No. 42666-g41F by Richard MacMillan, received by the Department on June 22, 1982 from William and Helen Thexton.
2. Copy of drawing of location of the geothermal wells and geothermal water uses claimed by the Objectors, listing the claim numbers and dates.

3. (a) Acknowledgement of Claim, acknowledging DNRC receipt of Objector's claim form on March 13, 1981, with copies of the Statement of Claim for Existing Water Rights by Objectors for 40 gpm up to 10 acre-feet for commercial use. (b) Copy of Declaration of Vested Groundwater Rights for 40 gpm, with claimed historical use since 1865 (Dec. 30, 1963). (c) Certificate of Water Right for 8 gpm up to 12.90 acre-feet for recreation with priority date of May 17, 1982, (d) Certificate of Water Right for 95 gpm up to 2.55 acre-feet for geothermal, heating, with priority date of Jan. 17, 1983, (e) Well Log Report, dated Sept. 21, 1973.
4. July 14, 1982 letter to Department from William and Helen Thexton, with enclosed photograph of bath house used at hot springs 1890's - 1914.
5. U.S. Geological Survey Report, entitled "Supplemental Data from the Ennis and Other Thermal-Spring Areas, Southwestern Montana, 1978-80".
6. Geothermal agreement between William and Helen Thexton and the State of Montana, Montana Bureau of Mines and Geology, June 25, 1982.
7. Letter to Thomas Garrison from John Sonderegger, giving a "layman's summary" of the report on pump testing of the MacMillan well. (Feb. 9, 1983).
8. Original of the Exhibit 2 drawing, with additional markings made at the hearing which show location of the Yenny well, Thexton residence, and pump house.

Objectors' Exhibits 1-8 were received into the record without objection.

The Department offered the following exhibits for admission into the record:

Department Exhibits

1. Copy of Public Notice published in the Madisonian on May 27, and July 3 and 10, 1982.
2. Letter to Bill Thexton from DNRC (Jeff Birkby, Geothermal Energy Specialist) (Feb. 25, 1982).
3. Letter to William Thexton from DNRC (Scott Compton, Bozeman A.O.S.) (July 19, 1982).
4. Letter to Richard MacMillan from DNRC Scott Compton, Bozeman A.O.S.), informing him that two objections to his application had been received.
5. Letter to Applicant from DNRC (Scott Compton), informing Applicant of a condition that would be attached to any permit issued. (April 9, 1982).
6. Aerial photo of Ennis area, marked to show Thexton hot pool, site of permit application well, and wells TX-11 and TX-12.

Departmental Exhibits 1-6 were received into the record without objection.

The Hearing Examiner, having reviewed the evidence submitted herein, and the testimony in this matter, makes the following Proposed Findings of Fact, Conclusions of Law, and Order.

FINDINGS OF FACT

1. The geothermal resource involved in the matter is geothermal water, as opposed to alternate geothermal resources such as hot dry rock systems. MCA §85-2-102(14) of the Water Use Act specifically includes geothermal water in its definition of "water" for purposes of the Act. Therefore, the Department has jurisdiction over the subject matter herein.
2. The Department has jurisdiction over the parties to this matter, whether they appeared at the hearing or not.
3. The Applicant has a bona fide intent to appropriate water pursuant to a fixed and definite plan, and is not attempting to speculate in the water resource.
4. The Applicant intends to use the water for power generation and heating, which activities are beneficial uses of the water.
5. The Applicant has applied for 1,000 gpm, up to 1,612 acre-feet per year between January 1 and December 31 of each year, from a groundwater well located in the NE¼NW¼SE¼ of Section 28, Township 5 South, Range 1 West, Madison County, Montana.
6. According to the testimony of Dr. John Sonderegger, the source of supply is a geothermal groundwater aquifer which more likely than not is a "fractured aquifer system", in which the geothermal water is located in open fracture areas in bedrock. According to the report on the well drilling plan prepared for the Applicant by Energy Services, Incorporated, the minimum depth of the bedrock in the area is 500 to 700 feet below the surface.

