Thermal Plume Characterization Studies

Information Sheet

As part of a larger effort to reevaluate existing water quality standards for temperature and develop procedures to screen thermal discharges, language requiring the development and implementation of a thermal plume study plan is now being inserted in some industrial wastewater discharge permits. After receiving a number of questions from permittees, a more detailed explanation of the intention of the requirement has been developed and provided below to help with the formulation of these plans. The requirement to characterize the thermal plume came out of negotiations between TCEQ and the USEPA related to a strategy to develop new temperature screening procedures. The permit language was developed to allow permittees maximum flexibility in formulating the plans for their facilities. It is anticipated that implementation of these plans will provide some insight into the extent of existing thermal plumes. Below is a list of considerations that are intended to help permittees in the formulation of their plans:

- The purpose of the plan is to characterize the thermal plume with mass balance calculations, modeling, data, or a combination of these, as appropriate. TCEQ does not have a preference regarding the methodology chosen by the permittee.
- The plan requirement is not intended to imply the need for an exhaustive investigation of the thermal impact from a discharge. In particular, the plan is not intended to include a demonstration of compliance with numerical temperature standards (maximum and delta T criteria).
- Plume characterization may incorporate the concepts of thermal mixing zones or cooling water areas as included in recent revisions to the Water Quality Standards (30 TAC 307).
- If discharging to an industrial cooling water reservoir, the plan should include a means to demonstrate that the reservoir was constructed for this purpose. In addition, a permittee may elect to study waters downstream from the impoundment.
- Permittees are encouraged to investigate the extent to which the thermal plume is passible by aquatic life.
- Permittees are encouraged to submit their draft study plans to TCEQ for review and comments prior to submitting the final plan for approval.
- Permittees are encouraged to develop plans that provide information they think will be useful in explaining any site-specific considerations pertinent to future temperature screening procedures.