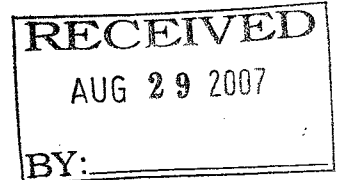


Kathleen Hartnett White, *Chairman*
Larry R. Soward, *Commissioner*
H. S. Buddy Garcia, *Commissioner*
Glenn Shankle, *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

August 22, 2007

Mr. Glen Taffinder, P.E.
City of Austin
P.O. Box 1088
OTC, 12th Floor
Austin, Texas 78767

Re: Mearns Meadow Dam, TX 07216
Wood Hollow Dam, TX 07217
Park Bend Dam, TX 07218
→ Great Northern Dam, TX 07219
Slaughter Dam, TX 07220
Davis Dam, TX 07221
Metric Dam, TX 07222
Highway 71 Dam, TX 07223

Dear Mr. Taffinder:

As you are aware, the Texas Commission on Environmental Quality (TCEQ) contracted the inspection of the above referenced dams. Enclosed you will find the inspection reports that the February inspections generated. The reports include recommendations for needed repairs and general maintenance as well as safety measures that will maximize the protection of downstream residents and structures.

It is noted in the reports that the City is developing Emergency Action Plans (EAP) for these structures and that the City is evaluating the compliance of each dam with State dam safety criteria. Please forward to this office the EAPs as they are completed as well as all design studies, plans and schedules for any modifications or significant repair operations.

If you have any questions regarding your dams or our program please feel free to contact me at (512) 239-0416.

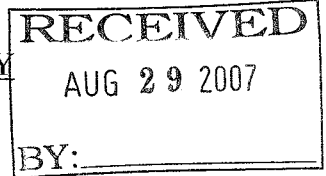
Sincerely,

A handwritten signature in black ink, appearing to read "Bob Wucher".

Bob Wucher, P.E.
Dam Safety Program
Field Operations Support Division, MC -174

attachments

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
FIELD OPERATIONS DAM SAFETY PROGRAM
DAM INSPECTION REPORT



GENERAL INFORMATION

INVENTORY No.: TX-07219 WATER RIGHT AUTHORIZATION: Adj. No. (Does not apply)

DAM: Great Northern Dam, COA Residential Pond #267, Mo-Pac Detention Facility at Far West

OWNER: City of Austin

STREAM: Unnamed tributary of Shoal Creek

BASIN: Colorado River COUNTY: Travis

GENERAL LOCATION: 6800 Great Northern Blvd (Mo-Pac and Far West Blvd)

DAM HEIGHT: 20 DOWNSTREAM HAZARD No.: High

NORMAL CAPACITY: 0 acre-feet MAXIMUM CAPACITY: 104.5 acre-feet

INSPECTION DATE: February 13, 2007

PREVIOUS INSPECTION DATE: None (COA inspected March 7, 2006)

NORMAL WATER LEVEL: 683.85 feet elevation

CURRENT WATER LEVEL: 683.85 feet elevation

INSPECTION BY: Crespo Consulting: L. Stephen Stecher, P.E., CFM
John Clement, Ph.D., CFM

PERSONNEL CONTACTED: City of Austin: Glen Taffinder
(And ALSO IN ATTENDANCE) Karol Menhard
TCEQ Bob Wucher

SUMMARY

The Great Northern Dam is generally in good condition. The embankments are in good condition, although there is a significant growth of trees and some of the inflow is conveyed to the outlet along the upstream toe. Trees and brush are also present in the inlet and outlet structures. Some minor erosion is present at the inlet and outlet structures.

BACKGROUND

The Great Northern Dam at the Mo-Pac Detention Facility at Far West is part of a water quality (sedimentation only) pond connected to a detention pond. The original structure was constructed in 1978, and was modified in 1983 and retrofitted again in 1993. It is classified as a small-sized, high hazard dam. The water quality and detention dam consists of a twenty (20) foot high earthen embankment with a single 36-inch low-flow pipe outlet. The overflow / emergency spillway consists of a lowered portion of the embankment traversed by a concrete sidewalk and an unprotected grass/earth spillway.

Stormwater is diverted into the water quality pond by a splitter box located in the southwest corner of the pond. Incoming stormwater exceeding the volume of the water quality pond is diverted into the detention pond via a diversion channel and by overtopping a small earthen embankment separating the two ponds. The water quality and detention ponds are surrounded by a large earthen embankment on the northern, southern and eastern sides. The earthen embankment reaches heights of up to 20 feet.

TCEQ records indicate a PMF study was conducted in 2003. The City of Austin performed a maintenance inspection as part of its Pond Dam Safety Program in March 2006. The City of Austin is currently working with a consultant on conceptual designs to meet State compliance for dam safety design criteria as part of the COA Pond Dam Safety Mitigation program.

CURRENT OBSERVATIONS

The following observations of the dam were made during this inspection:

1. The embankment is in good condition. There are numerous large trees along the upstream toe within 150' to the left of the service outlet (on the east embankment) and all along the south embankment. A few trees and shrubs occur along the upstream face and at the crest of the embankment.
2. The design of the water quality pond within the detention facility routes flows along the unprotected south embankment. There is some evidence of embankment erosion around the water quality pond splitter structure.
3. The service inlet and discharge pipe are in good condition. However, there is a dense growth of trees and underbrush around it.
4. The service outlet is in good condition. There is some cracking of the slab, with growth of

trees and shrubs, and some erosion around the gabions downstream of the outlet.