The cutting samples from Applicants' well suggest that the general character of the lithology is sand and sandstone with interlayered clays.

The geothermal aquifer underlies at least one other aquifer; a shallow gravel layer from 15 to 50 feet thick which produces cold water. Dr. Sonderegger testified that the area probably also contains a separate intermediate cold-water aquifer, below the level of the gravel "cap", located in relatively unconsolidated materials which overlie the bedrock. There is evidence that the artesian pressure of the geothermal aquifer causes it to "bleed" upward into the overlying cold-water aquifers.

7. The geothermal aquifer which underlies the property of the Applicant and the Objectors, and the surrounding area to an undetermined extent, is characterized by a high thermal (heat) content. See, e.g., U.S. Geological Survey Open File Report 80-1182, Supplemental Data from the Ennis and Other Thermal Spring Areas, Southwestern Montana, 1978-80.

8. The well for which the Applicant has filed the present Application for Beneficial Water Use Permit was drilled pursuant to an Interim Permit to Appropriate Water for drilling and test purposes. The well is located in the NE $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 28, Township 5 South, Range 1 West. Reported well depth is 1220 feet. Applicant has applied for 1000 gpm up to 1612 acre-feet per year, but in testimony in the hearing in this matter stated his willingness to reduce the amount applied for to 400 to 500 gallons per minute. (Transcript, pp. 64-65). The priority date

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for the application is March 17, 1982. The water is geothermally-heated, with a well head temperature of approximately 193°F. (Transcript, p. 77).

9. A test well designated as TX-12 is located in the SE¼NW¼SE¼ of Section 28, Township 5 South, Range 1 West. The well was drilled by the Montana Bureau of Mines and Geology, and has a reported depth of 956 feet. The Objectors (hereafter, "Objectors" refers only to the Thextons) filed an Application for Beneficial Water Use Permit for 400 gpm on this well on May 14, 1982, but later filed a Notice of Completion of Groundwater Development and received a Certificate of Water Right for 95 gpm up to 2.55 acre-feet for geothermal and heating uses between January 1 to December 31 of each year. The priority date of the Certificate is January 17, 1983. The water from TX-12 is geothermally heated; the only information concerning the temperature of the water from this well suggests that it is approximately 90°C. at the well head. (Ennis Geothermal Well Drilling Plan, Applicant's Exhibit 4, p. 2). As of the date of the hearing in this matter, the water from TX-12 was being used for filling the Objectors' hot pool, with overflow going into a sewer lagoon which the Objectors have constructed to service the trailer court located on their property. (Transcript, pp. 92-93).

10. A test hole designated as TX-11 is located on the Objectors' property in the SE¼NW¼SE¼ of Section 28, Township 5 South, Range 1 West. The well has a reported depth of 875.5 feet. The Objectors have been issued a Certificate of Water

Right for TX-11, with a priority date of May 17, 1982, for 8 gpm up to 12.90 acre-feet for recreational uses between January 1 and December 31 of each year. The water from TX-11 is geothermally heated; test data in the record shows that on September 26, 1979 the temperature at the surface was 35.6°C and temperature at 615 feet was 88.3°C., and on September 28, 1979 the surface elevation temperature was 21.3°C and temperature at 597 feet was 93.2°C. On October 6, 1979, temperature at surface elevation was 22.5°C, and temperature at 608 feet was 94.1°C. As of the hearing date, TX-11 was being used for filling the Objectors' swimming pool. (U.S. Geological Survey Open File Report 80-1182). (Transcript, pp. 87-88).

11. The Objectors also have a well designated as the "wash house" well, located in the SW $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 28, Township 5 South, Range 1 West. The well has a reported depth of 100 feet. The Objectors have been issued a Certificate of Water Right for 30 gpm for domestic uses between January 1 and December 31 of each year, with a priority date of October 11, 1973. The water from this well is geothermally heated; test data shows that, on October 11, 1977, temperature at 9 feet was 17°C., and temperature at 97 feet was 89.4°C; on August 23, 1978, temperature at surface elevation was 29.9°C. and temperature at 97 feet was 72.2°C. (U.S. Geological Survey Open File Report pp. 80-1182). Objector testified that it would fluctuate downward to as low as 100°F. (Transcript, p. 115). The water from the wash house well was being used for coin operated washing machines, showers, and a hot water hydrant at the time of the hearing. (Transcript, p. 95).

