MEMORANDUM

DATE: October 3, 2007

TO: Groundwater Advisory Committee

FROM: Bob Nauta, Carol McCartney, Ken Bradbury[1]

SUBJECT: Spring Position Paper

Following discussions with Wisconsin hydrogeologists as well as presentations to the GAC and a review of available data on springs in Wisconsin, we have concluded that both the definition of spring and the criteria applied to the protection of a spring need modification. As the "Springs" subcommittee has shown in presentations this year, many springs have both aesthetic and ecological value, but do not meet or exceed the current 1 cubic foot per second ("cfs") discharge threshold. The subcommittee and its technical advisory group have also shown that the area in which groundwater flows to a spring can be complex and governed by local geology, and that a pre-determined area of protection based solely on distance is not scientifically valid.

Furthermore, many, if not most, trout streams are fed by springs, very few of which approach the 1 cfs threshold. Because trout streams were determined in 2003 Act 310 to be worthy of special protection, it seems to us to be illogical to omit springs from comparable, if not greater, protection.

Therefore, it is our recommendation that the following be incorporated into the GAC's 2007 report:

- Definition of spring: Any natural groundwater discharge at the ground surface of 0.25 cfs or more, with no reference to a Q80 evaluation.
- For permit review, use the discharge based on the MOST RECENT historical measurement or estimate available.
- If the historical measurement is disputed:

  A. If a single new measurement of flow is less than 0.125 CFS (or 50% of the threshold above), then the spring does not meet the test.

  B. OR, use an arithmetic average of at least 6 flow measurements collected over a period of 1 year with an average measurement interval greater than 30 days.

- DNR may apply more rigorous criteria if the discharge is less than the flow threshold but the spring has significant other ecological, biological, or historical significance.

[1] In conference with George Meyer, Steve Born and Jake Macholl.

Radius of concern: The applicant must approximate the capture zone of the spring, based on available information, and include a map showing the estimated capture zone and the proposed well location, in the well approval application. Rationale for the estimation of the capture zone is to be provided, as well. If the WDNR does not concur with the estimated capture zone, the applicant has the option of conducting additional studies.

The proposed well would then be evaluated in consideration of the NR 820 definition of significant adverse environmental impacts, utilizing standard hydrogeologic/biologic analyses. In the event that an applicant does not concur with the WDNR's conclusions (and resulting restrictions), the applicant has the option of conducting additional site-specific evaluations, and negotiate a more favorable approval.