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DEPARTMENT OF
WATER RESOURCES

March 4, 2012

Craig Saxton
Idaho Department of Water Resources
322 East Front Street
P.O. Box 83720
Boise, ID 83720-0098

Dear Craig;

I have read Michele Edl's February 3, 2012 memorandum regarding review of the beneficial use field report for permit 63-12593. Below are quoted sentences from that review memo followed by my response comments.

1. *"The Beneficial Use Field Report should have provided detailed, date-relevant information confirming the beneficial use of water."*
2. *"It (the beneficial use field report) provides no evidence that the contemporary system has been in place since the development period of the permit"*
3. *"That equipment catalog should confirm that units were in place at the time that the proof statement was submitted."*
4. *"There may be flow and pressure records from a testing period coincident with the heat exchanger installation or there may be power records from any of the heating or cooling seasons within the development period."*
5. *An inventory of heating and cooling units along with their specs or nameplate data is needed. That equipment catalog should confirm that units were in place at the time that the proof statement was submitted.*

I am dismayed by these statements. They indicate that the Department wants specific documentation of HVAC equipment and usage from more than 10 years ago. The examination provides a well drillers report for the cooling well dated December 2000. The permit holder submitted proof of beneficial use and paid the Department a fee to conduct an exam in 2001. The fact that the Department did not conduct a timely field examination, but instead the permit holder found it necessary to hire a private examiner to conduct the exam after waiting 10 years, should be considered here. Whether or not the contemporary system (i.e., the exact identified heat pumps or the currently installed submersible pump) has been in place since 2001 could not be determined during the field exam.

The extent of beneficial use volume was calculated based on the amount of water used to heat and cool the building (using efficiencies acceptable to the Department). The exam verified that the pumping system is adequate to provide that volume. I suppose that the permit holder is available to attest that groundwater has been used as the source for heating and cooling of the entire building since 2001 if that would help.

6. *The incongruent pumping plant and heating exchanger capacities cited in the report narrative suggests that the Idanha may not have reached full occupancy in 2001 and may not have been full at the time of the exam. However, the development period of the permit ended in October 18, 2001 when the proof statement was received. The permit holder may need to apply for an additional permit to cover the development since 2001.*

I don't understand this comment. The pumping plant delivery capacity is substantially smaller than the heat exchanger design capacity. If I use the Department's reasoning, wouldn't it more likely suggest that the Idanha is using less water now than in 2001?

7. *It (the beneficial use field report) provides limited evidence that a system with the potential for utilizing ground water for heating and cooling is in place.*

The report documents that a well and pump system supplies a heat exchanger to heat and cool an entire downtown building. The report documents that the closed loop system from the heat exchanger supplies three 5-ton heat pumps for commercial space on the first floor and individual 1.5 to 2 ton heat pumps for each apartment. Photos are provided. I personally inspected the diversion and heat exchange system and placed my stamp and signature on the examination report. I have supplied the information typically provided for this type of permit. I don't see why the Department is asking for substantially more detail.

8. *An inventory of heating and cooling units along with their specs or nameplate data is needed.*

Does the Department expect us to go into each and every one of the 53 apartments within the building and photograph and write down serial and model numbers for each individual apartment heat pump? Why is this necessary? How will the department use this information? The heat pumps are attached to the internal closed loop system; they do not even contact the groundwater.

9. *I found that little or no beneficial use of water has been confirmed by the exam report.*

I'm not sure how to even respond to this. I personally inspected the diversion and heat exchange system from the diversion point to the place of use, and placed my stamp and signature on the examination report. I have supplied the information typically provided for this type of water use system.

10. *The field exam report recommends a rate based on capacity of the water pumping system rather than on the hydraulic capacity of the heat exchanger or of the heat pumps. The rate must be based on the heating/cooling system equipment.*

The field exam states that the capacity of the heat exchanger is 1150 gpm, more than 7 times the capacity of the well pump. As a result, the well pump is the limiting factor. As mentioned above, the heat pumps are on a closed loop system. The heat pumps do not contact diverted groundwater. The groundwater is pumped to the heat exchanger where heat is transferred to or from another fluid for circulation to individual heat pumps.

