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DEPARTMENT OF
WATER RESOURCES

January 26, 2009

Ms. Pamela S. Skaggs
Water Right Supervisor
Idaho Dept of Water Resources
PO Box 83720
Boise ID 83720-0098

RE: Water Right Permit 63-11816

Dear Ms. Skaggs,

Attached please find a report on the recharge effort by the Department of Parks & Recreation for the above-referenced permit. This report was prepared for us by Marci Pape, P.E., of SPF Engineering, in compliance with the Conditions of Approval.

There are several attachments that are referenced in Ms. Pape's report which are not included with this letter. Those attachments were obtained from IDWR files. However, copies of our annual measuring report for the Helen B. Lowder site, and a graph and chart of the measurements taken of the well over the years, are included.

Thank you very much for your assistance. Please do not hesitate to contact our offices if you have any questions or comments.

Sincerely,

Maria Minicucci
Property Administrator

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January 21, 2009

Maria Minicucci
Boise Parks and Recreation Department
1104 Royal Boulevard
Boise, ID 83706-2898

Subject: Helen B. Lowder Park – Permit Compliance for Groundwater Well

Dear Maria:

This letter is in reference to Water Right Permit No. 63-11816, owned by the City of Boise, Parks and Recreation Department, and approved on March 4, 1996 by the Idaho Department of Water Resources (IDWR). The permit provides 0.25 cfs of supplemental groundwater for 5 acres of irrigation within Helen B. Lowder Park, formerly Centennial Park, located in southeast Boise. The primary source of water for irrigation within the park is surface water from the New York Canal, with the groundwater well providing supplemental water for irrigation when delivery from the lateral is not available, primarily during early spring and late fall. The groundwater well was drilled in the fall of 1992 and has a total depth of 75 feet.

The park's irrigation well is located just within the northwest edge of the Southeast Boise Groundwater Management Area (SEBGWMA). Due to concerns about groundwater impacts to the aquifers in southeast Boise, the permit was conditioned to require no net withdrawal from the shallow aquifer. Condition No. 12 of the approved permit requires "The volume of water annually pumped from the well shall be intentionally recharged into the groundwater system from the surface water right." Additionally, Condition No. 13 states that "The water right holder is required to contract for the conduct of a study to compute the effectiveness of the project."

This letter will summarize the extent of efforts by the City of Boise to comply with Condition No. 12 of the approved permit, as well as address Condition No. 13, relating to the effectiveness of the project.

Groundwater Recharge Efforts

For irrigation purposes, development of this park was equipped with a well pump and a surface water pump to utilize New York Irrigation District water. This pump system was first used in the fall of 1996. The pump system includes three flow meters.

- Meter No. 1 records the rate and volume of groundwater pumped from the well.

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- Meter No. 2 records the rate and volume of groundwater and surface water pumped into the irrigation system.
- Meter No. 3 records the rate and volume of surface water pumped to the groundwater recharge facility.

Total groundwater volume pumped is determined based on the Meter No. 1 totalizer reading. Net groundwater volume pumped is determined by subtracting the Meter No. 3 totalizer reading from the Meter No. 1 totalizer reading. The meters were read in August of 2008 and the readings for Meters 1 and 2 represent the total usage from the fall of 1996 to August of 2008. Meter No. 3 was replaced in the summer of 2003, so the reading for that meter represents the recharge from summer of 2003 to August of 2008. The total recharge volume prior to replacement of the Meter No. 3 was 6,466,801 gallons, based on the measurement report submitted to IDWR in February, 2003. The readings are as follows:

Meter No. 1	29,884,960 gallons
Meter No. 2	38,343,560 gallons
Meter No. 3	5,036,486 gallons

The measurements indicate that the net groundwater use was 18,381,673 gallons, and the total volume recharged was 11,503,287 gallons. The following table provides a summary of recharge meter records for the park.

Helen B. Lowder (Centennial) Park Recharge Meter Records			
Year	Cumulative Recharge Volume (gal)	Recharge Per Period (gal)	Recharge per Period (ac-ft)
1996	229,836	229,836	0.71
1997-99	1,881,486	1,651,650	5.07
2000	3,491,421	1,609,935	4.94
2001	4,043,920	552,499	1.70
2002	6,466,801	2,422,881	7.44
2003	replaced meter	473,544	1.45
2004-05	5,023,773	4,550,229	13.96
2006	5,034,267	10,494	0.03
2007	5,036,352	2,085	0.01
2008	5,036,486	134	0.00
Total Recharge:	11,503,287 gal	or	35.30 ac-ft