12. The Objectors also have filed a Statement of Claim for Existing Water Rights for 40 gpm from hot springs located in the SE $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 28, Township 5 South, Range 1 West. A Declaration of Vested Groundwater Rights was filed on December 30, 1963, claiming a beneficial use date of 1865. The Objectors have also filed a Statement of Claim for Existing Water Rights for the hot springs, claiming 40 gpm for commercial uses between January 1 and December 31 of each year. The water in the springs is geothermally heated; Objectors testified that the springs formerly ran at 185-189°F., but subsequent to some construction work on the pool they have been approximately 165°F.

(Transcript, pp. 116, 120). At the time of the hearing, the water from the hot springs was being used to fill the pool, and overflow was going to the sewer lagoon. (Transcript, p. 88).

13. A well located in the NE $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 28, Township 5 South, Range 1 West, is owned by Alex and Lois Yenny, who have been issued a Certificate of Water Right for 30 gpm up to 1.5 acre-feet for domestic uses, with a priority date of March 25, 1980. The well has a reported depth of 124 feet. Test data from August 19, 1977, October 12, 1977, and March 7, 1978 shows a temperature range at the surface elevation from 24.1°C. to 4.4°C., and at approximately 120 feet from 36.1°C. to 32.6°C. (U.S. Geological Survey Open File Report, pp. 80-1182).

14. In order to allow continued beneficial use of a geothermal aquifer, withdrawals from the aquifer must be limited to sustained yield capabilities. Testimony by Dr. John Sonderegger

suggests that the geothermal aquifer has a sustained yield capability of approximately 500 gpm without creating thermal loss in the resource. (Transcript, pp. 46, 49, 50).

15. There are unappropriated waters in the source of supply.

16. Most geothermal aquifers have very limited recharge.

(See, e.g., Olpin, Tarlock, and Austin, Geothermal Development and Western Water Law, 4 Utah L. Rev. 773 (1979)). There is no data in the record in this matter which shows whether or not there is any recharge to the geothermal aquifer which is the source of supply for the Applicant and Objectors.

17. There is no information in the record in this matter to show what the geothermal heat source is for the aquifer, i.e., whether the water is heated by an underlying layer of hot "basement" rock, by a nearby heated intrusive system which allows fractures in the surrounding materials to serve as heat exchange systems, or by an alternate geothermal heat source. (See 4 Utah L. Rev., supra, at 786).

18. The proposed means of diversion, construction, and operation of the appropriation works are adequate.

19. The drawdown effects of pumping geothermal water from the Applicant's well would vary among the Objectors' wells and springs. According to Dr. Sonderegger, pumping would probably have little or no effect on the water level of the Yenny well and the "wash house" well, since these wells only penetrate the upper aquifers and have access to additional waters. (Transcript, p. 40). The level of the TX-12 well was "substantially impacted" during the test pumping of the Applicant's well. Dr. Sonderegger

estimates that a 16 foot decline in the water level of TX-12 would occur after Applicant's well was pumped for one year at 385 gpm, the maximum stable production volume of the pump used in testing Applicant's well, and that eventually TX-12 would cease to flow if pumping occurs at two or three times the natural flow rate. (Transcript, pp. 27 and 35, "Pump Test of MacMillan Well", Applicants' Exhibit 5). It is not clear whether Dr. Sonderegger refers to the natural flow rate of TX-12, 400 gpm, or to the flow rate of Applicant's well, which is 400-450 gpm. (Transcript, pp. 32, 64). No estimates on the drawdown effect on TX-11 were made, but Dr. Sonderegger testified that the rate of drawdown at TX-12 was greater than the rate of drawdown at TX-11 during Applicants' pumping test, showing a "much better amount of interconnection" between TX-12 and Applicants' well than between Applicant's well and TX-11. (Transcript, pp. 37-38). The effect of the test pumping on the flow of Objectors' hot springs was characterized as "a very small impact." (Transcript, p. 22). The eventual impact of pumping on the flow rate of the springs was characterized by Dr. Sonderegger as possibly being "substantial", but as being more likely "some" impact, with severer effects on the temperature of the springs than on the flow rate. (Transcript, pp. 35 and 53, "Pump Test of MacMillan Well", Applicant's Exhibit 5).