11. *Because the cooling system components appear to be notably different from the heating system components, the cooling rate may differ significantly from the heating rate. It may clarify the exam report and simplify the licensing review to isolate and itemize the cooling and the heating uses separately.*

The heat pumps provide both cooling and heating. They are not separate components.

12. *I am not familiar with the processing circumstances or the file contents of water rights held by Parklane Co for use in the Union Block building.*

Why not? The documents are available in Department files and I would expect the Department's examination report reviewer become familiar with the file so that the license can be appropriately issued.

13. *The system description provided in the narrative is both lacking in detail and outside the most relevant timeframe. A detailed schematic and/or as-built drawings of the system are needed.*

Attached is a schematic.

14. *The Department's current expectations for space heating/cooling use calculations may be best illustrated in the engineering report provided by Musgrove Engineering on behalf of SPF Water Engineering for Permit 65-13912 and 65-13913.*

The Musgrove engineering report was prepared to address specific permit conditions for 65-13912 and 65-13913. Permit 63-12593 has no such conditions. Why must a permit holder go to this additional expense? Furthermore, permits 65-13912 and 65-13913 were contested applications associated with a spring source of limited capacity.

15. *I believe that there are inline flow balancers which could be put to service to measure the flow in the distribution pipeline.*

What is the basis for such a statement? The permit has no requirement for flow measurement. Furthermore, the distribution system to the heat pumps (i.e., closed loop system) flow rate is independent of the groundwater (i.e., open loop system) flow rate. The groundwater distribution system does not include flow balancers.

16. *Although a rough calculation could be allowed at licensing if there were no other options, (if for example, the system no longer existed at the time of the exam), it is not acceptable for a system that was carefully designed, and built and is apparently well maintained and operated.*

Where is there evidence that the system was carefully designed and built? How does the Department know that the system is well maintained and operated? What I found at the time of the examination was that the well pump (i.e., the open loop system) operates 24/7/365, and that the heat exchanger simply transfers whatever heat is required by the closed loop system. The permit authorizes diversion of 0.56 cfs for heating and cooling, and the exam found 0.33 cfs being used for heating and cooling.

17. *"I believe that the Idanha Hotel heating and cooling system had been in place and in use at least one full year before the exam was conducted. The design heating and cooling loads should have been available to the examiner."*

The field exam and proof statement show that the heating and cooling system has been in place and in use for more than 10 years. The design heating and cooling loads were not provided to the examiner.

While it is true that additional information could have been provided with this field exam report, I don't think that the detail of information requested by Michelle's memo is warranted or appropriate. Nor do I understand how the detail requested by Michelle will benefit the Department in issuing a license (i.e., adjusting the location of the point of diversion, place of use, or diversion capacity and volume). If the Department has published a guidance document that specifies the information required for a beneficial use examination of this type,

