



CH2MHILL

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**DEPARTMENT OF
WATER RESOURCES**

CH2M HILL

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Replacement Well for Permit 63-12543 (City of Nampa Well 13)

TO: Mr. Shelley Keen
Idaho Department of Water Resources
322 East Front Street
Boise, ID 83705-5082

COPIES: Fred Snoderly/City of Nampa
File

FROM: Kevin Boggs/CH2M HILL

DATE: January 11, 2008

Dear Shelley:

I am writing in response to your letter dated January 7, 2008, which outlined IDWR-preferred procedures or processes to move forward with the City of Nampa's replacement well for Permit 63-12543.

As we discussed previously, the City would like to have the option to screen the replacement well for Permit 63-12543 (a new well the City will call "Well 16") in a subsurface zone shallower than that listed on the current Permit [i.e., shallower than 300 to 500 feet below ground surface (bgs)].

In your letter, you indicated, "IDWR prefers to complete a beneficial use field report before evaluating proposed changes to the water right." I completed a beneficial use exam on the City's behalf (Report attached). The City provided me with records indicating Well 13 was pumped into the City's water distribution system (Attachment A). These records, however, are daily average pumping numbers, and therefore do not represent instantaneous flow rates from Well 13. To demonstrate the City had the ability to pump 4 cubic feet per second (cfs), the diversion rate permitted on the water right permit, the City provided the pump curve for the pump that was in Well 13 during the development period authorized for Permit 63-12543. The curve indicates the pump had the ability to withdraw about 2,300 gallons per minute at the maximum RPM rating of the pump, pumping against a system pressure of about 53 psi (53 psi was used after reviewing City pressure records from their distribution system near Well 13). There was a variable frequency drive on the pump in Well 13, allowing the City to control, or reduce, the pump RPMs. As indicated on the Beneficial Use Field Report, the City would like IDWR to consider these records, along with my field report, as proof they put 4 cfs to beneficial use in 2001.

You noted two other items of interest in your letter: the potential for the proposed permit change to exploit a different source of water, and the requirement that the permit change must not cause interference with the pumping of existing groundwater rights. Well 13 was screened from 382 to 517 feet below ground surface (Well 13 as-built diagram and driller's log attached for your reference). The proposed permit change would enable the City to screen the replacement well (Well 16) up to about 100 feet bgs. CH2M HILL recently designed and performed construction oversight of aquifer isolated zones in a pilot borehole advanced for Well 16. The static water level and pumping water level from isolated zones constructed in the range of about 390 to 275 feet bgs differed by 3 feet. Static hydraulic head measurements from shallower zones (130 to 250 feet bgs) were only 3 feet greater than the zones constructed between 390 to 275 feet bgs. These data indicate the water between these zones could be hydraulically connected, and therefore, the source under the proposed permit change should be considered the same as the original well and original permit.