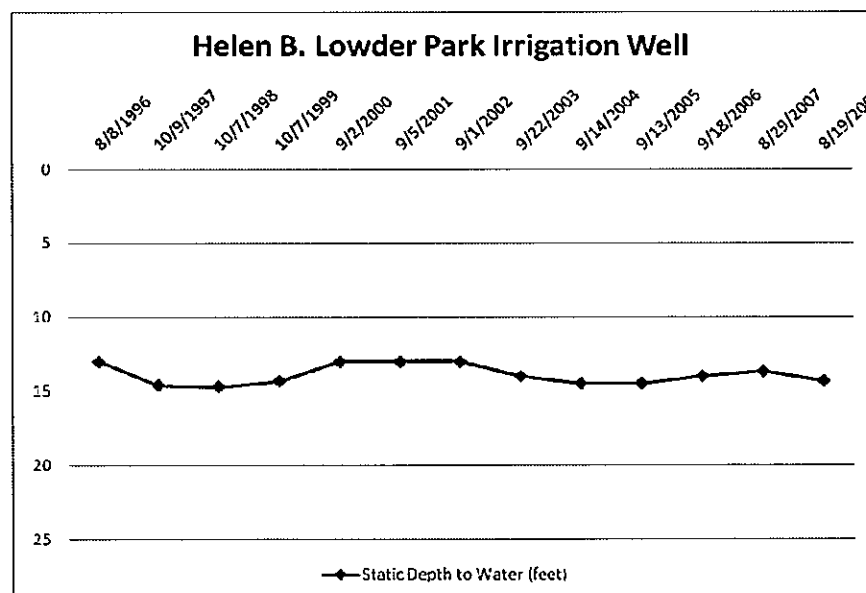
As you know, one of the chief reasons for the inadequate recharge efforts is that the supply of surface water has not been sufficient much of the time to allow for recharge. In fact, the

City requested help from IDWR in 2000 to intervene with Boise Project Board of Control to get water delivered prior to the water users on that lateral requesting it in the spring. This was so that the City could use much of the available surface water for recharge at a time of year when their demand for irrigation water is typically low. The City has made other efforts to fulfill the recharge requirements, including attempting to obtain water from the water supply bank in 2001 under Water Right No. 63-8006 for the sole purpose of offsetting the groundwater recharge requirement.

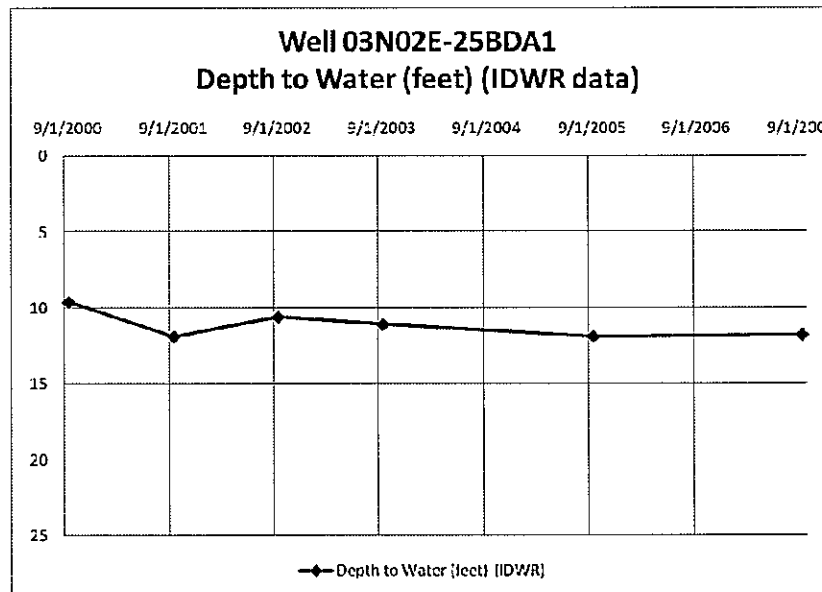
Based on measurements taken by Parks Department personnel, the recharge efforts in the past 3 years have been minimal, while other years have had recharge volumes of as much as 2.4Mgal. The total recharge has been approximately 11.5 Mgal, compared to total groundwater pumping of 29.9 Mgal. Thus, only 38 percent of the pumped volume has been recharged.

Project Effectiveness

Given the fact that only a small portion of the water removed from the aquifer through this well has been recharged since the well went into production in 1996, it would be expected that adverse effects from pumping out of this well could be seen on the aquifer. However, significant effects have yet to be observed. Regular measurements of the static water level in the well support this conclusion. Data provided by the Boise Parks and Recreation Department reveal that the measured static water level in this well has not shown a considerable decline, but has consistently measured between 13 and 14.7 feet over 12 years of well monitoring. The following chart illustrates this.