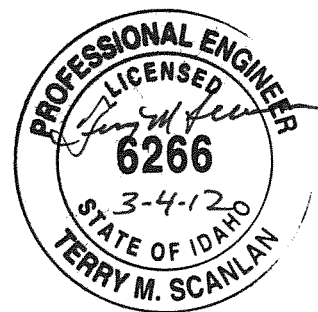
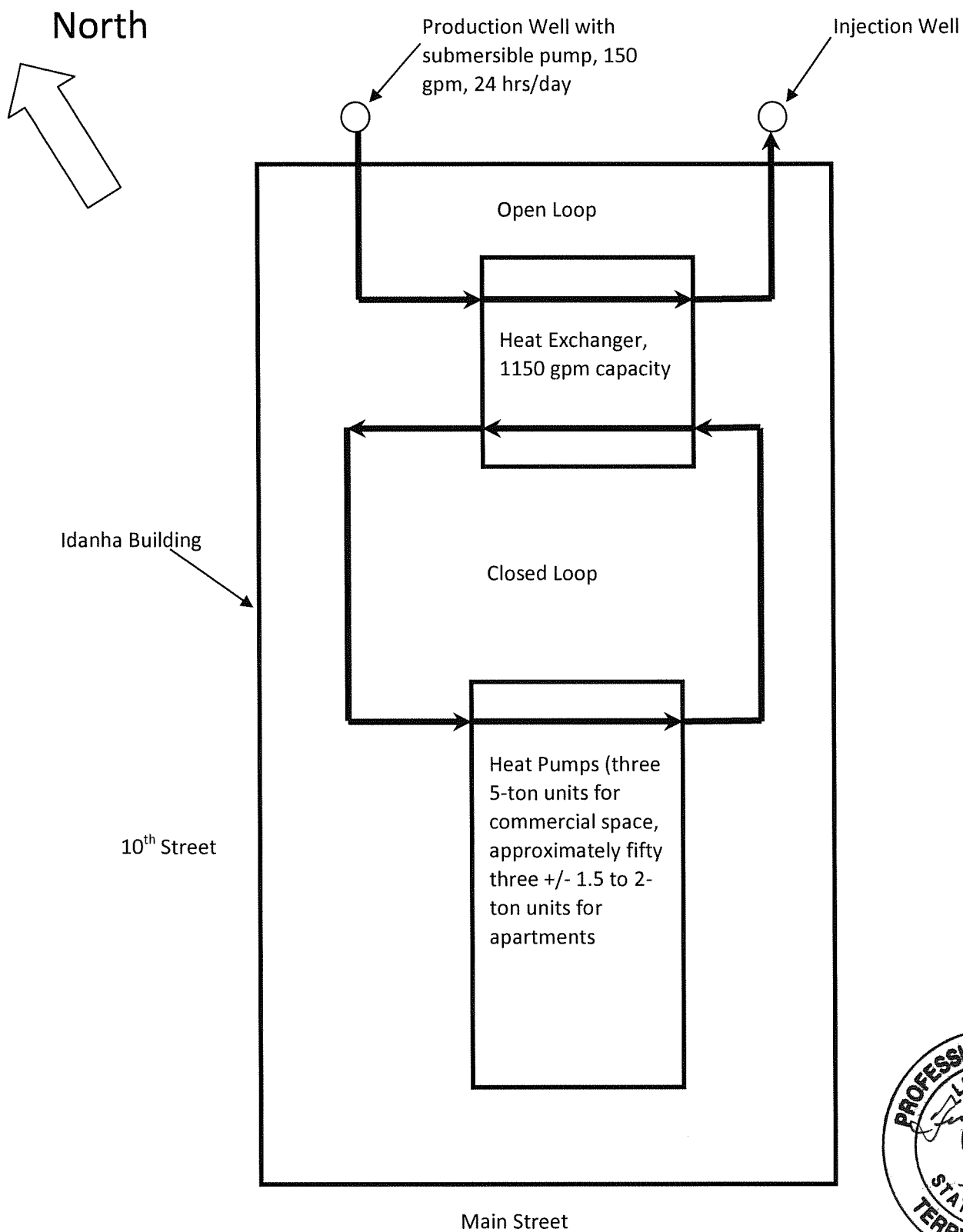
I am interested in obtaining a copy. Perhaps we could meet to discuss what is really needed to finish this off.

Sincerely,

A handwritten signature in black ink, appearing to read "Terry M. Scanlan". The signature is fluid and cursive, with a long horizontal stroke at the end.

Terry M. Scanlan, P.E., P.G.

Cc: Ken Howell – Parklane Management



Schematic of Idanha Building Heating and Cooling System
Permit 63-12593 (not to scale)