

# TECHNICAL NOTES

ENGINEERING # 9

SPOKANE, WASHINGTON

March 2005

## EMERGENCY OR TEMPORARY OVERFLOW PREVENTION GUIDELINES for WASTE STORAGE PONDS

### **Background**

The following are guidelines for **temporarily** increasing the storage capacity of waste storage ponds until fields are available for application of manure waste.

During a year when precipitation greatly exceeds the normal precipitation used in the design, ponds may become full while fields and pastures are still saturated or even flooded. The intent of this guidance document is to help landowners remove a threatening situation that may cause a liquid waste spill and/or the failure of the waste storage pond. These guidelines are only to be used for a period not to exceed 2 months and should not be a regular management practice.

During times of unusual precipitation, when managing your liquid waste according to your approved nutrient management plan is not an option, then the following manure management options can be used as a temporary solution. Approval may be required by the Washington State Department of Agriculture (WSDA). The

WSDA program contact is:

***Livestock Nutrient Management  
Nora Mena, Program Manager  
360-902-2894  
Washington Department of Agriculture  
1111 Washington Street  
P.O. Box 42560  
Olympia, WA 98504-2560***

### **Disclaimer**

Extreme wet conditions may prevent any of the following alternatives from being carried out successfully.

Any recommendation that is utilized without the proper engineering may not perform as expected. A licensed consulting engineer should be utilized to evaluate your specific waste storage pond and provide specific recommendations for preventing overflow.

### **Manure Management Options**

#### ***Manure Spreading:***

Wait as long as possible before land applying manure liquid waste and attempt to locate

fields that are not saturated and do not have any surface runoff. Manure application

should only be considered on well-drained grass fields or well-established cover crop fields that are trafficable. Furthermore, application must be done in a manner that does not cause pollution. Application should follow all state, local and federal guidelines for water quality.

***Sand Bag Placement on Embankment:***

Sandbag to an appropriate height to provide additional temporary storage until you can begin manure spreading. The sandbags shall be removed as soon as the situation has been remedied and the volume of the storage structure has the capacity to store the designed quantity of manure before spring application.

*The USACE: "Flood Fighting: How to Use Sandbags"* guidelines for sandbagging can be accessed from the US Army Corp of Engineers (USACE) website:

[http://www.nww.usace.army.mil/html/offices/op/em/Library/Flood\\_Fighting\\_How\\_To\\_Use\\_Sandbags.pdf](http://www.nww.usace.army.mil/html/offices/op/em/Library/Flood_Fighting_How_To_Use_Sandbags.pdf)

If your WSP pond embankment is more than 15 feet high or can store more than 10 acre feet of liquid waste above natural ground or the sandbagged height of liquid will be greater than 15 feet or 10 acre feet of storage above natural ground, you should contact the Washington State DOE Dam Safety Division. For dikes above 15 feet high, it is highly recommended that a consulting engineer evaluate the structure prior to the placement of sandbags.

At no time shall the sandbags increase the water level greater than 2 feet above the existing dike height without a stability analysis of the dike. Remove sandbags as

soon as possible to allow the grass to re-establish.

***Sand Bagging Spillway:***

If the waste storage pond has a constructed spillway, the spillway can be temporarily raised by the use of sand bags as described in the above method but no higher than **one half** of the designed spillway depth. If additional storage is needed the spillway can be completely sandbagged in conjunction with temporarily sandbagging the embankment.

This barrier shall be removed as soon as possible to maintain the design spillway capacity.

***Containment Berm: A containment berm should not be used on a waste storage pond without a constructed spillway.***

If the waste storage pond has a constructed spillway, the spillway can be allowed to flow over the spillway crest and a temporary containment berm can be constructed around the waste storage pond. This containment berm can be up to 100 feet from the outside toe of the pond embankment. The containment dike should be no more than 3 feet high with side slopes no steeper

than 2 horizontal to 1 vertical and a minimum top width of 3 feet. The berm should be composed of silt or clay material and be placed and compacted with equipment.

The volume of liquid waste should be removed as soon as possible, however, it should be emptied slowly such that the stored depth drops no more than 0.5 feet per day. When the liquid wastes have been removed the temporary containment barrier must be reclaimed. The temporary berm earthfill material should be spread to blend in with the surrounding terrain. The soil should be blended and incorporated into the site

topsoil and then planted or seeded for ground stabilization.

The soil material for constructing the temporary berm **shall not** be obtained from the area between the temporary berm and waste storage pond. Materials can be obtained from outside the containment area or brought in from off the site.

### **Structure Restoration**

Once the extra stored waste has been removed and the threatening situation is eliminated, the landowner should remove the temporary measures, inspect the structure for any damage and repair the structure to the original design to maintain the integrity of the waste storage facility.

It is recommended that you contact your local Natural Resources Conservation

Service (NRCS) or Conservation District office and request their technical assistance in evaluating your Nutrient Management Plan. Additional waste storage structures may be needed to meet your present needs.

In general, nutrient management planning systems in Washington currently have a liquid waste storage design period of a minimum of 6 months, October through March.

For contact information of the nearest NRCS field office, go to the NRCS web site listed below:

<http://www.wa.nrcs.usda.gov/contact/fieldoffices.html>