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DEPT. OF WATER RESOURCES
SOUTHERN REGION

To: S. Keen

From: M. Weaver

Date: 3/19/2012

RE: Brief description of my impressions and thoughts pertaining to heating and cooling permits 63-12593 and 37-22685.

63-12593 (Idanha Building Heating & Cooling, SPF Consulting)

- I assume at the heart of the matter is the Department's desire to base diversion rate and volume on "beneficial use", not merely measured diversion rate.
- Perhaps Michele's memo is overly-specific. Therefore, it is more threatening than if we had vaguely outlined our concern that we had not fully characterized beneficial use and then left it up to SPF to address the details.
 - Details could have been withheld and only provided if SPF asked for specific guidance.
 - Certainly terms like "deficient", "flawed", and "insufficient" are very threatening to the consultant especially when their client is copied on the correspondence.
 - The message in Michele's memo perhaps should be provided in person (not in written memo form) for the first few times that a consultant such as SPF is seeing it.
- I concur with SPF that obtaining name plate information for mechanical units (with a 10-15 year lifespan), other than perhaps the heat exchanger, is unprecedented and probably not all that useful.
- I concur with Michele that APM23 clearly indicates that it addresses "initial estimates for evaluation of applications for permit and are not to be used for final engineering design". However, the "Option 2" SPF approach is a modified version of APM23, and appears to have a precedence of acceptance and sufficiency on other projects. It is a simplified approach for describing "beneficial use", but is it insufficient?
 - An alternative is the "Musgrove Engineering" example where a "design grade" engineering report and analysis, replete with mechanical equipment schedules and accounting, is conducted by a professional mechanical engineer and provided to the Department. I would caution that this level of analysis is beyond the ability of most water right examiners, and represents a due-diligence that might not be appropriate in many instances.
- Arguably SPF's approach should be acceptable for uncontested matters, with no conditions requiring stricter methods, where the diversion rate recommended is less than the permitted amount.

37-22685 (Hagey Residence, Brockway Consulting)

- I concur with Michele that injection wells probably are prone to failure, especially with the limited to no maintenance that they typically receive. Any time you are infiltrating water into the ground there is a high likelihood of failure, not "if it will fail" but "when it will fail". It is

common practices for drain fields and seepage beds to be constructed at 150-200% of design value, with identification and set aside of secondary redundant locations.

- It is not unreasonable for the Department to be concerned about the future failure of the injection well, and to prepare conditional language that addresses this eventuality.
 - I don't think this line of thought "appears to question the engineer's design capability".
 - As a note I talked with Tom Niece and Brian Ragan on this matter and although they are aware of some failures they did not seem to think it was a problem endemic to all injection wells.
- In general, I think it is inappropriate to require any level of design plans or design parameters at time of application review as a condition of approval. Especially for residential systems, I don't think it is necessarily common practice for the homeowner to be provided any type of design grade material, load calculations, manufacturer's spec sheets, etc.
 - In n this instance however, Brockway has provided preliminary design data, which estimates the required flow rate based on a preliminary evaluation of beneficial use. Ideally the preliminary evaluation should match a simple analysis conducted in accordance with APM23, but does it have to? I would think that preference should be given to the preliminary design work conducted by the professional who is presumably the most reliable expert in the matter.
- For applications I think the level of detail and thought required to comply with APM23 is adequate, when no preliminary design information is available. To the extent that Brockway did not comply with the memo they perhaps should.
- Again, Michele's memo uses potentially inflammatory language such as "flawed", "unsatisfactory", "lacks sufficient information", etc., which is very threatening to the consultant especially if their client is copied on the material.