

**Presentation To
North Dakota Legislative Council
Natural Resources Committee
Bismarck, North Dakota**

**By
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Mr. Chairman and members of the Natural Resources Committee. I am William Schuh, hydrologist with the State Water Commission's Water Appropriation Division.

Section 11 of Senate Bill 2020, the State Water Commission's appropriation bill, directed the Commission to study, develop, and recommend policies for assessing the impact of tile drainage on the beneficial use of water by prior water appropriators. The legislation directed that the report be completed by July 1, 2008. This is a short update to this directive.

Planning for the report has been initiated. Given the time constraints of a one-year study resolution, the assessment cannot commission or undertake field research. It must, therefore, depend on existing information from public, university and private sources, the evaluation of potential impacts based on those sources, and the application of sound principles of hydrology to their interpretation.

The lead in the study will be undertaken by the Water Appropriation Division of the State Water Commission, with assistance from the drainage subdivision of the Commission's Water Development Division. Initial discussions have been conducted and a general plan of study has been completed. We have initiated contacts and sources in other state government agencies, the North Dakota State Agricultural Extension and Research personnel, and the drainage industry.

The plan of study is as follows:

- 1) Review the relationship between water appropriation and drainage laws;
- 2) Review the approach of the neighboring states of South Dakota, Minnesota and Montana to the mandated issue;
- 3) Review the benefits and drawbacks of both drainage and irrigation, and the conjunctive uses of irrigation and drainage;

- 4) Review the functions of tile and surface drainage and their effects on aquifer recharge:
 - a) estimate the relative proportion of drainage on areas contributing to aquifer recharge compared with non-contributing areas using the State Water Commission's database; and
 - b) estimate the potential losses of water due to tile and surface drainage:
 - 1) industry estimates;
 - 2) measured tile flows on research projects: Oakes, Crookston, and others; and
 - 3) estimate the potential losses from water-table drawdown based on soil characteristics and distribution.
- 5) Examine the concept of "water-table management" vs. drainage and its potential;
- 6) Examine the hydrologic effects of drainage on recharge and water availability for various scenarios:
 - a) climatic effects; and
 - b) spatial effects - recharge vs. discharge zones, aquifer thickness, etc.; and
- 7) Provide recommendations to the Legislature.

The current status of the plan implementation is that items 1 and 3 are nearly completed; items 2 and 4 are in progress; and items 5 and 6 are in discussion. The study is on track for its completion date.