BMPs for Non-Clay, Phosphate Mining and Reclamation
Berms and Impoundments

I. Intent and Applicability

1. The following Best Management Practices (BMPs) apply to above-grade, earthen impoundment structures constructed for water control-related activities including:

Units under reclamation receiving hydraulic fill until such time as de-watering is completed;

Units constructed for the purpose of impounding stormwater runoff;

Earthen retaining structures located in mine cuts where the elevation of the ground surrounding the mine out below the structure is lower than the elevation of the ground surrounding the mine out above the structure and a structure failure or over-topping could result in an unpermitted release of water to waters of the state; and,

Perimeter ditch and berm systems that impound water above grade or have the potential for overtopping to flow outside the mine area.

Clear water lakes constructed in connection with reclamation that will, on a permanent basis, impound water more than six (6) feet above grade or impound more than 15 acre-feet of water above-grade. Such units, however, shall only be subject to Sections II, III.1.c., and IV of the BMPs.

2. These BMPs do not apply to:

Clay settling areas including those areas regulated by Chapter 62-672, F.A.C.;

Earthen impoundments that if breached would result in all water being contained in below-grade mine pits;

Berms constructed for the purpose of diverting storm water runoff from areas undergoing reclamation where the berms do not impound water; or,

Completed reclamation projects released by the Department of Environmental Protection.

3. These BMPs represent a menu of possible management practices that may be adopted by a facility to insure the safety of the applicable structure. It is not intended that every BMP will apply to every applicable structure. The potential for a release off-site, the ecological sensitivity of the off-site area, and the potential threat to off-site property and public safety will determine the extent to which these BMPs will be applied.
II. General Requirements

1. Each mine will incorporate the selected BMPs for non-clay, water control-related berms and impoundments into the mine reclamation plan.

2. A registered Professional Engineer (P.E.) will review the BMPs incorporated into the mine reclamation plan annually. At this time the P.E. will determine the effectiveness of the BMPs. Within 60 days of the annual inspection; the P.E. will send notification to the Department that the BMPS have been reviewed and that (a) no changes are needed; or (b) revisions to the BMPs are needed. A copy of the revisions shall be submitted with the notification.

3. Appropriate mine supervision will ensure implementation of the BMPs.

III. Design, Operation and Inspection BMPs

1. Berm Design and Construction
   a. Except as provided in number 2 below, above grade earthen impoundment structures in active sand tailing disposal areas are to have a minimum of a 10:1 hydraulic gradient, measured from the intersection of the water level on the inside face of the embankment to the minimum tailwater elevation. Where no tailwater exists, the gradient shall be measured to the outer toe elevation.

   b. If hydraulic head conditions are such that excessive earthwork would be required to construct a 10:1 hydraulic gradient, the structure will be designed and certified by a registered P.E.

   c. Material used to construct earthen impoundments shall be free of extraneous matter (i.e., stumps, trees, palmettos) which could affect the compatibility, density, permeability, or shear strength of the finished embankment.

   d. Design capacity for tailings disposal areas will be established using aerial photography or other appropriate surveying techniques.

   e. Adequate flow paths through spoil areas will be provided to achieve non-erosive conditions.

2. Operations
   a. A minimum of 3 feet of freeboard is to be maintained on impoundments covered by these BMPs.

   b. Gauge boards will be established to indicate water levels with the number, location and maximum water levels set for each location.

   c. Adequate means of water return will be provided.
d. Sand tailings water shall be re-routed to emergency areas to benefaction operations discontinued in the event of a pipeline failure or other condition that may cause a discharge to waters of the state.

e. High water level or return waterpower failure alarms will be installed if needed. Alarms are not a substitute for inspections.

3. **Inspections**

   a. Appropriate inspections shall be made by employees of the owner of the impoundment who have been instructed by a qualified engineer regarding items to be checked.

   b. A procedure for adequate documentation of inspections will be established.

   c. Active water impoundment areas and containment structures covered by these BMPs are to be inspected a minimum of one time per day as long as they are in use for water impoundment.

   d. Active pumping operations for sand tailings are to be inspected a minimum of one time per shift. On-duty operations management is to be notified of inadequate freeboard or any other potentially unsafe condition. Discovery of any such condition requires that water introduction into the impoundment area be discontinued immediately until corrective actions have been completed.

IV. **Release Reporting**

In the event of an unpermitted release of water from a system covered by these BMPs to waters of the State, the appropriate Department District Office shall be notified immediately. Other potential parties which may need to be notified include:

EPA Region IV  
State Warning Point  
National Response Center  
SWFWMD  
Suwannee River WMD  
Florida Game and Fresh Water Fish Commission  
Peace River/Manasota Regional Water Authority  
County/City Governments

The affected parties which need to be notified in the event of a release shall be specified in the mine reclamation plan.