

**OHIO DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINERAL RESOURCES MANAGEMENT**

****POLICY/PROCEDURE DIRECTION****

Engineering 04 - 1 (Replaces Engineering 03 - 1)

Subject: Permanent Impoundment Construction
Effective: October 25, 2004

Purpose: To establish design criteria consistent with prudent engineering practices for installation of pipes and risers in the new impoundment construction and requirements for existing permanent impoundment pipes and risers.

In accordance with OAC 1501:13-9-04 "Protection of the Hydrologic System H(1)(b)", the Division will no longer accept metal corrugated pipe in permanent impoundment construction. This policy will apply to all new and proposed permanent impoundment construction after the effective date of this policy. This policy was enacted because, based on field performance and experience, corrugated metal pipe (CMP) is highly corrodible especially if exposed to chemical attack and, in turn, may have a very short life span in comparison to the dam structure. CMP pipes can have protective coatings applied, but the coatings are often of poor quality with respect to pipe adherence and offer minimal extended life. Because corrugated pipes of any type are difficult to compact around and may compromise the dam's long-term integrity, care must be taken by the operator to insure proper installation of corrugated HDPE plastic pipes. The operator shall describe the method of compaction, bedding materials, seepage control, and pipe design in Attachment 20 of the application. Only the "water tight", (10.8 psi), corrugated HDPE will be acceptable. Other acceptable pipes include steel high-pressure gas line, fusion welded HDPE, and concrete. Metal corrugated pipes are not acceptable for new permanent impoundment construction. Another alternative the operator should consider is use of an open rock spillway for the principal spillway as long as the impoundments performance can be shown to meet NPDES sediment requirements. This policy is also consistent with ODNR, Division of Water (DOW) Section 1501:21-13-05(D) of the Ohio Administrative Code.

For existing permanent impoundments, the operator is currently required to submit an Annual Impoundment Certification, which addresses each impoundment that has not obtained a Phase III release (see PPD Inspection and Enforcement 93-3). Under Item 4 of the annual pond certification, which address impoundment, stability, and safety concerns, the operator's engineer shall report any problems with the structure and make any necessary repairs. These repairs include the slip lining or replacement of any pipes that show leakage through the structure (piping) or deterioration that could jeopardize the long-term stability of the structure. For all previously approved permanent structures that have not been built

prior to the effective date of this policy, the operator is advised to not use CMP in the construction of the impoundment. If a pipe of equal or better flow characteristics, such as HDPE corrugated pipe with watertight joints, is substituted for the original CMP this can be done under an as-built design and submitted to the inspector. The operator would also have the option to revise the design through the ARP process to meet this current standard for impoundments if more complex changes are required. A temporary impoundment built utilizing CMP is not desirable for conversion to a permanent impoundment later in the permit life without replacement to an approved pipe or spillway system except as follows: For existing temporary impoundments built prior to the issuance of this policy, on a case by case basis, the operator may ask the Chief for reconsideration of converting a proposed temporary impoundment with CMP to a permanent impoundment. The operator shall provide with the request for reconsideration an engineering certification that the CMP pipe meets all performance criteria and other factors that affect the replacement of the CMP.



Robert S. Baker,
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