20. Pumping geothermal water from the Applicant's well would also have varying effects on the water temperature of the Objectors' wells and hot springs. Dr. Sonderegger testified that if no more than 500 gpm is drawn from the geothermal aquifer by

all uses, the aquifer should not experience any thermal loss. (Transcript, p. 46). TX-12 penetrates the geothermal aquifer, as does TX-11, although TX-11 probably does not penetrate the deeper, highly fractured production zone which provides water to TX-12 and Applicant's well. ("Pump Test of MacMillan Well", Applicant's Exhibit 5).

Dr. Sonderegger testified that pumping from the geothermal aquifer may cause cooling of the shallower wells, due to a reduction of the amount of hot water which is leaking upward from the geothermal aquifer. (Transcript, pp. 35, 40, 48). With regard to the "wash house" well, he testified that if 500 gpm is removed from the geothermal aquifer, the temperature of the water may drop "some...I don't know if it would be significantly", although there might be a "substantial problem" in 5-10 years. (Transcript, pp. 49-52). The Yenny well, which is deeper but cooler, is not used for geothermal purposes. The Objector's hot springs will likely experience an increasingly larger amount of cold water mixing with the geothermal water, possibly to the point where the springs would be suitable for standard heat pump use, but not for bathing. (Transcript, pp. 47, 53, "Pump Test of MacMillan Well", Applicant's Exhibit 5). On the basis of the record herein, it is impossible to quantify the exact impacts which may occur to the heat content of Objectors' wells and springs.

21. There are several domestic wells in the nearby area which draw water from the shallow cold-water aquifers. (U.S. Geological Survey File Report 80-1182, p.8).

22. MCA § 85-2-505 states that waste and contamination of groundwater are prohibited.

23. Withdrawal of water from a geothermal aquifer, especially in large quantities, presents several potential problems; reduction of reservoir pressures, the possibility of land subsidence in the area above the aquifer, inflow of cold water into the geothermal aquifer, and thermal or chemical pollution of other groundwaters caused by subsurface leaking or surface discharge of geothermal waters (which often contain more heat, brine, and minerals than other types of groundwater). Depending upon the specific geohydrologic characteristics of the geothermal aquifer in question, these problems can be partially alleviated by requiring reinjection of the thermal waters into the source aquifer after they have been utilized for their intended purpose. See Perlmutter, Legal and Institutional Framework for Geothermal Resource Development in Montana, Montana Energy and MHD Research and Development Institute, (October, 1978), at 37-40; 33 Hastings L.J. 427, 448 n. 107 (1981).

24. Applicant testified that the possibility of reinjection had been considered with regard to his intended geothermal uses, but that "Energy Services wasn't too favorable on injecting and neither was Sonderegger". (Transcript, p, 78).

25. No evidence or testimony was presented on the issue of potential problems (other than effect on Objectors' water uses) connected with Applicant's proposed withdrawal of water from the geothermal aquifer involved in this matter.

