OVERVIEW OF RIVER BASIN HYDROLOGIC MODEL APPROVAL

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(o) Basinwide Hydrologic Models. - The Department shall develop a basinwide hydrologic model for each of the 17 major river basins in the State as provided in this subsection.

(o)(3) Model. - Each basinwide hydrologic model shall:

a. Include surface water resources within the river basin, groundwater resources within the river basin to the extent known by the Department, transfers into and out of the river basin that are required to be registered under G.S. 143-215.22H, other withdrawals, ecological flow, instream flow requirements, projections of future withdrawals, an estimate of return flows within the river basin, inflow data, local water supply plans, and other scientific and technical information the Department deems relevant.

b. Be designed to simulate the flows of each surface water resource within the basin that is identified as a source of water for a withdrawal registered under G.S. 143-215.22H in response to different variables, conditions, and scenarios. The model shall specifically be designed to predict the places, times, frequencies, and intervals at which any of the following may occur:

1. Yield may be inadequate to meet all needs.
2. Yield may be inadequate to meet all essential water uses.
3. Ecological flow may be adversely affected.

(o)(6) Approval and modification of hydrologic models. -

a. Upon completion of a hydrologic model, the Department shall:

1. Submit the model to the Commission for approval.

d. A hydrologic model is not a rule, and Article 2A of Chapter 150B of the General Statutes does not apply to the development of a hydrologic model.

(o)(8)Construction of subsection. - Nothing in this subsection shall be construed to vary any existing, or impose any additional regulatory requirements, related to water quality or water resources.

WHAT IS A HYDROLOGIC RIVER BASIN MODEL?

- Hydrologic models are computer simulations to characterize the likely behavior of real hydrologic features and systems. They are primarily used to represent the physical processes observed in the real world.
  - DWR's approach to meet the requirement of G.S. 143-355(o) is to use the standard practice of creating models that characterizes the likely behavior of the real hydrologic system.

OVERVIEW OF THE DOCUMENTATION

- To demonstrate the models meet the requirements of G.S. 143-355(o) DWR has revised the model documentation to show how each model meets those requirements.

SESSION LAW 2010-143

- (o)(3) Model. - Each basinwide hydrologic model shall:
- a. Include *surface water resources*, *groundwater resources* to the extent known by the Department, *transfers into and out of* the river basin, *other withdrawals*, *ecological flow*, *instream flow requirements*, *projections of future withdrawals*, an *estimate of return flows within the river basin, inflow data, local water supply plans,* and *other scientific and technical information the Department deems relevant.*

ECOLOGICAL FLOW AND INSTREAM FLOW REQUIREMENTS

- Ecological flow is a subset of instream flow requirements.
- Instream flow requirements include not only ecological flows, but also other flow requirements such as recreational flows.
- The models meet the requirements of G.S. 143-355(o)(3)(a) by including actual permitted ecological and instream flow requirements.
  - DWR's approach to meet the requirement of G.S. 143-355(o) is to use the standard practice of creating models that characterizes the likely behavior of the real hydrologic system.

SESSION LAW 2010-143

- (o)(3) Model. - Each basinwide hydrologic model shall:
- b. Be designed to simulate the flows of each surface water resource within the basin that is identified as a source of water … in response to different variables, conditions, and scenarios. The model shall specifically be designed to predict the places, times, frequencies, and intervals at which any of the following may occur:
  - 1. Yield may be inadequate to meet all needs.
  - 2. Yield may be inadequate to meet all essential water uses.
  - 3. Ecological flow may be adversely affected.

SESSION LAW 2010-143

- (o)(3) Model. - Each basinwide hydrologic model shall:
- b. Be designed to simulate the flows…

- Validation: evaluation of model performance, i.e., whether model possesses satisfactory range of accuracy consistent with its intended application
- Does model represent real system's flows to sufficient level of accuracy?

SESSION LAW 2010-143

- (o)(3) Model. - Each basinwide hydrologic model shall:
- c. Be based solely on data that is of public record and open to public review and comment.

- (o)(5) Interstate cooperation. - To the extent practicable, the Department shall work with neighboring states to develop basinwide hydrologic models for each river basin shared by North Carolina and another state.

QUESTIONS ?

SESSION LAW 2010-143

- (o)(6) Approval and modification of hydrologic models. -
- a. Upon completion of a hydrologic model, the Department shall:
  - 1. Submit the model to the Commission for approval.
  - 2. Publish in the North Carolina Register notice of its recommendation that the Commission approve the model and of a 60-day period for providing comment on the model.
  - 3. Provide electronic notice to persons who have requested electronic notice of the notice published in the North Carolina Register.
- b. Upon receipt of a hydrologic model, the Commission shall:
  - 1. Receive comment on the model for the 60-day period noticed in the North Carolina Register.
  - 2. Act on the model following the 60-day comment period.

SESSION LAW 2010-143

- (o)(6) d. A hydrologic model is not a rule, and Article 2A of Chapter 150B of the General Statutes does not apply to the development of a hydrologic model.

- (o)(8) Nothing in this subsection shall be construed to vary any existing, or impose any additional regulatory requirements, related to water quality or water resources.