

DEPARTMENT OF
WATER RESOURCES

4. Attached hereto as Exhibit C is a true and correct copy of License No. 63-7354 that I obtained from the Idaho Department of Water Resources ("IDWR") Internet website.

5. Comparing Exhibit B to the licensed place of use and to the field examiner's maps in the IDWR file for License No. 63-7354, I found that the area outlined in the examiner's maps encompass 123.8 acres which is 10.8 acres more than the 113 acres described in his calculations, as reflected on License No. 63-7354. After subtracting the 3.2 acres associated with Water Right No. 63-31417, leaves a balance of 120.6 acres for Water Right No. 63-31418.

6. I attribute the majority of the difference in acreage to be in the NE1/4SE1/4 of Section 34, Township 6 North, Range 4 West, Boise Meridian where the examiner listed 18 acres but his outline encompasses 25.3 acres, a difference of 7.3 acres.

7. The remaining difference of 3.5 acres is explained by small differences in the irrigated acres within the other quarter-quarter sections.

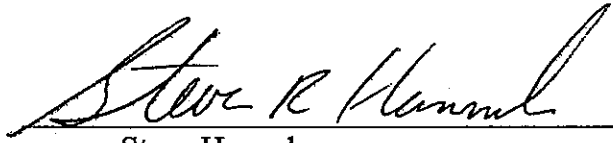
8. Exhibit B hereto shows the number of acres I found to be actually irrigated on the 1987 aerial photograph, compared with the field examiner's observations in 1990.

9. Exhibit D hereto is the license examiner's capacity calculation work sheet from the IDWR License file for Water Right No. 63-7354 that I obtained from the IDWR website.

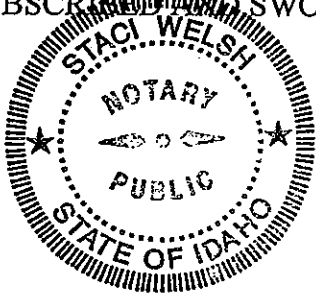
Exhibit D shows that if the dynamic head was 160 feet, as the examiner noted, then the calculated diversion capacity of the system at the time of the field exam would be 2.6 cubic feet per second ("cfs"). For 120.6 acres, the standard diversion rate of 0.02 cfs/acre would amount to a total of 2.41 cfs. This 2.41 cfs and the amount from the 3.0 acre claim (63-31417) of 0.06 cfs equals a combined total of 2.47 cfs, which is somewhat less than the capacity limit calculated by the examiner. In this area of Idaho, an annual diversion volume of 542.7 acre feet per annum ("afa") would be appropriate for 120.6 acres.

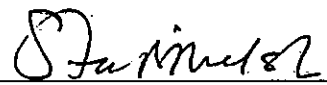
FURTHER YOUR AFFIANT SAYETH NAUGHT.

DATED this 16 day of April 2008.


Steve Hannula

SUBSCRIBED AND SWORN to before me this 16th day of April 2008.




Notary Public in and for the State of Idaho
Residing at: Meridian, Idaho
My Commission Expires:

CERTIFICATE OF SERVICE

I hereby certify that on this 21st day of April, 2008, I caused to be served a copy of the foregoing document on the following persons by the postage pre-paid method below:

United States Department of Justice
Environment and Natural Resource Division
550 West Fort Street, MSC 033
Boise, ID 83724

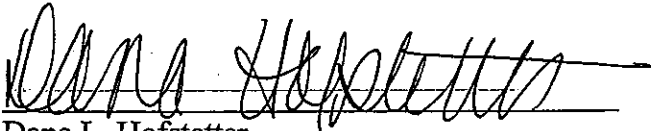
☒ U.S. Mail ☐ Overnight Delivery ☐ Hand-Delivery ☐ Facsimile

IDWR Document Depository
P.O. Box 83720
Boise, ID 83720-0098

☒ U.S. Mail ☐ Overnight Delivery ☐ Hand-Delivery ☐ Facsimile

Chief, Natural Resources Division
Office of the Attorney General
State of Idaho
P.O. Box 44449
Boise, ID 83711-4449

☒ U.S. Mail ☐ Overnight Delivery ☐ Hand-Delivery ☐ Facsimile


Dana L. Hofstetter

STEVEN R. HANNULA
PROFESSIONAL ENGINEER, HYDROGEOLOGIST

SUMMARY

Mr. Hannula is the project manager for a variety of projects that involve the many aspects of water resources, including water rights, water quality, surface water/groundwater interactions, and expert testimony. As a professional engineer and professional geologist his responsibilities often include the conceptualization of groundwater flow systems or establishing the technical basis for litigation support of hydrologic problems. His areas of expertise include hydrologic evaluation, site characterization, and design of wells and well-monitoring networks.