The Hearing Examiner, after fully considering all of the evidence in the record herein, and the above-listed Proposed Findings of Fact, hereby makes the following Proposed:

CONCLUSIONS OF LAW

1. The Department has jurisdiction over the parties and the subject matter of this hearing.
2. Objector Madison Valley Hospital Association, having failed to make timely objection, and furthermore having no vested right upon which to base an objection, is not a party to this matter.
3. The Department gave proper notice of the hearing, and all relevant substantive and procedural requirements of law or rule have been fulfilled, therefore the matter was properly before the Hearing Examiner.
4. The Department must issue a permit if the Applicant proves by substantial credible evidence that the following criteria are met:

(1) there are unappropriated waters in the source of supply:

(a) at times when the water can be put to the use proposed by the applicant;

(b) in the amount the applicant seeks to appropriate, and

(c) throughout the period during which the applicant seeks to appropriate, the amount requested is available;

(2) the rights of a prior appropriator will not be adversely affected;

(3) the proposed means of diversion, construction, and operation of the appropriation works are adequate;

(4) the proposed use of water is a beneficial use;

(5) the proposed use will not interfere unreasonably with other planned uses or developments for which a permit has been issued or for which water has been reserved.

5. There are unappropriated waters in the source of supply, at times when the water can be put to the use proposed by the Applicant, in the amount the Applicant seeks to appropriate, and throughout the period during which the Applicant seeks to appropriate, the amended amount requested is available.

6. The proposed means of diversion, construction, and operation of the appropriation works are adequate. See State ex rel. Crowley, 108 Mont. 89, 88 P.2d 23 (1939).

7. The uses proposed by the Applicant are a beneficial use of water. M.C.A. § 85-2-102(2).

8. The proposed uses will not interfere unreasonably with other planned uses or developments for which a permit has been issued or for which water has been reserved.

9. The Objectors are not empowered by their prior water rights to prevent all changes in water conditions in the area. MCA § 85-2-401(1) states, "Priority of appropriation does not include the right to prevent changes by later appropriators in the condition of water occurrence, such as the increase or decrease of streamflow or the lowering of a water table, artesian

pressure, or water level, if the prior appropriator can reasonably exercise his water right under the changed conditions." See also In the Matter of the Application for Beneficial Use Permit No. 32722j-g40R by the City of Plentywood; Atchison v. Peterson, 87 U.S. 507 (1874).

10. A water right is composed of distinct characteristics including, but not limited to, flow rate, volume, and quality. The specific elements which need to be maintained in order to ensure that the appropriator may make beneficial use of his water right will vary according to the use for which the water is being appropriated. In example, an appropriator who is using water for domestic purposes will need to maintain a higher water quality standard than an appropriator who is using water for irrigation: in order for the domestic appropriator to reasonably exercise his water right, the element of "quality" must be protected to the extent that the water will still be satisfactory for domestic purposes. See Atchison v. Peterson, 87 U.S. 507 (1874); In the Matter of the Application for Beneficial Water Use Permit No. 9357-s40A by Reuben Pitsch.

In the present instance, the appropriators from the source of supply have claimed geothermal uses and are utilizing the heat content of the water. Their beneficial uses of the water are dependent upon this specific characteristic, and they could not reasonably exercise their water rights if the heat content of the water was severely altered or removed. Under these circumstances, the thermal content of the water is a protectible element of the appropriators' beneficial water use rights to the

extent necessary to allow them to reasonably exercise those rights.

11. The prior appropriators can reasonably exercise their water rights under the changed conditions.

The results of the MacMillan pump test, and testimony by Dr. Sonderegger, indicate that the Objectors will experience certain changes in the conditions of water occurrence if the applicant pumps from the geothermal aquifer: the TX-11 and TX-12 wells will experience drawdown, and TX-12 may eventually cease to flow under artesian pressure, although the water would still be present in the well fairly close to the ground level. The hot springs and the shallow wells will gradually become cooler while the temperature of the deeper, geothermal aquifer should remain constant if the total yield taken from it is limited to 500 gpm.

Under these circumstances, prior appropriators still will be able to reasonably exercise their senior rights. The Yennys have a domestic use which will not be affected; Dr. Sonderegger testified that the Yenny well should not experience any drawdown. Although the water temperature may be slightly reduced over a period of time, the Yennys have not been utilizing the geothermal water for its heat content, as evidenced by their objection to the application in this matter.