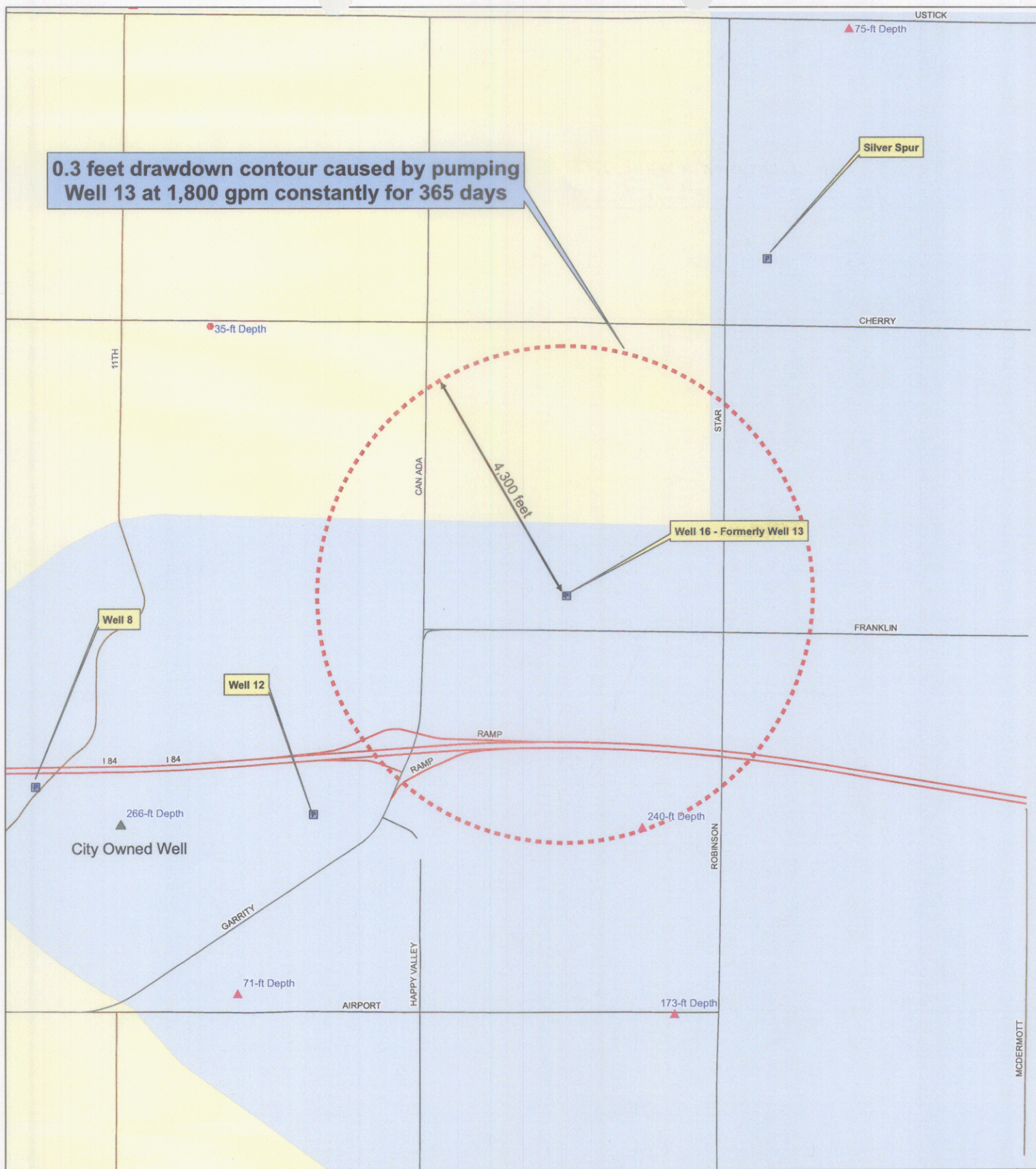
The proposed permit change would not significantly impact pumping of existing groundwater rights. The closest well to Well 13 is a domestic well constructed with a total depth of 240 feet bgs (Figure 1). This well is about 4,300 feet from Well 13. Using the Theis equation and Darcy's law, pumping 1,800 gallons per minute consistently for 365 days would cause 0.3 feet of drawdown at a distance of 4,300 feet away from Well 13. This drawdown value was calculated using the following aquifer properties: aquifer transmissivity of 6,400 ft²/day, reported by JUB Engineers, Inc from aquifer testing at Well 13; aquifer storativity of 0.003, a value published in IWRRI/IDWR Report, Characterization of Groundwater Flow in the Lower Boise Basin (Petrich and Urban, 2004) for an aquifer test using an irrigation well in the Nampa area (same Township and Range as Well 13).

The City appreciates your consideration to review this letter as soon as possible. The City would like to begin replacement well construction as soon as they have IDWR approval.

Please contact Kevin Boggs at 208-383-6108, or via email at Kevin.Boggs@ch2m.com should you have any questions or concerns.

Thank you,


Kevin Boggs
CH2M HILL



Ground Water Wells City of Nampa, Idaho

IDWR Well Data Well Type

- | | | | | | | | | | |
|-----------|--------------|---------------|------------|--------------|---------------|-----------------|--------------|----------|------------------------|
| ● Unknown | ● Commercial | ● De-watering | ● Domestic | ● Industrial | ● Institution | ▲ Irrigation | ● Recreation | ● Unused | ■ Nampa Domestic Wells |
| | | | | | | ▲ Public Supply | ● Stock | | |

0 750 1,500 3,000 4,500 6,000 Feet

