

Keen, Shelley

From: Keen, Shelley
Sent: Tuesday, April 17, 2007 9:12 AM
To: 'david.stanish@ag.idaho.gov'
Subject: Capitol Mall Geothermml -- Amendment of Permit

David,

I've attached a form for amending the place of use for the Capitol Mall geothermal permit. I've also attached a map showing the place of use and the point of diversion proposed on the amendment form. As you can see on the map, small portions of the place of use are in quarter-quarter sections not listed in the field report. For that reason, the amendment lists four quarter-quarter sections instead of two.

Before a license can be issued, the permit must be amended to depict the place of use as it was actually developed. If you concur with the information presented on the amendment form, please sign the first page of the form and return it with the \$50.00 filing fee.

I think it would be useful to meet to discuss the annual volume issue. I have discussed the available data and figures with Ken Neely and with Christian Petrich, the hydrogeologist who authored the 2003 IWRRR report. Unlike the change to the place of use, the annual volume limit can be added at licensing.

Please call and let me know when we might be able to meet.

Sincerely,

Shelley Keen
Idaho Department of Water Resources
P.O. Box 83720
Boise, ID 83720-0098
(208) 287-4947
shelley.keen@idwr.idaho.gov



63-9341 Draft
Licensing Amendm..



63-9341.jpg



Idaho Department of Water Resources

Water Right:

63-9341

(Heating)

Legend

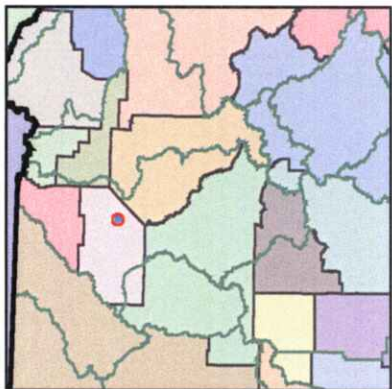
● Point of Diversion

Place of Use

Townships

PLS Sections

Quarter Quarters



Ada County
IDWR Basin 63



0 0.1 0.2 Miles



Prepared by S. Keen
On Tuesday, April 17, 2007
2004 Aerial Photography

Printed from a
2003 IWRI report
authored by Christian Patrick.

Christian res has getting the
numbers from Ken. Would have to
get spreadsheet & review to determine
why they differ from Ken's
numbers.

S. Keen

proof →

Year	BWSWD	Capitol Mall	Boise City			VA	Summary	
	Production	Production & Injection	Production	Injection	Net With- drawals	Production & Injection	Total Use	Net With- drawals
1978	256.1						256.1	256.1
1979	312.2						312.2	312.2
1980	308.1						308.1	308.1
1981	239.4						239.4	239.4
1982	276.0						276.0	276.0
1983	283.5	12.8					296.3	283.5
1984	300.2	164.6	166.7		166.7		631.5	466.9
1985	281.2	175.4	121.4		121.4		578.0	402.6
1986	253.1	192.0	176.8		176.8		622.0	429.9
1987	183.1	169.1	188.9		188.9		541.1	372.0
1988	199.4	138.8	123.8		123.8		462.1	323.2
1989	278.0	154.4	158.0		158.0	28.48	618.9	436.0
1990	244.6	130.5	122.3		122.3	118.21	615.7	366.9
1991	245.7	182.7	121.3		121.3	129.08	678.8	367.0
1992	243.3	139.0	123.3		123.3	116.69	622.3	366.6
1993	259.2	217.9	156.0		156.0	137.01	770.2	415.2
1994	220.8	174.5	122.5		122.5	137.42	655.2	343.3
1995	221.2	154.3	127.9		127.9	166.715	670.1	349.1
1996	226.6	118.7	132.1		132.1	186.22	663.7	358.8
1997	212.8	98.6	130.7		130.7	203.61	645.7	343.5
1998	184.2	111.6	131.2		131.2	195.95	623.0	315.4
1999	204.0	125.5	164.9	53.6	111.3	191.64	686.1	315.3
2000	210.5	117.9	188.0	145.8	42.2	186.95	703.3	252.6
2001	218.7	144.8	172.0	145.6	26.4	172.96	708.5	245.1
2002	230.1	123.3	170.7	139.8	30.9	163.1	687.1	261.0

Units: millions of gallons per water year (October 1 through September 31); all data supplied by users

Table 4-3: Production and injection of geothermal water in the downtown –
Table Rock area, 1978-2002.

The Idaho State Penitentiary drilled a warm-water (97°F discharge, 134°F bottom hole temperature) well for irrigation in 1965 (Old Pen well). The well was used for irrigating approximately 20 acres (80 af/yr +/-) until the early 1970s. This well was later used for irrigating the Idaho Botanical Garden property from the mid 1980s through the late 1990s, with diversion volumes progressively increasing from 2 to 25 acre-feet annually over that period. Another irrigation well in the Penitentiary area, the Quarry View Park well, was operated for irrigation from 1984 through 1987, producing approximately 25 acre-feet annually of 134°F water. The Kanta-Yanke well was completed in 1983, but was never equipped with a pump for production. It produced 161°F water during test pumping (IDWR driller's report).

Water Year

Water Year*	State of Idaho**
1977	
1978	
1979	
1980	
1981	
1982	
1983	
1984	162.90
1985	175.40
1986	192.00
1987	169.10
1988	138.80
1989	120.00
1990	68.30
1991	177.60
1992	139.00
1993	177.60
1994	179.60
1995	150.84
1996	119.06
1997	112.20
1998	137.45
1999	125.55
2000	117.86
2001	144.81
2002	126.71
2003	130.26
2004	141.05
2005	134.60
2006	114.22

Probably based on
daily logs.

Sad data

Ask David Stanish to
find out from public works
officials what accounts for
decrease. Milder winters?
efficiency?

Notes

Not from discussion with
IDWR hydrogeologist Ken
Neely about the data used to
calculate annual volumes
from the Capitol Mall
geothermal well.
S. Kien

*A Water Year goes from October 1 through September 30

**The value for the State of Idaho for 1998 is a estimate (average of 1994-1997 and 1999)

Dept. of Admin sends data files on a quarterly basis.
Two-hour intervals of diversion, injection, and
temperature. $GPM \times 120 = \text{volume every 2 hours.}$

Trend logs - every 6 hours. Ken can't remember what
year they changed to every 2 hours.