The Objectors' water rights to the TX-11 and TX-12 wells are junior to those of the Applicant: the uses of those wells have priority dates later in time than the Applicant. Although Certificates of Water Right have been issued to the Objectors for

both of the wells, the Certificates were issued subject to all prior existing water rights in the source of supply.

The Objectors have rights, senior to those of the Applicant, for the hot springs and the wash house well; a combined total of 70 gpm. From Dr. Sonderegger's testimony, it appears that the wash house well will not be affected as far as quantity of water, and that the hot springs may suffer some loss in flow: the impact on these water sources will be mostly to the thermal content. Although the temperature, or caloric content, of geothermal water is a protectible characteristic of geothermal water, however, the Objectors will be able to reasonably exercise their senior water rights. .

The Objectors and their predecessors have made use of the geothermal water for maintaining a hot pool for personal and commercial recreation, thus specifically utilizing the thermal content of the water for a beneficial purpose. It is not clear exactly what temperatures are needed for the pool. However, some reduction in temperature will not work adverse affect to the use since the Objectors testified that sometimes they have to mix the water from the hot springs with cooling water or allow the hot water to cool for several hours before anyone can enter the pool.

The Objectors also have used hot water in the wash house, where the well apparently sits above a subsurface break or other geologic anomaly which allows thermal water to be pumped from a much shallower depth than the depth of the geothermal aquifer. Objectors testified that they use the hot water for several

purposes such as washing machines and showers for their trailer court tenants, but they submitted no testimony or evidence to indicate the water temperatures that are necessary for the uses.

Altogether, the Objectors have senior water use rights for 40 gallons of water per minute up to 10 acre-feet per year, with a temperature suitable for a hot pool, and for 30 gpm with a temperature suitable for domestic purposes. Objectors are currently appropriating 173 gpm of geothermal water (40 gpm from the hot springs, 30 gpm from the wash house well, 95 gpm from TX-12, and 8 gpm from TX-11). They therefore have four sources of geothermal water from which to garner their 70 gpm of geothermal water senior to any use by the Applicant.

Although the water may vary in temperature among the four sources, the Hearing Examiner notes that the Objectors will be able to reasonably exercise their senior water rights. The Objectors already have used the water from TX-11 and TX-12 to fill the hot pool, which indicates that either or both of these sources are suitable for this particular use, if pumping by the Applicant should change the flow or the temperature of the springs to the extent that the springs could not produce 40 gpm of hot water. Even if pumping of the aquifer should reduce the natural artesian pressure of TX-12, Dr. Sonderegger's testimony indicates that the water would not be drawn down to a point where it could not be readily pumped; pumping from below the surface would also produce a higher temperature.

This water could also be used to supply the wash house if the well is significantly impacted, although evidence indicates

that the well is deep enough to continue to provide the same quantity of water. Although water from TX-11 and TX-12 have not been used in the wash house, the temperature of the water from these sources should be adequate for the Objectors' uses: no evidence was presented by them which would indicate that the uses could not be continued with somewhat cooler water, especially since testimony indicates that the temperature of the well under present conditions tends to fluctuate significantly.

Because there are adequate sources of thermal water to allow the Objectors reasonable use of their senior rights, it is not necessary to reach the question of whether the uses which they make of water from the "wash house" well are unprotected due to the fact that the Objectors have claimed the water for domestic use but are, instead, using it for commercial purposes.

12. Withdrawals of geothermal water greater than the sustained yield of the geothermal aquifer will work adverse affect to beneficial water uses by appropriators from the aquifer. The only evidence available in the present record suggests that 500 gpm is the maximum amount of water which can be withdrawn from the aquifer in this matter without incurring thermal loss to the geothermal resource. According the Objectors their 70 gpm of senior rights, 430 gpm is available for appropriation by the Applicant.

13. Surface wasting of geothermal water has the potential of thermally polluting the shallow cold-water aquifer in the area, which provides domestic water.