EDUCATION

Professional Engineer, Idaho license number 11805
Professional Geologist, Idaho license number 1098

Master of Engineering - Geological Engineer: Colorado School of Mines. Emphasis in groundwater/surface water interaction. Graduated May 5, 1995. GPA 4.0/4.0.

Bachelor of Science - Geology: University of Wisconsin Oshkosh. Graduated Cum Laude 1989. GPA 3.54/4.0.

WORK EXPERIENCE

ERO Resources Corporation - Boise, Idaho. August 2000 to present.

Hydrogeologist: Responsible for providing technical expertise to the investigation of water resource projects, including water rights, characterizing groundwater flow systems in support of water rights applications and disputes. Project work is primarily assisting clients in the evaluation, understanding, and management of their water rights and resource.

Shepherd Miller, Inc. - Fort Collins, Colorado. June 1995 to July 2000.

Hydrogeologist: Primary responsibility was to supply technical expertise to the investigation of groundwater flow systems. Project work has included hydrogeological characterization, groundwater monitoring, groundwater sampling, aquifer testing, groundwater numerical modeling, and report writing. Data management through database technology has been a growing responsibility.



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Colorado School of Mines - Golden, Colorado. August 1993 to May 1995.

Teaching Assistant: Responsible for senior level hydrogeology laboratory instruction for four semesters. Instructed one semester of Earth Science Systems Lab course.

Graduate Research Assistant: Research in characterization of stream/aquifer interaction. Included development of an improved method of in-situ measurement of hydraulic conductivity of a streambed.

U.S.G.S. Project Office - Idaho National Engineering Lab. February 1992 to August 1993.

Hydrologic Technician: Project experiences include: monitoring well installation including air rotary drilling, construction, and completion; assisted in equipment maintenance, operation, and in-field repairs; programmed an Oracle database to manage lithologic core data; facilitated groundwater sampling activities; assisted in geophysical wellbore logging, including neutron, natural gamma, resistivity, borehole deviation, caliper, and video logging. Performed technical review of U.S.G.S. Open File Reports. Certified as a CPN neutron gauge operator to conduct moisture profile surveys.

U.S. Navy Commissioned Ensign - April 6, 1990.

Graduated from Naval Nuclear Power School, which is an intense 24-week course in reactor power theory. Stationed at the Naval Nuclear Power Training Unit-Idaho. Duties included training for all operations of a nuclear propulsion plant and associated systems. Honorable Discharge - September 30, 1997.

U.S.G.S. Geological Division - Menlo Park, California. Summer 1989.

Laboratory Technician: Duties included preparing rock samples for x-ray analysis, digitizing maps, and assisting in field mapping of volcanic rocks in central Nevada.

University of Wisconsin - Oshkosh Geology Department. January to June 1989.

Geologist: Received a National Science Foundation grant to explore a block-in-mélange structure in Zacatecas, Mexico. Results were presented at the 1990 Geological Society of America Cordilleran Sectional Meeting.

University of Wisconsin - Oshkosh Geophysics Department. June 1987 to May 1989.

Computer Programmer: Programmed FORTRAN graphics utilities for plotting seismic reflection survey and aero-magnetic survey data.

Morgantown Energy Technology Center - Morgantown, West Virginia. June to December 1986.

Computer Programmer: Programmed a Drillstem Pressure Build-up Analysis routine and wrote the accompanying user's guide.