Note that only measurements taken between mid-August and early October in any given year were used for comparison, to account for possible seasonal water level fluctuations. Similarly, limited monitoring by IDWR between 2000 and 2007 shows no significant water-level decline.



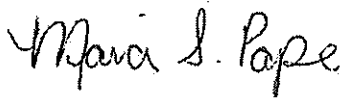
These data support the notion that in the case of this shallow well, groundwater recharge is not necessary to protect the resource.

There appears to be some support within IDWR for the issuance of a license, regardless of the City's level of compliance with Condition No. 12. In a memo dated March 27, 2003 from Steve Lester to Kay Walker, both of IDWR, Steve highlights the opinions of some individuals as to whether there is "any significant communication between the shallow ground water near the park and the management area aquifer." He goes on to say, "This information should be considered in evaluating compliance with the conditions of approval." This memo is contained in the water right backfile for this permit, and is available online. I have enclosed a copy of that memo here.

Conclusions

While it is clear that the City of Boise has not fully met the conditions of approval for Permit No. 63-11816, some groundwater recharge has occurred since the Helen B. Lowder (Centennial) Park well went into production. There is no evidence of a significant decline in the water levels of the shallow or deep aquifer in the area as a result of the deficient groundwater recharge for this well. For this reason, the recharge efforts should not be considered a failure, but rather seen as unnecessary for the continued viability of the aquifer. Further, issuance of the license without the recharge requirement would be of greater benefit than harm to the community as a whole.

Sincerely,



Marci S. Pape, P.E.
Project Engineer

Encl: IDWR Water Measurement Annual Reports
Monitoring Data - Helen B. Lowder Park
IDWR Water Level Data - Well 03N02E-25BDA1
3/27/03 Memo

SPF file number: 389.027

Park: Centennial (Helen B. Lowder Park)

WELL SUMMARY

Year Drilled	Total Depth	Borehole Diameter	Original Static Water Level	Casing Diameters and Depths	Screen Diameters and Intervals	Well Log on File?
1992	75	12	12	8" +1.5 to 39.5 and 65 to 75	8" 39.5 to 65	Yes

PUMP SUMMARY

Designed for gpm	psi	Pump Mfg. and Model Number	Pump Type	Pump Diameter	Setting Depth	Column Diameter	Motor Mfg.	Motor HP	Volt/Phase
100	75	Berkley 6T-90	Submersible	6	40'	3	Franklin	7.5	208/3
100	73	Cornell 1.5W-7.5-2 SN 95426 6.56 TC00085	centrifugal	7.0" impeller				7.5	208/3

Water level measuring point is top of casing. Measuring method is steel tape.

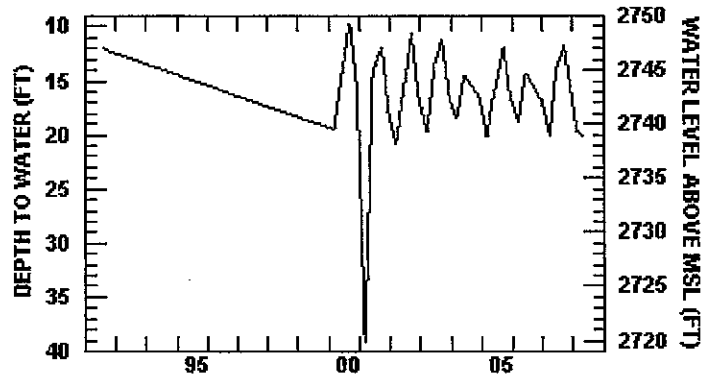
Flow rate measured by Data Industrial meter.

Pressure relief valve is Cla-Val 50-01 set at 90 psi

Date	Static Depth to Water (feet)	Pumping Depth to Water (feet)	Pumping Rate (gpm)	Discharge Pressure (psi)	Sprinkler Pressure (psi)	Number of heads running	Remarks (sand, pump vibration or noise, valve operation, etc.)
7/92	12	18.5 22.5 31.5 35	100 160 250 350				well test
8/8/96	13.0						no power to pump ye:
10/9/97	14.6	19.0	48	101	76	12 Toro	Station 1 along curb and fence; PRV dumps downstream from sensor
10/9/97	ditch	ditch	43	85	60	same	
10/7/98	14.7	20	41	80		Station 1	
10/7/98	ditch	ditch	39	80		Station 1	
10-7-99	14.3	22	44	88	60	11 On 1	R50
	ditch	ditch	39	80	55	11 on 1	
9-2-00	Ditch	Ditch	40	80	42	Station1	12 R50s
	13	21	110	38	22	Station1	12R50s plus dump to canal
	13	23	40	84	52	Station1	12 R50s
9/5/01	13	19	44	90	60	Station 1	12 R50s; no ditch water available
9/1/02	13	16	48	90	64	Station 1	12 R50s
9/1/02	vault	vault	41	83	60	Station 1	12 R50s
10/23/02							Pull pump and replace leaky column check valve