14. There is insufficient data in this record to allow the Hearing Examiner to make a decision concerning the need for reinjecting thermal waters into the geothermal aquifer.

WHEREFORE, based on the foregoing Findings of Fact and Conclusions of Law, the Hearing Examiner makes the following:

PROPOSED ORDER

Subject to the terms, conditions, restrictions, and limitations specified below, Application No. 42666-g41F is hereby granted to Richard MacMillan to appropriate 430 gallons per minute up to 693.5 acre-feet per annum, from January 1 and December 31 of each year, for power generation, heating, and greenhouse use in the NE $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ of Section 28, Township 5 South, Range 1 West. The source of supply is a geothermal groundwater aquifer. The water will be appropriated by means of a well. The priority date for this permit shall be 2:30 p.m., March 17, 1982.

This permit is issued subject to the following express terms, conditions, restrictions and limitations:

1. This Permit is subject to all prior existing water rights in the source of supply, and to any final determination of such rights as provided by Montana Law.
2. The Permittee shall not withdraw more water than is reasonably required for the purposes described herein. At all times when the water is not reasonably required for these purposes, the Permittee shall allow the waters to remain in the source of supply.

3. The Permittee shall proceed with reasonable diligence in the construction of his appropriative works and in the application of the water to beneficial use.

4. Nothing herein shall be construed to affect or reduce the Permittee's liability for damages which may be caused by the exercise of this permit, nor does the Department, in issuing this permit, acknowledge any liability for damages caused by the exercise of this permit, even if such damage is a necessary and unavoidable consequence of the same.

5. The Permittee shall monitor and keep a written record of the flow rate, volume, and pressure of all waters withdrawn, and shall submit these records to the Department upon request.

6. The Permittee shall avoid thermal pollution of other groundwater caused by surface discharge of geothermal water, and to this end shall comply with all applicable state discharge laws and requirements. The permit is subject to MCA § 85-2-505, which requires that all wells be constructed so that they do not allow water to be wasted or to contaminate other water supplies or sources, and that all flowing wells be so capped or equipped with valves that the flow of water can be stopped when the water is not being put to beneficial use.

DONE this 3rd day of May, 1984.

Peggy A. Elting
Peggy A. Elting, Hearing Examiner
Department of Natural Resources
and Conservation
32 S. Ewing, Helena, MT 59620
(406) 444 - 6612
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CASE # 42666

NOTICE

This Proposal for Decision is offered for the review and comment of all parties of record. Objections and exceptions must be filed with and received by the Department of Natural Resources and Conservation on or before May 29, 1984.

AFFIDAVIT OF SERVICE

STATE OF MONTANA)
) ss.
County of Lewis & Clark)

Donna K. Elser, an employee of the Montana Department of Natural Resources and Conservation, being duly sworn on oath, deposes and says that on May 4, 1984, she deposited in the United States mail, Certified mail, an order by the Department on the Application by Richard MacMillan, Application No. 4266-g41F, for an Application for Beneficial Water Use Permit, addressed to each of the following persons or agencies:

1. Richard MacMillan, Box 761, Ennis, MT 59729
2. John Scully, Attorney, 1609 W. Babcock, Bozeman, MT 59715
3. William and Helena Thexton, Box 641, Ennis, MT 59729
4. James McLean, Attorney, 215 W. Mendenhall, Bozeman, MT 59715
5. Alex and Lois Yenny, Box 748, Ennis, MT 59729
6. Scott Compton, Bozeman Field Office (inter-departmental mail)
7. Peggy A. Elting, Hearing Examiner (hand deliver)

DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

by Donna K. Elser

STATE OF MONTANA)
) ss.
County of Lewis & Clark)

On this 4th day of May, 1984, before me, a Notary Public in and for said state, personally appeared Donna Elser, known to me to be the Hearings Recorder of the Department that executed this instrument or the persons who executed the instrument on behalf of said Department, and acknowledged to me that such Department 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.

Beth Lambson
Notary Public for the State of Montana
Residing at Helena, Montana
My Commission expires 6 Oct 1985

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