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PUBLICATIONS

- Steven R. Hannula, Kenneth J. Esposito, John A. Chermak, Donald D. Runnells, David C. Kieth, and Larry Hall, 2003, "Estimating Ground Water Discharge by Hydrograph Separation", *Ground Water*, Vol. 41, No. 3, May-June, pages 368-375.
- David C. Keith, Donald D. Runnells, Kenneth J. Esposito, John A. Chermak, David B. Levy, Steven R. Hannula, Malcolm Watts, and Larry Hall, 2001, "Geochemical models of the impact of acidic groundwater and evaporative salts on Boulder Creek at Iron Mountain, California", *Applied Geochemistry*, Pergamon, Volume 16, pages 947 – 961.
- Hannula, S.R., D.C. Keith, K.J. Esposito, J.A. Chermak, and D.D. Runnells, 1999, "Estimating groundwater discharge by hydrograph separation, Iron Mountain, CA", *Proceedings of the sixth International Conference on Tailings and Mine Waste, 1999*, A.A. Balkema, Rotterdam, Netherlands.
- Keith, D.C., D.D. Runnells, K.J. Esposito, J.A. Chermak, and S.R. Hannula, 1999, "Efflorescent sulfate salts – chemistry, mineralogy, and effects on ARD streams", *Proceedings of the sixth International Conference on Tailings and Mine Waste, 1999*, A.A. Balkema, Rotterdam, Netherlands.
- Davis, L.C., S.R. Hannula, B. Bowers, 1997, "Procedures for Use of, and Drill Cores and Cuttings Available for Study at, the Lithologic Core Storage Library, Idaho National Engineering Laboratory, Idaho", U.S. Geological Survey Open File Report 97-124.
- Hannula, S.R., 1995, "Temporal and Spatial Variations of Hydraulic Conductivity in a Streambed in Golden, Colorado", Master of Engineering Report, Colorado School of Mines, Golden, Colorado.
- Hannula, S.R., and E.P. Poeter, 1995, "Temporal and Spatial Variations of Hydraulic Conductivity in a Streambed in Golden, Colorado", Colorado Water Resources Research Institute, Colorado State University, Open File Report No. 9, report dated April 1995.
- Klein, R.T., S.R. Hannula, N.W. Jones, J.W. McKee, T.H. Anderson, 1990, "Cerro el Pedernal: Block-in-Mélange Features in Northern Zacatecas, Mexico", *Geological Society of America Abstracts with Programs*, February 1990, Vol. 22, No. 3.
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PROFESSIONAL DEVELOPMENT