5. The emergency spillway is in good condition. The emergency spillway upstream and downstream slopes are grass. The emergency spillway crest is a concrete sidewalk.

HAZARD CLASSIFICATION / HYDRAULIC REVIEW

The Great Northern Dam is classified as a small-sized, high hazard dam. The most recent inspection of the dam performed in 2006 (COA) indicated the dam was in good condition. A high hazard dam in Texas is required to pass 100% of the Probable Maximum Flood (PMF). A downstream investigation revealed that the dam is properly classified as a high hazard structure. The dam is located in a densely urbanized area with many homes located downstream. A review of the TCEQ files indicates that a hydraulic review was performed in 2003 and the dam was found to pass 15% of the PMF. Therefore the dam is considered to be hydraulically inadequate as it currently exists.

EMERGENCY ACTION PLAN

An Emergency Action Plan has not been completed by the City. The City's consultant is preparing a breach analysis and an inundation map as part of the dam safety mitigation program. Because of the height of the embankment, the types of outlets and the proximity to residential structures, the Emergency Action Plan is particularly important for this site.

SECURITY

The Great Northern Dam is not fenced. Concrete pedestrian and bicycle paths are present on the crest of berms and embankments of the facility which provide access for neighborhoods along Shoal Creek to Far West Boulevard. Security for this site is low. The facility essentially functions as a park.

RECOMMENDATIONS

The following specific actions are recommended for the Great Northern Dam:

1. The Emergency Action Plan should be completed, as soon as possible, should include

consideration of a Flood Early Warning System gauge (FEWS).

2. Temporary and permanent protection of the spillway for overtopping conditions should be evaluated.
3. Establish regular maintenance and inspection schedule, including checking for outlet clogging and removal of debris.
4. The entrance of the outlet pipe should be checked for debris after each significant rain event.
5. Dead limbs, dead trees, small trees, brush and debris should be removed from the detention pond area to prevent clogging at the service outlet.
6. Maintenance access to the site should be constructed, with special consideration for removal of debris by the outlet and maintaining the integrity of the toe of the embankment.
7. Monitor the tree growth near the service inlet and along the embankment, and develop a tree removal plan to protect the key dam structures (see detail tree guidance below). This should be considered in conjunction with providing access for maintenance of the embankment and the service outlet.
8. Monitor erosion along the south embankment near the water quality pond splitter structure, and repair if necessary.
9. Determine that this structure is exempt from the minimum hydraulic criteria or prevent the possibility of an overtopping failure by protecting the downstream slope from erosion in an overtopping event.

The COA 2006 report recommended the following maintenance:

1. Revegetation of bare areas on the embankment
2. Repair of rock berms near the splitter box
3. Fireant removal
4. Removal of dead and decaying trees
5. Removal of woody vegetation on embankments

6. Sediment removal and regrading of the outlet channel
7. Stabilization of the outlet channel.

In general, trees and brush should be removed and controlled from earthen dams using the following guidelines (Primary Source: FEMA#534, "Technical Manual for Dam Owners: Impacts of Plants on Earthen Dams."):

- All brush, vines, briars, and bamboo should be cut and removed from the dam.
- All trees with a diameter of 4-inches or less should be cut at ground level. The stumps should be treated with a waterproof sealant to prolong stump decay. A professional engineer should be contacted if the roots are to be removed.
- All trees with a diameter of more than 4-inches should be removed under the supervision of a professional engineer in order to preserve the integrity of the dam. The root systems should be removed and the cavity backfilled with compacted impervious fill.
- A buffer zone of sufficient size to facilitate inspection and maintenance should be maintained at the upstream and downstream toes and around all spillway channels, inlets and outlets. This buffer zone should be kept free of trees and brush and should be large enough to allow access to all necessary maintenance machinery.
- Planting and mowing (at least three times yearly) of appropriate species of low-growing grass, such as Bermuda or fescue, prevents problem vegetation.

CONCLUSIONS

The Great Northern Dam is in generally good condition, except for the significant number of trees on or near the embankment. The City should address the recommendations in this report in a timely manner and continue with its regular maintenance program. The City should also develop an Emergency Action Plan to warn downstream residents and business in the event the dam appears to be in jeopardy of failing. Due to the small service outlet size, the amount of trees and brush, and the nature of the earthen embankment, the Emergency Action Plan and the maintenance program are particularly critical for this facility.

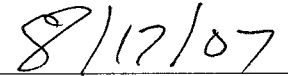
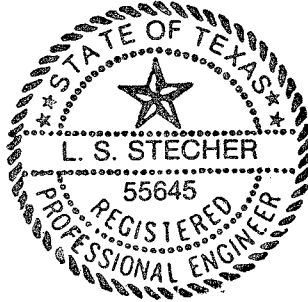
Great Northern Dam, TX-07219
August 17, 2007
Page 6

ATTACHMENTS

Included with this report are the following: photographs, a location map, an aerial/topographic map of the dam and the downstream area, and a graphic indicating the photo locations.



L. Stephen Stecher, P.E.



Report Date