

**NATURAL RESOURCES COMMISSION**  
**Information Bulletin #37**

**Submission and Review of Hydraulic Modeling for Permit Applications under the Flood Control Act**

**Background**

The Flood Control Act (IC 14-28-1) prohibits the construction of residences or abodes within a floodway and requires all other construction, excavation, or filling activities within a floodway to receive the prior written approval of the Department. With regard to the Department's approval, the Act further states that the director shall issue a permit only if in the opinion of the director the applicant has clearly proven that the structure, obstruction, deposit, or excavation will not do any of the following:

- 1) Adversely affect the efficiency of or unduly restrict the capacity of the floodway.
- 2) Constitute an unreasonable hazard to the safety of life or property.
- 3) Result in unreasonably detrimental effects upon fish, wildlife, or botanical resources.

Additionally, in deciding whether to issue a permit, the director shall consider the cumulative effects of the structure, obstruction, deposit, or excavation when added to past, present, and reasonably foreseeable future actions.

For years, the Division of Water has provided extensive assistance to individuals and engineering consultants in developing the technical documentation needed to meet the burden of proof under the Flood Control Act. The Division of Water has conducted stream modeling, performed multiple reviews of inadequate submittals, and in many cases corrected, modified, or performed modeling to account for cumulative effects. For many reasons this level of assistance is no longer possible or appropriate.

New modeling guidelines (General Guidelines for the Hydrologic – Hydraulic Assessment of Floodplains in Indiana) have been developed, published, and placed on the Division's web site at [www.in.gov/dnr/water/surface\\_water/pdf/fp\\_guidelines.pdf](http://www.in.gov/dnr/water/surface_water/pdf/fp_guidelines.pdf).

Additionally, training sessions were held in 2002 in Plymouth, Indianapolis, and Jeffersonville to assist consultants in the development of effective flood modeling submittals.

As outlined below, the Division of Water will no longer participate in project specific flood model development as part of a permit application. Division staff will only serve as reviewers. Additionally, a "Two strikes" policy will be implemented for permit application submittals with modeling errors.

## Review Procedures

The procedures for the review of submitted computer modeling as part of a permit application will be as follows:

- All submitted modeling will be evaluated based on the modeling guidelines outlined in the General Guidelines for the Hydrologic – Hydraulic Assessment of Floodplains in Indiana available on the Division’s website at [www.in.gov/dnr/water/surface\\_water/pdf/fp\\_guidelines.pdf](http://www.in.gov/dnr/water/surface_water/pdf/fp_guidelines.pdf)
- Submitted modeling should be prepared under the supervision of a professional engineer with knowledge of generally accepted modeling principles.
- Within the Division of Water, Engineering Services Center (ESC) staff will be available to meet with a consultant to discuss modeling for a project, or will answer questions that a consultant may have in the process of developing a model. ESC staff will no longer perform a preliminary review of a model before a permit application is submitted.
- A submitted model will only be reviewed when accompanied by a completed modeling checklist and project evaluation table as described in the General Guidelines for the Hydrologic – Hydraulic Assessment of Floodplains in Indiana. Failure to submit a checklist or project evaluation table does not count as a strike against the review of the model since no review has actually been completed. The applicant will, however, be notified through an abeyance letter that a completed modeling checklist and project evaluation table are required and that refusal to submit these will result in the denial of the permit application.
- ESC staff will review submitted modeling but under no circumstances will they change those models. Neither will ESC staff call or email consultants to work out explicit modeling errors. Staff will comment on the modeling using the abeyance process.
- Only explicit modeling errors will be noted and identified as deficiencies. The rationale behind any aspects of the submitted modeling that are “engineering judgment” (Manning’s “n” values, coefficients, etc.) must be documented in the submitted checklist or model report. Failure to document “engineering judgment” is an explicit modeling error.
- An abeyance determination may state the comments are not inclusive. If the modeling is incomplete or contains inaccurate or outdated data, mistakes may not be apparent until the applicant clarifies the model. The submission of an incomplete model or a model that contains inaccurate or outdated data will count as a “strike” against the submitted model.

- ESC staff will be available to discuss projects before a submittal, or after an abeyance letter has been mailed. Design details are the responsibility of the applicant and the consultant, however, and ESC staff will not suggest design changes to make a project approvable.
- The “Two Strikes” policy will be applied to all permit applications with submitted modeling that do not follow the General Guidelines for the Hydrologic – Hydraulic Assessment of Floodplains in Indiana. If after two attempts the submitted computer modeling is determined to be incorrect, the permit application will be denied and the applicant advised of the opportunity to seek administrative review. In the alternative, a new permit application with revised modeling may be submitted.
- A model submittal that has a project evaluation table that shows an excessive surcharge as a result of the proposed project will not be reviewed; the applicant will, however, be notified through an abeyance letter that the project as submitted is not approvable. The submission of a model with an excessive surcharge counts as a “strike”, so the applicant will not have the benefit of fixing modeling problems based on ESC staff review comments. One exception is if the surcharge is contained entirely on the applicant’s property and the applicant has clearly shown this to be true, then the submitted modeling will be reviewed.
- If a project is redesigned after the abeyance letter has been mailed, the redesigned submittal, if submitted under the same application number, is considered the second submittal and subject to only one review before approval or denial. If the applicant decides to withdraw the application to redesign the project, the subsequent application submittal will be treated as an initial submittal.
- The standard abeyance period for model revisions will be 90 days. A single extension of 90 days may also be granted.
- Any testimony regarding the technical merits of the submitted modeling or project alternatives will be the responsibility of the applicant. ESC staff would provide testimony as to the circumstances of their review.