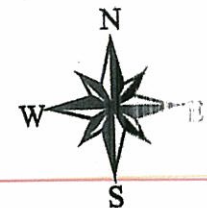
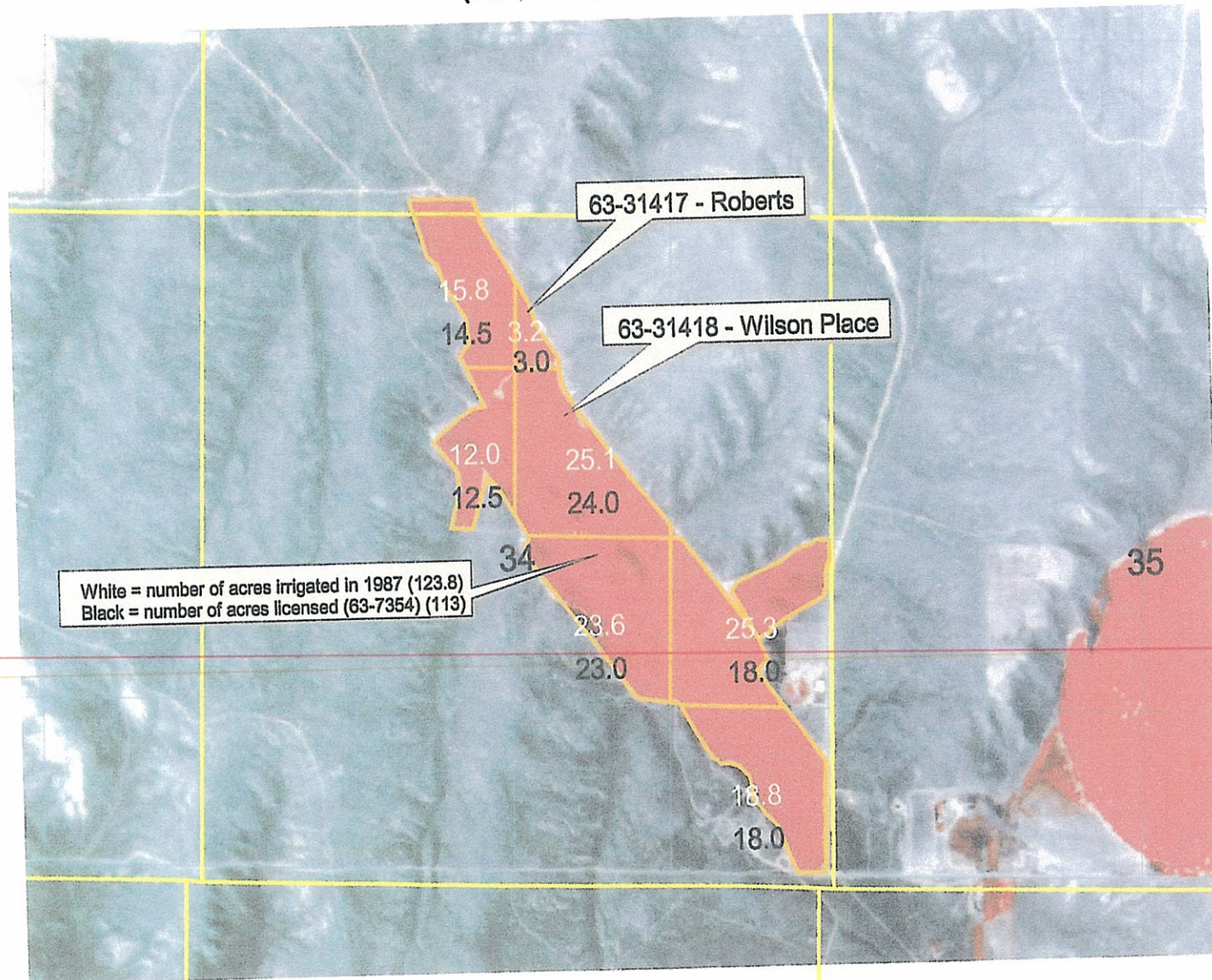
Hannula, S.R., "Use of Hydrograph Separation Techniques to Determine Groundwater Contribution to Boulder Creek, Iron Mountain, California", AGU Annual Fall Meeting in San Francisco, Abstracts with Programs, 1997.

Chermak, J., K. Esposito, S. Hannula, D. Keith, D. Runnells, M. Watts, L. Hall, "Determination of Metals Loading in Mining Impacted Areas Using Simulated Rainfall Experiments, Iron Mountain, California", GSA Annual Meeting in Salt Lake City, Utah, Abstracts with Programs, 1997.

AWARDS

- Outstanding Teaching Assistant - 1994 - Geology and Geological Engineering Department, Colorado School of Mines.
 - Superior Performance Award - U.S.G.S. Idaho District, Water Resources Division.
 - Recipient of National Association of Geology Teachers Summer Internship with the U.S. Geological Survey.
 - Recipient of the University of Wisconsin Oshkosh Scholars Program Scholarship.
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**Exhibit B Irrigation Patterns in 1987
(Basin and Range Resources Company LLC - Wilson Place)
(T6N, R4W, Section 34 Payette County)**



63-31418 Licensed
Sections
QQ



Prepared by: ERO Resource
3314 Grade 4
Boise, ID 83704
(208) 373-1111
NAPP 1987 Adjudication Photo

State of Idaho
Department of Water Resources

WATER RIGHT LICENSE

WATER RIGHT NO. 63-07354

Priority: March 28, 1974

Maximum Diversion Rate:

2.26 CFS

Maximum Diversion Volume:

508.5 AF

This is to certify, that JOSEPH W ROBERTS
15032 HOLLOW RD
CALDWELL ID 83605

has complied with the terms and conditions of the permit, issued pursuant to Application for Permit dated July 29, 1970; and has submitted Proof of Beneficial Use on July 7, 1980. An examination indicates that the works have a diversion capacity of 2.300 cfs of water from a GROUNDWATER source, and a water right has been established as follows:

<u>BENEFICIAL USE</u>	<u>PERIOD OF USE</u>	<u>RATE OF DIVERSION</u>	<u>ANNUAL VOLUME</u>
IRRIGATION	03/15 to 11/15	2.26 CFS	508.5 AF

LOCATION OF POINT(S) OF DIVERSION:

SEW , Sec. 34, Township 06N, Range 04W
PAYETTE County

PLACE OF USE: IRRIGATION

<u>TWN</u>	<u>RGE</u>	<u>SEC</u>	<u>ACRES</u>	<u>ACRES</u>	<u>ACRES</u>	<u>TOTAL</u>
06N	04W	34	NWNE 3	SWNE 24	NENW 14.5	
			SEW 12.5	NESE 18	NWSE 23	
			SESE 18			113

Total number of acres irrigated: 113

CONDITIONS/REMARKS:

1. The maximum diversion volume is defined as the maximum allowable volume of water that may be diverted annually from the source under this right. The use of water confirmed by this right is limited to the amount that can actually be beneficially used. The maximum diversion volume may be adjusted to more accurately describe the beneficial use or to implement accepted standards of diversion and use efficiency.
2. This water right is appurtenant to the described place of use.
3. This right is subject to all prior water rights and may be forfeited by five years of non-use.
4. Modifications to or variance from this license must be made within the limits of Section 42-222, Idaho Code, or the applicable Idaho law.
5. This right when combined with all other rights shall provide no more than .02 cfs per acre nor more than 4.5 afa per acre for the lands above.

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DEC 11 1991

EXHIBIT

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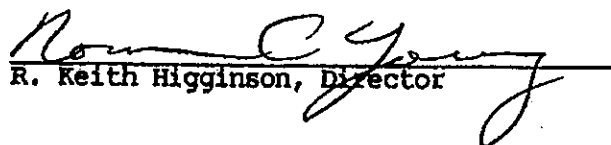
State of Idaho
Department of Water Resources

WATER RIGHT LICENSE

WATER RIGHT NO. 63-07354

This license is issued pursuant to the provisions of Section 42-219, Idaho Code.
Witness the seal and signature of the Director, affixed at Boise, this 27TH
day of NOVEMBER, 1991.

Acting for


R. Keith Higginson, Director

RECEIVED
DEC 11 1991

IRRIGATION RIGHT FROM A GROUND WATER SOURCE

A theoretical calculation is necessary to determine if a measurement is required for irrigation from a groundwater source.

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1. Using the found acres (or an estimate by the permit holder) calculate the acre-foot per annum limit. This is the volume that the system must be able to theoretically produce to exclude a rate of flow measurement.
2. Next, given the pump hp and the estimated dynamic water level, calculate the theoretical rate of flow that the system can produce.
3. Using the rate found in step 2 and the days in the permitted irrigation season, calculate the theoretical AFA that the system could produce. This volume is then compared to the first AFA calculation. If the theoretical volume (step 3) is greater than the irrigation requirement volume (step 1) then no measurement is necessary. If it is less, then you must make a diversion rate measurement during the field examination.

1.

Phone conv.

$$\frac{150}{\text{Found Acres}} * \frac{4.5}{\text{Irr. Req.}} = \frac{675}{\text{AFA}} \quad \text{both rates exceed allowable}$$

2.

(125)

$$(50+75) \text{ HP} * 8.8 * (.7) \text{ EFF} = 2.3 \text{ CFS (2.6 CFS)}$$

$$(190) \text{ Dyn Level} + (2.3 * (60) \text{ PSI}) = \text{Theor. Div. Rate}$$

3. old field

report, incomplete,
from 1980 States bowls
set at this depth.

(160)

$$\frac{(2.6) 2.3}{\text{Theoretical Div. Rate}} * \frac{229}{\text{Days in season}} * 1.9835 = 1066 (1180) \text{ AFA}$$

Note: for electrical motors

EFF = 0.70

for diesel motors

EFF = 0.60

Data Requires Verification ☐Measurement Required -- ☐Measurement Not Required ☒

Calculation data sources:

Found acres = 113 - from field reportHP = sameDyn. Level = 190PSI = using 60 for irrigation system

MICROFILMED

DEC 11 1991