Date	Static Depth to Water (feet)	Pumping Depth to Water (feet)	Pumping Rate (gpm)	Discharge Pressure (psi)	Sprinkler Pressure (psi)	Number of heads running	Remarks (sand, pump vibration or noise, valve operation, etc.)
6/11/03							Well cleaned (swab and bail); had been pumping sand; lower screens plugged, bottom piece of column pipe replaced
9/22/03	14 Vault	19.5 Vault	42 41	80 80	42 45	Station 1 Station 1	
9/14/2004	14.5 Vault	19.5 Vault	42 41	80 70	40 45	Station 1 Station 1	
9/13/05	14.5	18.42	45	92	56	Station 1	
9/13/05	Ditch						Water too Low
5/24/06	18.33	20.16				Station 1	Well meter = 20,257,350 irrigation meter = 28,661,770 recharge meter = 5,023,773
6/28/06	16.75	19.75				Station 1	Well meter = 20,578,170 irrigation meter = 28,939,950 recharge meter = 5,023,868
7/25/06	16.58	22.08				Station 1	Well meter = 21,437,680 irrigation meter = 29,686,020 recharge meter = 5,024,042
8/22/06	14.25	18.16				Station 1	Well meter = 22,273,640 irrigation meter = 30,412,010 recharge meter = 5,024,193
9/18/06	14'	17'11"	44	92	52	11 heads	Station 1
9/18/06	Ditch	No water					No water
5/31/07	16.75	21.75	43	80		Station 1	Well meter = 23,455,560 irrigation meter = 31,804,550 recharge meter = 5,034,267
6/27/07	15.50	19.50	45	92		Station 1	Well meter = 24,298,690 irrigation meter = 32,516,760 recharge meter = 5,034,306
7/30/07	13.92	18.0	54	91		Station 1	Well meter = 25,489,170 irrigation meter = 33,540,430 recharge meter = 5,024,042
8/28/07	13.67	17.58	55	91		Station 1	Well meter = 26,306,070 irrigation meter = 34,397,170 recharge meter = 5,034,409
8/29/07	13' 8"	17' 9"	55	91	51	Station 1	11 500 heads; no ditch water
5/19/08	16.5	20.5	55	90		Station 1	Well meter = 27,047,950 irrigation meter = 35,343,360 recharge meter = 5,036,352
6/26/08			55	90		Station 1	Well meter = 28,012,870 irrigation meter = 36,297,104 recharge meter = 5,036,368
7/24/08			55	90		Station 1	Well meter = 28,961,212 irrigation meter = 37,138,035 recharge meter = 5,036,425
8/19/08	14.33	18.16	56	90	52	Station 1 11 rainbirds	Well meter = 29,884,960 irrigation meter = 38,343,560 recharge meter = 5,036,486

WELL 03N02E-25BDA1



Measurement Date	Depth To Water (feet)	Site Status	Measuring Agency
7/21/1992	12		Driller
3/1/2000	19.5		IDWR
9/5/2000	9.6		IDWR
12/1/2000	15.6		IDWR
3/1/2001	39.2		IDWR
6/4/2001	14.1		IDWR
9/19/2001	11.9		IDWR
12/13/2001	18.2		IDWR
3/11/2002	20.8		IDWR
9/11/2002	10.6		IDWR
12/5/2002	16.5		IDWR
3/10/2003	19.8		IDWR
6/9/2003	13.6		IDWR
9/9/2003	11.1		IDWR
12/1/2003	16.4		IDWR
3/1/2004	18.5		IDWR
6/4/2004	14.4		IDWR
12/3/2004	16.5		IDWR
3/1/2005	20.1		IDWR
5/26/2005	16		IDWR
9/9/2005	11.9		IDWR
12/1/2005	16.6		IDWR
3/2/2006	18.8		IDWR
6/2/2006	14.2		IDWR
12/14/2006	16.8		IDWR
3/19/2007	20.1		IDWR
6/5/2007	14		IDWR
9/13/2007	11.8		IDWR
2/5/2008	19.7		IDWR
4/10/2008	20		IDWR